3. MOUNTING

To prevent electric shock or instrument failure, turn off the power until all the wiring is completed. Make sure that the wiring has been properly made before applying power to the instrument.

3.1 Mounting Cautions

(1) This instrument is intended to be used under the following environmental conditions.

(IEC61010-1) [OVERTENSION CATEGORY II, POLLUTION DEGREE 2]

(2) Use the instrument within the allowable ambient temperature and humidity.

- Allowable ambient temperature: -10°C to +50°C
- Allowable ambient humidity: 5% to 95% RH (non-condensing)

(3) Installation environment conditions: Indoor use

- Installation environment: Data logger: Max. 20°C, cool this instrument with a forced air fan, as far away as possible from high voltage power lines and rotating machinery. High voltage equipment: Do not mount within the same panel. Power line: Separate. Rotating machinery: Separate as far as possible.
- The COM-ML and function modules are mounted using them.

(4) When joining function modules of two or more different types: Up to 30 modules may be connected.

(The maximum number of function modules (2-TIO-A/B and Z-DIO-A modules) described in the following can be joined on one COM-ML.

3.2 Joining Each Module

Before joining the COM-ML and function modules, use the DIP switch to make the communication setting.

For the setting procedure, see COM-ML [For SRZ] Quick Instruction Manual (IMR02E06-E).

1. OPEN-SHUTTER

2. INSTALLATION

3.3 Dimensions

- Space required between each module vertically

When the COM-ML is mounted on the panel, allow a minimum technology and leave the top and bottom of the COM-ML to a distance of 20 mm from the top or bottom of the panel.

Procedure for mounting or removing

1. Before mounting or removing, make sure to power off the COM-ML.

2. To prevent electric shock or instrument failure, turn off the power until all the wiring is completed. Make sure that the wiring has been properly made before applying power to the instrument.

4. WIRING

4.1 Wiring Cautions

- To guarantee stable communication signal wire away from power line, load lines and power lines of other electric equipment.

- For proper operation of this instrument, provide adequate ventilation for heat dissipation.

- Do not use a volatile solvent such as paint thinner to clean the instrument. Do not use a lubricant or any abrasive material when cleaning the instrument.

- To avoid damage to instrument, do not rub with an abrasive material or push too hard against the instrument.

- Do not connect modular connectors to telephone line.

- All precautions described in this manual should be taken to avoid damage to the instrument.

- Further application and/or use of this instrument is at the risk of the user.

- Be sure to connect the COM-ML and function modules are mounted using them.

- The figures, diagrams and numeric values used in this manual are only for purpose of illustration.

- RKC is not responsible for any damage or injury caused as a result of using this instrument, instrument failure or indeed death.

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

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

RKC is not responsible for any damage or injury caused as a result of using this instrument, instrument failure or indeed death.

For periodic maintenance is required for safe and proper operation of this instrument. Some components have a limited service life, or can be damaged by the user. Therefore, all safety equipment shall be maintained, such as solderless terminal. Only these specified solderless terminals can be used due to the insulation effectiveness of the noise filter.

When joining function modules of two or more different types: Up to 30 modules may be connected.

(However, the maximum joinable number of function modules of the same type is 16.)

When joining function modules of two or more different types: Up to 30 modules may be connected.

(However, the maximum joinable number of function modules of the same type is 16.)

- Do not use a volatile solvent such as paint thinner to clean the instrument. Do not use a lubricant or any abrasive material when cleaning the instrument.

- To avoid damage to instrument, do not rub with an abrasive material or push too hard against the instrument. Use to connecting the EtherNet/IP.

- Do not make so that the ice is formed in the equipment, which may cause electric shock by operating personnel.

- Do not connect modular connectors to telephone line.

- All precautions described in this manual should be taken to avoid damage to the instrument.

- Further application and/or use of this instrument is at the risk of the user.

- Be sure to connect the COM-ML and function modules are mounted using them.

- The figures, diagrams and numeric values used in this manual are only for purpose of illustration.

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- Do not make so that the ice is formed in the equipment, which may cause electric shock by operating personnel.

- Do not connect modular connectors to telephone line.

- All precautions described in this manual should be taken to avoid damage to the instrument.

- Further application and/or use of this instrument is at the risk of the user.


### 4.3 Connection to EtherNet/IP

- **RS-422A**
  - Up to 16 SRZ units can be connected to a host computer communication port.
  - **Connection Example**
    - Use a cross cable when directly connected to the host computer (as shown).
    - **Pin No.**
      - 1: T/R (A), TX (A)
      - 2: RX (A)
      - 3: Unused
      - 4: RX (B)
      - 5: Unused
      - 6: TX (B)

### 5. SPECIFICATIONS

- **Up to 16 SRZ units can be connected to a host computer communication port.**
- **RS-232C/RS-485 converter**
- **EtherNet/IP communication**
- **RS-485**
  - **Pin No.**
    - 1: RX (A)
    - 2: TX (A)
    - 3: RX (B)
    - 4: Unused
    - 5: TX (B)
    - 6: Shielded twisted pair wire

### 6. MODEL CODE

- **COM-ML-Z**
  - **Pin number**
    - 1: RX (A)
    - 2: TX (A)
    - 3: RX (B)
    - 4: Unused
    - 5: TX (B)
    - 6: Shielded twisted pair wire

- **COM-ML**
  - **Pin number**
    - 1: RX (A)
    - 2: TX (A)
    - 3: RX (B)
    - 4: Unused
    - 5: TX (B)
    - 6: Shielded twisted pair wire
4.3 Connection to EtherNet/IP

**Connection Example**

Can connect with the Ethernet cable which is marked. The Ethernet cable must be provided by the customer.

**When directly connected to client or scanner**

Use a cross cable when directly connected to the client or scanner (such as computer).

**When used with network hub**

Use straight cables when connected to the network hub.

**When using network hub**

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

The details of the EtherNet/IP are connected to the website of ODVA (Open DeviceNet Vendor Association), and obtain necessary information. URL: http://www.odva.org

4.4 Connection to Host Computer

**RS-422A**

Up to 16 SRZ units can be connected to a host computer communication port.

**RS-485**

Up to 16 SRZ units can be connected to a host computer communication port.

### Pin No. | Signal name | Symbol | Pin No. | Signal name | Symbol
---|---|---|---|---|---
1 | RX (A) | TX | 3 | TX (A) | RX
2 | RX (B) | TX | 4 | RX (B) | TX
3 | TX (A) | RX | 5 | TX (A) | RX
4 | TX (B) | RX | 6 | TX (B) | RX

The 4-pin type modular connector should be used for the connection to the COM-ML. (Recommended manufacturer and model: Hirose Electric, TMAP-48P)

### EtherNet/IP communication

- **Physical layer**: 10BASE-T/100BASE-TX automatic recognition
- **Connector type**: RJ-45
- **IEEE standards**: 802.3/802.3u (10BASE-T/100BASE-TX)
- **Maximum connections**: 1 SRZ unit
- **Data length**: 4800bps, 9600bps, 19200bps, 38400bps
- **Current consumption**: approx. 130mA
- **Weight**: approx. 230g

### MODBUS-RTU communication

**Host communication interface**

- **RS-422A**: Use a straight cable when directly connected to the client or scanner (such as computer).

**RS-485**

When the host computer (master) uses Windows 95/98/NT/2000/XP, use a RS-485 communication converter with an automatic send/receive transfer function.

- **RS-232C**: Use the RS-232C/RS-485 converter between the host computer and the COM-ML.

**Network hub**

- **Connection type**: Straight cable

**Computer COM-ML**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RX (A)</td>
<td>TX</td>
</tr>
<tr>
<td>2</td>
<td>RX (B)</td>
<td>TX</td>
</tr>
<tr>
<td>3</td>
<td>TX (A)</td>
<td>RX</td>
</tr>
<tr>
<td>4</td>
<td>TX (B)</td>
<td>RX</td>
</tr>
</tbody>
</table>

**Modular connector pin number**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal name</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RX (A)</td>
<td>TX</td>
</tr>
<tr>
<td>2</td>
<td>RX (B)</td>
<td>TX</td>
</tr>
<tr>
<td>3</td>
<td>TX (A)</td>
<td>RX</td>
</tr>
<tr>
<td>4</td>
<td>TX (B)</td>
<td>RX</td>
</tr>
</tbody>
</table>

### Recommended RS-232C/RS-485 converter: COM-A (RKC product)

When the host computer has a USB connector

Connect the USB communication converter between the host computer and the COM-ML.

**USB communication converter**

- **Interface**: Based on RS-232C, EIA standard
- **Communication speed**: 38400 bps
- **Max connections**: 1 (公布的, 十字接线)
- **Connector**: USB cable (W-BF-02-1)

**General specifications**

- **Power supply voltage**: 24V DC (Recommended: CD485, CD485/V Data Link product, Inc. or equivalent)
- **Connect to COM-ML (COM. PORT)**
- **Unused**
- **RX/TX (B)**
- **Recommended**: CD485, CD485/V Data Link product, Inc. or equivalent.

**General specifications**

- **Microcomputer (Host computer side)**
- **POWER**: 24V DC
- **Power supply current**: 150mA max.
- **Power supply voltage variation**: 24V ±10%
- **RS-485**: Use with a single serial bit interface or a network hub.
- **RS-232C**: Use with a single serial bit interface or a network hub.
- **Protective level**: IP67
- **Corresponding to the RKC controller**: COM-K Instruction Manual (IMR01Z01-E)