

# CC-Link IE Field Network High-Speed Counter Module FB Library Reference Manual

Applicable modules:  
NZ2GFCF-D62PD2

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## Reference Manual Revision History

| Reference Manual Number | Date       | Description   |
|-------------------------|------------|---------------|
| FBM-M100-A              | 2013/06/14 | First edition |

## 1. Overview

### 1.1. Overview of the FB Library

This FB library is for using the NZ2GFCF-D62PD2 CC-Link IE Field Network high-speed counter module.

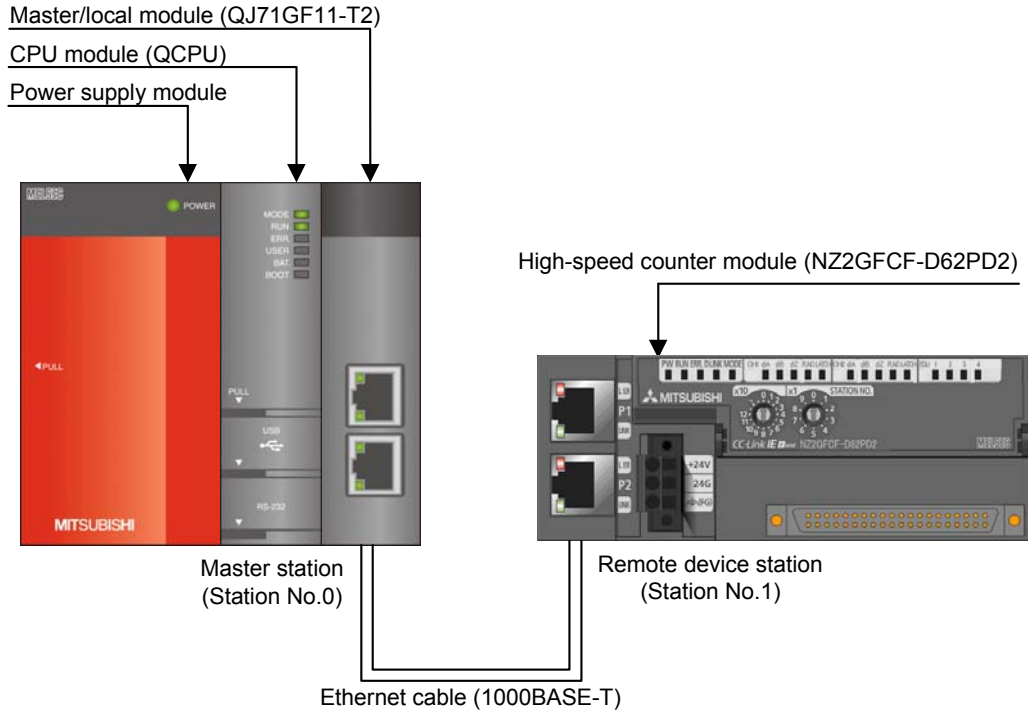
### 1.2. Function of the FB Library

| Item                         | Description                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------|
| M+NZ2GFD62_SetCncdOutput     | Sets the point of the coincidence output and resets the coincidence output.                                          |
| M+NZ2GFD62_Preset            | Executes the preset/replace of the present value.                                                                    |
| M+NZ2GFD62_LatchCntOperation | Executes the latch counter function.                                                                                 |
| M+NZ2GFD62_SamplingOperation | Executes the sampling counter function.                                                                              |
| M+NZ2GFD62_PeriodicPlsCnt    | Executes the periodic pulse counter function.                                                                        |
| M+NZ2GFD62_FrequencyMeas     | Starts the frequency measurement function and reads the measured frequency value that has been calculated.           |
| M+NZ2GFD62_RotationSpeedMeas | Starts the rotation speed measurement function and reads the measured rotation speed value that has been calculated. |
| M+NZ2GFD62_PulseMeas         | Starts the pulse measurement function and reads the measured pulse value.                                            |
| M+NZ2GFD62_PWMOutput         | Executes the PWM output function.                                                                                    |
| M+NZ2GFD62_ErrorOperation    | Monitors errors and warnings, and performs error reset.                                                              |
| M+NZ2GFD62_DegreeToCountVal  | Calculates the count value from the angle.                                                                           |
| M+NZ2GFD62_SetCamSwitch      | Performs the specified cam switch output setting.                                                                    |
| M+NZ2GFD62_SetInitData       | Performs the initial data setting.                                                                                   |

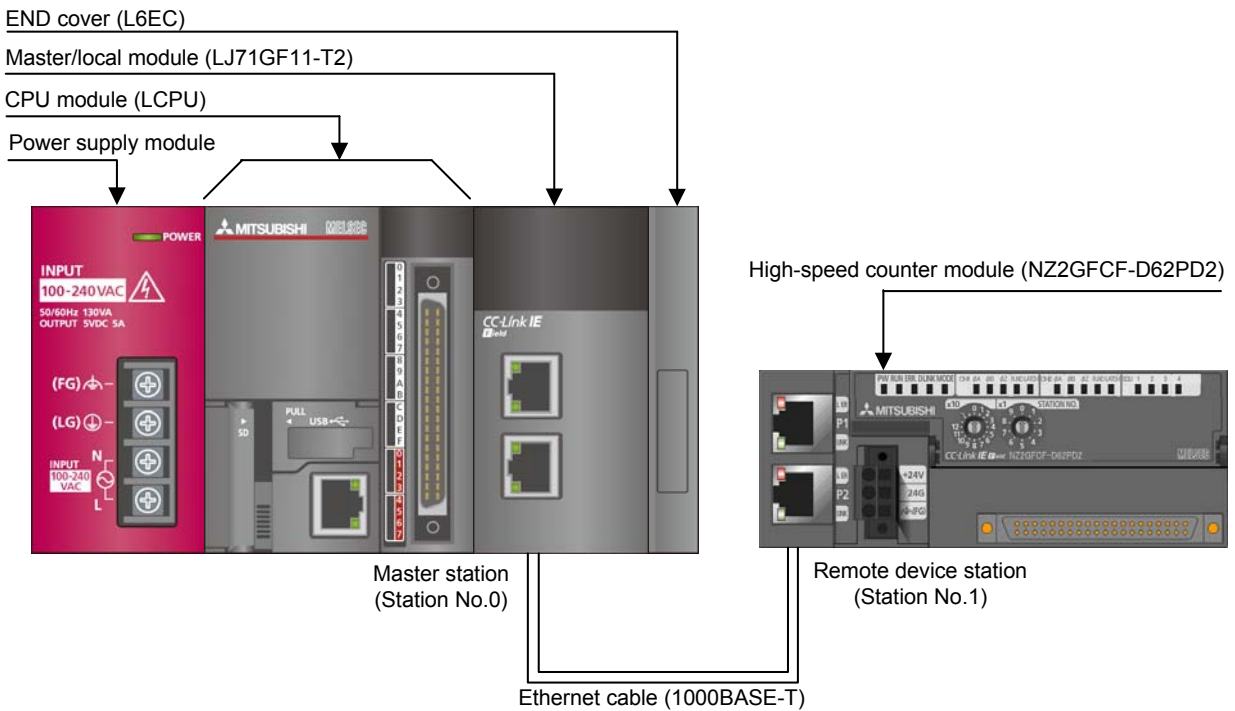
### 1.3. System Configuration Examples

The following examples show system configurations when using the high-speed counter module (NZ2GFCF-D62PD2) as the remote device station.

#### (1) Q series system configuration



#### (2) L series system configuration



#### 1.4. Setting the CC-Link IE Field Network Master/Local Module

This section explains the settings of CC-Link IE Field Network master/local module based on Section "1.3 System Configuration Examples". Set the following items using GX Works2.

##### (1) Network parameters

| Item           | Description                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------|
| Network Type   | Select the CC IE Field (Master Station).                                                                                     |
| Start I/O No.  | Set the start I/O number of the master/local module in increments of 16 points.<br>Set "0000".                               |
| Network No.    | Set the network number of the master/local module.<br>Set "1".                                                               |
| Total Stations | Set the number of slave stations connected to the master station. Include the number of reserved slave stations.<br>Set "1". |

|                | Module 1                                      | Module 2 |
|----------------|-----------------------------------------------|----------|
| Network Type   | CC IE Field (Master Station) ▼                | None ▼   |
| Start I/O No.  | 0000                                          |          |
| Network No.    | 1                                             |          |
| Total Stations | 1                                             |          |
| Group No.      |                                               |          |
| Station No.    | 0                                             |          |
| Mode           | Online (Normal Mode) ▼                        | ▼        |
|                | <a href="#">Network Configuration Setting</a> |          |
|                | <a href="#">Network Operation Setting</a>     |          |
|                | <a href="#">Refresh Parameters</a>            |          |
|                | <a href="#">Interrupt Setting</a>             |          |
|                | Specify Station No. by Parameter ▼            |          |
|                |                                               |          |
|                |                                               |          |
|                |                                               |          |
|                |                                               |          |

(2) Network configuration setting

| Item            | Description                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|
| Station No.     | Set the station number of the slave station connected to the master station.<br>Set "1".                                           |
| Station Type    | Set the station type of the slave station connected to the master station.<br>Set "Remote Device Station".                         |
| RX/Ry setting   | Set assignment for RX/Ry for the slave station connected to the master station.<br>(a) Points Set "96".<br>(b) Start Set "0000".   |
| RWw/RWr setting | Set assignment for RWw/RWr for the slave station connected to the master station.<br>(a) Points Set "64".<br>(b) Start Set "0000". |

Assignment Method

Points/Start

Start/End

The column contents for refresh device will be changed corresponding to refresh parameter. Please reopen the window after completing refresh parameter setting when changing refresh method.

| Number of PLC | Station No. | Station Type          | RX/Ry Setting |       |      | RWw/RWr Setting |       |      |
|---------------|-------------|-----------------------|---------------|-------|------|-----------------|-------|------|
|               |             |                       | Points        | Start | End  | Points          | Start | End  |
| 1             | 1           | Remote Device Station | 96            | 0000  | 005F | 64              | 0000  | 003F |

### (3) Refresh Parameters

| Item        | Description                                  | Setting value                                                                                                                                                                                                            |
|-------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transfer SB | Select the link refresh range of SB device.  | <ul style="list-style-type: none"> <li>•"Link Side Points" : 512</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : SB</li> <li>•"PLC Side Start" : 0000</li> </ul>                                     |
| Transfer SW | Select the link refresh range of SW device.  | <ul style="list-style-type: none"> <li>•"Link Side Points" : 512</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : SW</li> <li>•"PLC Side Start" : 0000</li> </ul>                                     |
| Transfer 1  | Select the link refresh range of RX device.  | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RX</li> <li>•"Link Side Points" : 96</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : M</li> <li>•"PLC Side Start" : 1024</li> </ul>  |
| Transfer 2  | Select the link refresh range of RY device.  | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RY</li> <li>•"Link Side Points" : 96</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : M</li> <li>•"PLC Side Start" : 2048</li> </ul>  |
| Transfer 3  | Select the link refresh range of RWr device. | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RWr</li> <li>•"Link Side Points" : 64</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : W</li> <li>•"PLC Side Start" : 1000</li> </ul> |
| Transfer 4  | Select the link refresh range of RWw device. | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RWw</li> <li>•"Link Side Points" : 64</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : W</li> <li>•"PLC Side Start" : 1100</li> </ul> |

\* Make sure to set "0000" for Start of Link Side.

\* Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.

They must be the same as for "M\_F\_RX ", "M\_F\_RY", "M\_F\_RWr" and "M\_F\_RWw" devices of the global label setting.



Assignment Method

Points/Start

Start/End

\*Set 0000 for the start address of Link Side.

|             | Link Side |        |       |      |   | PLC Side  |        |        |        |
|-------------|-----------|--------|-------|------|---|-----------|--------|--------|--------|
|             | Dev. Name | Points | Start | End  |   | Dev. Name | Points | Start  | End    |
| Transfer SB | SB        | 512    | 0000  | 01FF | ↕ | SB        | 512    | 0000   | 01FF   |
| Transfer SW | SW        | 512    | 0000  | 01FF | ↕ | SW        | 512    | 0000   | 01FF   |
| Transfer 1  | RX        | 96     | 0000  | 005F | ↕ | M         | 96     | 1024   | 1119   |
| Transfer 2  | RY        | 96     | 0000  | 005F | ↕ | M         | 96     | 2048   | 2143   |
| Transfer 3  | RWr       | 64     | 0000  | 003F | ↕ | W         | 64     | 001000 | 00103F |
| Transfer 4  | RWw       | 64     | 0000  | 003F | ↕ | W         | 64     | 001100 | 00113F |
| Transfer 5  |           |        |       |      | ↕ |           |        |        |        |
| Transfer 6  |           |        |       |      | ↕ |           |        |        |        |
| Transfer 7  |           |        |       |      | ↕ |           |        |        |        |
| Transfer 8  |           |        |       |      | ↕ |           |        |        |        |

Default

Check

End

Cancel

### 1.5. Setting Global Labels

Global labels must be set before using this FB. This section explains global label settings.

(1) M\_F\_RX Set remote input (RX).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RX".                                                            |
| Data Type  | Select "Bit".                                                              |
| Device     | Enter the refresh device set for the refresh parameter with a "Z9" prefix. |

(2) M\_F\_RY Set remote output (RY).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RY".                                                            |
| Data Type  | Select "Bit".                                                              |
| Device     | Enter the refresh device set for the refresh parameter with a "Z8" prefix. |

(3) M\_F\_RWr Set remote register (RWr).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RWr".                                                           |
| Data Type  | Select "Word [Signed]".                                                    |
| Device     | Enter the refresh device set for the refresh parameter with a "Z7" prefix. |

(4) M\_F\_RWw Set remote register (RWw).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RWw".                                                           |
| Data Type  | Select "Word [Signed]".                                                    |
| Device     | Enter the refresh device set for the refresh parameter with a "Z6" prefix. |

|   | Class      | Label Name | Data Type    | Con | Device  | Comment           | Remark |
|---|------------|------------|--------------|-----|---------|-------------------|--------|
| 1 | VAR_GLOBAL | M_F_RX     | Bit          | ... | M1024Z9 | RXrefresh device  |        |
| 2 | VAR_GLOBAL | M_F_RY     | Bit          | ... | M2048Z8 | RYrefresh device  |        |
| 3 | VAR_GLOBAL | M_F_RWr    | Word[Signed] | ... | w1000Z7 | RWrrefresh device |        |
| 4 | VAR_GLOBAL | M_F_RWw    | Word[Signed] | ... | w1100Z6 | RWwrefresh device |        |

## 1.6. Creating Interlock Programs

Interlock programs must be created for the FBs. The following are examples of interlock programs.

Set one interlock program to each cyclic transmission and transient transmission.

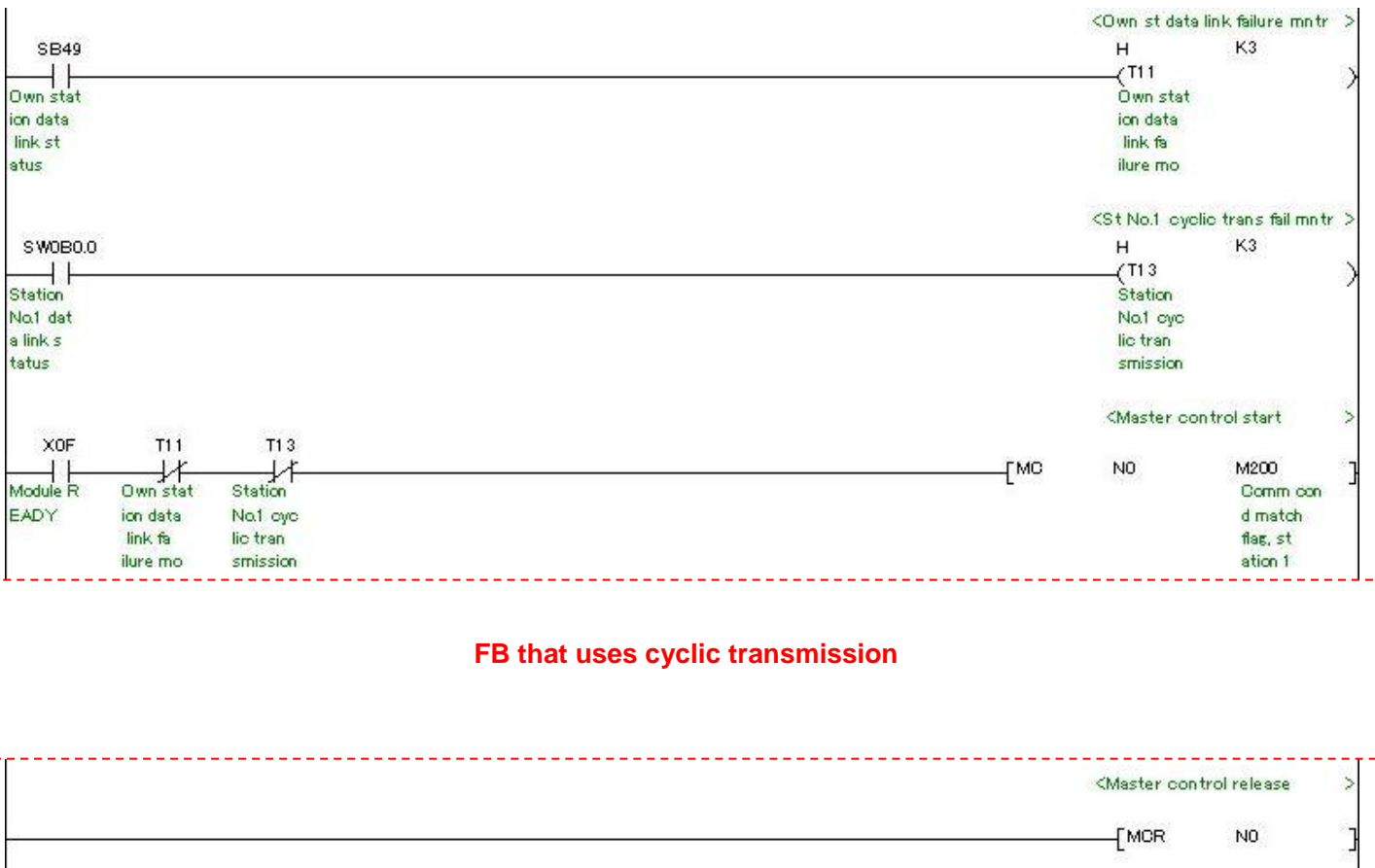
(Set a corresponding FB between MC and MCR instructions.)

### 1.6.1. Cyclic Transmission Program

Use link special relay (SB) and link special register (SW) to create an interlock for cyclic transmission program.

- Own station data link status (SB0049)
- Each station data link status (SW00B0 to SW00B7)

Example: Interlock example (Station No. 1)

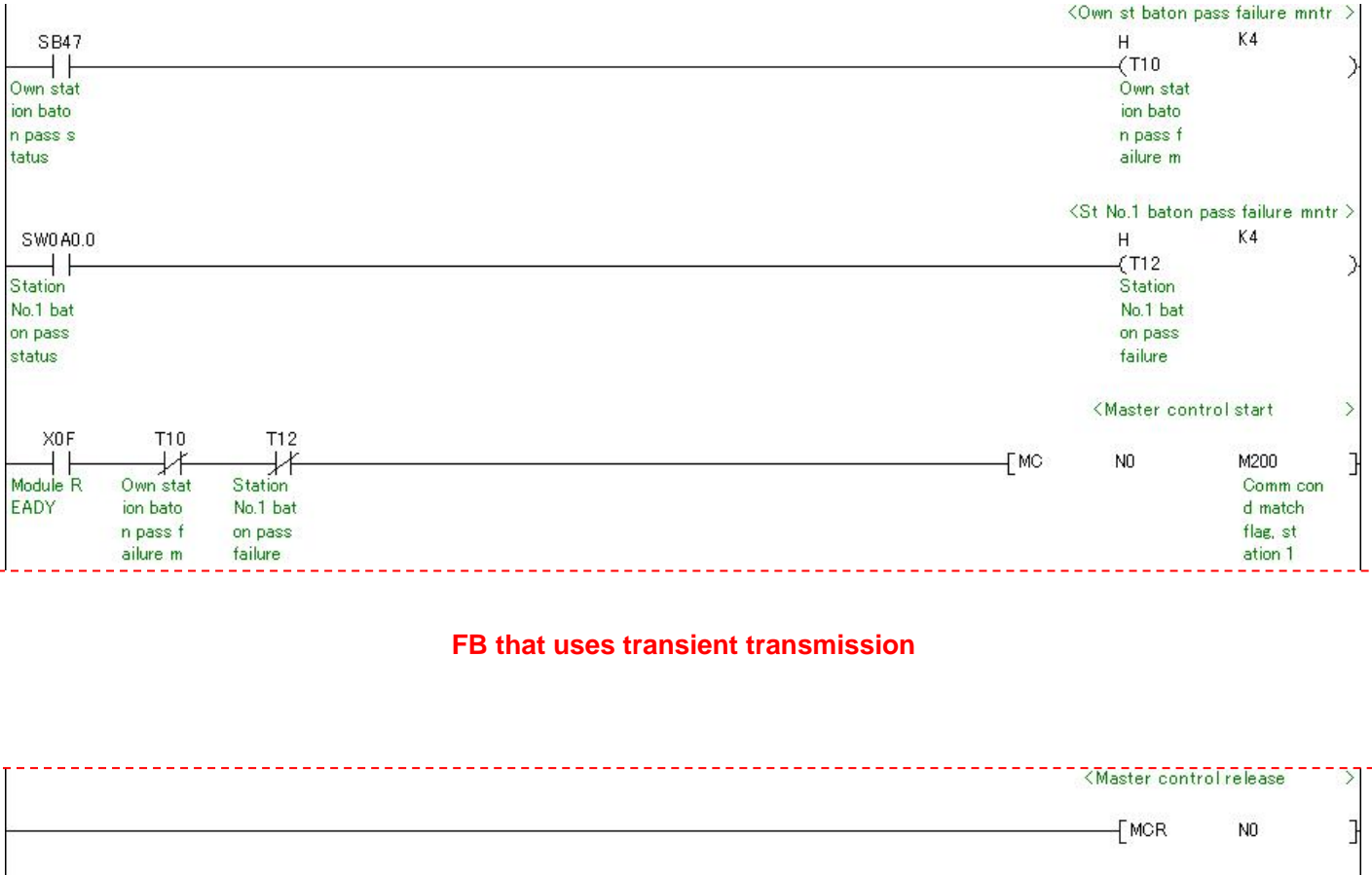


### 1.6.2. Transient Transmission Program

Use link special relay (SB) and link special register (SW) to create an interlock for transient transmission program.

- Own station baton pass status (SB0047)
- Each station baton pass status (SW00A0 to SW00A7)

Example: Interlock (Station No.1)



### 1.6.3. FB Transmission List

This table lists transmission types used for FBs.

| FB name                      | Cyclic transmission | Transient transmission |
|------------------------------|---------------------|------------------------|
| M+NZ2GFD62_SetCncdOutput     | o                   | -                      |
| M+NZ2GFD62_Preset            | o                   | -                      |
| M+NZ2GFD62_LatchCntOperation | o                   | -                      |
| M+NZ2GFD62_SamplingOperation | o                   | -                      |
| M+NZ2GFD62_PeriodicPlsCnt    | o                   | -                      |
| M+NZ2GFD62_FrequencyMeas     | o                   | -                      |
| M+NZ2GFD62_RotationSpeedMeas | o                   | -                      |
| M+NZ2GFD62_PulseMeas         | o                   | -                      |
| M+NZ2GFD62_PWMOutput         | o                   | -                      |
| M+NZ2GFD62_ErrorOperation    | o                   | -                      |
| M+NZ2GFD62_DegreeToCountVal  | -                   | -                      |
| M+NZ2GFD62_SetCamSwitch      | -                   | o                      |
| M+NZ2GFD62_SetInitData       | o                   | -                      |

o: Used

-: Not used

### 1.7. Relevant Manuals

CC-Link IE Field Network High-Speed Counter Module User's Manual

MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual

MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual

QCPU User's Manual (Hardware Design, Maintenance and Inspection)

MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)

GX Works2 Version1 Operating Manual (Common)

GX Works2 Version1 Operating Manual (Simple Project, Function Block)

### 1.8. Note

Please make sure to read user's manuals for the corresponding products before using the products.

## 2. Details of the FB Library

### 2.1. M+NZ2GFD62\_SetCncdOutput (Coincidence output function setting)

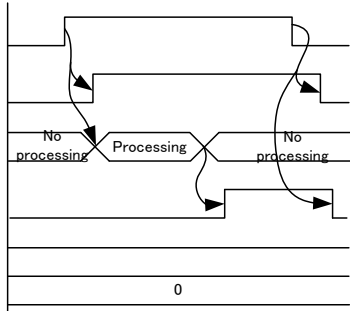
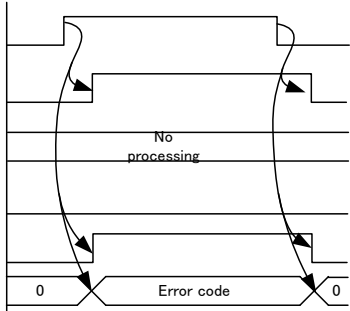
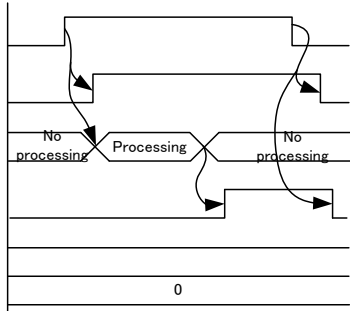
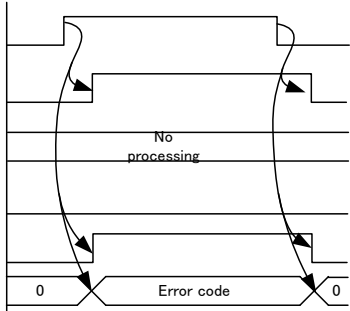
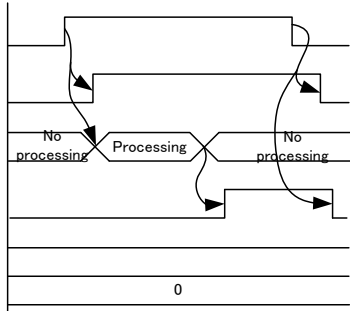
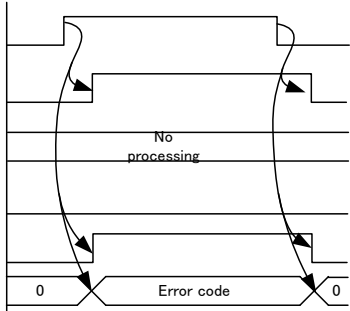
#### FB Name

M+NZ2GFD62\_SetCncdOutput

#### Function Overview

| Item                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|--------------------|-------------------------|-------------------------|-----------------------|-----------|-------------------------|-------------|------------------|--------------|------------|-----------------------------------------|-----------------|--------------|------------|-----------------------------------------|-----------------|--|--|-----------------------------------------|-----------------|--|--|-----------------------------------------|-----------------|--|--|
| Function overview                       | Sets the point of the coincidence output and resets the coincidence output.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Symbol                                  | <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_SetCncdOutput</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: none;">Execution command</td> <td style="width: 30%; border: none;">B : FB_EN</td> <td style="width: 30%; border: none;">FB_ENO : B</td> <td style="width: 10%; border: none;">Execution status</td> </tr> <tr> <td style="border: none;">Module start XY address</td> <td style="border: none;">W : i_Start_IO_No</td> <td style="border: none;">FB_OK : B</td> <td style="border: none;">Completed without error</td> </tr> <tr> <td style="border: none;">Station No.</td> <td style="border: none;">W : i_Station_No</td> <td style="border: none;">FB_ERROR : B</td> <td style="border: none;">Error flag</td> </tr> <tr> <td style="border: none;">Point setting<br/>(Coincidence output 1)</td> <td style="border: none;">D : i_SetPoint1</td> <td style="border: none;">ERROR_ID : W</td> <td style="border: none;">Error code</td> </tr> <tr> <td style="border: none;">Point setting<br/>(Coincidence output 2)</td> <td style="border: none;">D : i_SetPoint2</td> <td></td> <td></td> </tr> <tr> <td style="border: none;">Point setting<br/>(Coincidence output 3)</td> <td style="border: none;">D : i_SetPoint3</td> <td></td> <td></td> </tr> <tr> <td style="border: none;">Point setting<br/>(Coincidence output 4)</td> <td style="border: none;">D : i_SetPoint4</td> <td></td> <td></td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Execution command       | B : FB_EN        | FB_ENO : B         | Execution status        | Module start XY address | W : i_Start_IO_No     | FB_OK : B | Completed without error | Station No. | W : i_Station_No | FB_ERROR : B | Error flag | Point setting<br>(Coincidence output 1) | D : i_SetPoint1 | ERROR_ID : W | Error code | Point setting<br>(Coincidence output 2) | D : i_SetPoint2 |  |  | Point setting<br>(Coincidence output 3) | D : i_SetPoint3 |  |  | Point setting<br>(Coincidence output 4) | D : i_SetPoint4 |  |  |
| Execution command                       | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Execution status        |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Module start XY address                 | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed without error |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Station No.                             | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Error flag              |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Point setting<br>(Coincidence output 1) | D : i_SetPoint1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Error code              |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Point setting<br>(Coincidence output 2) | D : i_SetPoint2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Point setting<br>(Coincidence output 3) | D : i_SetPoint3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Point setting<br>(Coincidence output 4) | D : i_SetPoint4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Applicable hardware and software        | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
|                                         | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later.                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
|                                         | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                  | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3               |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Series                                  | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| MELSEC-Q Series *1                      | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| MELSEC-L Series                         | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Engineering software                    | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                | Software version | English version    | Version1.24A or later   | Chinese version         | Version1.49B or later |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Language                                | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| English version                         | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |
| Chinese version                         | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                  |                    |                         |                         |                       |           |                         |             |                  |              |            |                                         |                 |              |            |                                         |                 |  |  |                                         |                 |  |  |                                         |                 |  |  |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Number of steps      | 628 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the point setting (coincidence output 1 to 4) (remote register) is performed and the coincidence output is reset.</li> <li>2) The coincidence output and external coincidence output are turned ON again even if the coincidence output and external coincidence output are reset with this FB while the present value is equal to the point setting of the coincidence output.</li> <li>3) This FB is executed for the channel that is assigned in the coincidence output channel assignment setting.</li> <li>4) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>5) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>6) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Restrictions and precautions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) When this FB is used, the comparison condition setting of the module-based parameter data must be set to "Coincidence Output (00b)". (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>7) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>8) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>9) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol>                                                                                                                                                                                                                                                                                                                                              |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |
| FB operation type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |
| Application example                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |
| Timing chart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When operation completes without error]</th> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When an error occurs]</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; border-right: 1px solid black; padding-right: 10px;"> <div style="font-size: small; margin-bottom: 5px;">FB_EN (Execution command)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ENO (Execution status)</div> <div style="font-size: small; margin-bottom: 5px;">Point setting (Coincidence output 1 to 4)<br/>Change processing</div> <div style="font-size: small; margin-bottom: 5px;">FB_OK (Completed without error)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ERROR (Error flag)</div> <div style="font-size: small; margin-bottom: 5px;">ERROR_ID (Error code)</div> </td> <td style="vertical-align: top; padding-left: 10px;"> <div style="font-size: small; margin-bottom: 5px;">FB_EN (Execution command)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ENO (Execution status)</div> <div style="font-size: small; margin-bottom: 5px;">Point setting (Coincidence output 1 to 4)<br/>Change processing</div> <div style="font-size: small; margin-bottom: 5px;">FB_OK (Completed without error)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ERROR (Error flag)</div> <div style="font-size: small; margin-bottom: 5px;">ERROR_ID (Error code)</div> </td> </tr> <tr> <td style="border-right: 1px solid black; text-align: center; vertical-align: middle;">  </td> <td style="text-align: center; vertical-align: middle;">  </td> </tr> </tbody> </table> | [When operation completes without error] | [When an error occurs] | <div style="font-size: small; margin-bottom: 5px;">FB_EN (Execution command)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ENO (Execution status)</div> <div style="font-size: small; margin-bottom: 5px;">Point setting (Coincidence output 1 to 4)<br/>Change processing</div> <div style="font-size: small; margin-bottom: 5px;">FB_OK (Completed without error)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ERROR (Error flag)</div> <div style="font-size: small; margin-bottom: 5px;">ERROR_ID (Error code)</div> | <div style="font-size: small; margin-bottom: 5px;">FB_EN (Execution command)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ENO (Execution status)</div> <div style="font-size: small; margin-bottom: 5px;">Point setting (Coincidence output 1 to 4)<br/>Change processing</div> <div style="font-size: small; margin-bottom: 5px;">FB_OK (Completed without error)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ERROR (Error flag)</div> <div style="font-size: small; margin-bottom: 5px;">ERROR_ID (Error code)</div> |  |  |
| [When operation completes without error]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | [When an error occurs]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                       |



| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                        | Action                                                                                                                                                                                                                                                   |
|--------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.    | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid. The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.             | i_Station_No  | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |

| Name (Comment)                          | Label name  | Data type   | Setting range                   | Description                                               |
|-----------------------------------------|-------------|-------------|---------------------------------|-----------------------------------------------------------|
| Point setting<br>(Coincidence output 1) | i_SetPoint1 | Double Word | -2,147,483,648 to 2,147,483,647 | Specify the point setting value for coincidence output 1. |
| Point setting<br>(Coincidence output 2) | i_SetPoint2 | Double Word | -2,147,483,648 to 2,147,483,647 | Specify the point setting value for coincidence output 2. |
| Point setting<br>(Coincidence output 3) | i_SetPoint3 | Double Word | -2,147,483,648 to 2,147,483,647 | Specify the point setting value for coincidence output 3. |
| Point setting<br>(Coincidence output 4) | i_SetPoint4 | Double Word | -2,147,483,648 to 2,147,483,647 | Specify the point setting value for coincidence output 4. |

●Output labels

| Name (Comment)          | Label name | Data type | Initial value | Description                                                                                                                    |
|-------------------------|------------|-----------|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.                                                                 |
| Completed without error | FB_OK      | Bit       | OFF           | When ON, it indicates that the point setting for the coincidence output and resetting of the coincidence output are completed. |
| Error flag              | FB_ERROR   | Bit       | OFF           | When ON, it indicates that an error has occurred.                                                                              |
| Error code              | ERROR_ID   | Word      | 0             | FB error code output.                                                                                                          |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.2. M+NZ2GFD62\_Preset (Preset/replace)

### FB Name

M+NZ2GFD62\_Preset

### Function Overview

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------|--------------------|-------------------------|-------------------------|-----------------------|-----------|---------------------------|-------------|------------------|--------------|--------------|-----------|----------|--------------|--------------|--------------|-------------------|--|--|
| Function overview                | Executes the preset/replace of the present value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Symbol                           | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_Preset</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Execution command</td> <td style="width: 30%; padding: 2px;">B : FB_EN</td> <td style="width: 30%; padding: 2px;">FB_ENO : B</td> <td style="width: 10%; padding: 2px;">— Execution status</td> </tr> <tr> <td style="padding: 2px;">Module start XY address</td> <td style="padding: 2px;">W : i_Start_IO_No</td> <td style="padding: 2px;">FB_OK : B</td> <td style="padding: 2px;">— Completed without error</td> </tr> <tr> <td style="padding: 2px;">Station No.</td> <td style="padding: 2px;">W : i_Station_No</td> <td style="padding: 2px;">FB_ERROR : B</td> <td style="padding: 2px;">— Error flag</td> </tr> <tr> <td style="padding: 2px;">Target CH</td> <td style="padding: 2px;">W : i_CH</td> <td style="padding: 2px;">ERROR_ID : W</td> <td style="padding: 2px;">— Error code</td> </tr> <tr> <td style="padding: 2px;">Preset value</td> <td style="padding: 2px;">D : i_PresetValue</td> <td></td> <td></td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Execution command         | B : FB_EN        | FB_ENO : B         | — Execution status      | Module start XY address | W : i_Start_IO_No     | FB_OK : B | — Completed without error | Station No. | W : i_Station_No | FB_ERROR : B | — Error flag | Target CH | W : i_CH | ERROR_ID : W | — Error code | Preset value | D : i_PresetValue |  |  |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | — Execution status        |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | — Completed without error |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | — Error flag              |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Target CH                        | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | — Error code              |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Preset value                     | D : i_PresetValue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                    | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3               |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Series                           | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Engineering software             | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                  | Software version | English version    | Version1.24A or later   | Chinese version         | Version1.49B or later |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |
| Programming language             | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                           |                  |                    |                         |                         |                       |           |                           |             |                  |              |              |           |          |              |              |              |                   |  |  |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps      | 376 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), i_PresetValue (Preset value) is set and the present value is rewritten.</li> <li>2) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>3) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>5) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Item                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                 |                               |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------|
| Restrictions and precautions                    | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) The preset/replace is not performed by phase Z input terminal with this FB.</li> <li>8) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |                                                 |                               |
| FB operation type                               | Pulsed execution (1 scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                 |                               |
| Application example                             | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                 |                               |
| Timing chart                                    | <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top; padding-right: 20px;"> <p>[When operation completes without error]</p> </td> <td style="width: 50%; vertical-align: top;"> <p>[When an error occurs]</p> </td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>[When operation completes without error]</p> | <p>[When an error occurs]</p> |
| <p>[When operation completes without error]</p> | <p>[When an error occurs]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                 |                               |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type      | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|----------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit            | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word           | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.             | i_Station_No  | Word           | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |
| Target CH               | i_CH          | Word           | 1 or 2                                                                                     | Specify the channel number.                                                                                                                           |
| Preset value            | i_PresetValue | Double<br>Word | -2,147,483,648 to<br>2,147,483,647                                                         | Specify the preset value.                                                                                                                             |

### ●Output labels

| Name (Comment)          | Label name | Data type | Initial value | Description                                                    |
|-------------------------|------------|-----------|---------------|----------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF. |
| Completed without error | FB_OK      | Bit       | OFF           | When ON, it indicates that the preset/replace command is ON.   |
| Error flag              | FB_ERROR   | Bit       | OFF           | When ON, it indicates that an error has occurred.              |
| Error code              | ERROR_ID   | Word      | 0             | FB error code output.                                          |



## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

### 2.3. M+NZ2GFD62\_LatchCntOperation (Latch counter function operation)

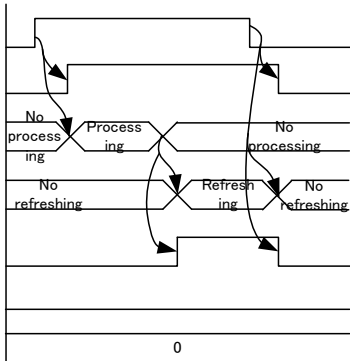
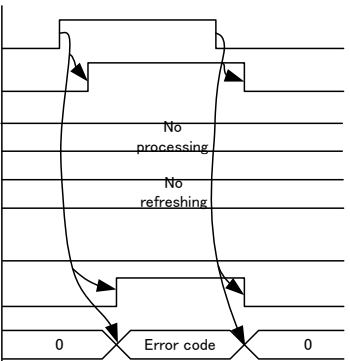
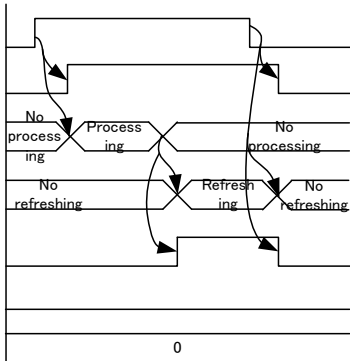
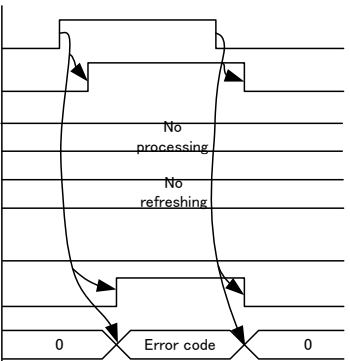
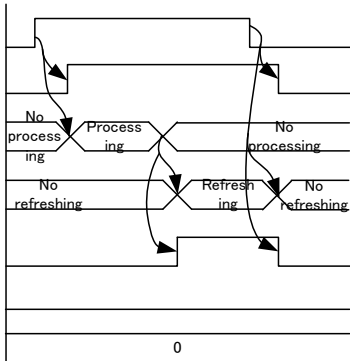
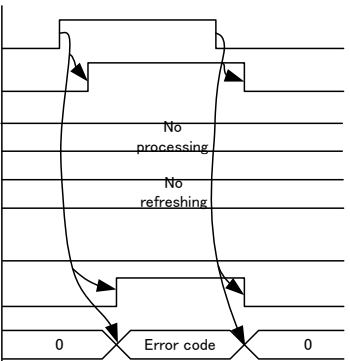
#### FB Name

M+NZ2GFD62\_LatchCntOperation

#### Function Overview

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-----------------------|-------------------------|-------------------------|-------------------|-----------|-------------------------|-------------|------------------|------------------|-------------------|-----------|----------|--------------|------------|--|--|--------------|------------|
| Function overview                | Executes the latch counter function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Symbol                           | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_LatchCntOperation</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: none;">Execution command</td> <td style="width: 30%; border: none;">B : FB_EN</td> <td style="width: 30%; border: none;">FB_ENO : B</td> <td style="width: 10%; border: none;">Execution status</td> </tr> <tr> <td style="border: none;">Module start XY address</td> <td style="border: none;">W : i_Start_IO_No</td> <td style="border: none;">FB_OK : B</td> <td style="border: none;">Completed without error</td> </tr> <tr> <td style="border: none;">Station No.</td> <td style="border: none;">W : i_Station_No</td> <td style="border: none;">o_LatchCount : D</td> <td style="border: none;">Latch count value</td> </tr> <tr> <td style="border: none;">Target CH</td> <td style="border: none;">W : i_CH</td> <td style="border: none;">FB_ERROR : B</td> <td style="border: none;">Error flag</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">ERROR_ID : W</td> <td style="border: none;">Error code</td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Execution command       | B : FB_EN       | FB_ENO : B            | Execution status        | Module start XY address | W : i_Start_IO_No | FB_OK : B | Completed without error | Station No. | W : i_Station_No | o_LatchCount : D | Latch count value | Target CH | W : i_CH | FB_ERROR : B | Error flag |  |  | ERROR_ID : W | Error code |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Execution status        |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Completed without error |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | o_LatchCount : D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Latch count value       |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Target CH                        | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error flag              |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error code              |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                  | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3           |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Engineering software             | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Software version        | English version | Version1.24A or later | Chinese version         | Version1.49B or later   |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |
| Programming language             | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |                  |                   |           |          |              |            |  |  |              |            |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps      | 455 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the count value, which has been latched by the latch counter function, is stored in o_LatchCount (Latch count value).</li> <li>2) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>3) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>5) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).</li> </ol> Refer to the error code explanation section for details. |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Item                                                                                                                                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Restrictions and precautions                                                                                                                                                                                                  | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When this FB is used, the selected counter function start command (RY(n+2)5, RY(n+3)D) must be turned OFF.</li> <li>5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>6) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>7) Every input must be provided with a value for proper FB operation.</li> <li>8) When the latch counter function is executed, the counter function selection of the module-based parameter data must be set to 1: Latch Counter Function. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>9) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules.</li> <li>11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
| FB operation type                                                                                                                                                                                                             | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
| Application example                                                                                                                                                                                                           | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
| Timing chart                                                                                                                                                                                                                  | <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When operation completes without error]</th> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When an error occurs]</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; border-right: 1px solid black; padding-right: 10px;">           FB_EN (Execution command)<br/>           FB_ENO (Execution status)<br/><br/>           Latch count processing<br/><br/>           o_LatchCount (Latch count value)<br/><br/>           FB_OK (Completed without error)<br/><br/>           FB_ERROR (Error flag)<br/><br/>           ERROR_ID (Error code)         </td> <td style="vertical-align: top; padding-left: 10px;">  </td> </tr> <tr> <td style="vertical-align: top; border-right: 1px solid black; padding-right: 10px;">           FB_EN (Execution command)<br/>           FB_ENO (Execution status)<br/><br/>           Latch count processing<br/><br/>           o_LatchCount (Latch count value)<br/><br/>           FB_OK (Completed without error)<br/><br/>           FB_ERROR (Error flag)<br/><br/>           ERROR_ID (Error code)         </td> <td style="vertical-align: top; padding-left: 10px;">  </td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                               | [When operation completes without error] | [When an error occurs] | FB_EN (Execution command)<br>FB_ENO (Execution status)<br><br>Latch count processing<br><br>o_LatchCount (Latch count value)<br><br>FB_OK (Completed without error)<br><br>FB_ERROR (Error flag)<br><br>ERROR_ID (Error code) |  | FB_EN (Execution command)<br>FB_ENO (Execution status)<br><br>Latch count processing<br><br>o_LatchCount (Latch count value)<br><br>FB_OK (Completed without error)<br><br>FB_ERROR (Error flag)<br><br>ERROR_ID (Error code) |  |
| [When operation completes without error]                                                                                                                                                                                      | [When an error occurs]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
| FB_EN (Execution command)<br>FB_ENO (Execution status)<br><br>Latch count processing<br><br>o_LatchCount (Latch count value)<br><br>FB_OK (Completed without error)<br><br>FB_ERROR (Error flag)<br><br>ERROR_ID (Error code) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |
| FB_EN (Execution command)<br>FB_ENO (Execution status)<br><br>Latch count processing<br><br>o_LatchCount (Latch count value)<br><br>FB_OK (Completed without error)<br><br>FB_ERROR (Error flag)<br><br>ERROR_ID (Error code) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |                        |                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                               |                                                                                       |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |

| Name (Comment) | Label name   | Data type | Setting range | Description                        |
|----------------|--------------|-----------|---------------|------------------------------------|
| Station No.    | i_Station_No | Word      | 1 to 120      | Specify the target station number. |
| Target CH      | i_CH         | Word      | 1 or 2        | Specify the channel number.        |

●Output labels

| Name (Comment)          | Label name   | Data type   | Initial value | Description                                                         |
|-------------------------|--------------|-------------|---------------|---------------------------------------------------------------------|
| Execution status        | FB_ENO       | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.      |
| Completed without error | FB_OK        | Bit         | OFF           | When ON, it indicates that the latch counter function is completed. |
| Latch count value       | o_LatchCount | Double Word | 0             | Store the count value that has been latched.                        |
| Error flag              | FB_ERROR     | Bit         | OFF           | When ON, it indicates that an error has occurred.                   |
| Error code              | ERROR_ID     | Word        | 0             | FB error code output.                                               |

### FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

### Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.4. M+NZ2GFD62\_SamplingOperation (Sampling counter function operation)

### FB Name

M+NZ2GFD62\_SamplingOperation

### Function Overview

| Item                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------|--------------------|-------------------------|-----------------|-------------------------------|-------------------------|-------------------|-------------------------------------|-------------|------------------|--------------------------------------------|-----------|----------|---------------------------|-----------------------------------------|-------------------|---------------------------|-------------------------------------|--------------------|--|
| Function overview                       | Executes the sampling counter function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Symbol                                  | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+NZ2GFD62_SamplingOperation</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 40%;">B : FB_EN</td> <td style="width: 30%;">FB_ENO : B — Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B — Completed without error</td> </tr> <tr> <td>Station No.</td> <td>W : i_Station_No</td> <td>o_SamplingCount : D — Sampling count value</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>FB_ERROR : B — Error flag</td> </tr> <tr> <td>Time unit setting<br/>(Sampling counter)</td> <td>W : i_SetUnitTime</td> <td>ERROR_ID : W — Error code</td> </tr> <tr> <td>Cycle setting<br/>(Sampling counter)</td> <td>W : i_SamplingTime</td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_SamplingOperation |                  |                    | Execution command       | B : FB_EN       | FB_ENO : B — Execution status | Module start XY address | W : i_Start_IO_No | FB_OK : B — Completed without error | Station No. | W : i_Station_No | o_SamplingCount : D — Sampling count value | Target CH | W : i_CH | FB_ERROR : B — Error flag | Time unit setting<br>(Sampling counter) | W : i_SetUnitTime | ERROR_ID : W — Error code | Cycle setting<br>(Sampling counter) | W : i_SamplingTime |  |
| M+NZ2GFD62_SamplingOperation            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Execution command                       | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FB_ENO : B — Execution status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Module start XY address                 | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FB_OK : B — Completed without error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Station No.                             | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | o_SamplingCount : D — Sampling count value                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Target CH                               | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FB_ERROR : B — Error flag                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Time unit setting<br>(Sampling counter) | W : i_SetUnitTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ERROR_ID : W — Error code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Cycle setting<br>(Sampling counter)     | W : i_SamplingTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Applicable hardware and software        | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
|                                         | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
|                                         | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                       | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series | LCPU *3                       |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Series                                  | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| MELSEC-Q Series *1                      | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| MELSEC-L Series                         | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Engineering software                    | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                     | Software version | English version    | Version1.24A or later   | Chinese version | Version1.49B or later         |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Language                                | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| English version                         | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Chinese version                         | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |
| Programming language                    | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                            |           |          |                           |                                         |                   |                           |                                     |                    |  |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps      | 542 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the sampling count is started with the preset i_SamplingTime (Time unit setting (Sampling counter)) and i_SamplingTime (Cycle setting (Sampling counter)), and the sampling count value is read from the remote register.</li> <li>2) When the sampling time has elapsed, FB_OK (Completed without error) is turned ON and the processing ends.</li> <li>3) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>4) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>5) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>6) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).</li> </ol> <p>Refer to the error code explanation section for details.</p> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When this FB is used, the selected counter function start command (RY(n+2)5, RY(n+3)D) must be turned OFF.</li> <li>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>7) Every input must be provided with a value for proper FB operation.</li> <li>8) When the sampling counter function is executed, the counter function selection of the module-based parameter data must be set to 2: Sampling Counter Function. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>9) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Timing chart                 | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |

| Name (Comment)                          | Label name     | Data type | Setting range     | Description                                                                                                                                                                                                                                               |
|-----------------------------------------|----------------|-----------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station No.                             | i_Station_No   | Word      | 1 to 120          | Specify the target station number.                                                                                                                                                                                                                        |
| Target CH                               | i_CH           | Word      | 1 or 2            | Specify the channel number.                                                                                                                                                                                                                               |
| Time unit setting<br>(Sampling counter) | i_SetUnitTime  | Word      | 0: 1ms<br>1: 10ms | Specify the unit for the sampling operation time.                                                                                                                                                                                                         |
| Cycle setting<br>(Sampling counter)     | i_SamplingTime | Word      | 1 to 65,535 *1    | Specify the sampling time.<br>When the time unit setting (sampling counter) is set to "1: 10ms", the setting range is 10 to 655,350ms.<br>*1: Setting method<br>•1 to 32,767: Set in decimal.<br>•32,768 to 65,535: Set after converted into hexadecimal. |

●Output labels

| Name (Comment)          | Label name      | Data type   | Initial value | Description                                                                             |
|-------------------------|-----------------|-------------|---------------|-----------------------------------------------------------------------------------------|
| Execution status        | FB_ENO          | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.                          |
| Completed without error | FB_OK           | Bit         | OFF           | When ON, it indicates that the execution of the sampling counter function is completed. |
| Sampling count value    | o_SamplingCount | Double Word | 0             | Store the count value during sampling time.                                             |
| Error flag              | FB_ERROR        | Bit         | OFF           | When ON, it indicates that an error has occurred.                                       |
| Error code              | ERROR_ID        | Word        | 0             | FB error code output.                                                                   |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.5. M+NZ2GFD62\_PeriodicPlsCnt (Periodic pulse counter function operation)

**FB Name**

M+NZ2GFD62\_PeriodicPlsCnt

**Function Overview**

| Item                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------|--------------------|-------------------------|-----------------|-------------------------------|-------------------------|-------------------|-------------------------------------|-------------|------------------|--------------------------------------------------------------|-----------|----------|--------------------------------------------------------|-----------------------------------------------|-------------------|---------------------------|-------------------------------------------|------------------|---------------------------|
| Function overview                             | Executes the periodic pulse counter function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Symbol                                        | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+NZ2GFD62_PeriodicPlsCnt</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 40%;">FB_ENO : B — Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B — Completed without error</td> </tr> <tr> <td>Station No.</td> <td>W : i_Station_No</td> <td>o_DifferenceVal : D — Periodic pulse count, difference value</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>o_PresentVal : D — Periodic pulse count, present value</td> </tr> <tr> <td>Time unit setting<br/>(Periodic pulse counter)</td> <td>W : i_SetUnitTime</td> <td>FB_ERROR : B — Error flag</td> </tr> <tr> <td>Cycle setting<br/>(Periodic pulse counter)</td> <td>W : i_PeriodTime</td> <td>ERROR_ID : W — Error code</td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_PeriodicPlsCnt |                  |                    | Execution command       | B : FB_EN       | FB_ENO : B — Execution status | Module start XY address | W : i_Start_IO_No | FB_OK : B — Completed without error | Station No. | W : i_Station_No | o_DifferenceVal : D — Periodic pulse count, difference value | Target CH | W : i_CH | o_PresentVal : D — Periodic pulse count, present value | Time unit setting<br>(Periodic pulse counter) | W : i_SetUnitTime | FB_ERROR : B — Error flag | Cycle setting<br>(Periodic pulse counter) | W : i_PeriodTime | ERROR_ID : W — Error code |
| M+NZ2GFD62_PeriodicPlsCnt                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Execution command                             | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | FB_ENO : B — Execution status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Module start XY address                       | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FB_OK : B — Completed without error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Station No.                                   | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | o_DifferenceVal : D — Periodic pulse count, difference value                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Target CH                                     | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | o_PresentVal : D — Periodic pulse count, present value                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Time unit setting<br>(Periodic pulse counter) | W : i_SetUnitTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FB_ERROR : B — Error flag                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Cycle setting<br>(Periodic pulse counter)     | W : i_PeriodTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ERROR_ID : W — Error code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Applicable hardware and software              | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
|                                               | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
|                                               | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                    | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series | LCPU *3                       |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Series                                        | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| MELSEC-Q Series *1                            | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| MELSEC-L Series                               | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Engineering software                          | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                  | Software version | English version    | Version1.24A or later   | Chinese version | Version1.49B or later         |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Language                                      | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| English version                               | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Chinese version                               | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |
| Programming language                          | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                              |           |          |                                                        |                                               |                   |                           |                                           |                  |                           |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps      | 542 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the periodic pulse count is started with the preset i_SetUnitTime (Time unit setting (Periodic pulse counter)) and i_PeriodTime (Cycle setting (Periodic pulse counter)), and the periodic pulse count difference value and periodic pulse count present value are read from the remote register.</li> <li>2) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When this FB is used, the selected counter function start command (RY(n+2)5, RY(n+3)D) must be turned OFF.</li> <li>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>6) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>7) Every input must be provided with a value for proper FB operation.</li> <li>8) When the periodic pulse counter function is executed, the counter function selection of the module-based parameter data must be set to 3: Periodic Pulse Counter Function. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>9) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>10) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>11) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section " 1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Real-time execution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Timing chart     | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>[When operation completes without error]</b></p> </div> <div style="width: 48%;"> <p><b>[When an error occurs]</b></p> </div> </div>                                                                                                                                                                                                                                                                                                                                                          |
| Relevant manuals | <ul style="list-style-type: none"> <li>●CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>●MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●GX Works2 Version1 Operating Manual (Common)</li> <li>●GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

### Error codes

●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>● Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>● The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |



## Labels

### ● Input labels

| Name (Comment)                                | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command                             | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                                                                                                                                               |
| Module start XY address                       | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.)                                                                                                                   |
| Station No.                                   | i_Station_No  | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                                                                                                                                      |
| Target CH                                     | i_CH          | Word      | 1 or 2                                                                                     | Specify the channel number.                                                                                                                                                                                                                                             |
| Time unit setting<br>(Periodic pulse counter) | i_SetUnitTime | Word      | 0: 1ms<br>1: 10ms                                                                          | Specify the unit for the periodic time.                                                                                                                                                                                                                                 |
| Cycle setting<br>(Periodic pulse counter)     | i_PeriodTime  | Word      | 1 to 65,535 *1                                                                             | Specify the periodic time setting.<br>When the time unit setting (periodic pulse counter) is set to "1: 10ms", the setting range is 10 to 655,350ms.<br>*1: Setting method<br>●1 to 32,767: Set in decimal.<br>●32,768 to 65,535: Set after converted into hexadecimal. |

●Output labels

| Name (Comment)                         | Label name      | Data type   | Initial value | Description                                                             |
|----------------------------------------|-----------------|-------------|---------------|-------------------------------------------------------------------------|
| Execution status                       | FB_ENO          | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.          |
| Completed without error                | FB_OK           | Bit         | OFF           | When ON, it indicates that the periodic pulse count is being performed. |
| Periodic pulse count, difference value | o_DifferenceVal | Double Word | 0             | Store the count value (difference) per periodic time.                   |
| Periodic pulse count, present value    | o_PresentVal    | Double Word | 0             | Store the present value of when the periodic time has elapsed.          |
| Error flag                             | FB_ERROR        | Bit         | OFF           | When ON, it indicates that an error has occurred.                       |
| Error code                             | ERROR_ID        | Word        | 0             | FB error code output.                                                   |

### FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

### Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.6. M+NZ2GFD62\_FrequencyMeas (Frequency measurement)

**FB Name**

M+NZ2GFD62\_FrequencyMeas

**Function Overview**

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------|-----------------------|-------------------------|-----------------------|---------|
| Function overview                | Starts the frequency measurement function and reads the measured frequency value that has been calculated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| Symbol                           | <div style="display: flex; align-items: center; justify-content: space-between;"> <div style="width: 45%;"> <p>Execution command — B : FB_EN</p> <p>Module start XY address — W : i_Start_IO_No</p> <p>Station No. — W : i_Station_No</p> <p>Target CH — W : i_CH</p> <p>Time unit setting (Frequency measurement) — W : i_SetUnitTime</p> <p>Moving average count (Frequency measurement) — W : i_SetAverage</p> </div> <div style="width: 10%; text-align: center; border: 1px solid black; padding: 5px;"> <p>M+NZ2GFD62_FrequencyMeas</p> </div> <div style="width: 45%;"> <p>FB_ENO : B — Execution status</p> <p>FB_OK : B — Completed without error</p> <p>o_FrequencyVal : D — Measured frequency value</p> <p>FB_ERROR : B — Error flag</p> <p>ERROR_ID : W — Error code</p> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                 |                       |                         |                       |         |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CC-Link IE Field Network master/local module *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)</p> <p>*2 The first five digits of the serial number are "12012" or later.</p> <p>*3 The first five digits of the serial number are "13012" or later.</p> | Series           | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series       | LCPU *3 |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |                 |                       |                         |                       |         |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| Engineering software             | <p>GX Works2 *1</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                 | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Software version | English version | Version1.24A or later | Chinese version         | Version1.49B or later |         |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                 |                       |                         |                       |         |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of steps      | 490 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the frequency measurement function is executed with the preset i_SetUnitTime (Time unit setting (Frequency measurement)) and i_SetAverage (Moving average count (Frequency measurement)), and the measured frequency value is read from the remote register.</li> <li>2) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) When the frequency measurement function is executed, the operation mode of the module-based parameter data must be set to 1: Frequency Measurement Mode. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>8) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Real-time execution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Timing chart                 | <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)                               | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|----------------------------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command                            | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address                      | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.                                  | i_Station_No  | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |
| Target CH                                    | i_CH          | Word      | 1 or 2                                                                                     | Specify the channel number.                                                                                                                           |
| Time unit setting (Frequency measurement)    | i_SetUnitTime | Word      | 0: 0.01s<br>1: 0.1s<br>2: 1s                                                               | Specify the unit of time for the frequency measurement.                                                                                               |
| Moving average count (Frequency measurement) | i_SetAverage  | Word      | 1 to 100                                                                                   | Specify the moving average count for the frequency measurement.                                                                                       |

### ●Output labels

| Name (Comment)           | Label name     | Data type   | Initial value | Description                                                    |
|--------------------------|----------------|-------------|---------------|----------------------------------------------------------------|
| Execution status         | FB_ENO         | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF. |
| Completed without error  | FB_OK          | Bit         | OFF           | When ON, it indicates that the frequency is being measured.    |
| Measured frequency value | o_FrequencyVal | Double Word | 0             | Store the measured frequency value.                            |
| Error flag               | FB_ERROR       | Bit         | OFF           | When ON, it indicates that an error has occurred.              |
| Error code               | ERROR_ID       | Word        | 0             | FB error code output.                                          |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.



## 2.7. M+NZ2GFD62\_RotationSpeedMeas (Rotation speed measurement)

### FB Name

M+NZ2GFD62\_RotationSpeedMeas

### Function Overview

| Item                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------|--------------------|-------------------------|-----------------|-------------------------------|-------------------------|-------------------|-------------------------------------|-------------|------------------|---------------------------------------------------|-----------|----------|---------------------------|---------------------------------------------------|-------------------|---------------------------|------------------------------------------------------|------------------|--|----------------------------|-------------------|--|
| Function overview                                    | Starts the rotation speed measurement function and reads the measured rotation speed value that has been calculated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Symbol                                               | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+NZ2GFD62_RotationSpeedMeas</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 40%;">FB_ENO : B — Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B — Completed without error</td> </tr> <tr> <td>Station No.</td> <td>W : i_Station_No</td> <td>o_RotationVal : D — Measured rotation speed value</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>FB_ERROR : B — Error flag</td> </tr> <tr> <td>Time unit setting<br/>(Rotation speed measurement)</td> <td>W : i_SetUnitTime</td> <td>ERROR_ID : W — Error code</td> </tr> <tr> <td>Moving average count<br/>(Rotation speed measurement)</td> <td>W : i_SetAverage</td> <td></td> </tr> <tr> <td>No. of pulses per rotation</td> <td>D : i_SetRotation</td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_RotationSpeedMeas |                  |                    | Execution command       | B : FB_EN       | FB_ENO : B — Execution status | Module start XY address | W : i_Start_IO_No | FB_OK : B — Completed without error | Station No. | W : i_Station_No | o_RotationVal : D — Measured rotation speed value | Target CH | W : i_CH | FB_ERROR : B — Error flag | Time unit setting<br>(Rotation speed measurement) | W : i_SetUnitTime | ERROR_ID : W — Error code | Moving average count<br>(Rotation speed measurement) | W : i_SetAverage |  | No. of pulses per rotation | D : i_SetRotation |  |
| M+NZ2GFD62_RotationSpeedMeas                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Execution command                                    | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FB_ENO : B — Execution status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Module start XY address                              | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FB_OK : B — Completed without error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Station No.                                          | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | o_RotationVal : D — Measured rotation speed value                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Target CH                                            | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FB_ERROR : B — Error flag                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Time unit setting<br>(Rotation speed measurement)    | W : i_SetUnitTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ERROR_ID : W — Error code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Moving average count<br>(Rotation speed measurement) | W : i_SetAverage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| No. of pulses per rotation                           | D : i_SetRotation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Applicable hardware and software                     | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
|                                                      | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
|                                                      | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                       | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series | LCPU *3                       |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Series                                               | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| MELSEC-Q Series *1                                   | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| MELSEC-L Series                                      | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Engineering software                                 | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                     | Software version | English version    | Version1.24A or later   | Chinese version | Version1.49B or later         |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Language                                             | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| English version                                      | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Chinese version                                      | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |
| Programming language                                 | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                  |                    |                         |                 |                               |                         |                   |                                     |             |                  |                                                   |           |          |                           |                                                   |                   |                           |                                                      |                  |  |                            |                   |  |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps      | 498 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the rotation speed measurement is executed with the preset i_SetUnitTime (Time unit setting (Rotation speed measurement)), i_SetAverage (Moving average count (Rotation speed measurement)) and i_SetRotation (No. of pulses per rotation), and the measured rotation speed value is read from the remote register.</li> <li>2) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) When the rotation speed measurement function is executed, the operation mode of the module-based parameter data must be set to 2: Rotation Speed Measurement Mode. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>8) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Real-time execution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Timing chart                 | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>[When operation completes without error]</p> </div> <div style="width: 48%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |

| Name (Comment)                                    | Label name    | Data type   | Setting range                | Description                                                          |
|---------------------------------------------------|---------------|-------------|------------------------------|----------------------------------------------------------------------|
| Station No.                                       | i_Station_No  | Word        | 1 to 120                     | Specify the target station number.                                   |
| Target CH                                         | i_CH          | Word        | 1 or 2                       | Specify the channel number.                                          |
| Time unit setting<br>(Rotation speed measurement) | i_SetUnitTime | Word        | 0: 0.01s<br>1: 0.1s<br>2: 1s | Specify the unit of time for the rotation speed measurement.         |
| Moving average count (Rotation speed measurement) | i_SetAverage  | Word        | 1 to 100                     | Specify the moving average count for the rotation speed measurement. |
| No. of pulses per rotation                        | i_SetRotation | Double Word | 1 to 8,000,000               | Specify the number of pulses per rotation.                           |

●Output labels

| Name (Comment)                | Label name    | Data type   | Initial value | Description                                                      |
|-------------------------------|---------------|-------------|---------------|------------------------------------------------------------------|
| Execution status              | FB_ENO        | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.   |
| Completed without error       | FB_OK         | Bit         | OFF           | When ON, it indicates that the rotation speed is being measured. |
| Measured rotation speed value | o_RotationVal | Double Word | 0             | Store the measured rotation speed value.                         |
| Error flag                    | FB_ERROR      | Bit         | OFF           | When ON, it indicates that an error has occurred.                |
| Error code                    | ERROR_ID      | Word        | 0             | FB error code output.                                            |

### FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

### Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.8. M+NZ2GFD62\_PulseMeas (Pulse measurement)

### FB Name

M+NZ2GFD62\_PulseMeas

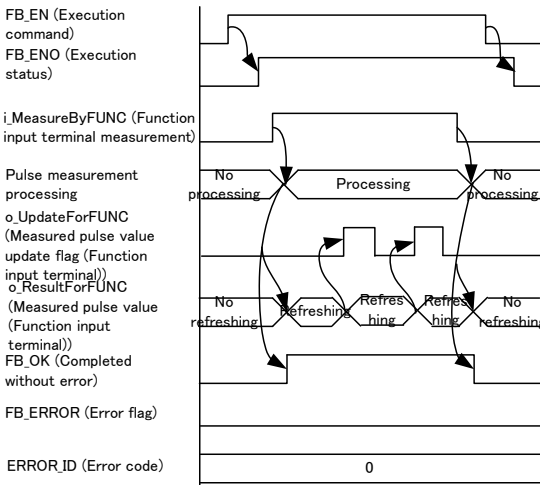
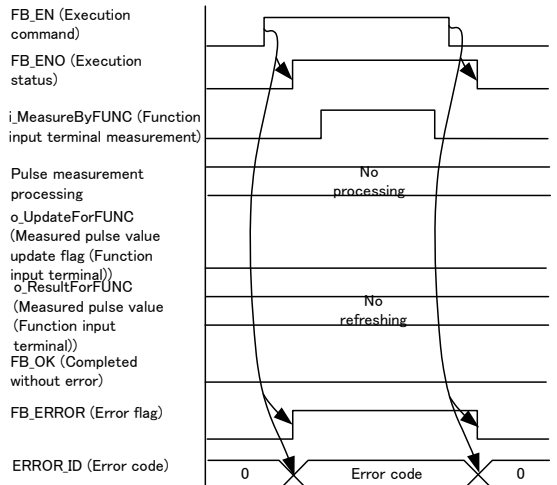
### Function Overview

| Item                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------|-----------------------|-------------------------|-----------------------|-----------|------------|------------------|-------------------------|-------------------|-----------|-------------------------|-------------|------------------|---------------------|---------------------------------------------------------------|-----------|----------|---------------------|---------------------------------------------------|-------------------------------------|---------------------|----------------------|--------------------------------------------------------------------|------------------------------------------|----------------------|----------------------|--------------------------------------------------------|--|--|--------------|------------|--|--|--------------|------------|
| Function overview                        | Starts the pulse measurement function and reads the measured pulse value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Symbol                                   | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">M+NZ2GFD62_PulseMeas</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 15%;">B : FB_EN</td> <td style="width: 15%;">FB_ENO : B</td> <td style="width: 40%;">Execution status</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B</td> <td>Completed without error</td> </tr> <tr> <td>Station No.</td> <td>W : i_Station_No</td> <td>o_UpdateForFUNC : B</td> <td>Measured pulse value update flag<br/>(Function input terminal)</td> </tr> <tr> <td>Target CH</td> <td>W : i_CH</td> <td>o_ResultForFUNC : D</td> <td>Measured pulse value<br/>(Function input terminal)</td> </tr> <tr> <td>Function input terminal measurement</td> <td>B : i_MeasureByFUNC</td> <td>o_UpdateForLATCH : B</td> <td>Measured pulse value update flag<br/>(Latch counter input terminal)</td> </tr> <tr> <td>Latch counter input terminal measurement</td> <td>B : i_MeasureByLATCH</td> <td>o_ResultForLATCH : D</td> <td>Measured pulse value<br/>(Latch counter input terminal)</td> </tr> <tr> <td></td> <td></td> <td>FB_ERROR : B</td> <td>Error flag</td> </tr> <tr> <td></td> <td></td> <td>ERROR_ID : W</td> <td>Error code</td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_PulseMeas                                               |                 |                       |                         | Execution command     | B : FB_EN | FB_ENO : B | Execution status | Module start XY address | W : i_Start_IO_No | FB_OK : B | Completed without error | Station No. | W : i_Station_No | o_UpdateForFUNC : B | Measured pulse value update flag<br>(Function input terminal) | Target CH | W : i_CH | o_ResultForFUNC : D | Measured pulse value<br>(Function input terminal) | Function input terminal measurement | B : i_MeasureByFUNC | o_UpdateForLATCH : B | Measured pulse value update flag<br>(Latch counter input terminal) | Latch counter input terminal measurement | B : i_MeasureByLATCH | o_ResultForLATCH : D | Measured pulse value<br>(Latch counter input terminal) |  |  | FB_ERROR : B | Error flag |  |  | ERROR_ID : W | Error code |
| M+NZ2GFD62_PulseMeas                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Execution command                        | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Execution status                                                   |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Module start XY address                  | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Completed without error                                            |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Station No.                              | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | o_UpdateForFUNC : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Measured pulse value update flag<br>(Function input terminal)      |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Target CH                                | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | o_ResultForFUNC : D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Measured pulse value<br>(Function input terminal)                  |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Function input terminal measurement      | B : i_MeasureByFUNC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | o_UpdateForLATCH : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Measured pulse value update flag<br>(Latch counter input terminal) |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Latch counter input terminal measurement | B : i_MeasureByLATCH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | o_ResultForLATCH : D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Measured pulse value<br>(Latch counter input terminal)             |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Error flag                                                         |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Error code                                                         |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Applicable hardware and software         | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|                                          | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|                                          | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                                                             | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series       | LCPU *3   |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
|                                          | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| MELSEC-Q Series *1                       | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| MELSEC-L Series                          | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Engineering software                     | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Software version                                                   | English version | Version1.24A or later | Chinese version         | Version1.49B or later |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Language                                 | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| English version                          | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |
| Chinese version                          | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                       |                         |                       |           |            |                  |                         |                   |           |                         |             |                  |                     |                                                               |           |          |                     |                                                   |                                     |                     |                      |                                                                    |                                          |                      |                      |                                                        |  |  |              |            |  |  |              |            |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Number of steps      | 588 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the pulse measurement is started when the preset i_MeasureByFUNC (Function input terminal measurement) or i_MeasureByLATCH (Latch counter input terminal measurement) is turned ON after the count enable command is turned ON.</li> <li>2) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) When the pulse measurement function is executed, the operation mode of the module-based parameter data must be set to 3: Pulse Measurement Mode. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>8) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Real-time execution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                 |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Timing chart     | <p>[When operation completes without error]<br/>(Function input terminal measurement)</p>                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>[When an error occurs]<br/>(Latch counter input terminal measurement)</p>  |
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |                                                                                                                                                                 |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)                      | Label name      | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------------------|-----------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command                   | FB_EN           | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address             | i_Start_IO_No   | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.                         | i_Station_No    | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |
| Target CH                           | i_CH            | Word      | 1 or 2                                                                                     | Specify the channel number.                                                                                                                           |
| Function input terminal measurement | i_MeasureByFUNC | Bit       | ON, OFF                                                                                    | Turn ON when performing the pulse measurement with the function input terminal.                                                                       |

| Name (Comment)                           | Label name       | Data type | Setting range | Description                                                                          |
|------------------------------------------|------------------|-----------|---------------|--------------------------------------------------------------------------------------|
| Latch counter input terminal measurement | i_MeasureByLATCH | Bit       | ON, OFF       | Turn ON when performing the pulse measurement with the latch counter input terminal. |

●Output labels

| Name (Comment)                                                  | Label name       | Data type   | Initial value | Description                                                                                               |
|-----------------------------------------------------------------|------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------------|
| Execution status                                                | FB_ENO           | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.                                            |
| Completed without error                                         | FB_OK            | Bit         | OFF           | When ON, it indicates that the pulse is being measured.                                                   |
| Measured pulse value update flag (Function input terminal)      | o_UpdateForFUNC  | Bit         | OFF           | When ON, it indicates that the measured pulse value of the function input terminal has been updated.      |
| Measured pulse value (Function input terminal)                  | o_ResultForFUNC  | Double Word | 0             | Store the measured pulse value of the function input terminal.                                            |
| Measured pulse value update flag (Latch counter input terminal) | o_UpdateForLATCH | Bit         | OFF           | When ON, it indicates that the measured pulse value of the latch counter input terminal has been updated. |
| Measured pulse value (Latch counter input terminal)             | o_ResultForLATCH | Double Word | 0             | Store the measured pulse value of the latch counter input terminal.                                       |
| Error flag                                                      | FB_ERROR         | Bit         | OFF           | When ON, it indicates that an error has occurred.                                                         |
| Error code                                                      | ERROR_ID         | Word        | 0             | FB error code output.                                                                                     |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.9. M+NZ2GFD62\_PWMOutput (PWM output)

### FB Name

M+NZ2GFD62\_PWMOutput

### Function Overview

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-----------------------|-------------------------|-------------------------|-------------------|-----------|-------------------------|-------------|------------------|--------------|------------|-----------|----------|--------------|------------|-------------------------------|-----------------|--|--|-------------------------------|-----------------|--|--|----------------------------|--------------------|--|--|
| Function overview                | Executes the PWM output function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Symbol                           | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_PWMOutput</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; text-align: right;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 30%; text-align: right;">FB_ENO : B</td> <td style="width: 10%;">Execution status</td> </tr> <tr> <td style="text-align: right;">Module start XY address</td> <td>W : i_Start_IO_No</td> <td style="text-align: right;">FB_OK : B</td> <td>Completed without error</td> </tr> <tr> <td style="text-align: right;">Station No.</td> <td>W : i_Station_No</td> <td style="text-align: right;">FB_ERROR : B</td> <td>Error flag</td> </tr> <tr> <td style="text-align: right;">Target CH</td> <td>W : i_CH</td> <td style="text-align: right;">ERROR_ID : W</td> <td>Error code</td> </tr> <tr> <td style="text-align: right;">PWM output assignment setting</td> <td>W : i_SetLayout</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">ON width setting (PWM output)</td> <td>D : i_SetONTime</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">Cycle setting (PWM output)</td> <td>D : i_SetCycleTime</td> <td></td> <td></td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Execution command       | B : FB_EN       | FB_ENO : B            | Execution status        | Module start XY address | W : i_Start_IO_No | FB_OK : B | Completed without error | Station No. | W : i_Station_No | FB_ERROR : B | Error flag | Target CH | W : i_CH | ERROR_ID : W | Error code | PWM output assignment setting | W : i_SetLayout |  |  | ON width setting (PWM output) | D : i_SetONTime |  |  | Cycle setting (PWM output) | D : i_SetCycleTime |  |  |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Execution status        |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Completed without error |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error flag              |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Target CH                        | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error code              |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| PWM output assignment setting    | W : i_SetLayout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| ON width setting (PWM output)    | D : i_SetONTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Cycle setting (PWM output)       | D : i_SetCycleTime                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                  | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3           |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Engineering software             | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Software version        | English version | Version1.24A or later | Chinese version         | Version1.49B or later   |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |           |          |              |            |                               |                 |  |  |                               |                 |  |  |                            |                    |  |  |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Number of steps      | 400 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the PWM output function is executed with the preset i_SetLayout (PWM output assignment setting), i_SetONTime (ON width setting (PWM output)) and i_SetCycleTime (Cycle setting (PWM output)).</li> <li>2) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>5) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) When the PWM output function is executed, the operation mode of the module-based parameter data must be set to 4: PWM Output Mode. (For the module-based parameter data, refer to the CC-Link IE Field Network High-Speed Counter Module User's Manual.)</li> <li>8) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>9) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>10) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Timing chart                 | <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |



| Name (Comment)                | Label name     | Data type   | Setting range                                                                                                                                                                      | Description                                                             |
|-------------------------------|----------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Station No.                   | i_Station_No   | Word        | 1 to 120                                                                                                                                                                           | Specify the target station number.                                      |
| Target CH                     | i_CH           | Word        | 1 or 2                                                                                                                                                                             | Specify the channel number.                                             |
| PWM output assignment setting | i_SetLayout    | Word        | b00: Coincidence output 1<br>b01: Coincidence output 2<br>b02: Coincidence output 3<br>b03: Coincidence output 4<br>b04 to b15: Not used *1<br>0b: No assignment<br>1b: Assignment | Specify the comparison output to output the output pulse.<br>*1: Set 0. |
| ON width setting (PWM output) | i_SetONTime    | Double Word | 0 or 10 to 10,000,000                                                                                                                                                              | Specify the ON width for the output pulse. (Unit: 0.1μs)                |
| Cycle setting (PWM output)    | i_SetCycleTime | Double Word | 50 to 10,000,000                                                                                                                                                                   | Specify the cycle time for the output pulse. (Unit: 0.1μs)              |

●Output labels

| Name (Comment)          | Label name | Data type | Initial value | Description                                                    |
|-------------------------|------------|-----------|---------------|----------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF. |
| Completed without error | FB_OK      | Bit       | OFF           | When ON, it indicates that the PWM output is being performed.  |
| Error flag              | FB_ERROR   | Bit       | OFF           | When ON, it indicates that an error has occurred.              |
| Error code              | ERROR_ID   | Word      | 0             | FB error code output.                                          |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.10. M+NZ2GFD62\_ErrorOperation (Error operation)

### FB Name

M+NZ2GFD62\_ErrorOperation

### Function Overview

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|--------------------|-------------------------|-------------------------|-----------------------|-----------|-------------------------|-------------|------------------|------------------|------------------------|-----------|----------|---------------------|-------------------|---------------------|------------------|--------------------|--------------------------|--|--|---------------------|---------------------|--|--|--------------|------------|--|--|--------------|------------|
| Function overview                | Monitors errors and warnings, and performs error reset.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Symbol                           | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_ErrorOperation</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: none;">Execution command</td> <td style="width: 30%; border: none;">B : FB_EN</td> <td style="width: 30%; border: none;">FB_ENO : B</td> <td style="width: 10%; border: none;">Execution status</td> </tr> <tr> <td style="border: none;">Module start XY address</td> <td style="border: none;">W : i_Start_IO_No</td> <td style="border: none;">FB_OK : B</td> <td style="border: none;">Completed without error</td> </tr> <tr> <td style="border: none;">Station No.</td> <td style="border: none;">W : i_Station_No</td> <td style="border: none;">o_UNIT_ERROR : B</td> <td style="border: none;">Module error detection</td> </tr> <tr> <td style="border: none;">Target CH</td> <td style="border: none;">W : i_CH</td> <td style="border: none;">o_UNIT_ERR_CODE : W</td> <td style="border: none;">Module error code</td> </tr> <tr> <td style="border: none;">Error reset request</td> <td style="border: none;">B : i_ErrorReset</td> <td style="border: none;">o_UNIT_WARNING : B</td> <td style="border: none;">Module warning detection</td> </tr> <tr> <td></td> <td></td> <td style="border: none;">o_UNIT_WAR_CODE : W</td> <td style="border: none;">Module warning code</td> </tr> <tr> <td></td> <td></td> <td style="border: none;">FB_ERROR : B</td> <td style="border: none;">Error flag</td> </tr> <tr> <td></td> <td></td> <td style="border: none;">ERROR_ID : W</td> <td style="border: none;">Error code</td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Execution command        | B : FB_EN        | FB_ENO : B         | Execution status        | Module start XY address | W : i_Start_IO_No     | FB_OK : B | Completed without error | Station No. | W : i_Station_No | o_UNIT_ERROR : B | Module error detection | Target CH | W : i_CH | o_UNIT_ERR_CODE : W | Module error code | Error reset request | B : i_ErrorReset | o_UNIT_WARNING : B | Module warning detection |  |  | o_UNIT_WAR_CODE : W | Module warning code |  |  | FB_ERROR : B | Error flag |  |  | ERROR_ID : W | Error code |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Execution status         |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed without error  |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | o_UNIT_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Module error detection   |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Target CH                        | W : i_CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | o_UNIT_ERR_CODE : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Module error code        |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Error reset request              | B : i_ErrorReset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | o_UNIT_WARNING : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Module warning detection |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | o_UNIT_WAR_CODE : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Module warning code      |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Error flag               |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Error code               |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                   | Model            | MELSEC-Q Series *1 | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3               |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Series                           | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Engineering software             | GX Works2 *1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                        | Language                 | Software version | English version    | Version1.24A or later   | Chinese version         | Version1.49B or later |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                  |                    |                         |                         |                       |           |                         |             |                  |                  |                        |           |          |                     |                   |                     |                  |                    |                          |  |  |                     |                     |  |  |              |            |  |  |              |            |

| Item                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Number of steps      | 462 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Function description | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), an error and a warning in the target channel are monitored.</li> <li>2) When an error occurs, o_UNIT_ERROR (Module error detection) is turned ON and the error code is stored in o_UNIT_ERR_CODE (Module error code).</li> <li>3) When a warning occurs, o_UNIT_WARNING (Module warning detection) is turned ON and the warning code is stored in o_UNIT_WAR_CODE (Module warning code).</li> <li>4) After FB_EN (Execution command) is turned ON, error reset is performed when i_ErrorReset (Error reset request) is turned ON during error or warning occurrence.</li> <li>5) When the setting value of the target channel is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 10 (decimal) is stored in ERROR_ID (Error code).</li> <li>6) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>7) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).</li> </ol> <p>Refer to the error code explanation section for details.</p> |
| Compiling method     | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Description                                                                                                   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| Restrictions and precautions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>5) When two or more of these FBs are used, precaution must be taken to avoid repetition of the target channel.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>8) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>9) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| FB operation type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Real-time execution                                                                                           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| Application example                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| Timing chart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When operation completes without error]</th> <th style="width: 50%; text-align: left; border-bottom: 1px solid black;">[When an error occurs]</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; border-right: 1px solid black; padding-right: 10px;"> <div style="font-size: small; margin-bottom: 5px;">FB_EN (Execution command)</div> <div style="font-size: small; margin-bottom: 5px;">FB_ENO (Execution status)</div> <div style="font-size: small; margin-bottom: 5px;">i_ErrorReset (Error reset request)</div> <div style="font-size: small; margin-bottom: 5px;">o_UNIT_ERROR (Module error detection)</div> <div style="font-size: small; margin-bottom: 5px;">o_UNIT_ERR_CODE (Module error code)</div> <div style="font-size: small; margin-bottom: 5px;">o_UNIT_WARNING (Module warning detection)</div> <div style="font-size: small; margin-bottom: 5px;">o_UNIT_WAR_CODE (Module warning code)</div> <div style="font-size: small; margin-bottom: 5px;">FB_OK (Completed without error)</div> <div style="font-size: small; 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| [When operation completes without error]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | [When an error occurs]                                                                                        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| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                           | Action                                                                                                                                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 (Decimal) | The specified target channel is not valid.<br>The target channel is not 1 or 2.                       | Please try again after confirming the setting.                                                                                                                                                                                                           |
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.       | Review the following setting. <ul style="list-style-type: none"> <li>• Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>• The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |

| Name (Comment)      | Label name   | Data type | Setting range | Description                                                                                                     |
|---------------------|--------------|-----------|---------------|-----------------------------------------------------------------------------------------------------------------|
| Station No.         | i_Station_No | Word      | 1 to 120      | Specify the target station number.                                                                              |
| Target CH           | i_CH         | Word      | 1 or 2        | Specify the channel number.                                                                                     |
| Error reset request | i_ErrorReset | Bit       | ON, OFF       | Turn ON when performing error reset.<br>Turn OFF the request when FB_OK (Completed without error) is turned ON. |

●Output labels

| Name (Comment)           | Label name      | Data type | Initial value | Description                                                    |
|--------------------------|-----------------|-----------|---------------|----------------------------------------------------------------|
| Execution status         | FB_ENO          | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF. |
| Completed without error  | FB_OK           | Bit       | OFF           | When ON, it indicates that error reset is completed.           |
| Module error detection   | o_UNIT_ERROR    | Bit       | OFF           | When ON, it indicates an error has occurred.                   |
| Module error code        | o_UNIT_ERR_CODE | Word      | 0             | Return the error code for an error occurred in the module.     |
| Module warning detection | o_UNIT_WARNING  | Bit       | OFF           | When ON, it indicates a warning has occurred.                  |
| Module warning code      | o_UNIT_WAR_CODE | Word      | 0             | Return the warning code for a warning occurred in the module.  |
| Error flag               | FB_ERROR        | Bit       | OFF           | When ON, it indicates that an error has occurred.              |
| Error code               | ERROR_ID        | Word      | 0             | FB error code output.                                          |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.



2.11. M+NZ2GFD62\_DegreeToCountVal (Angle conversion)

**FB Name**

M+NZ2GFD62\_DegreeToCountVal

**Function Overview**

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|-----------------------|-------------------------|-----------------------|-------------------------------|-------|-------------|-------------------------------------|------------|------------------|------------------------------|---------------------------|-----------------|---------------------------|--|--|---------------------------|
| Function overview                | Calculates the count value from the angle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Symbol                           | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+NZ2GFD62_DegreeToCountVal</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 30%;">B : FB_EN</td> <td style="width: 40%;">FB_ENO : B — Execution status</td> </tr> <tr> <td>Angle</td> <td>W : i_Angle</td> <td>FB_OK : B — Completed without error</td> </tr> <tr> <td>Resolution</td> <td>D : i_Resolution</td> <td>o_CountVal : D — Count value</td> </tr> <tr> <td>Zero degree setting value</td> <td>W : i_ZeroValue</td> <td>FB_ERROR : B — Error flag</td> </tr> <tr> <td></td> <td></td> <td>ERROR_ID : W — Error code</td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_DegreeToCountVal |                 |                       | Execution command       | B : FB_EN             | FB_ENO : B — Execution status | Angle | W : i_Angle | FB_OK : B — Completed without error | Resolution | D : i_Resolution | o_CountVal : D — Count value | Zero degree setting value | W : i_ZeroValue | FB_ERROR : B — Error flag |  |  | ERROR_ID : W — Error code |
| M+NZ2GFD62_DegreeToCountVal      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FB_ENO : B — Execution status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Angle                            | W : i_Angle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FB_OK : B — Completed without error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Resolution                       | D : i_Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | o_CountVal : D — Count value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Zero degree setting value        | W : i_ZeroValue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FB_ERROR : B — Error flag                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ERROR_ID : W — Error code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | NZ2GFDCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                      | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series       | LCPU *3                       |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Engineering software             | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                          | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Software version            | English version | Version1.24A or later | Chinese version         | Version1.49B or later |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |
| Programming language             | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                 |                       |                         |                       |                               |       |             |                                     |            |                  |                              |                           |                 |                           |  |  |                           |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps              | 218 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Function description         | <p>1) By turning ON FB_EN (Execution command), the count value is calculated from the angle (input by 0.1 degree). The calculation is performed by using a resolution for the ring counter upper value and 0 for the lower value.</p> <p>2) The count value is calculated from the following formula.<br/> <math display="block">i\_Angle \div (3600 \div i\_Resolution) + i\_ZeroValue</math> When the calculated value is larger than the resolution (i_Resolution), the value of the resolution (i_Resolution) is subtracted from the calculated value and the difference is stored in the count value (o_CountVal).</p> <p>3) When the input value is invalid, the FB_ERROR output turns ON and processing is interrupted, and the error code is stored in ERROR_ID (Error code).<br/> Refer to the error code explanation section for details.</p> |
| Compiling method             | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Restrictions and precautions | <p>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</p> <p>2) The FB cannot be used in an interrupt program.</p> <p>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</p> <p>4) Every input must be provided with a value for proper FB operation.</p>                                                                                                                                                                                                                                                                                                                 |
| FB operation type            | Real-time execution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Timing chart                 | <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relevant manuals | <ul style="list-style-type: none"> <li>•CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>•MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>•QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>•GX Works2 Version1 Operating Manual (Common)</li> <li>•GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                                                                | Action                                         |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 20 (Decimal) | The resolution setting is not valid. The resolution is not within the range of 10 to 32,768.                                               | Please try again after confirming the setting. |
| 21 (Decimal) | The setting of the zero degree setting value is not valid. The zero degree setting value is not within the range of 0 to (i_Resolution-1). | Please try again after confirming the setting. |
| 22 (Decimal) | The angle setting is not valid. The angle is not within the range of 0 to 3,599.                                                           | Please try again after confirming the setting. |

## Labels

### ●Input labels

| Name (Comment)            | Label name   | Data type   | Setting range         | Description                                               |
|---------------------------|--------------|-------------|-----------------------|-----------------------------------------------------------|
| Execution command         | FB_EN        | Bit         | ON, OFF               | ON: The FB is activated.<br>OFF: The FB is not activated. |
| Angle                     | i_Angle      | Word        | 0 to 3,599            | Specify the angle.<br>(Unit: 0.1 degree)                  |
| Resolution                | i_Resolution | Double Word | 10 to 32,768          | Specify the encoder resolution.                           |
| Zero degree setting value | i_ZeroValue  | Word        | 0 to (i_Resolution-1) | Specify the value that is considered as zero degree.      |

●Output labels

| Name (Comment)          | Label name | Data type   | Initial value | Description                                                    |
|-------------------------|------------|-------------|---------------|----------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit         | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF. |
| Completed without error | FB_OK      | Bit         | OFF           | When ON, it indicates that calculation is being performed.     |
| Count value             | o_CountVal | Double Word | 0             | Store the count value that has been calculated from the angle. |
| Error flag              | FB_ERROR   | Bit         | OFF           | When ON, it indicates that an error has occurred.              |
| Error code              | ERROR_ID   | Word        | 0             | FB error code output.                                          |

### FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

### Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

2.12. M+NZ2GFD62\_SetCamSwitch (Cam switch setting)

**FB Name**

M+NZ2GFD62\_SetCamSwitch

**Function Overview**

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-----------------------|-------------------------|-----------------------|------------|-------------------------|-------------------|-----------|-------------|------------------|--------------|---------------------|-------------|--------------|----------------|-------------------|--|-----------|------------------|--|--------------|------------------|--|------------------------|-------------------|--|
| Function overview                | Performs the specified cam switch output setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Symbol                           | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">M+NZ2GFD62_SetCamSwitch</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">Execution command</td> <td style="width: 40%;">B : FB_EN</td> <td style="width: 30%;">FB_ENO : B</td> </tr> <tr> <td>Module start XY address</td> <td>W : i_Start_IO_No</td> <td>FB_OK : B</td> </tr> <tr> <td>Station No.</td> <td>W : i_Station_No</td> <td>FB_ERROR : B</td> </tr> <tr> <td>Own station channel</td> <td>W : i_CH_No</td> <td>ERROR_ID : W</td> </tr> <tr> <td>Cam switch No.</td> <td>W : i_CamSwitchNo</td> <td></td> </tr> <tr> <td>Step type</td> <td>W : i_StepFormat</td> <td></td> </tr> <tr> <td>No. of steps</td> <td>W : i_StepNumber</td> <td></td> </tr> <tr> <td>Step No. setting value</td> <td>W : i_StepSetting</td> <td></td> </tr> </tbody> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | M+NZ2GFD62_SetCamSwitch |                 |                       | Execution command       | B : FB_EN             | FB_ENO : B | Module start XY address | W : i_Start_IO_No | FB_OK : B | Station No. | W : i_Station_No | FB_ERROR : B | Own station channel | W : i_CH_No | ERROR_ID : W | Cam switch No. | W : i_CamSwitchNo |  | Step type | W : i_StepFormat |  | No. of steps | W : i_StepNumber |  | Step No. setting value | W : i_StepSetting |  |
| M+NZ2GFD62_SetCamSwitch          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Own station channel              | W : i_CH_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Cam switch No.                   | W : i_CamSwitchNo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Step type                        | W : i_StepFormat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| No. of steps                     | W : i_StepNumber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Step No. setting value           | W : i_StepSetting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                  |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                  | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series       | LCPU *3    |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Engineering software             | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Software version        | English version | Version1.24A or later | Chinese version         | Version1.49B or later |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |                 |                       |                         |                       |            |                         |                   |           |             |                  |              |                     |             |              |                |                   |  |           |                  |  |              |                  |  |                        |                   |  |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programming language         | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Number of steps              | 277 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Function description         | <p>1) By turning ON FB_EN (Execution command), the data starting from the specified device set with i_StepSetting (Step No. setting value) for the number of points set with i_StepNumber (No. of steps) is written starting from step No.1 of the specified cam switch output.</p> <p>(For example, if cam switch No. is set to 1, the number of steps is set to 10 and the step No. setting value is set to D100, then the values of D100 to D119 are written to step No.1 to 10 of output 1.</p> <div> </div> <p>2) When CC-Link IE field network error occurs, FB_ERROR (Error flag) is turned ON and processing is interrupted, and the error code is stored in ERROR_ID (Error code).</p> <p>3) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</p> |
| Compiling method             | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) This FB uses the REMTO instruction. When this FB is operated with other FBs or the REMFR/REMTO instruction is used in the ladder program, precaution must be taken to avoid repetition of the own station channel.</li> <li>4) This FB uses index registers Z6 to Z9. Please do not use these index registers in an interrupt program.</li> <li>5) Every input must be provided with a value for proper FB operation.</li> <li>6) This FB uses transient transmission. Therefore, an interlock program for transient transmission is required. For the interlock program, refer to Section "1.6.2 Transient Transmission Program".</li> </ol>                                                                                                            |

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| FB operation type   | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Application example | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Timing chart        | <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>[When operation completes without error]</p> </div> <div style="width: 45%;"> <p>[When an error occurs]</p> </div> </div>                                                                                                                                                                                                                                                                                                                                                                         |
| Relevant manuals    | <ul style="list-style-type: none"> <li>●CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>●MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●GX Works2 Version1 Operating Manual (Common)</li> <li>●GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

### Error codes

●Error code list

| Error code                 | Description                                                                                           | Action                                                                                                                    |
|----------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 60 (Decimal)               | The specified station number is not valid.<br>The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                            |
| D000 to DAF9 (Hexadecimal) | A CC-Link IE field network error has occurred.                                                        | Refer to Error Code List in the MELSEC-Q/MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual for details. |

## Labels

### ● Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.             | i_Station_No  | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |
| Own station channel     | i_CH_No       | Word      | 1 to 32                                                                                    | Specify the channel to access from own station to other station.                                                                                      |
| Cam switch No.          | i_CamSwitchNo | Word      | 1 to 16                                                                                    | Specify the cam switch output number for the setting.                                                                                                 |
| Step type               | i_StepFormat  | Word      | 0: Starts with output status being OFF<br>1: Starts with output status being ON            | Specify the step type for the cam.                                                                                                                    |
| No. of steps            | i_StepNumber  | Word      | 0 to 16                                                                                    | Specify the number of steps for the cam.                                                                                                              |
| Step No. setting value  | i_StepSetting | Word      | -                                                                                          | Specify the start device storing data that will be written to steps 1 to 16 of the cam switch output.                                                 |



●Output labels

| Name (Comment)          | Label name | Data type | Initial value | Description                                                     |
|-------------------------|------------|-----------|---------------|-----------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.  |
| Completed without error | FB_OK      | Bit       | OFF           | When ON, it indicates that the cam switch setting is completed. |
| Error flag              | FB_ERROR   | Bit       | OFF           | When ON, it indicates that an error has occurred.               |
| Error code              | ERROR_ID   | Word      | 0             | FB error code output.                                           |

### FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

### Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## 2.13. M+NZ2GFD62\_SetInitData (Initial data setting)

### FB Name

M+NZ2GFD62\_SetInitData

### Function Overview

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|-----------------------|-------------------------|-------------------------|-------------------|-----------|-------------------------|-------------|------------------|--------------|------------|--|--|--------------|------------|
| Function overview                | Performs the initial data setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Symbol                           | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p style="text-align: center; margin: 0;">M+NZ2GFD62_SetInitData</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: none;">Execution command</td> <td style="width: 30%; border: none;">B : FB_EN</td> <td style="width: 30%; border: none;">FB_ENO : B</td> <td style="width: 10%; border: none;">Execution status</td> </tr> <tr> <td style="border: none;">Module start XY address</td> <td style="border: none;">W : i_Start_IO_No</td> <td style="border: none;">FB_OK : B</td> <td style="border: none;">Completed without error</td> </tr> <tr> <td style="border: none;">Station No.</td> <td style="border: none;">W : i_Station_No</td> <td style="border: none;">FB_ERROR : B</td> <td style="border: none;">Error flag</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;"></td> <td style="border: none;">ERROR_ID : W</td> <td style="border: none;">Error code</td> </tr> </table> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Execution command       | B : FB_EN       | FB_ENO : B            | Execution status        | Module start XY address | W : i_Start_IO_No | FB_OK : B | Completed without error | Station No. | W : i_Station_No | FB_ERROR : B | Error flag |  |  | ERROR_ID : W | Error code |
| Execution command                | B : FB_EN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FB_ENO : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Execution status        |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Module start XY address          | W : i_Start_IO_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | FB_OK : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Completed without error |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Station No.                      | W : i_Station_No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FB_ERROR : B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error flag              |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ERROR_ID : W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Error code              |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Applicable hardware and software | CC-Link IE Field Network high-speed counter module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | NZ2GFCF-D62PD2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
|                                  | CC-Link IE Field Network module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CC-Link IE Field Network master/local module *1<br>*1 The first five digits of the serial number are "14102" or later                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
|                                  | CPU module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Series</th> <th style="width: 50%;">Model</th> </tr> </thead> <tbody> <tr> <td>MELSEC-Q Series *1</td> <td>Universal model QCPU *2</td> </tr> <tr> <td>MELSEC-L Series</td> <td>LCPU *3</td> </tr> </tbody> </table> <p>*1 Not applicable to QCPU (A mode)<br/>*2 The first five digits of the serial number are "12012" or later.<br/>*3 The first five digits of the serial number are "13012" or later.</p> | Series                  | Model           | MELSEC-Q Series *1    | Universal model QCPU *2 | MELSEC-L Series         | LCPU *3           |           |                         |             |                  |              |            |  |  |              |            |
|                                  | Series                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| MELSEC-Q Series *1               | Universal model QCPU *2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| MELSEC-L Series                  | LCPU *3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Engineering software             | GX Works2 *1<br><table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 50%;">Language</th> <th style="width: 50%;">Software version</th> </tr> </thead> <tbody> <tr> <td>English version</td> <td>Version1.24A or later</td> </tr> <tr> <td>Chinese version</td> <td>Version1.49B or later</td> </tr> </tbody> </table> <p>*1 For software versions applicable to the modules used, refer to "Relevant manuals".</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Software version        | English version | Version1.24A or later | Chinese version         | Version1.49B or later   |                   |           |                         |             |                  |              |            |  |  |              |            |
| Language                         | Software version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| English version                  | Version1.24A or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Chinese version                  | Version1.49B or later                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |
| Programming language             | Ladder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                         |                 |                       |                         |                         |                   |           |                         |             |                  |              |            |  |  |              |            |

| Item                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of steps              | 419 steps (for MELSEC-Q series universal model CPU)<br>* The number of steps of the FB in a program depends on the CPU model that is used and input and output definition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Function description         | <ol style="list-style-type: none"> <li>1) By turning ON FB_EN (Execution command), the operation condition of the target module is set.</li> <li>2) FB operation is one-shot only, triggered by the FB_EN signal.</li> <li>3) When the network configuration setting of the station number specified by i_Station_No (Station No.) is incorrect, FB_ERROR (Error flag) is turned ON and the processing is interrupted, and the error code 50 (decimal) is stored in ERROR_ID (Error code).</li> <li>4) When the setting value of i_Station_No (Station No.) is out of range, the FB_ERROR output turns ON and processing is interrupted, and the error code 60 (decimal) is stored in ERROR_ID (Error code).<br/>Refer to the error code explanation section for details.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Compiling method             | Macro type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Restrictions and precautions | <ol style="list-style-type: none"> <li>1) The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>2) The FB cannot be used in an interrupt program.</li> <li>3) Please ensure that the FB_EN signal is capable of being turned OFF by the program. Do not use this FB in programs that are only executed once such as a subroutine, FOR-NEXT loop because it is impossible to turn OFF.</li> <li>4) This FB uses index registers Z8 and Z9. Please do not use these index registers in an interrupt program.</li> <li>5) A duplicated coil warning may occur during compile operation due to the RY signal being operated by index modification in the FB. However this is not a problem and the FB will operate without error.</li> <li>6) Every input must be provided with a value for proper FB operation.</li> <li>7) Only one master/local module can be controlled by the CC-Link IE Field system FB. To control 2 or more master/local modules by the FB, refer to "Appendix 1. When Using the FB for 2 or More Master/Local Modules".</li> <li>8) This FB uses cyclic transmission. Therefore, an interlock program for cyclic transmission is required. For the interlock program, refer to Section "1.6.1 Cyclic Transmission Program".</li> </ol> |
| FB operation type            | Pulsed execution (multiple scan execution type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Application example          | Refer to "Appendix 2. FB Library Application Examples".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Item             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Timing chart     | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p><b>[When operation completes without error]</b></p> </div> <div style="width: 48%;"> <p><b>[When an error occurs]</b></p> </div> </div>                                                                                                                                                                                                                                                                                                                                                          |
| Relevant manuals | <ul style="list-style-type: none"> <li>●CC-Link IE Field Network High-Speed Counter Module User's Manual</li> <li>●MELSEC-Q CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual</li> <li>●QCPU User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)</li> <li>●GX Works2 Version1 Operating Manual (Common)</li> <li>●GX Works2 Version1 Operating Manual (Simple Project, Function Block)</li> </ul> |

## Error codes

### ●Error code list

| Error code   | Description                                                                                        | Action                                                                                                                                                                                                                                                   |
|--------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 50 (Decimal) | The network configuration setting of the station number specified by i_Station_No is incorrect.    | Review the following setting. <ul style="list-style-type: none"> <li>● Network configuration setting<br/>Refer to (2) in Section "1.4 Setting the CC-Link IE Field Network Master/Local Module".</li> <li>● The value entered in i_Station_No</li> </ul> |
| 60 (Decimal) | The specified station number is not valid. The station number is not within the range of 1 to 120. | Please try again after confirming the setting.                                                                                                                                                                                                           |

## Labels

### ●Input labels

| Name (Comment)          | Label name    | Data type | Setting range                                                                              | Description                                                                                                                                           |
|-------------------------|---------------|-----------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Execution command       | FB_EN         | Bit       | ON, OFF                                                                                    | ON: The FB is activated.<br>OFF: The FB is not activated.                                                                                             |
| Module start XY address | i_Start_IO_No | Word      | Depends on the I/O point range of the CPU.<br>For details, refer to the CPU user's manual. | Specify the starting XY address (in hexadecimal) where the CC-Link IE Field Network master/local module is mounted. (For example, enter H10 for X10.) |
| Station No.             | i_Station_No  | Word      | 1 to 120                                                                                   | Specify the target station number.                                                                                                                    |

### ●Output labels

| Name (Comment)          | Label name | Data type | Initial value | Description                                                       |
|-------------------------|------------|-----------|---------------|-------------------------------------------------------------------|
| Execution status        | FB_ENO     | Bit       | OFF           | ON: Execution command is ON.<br>OFF: Execution command is OFF.    |
| Completed without error | FB_OK      | Bit       | OFF           | When ON, it indicates that the initial data setting is completed. |
| Error flag              | FB_ERROR   | Bit       | OFF           | When ON, it indicates that an error has occurred.                 |
| Error code              | ERROR_ID   | Word      | 0             | FB error code output.                                             |

## FB Version Upgrade History

| Version | Date       | Description   |
|---------|------------|---------------|
| 1.00A   | 2013/06/14 | First edition |

## Note

This chapter includes information related to this function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

## Appendix 1. When Using the FB for 2 or More Master/Local Modules

To use 2 or more CC-Link IE field master/local modules and to use an FB for the second and subsequent CC-Link IE field master/local modules, it is necessary to create an FB for the second and subsequent modules from the MELSOFT Library CC-Link IE field master/local module FB using the following procedure.

Four steps are required to create the FB for the second and subsequent modules.

- (1) Enter network parameters
- (2) Set global labels
- (3) Copy MELSOFT Library to create the FB for the second module
- (4) Replace devices to create the FB for the second module

Appendix 1.1. Entering Network Parameters

(1) Enter the network parameters for the second module.

| Item           | Description                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------|
| Network Type   | Select CC IE Field (Master Station).                                                                                         |
| Start I/O No.  | Set the start I/O number of the master/local module in increments of 16 points.<br>Set "0020".                               |
| Network No.    | Set the network number of the master/local module.<br>Set "2".                                                               |
| Total Stations | Set the number of slave stations connected to the master station. Include the number of reserved slave stations.<br>Set "1". |

|                | Module 1                                      | Module 2                                      |
|----------------|-----------------------------------------------|-----------------------------------------------|
| Network Type   | CC IE Field (Master Station) ▼                | CC IE Field (Master Station) ▼                |
| Start I/O No.  | 0000                                          | 0020                                          |
| Network No.    |                                               | 2                                             |
| Total Stations |                                               | 1                                             |
| Group No.      |                                               |                                               |
| Station No.    | 0                                             | 0                                             |
| Mode           | Online (Normal Mode) ▼                        | Online (Normal Mode) ▼                        |
|                | <a href="#">Network Configuration Setting</a> | <a href="#">Network Configuration Setting</a> |
|                | <a href="#">Network Operation Setting</a>     | <a href="#">Network Operation Setting</a>     |
|                | <a href="#">Refresh Parameters</a>            | <a href="#">Refresh Parameters</a>            |
|                | <a href="#">Interrupt Setting</a>             | <a href="#">Interrupt Setting</a>             |
|                | Specify Station No. by Parameter ▼            | Specify Station No. by Parameter ▼            |
|                |                                               |                                               |
|                |                                               |                                               |
|                |                                               |                                               |
|                |                                               |                                               |



(2) Set the network configuration setting for the second module.

| Item            | Description                                                                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Station No.     | Set the station number of the slave station connected to the master station.<br>Set "1".                                                                 |
| Station Type    | Set the station type of the slave station connected to the master station.<br>Set "Remote Device Station".                                               |
| RX/RV Setting   | Set assignment for RX/RV for the slave station connected to the master station.<br>(a) Points           Set "96".<br>(b) Start             Set "0000".   |
| RWw/RWr Setting | Set assignment for RWw/RWr for the slave station connected to the master station.<br>(a) Points           Set "64".<br>(b) Start             Set "0000". |

Assignment Method

Points/Start

Start/End

The column contents for refresh device will be changed corresponding to refresh parameter. Please reopen the window after completing refresh parameter setting when changing refresh method.

| Number of PLCs | Station No. | Station Type          | RX/RV Setting |       |      | RWw/RWr Setting |       |      |
|----------------|-------------|-----------------------|---------------|-------|------|-----------------|-------|------|
|                |             |                       | Points        | Start | End  | Points          | Start | End  |
| 1              | 1           | Remote Device Station | 96            | 0000  | 005F | 64              | 0000  | 003F |

(3) Enter the network parameters for the second module.

| Item        | Description                                  | Setting value                                                                                                                                                                                                            |
|-------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transfer SB | Select the link refresh range of SB device.  | <ul style="list-style-type: none"> <li>•"Link Side Points" : 512</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : SB</li> <li>•"PLC Side Start" : 0200</li> </ul>                                     |
| Transfer SW | Select the link refresh range of SW device.  | <ul style="list-style-type: none"> <li>•"Link Side Points" : 512</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : SW</li> <li>•"PLC Side Start" : 0200</li> </ul>                                     |
| Transfer 1  | Select the link refresh range of RX device.  | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RX</li> <li>•"Link Side Points" : 96</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : M</li> <li>•"PLC Side Start" : 1120</li> </ul>  |
| Transfer 2  | Select the link refresh range of RY device.  | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RY</li> <li>•"Link Side Points" : 96</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : M</li> <li>•"PLC Side Start" : 2144</li> </ul>  |
| Transfer 3  | Select the link refresh range of RWr device. | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RWr</li> <li>•"Link Side Points" : 64</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : W</li> <li>•"PLC Side Start" : 1040</li> </ul> |
| Transfer 4  | Select the link refresh range of RWw device. | <ul style="list-style-type: none"> <li>•"Link Side Dev. Name" : RWw</li> <li>•"Link Side Points" : 64</li> <li>•"Link Side Start" : 0000</li> <li>•"PLC Side Dev. Name" : W</li> <li>•"PLC Side Start" : 1140</li> </ul> |

\*Change the Points of Link Side and Dev. Name and Start of PLC Side according to the system.

Assignment Method

- Points/Start
- Start/End

|             | Link Side |        |       |      |   | PLC Side  |        |        |        |
|-------------|-----------|--------|-------|------|---|-----------|--------|--------|--------|
|             | Dev. Name | Points | Start | End  |   | Dev. Name | Points | Start  | End    |
| Transfer SB | SB        | 512    | 0000  | 01FF | ↔ | SB        | 512    | 0200   | 03FF   |
| Transfer SW | SW        | 512    | 0000  | 01FF | ↔ | SW        | 512    | 0200   | 03FF   |
| Transfer 1  | RX        | 96     | 0000  | 005F | ↔ | M         | 96     | 1120   | 1215   |
| Transfer 2  | RY        | 96     | 0000  | 005F | ↔ | M         | 96     | 2144   | 2239   |
| Transfer 3  | RWr       | 64     | 0000  | 003F | ↔ | W         | 64     | 001040 | 00107F |
| Transfer 4  | RWw       | 64     | 0000  | 003F | ↔ | W         | 64     | 001140 | 00117F |
| Transfer 5  |           |        |       |      | ↔ |           |        |        |        |
| Transfer 6  |           |        |       |      | ↔ |           |        |        |        |
| Transfer 7  |           |        |       |      | ↔ |           |        |        |        |
| Transfer 8  |           |        |       |      | ↔ |           |        |        |        |

## Appendix 1.2. Entering Global Labels

Enter the global labels for the second module.

Specify label names for the second module. The names must be different from the label names for the first module.

The following explains how to set the global label for the second module.

### (1) M\_F\_RX2 Set remote input (RX).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RX2".                                                           |
| Data Type  | Select "Bit".                                                              |
| Device     | Enter the refresh device set for the refresh parameter with a "Z9" prefix. |

### (2) M\_F\_RY2 Set remote output (RY).

| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RY2".                                                           |
| Data Type  | Select "Bit".                                                              |
| Device     | Enter the refresh device set for the refresh parameter with a "Z8" prefix. |

### (3) M\_F\_RWr Set remote register (RWr).

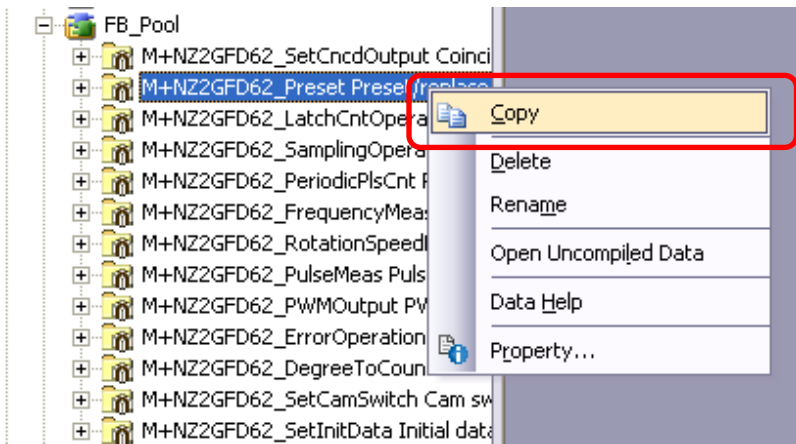
| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RWr2".                                                          |
| Data Type  | Select "Word [Signed]".                                                    |
| Device     | Enter the refresh device set for the refresh parameter with a "Z7" prefix. |

### (4) M\_F\_RWw Set remote register (RWw).

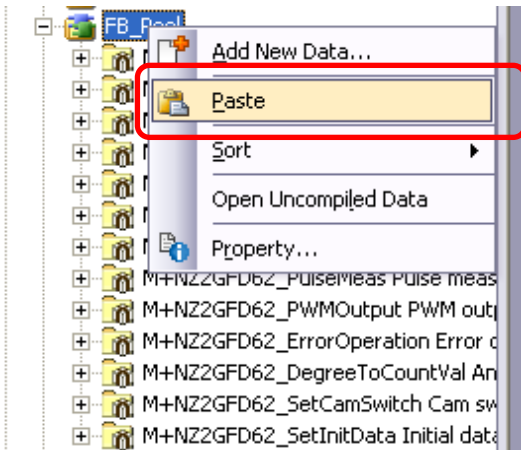
| Item       | Description                                                                |
|------------|----------------------------------------------------------------------------|
| Class      | Select "VAR_GLOBAL".                                                       |
| Label Name | Enter "M_F_RWw2".                                                          |
| Data Type  | Select "Word [Signed]".                                                    |
| Device     | Enter the refresh device set for the refresh parameter with a "Z6" prefix. |

### Appendix 1.3. Copying MELSOFT Library to Create an FB for the Second Module

(1) Select an FB necessary for the second module from the Project tab of the Navigation window. Execute the Copy command.



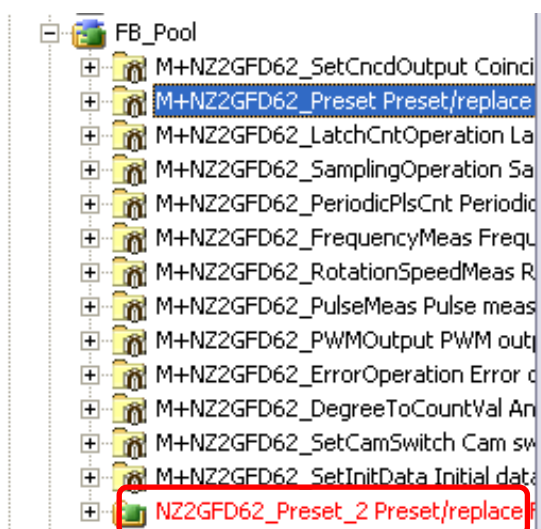
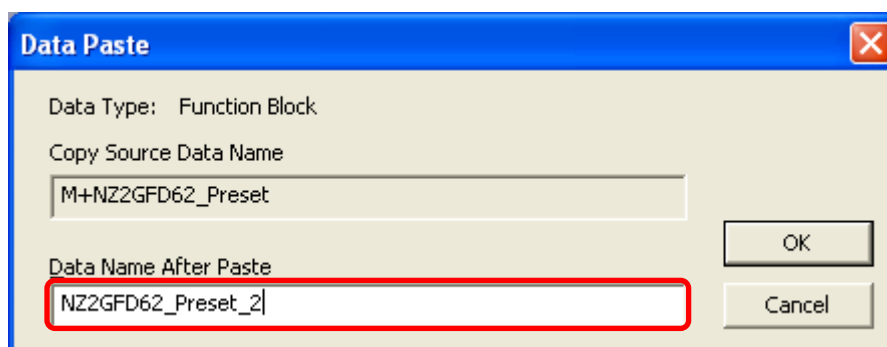
(2) Paste the copied FB to "FB\_Pool" on the Project tab of the Navigation window.



(3) After selecting the paste command, a window appears to enter an FB name. Enter an FB name after paste.

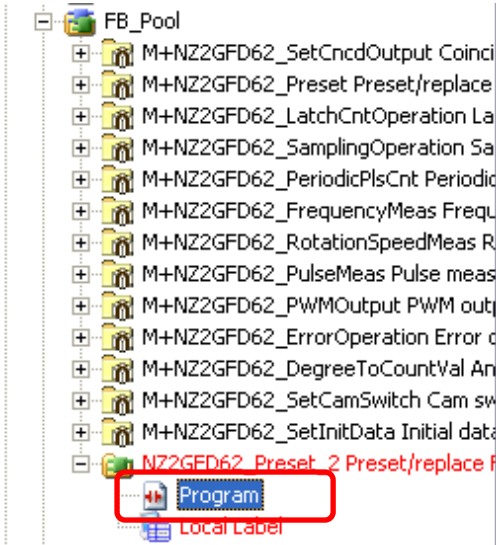
(Example: NZ2GFD62\_Preset\_02)

[Note] The character string "+" of M+... cannot be entered.

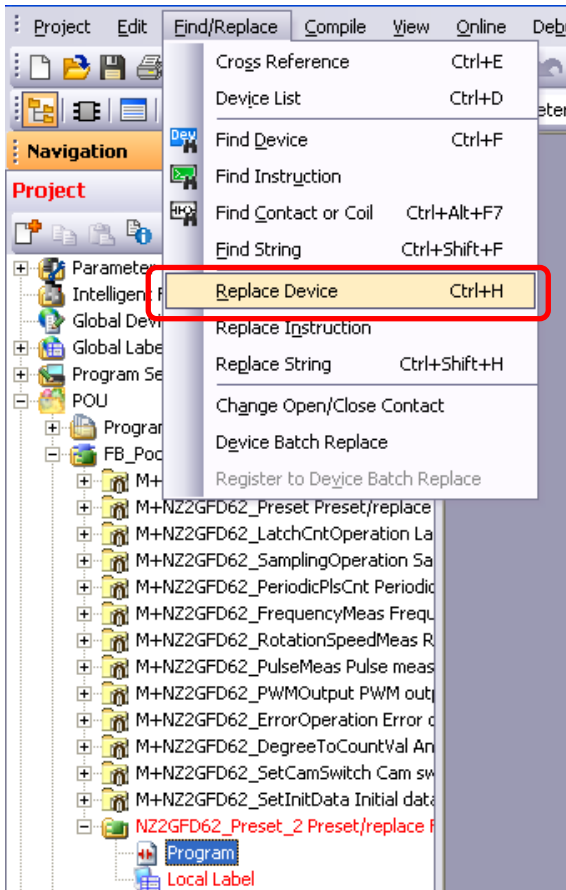


#### Appendix 1.4. Replacing Devices to Create the FB for the Second Module

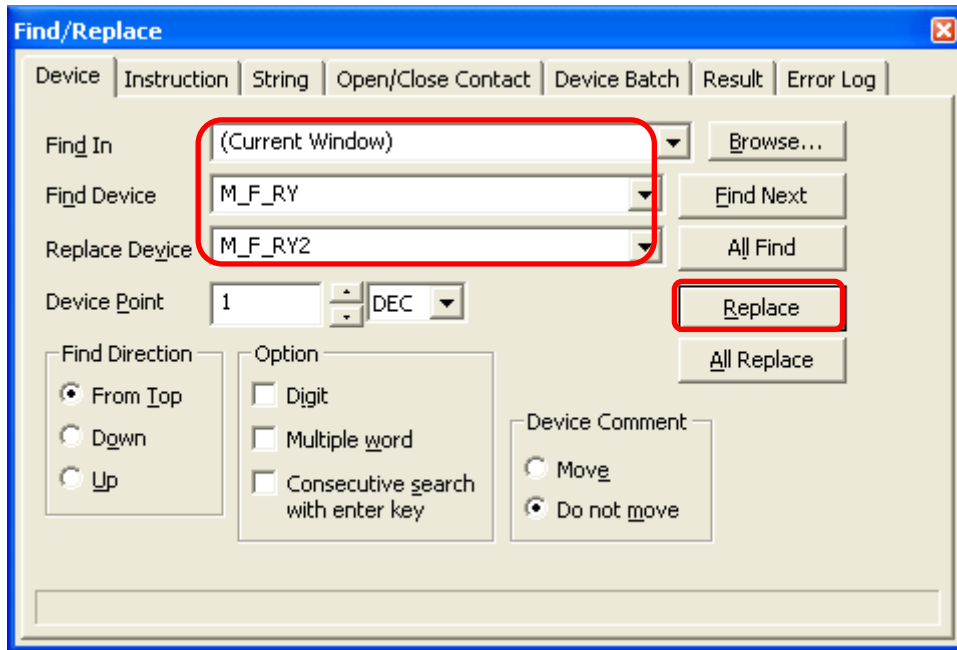
(1) Open "Program" of the added FB.



(2) Select "Find/Replace" menu and then select "Replace Device". "Find/Replace" window appears.



(3) Select "Current Window" from Find In, "M\_F\_RY" from Find Device, and "M\_F\_RY2" from Replace Device. Then replace all devices. In the same way, replace "M\_F\_RX", "M\_F\_RWr" and "M\_F\_RWw".



By performing the steps above, the CC-Link IE field master/local FB can be used for the second module.

[Point]

- (1) To use multiple FBs for the second CC-Link IE field master/local module, repeat "Appendix 1. When Using the FB for 2 or More Master/Local Modules".
- (2) To use an FB for third or subsequent CC-Link IE field master/local modules, make sure that the "Global label name", "Data Name After Paste" that is set when pasting FB data and "Replace Device" that is set when replacing devices are not duplicated for the first and second modules.

[Note]

If MELSOFT Library is upgraded, MELSOFT Library FBs can be upgraded by importing them again. However, the FBs that were created by following these procedures for the second and subsequent modules are not upgraded even if the FBs are imported again. Therefore, create FBs again by following "Appendix 1. When Using the FB for 2 or More Master/Local Modules".

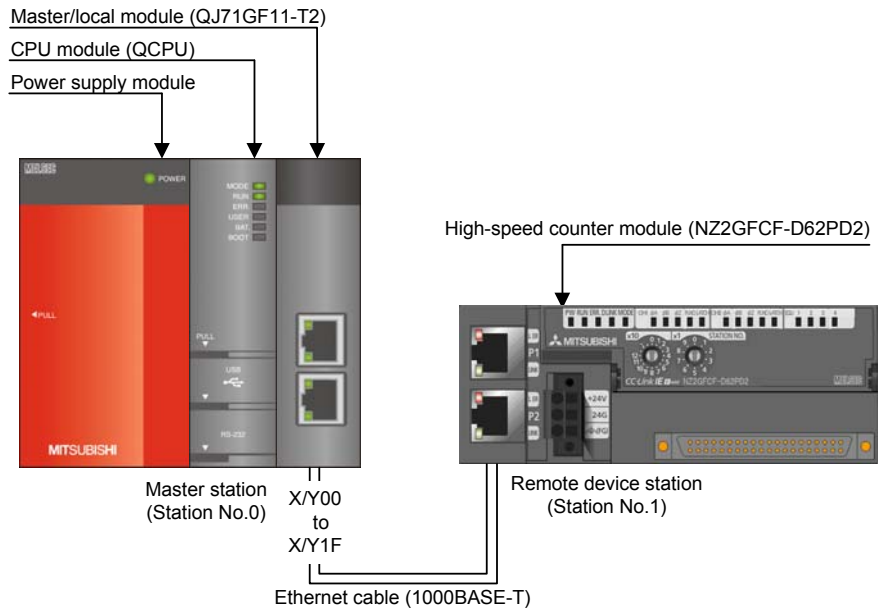


## Appendix 2. FB Library Application Examples

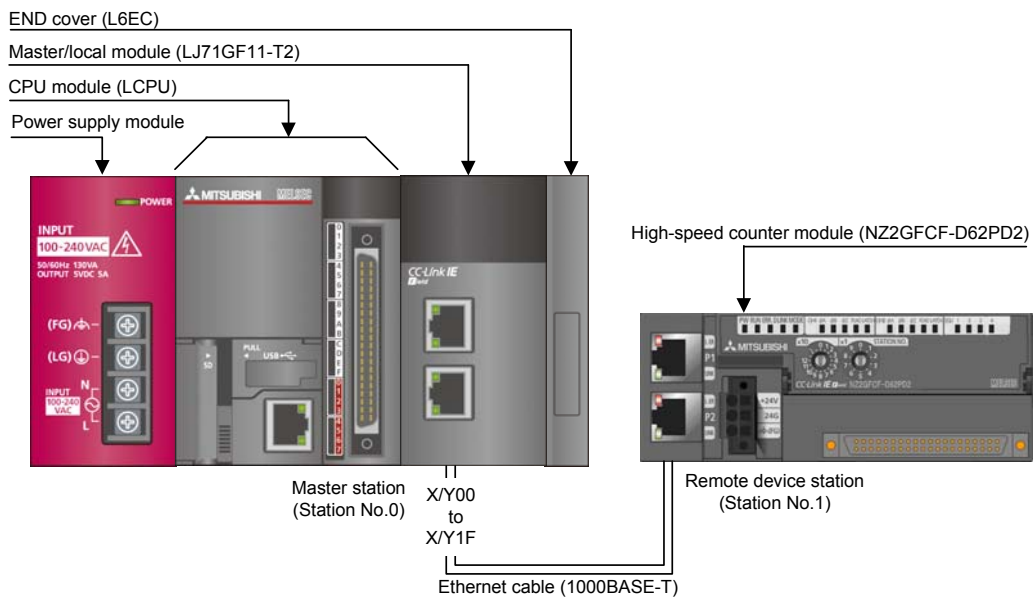
The following are application examples of CC-Link IE Field Network high-speed counter module FB.

### 1) System configuration

#### (1) Q series system configuration



#### (2) L series system configuration



#### Reminder

- Every input must be provided with a value for proper FB operation.  
If not set, the values will be unspecified.
- Abbreviations may be used in the label comments due to the limitation on the number of the characters to display in GX Works2.

## Interlock program

\*This is the interlock program for when using both cyclic and transient transmission.



Write an FB shown in the following sections

## 2) List of devices

### a) External input (commands)

| Device | FB name                      | Application (ON details)                    |
|--------|------------------------------|---------------------------------------------|
| M0     | M+NZ2GFD62_SetCncdOutput     | Coincidence output function setting request |
| M10    | M+NZ2GFD62_Preset            | Preset/replace execution command            |
| M20    | M+NZ2GFD62_LatchCntOperation | Latch counter command                       |
| M30    | M+NZ2GFD62_SamplingOperation | Sampling counter command                    |
| M40    | M+NZ2GFD62_PeriodicPlsCnt    | Periodic pulse counter command              |
| M50    | M+NZ2GFD62_FrequencyMeas     | Frequency measurement command               |
| M60    | M+NZ2GFD62_RotationSpeedMeas | Rotation speed measurement command          |
| M70    | M+NZ2GFD62_PulseMeas         | Pulse measurement command                   |
| M71    |                              | Function input terminal measurement         |
| M72    |                              | Latch counter input terminal measurement    |
| M80    | M+NZ2GFD62_PWMOutput         | PWM output command                          |
| M90    | M+NZ2GFD62_ErrorOperation    | Error operation start                       |
| M91    |                              | Error reset request                         |
| M100   | M+NZ2GFD62_DegreeToCountVal  | Angle conversion execution command          |
| M110   | M+NZ2GFD62_SetCamSwitch      | Cam switch setting request                  |
| D110   |                              | Write data                                  |
| M150   | M+NZ2GFD62_SetInitData       | Initial data setting request                |

b) External output (checks)

| Device | FB name                      | Application (ON details)                           |
|--------|------------------------------|----------------------------------------------------|
| M1     | M+NZ2GFD62_SetCncdOutput     | Coincidence output function FB ready               |
| M2     |                              | Coincidence output function setting complete       |
| F0     |                              | Coincidence output function setting FB error       |
| D0     |                              | Coincidence output function setting FB error code  |
| M11    | M+NZ2GFD62_Preset            | Preset/replace FB ready                            |
| M12    |                              | Preset/replace execution complete                  |
| F5     |                              | Preset/replace FB error                            |
| D10    |                              | Preset/replace FB error code                       |
| M21    | M+NZ2GFD62_LatchCntOperation | Latch counter function FB ready                    |
| M22    |                              | Latch counter function execution complete          |
| D20    |                              | Latch count value                                  |
| F10    |                              | Latch counter FB error                             |
| D22    |                              | Latch counter function FB error code               |
| M31    | M+NZ2GFD62_SamplingOperation | Sampling function FB ready                         |
| M32    |                              | Sampling counter function execution complete       |
| D30    |                              | Sampling count value                               |
| F15    |                              | Sampling counter FB error                          |
| D32    |                              | Sampling function FB error code                    |
| M41    | M+NZ2GFD62_PeriodicPlsCnt    | Periodic pulse counter function FB ready           |
| M42    |                              | Periodic pulse counter function execution complete |
| D40    |                              | Periodic pulse count, difference value             |
| D42    |                              | Periodic pulse count, present value                |
| F20    |                              | Periodic pulse counter FB error                    |
| D44    |                              | Periodic pulse function FB error code              |
| M51    | M+NZ2GFD62_FrequencyMeas     | Frequency measurement function FB ready            |
| M52    |                              | Frequency measurement function execution complete  |
| D50    |                              | Measured frequency value                           |
| F25    |                              | Frequency measurement FB error                     |
| D52    |                              | Frequency measurement function FB error code       |
| M61    | M+NZ2GFD62_RotationSpeedMeas | Rotation speed measurement function FB ready       |
| M62    |                              | Rotation speed measurement execution complete      |
| D60    |                              | Measured rotation speed value                      |
| F30    |                              | Rotation speed measurement FB error                |
| D62    |                              | Rotation speed measurement function FB error code  |

| Device | FB name                           | Application (ON details)                            |
|--------|-----------------------------------|-----------------------------------------------------|
| M73    | M+NZ2GFD62_PulseMeas              | Pulse measurement function FB ready                 |
| M74    |                                   | Pulse measurement execution complete                |
| M75    |                                   | Update flag (Function input terminal)               |
| D70    |                                   | Measured pulse value (Function input terminal)      |
| M76    |                                   | Update flag (Latch counter input terminal)          |
| D72    |                                   | Measured pulse value (Latch counter input terminal) |
| F35    |                                   | Pulse measurement command FB error                  |
| D74    |                                   | Pulse measurement function FB error code            |
| M81    |                                   | M+NZ2GFD62_PWMOutput                                |
| M82    | PWM output execution complete     |                                                     |
| F40    | PWM output FB error               |                                                     |
| D80    | PWM output function FB error code |                                                     |
| M92    | M+NZ2GFD62_ErrorOperation         | Error operation FB ready                            |
| M93    |                                   | Error reset execution complete                      |
| M94    |                                   | Module error detection                              |
| D90    |                                   | Module error code                                   |
| M95    |                                   | Module warning detection                            |
| D91    |                                   | Module warning code                                 |
| F45    |                                   | Error operation FB error                            |
| D92    |                                   | Error operation function FB error code              |
| M101   | M+NZ2GFD62_DegreeToCountVal       | Angle conversion FB ready                           |
| M102   |                                   | Angle conversion execution complete                 |
| D100   |                                   | Count value                                         |
| F50    |                                   | Angle conversion FB error                           |
| D102   |                                   | Angle conversion function FB error code             |
| M111   | M+NZ2GFD62_SetCamSwitch           | Cam switch setting write ready                      |
| M112   |                                   | Cam switch setting write complete                   |
| F55    |                                   | Cam switch setting FB error                         |
| D142   |                                   | Cam switch setting FB error code                    |
| M151   | M+NZ2GFD62_SetInitData            | Initial data setting FB ready                       |
| M152   |                                   | Initial data setting FB complete                    |
| F60    |                                   | Initial data setting FB error                       |
| D150   |                                   | Initial data setting FB error code                  |

### 3) Global label setting

#### a) Common setting

| Class      | Label name | Data type     | Device  |
|------------|------------|---------------|---------|
| VAR_GLOBAL | M_F_RX     | Bit           | M1024Z9 |
| VAR_GLOBAL | M_F_RY     | Bit           | M2048Z8 |
| VAR_GLOBAL | M_F_RWr    | Word [Signed] | W1000Z7 |
| VAR_GLOBAL | M_F_RWw    | Word [Signed] | W1100Z6 |

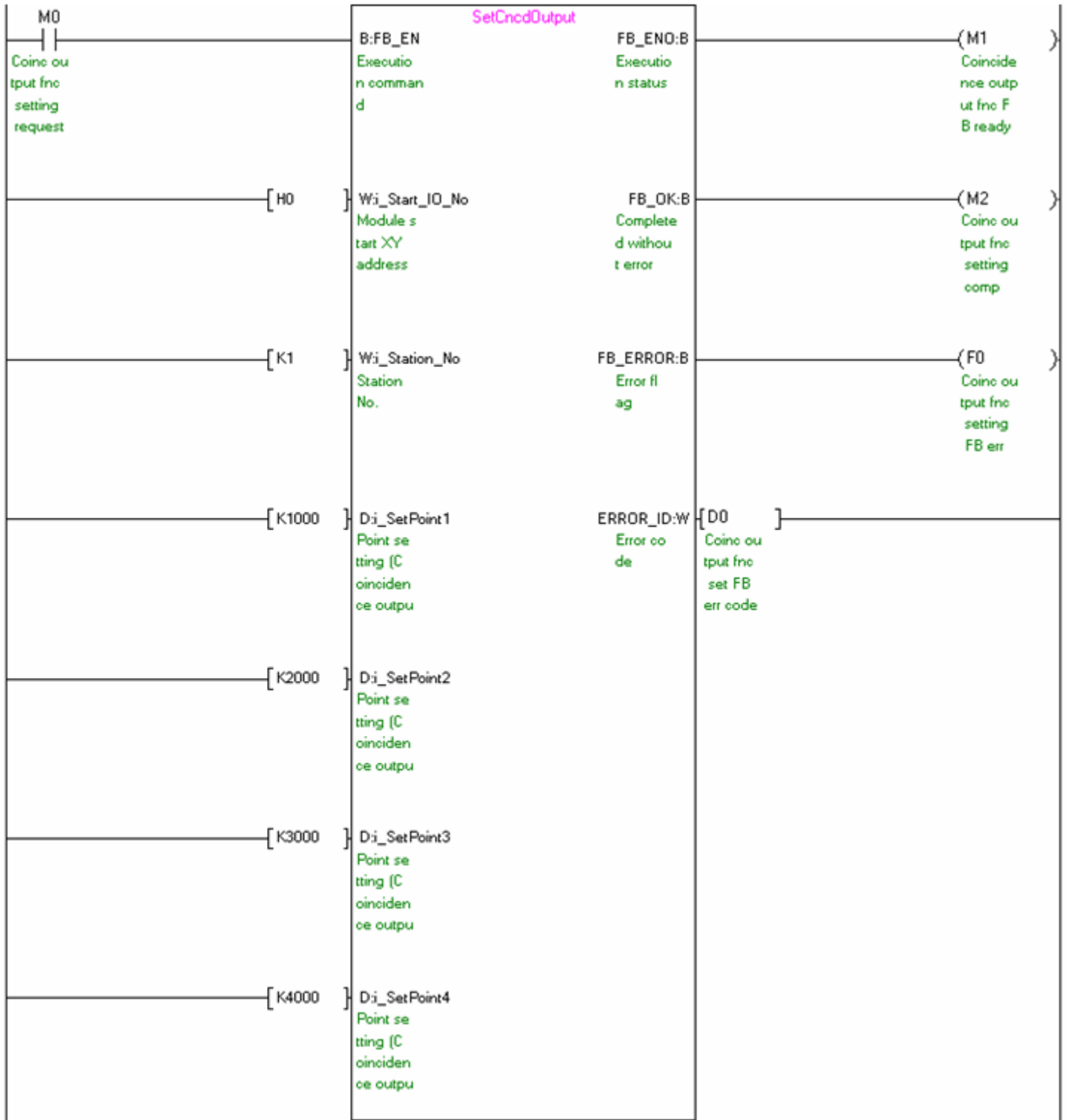
## 4) Programs

M+NZ2GFD62\_SetCncdOutput (Coincidence output function setting)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_SetPoint1   | K1000         | Set the point setting (coincidence output 1) to 1,000.                                               |
| i_SetPoint2   | K2000         | Set the point setting (coincidence output 2) to 2,000.                                               |
| i_SetPoint3   | K3000         | Set the point setting (coincidence output 3) to 3,000.                                               |
| i_SetPoint4   | K4000         | Set the point setting (coincidence output 4) to 4,000.                                               |

By turning ON M0, the point of the coincidence output is set and the coincidence output is reset.



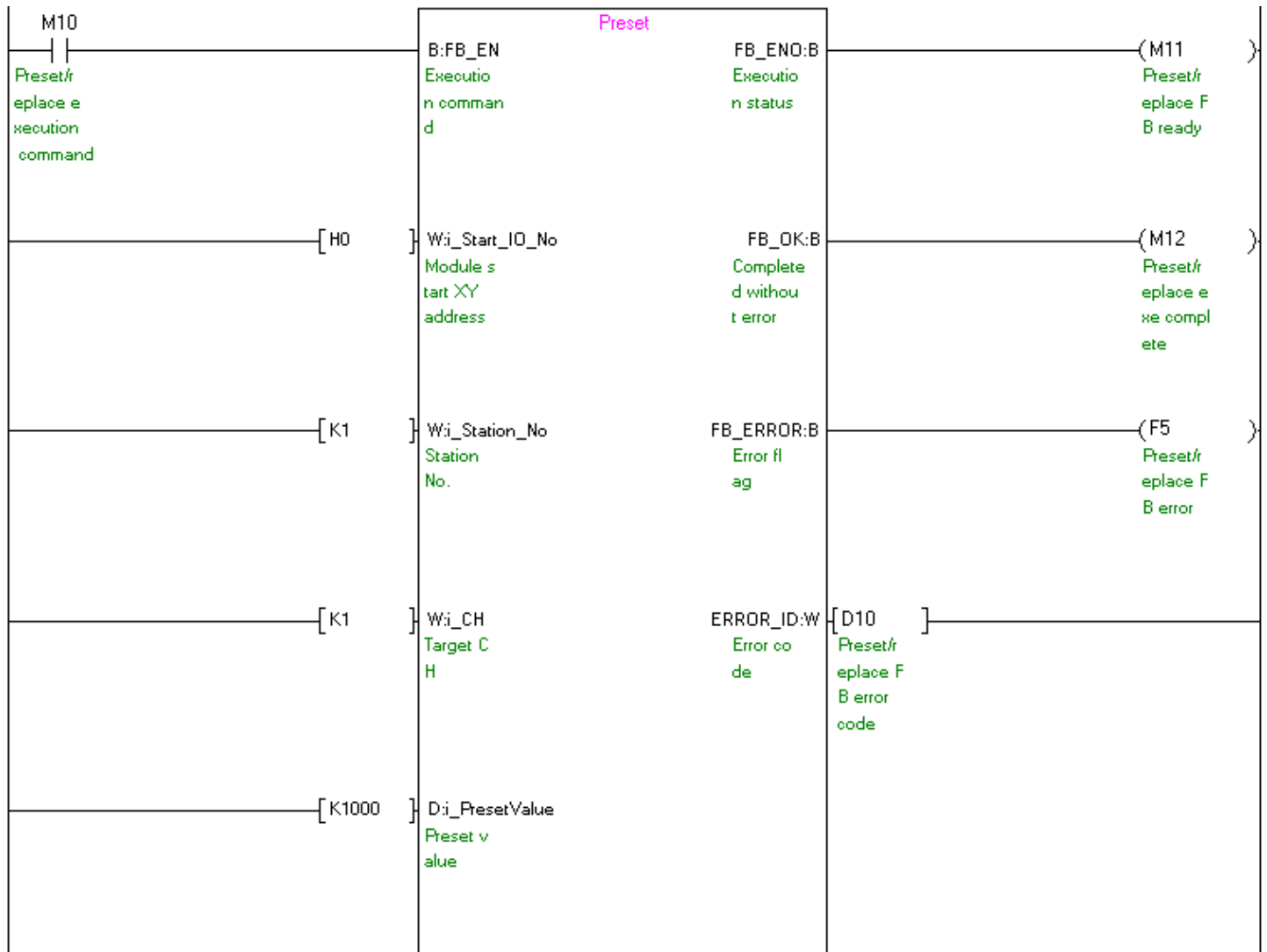


M+NZ2GFD62\_Preset (Preset/replace)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| I_CH          | K1            | Set the target channel to channel 1.                                                                 |
| i_PresetValue | K1000         | Set the preset value to 1,000.                                                                       |

By turning ON M10, the preset/replace of the present value is performed.

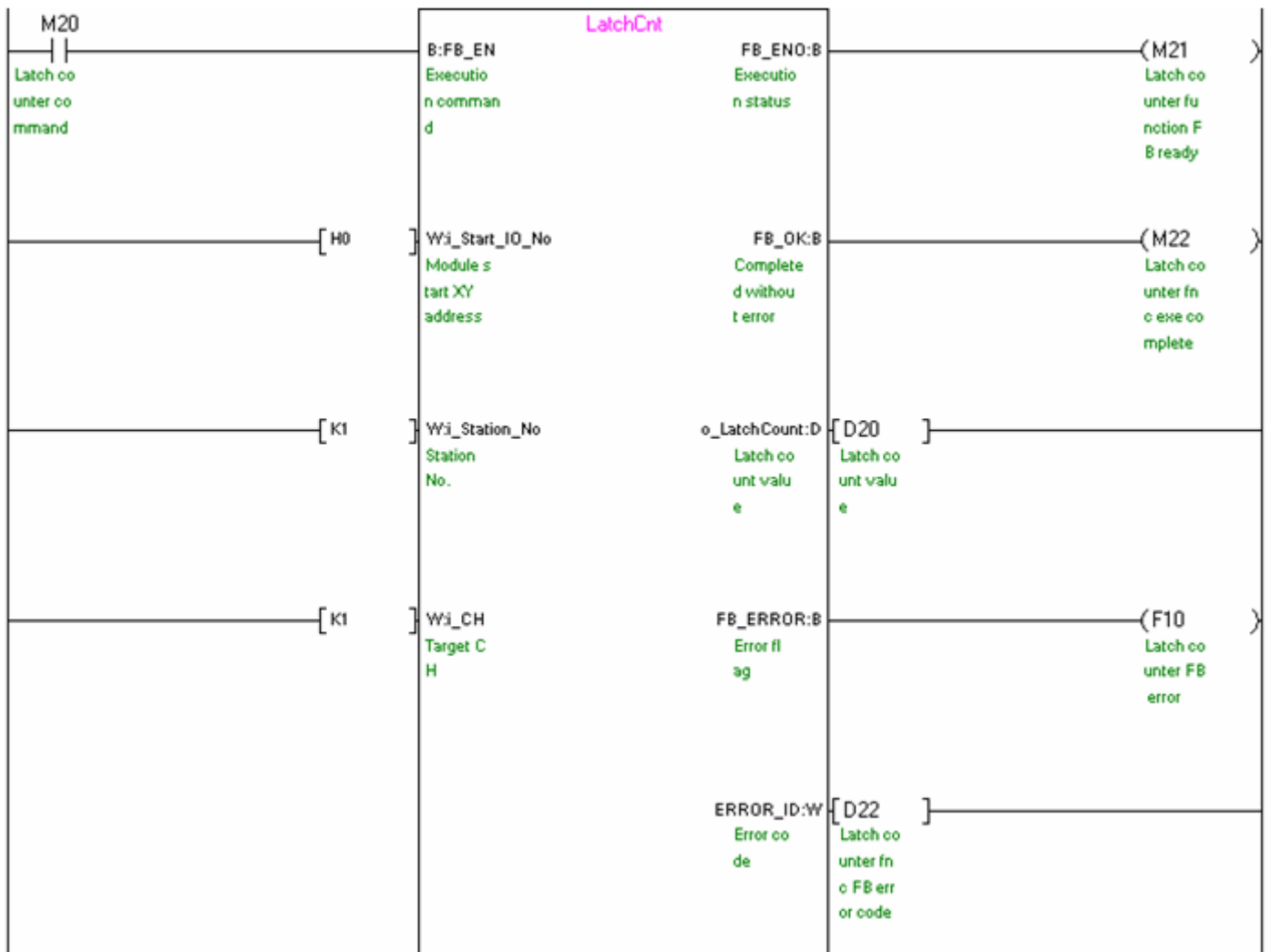


M+NZ2GFD62\_LatchCntOperation (Latch counter function operation)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH          | K1            | Set the target channel to channel 1.                                                                 |

By turning ON M20, the latch count value is read.

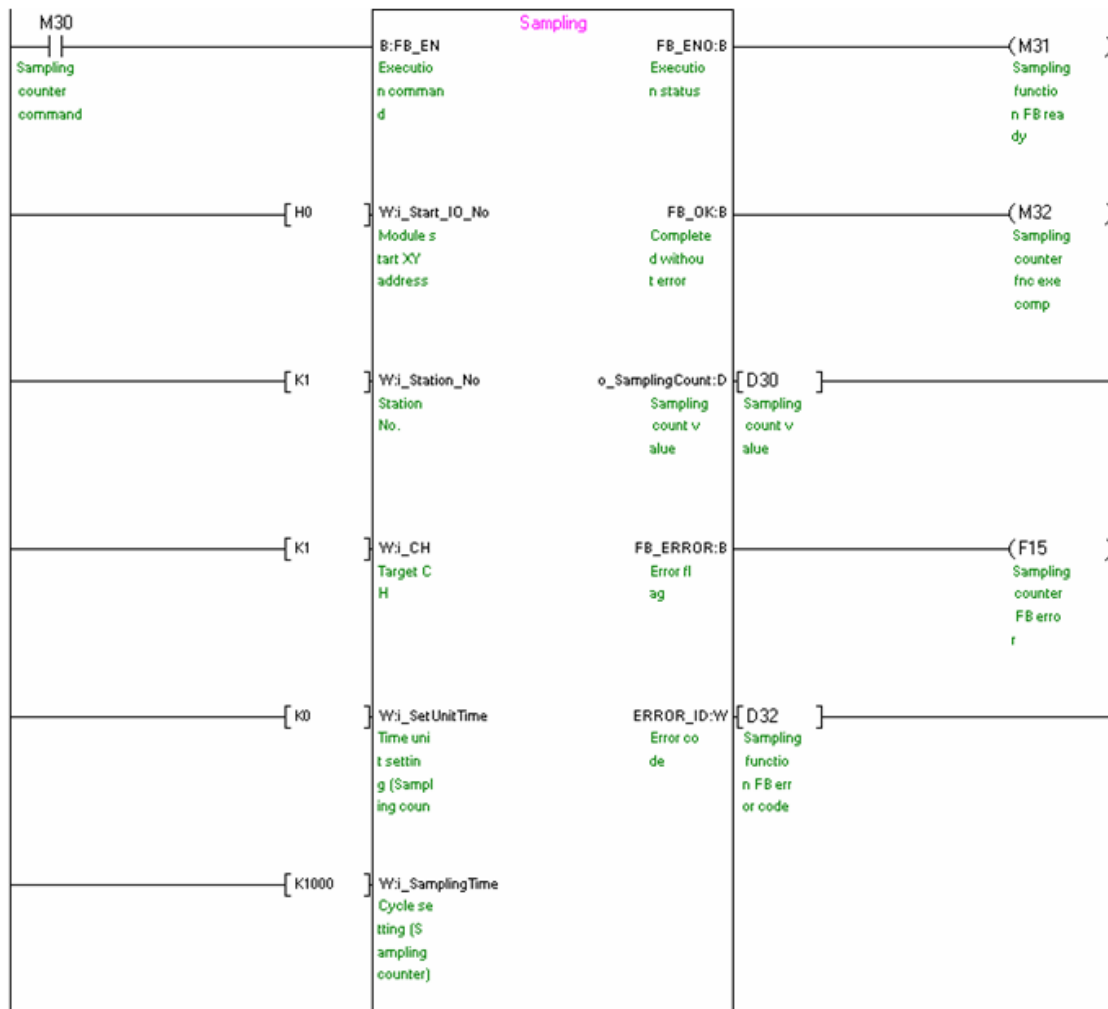


M+NZ2GFD62\_SamplingOperation (Sampling counter function operation)

The example below shows a program with the following conditions.

| Label name     | Setting value | Description                                                                                          |
|----------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No  | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No   | K1            | Set the target station number to 1.                                                                  |
| i_CH           | K1            | Set the target channel to channel 1.                                                                 |
| i_SetUnitTime  | K0            | Set the time unit setting (sampling counter) to "0: 1ms".                                            |
| i_SamplingTime | K1000         | Set the cycle setting (sampling counter) to 1,000.                                                   |

By turning ON M30, the sampling count value is read.

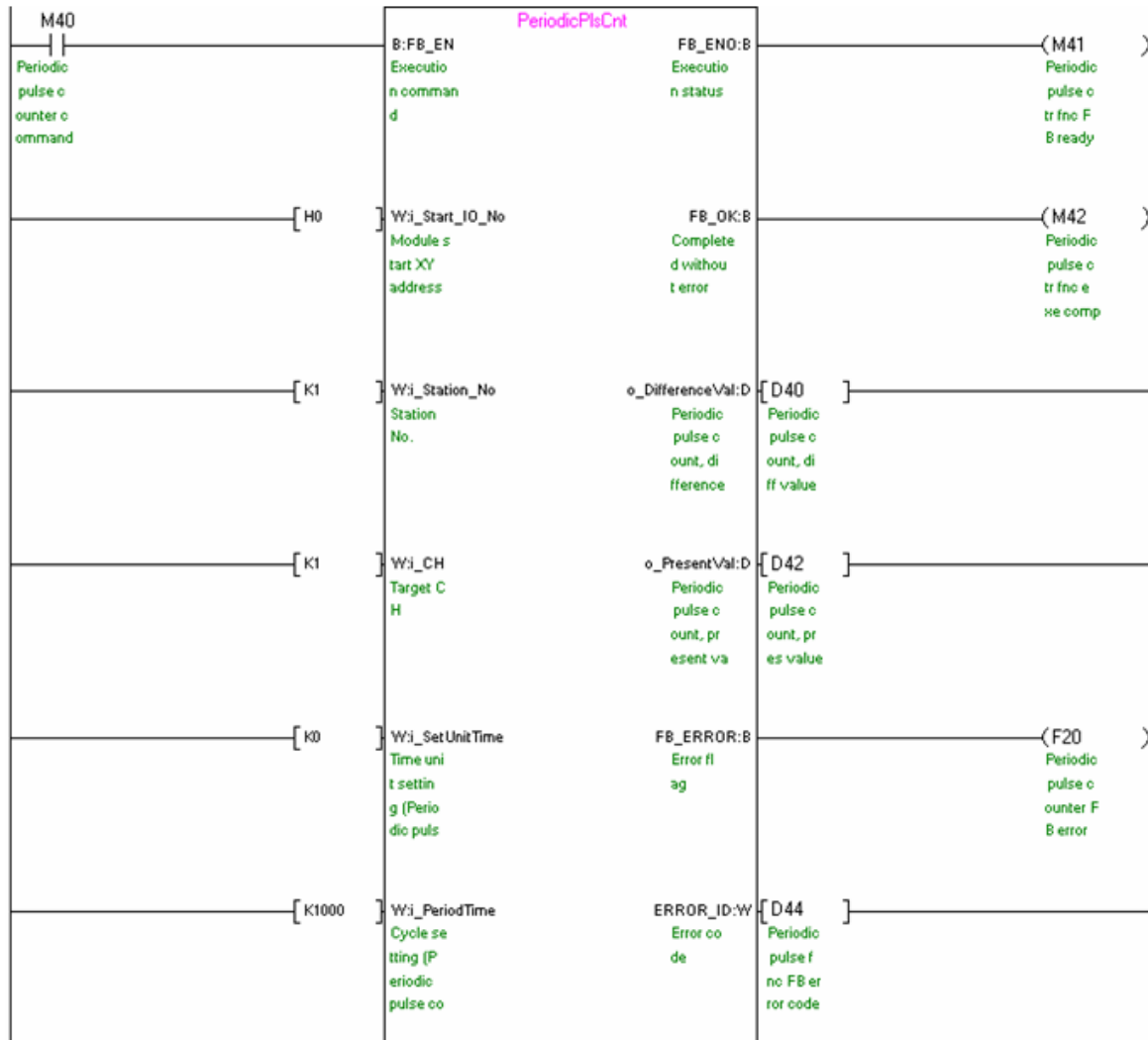


M+NZ2GFD62\_PeriodicPlsCnt (Periodic pulse counter function operation)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH          | K1            | Set the target channel to channel 1.                                                                 |
| i_SetUnitTime | K0            | Set the time unit setting (periodic pulse counter) to "0: 1ms".                                      |
| i_PeriodTime  | K1000         | Set the cycle setting (periodic pulse counter) to 1,000.                                             |

By turning ON M40, the periodic pulse count difference value and periodic pulse count present value are read.

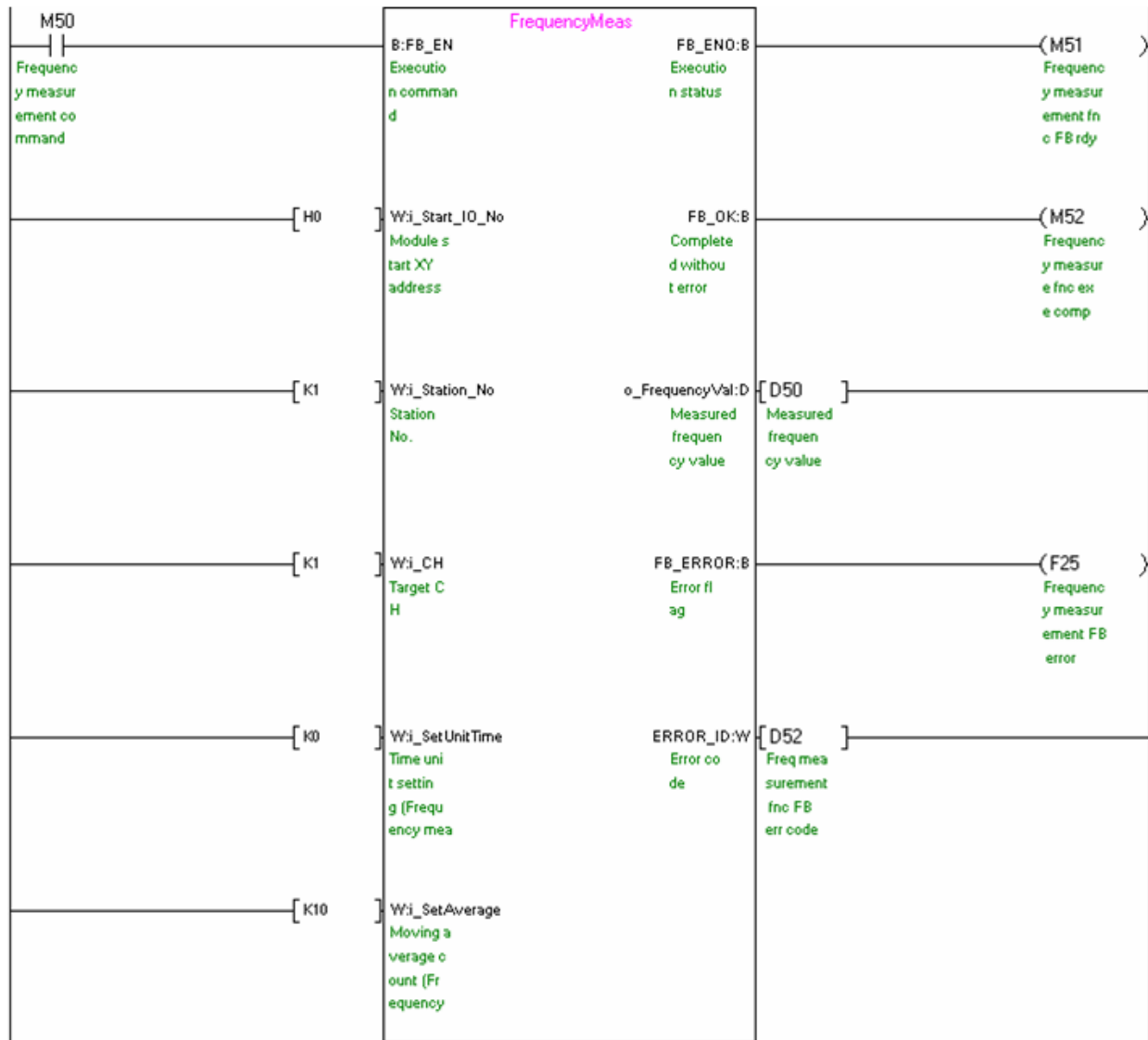


M+NZ2GFD62\_FrequencyMeas (Frequency measurement)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH          | K1            | Set the target channel to channel 1.                                                                 |
| i_SetUnitTime | K0            | Set the time unit setting (frequency measurement) to "0: 0.01s".                                     |
| i_SetAverage  | K10           | Set the moving average count (frequency measurement) to 10.                                          |

By turning ON M50, the measured frequency value that has been calculated is read.

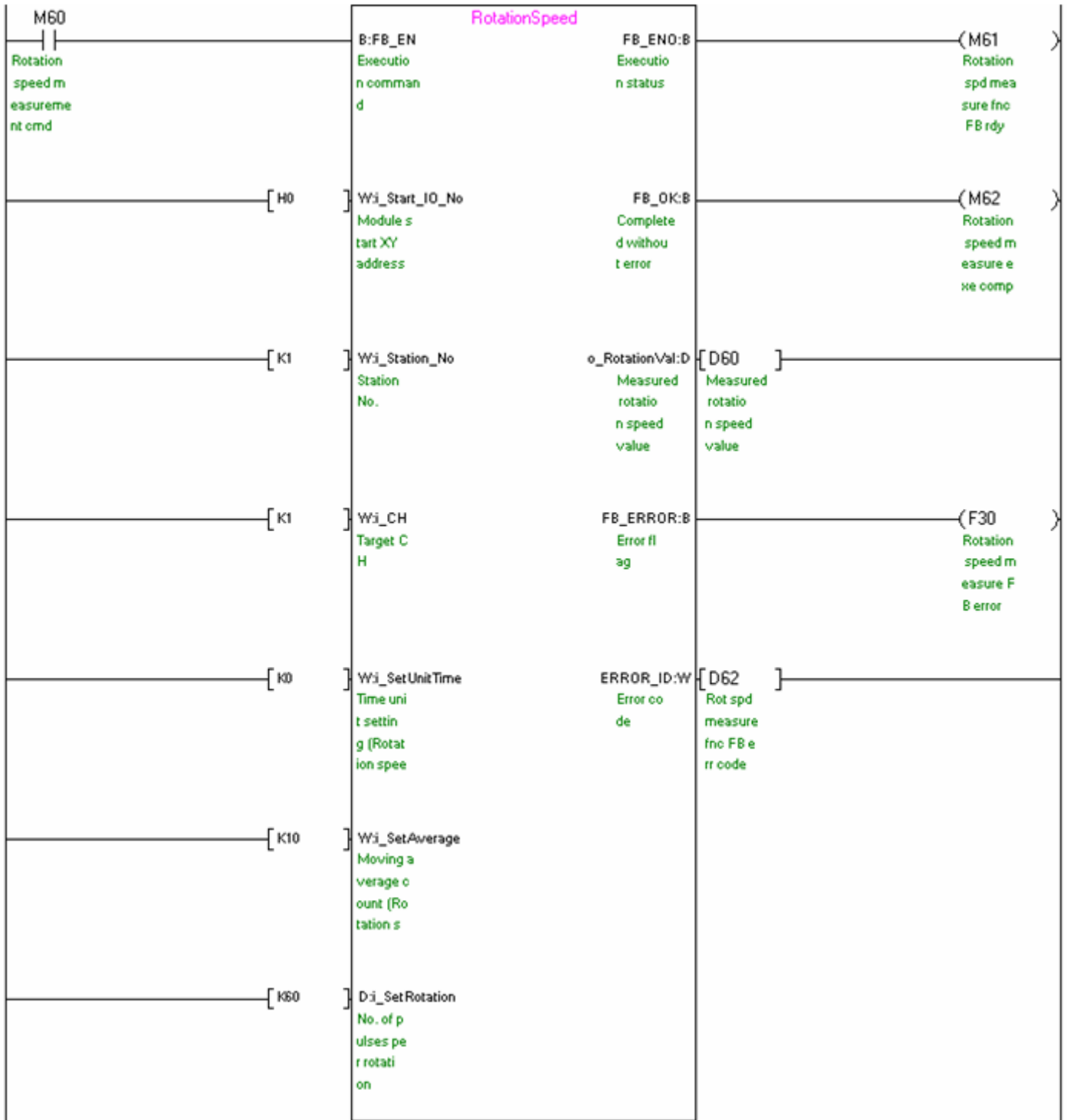


## M+NZ2GFD62\_RotationSpeedMeas (Rotation speed measurement)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH          | K1            | Set the target channel to channel 1.                                                                 |
| i_SetUnitTime | K0            | Set the time unit setting (rotation speed measurement) to "0: 0.01s".                                |
| i_SetAverage  | K10           | Set the moving average count (rotation speed measurement) to 10.                                     |
| i_SetRotation | K60           | Set the number of pulses per rotation to 60.                                                         |

By turning ON M60, the measured rotation speed value that has been calculated is read.



## M+NZ2GFD62\_PulseMeas (Pulse measurement)

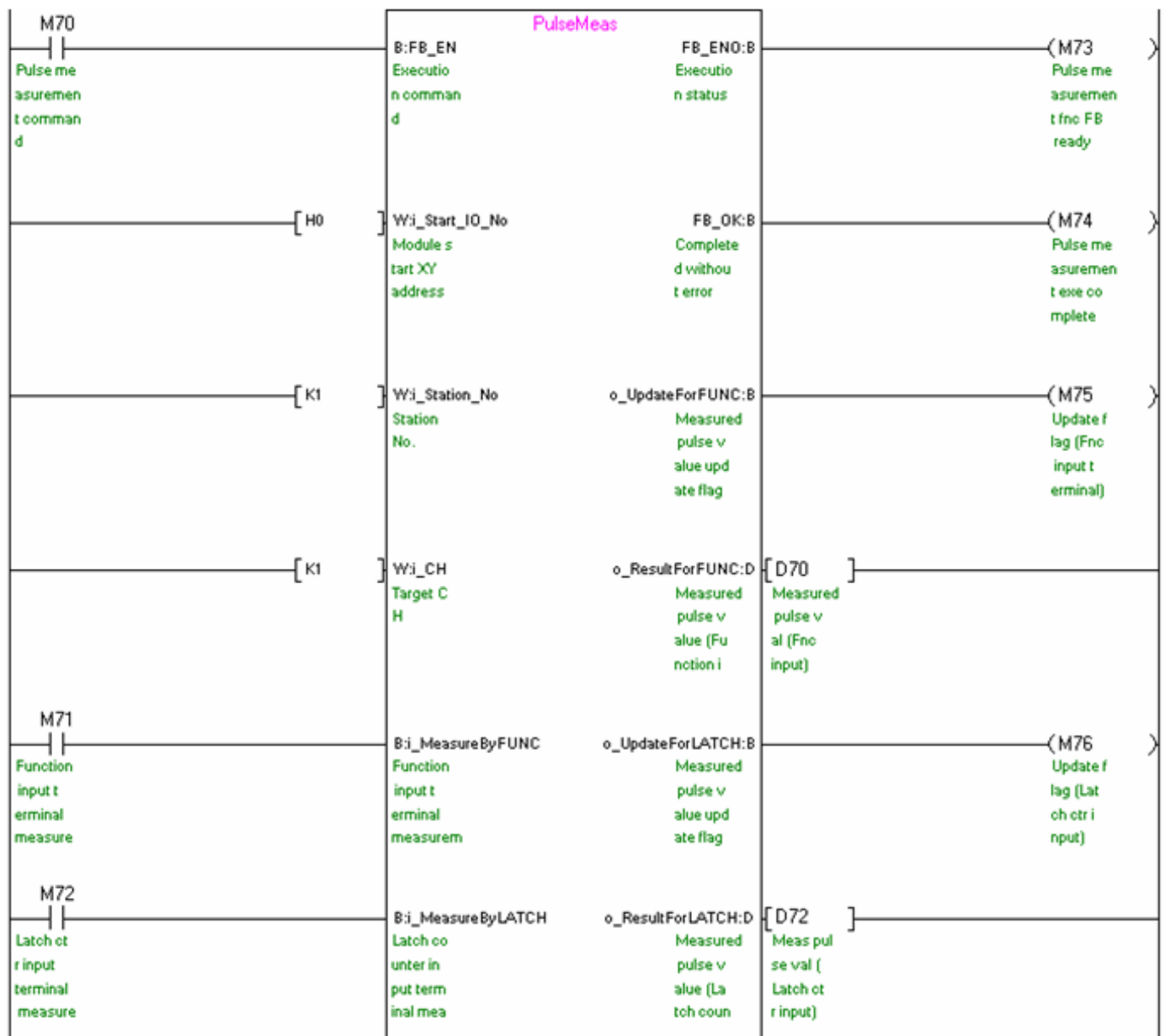
The example below shows a program with the following conditions.

| Label name       | Setting value | Description                                                                                          |
|------------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No    | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No     | K1            | Set the target station number to 1.                                                                  |
| i_CH             | K1            | Set the target channel to channel 1.                                                                 |
| i_MeasureByFUNC  | ON/OFF        | Turn ON when performing the pulse measurement with the function input terminal.                      |
| i_MeasureByLATCH | ON/OFF        | Turn ON when performing the pulse measurement with the latch counter input terminal.                 |

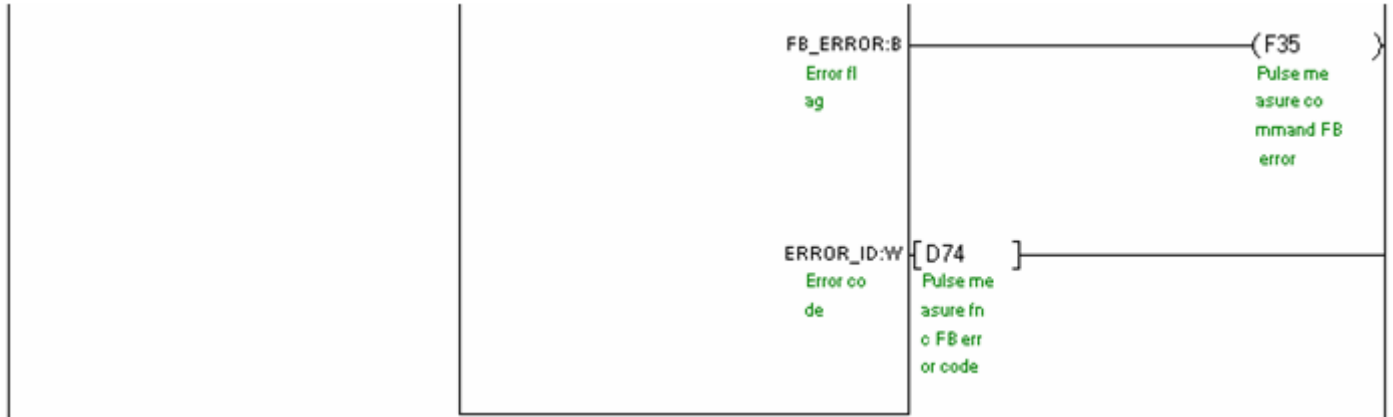
After turning ON M70, by turning ON M71, the pulse measurement is performed with the function input terminal.

After turning ON M70, by turning ON M72, the pulse measurement is performed with the latch counter input terminal.





(Continues on next page.)

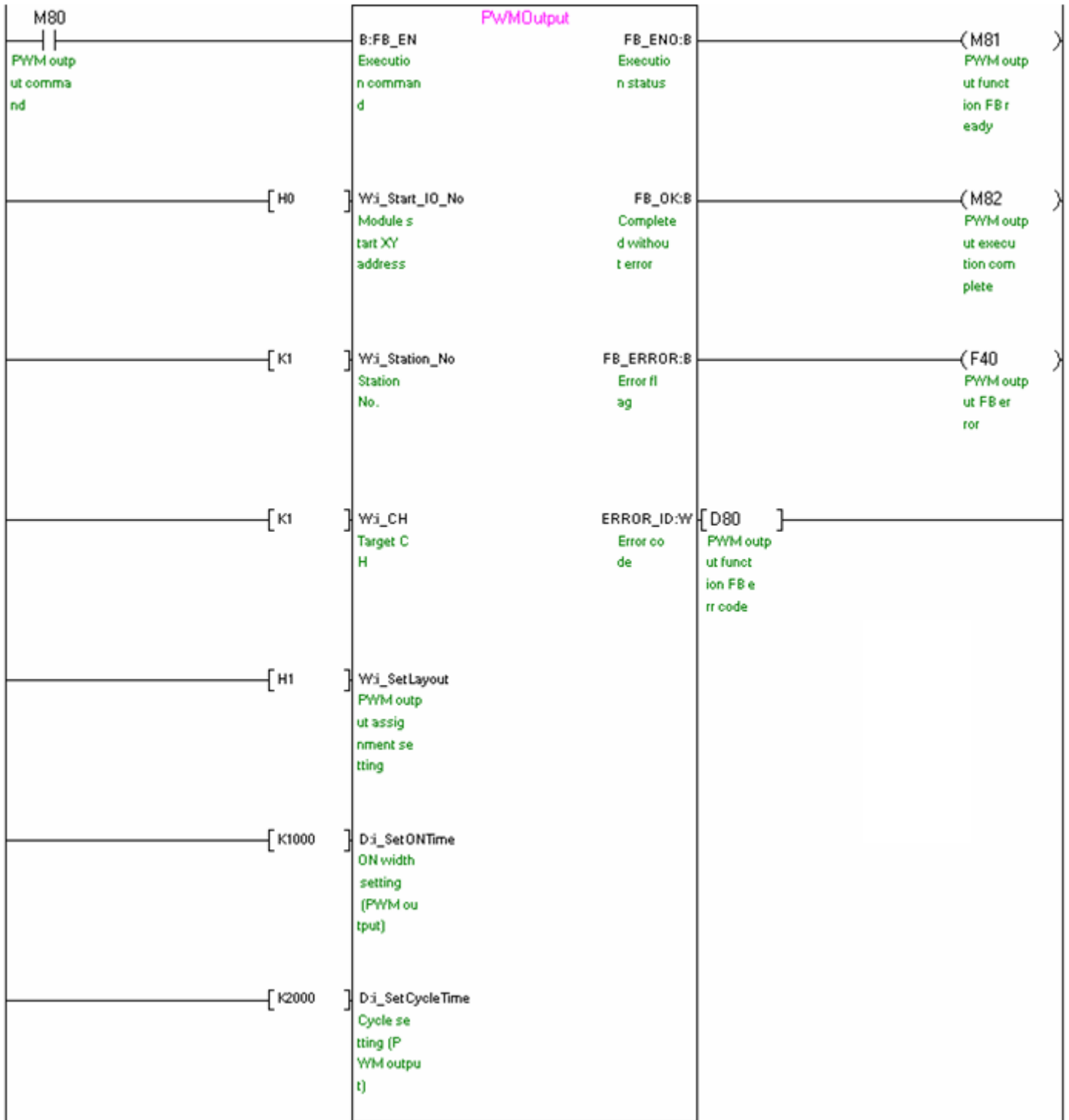


## M+NZ2GFD62\_PWMOutput (PWM output)

The example below shows a program with the following conditions.

| Label name     | Setting value | Description                                                                                          |
|----------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No  | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No   | K1            | Set the target station number to 1.                                                                  |
| i_CH           | K1            | Set the target channel to channel 1.                                                                 |
| i_SetLayout    | H1            | Set the PWM output assignment setting to 1H.                                                         |
| i_SetONTime    | K1000         | Set the ON width setting (PWM output) to 1,000.                                                      |
| i_SetCycleTime | K2000         | Set the cycle setting (PWM output) to 2,000.                                                         |

By turning ON M80, the PWM output function is executed.



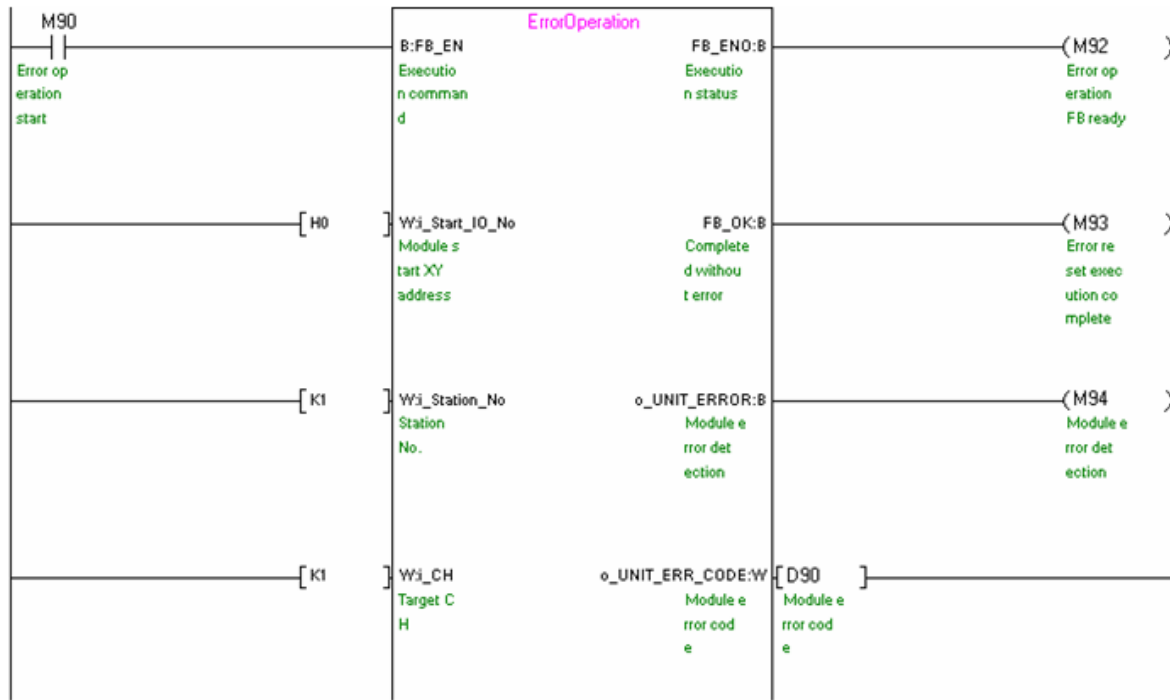
M+NZ2GFD62\_ErrorOperation (Error operation)

The example below shows a program with the following conditions.

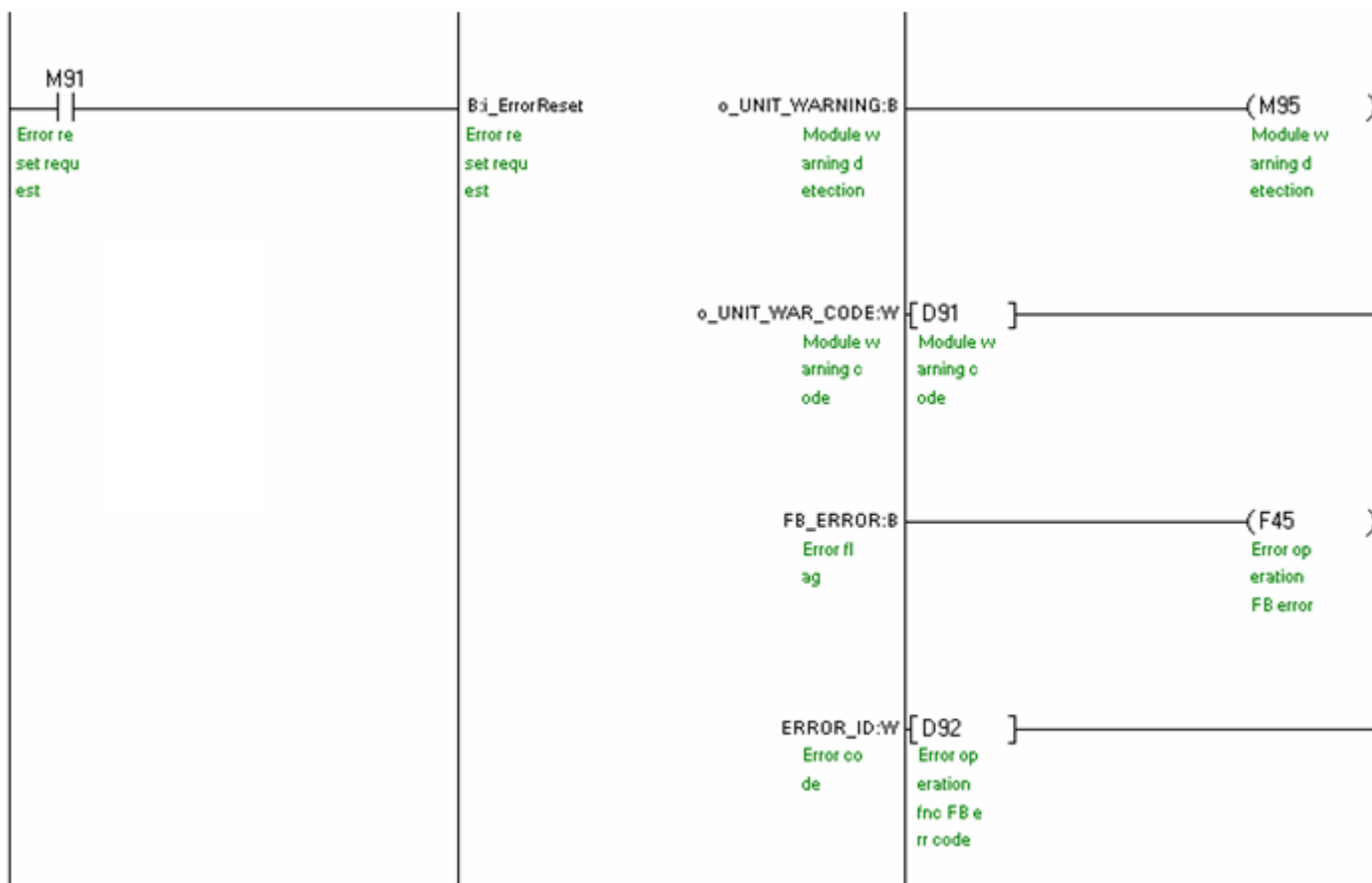
| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH          | K1            | Set the target channel to channel 1.                                                                 |
| i_ErrorReset  | ON/OFF        | Turn ON when performing error reset.                                                                 |

By turning ON M90, errors and warnings are monitored.

After turning ON M90, by turning ON M91, error reset is performed.



(Continues on next page.)

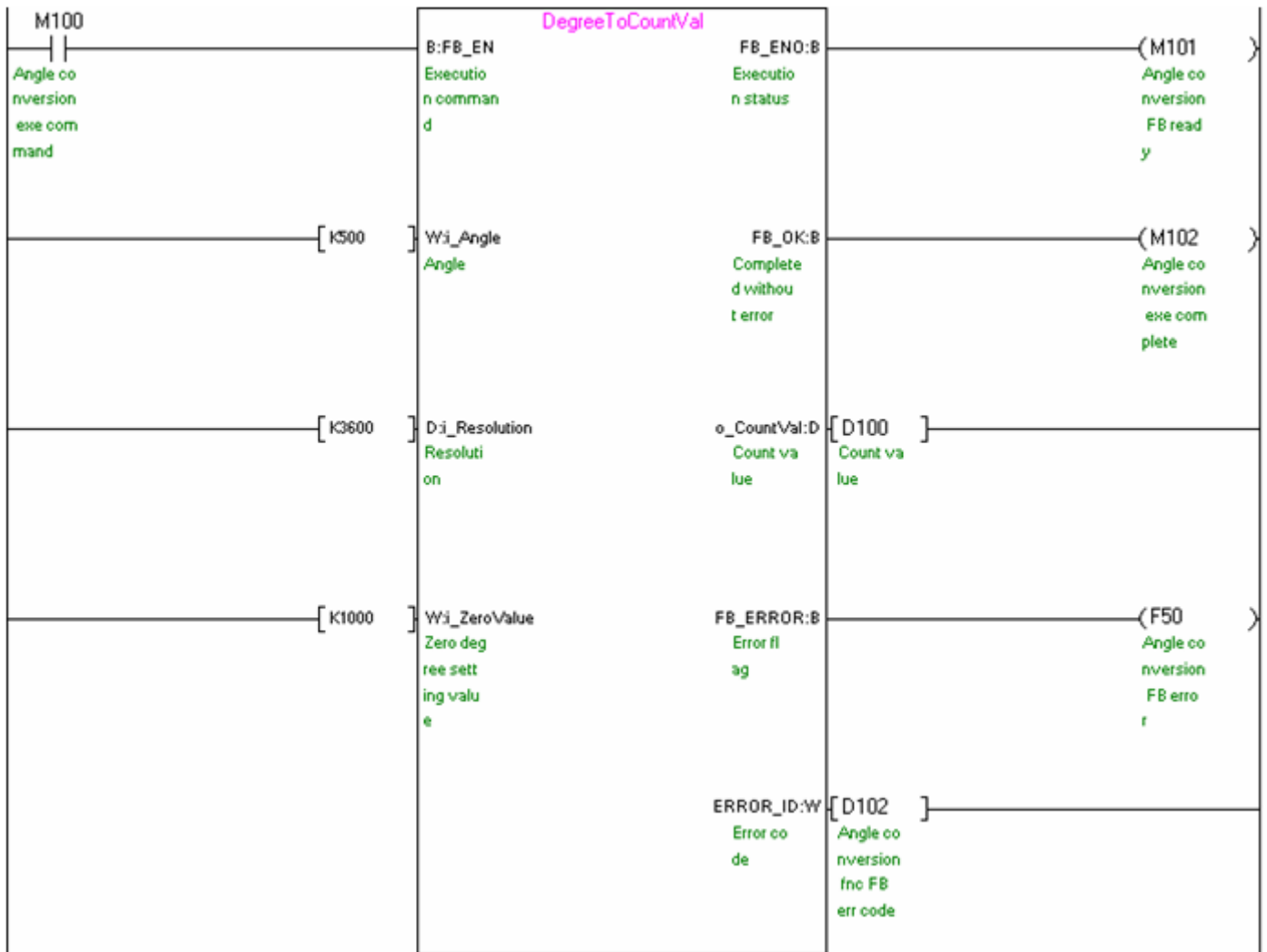


M+NZ2GFD62\_DegreeToCountVal (Angle conversion)

The example below shows a program with the following conditions.

| Label name   | Setting value | Description                                 |
|--------------|---------------|---------------------------------------------|
| i_Angle      | K500          | Set the angle to 500.                       |
| i_Resolution | K3600         | Set the resolution to 3,600.                |
| i_ZeroValue  | K1000         | Set the zero degree setting value to 1,000. |

By turning ON M100, the count value is calculated from the angle.

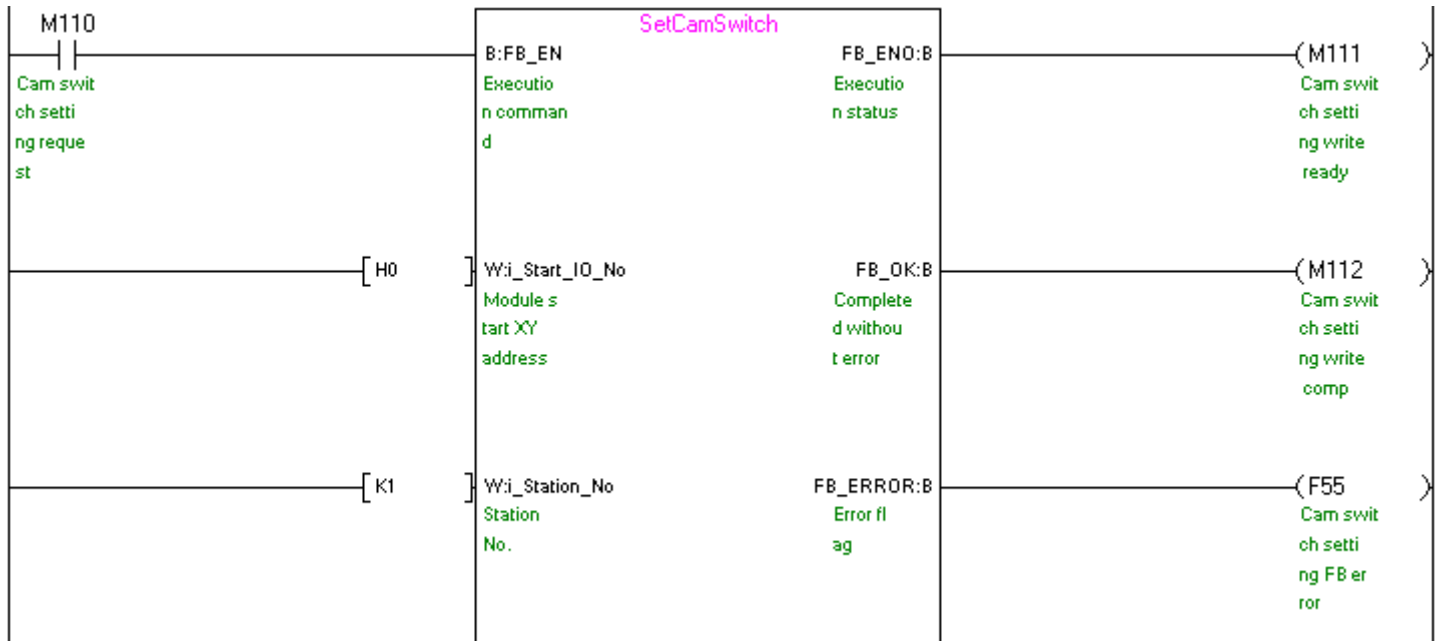


M+NZ2GFD62\_SetCamSwitch (Cam switch setting)

The example below shows a program with the following conditions.

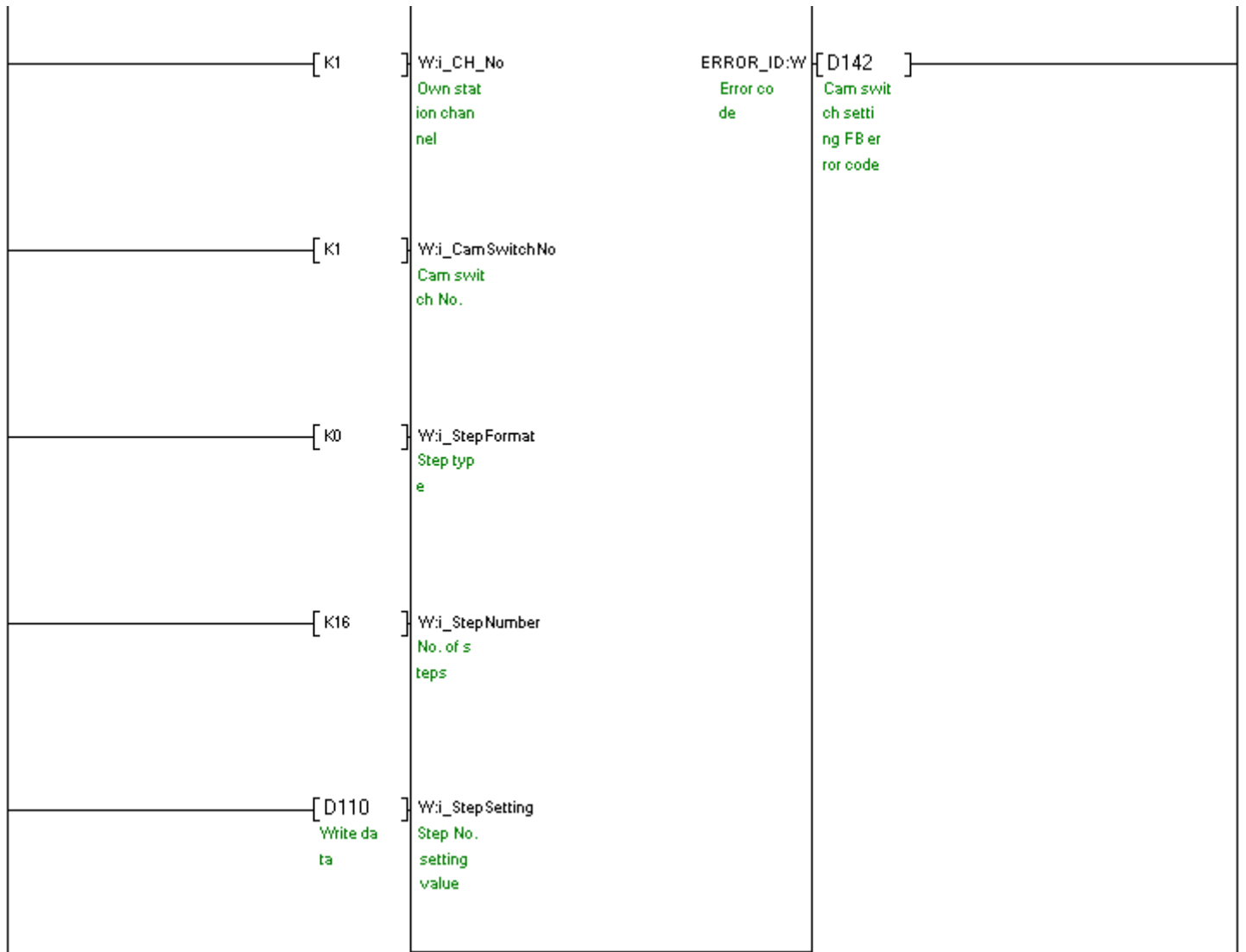
| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |
| i_CH_No       | K1            | Set the own station channel to 1.                                                                    |
| i_CamSwitchNo | K1            | Set the cam switch output number for the setting to 1.                                               |
| i_StepFormat  | K0            | Set the step type to "0: Starts with output status being OFF".                                       |
| i_StepNumber  | K16           | Set the number of steps to 16.                                                                       |
| i_StepSetting | D110          | Set the start device for the write operation to D110.                                                |

By turning ON M110, the specified cam switch output setting is performed.



(Continues on next page.)





M+NZ2GFD62\_SetInitData (Initial data setting)

The example below shows a program with the following conditions.

| Label name    | Setting value | Description                                                                                          |
|---------------|---------------|------------------------------------------------------------------------------------------------------|
| i_Start_IO_No | H0            | Set the starting XY address where the CC-Link IE Field Network master/local module is mounted to 0H. |
| i_Station_No  | K1            | Set the target station number to 1.                                                                  |

By turning ON M150, the initial data setting is performed.

