CC-Link Communication Converter

Quick Instruction


IMR01Y11-ES

In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all instructions in the manual. Please place this manual in a convenient location for easy reference.

This manual describes the basic operation only.

For detailed handling procedures and functions, refer to separate COM-JC [For FB100/FB400/FB900] Instruction Manual (IMR01Y16-ES). The manual can be downloaded from the official RKC website:

1. HANDLING PROCEDURES

Communication setting

Refer to 2. COMMUNICATION SETTING

Mounting and wiring

PLC setting

Controller setting

Device assignment

Program creation

To avoid error at operation start-up, COM-JC must be powered on LAST (after the Controller, PLC, etc.).

2. COMMUNICATION SETTING

CAUTION

Do not separate the mainframe from the terminal base with the power turned on. If so, instrument failure may result.

2.1 Station Number Setting

Set the station number of CC-Link using a small blade screwdriver.

Station number setting switch

High order digit setting
(Set value: 10)

Low order digit setting
(Set value: 2)

Setting range:
0 to 63 (1 station occupied 1 time, 4 stations occupied 2 times)

Factory set value: 0

When set to any value out of the setting range, the COM-JC becomes the FAIL state.

2.2 Communication Speed Setting

Set the communication speed of CC-Link using a small blade screwdriver.

Communication speed setting switch

Setting range: 0 to 6

Factory set value: 0 (156 kbps)

2.3 Occupied Stations/Extended Cyclic and Controller Communication Speed Setting

Set the number of Occupied Stations/Extended cyclic and controller communication speed.

[Use the CC-Link dedicated cable Ver. 1.10]

For FB100/FB400/FB900

Communication speed

Distance

Setting Communication speed Maximum transmitter distance

RX(n+1)A

2005 kbps 900 m

RY(n+1)A

410 Mbps 100 m

Station number: 0 Communication speed: 156 kbps

Controller Communication Speed Setting

The manual can be downloaded from the official RKC website:

Factory set value: 19200 bps

4 stations occupied 1 time (8 controllers assignment)

Extension number for display selection processing

Remote register 

Factory set value: 0 (156 kbps)

Regardless of the number of occupied stations and the extended cyclic, the above processing is also necessary if the Set value (SV) assigned to the Remote register (RWw) as a fixed value is changed.

If the COM-JC is initialized at power on, the Initialize data processing request flag [RX(n+1)8] completion [RXnD] is turned off.

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4. USAGE EXAMPLE

A usage example of CC-Link communication is described in the following.

4.1 System Configuration

In this usage example, described the following system configuration:

- CC-Link system master local unit [QJ61BT11N] (Master station)
- Station number: 0
- Communication speed: 156 kbps
- CPU unit: QJ30CPU (Check for connection)
- Controller: FB400
- Remote device station: Q02HCPU

4.2 Setting the Instruments Used

For operation of the CC-Link system master local unit QJ61BT11N and MELSEC sequencer programming software GX Developer, refer to Instruction Manual of PLC.

To set the PLC, COM-JC and controller as the following:

- PLC setting
- For operation of the CC-Link system master local unit QJ61BT11N and MELSEC sequencer programming software GX Developer, refer to Instruction Manual of PLC.

4.3 Setting the Instruments Used

Set the PLC, COM-JC and controller as the following:

- PLD setting
- For operation of the CC-Link system master local unit QJ61BT11N and MELSEC sequencer programming software GX Developer, refer to Instruction Manual of PLC.

4.4 Sample Program

Program creation

Controller setting

For Remote input/output and Remote register, refer to

Instruction Manual (IMR01Y06-E) or CC-Link system master local unit QJ61BT11N/ QJ61BT13N.

4.5 Error Handling

Error flag/Error reset processing

If the Error reset request flag [RY(n+1)A] is turned on while the Error status flag [RY(n+1)A] is turned on, the Error flag/Error flag history is cleared and the flag [RY(n+1)A] turns off.

Extension number for display selection processing

After the Extension number for display [RYnD to RYnD] is set, on the Extended display [RY(n+1)A] flag, after the data in the Remote register [R(Xw)m to R(Xw)m+3] is displayed, check the display flag [RY(n+1)A]. If the Extended display flag is turn off, the Extended display completion is turned off.

Extension number for setting selection processing

The content of the extended setting remote register is selected and the setting value is changed.

Setting range:
0 to 64 (1 station occupied 1 time)

Station information

Station type: Remote device

Number of occupied stations: Occupies 1 station

Total number of connected modules

1 to 64 (1 station occupied 1 time)

Number of automatic return

1 to 61 (4 stations occupied 1 time, 4 stations occupied 2 times)

Number of retries

5

Extension number

Factory set value: 4 stations occupied 1 time (8 controllers assignment)

Remote register setting

[RWw]= [R(Xw)m to R(Xw)m+3]

Instructs AT execution.

Program creation

AT start procedure

Instructs AT execution.

Remote register [RWw] (Extension number e ROCAW transmitter)

On the controller communication 

Remote register setting (Extended cyclic set flag [RY(n+1)A])

Remote register completion

AT setting status

Remote ready (Data L=1)

P/R/AT transfer status [RY(n+1)A]

Remote ready [RY(n+1)A]

Remote ready [RY(n+1)A]


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4.3 Device Assignment Example

According to the contents set by 4.2 Setting the Instrument Used, each device is assigned.

- **Assignment conditions**
  - COM-JC station number: 3
  - Number of Occupied station/Extended cyclic: 1 station occupied 1 time (2 controllers assignment)

- **Controller (FB400) setting**
  - Controller communication conditions: Communication 1 only
    - Protocol: Modbus
    - Device address: 1 and 2
    - Communication speed: 19200 bps (Factory set value)
    - Data bit configuration: Data 8, No parity, 1 stop bit, Stop-1bit

- **Device configuration**
  - Device address flag
  - Controller communication conditions: Communication 1 only
  - Protocol: Modbus
  - Device address: 1 and 2
  - Communication speed: 19200 bps (Factory set value)
  - Data bit configuration: Data 8, No parity, 1 stop bit, Stop-1bit

- **Remote input (RX) and Remote output (RY)**
  - CPU of PLC
    - Remote input (RX) for controller 1: X1000
    - Remote output (RY) for controller 1: Y1000
    - Remote input (RX) for controller 2: Y1002
    - Remote output (RY) for controller 2: Y1004
  - Remote input (RX) for controller 2: X1002
  - Remote output (RY) for controller 2: Y1006

- **Remote register (RWr, RWw)**
  - CPU of PLC
    - Remote input (RX) for controller 1: X1010
    - Remote output (RY) for controller 1: Y1010
    - Remote input (RX) for controller 2: X1012
    - Remote output (RY) for controller 2: Y1012

4.4 Sample Program

- **Program conditions**
  - COM-JC station number: 1
  - Number of Occupied station/Extended cyclic: 1 station occupied 1 time (2 controllers assignment)

- **Function**
  - Automatic refresh device assignment

- **Relevant device assignment**
  - Special relay (SR) assignment
    - M1: Measured value (PV)/Manipulated output value (MV1) transfer
    - M2: Extension number setting flag for setting
  - Data register (W) assignment
    - D0: Measured value (PV) storage of controller 1
    - D1: Measured value (PV) storage of controller 2
    - D2: Manipulated output value (MV1) storage of controller 1
    - D3: Manipulated output value (MV1) storage of controller 2

- **Program operation**
  1. Store Measured value (PV) and Manipulated output value (MV1) into a data register.
  2. Write in Set value (SV) of controller 1 (SV: 150 °C) and Set value (SV) of controller 2 (SV: 200 °C).
  3. Change the controller to the control RUN.

- **Sample program**
  - When the PLC initial processing (PLC STOP) is run:
    - 1. Turn off the controller RUN/STOP transfer request flag (Y1018: RY18) to controller 1.
    - 2. Turn on the controller RUN/STOP transfer request flag (Y1019: RY19) to controller 2.
  - When no initial data processing is finished with the initial data processing request flag (X1018: RX18) OFF and controller 1 is the extension area setting controller (W102: RWw3).
    - 1. Write into Set value (SV) of controller 1 (SV: 150 °C) and Set value (SV) of controller 2 (SV: 200 °C).
    - 2. Change the controller to the control RUN.

- **Data processing**
  - When the Measured value (PV) stored in controller 1 is transferred to controller 2, the measured value (PV) is used to control the PLC.
  - When the Measured value (PV) stored in controller 2 is transferred to controller 1, the measured value (PV) is used to control the PLC.

- **Data communication**
  - When the Measured value (PV) stored in controller 1 is transferred to controller 2, the measured value (PV) is used to control the PLC.
  - When the Measured value (PV) stored in controller 2 is transferred to controller 1, the measured value (PV) is used to control the PLC.

- **Error processing**
  - When the PLC initial processing (PLC STOP) is run:
    - 1. Turn off the controller RUN/STOP transfer request flag (Y1018: RY18) to controller 1.
    - 2. Turn on the controller RUN/STOP transfer request flag (Y1019: RY19) to controller 2.
  - When no initial data processing is finished with the initial data processing request flag (X1018: RX18) OFF and controller 1 is the extension area setting controller (W102: RWw3).
    - 1. Write into Set value (SV) of controller 1 (SV: 150 °C) and Set value (SV) of controller 2 (SV: 200 °C).
    - 2. Change the controller to the control RUN.

- **Data communication**
  - When the Measured value (PV) stored in controller 1 is transferred to controller 2, the measured value (PV) is used to control the PLC.
  - When the Measured value (PV) stored in controller 2 is transferred to controller 1, the measured value (PV) is used to control the PLC.