PLC Communication Converter

COM-JE Quick Instruction Manual

IMR01Y12-E4

This manual describes the basic operation method of the COM-JE. For the installation, the communication data, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- COM-JE Installation Manual (IMR01Y02-E4)
- COM-JE Communication Data List (IMR01Y17-E4)
- COM-JE Instruction Manual (IMR01Y07-E4)
- Separate manual 

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These manuals can be downloaded from the official RKC website: http://www.rkcinst.com/english/manual_load.htm.

1. PARTS DESCRIPTION

- Indication lamps
  - FAIL [Red]: When CPU/RAM abnormally: Turn on / Flashing
  - RUN [Green]: When normally: Turn on / Flashing

- Modular connectors
  - COM.PORT1: Connector for PLC or Host computer connection
  - COM.PORT2: Connector for PLC, Host computer or COM-JE connection
  - COM.PORT3: Connector for COM-JE extension

- Address setting switch
  - Address type selection switch: Use for the PLC communication environment setting
  - Address setting switch: Use for the Host communication setting

- Firewall

- Terminal cover

- Mounting bracket

- Mounting base

- Mainframe

2. HANDLING PROCEDURES

- Communication setting
  - Refer to 3. COMMUNICATION SETTING

- Mouting and Wiring
  - Refer to 2. HANDLING PROCEDURES

- PLC communication environment setting
  - Refer to 4. PLC COMMUNICATION ENVIRONMENT SETTING

- Controller setting
  - Refer to 5. CONTROLLER COMMUNICATION SETTING

- Data setting
  - Refer to 7. DATA TRANSFER

3. COMMUNICATION SETTING

3.1 Address Setting

- For this setting, use a small Hakko screwdriver.

- Set the address such that it is different to the other addresses on the same line. Otherwise, problems or malfunction may result.

- Address setting switch
  - Address setting switch: Set the address for COM-JE
  - Address setting switch: Use for the PLC communication environment setting

- Communication port assignment
  - Communication port assignment

- Communication protocol
  - Communication protocol

3.2 Protocol Selections and Communication Speed Setting

- PLC Communication setting switch
  - Set the communication speed, data bit configuration, and protocol for PLC communication.

- Host communication setting switch
  - Set the communication speed, data bit configuration, and protocol for Host communication.

4. PLC COMMUNICATION ENVIRONMENT SETTING

- Communication protocol
  - Communication protocol

- Communication setting switch
  - Communication setting switch

- Communication speed
  - Communication speed

- Communication port assignment
  - Communication port assignment

- Communication protocol
  - Communication protocol

5. CONTROLLER COMMUNICATION SETTING

- Controller communication setting
  - Controller communication setting

- Communication speed
  - Communication speed

- Communication port assignment
  - Communication port assignment

6. PLC COMMUNICATION SETTING

- PLC communication setting switch
  - Set the communication speed, data bit configuration, and protocol for PLC communication.

- Host communication setting switch
  - Set the communication speed, data bit configuration, and protocol for Host communication.

7. DATA TRANSFER

- Data transfer
  - Data transfer

- Communication setting switch
  - Communication setting switch

- Communication speed
  - Communication speed

- Communication port assignment
  - Communication port assignment

- Communication protocol
  - Communication protocol

8. PLC Communication M0M.000.000

- PLC communication
  - PLC communication

- Host communication
  - Host communication

- Terminal cover
  - Terminal cover

- Mounting bracket
  - Mounting bracket

- Terminal base
  - Terminal base

- Mainframe
  - Mainframe

- Setting range: 0 to 15 [H] or 0 to F [hexadecimal] (Factory setting: 0)

- Timeouts: CAN be set at each switch setting range

- Bit number: Same as for the controller

- Modbus settings: Depending on RLL communication, there are no group limitations. Free settings can be made in the range of 0 to F.

- Address setting for the controller
  - Address setting for the controller

- Communication setting switch
  - Communication setting switch

- Setting range: 0 to 15 [H] or 0 to F [hexadecimal] (Factory setting: 0)

- Timeouts: Same as for the controller

- Bit number: Same as for the controller

- Modbus settings: Depending on RLL communication, there are no group limitations. Free settings can be made in the range of 0 to F.
7. DATA TRANSFER

- Data transferred between the PLC and controller is shown in a PLC communication data map. For the PLC communication data map, refer to the "OMRON SYSMAC Communication Data List (MRR01Y17-E).

### 7.1 Data Transfer Type

- **Fixed data transfer type**
  - For data transfer between the PLC and controller, both fixed data transfer type and Specified data transfer type are available.

#### 7.1.1 Fixed data transfer type

- **The PLC communication data map already assigned is transferred by the fixed data transfer type.**
- **Request command:** "0: Monitor (PLC C.)" or "1: Setting (PLC C.)"
  - Command which requests the controller to write data such as temperature set values, etc. (attribute: RW) to the PLC side.
  - The controller always repeats data writing until "1: Setting" or "0: Monitor" is set to the request command.
- **The PLC communication data map is set to 1: Writing monitoring data."**
- **Note:** Do not set the request command to "1: Setting" while writing the data items to the PLC side.

#### 7.1.2 Specified data transfer type

- The transfer type is specified by specifying data address and the number of data points to be transferred. It is possible to transfer the data exchangeable via Host communication (Modbus).
- Data corresponding to up to 16 words can be transferred. For data transfer, Control word 1 (request command) is used.
- For the Specified data transfer type, refer to the "OMRON SYSMAC Communication Manual (MRR01Y17-E)."

### 7.2 Transfer Procedures

- **If a program is set to all of the sets of data to be sent by the PLC to the controllers at the beginning of the data transmission operation, start PLC data transfer.** To avoid this, carefully read the manual for the data transmission protocol when creating a program.
- Change each set value of controller from the PLC after the initial settings are completed. All set values of the controller are rewritten to 0 if the sets of values of the PLC at that time are 0.

#### 7.2.1 Data setting

- **When transferring data of temperature setting values from PLC to controllers (free data transfer type)**
  - Start PLC data transfer. Soon after the COM-JE is powered on, data will be sent from the COM-JE to the PLC side in the ST mode (the PLC communication setting mode is set to 3 seconds as default, the normal communication flag will be written.
  - To determine if the request command is ready, set it to "0: Monitor (PLC C.)" in the COM-JE communication data map.
  - The COM-JE writes 1 (bit 7) into the COM-JE communication data map when the controller data collection is completed. The controller data collection is completed when the COM-JE communication data map of the controller side is set to "1: Writing monitoring data."

#### 7.2.2 Data monitoring

- **When the COM-JE is connected to the PLC, start data collection.**
  - If the COM-JE communication state in the PLC register is set to 3: Data collection state, this indicates that the request command for data collection is ready.
  - 3: Data collection state (bit 7) is set to request command "1: Setting" is set to the requested command in the PLC register.

### 7.3 Data processing precautions

- The data type is treated as binary data with a sign and without a decimal point. For the reason, carefully express and set the data. (excluding the bit data)
- The COM-JE does not detect a data setting range error. After the setting is changed, execute the request command 2: "Set value monitor" to check that the data has been correctly set.