

**Basic Configuration**

* Items indicated with an asterisk are dedicated items, and cannot be substituted.

**Sensor controller**

The controller performs the image processing specified by the user settings and outputs the measurement results.

**Camera**

- Camera cable: FZ-95 (5m, 5m, 10m, min. bending radius: 69mm)
- Bend resistant camera cable: FZ-98 (5m, 10m, min. bending radius: 69mm)
- Right-angle camera cable: FZ-96 (5m, 10m, min. bending radius: 69mm)
- Local distance camera cable: FZ-952 (5m, 10m, min. bending radius: 93mm)

**Input device**

- Mouse, track ball (Commercially available USB device)

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**Meanings of Signal Words**

- **Symbols** and the meanings for safety precautions described in this manual.
- For the purpose of being used safely, the following indications are used in this book to draw your attention to the cautions. The cautions with the indications describe the importance of the safety.

**Installation Environment**

- **Specify installation environment** accordingly.
- The following alert symbols are used in this manual.

- **Meanings of Alert Symbols**

  - Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or death.
  - Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury or damage.
  - Indicates general prohibitions for which there is a possibility of injury by high temperature, high pressure that would deform, heat to 100°C (122°F), or incinerate the Controller.

**Precautions for Correct Use**

- **Installation and Storage Sites**

  - **Install and store the product in a location that meets the following conditions:**
    - **Ambient Temperature:**
      - Surrounding temperature of 0°C to 50°C (32°F to 122°F)
      - Relative humidity of between 35 to 85%
    - **Ambient Pressure:**
      - Atmospheric pressure 86 to 106 kPa
    - **Vibration:**
      - Vibration level: No more than 1.0 m/s² in each axis
    - **Shock:**
      - Shock level: 50 G max. in each axis
    - **Electrical interference:**
      - Do not use the RESET input immediately after power is turned ON. Do not turn OFF the power immediately after power is turned ON.

- **Use the monitor to check images and display the condition-setting menus.**

- **Do not install in this orientation.**

- **Do not install the product close to high-voltage devices and power pressure that would deform, heat to 100°C (122°F).**

- **Do not install the product in a cabinet containing high-voltage devices in order to secure the safety of operation and maintenance.**

- **Always turn OFF the power immediately after power is turned ON.**

**Precautions for Safe Use**

- **Dangers of burns. Do not touch the While LED during the power is turned OFF, since it remains extremely hot.**

- **Keep the power supply wires as short as possible (Maximum 2m).**

- **Use power supply cables with specified values.**
  - Use the specified wire size (AWG: 16) for M12 connectors.
  - Use M12 connectors with specified values for M12 connectors.

**Ambient Temperature**

- To keep proper image quality, the top of the Controller should not exceed 50°C (122°F) in order to prevent deformation, heat to 100°C (122°F), and incineration of the Controller. Use the monitor to check images and display the condition-setting menus.

**Component Names and Functions**

- **LED name**
  - **POWER LED**
  - **ERROR LED**
  - **RUN LED**
  - **ACCESS LED**
  - **SD POWER LED**
  - **SD BUSY LED**
  - **EtherCAT RUN LED**
  - **EtherCAT LINK/NEXT LED**
  - **EtherCAT LINK/NEXT OUT LED**
  - **EtherCAT ERR LED**
  - **EtherCAT NET RUN LED**
  - **EtherCAT NET RUN2 LED**
  - **EtherCAT NET RUN3 LED**
  - **EtherCAT NET RUN4 LED**

- **Description**
  - Displays the condition-setting menus.
  - Lit when the SD memory card is accessed.
  - Lit when connected with an EtherCAT device, and blinks while performing communications.
  - Lit when connected with an EtherCAT device, and blinks while performing communications.
  - Lit when connected with an EtherCAT device, and blinks while performing communications.
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**U.S. California Notice:**

This product contains a lithium battery for which the following notice applies: Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate
The current value must be the specified load current or lower.

Exceeding the specified current value may cause damage to the output circuit.

- ON current/voltage means the current or voltage value to activate the terminal. The ON voltage value is the potential difference between COM IN and each input terminal.

- OFF current/voltage means the current or voltage value to deactivate the terminal. The OFF voltage value is the potential difference between COM IN and each input terminal.

- OFF leakage current 0.2mA or less

**Input**

<table>
<thead>
<tr>
<th>Signal</th>
<th>Pin Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENC1 A+</td>
<td>16 ENC1 A+ Yellow</td>
</tr>
<tr>
<td>ENC1 A-</td>
<td>15 ENC1 A- Blue/Red</td>
</tr>
<tr>
<td>ENC1 Z+</td>
<td>14 ENC1 Z+ Yellow</td>
</tr>
<tr>
<td>ENC1 Z-</td>
<td>13 ENC1 Z- Blue/Red</td>
</tr>
<tr>
<td>ENC0 A+</td>
<td>4 ENC0 A+ White</td>
</tr>
<tr>
<td>ENC0 A-</td>
<td>3 ENC0 A- Brown</td>
</tr>
<tr>
<td>ENC0 VDD</td>
<td>2 ENC0 VDD Black/Red</td>
</tr>
<tr>
<td>ENC0 GND</td>
<td>1 ENC0 GND Purple/Red</td>
</tr>
</tbody>
</table>

**Output**

<table>
<thead>
<tr>
<th>Signal</th>
<th>Pin Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI0</td>
<td>1 CH2 DIO OUT 1/2/3</td>
</tr>
<tr>
<td>DI1</td>
<td>2 CH2 DIO OUT 4/5/6</td>
</tr>
<tr>
<td>DI2</td>
<td>3 CH2 DIO OUT 7/8/9</td>
</tr>
<tr>
<td>DI3</td>
<td>4 CH2 DIO OUT 10/11</td>
</tr>
<tr>
<td>DI4</td>
<td>5 CH2 DIO OUT 12/13</td>
</tr>
<tr>
<td>DI5</td>
<td>6 CH2 DIO OUT 14/15</td>
</tr>
<tr>
<td>DI6</td>
<td>7 CH2 DIO OUT 16/17</td>
</tr>
<tr>
<td>DI7</td>
<td>8 CH2 DIO OUT 18/19</td>
</tr>
</tbody>
</table>

**I/O Connector**

- 10 pins: Connect the COMOUT3 terminal when using these signals.
- 6 pins: Connect the COMOUT0 terminal when using these signals.

**Connection**

Connect the parallel I/O cable with more than the minimum bending radius. XW2Z-5013-36, minimum bending radius: 10mm, solid extension. XW2Z-5013-55, minimum bending radius: 10mm, solid extension. For other cables, use the specified I/O connector (left-side connector No. 35-68) and a suitable input signal table.

**Encoder Interfaces (Line Driver Type)**

<table>
<thead>
<tr>
<th>Signal</th>
<th>Input specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI0</td>
<td>EIA standard, RS-422-A line driver level</td>
</tr>
</tbody>
</table>

**Circuit Schematics**

- Line driver input type CH1
- Line driver input type CH2

**Pin Assignment**

- Right-side connector (No.35-68)
- Left-side connector (No.1-34)
**EtherCAT Interfaces**

- **Cable**
  - Connect a straight LAN cable.
  - Use an STP cable of category 5e or higher, which is shielded double with an aluminum tape and a braided cord.

- **IO Connector**
  - Use an 8-pin shielded RJ45 modular connector of category 5e or higher.
  - Pin assignment:
    - Pin 1: Power supply voltage (0V).
    - Pin 2: Input power supply voltage (0V).
    - Pin 3: Ground.
    - Pin 4: Output ground.
    - Pin 5: Input GND.
    - Pin 6: Output GND.
    - Pin 7: I/O Connector
    - Pin 8: Terminal block connector (female)

  - Recommended tightening torque: 0.7-0.8N·m on the right and left sides of it with a flathead screwdriver.

- **Wiring**
  - Connect both ends of the cable shield with the connector hood.

- **Serial Interface**
  - Use a compatible connector.
  - Pin numbers will depend on the external device being connected.
  - Refer to the manual for the personal computer or PLC being connected.

- **Connection Method**
  - Connect the camera link connector (male) into the terminal block connector (female) on the controller side.
  - Terminal block connector (male) into the terminal block (female)
  - Insert the terminal block connector (male) into the terminal block (female)
  - Insert the end of the signal line (electric wire) into the terminal block (male)

- **Recommended power supply**

- **Dimensions**

- **Mounting**
  - Tighten the screws securely when installing the product.
  - Do not remove the insulating feet. Fix the insulating feet to secure the ventilation path.
  - Recommended tightening torque: 0.5N·m to 0.8N·m

- **Suitability for Use**

- **Ferrite Core**
  - Mount the ferrite core attached to the camera cable to near the Sensor Controller.

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**Notes**

- Use an STP cable of category 5e or higher, which is shielded double with an aluminum tape and a braided cord.
- Use the T568A wiring method as mentioned above.
- Connect both ends of the cable shield with the connector hood.
- The power supply voltage is 20.4-26.4VDC.
- * Peripheral devices may be damaged if the cable is connected or disconnected with the power ON.*
- * The cable is maximum 100m long. * 
- * If conductor is a twisted cable, transmission performance generally becomes worse than that of straight cables, so that 100m cannot be guaranteed. For details, contact the cable manufacturer.*
- * The maximum cable length is 15m.*
- * Recommended tightening torque: 0.7-0.8N·m on the right and left sides of it with a flathead screwdriver.*
- * Recommended tightening torque: 1.2N·m to 1.3N·m *
- * Do not remove the insulating feet. Fix the insulating feet to secure the ventilation path.*
- * Recommended tightening torque: 0.5N·m to 0.8N·m*

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**Relevant Contacts**

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMRON CHINA</td>
<td>Room 2211, Bank of China Tower, 200120, China</td>
<td>49-7032-811-0</td>
<td>49-7032-811-199</td>
</tr>
<tr>
<td>OMRON ASIA PACIFIC</td>
<td>49-7032-811-0</td>
<td>49-7032-811-199</td>
<td></td>
</tr>
</tbody>
</table>