DeviceNet Communication Converter

COM-JH [For SRZ] Installation Manual

NOTICE

This manual assumes that the reader has a fundamental knowledge of the principles of electronics, process control, computer technology and communications. The figures, diagrams and numeric values used in this manual are only for the purpose of illustration.

RKC is not responsible for any damage or injury that is caused as a result of improper handling of this instrument, instrument failure or indirect damage.

RKC is not responsible for any damage and/or injury resulting from the use of instruments made by installing this instrument.

Periodic maintenance is required for safe and proper operation of this instrument. Some components have a limited service life, or characteristics that change over time. Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice.

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1. MOUNTING

1.1 Mounting Cautions

- This instrument is intended to be used under the following environmental conditions.
  - Allowable ambient temperature: -10°C to 50°C (14°C to 122°F)
  - Allowable ambient humidity: 5 to 95% RH
  - Installation environment conditions: Indoor use
  - Altitude: up to 2000 m

- Avoid the following conditions when selecting the mounting location:
  - Rapid changes in ambient temperature which may cause condensation.
  - Corrosive or inflammable gases.
  - Direct vibration or shock to the mainframe.
  - Water, dust, salt or iron particles.
  - Excessive induction noise, static-electricity, magnetic fields or noise.
  - Direct airflow from an air conditioner.
  - Exposure to direct sunlight.
  - Excessive heat accumulation.

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

- Do not mount this instrument directly above equipment that generates large amounts of heat (heaters, transformers, semiconductor devices, large-size equipment).

- If the ambient temperature rises above 50°C (122°F), cool this instrument with a fan or cooler, etc.

- In order to improve safety and the immunity to withstand noise, mount this instrument as far away as possible from high voltage equipment, power lines, and rotating machinery.

- Do not mount this instrument directly above equipment that generates high voltage equipment, power lines, and rotating machinery.

- Do not mount the instrument within the same panel, separate at least 200 mm.

1.2 Dimensions

- Depth in connector mounting: 70 mm

- Recommended tightening torque: 0.3 N-m (0.28 lb-in)

- The customer needs to provide the wire size. Select the screw length that matches the mounting panel.

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 bottom of the instrument to the DIN rail and push the lower section into place on the DIN rail (B).
  2. Slide the mounting bracket up to secure the instrument to the DIN rail (C).

1.4 Panel Mounting

- Mounting procedures
  1. Pull down the mounting bracket (A) until locked and that a mounting hole appears.
  2. Prepare one mounting bracket per instrument (B) sold separately (KSRX-55) and then insert it in the rear of the terminal board at top of the instrument until locked but a mounting hole does not disappear.
  3. 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: 0.3 N-m (0.28 lb-in)

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 equipment.

- If there is electrical noise in the vicinity of the instrument that could affect operation, 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 circuits (maximum available current of B A).

- Use the solderless terminal appropriate to the screw size (M3).

- Make sure that the any wiring such as solderless terminal is not in contact with the adjoining terminals.

3. Power Supply

- 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 terminals are Nos. 9, 10, 11 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.

SAFETY PRECAUTIONS

- An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.

- All wiring must be completed before power is turned on to prevent electric shock, fire or injury to personnel.

- This instrument must be used in accordance with the specifications to prevent fire damage or equipment failure.

- 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.

- 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 circuits (maximum available current of B A).

- Use the solderless terminal appropriate to the screw size (M3).

- Make sure that the any wiring such as solderless terminal is not in contact with the adjoining terminals.
2.3 Pin Layout of Connector

- **Open-style connector**

```
<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Symbol</th>
<th>Cable color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply, minus (-)</td>
<td>V-</td>
<td>Black</td>
</tr>
<tr>
<td>2</td>
<td>Communication data, low</td>
<td>CAN_L</td>
<td>Blue</td>
</tr>
<tr>
<td>3</td>
<td>Shield</td>
<td>Drain</td>
<td>Black</td>
</tr>
<tr>
<td>4</td>
<td>Communication data, high</td>
<td>CAN_H</td>
<td>White</td>
</tr>
<tr>
<td>5</td>
<td>Power supply, plus (+)</td>
<td>V+</td>
<td>Red</td>
</tr>
</tbody>
</table>
```

- **Connection plugs**
  - Recommended model: MSTB2.5-STF-5.08AUM (PHOENIX CONTACT, Inc.)
  - Multi-drop type (recommended model): TMSTB2.5-STF-5.08AUM (PHOENIX CONTACT, Inc.)

- **Micro-style connector**

```
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shield</td>
<td>Drain</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>Power supply, plus (+)</td>
<td>V+</td>
<td>Red</td>
</tr>
<tr>
<td>3</td>
<td>Power supply, minus (-)</td>
<td>V-</td>
<td>Black</td>
</tr>
<tr>
<td>4</td>
<td>Communication data, high</td>
<td>CAN_H</td>
<td>White</td>
</tr>
<tr>
<td>5</td>
<td>Communication data, low</td>
<td>CAN_L</td>
<td>Blue</td>
</tr>
</tbody>
</table>
```

- **Connection socket**
  - Recommended model: SACCM12FS-SCON-PG9.8M (PHOENIX CONTACT, Inc.)

2.4 Wiring to the Controllers

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

- **DeviceNet configuration**
  - On DeviceNet, a programmable controller (PLC) or a computer is a master device, and the COM-JH is a slave device.

2.5 Connection Outline of DeviceNet

- **DeviceNet**

```
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
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<td>Black</td>
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<td>4</td>
<td>Communication data, high</td>
<td>CAN_H</td>
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<tr>
<td>5</td>
<td>Power supply, plus (+)</td>
<td>V+</td>
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</tr>
</tbody>
</table>
```

- **Connection methods**
  - Use the communication cable (thick cable or thin cable) that matched specification of DeviceNet.
  - By thickness of a cable to use and connection method, usable connection connector type is different.

- **For cable specifications, connection method and vendor, refer to the web site of ODVA (Open DeviceNet Vendor Association).**
  - URL: http://www.odva.org

2.6 System Configuration Example

On DeviceNet, a programmable controller (PLC) or a computer is a master device, and the COM-JH is a slave device.

```
<table>
<thead>
<tr>
<th>Connector type</th>
<th>N: Open-style connector (Unshielded type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Micro-style connector (Shield type)</td>
<td></td>
</tr>
</tbody>
</table>

(1) Corresponding to the RKC controller 02: SRZ

3. SPECIFICATIONS

**DeviceNet communication**
- **Protocol:** DeviceNet
- **Connection method:** Multi-drop, T-branch connection
- **Communication speed:** 125 kbps, 250 kbps, 500 kbps
- **Error control:** CRC error, Node address (MAC ID) duplication check
- **Maximum number of connection nodes:** 64 (including master)

**Controller communication**
- **Interface:** Base 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
- **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 possible number of functional modules of the same type is 16.*

**General specifications**
- **Power supply voltage:** 24 V DC
- **Power supply voltage range:** 21.6 to 26.4 V DC
- **Current consumption:** 80 mA or less
- **Allowable ambient temperature:** -10 to +55 °C (-14 to 122 °F)
- **Allowable ambient humidity:** 5 to 95% RH (Absolute humidity: MAX W 29.3 g/m³; dew point at 101.3 kPa)

**Installation environment conditions:**
- **Indoor use**
- **Altitude up to 2000 m**

**Weight:**
- **Open-style connector type:** Approx. 170 g
- **Micro-style connector type:** Approx. 200 g

**Standard**
- **Safety standard:** UL: UL61010-1
dUL: CAN/CSA-C22.2 No.61010-1
- **CE marking:** LVD: EN61010-1
- **EMC:** EN61326-1
- **RCM:** EN55011

For details of DeviceNet Network installation conditions and methods, refer to the instruction manual of the DeviceNet master unit or DeviceNet Specifications. DeviceNet specifications are available at ODVA (Open DeviceNet Vendor Association).