3. COMMUNICATION SETTING OF Z-TIO MODULE

Set the communication settings before mounting and wiring of the Z-TIO module.

**CAUTION**

- Do not separate the module mainframe from its base with the power on.
- Use the recommended setting example for no instrument failure.

### 3.1 Module Address Setting

Set an address for the Z-TIO-C or Z-TIO-D module using a small blade screwdriver.

- When one module is used, set the module address to 0.
- When multiple modules are used, be sure to set one module to the module address 0. (The module with no address will be the master module.)

#### Wiring example

When preparing a cable for connecting the MITSUBISHI series to our Temperature Control Module, follow the communication settings in the Z-TIO-C/D module, cross each pair of wires at the A and B terminal positions on the host computer or PLC.

**PLC Communication**

- Modbus/RTU communication and PLC communication protocol. Communication terminals (RS-485)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T/R (A)</td>
<td>Send data/Receive data</td>
</tr>
<tr>
<td>T/R (B)</td>
<td></td>
</tr>
</tbody>
</table>

**Power supply** 24V DC

For the host communication, refer to the PLC instruction manual for the address and the communication settings. Please read the manual carefully. For example, set the following separate manuals.

1. Z-TIO module
2. Z-TIO PLC Communication Quick Instruction Manual
3. Z-TIO instruction manual (MITSUBISHI)

**Setting range** (from 0 to 15: Decimal) Factory setting value: 0

- To avoid problems or malfunction, do not duplicate an address on the same communication line.
- For Modbus, the value obtained by adding 1 to the set address corresponds to the address used for the actual program.

### 3.2 Protocol Selections and Communication Speed Setting

Use the DIP switch on the right side of the module to select communication speed, data bit, configuration and protocol. The data changes become valid when the power is turned on after changing positions.

**Communication protocol**

- RS-485
- Modbus/RTU communication
- PLC communication protocol

**Data bit configuration**

- 7-bit, Odd parity, Stop 1-bit
- 8-bit, Odd parity, Stop 1-bit
- 8-bit, without parity

**Connection to PLC**

- Z-TIO-C/D right side view
- DIP switch

For communication settings when connected to other functional modules, see the Z-TIO instruction manual (PC communication).

**Setting modification**

- Address setting switch
- Setting range: 0 to 15 (Decimal)
- Factory setting value: 0

**Termination resistor**

- Connect to termination resistor attached to the PLC

**5. WIRING**

To prevent electric shock or instrument failure, turn off the power before connecting or disconnecting the instrument and communication line.

**6. PLC COMMUNICATION SETTING VIA LOADER COMMUNICATION**

This section explains how to configure the PLC communication environment settings by loader communication. To perform loader communication, a communication program must be created.

#### 6.1 Preparation of USB Communication Converter

To perform loader communication, our converter and communication cable are required.

- USB communication converter COM-K (W-RK cable)
- Load controller communication: W-RB-01 (optional)

#### 6.2 Preparation of Communication program

Refer to the PLC communication protocol or Modbus communication protocol to create a communication program.

**6.3 Loader Communication Setting**

For loader communication, set the communication port of the computer to the following values. There are no loader communication settings on the Z-TIO-C/D module.

**Communication speed** 57600 bps

**Terminal setting**

- RS-485
- Modbus/RTU communication
- PLC communication protocol

**6.4 Connection of loader communication**

Connect a USB communication converter COM-K between the personal computer and the Z-TIO-C/D module.
## 6.5. PLC Communication Environment Setting

The PLC communication environment settings must be made to perform PLC communication. The system data settings are accomplished by the loader communication.

1. Turn on the power of the Z-710-C or Z-710-D module.
2. When the settings for the communication data of the PLC communication environment are indicated below.

Set the communication data for each module. After completing the communication settings of the first module, connect the loader communication cable to the next module and set the PLC communication environment.

### Communication data list (PLC communication environment)

<table>
<thead>
<tr>
<th>Name</th>
<th>RKC item</th>
<th>Medium type</th>
<th>Address range</th>
<th>Data set</th>
<th>Factory set value</th>
<th>Bit image</th>
<th>Number of data (Setting item)</th>
<th>Number of data (read data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor item</td>
<td>register base</td>
<td>R3</td>
<td>01-169</td>
<td>300</td>
<td>60-255</td>
<td>10</td>
<td>0 to 9999</td>
<td>0 to 9999</td>
</tr>
<tr>
<td>Attribute</td>
<td>set value</td>
<td>R8</td>
<td>01-75</td>
<td>373</td>
<td>40-255</td>
<td>0</td>
<td>0 to 65535</td>
<td>0 to 65535</td>
</tr>
</tbody>
</table>

#### Data range

- **Number of data:**
  - **Factory set value:**
    - **10 to 9999:**
  - **HEX DEC:**
    - **R3:**
      - **01:**
        - **01:**
      - **60:**
        - **01:**
      - **25:**

#### Factory set value

- **10 to 9999:**
  - **HEX DEC:**
    - **R3:**
      - **01:**
        - **01:**
      - **60:**
        - **01:**
      - **25:**

#### Bit image

<table>
<thead>
<tr>
<th>Bit image</th>
<th>Number of data (Setting item)</th>
<th>Number of data (read data)</th>
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</thead>
<tbody>
<tr>
<td>0000000000000000</td>
<td>0</td>
<td>Unused</td>
</tr>
</tbody>
</table>

#### Communication data of monitor group

Communication data of monitor group is designated as a bit image in binary numbers. Set decimal-converted values.

- **Bit image:**
  - **0:** Unused
  - **1:** R register
  - **2:** W register

#### Communication data of setting group

Communication data of setting group is assigned as a bit image in binary numbers. Set decimal-converted values.

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#### Communication data of register

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