1. MOUNTING

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

1.1 Mounting Cautions

(1) This instrument is intended to be used under the following environmental conditions: [OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2]

(2) Use this instrument within the following environment conditions:
- Altitude above 2000 m
- Relative humidity: 5 to 95% (Non-condensation)

(3) Avoid the following conditions when selecting the mounting location:
- Direct air flow from an air conditioner.
- Excessive dust, salt or iron particles.
- Excessive induction noise, static electricity, magnetic fields or noise.
- Excessive heat accumulation.
- Do not mount this instrument directly above equipment that generates large amount of heat.

(4) This instrument is designed to be installed in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.

1.2 Dimensions

- Dimensions: 108.5 mm x 30 mm x 50 mm
- Mounting holes: 5 holes

1.3 DIN rail Mounting

- Mounting procedures:
  1. Pull down the mounting bracket at the bottom of the instrument (A). Attach the hooks on the top of the instrument to the DIN rail and push the lower section into place on the DIN rail (C).

- Removing procedures:
  1. Pull down a mounting bracket with a blade screwdriver (A). Lift the instrument from bottom, and take it off (B).

2. WIRING

To prevent electric shock or instrument failure, do not turn on the power until the wiring is completed.

2.1 Wiring Cautions

- To avoid noise induction, keep communication signal wire away from instrument power line, load lines and power lines of other electric equipment.
- Do not connect fuses or switches to the noise filter output wiring as this will reduce the effectiveness of the noise filter.
- Power supply wiring must be twisted and have a low voltage drop.
- For an instrument with 24V power supply, supply power from a SELV circuit.
- A suitable power supply should be considered in the end-use equipment. The power supply must be in compliance with a limited-energy circuits (maximum available current of 8 A).
- Use the solderless terminal appropriate to the screw size (M3).

2.2 Terminal Configuration

- As controller communication terminal Nos. 1, 4 and 5 are internally connected to terminal Nos. 3, 6 and 7, any terminals can be used.
- As ground and power supply terminal Nos. 8, 9 and 12 are internally connected to terminal Nos. 10, 11 and 14, any terminals can be used.
- Terminal No. 2 and No. 13 is not used.

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WARNING

- This product is intended for use with industrial machines, test and measuring equipment.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to instrument and equipment.
- This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and equipment.
- This instrument is not intended for use in locations subject to flammable or explosive gases.
- Do not touch 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.

CAUTION

- This product is intended for use with industrial machines, test and measuring equipment.
- This is a Class A instrument. In a domestic environment, this instrument may cause radio interference, in which case the user may be required to take adequate measures to prevent interference.
- This instrument is protected from electric shock by reinforced insulation. Provide reinforced insulation for the input signal and the wires for instrument power supply, source of power and loads.
- Be sure to provide an appropriate surge control circuit respectively for the following: If input/output or signal lines within the building are longer than 30 meters. If input/output or signal lines leave the building, regardless the length.
- This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.
- All wiring must be in accordance with local codes and regulations.
- To prevent instrument damage or failure, protect the power line and the input/output lines from high-voltage with a protection device such as fuse, circuit breaker, etc.
- Prevent metal fragments or lead wire scraps from falling inside instrument case to avoid electric shock, fire or malfunction.
- Tighten each terminal screw to the specified torque found in the manual to avoid electric shock, fire or malfunction.
- For proper operation of this instrument, provide adequate ventilation for heat dispersion.
- Do not connect wires to unused terminals as this will interfere with proper operation of this instrument.
- Turn off the power supply before cleaning the instrument.
- Do not use any solvent such as paint thinner to clean the instrument. Deformation or discoloration will occur. Use a soft, dry cloth to remove stains from the instrument.
- To avoid damage to instrument display, do not rub with an abrasive material or push front panel with a hard object.
- Do not connect modular connectors to telephone line.
### 2.3 Connection to Ethernet

- **Pin layout of connector**

  ![Connector Diagram](connector-diagram.png)

### 2.4 Connection to the Controllers

Conduct wiring between the COM-JL and controller (SRZ) as shown in the following.

#### Connection diagram

- **COM-JL**
  - TX+: 1
  - TX-: 2
  - RX+: 3
  - RX-: 4
  - U unpl.: 5
  - U unpl.: 6
  - U unpl.: 7
  - U unpl.: 8

- **Controller (SRZ)**
  - TX+: R1
  - TX-: R2
  - RX+: 1
  - RX-: 2
  - U unpl.: 3
  - U unpl.: 4
  - U unpl.: 5
  - U unpl.: 6

#### Wiring example

- **When directly connected to client**
  - Use a cross cable when directly connected to the client (such as computer).

- **When use network hub**
  - Use straight cables when connected to the network hub.

#### Diagrams

- **Diagram for Cross Cable**
  - ![Cross Cable Diagram](cross-cable-diagram.png)

- **Diagram for Straight Cable**
  - ![Straight Cable Diagram](straight-cable-diagram.png)

The data request side (such as computer) is called "client" and the data response (supply) side (COM-JL) is called "server." Basically, one client corresponds to one server (COM-JL) (i.e. one to one). However, one client can communicate with two or more servers depending on the program on the client side, but two or more clients cannot communicate with one server.

### 3. SPECIFICATIONS

- **Ethernet communication**
  - Physical layer: Ethernet
  - Application layer: Modbus/TCP
  - Communication data: Based on Modbus message format
  - Connector type: RJ-45

- **Controller communication**
  - Interface: Based on RS-485, EIA standard
  - Protocol: Modbus-RTU
  - Communication speed: 9600 bps, 19200 bps, 38400 bps
  - Data bit configuration: Data 8-bit, Without parity, Stop 1-bit

- **Physical layer:**
  - Ethernet communication
  - RS-485
  - T/R (A)
  - T/R (B)

- **Maximum connections:**
  - 31 controllers * (SRZ modules)
  - A combined total of up to 31 Z-TIO and Z-DIO modules can be connected in the SRZ. However, the maximum joinable number of functional modules of the same type is 16.

- **Pin layout Module connector RJ-45**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>RX-</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>U unpl.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>U unpl.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>U unpl.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>U unpl.</td>
<td></td>
</tr>
</tbody>
</table>

- **Power supply voltage:** 24 V DC
- **Power supply voltage range:** 21.6 to 26.4 V DC
- **Current consumption:** 110 mA max.
- **Allowable ambient temperature:** -10 to +80 °C
- **Allowable ambient humidity:** 5 to 95 %RH (Absolute humidity: MAX.29.3 g/m³ dry air at 101.3 kPa)
- **Installation environment conditions:**
  - Indoor use: Altitude up to 2000 m
  - Weight: Approx. 180 g

### 4. MODEL CODE

**COM-JL - 1**

(1) Communication type
1: Modbus/TCP
2: SRZ

(2) Corresponding to the RKC controller
02: SRZ