1. OUTLINE

The COM-ML is a EtherCAT gateway for RKC SRZ. Multi-zone temperature control system can be easily achieved by connecting function modules (Z-TIO-A/B, Z-DIO-A) and COM-ML. The combination of COM-ML and function module of SRZ is called an SRZ unit.

2. PARTS DESCRIPTION

3. MOUNTING

To prevent electric shock or instrument failure, always turn off the power before mounting or removing the instrument.

3.1 Mounting Cautions

(1) This instrument is intended to be used under the following environmental conditions:
- Temperature: 0 to 55°C
- Humidity: 0 to 95% Relative Humidity (Max. at 40°C)
- Altitude: Up to 2000 m
- Vibration: 0.1 G with a frequency of 10 to 500 Hz
- Shock: 5 G (11 ms)

(2) Ensure at least 50 mm space on top and bottom of the instrument for maintenance and environmental reasons.

(3) Do not mount the instrument in any of the following conditions:
- Explosive gas or dust
- Water, oil, chemicals, vapor or steam splashes.
- Excessive dust, salt or iron particles.
- Excessive induction noise, static electricity, magnetic fields or noises.
- Direct or exposed to direct sunlight.
- End-of-life equipment.
- High-voltage connections such as power supply terminals, etc., to avoid electric shock.

RKC is not responsible if this instrument is repaired, modified or disassembled by other than factory-approved personnel. Malfunction can occur and warranty is void under these conditions.

3.1.1 Installation Condition

(1) The installation condition must be set as follows:
- Terminal 3, 4 and 5
- Unused
- Terminal 1, 2
- RX/TX
- FAIL/RUN
- LOADER
- ETH (Port1)
- ETH (Port2)
- COM. PORT
- front view
- left side view
- pin No. Signal name Symbol
- 1 RX/TX
- 2 FAIL/RUN
- 3 [not in use]
- 4 LOADER
- 5 [not in use]
- 6 ETH (Port1)
- 7 ETH (Port2)
- 8 COM. PORT

3.2 Joining Each Module

Before joining the COM-ML and function modules, use the DIP switch to make the connection settings. The pin settings of the DIP switch are correspondent to host communication.

3.3 Dimensions

<table>
<thead>
<tr>
<th>Module</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-TO-AB</td>
<td>Up to 30 modules</td>
</tr>
<tr>
<td>2-ZDO-A</td>
<td>Up to 30 modules</td>
</tr>
<tr>
<td>2-TO-AB and 2-ZDO-A modules</td>
<td>Up to 30 modules</td>
</tr>
</tbody>
</table>

4. WIRING

To prevent electric shock or instrument failure, do not turn on the power until all wiring is completed. Make sure that the wiring is correct before applying power to the instrument.

4.1 Wiring Cautions

(1) To avoid noise induction, keep communication signal wire away from instrument power lines, drain lines and power lines of other electric equipment.

(2) If there is electrical noise in the vicinity of the instrument that could affect operation, use a suitable power supply should be considered in end-use equipment.

(3) The instrument is protected from electric shock by reinforced insulation. A suitable power supply must be considered in end-use equipment.

(4) The terminal function may be in compliance with the insulation circuits (maximum available current of 8 A).

(5) The instrument should be isolated from all power supplies on adjacent lines, and provide the power supplies terminals to achieve the most effective noise reduction.

(6) The terminal function may be in compliance with the insulation circuits (maximum available current of 8 A).

(7) A suitable power supply must be considered in end-use equipment.

(8) The instrument should be isolated from all power supplies on adjacent lines, and provide the power supplies terminals to achieve the most effective noise reduction.

(9) The instrument should be isolated from all power supplies on adjacent lines, and provide the power supplies terminals to achieve the most effective noise reduction.

(10) The instrument should be isolated from all power supplies on adjacent lines, and provide the power supplies terminals to achieve the most effective noise reduction.

5. CONNECTION TO ETHERCAT

To connect to EtherCAT, refer to the EtherCAT connector instructions.
4.4 Connection to Host Computer

- **RS-422A**
  - Up to 16 SRZ units can be connected to a host computer communication port.
  - The 8-pin type modular connector should be used for the connection to the COM-ML.
  - Communication port for Host communication (Operation panel communication wire)
  - Pin No. | Signal name | Symbol | Description
  |---|---|---|
  | 1 | Host computer | T | 1.5 mAh (max.)
  | 2 | RX | T | 1.5 mAh (max.)
  | 3 | RX | T | 1.5 mAh (max.)
  | 4 | RX | T | 1.5 mAh (max.)
  | 5 | RX | T | 1.5 mAh (max.)
  | 6 | SG | SG | 0 V
  | 7 | RX | T | 1.5 mAh (max.)
  | 8 | RX | T | 1.5 mAh (max.)

- **RS-485**
  - The RS-485 connection is for host communication.
  - The RS-485 connection is for host communication.
  - Pin No. | Signal name | Symbol | Description
  |---|---|---|
  | 1 | Host computer | T | 1.5 mAh (max.)
  | 2 | RX | T | 1.5 mAh (max.)
  | 3 | RX | T | 1.5 mAh (max.)
  | 4 | RX | T | 1.5 mAh (max.)
  | 5 | RX | T | 1.5 mAh (max.)
  | 6 | SG | SG | 0 V
  | 7 | RX | T | 1.5 mAh (max.)
  | 8 | RX | T | 1.5 mAh (max.)

- **USB communication connector**
  - The USB communication connector is for host communication.
  - Pin No. | Signal name | Symbol | Description
  |---|---|---|
  | 1 | Host computer | T | 1.5 mAh (max.)
  | 2 | RX | T | 1.5 mAh (max.)
  | 3 | RX | T | 1.5 mAh (max.)
  | 4 | RX | T | 1.5 mAh (max.)
  | 5 | RX | T | 1.5 mAh (max.)
  | 6 | SG | SG | 0 V
  | 7 | RX | T | 1.5 mAh (max.)
  | 8 | RX | T | 1.5 mAh (max.)

When the interface of host computer is RS-232C
Connect the RS-232C/RJ-45 converter between the host computer and the COM-ML.

When the interface of host computer is RS-485
Connect the RS-485 converter between the host computer and the COM-ML.

When the host computer has a USB connector
Connect the USB communication connector between the host computer and the COM-ML.

When the host computer has a USB connector
Connect the USB communication connector between the host computer and the COM-ML.

5.2 DIP Switch Settings

- Use the DIP switch to set the speed and protocol of host communication, and DIP switch enable/disable.

7. MODE CODE

<table>
<thead>
<tr>
<th>COM-ML-3 02</th>
<th>02</th>
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<tbody>
<tr>
<td>1</td>
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<td>9</td>
<td>10</td>
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</tbody>
</table>

- **Host communication type**
  - 0: EtherCAT
  - 1: EtherCAT

- **Host communication interface (COM. PORT)**
  - 4: RS-422A
  - 5: RS-485

- **Corresponding to the DIP controller**
  - 02: SRZ

8. Other peripherals and accessories (Sold separately)

- Communication cable (Modular + Module) (W-BF-03-2D, 2D, Cable length)
- Communication cable (Modular + Module) (W-BF-02-2D, 2D, Cable length)
- Communication converter COM-K-1 (Optional: with loader communication cable)
- End plate (SEP-01, Package of 2 pieces)

9. Dip switch enable/disable

- Enable disable
- Disable
- Enable disable

- The host communication or DIP switch settings that are enabled are the host communication speed and protocol and the data bit configuration.

- When the protocol switch is set to the dip switch, the data bit configuration is automatically set to “data bit: 8, without parity, stop: 1.5.” If you wish to set the data configuration, host communication speed, and host communication protocol in host communication or loader communication, first set the dip switch no. 8 to ON.