**WARNING**

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

### 1. MOUNTING

#### 1.1 Mounting Cautions

1. An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.
2. All wiring must be completed before power is turned on to prevent electric shock, fires, or damage to instrument and equipment.
3. This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and equipment.
4. 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.

#### 1.2 Terminal Configuration

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10</td>
<td>Input/output terminals</td>
</tr>
<tr>
<td>11 to 18</td>
<td>High-voltage terminals</td>
</tr>
<tr>
<td>19 to 26</td>
<td>Output signals</td>
</tr>
</tbody>
</table>

#### 1.3 DIN rail Mounting

- 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 (B).
- Slide the mounting bracket up to secure the instrument to the DIN rail (C).

#### 1.4 Panel Mounting

- Mounting procedure:
  1. Pull down a mounting bracket with a blade screwdriver (A).
  2. Lift the instrument from bottom, and take it off (B).
- Removal procedure:
  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 all wiring is completed. Make sure that the wiring is correct before applying power to the instrument.

### 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.
- If there is electrical noise in the vicinity of the instrument that could affect U/R interface, use a noise filter:
  - Shorten the distance between the twisted power supply wire pitches to achieve the most effective noise reduction.
  - Always install the noise filter on a grounded panel. Minimize the wiring distance between the noise filter output and the instrument power supply terminals to achieve the most effective noise reduction.
  - 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 24 V power supply, supply power from a SELV circuit.
  - A suitable power supply should be considered in end-use equipment. The power supply must be in compliance with a limited-energy circuit (maximum available current of 8 A).

### 2.2 Terminal Configuration

- The customer needs to provide the M3 size screws. Select the screw length that matches the mounting panel.
- Mount each module directly on the panel with screws which are inserted in the mounting holes of the top and bottom mounting brackets.
- Recommended tightening torque: 0.5 Nm (4kgf.cm)
2.3 Connection to Ethernet

- **Physical layer:** Ethernet (10BASE-T/100BASE-TX automatic recognition)
- **Application layer:** Modbus/TCP
- **Communication data:** Based on Modbus message format

**Connector:** RJ-45

**Pin layout:***

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

- **Maximum controller connections:** 31 controllers (FB100/400/900)
- **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 +60 °C
- **Allowable ambient humidity:** 5 to 95 %RH (Absolute humidity: MAX.W.C 29.3 g/m³ dry air at 101.3 kPa)
- **Altitude:** Up to 2000 m
- **Environment:** Indoor use

**4. MODEL CODE**

- **COM-JL - 1 * 01 (1)**
- **FB100/400/900 (2)**

**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.

**3. SPECIFICATIONS**

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

- **Controller communication**
  - **Interface:** Based on RS-485, EIA standard
  - **Protocol:** Modbus-RTU
  - **Communication speed:** 9600 bps, 19200 bps, 38400 bps

- **Maximum connections:** 31 controllers (FB100/400/900)

**2.4 Connection to the Controllers**

- Conduct wiring between the COM-JL and controller (FB100/400/900) as shown in the following. (When conducting wiring to the FB100/400/900, always conduct wiring to the Communication 1 terminal.)

- **Connector:** RJ-45

**2.5 System Configuration Example**

- **When directly connected to client**

- **When use network hub**

- **When connected to the network hub**

- **COM-JL - 1 * 01**

- **FB100/400/900**

**Note:** Cross cables may be used depending on the connecting device used. Therefore, follow the instructions for the respective device.