Print mark detection photoelectric sensor in compact stainless steel housing

E3ZM-V

The detergent resistant photoelectric sensor in a robust stainless steel housing provides reliable detection of all common print marks in packaging applications.

- White LED for stable detection of differently colored print marks
- SUS 316L stainless steel housing
- Easy-to-use teach-in button or remote dynamic teach
- Fast response time of 50 µs

Features

Reliable print mark detection within OMRON’s most popular E3Z sensor family

The E3ZM-V provides reliable print mark detection in the compact sized E3Z housing. For packaging machine makers the E3Z family offers a complete sensor platform with one mounting concept simplifying installation and machine design.

- Space-saving design with an SUS316L housing
  The compact design reduces volume by 90% compared to conventional mark sensors.

- Coaxial optical system
  The coaxial optical system ensures stable detection of print marks on uneven surfaces.

Straight Sensing Object

Conventional mark sensor size

Inclined Sensing Object

E3ZM-V

Standard Size

Only 10% the volume!
Water and detergent resistance
The housing is constructed of corrosion-resistant SUS316L, and the display cover is PES (polyethersulfone). Both materials are highly resistant to the corrosive effects of detergents and disinfectants. The IP69k tight housing construction ensures long sensor lifetime in often cleaned environments.

Reliable detection of differently colored print marks due to RGB signal processing
• RGB signal processing
The white LED and RGB signal processing ensure the stable detection of differently colored print marks. The processing algorithm provides a fast response time of 50 µs.

• Easy setting with 2-point or automatic teaching
2-point Teaching (Manual)
Simply aim the beam spot at the mark portion and background portion, and press the teaching button.

Automatic Teaching (Remote)
Send a pulse to the remote control input and have the mark pass by six times for automatic teaching.
Ordering Information

Sensor

<table>
<thead>
<tr>
<th>Sensing method</th>
<th>Appearance</th>
<th>Connection method</th>
<th>Sensing distance</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark Sensor</td>
<td></td>
<td>Pre-wired (2 m)</td>
<td>12±2 mm</td>
<td>E3ZM-V61 2M</td>
</tr>
<tr>
<td>(Diffuse reflective)</td>
<td></td>
<td>Connector (M8, 4 pins)</td>
<td></td>
<td>E3ZM-V66</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3ZM-V81 2M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E3ZM-V86</td>
</tr>
</tbody>
</table>

*1. A deviation of ±2 mm (typical value) can be handled for combinations of white, yellow, and black. Refer to page 5 for the detection capability for other color combinations.

Accessories

Sensor I/O Connectors

<table>
<thead>
<tr>
<th>Size</th>
<th>Cable</th>
<th>Appearance</th>
<th>Cable type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>M8 (4 pins)</td>
<td>Standard</td>
<td>Straight</td>
<td>2 m</td>
<td>XS3F-E421-402-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L-shaped</td>
<td>2 m</td>
<td>XS3F-E422-402-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 m</td>
<td>XS3F-E421-405-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 m</td>
<td>XS3F-E422-405-A</td>
</tr>
</tbody>
</table>

Note 1: The outer cover of the cable is made of PVC (polyvinyl chloride), the nut is SUS316L, and the degree of protection is IP 67. When high-pressure washing will be used, select an I/O Connector that has IP69K degree of protection.

Note 2: For detergent resistant cable connectors with stainless steel nuts see accessory datasheet E26E or contact your OMRON representative.

Mounting Brackets

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Model (Material)</th>
<th>Quantity</th>
<th>Remarks</th>
<th>Appearance</th>
<th>Model (Material)</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>E39-L153</td>
<td>(SUS304)</td>
<td>1</td>
<td>Mounting Brackets</td>
<td>E39-L98</td>
<td>(SUS304)</td>
<td>1</td>
<td>Protective Cover Bracket *1</td>
</tr>
<tr>
<td>E39-L104</td>
<td>(SUS304)</td>
<td>1</td>
<td></td>
<td>E39-L150</td>
<td>(SUS304)</td>
<td>1 set</td>
<td></td>
</tr>
<tr>
<td>E39-L43</td>
<td>(SUS304)</td>
<td>1</td>
<td>Horizontal Mounting Bracket *1</td>
<td>E39-L151</td>
<td>(SUS304)</td>
<td>1 set</td>
<td>(Sensor adjuster) Easily mounted to the aluminum frame rails of conveyors and easily adjusted. For vertical angle adjustment</td>
</tr>
<tr>
<td>E39-L142</td>
<td>(SUS304)</td>
<td>1</td>
<td>Horizontal Protective Cover Bracket *1</td>
<td>E39-L144</td>
<td>(SUS304)</td>
<td>1 set</td>
<td>Compact Protective Cover Bracket *1</td>
</tr>
<tr>
<td>E39-L44</td>
<td>(SUS304)</td>
<td>1</td>
<td>Rear Mounting Bracket</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1. Cannot be used for Standard Connector models.
### Ratings and Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td></td>
</tr>
<tr>
<td>NPN output</td>
<td>E3ZM-V61/-V66</td>
</tr>
<tr>
<td>PNP output</td>
<td>E3ZM-V81/-V86</td>
</tr>
<tr>
<td><strong>Sensing method</strong></td>
<td>Diffuse reflective (mark detection)</td>
</tr>
<tr>
<td><strong>Sensing distance</strong></td>
<td>12:2 mm *1</td>
</tr>
<tr>
<td><strong>Sensing range</strong></td>
<td>Depends on the combination of colors. Refer to Engineering Data on page 5 for details.</td>
</tr>
<tr>
<td><strong>Spot diameter</strong></td>
<td>2-mm dia. max.</td>
</tr>
<tr>
<td><strong>Light source</strong></td>
<td>White LED (450 to 700 nm)</td>
</tr>
<tr>
<td><strong>Power supply voltage</strong></td>
<td>10 to 30 VDC, including 10% ripple (p-p)</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>600 mW max. (current consumption for a 30-V power supply voltage: 20 mA max.)</td>
</tr>
<tr>
<td><strong>Control output</strong></td>
<td>Load power supply voltage: 30 VDC max., Load current: 100 mA max. (Residual voltage: 2 V max.)</td>
</tr>
<tr>
<td><strong>Remote control input</strong></td>
<td>NPN output ON: Short-circuit to 0 V, or 1.5 V max. (source current: 1 mA max.)</td>
</tr>
<tr>
<td></td>
<td>NPN output OFF: Open or Vcc 1.5 V to Vcc (leakage current: 0.1 mA max.)</td>
</tr>
<tr>
<td></td>
<td>PNP output ON: Vcc 1.5 V to Vcc (sink current: 1 mA max.)</td>
</tr>
<tr>
<td></td>
<td>PNP output OFF: Open or 1.5 V max. (leakage current: 0.1 mA max.)</td>
</tr>
<tr>
<td><strong>Operating modes</strong></td>
<td>Set in the order of the teaching operation. *2</td>
</tr>
<tr>
<td><strong>Protection circuits</strong></td>
<td>Reversed power supply polarity, Load short-circuit protection, and Reversed output polarity protection</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>Operate or reset: 50 μs max.</td>
</tr>
<tr>
<td><strong>Sensitivity adjustment</strong></td>
<td>Teaching method</td>
</tr>
<tr>
<td><strong>Ambient illumination</strong></td>
<td>(Receiver side) Incandescent lamp: 3,000 lx max., Sunlight: 10,000 lx max.</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>Operating: -40 to 60°C *3, Storage: -40 to 70°C (with no icing or condensation)</td>
</tr>
<tr>
<td><strong>Ambient humidity range</strong></td>
<td>Operating: 35% to 85%, Storage: 35% to 95% (with no condensation)</td>
</tr>
<tr>
<td><strong>Insulation resistance</strong></td>
<td>20 MΩ min. (at 50/60 Hz for 1 min)</td>
</tr>
<tr>
<td><strong>Dielectric strength</strong></td>
<td>1,000 VAC at 50/60 Hz for 1 min</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>10 to 55 Hz, 1.5-mm double amplitude for 2 h each in X, Y, and Z directions</td>
</tr>
<tr>
<td><strong>Shock resistance</strong></td>
<td>500 m/s² for 3 times each in X, Y, and Z directions</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IEC 60529: IP67, DIN 40050-9: IP69K *4</td>
</tr>
<tr>
<td><strong>Connection method</strong></td>
<td>Pre-wired cable (standard length: 2 m) or M8 4-pin connector</td>
</tr>
<tr>
<td><strong>Indicator</strong></td>
<td>Operating indicator (yellow), Stability indicator (green), and Teaching indicator (red)</td>
</tr>
<tr>
<td><strong>Weight (packed state)</strong></td>
<td>Pre-wired models (2-m cable): Approx. 85 g</td>
</tr>
<tr>
<td></td>
<td>Connector models: Approx. 35 g</td>
</tr>
<tr>
<td><strong>Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>SUS316L</td>
</tr>
<tr>
<td>Lens</td>
<td>PMMA (polymethylmethacrylate)</td>
</tr>
<tr>
<td>Indication</td>
<td>PES (polyethersulfone)</td>
</tr>
<tr>
<td>Buttons</td>
<td>Fluoro rubber</td>
</tr>
<tr>
<td>Cable</td>
<td>PVC (polyvinyl chloride)</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>Instruction sheet</td>
</tr>
</tbody>
</table>

*1. A deviation of ±2 mm (typical value) can be handled for combinations of white, yellow, and black. Refer to page 5 for the detection capabilities for other colors.

*2. Mark Sensor output switching: When teaching, specify the ON color first and the OFF color second.

*3. Do not bend the cable in temperatures of -25°C or lower.

*4. For connector models IP69k rating is with connector attached.

### Standard Sensing Object for the Mark Sensor

<table>
<thead>
<tr>
<th>Color</th>
<th>Munsell color notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>N9.5</td>
</tr>
<tr>
<td>Red</td>
<td>4R 4.5/12.0</td>
</tr>
<tr>
<td>Yellow-red</td>
<td>4YR 6.0/11.5</td>
</tr>
<tr>
<td>Yellow</td>
<td>5Y 8.5/11.0</td>
</tr>
<tr>
<td>Yellow-green</td>
<td>3GY 6.5/10.0</td>
</tr>
<tr>
<td>Green</td>
<td>3G 6.5/9.0</td>
</tr>
<tr>
<td>Blue-green</td>
<td>5BG 4.5/10.0</td>
</tr>
<tr>
<td>Blue</td>
<td>3PB 5.0/10.0</td>
</tr>
<tr>
<td>(Black)</td>
<td>(N2.0)</td>
</tr>
</tbody>
</table>
Detectable Ranges

Note: The above chart shows the combinations of colors for which teaching is possible at a sensing distance of 12 mm.

Detectable Ranges

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[Diagram showing detectable ranges for different color combinations]
### I/O Circuit Diagrams

#### NPN Output

<table>
<thead>
<tr>
<th>Model</th>
<th>Timing charts</th>
<th>Output circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3ZM-V61</td>
<td><img src="image1.png" alt="Timing charts" /></td>
<td><img src="image2.png" alt="Output circuit" /></td>
</tr>
<tr>
<td>E3ZM-V66</td>
<td><img src="image3.png" alt="Timing charts" /></td>
<td><img src="image4.png" alt="Output circuit" /></td>
</tr>
</tbody>
</table>

**Model Specifications**
- **Sensing object**
- **Operation indicator** (yellow)
- **Output transistor**
- **Load** (e.g., relay)

**Output**
- **Between brown (1) and black (4) leads**

#### PNP Output

<table>
<thead>
<tr>
<th>Model</th>
<th>Timing charts</th>
<th>Output circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3ZM-V81</td>
<td><img src="image5.png" alt="Timing charts" /></td>
<td><img src="image6.png" alt="Output circuit" /></td>
</tr>
<tr>
<td>E3ZM-V86</td>
<td><img src="image7.png" alt="Timing charts" /></td>
<td><img src="image8.png" alt="Output circuit" /></td>
</tr>
</tbody>
</table>

**Model Specifications**
- **Sensing object**
- **Operation indicator** (yellow)
- **Output indicator** (red)
- **Load** (e.g., relay)

**Output**
- **Between blue (3) and black (4) leads**

#### Plugs (Sensor I/O Connectors)

**M8 4-pin Connectors**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Wire color</th>
<th>Connector pin No.</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>Brown</td>
<td>1</td>
<td>Power supply (+v)</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>2</td>
<td>Remote control input</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>3</td>
<td>Power supply (0 V)</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>4</td>
<td>Output</td>
</tr>
</tbody>
</table>

**Note:** The above M8 Connectors made by OMRON are IP67. Do not use them in an environment where IP69K is required.
Nomenclature

Teaching Models

Safety Precautions

Refer to Warranty and Limitations of Liability on page 12.

**WARNING**

This product is not designed or rated for directly or indirectly ensuring safety of persons. Do not use it for such a purpose.

**CAUTION**

Do not use the product with voltage in excess of the rated voltage. Excess voltage may result in malfunction or fire.

Never use the product with an AC power supply. Otherwise, explosion may result.

When cleaning the product, do not apply a high-pressure spray of water to one part of the product. Otherwise, parts may become damaged and the degree of protection may be degraded.

### Precautions for Safe Use

The following precautions must be observed to ensure safe operation of the Sensor.

**Operating Environment**

Do not use the Sensor in an environment where explosive or flammable gas is present.

**Connecting Connectors**

Be sure to hold the connector cover when inserting or removing the connector.

When using an XS3F Connector, be sure to tighten the connector lock by hand; do not use pliers or other tools.

If the tightening is insufficient, the degree of protection will not be maintained and the Sensor may become loose due to vibration. The appropriate tightening torque is 0.3 to 0.4 N·m. When using another, commercially available connector, follow the usage and tightening torque instructions provided by the manufacturer.

**Load**

Do not use a load that exceeds the rated load.

**Low-temperature Environments**

Do not touch the metal surface with your bare hands when the temperature is low. Touching the surface may result in a cold burn.

**Oily Environments**

Do not use the Sensor in oily environments. They may damage parts and reduce the degree of protection.

**Modifications**

Do not attempt to disassemble, repair, or modify the Sensor.

**Outdoor Use**

Do not use the Sensor in locations subject to direct sunlight.

**Cleaning**

Do not use thinner, alcohol, or other organic solvents. Otherwise, the optical properties and degree of protection may be degraded.

**Cleaning**

Do not use highly concentrated cleaning agents. Otherwise, malfunction may result. Also, do not use high-pressure water with a level of pressure that exceeds the stipulated level. Otherwise, the degree of protection may be reduced.

**Surface Temperature**

Burn injury may occur. The Sensor surface temperature rises depending on application conditions, such as the ambient temperature and the power supply voltage. Use caution when operating or performing maintenance on the Sensor.

**Cable Bending**

Do not bend the cable in temperatures of -25°C or below. Otherwise, the cable may be damaged.
Precautions for Correct Use

Do not use the Sensor in any atmosphere or environment that exceeds the ratings.
Do not install the Sensor in the following locations:
1. Locations subject to direct sunlight
2. Locations subject to condensation due to high humidity
3. Locations subject to corrosive gas
4. Locations where the Sensor may receive direct vibration or shock

Connecting and Mounting
1. The maximum power supply voltage is 30 VDC. Before turning the power ON, make sure that the power supply voltage does not exceed the maximum voltage.
2. Laying Sensor wiring in the same conduit or duct as high-voltage wires or power lines may result in malfunction or damage due to induction. As a general rule, wire the Sensor in a separate conduit or use shielded cable.
3. Use an extension cable with a minimum thickness of 0.3 mm² and less than 50 m long.
4. Do not pull on the cable with excessive force.
5. Pounding the Photoelectric Sensor with a hammer or other tool during mounting will impair water resistance. Also, use M3 screws.
6. Mount the Sensor either using the bracket (sold separately) or on a flat surface.
7. Be sure to turn OFF the power supply before inserting or removing the connector.

Power Supply
If a commercial switching regulator is used, ground the FG (frame ground) terminal.

Power Supply Reset Time
The Sensor will be able to detect objects 100 ms after the power supply is turned ON. Start using the Sensor 100 ms or more after turning ON the power supply. If the load and the Sensor are connected to separate power supplies, be sure to turn ON the Sensor first.

Turning OFF the Power Supply
Output pulses may be generated even when the power supply is OFF. Therefore, it is recommended to first turn OFF the power supply for the load or the load line.

Load Short-circuit Protection
This Sensor is equipped with load short-circuit protection, but be sure not to short circuit the load. Be sure to not use an output current flow that exceeds the rated current. If a load short circuit occurs, the output will turn OFF, so check the wiring before turning ON the power supply again. The short-circuit protection circuit will be reset. The load shortcircuit protection will operate when the current flow reaches 1.8 times the rated load current. When using a capacitive load, use an inrush current of 1.8 times the rated load current or lower.

Water Resistance
Do not use the Sensor in water, rainfall, or outdoors.

When disposing of the Sensor, treat it as industrial waste.

Mounting Diagram

Resistance to Detergents, Disinfectants, and Chemicals
- The Sensor will maintain sufficient performance in typical detergents and disinfectants, but performance may suffer in some types of detergents, disinfectants, and chemicals. Refer to the following table prior to use.
- The E32M has passed detergent and disinfectant resistance testing for the substances listed in the following table. Use this table as a guide when considering detergents and disinfectants.

<table>
<thead>
<tr>
<th>Type</th>
<th>Product name</th>
<th>Concentration</th>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals</td>
<td>Sodium hydroxide, NaOH</td>
<td>1.5%</td>
<td>70°C</td>
<td>240 h</td>
</tr>
<tr>
<td></td>
<td>Potassium hydroxide, KOH</td>
<td>1.5%</td>
<td>70°C</td>
<td>240 h</td>
</tr>
<tr>
<td></td>
<td>Phosphoric acid, H₃PO₄</td>
<td>2.5%</td>
<td>70°C</td>
<td>240 h</td>
</tr>
<tr>
<td></td>
<td>Sodium hypochlorite, NaClO</td>
<td>0.3%</td>
<td>25°C</td>
<td>240 h</td>
</tr>
<tr>
<td></td>
<td>Hydrogen peroxide, H₂O₂</td>
<td>6.5%</td>
<td>25°C</td>
<td>240 h</td>
</tr>
<tr>
<td>Alkaline foaming</td>
<td>Topax 66s (Ecolab)</td>
<td>3.0%</td>
<td>70°C</td>
<td>240 h</td>
</tr>
<tr>
<td>cleansers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acidic foaming</td>
<td>Topax 56 (Ecolab)</td>
<td>5.0%</td>
<td>70°C</td>
<td>240 h</td>
</tr>
<tr>
<td>cleansers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disinfectants</td>
<td>Oxonia Active 90 (Ecolab)</td>
<td>1.0%</td>
<td>25°C</td>
<td>240 h</td>
</tr>
<tr>
<td></td>
<td>TEK121 (ABC Compounding)</td>
<td>1.1%</td>
<td>25°C</td>
<td>240 h</td>
</tr>
</tbody>
</table>

Note: The Sensor was immersed in the above chemicals, detergents, and disinfectants for 240 h at the temperatures given, and then passed an insulation resistance test at 100 MW min.

Restrictions on Sensing Objects
Do not use this Sensor if the color and pattern of the background are similar to those of the mark.

Detection of Glossy Objects
Mount the Sensor at an angle of 5° to 15°, as shown in the following diagram. This will improve the mark detection capability.

Water Resistance
Do not use the Sensor in water, rainfall, or outdoors.
Two-point Teaching Using Teaching Button

1. Place the point for which you want the output to go ON in the beam spot position.
   Then, press and hold the teaching button for at least 2 seconds.

   The teaching indicator (red) will begin flashing quickly. (This indicates that the output ON teaching operation should begin.)
   Perform the following operation within 7 seconds of when you start pushing the button. (After 7 seconds, the Unit will return to its initial condition.)

2. Press the teaching button for approximately 0.5 second.
   The teaching indicator (red) will light for approximately 0.5 second to show that the output ON teaching is completed.

   The teaching indicator (red) will then begin flashing quickly again to show that the output OFF teaching operation should begin.

3. Place the point where you want the output to go OFF in the beam spot position.

4. Press the teaching button for approximately 0.5 second.
   The teaching indicator (red) will light for approximately 0.5 second to show that the output OFF teaching is completed.

When Teaching Is Successful

- The stability indicator (green) shows that detection is stable.
  1. Lights
     → This indicates stable detection, even if there is some fluttering in the sensing object.
  2. Flashes
     → This indicates the possibility of unstable detection, due to fluttering in the sensing object.
  3. Remains OFF
     → This indicates unstable detection.

When Teaching Is Not Successful

- The teaching indicator (red) flashes slowly. (Flashes in cycles of approx. 6 seconds.)

Repeat the operation starting with step 1.

The Sensor enters normal operating condition.

<table>
<thead>
<tr>
<th></th>
<th>Stable detection</th>
<th>Unstable detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON point</td>
<td>Lit Lit</td>
<td>Off Lit</td>
</tr>
<tr>
<td>OFF point</td>
<td>Lit Off</td>
<td>Off Off</td>
</tr>
</tbody>
</table>
Automatic teaching (Remote)

1. Send a pulse with a duration of at least 2 s but less than 10 s min. to the remote control input (pink).
2. Teaching will be performed automatically when the mark (the light level with the shorter detection time) passes through the beam spot. Make sure the mark passes through the beam spot for at least 1.5 ms. Pass the mark through the beam spot at least seven times to complete the teaching process.
3. Detection will begin and the output will turn ON when the mark (the light level with the shorter detection time) is detected.

*Note: Determine when teaching has been completed by confirming that the output turns ON for the mark and OFF for the background. If the output does not turn ON for the mark and OFF for the background within one minute after the remote control input is applied, teaching has not been successful. Apply the remote control input again.

Precautions for Using Automatic Teaching (Remote)

- With automatic teaching (remote), the output is always turned ON for the light level with the shorter detection time. Use 2-point teaching (manual) to turn OFF the output for the light level with the shorter detection time.
- Faulty detection is possible when using automatic teaching (remote) if there is considerable movement in the sensing object or if the surface of the object is stepped or contains protrusions. In cases such as these, use 2-point teaching.
- Do not use automatic teaching for backgrounds that are not monochrome.

*If seven marks do not pass within one minute of the remote control input, the teaching operation will be cancelled.
Dimensions

Sensors

Mark Sensor
(Diffuse reflective)
Pre-wired Models
E3ZM-V61
E3ZM-V81

Mark Sensor
(Diffuse reflective)
M8 Connector
E3ZM-V66
E3ZM-V86

4 dia. Vinyl-insulated round cable with 4 conductors
(Conductor cross section: 0.2 mm² (AWG.24), Insulator diameter: 1.1 mm), Standard length: 2 m
In the interest of product improvement, specifications are subject to change without notice.