COM-ML-1 [For SRZ] Quick Instruction Manual

Ethernet Communication Converter

Thank you for purchasing the RKC product. In order to achieve maximum performance and ensure proper operation of the instrument, carefully read all the instructions in this manual.

1. HANDLING PROCEDURES

1.1. Installation and setting

- For information on the SRZ, refer to Z-TIO Instruction Manual (MS01071-EC), Z-DIO Instruction Manual (MS01072-EC) 2-Z-CT Instruction Manual (MS01073-EC).

1.2. Function module settings

- Refer to 2. COMMUNICATION SETTING OF FUNCTION MODULES.
- Refer to 2. PLC COMMUNICATION ENVIRONMENT SETTINGS.[Only PLC communication]

1.3. IP address settings

- Refer to 4. IP ADDRESS SETTINGS.
- Refer to 5. PLC ADDRESS SETTINGS.

1.4. Communication data settings

- Refer to 6. OTHER COMMUNICATION DATA SETTINGS.

2. HOST COMMUNICATION SETTINGS

2.1. Address Setting of Function Modules

Set the address for host communication. Use a small flat-blade screwdriver to configure the setting.

To avoid problems or malfunction, do not duplicate an address in a function module of the same type on the same communication line.

2.2. DIP Switch Settings

Use the DIP switch to set the speed and protocol of host communication, default IP address setting, and DIP switch enabled/disabled. The DIP switch is used to set the DIP switch configuration.

2.3. Address Setting of Function Modules

Only make the module address setting to make the function module (Z-TIO, Z-DIO and Z-CT) communication possible.

The SRZ unit performs internal communication (RS-485) between the COM-ML-1 (hereafter called COM-ML) and the function module (Z-TIO, Z-DIO and Z-CT), so the communication protocol speed and data format do not need to be set.

A module address is set for each function module type. In this example, the module address is set to the address shown below.

3. COMMUNICATION SETTING OF FUNCTION MODULES

3.1. 32 For the SRZ Unit’s Temperature Control Channel

Setting the Z-TIO module address determines the temperature control channel number used for communication of channel 2. The Z-TIO module address is set by the relevant temperature control channel number.

3.2. Setting the Z-TIO module address

To each Z-TIO module address, the relevant temperature control channel number is assigned. Each temperature control channel number can be calculated from the following equation.

\[ \text{Channel number in a module} = \text{Module address setting} + \text{Channel number in a module} \]

Example: When two Z-TIO modules (4-channel type) are joined

3.3. Digital Input/Output Channel of Z-DIO Module

Setting the Z-DIO module address determines the digital input/output channel number of SRZ unit. To each Z-DIO module address, the relevant digital input/output channel number is assigned. Each digital input/output channel number can be calculated from the following equation.

\[ \text{Digital input/output channel number} = \text{Module address setting} + \text{Digital input/output channel number in a module} \]

Example: When two Z-DIO modules are joined

3.4. CT Input Channel of Z-CT Module

Setting the Z-CT module address determines the current transformer (CT) input channel number of SRZ unit. To each Z-CT module address, the relevant current transformer (CT) input channel number is assigned. Each current transformer (CT) input channel number can be calculated from the following equation.

\[ \text{Current transformer (CT) input channel number} = \text{Module address setting} + \text{Current transformer (CT) input channel number in a module} \]

Example: When two Z-CT modules are joined

4. IP ADDRESS SETTINGS

To use the COM-ML on Ethernet [MODBUS/TCP or PLC communication (MAPMAN)], IP address setting is necessary.

The IP address can be set in host communication or loader communication.

4.1. Host Communication Settings

When setting a host communication, refer to the following RKC communication identifiers and Modbus register addresses to set the IP address. The set IP address is enabled by turning OFF the power and then turning it ON again.

For the IP address, check with the administrator of the network (LAN) to which the COM-ML is connected.

4.2. Loader Communication Settings

To perform Loader communication, our converter and a communication cable are required.

- USB communication: COM-ML-2 [For SRZ] (RSK product)
- PLC communication: COM-K2 (RKC product)
- Communication tool PROTEM 2 can be used for the communication setup.

The data can be downloaded from the official RKC website: http://www.rkcinst.com

For information on connecting the COM-ML to a host computer, refer to COM-ML-1 [For SRZ] Installation Manual (MR2012-142).

[Continued on the next page]
4. Select the "COM-ML" and "Loader Communication" and click "OK".

5. Set "Address" setting "0" and "Comm. Port" setting "38400 bps, Data 8-bit, Without parity, 1 stop bit." (The COM port number depends on the connected personal computer.)

6. Click the menu in order of "Operation," "Online," and "Online(All)."

7. Click the menu in order of "Setting" and "User level" to activate the "Engineer level."

8. Select "COM-ML ENG(2)" under the "Engineering settings." This item is not used.

9. Set IP address.

10. The set IP address is enabled by turning OFF the power and then turning ON again.

4.3 Default IP Address Setting

The IP address can be set to the factory set value using the DIP switches.

1. Turn off the power of COM-ML.

2. Turn on No. 6 and No. 7 of DIP switch.

3. Turn on the power of COM-ML again.

4. The FAIL/RUN lamp will flash green for about 5 seconds and then light solidly. At this point, the IP address changes to the factory set value "192.168.1.1."

5. Turn off the power of the COM-ML once again and return DIP switches No. 6 and No. 7 to OFF.

6. The FAIL/RUN lamp flashes green when the IP address setting is turned on.

7. At this point, the IP address changes to the factory set value "192.168.1.1."

8. Communication protocol, communication speed and data bit configuration can be set by loader communication.

9. Host communication settings by loader communication

10. The set IP address is enabled by turning OFF the power and then turning ON again.

6. OTHER COMMUNICATION DATA SETTINGS

Set each communication data (IP settings and communication settings of the Z-DIO module and DIO manual setting of the Z-DIO module, etc.) using loader communication or host communication.

* Host communication or loader communication is used to configure the IP address settings, and thus it is possible to configure other communication data settings after the IP address setting.

* For each of the communication settings, COM-ML is used to Host Communication Data List (NR002/15-E2) or COM-ML (For SRZ) Instruction Manual (NR002E017-E2).

5. PLC COMMUNICATION ENVIRONMENT SETTIN GS

The PLC communication environment (system data) settings must be made to perform PLC communication. The System data settings are made by the Loader communication (System data settings can also be made in the Host communication).

The System data consists of settings (Refer to the Setting item table of below) and monitor items. The monitor items require space (corresponding to 8 words) in the PLC register.

For the monitor items, refer to COM-ML (For SRZ) PLC Communication Data List (MR002E16-E6)

5.1 Setting of System Data (setting items)

Set the items in the same way as "4.2 Loader Communication Settings" (same procedures up to Step 8 of "Setting of PROTEM 2" (Refer to the Setting item table for details) and monitor items.

R/W: Read/Write

<table>
<thead>
<tr>
<th>Name</th>
<th>BCD address space</th>
<th>Word address</th>
<th>DEC address</th>
<th>Data range</th>
<th>Factory set value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port number (CPU number)</td>
<td>QY 8009</td>
<td>32777 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>Control Port</td>
<td>QX 800A</td>
<td>32778 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>Startup behavior</td>
<td>QA 800B</td>
<td>32779 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>Port number</td>
<td>QB 800C</td>
<td>32780 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>System data register type</td>
<td>QC 800D</td>
<td>32781 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>System data register start</td>
<td>QD 800E</td>
<td>32782 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>System data register end</td>
<td>QE 800F</td>
<td>32783 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
<tr>
<td>Hexadecimal conversion</td>
<td>QF 8010</td>
<td>32784 8</td>
<td>BCD</td>
<td>0 to 65535</td>
<td>0</td>
</tr>
</tbody>
</table>

CIP communication

Refer to the CIP communication setting table.

Data bit configuration table

<table>
<thead>
<tr>
<th>Setting item</th>
<th>Start number</th>
<th>End number</th>
<th>Data bit</th>
<th>Parity bit</th>
<th>Stop bit</th>
<th>Mode</th>
<th>Input/Output data format</th>
<th>Factory set value</th>
</tr>
</thead>
</table>

IP address

Factory set value: 192.168.1.1

- The Engineer level is enabled.
- System data register type
- System data register start
- System data register end
- Hexadecimal conversion
- CIP communication
- Data bit configuration

- This item is not used.
- Can be set
- Cannot be set

- Only enabled when the Z-R register is selected.
- Used in the factory setting when the SRZ unit is connected to the PLC by 1 to 1 (1:1) connection.

5.2 Communication environment settings

- Communication protocol
- Communication speed
- Data bit configuration
- Host communication settings
- Loader communication settings

- This item is not used.
- This item is not used.
- This item is not used.
- This item is not used.