


E3C-VS/VM

Extremely thin beam ideal for detection of minute objects and marks

- Ideal for detection of small objects and slight color differences
- Bad mark detection
- Detection of thin wire of 200 μ
- Detection of slight level differences.








 Be sure to read *Safety Precautions* on page 4.

Ordering Information

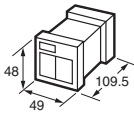

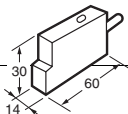

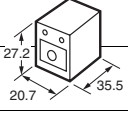
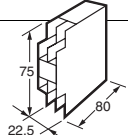
Sensors

Sensor Heads

 Red light  Green light


| Sensing method | Appearance | Connection method | Sensing distance | Model |
|--|---|-------------------|--|-------------|
| Reflective model (for mark detection) |  | Pre-wired (2 m) |  10±2 mm | E3C-VS1G 2M |
| | | |  30±5 mm | E3C-VS3R 2M |
| |  35±5 mm | | E3C-VM35R 2M | |
| |  70±10 mm | | E3C-VS7R 2M | |

Amplifier Units

| Power supply | Application | Appearance | Function | Model |
|--------------|------------------------|---|--|---------------------|
| AC | General-purpose models |  | -- | E3C-A |
| | | |  Timer | E3C-C |
| DC | Slim body |  |  Self-diagnosis | E3C-JC4P 2M |
| | Compact body |  | -- | E3C-GE4 |
| | Front terminal |  | -- | E3C-WE4 E3C-WH4F |

Accessories (Order Separately)

Mounting Brackets

| Appearance | Model | Quantity | Remarks |
|---|---------|----------|---|
|  | E39-L42 | 2 | Can be used with the E3C-VS1G, or E3C-VS3R. |

Refer to Mounting Brackets on E39-L/F39-L/E39-S/E39-R for details.

* If a through-beam model is used, order two Mounting Brackets; one for the Emitter and one for the Receiver.

Ratings and Specifications

Sensor Head

| Item | Sensing method Model | Reflective model (for mark detection) | | | |
|---|-------------------------|---|----------------------------------|--|--|
| | | E3C-VS1G | E3C-VS3R | E3C-VM35R | E3C-VS7R |
| Sensing distance | | 10±2 mm | 30±5 mm | 35±5 mm | 7±10 mm |
| Minimum detectable object (black mark on white) | | 0.7 mm at central sensing distance | 2 mm at central sensing distance | 0.2 mm at central sensing distance | 0.6 mm at central sensing distance |
| Light source (wavelength) | | Green LED (565 nm) | Red LED (680 nm) | Red LED (660 nm) | |
| Ambient illumination | | Incandescent lamp: 1,000 lx max. (on light-receiving side) Sunlight: 3,000 lx max. (on light-receiving side) | | | |
| Ambient temperature range | | Operating: -10 to 70°C (with no icing or condensation) Storage: -25 to 70°C (with no icing or condensation) | | Operating/storage: -25 to 70°C (with no icing or condensation) | |
| Ambient humidity range | | Operating: 35% to 85%, Storage: 35% to 95% (with no condensation) | | | |
| Insulation resistance | | 20 MΩ min. (at 500 VDC) | | | |
| Dielectric strength | | 500 VAC, 50/60 Hz for 1 min | | | |
| Vibration resistance (destruction) | | 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions | | | |
| Shock resistance (destruction) | | 500 m/s ² 3 times each in X, Y, and Z directions | | | |
| Degree of protection | | IEC IP64 (indoors only) | | IEC IP50 (indoors only) | |
| Connection method | | Pre-wired cable (standard length: 2 m) | | | |
| Weight (packed state) | | Approx. 50 g | | Approx. 60 g | |
| Material | Case | Polycarbonate | | Heat-resistant ABS | |
| | Lens | Polycarbonate | | Glass | |
| | Mounting Bracket | --- | | Steel | |
| Accessories | | Instruction manual | | Mounting Bracket, Slotted/ Phillips screws M3 × 16, Spring washer, Flat washer, M3 nuts | Mounting Bracket, Slotted/ Phillips screws M3 × 16, Spring washer, Flat washer, M3 nuts, Instruction manual |

Amplifier Units

Refer to E3C.

I/O Circuit Diagrams

Refer to E3C.

Connection

Refer to E3C.

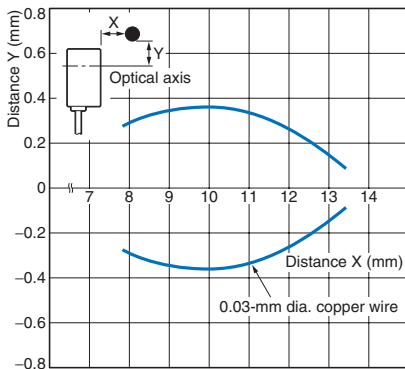
Connectors

Refer to E3C.

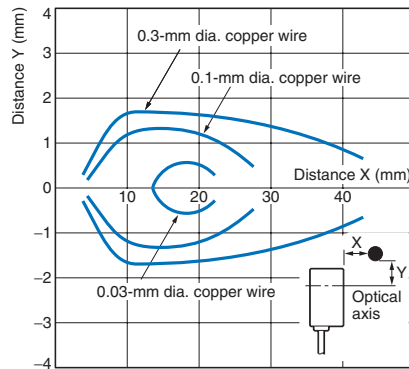
Engineering Data (Typical)

Operating Range

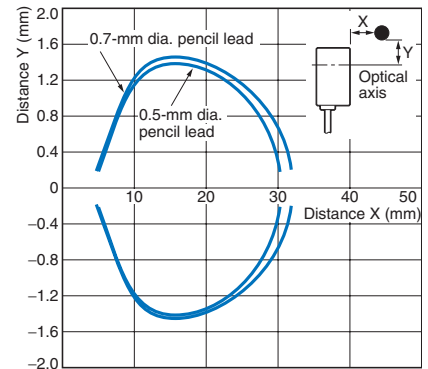
E3C-VS1G



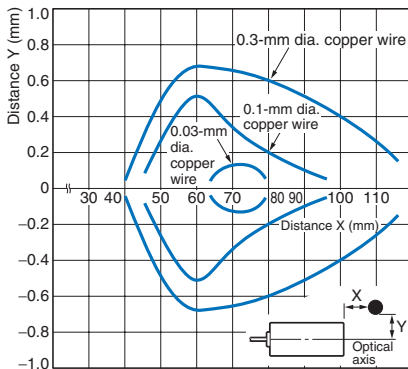
E3C-VS3R



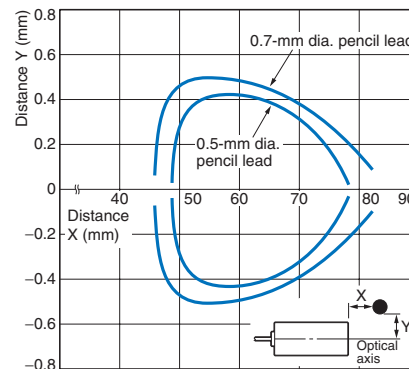
E3C-VS3R



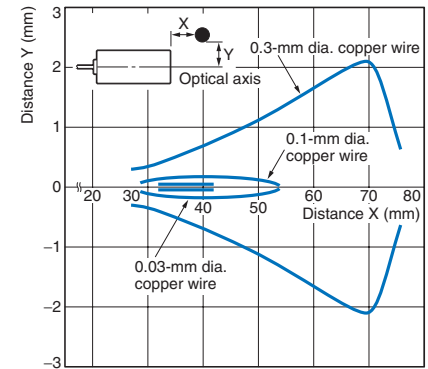
E3C-VS7R



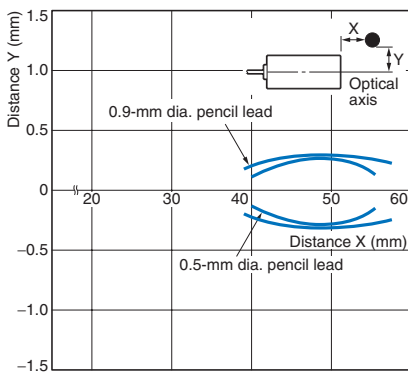
E3C-VS7R



E3C-VM35R

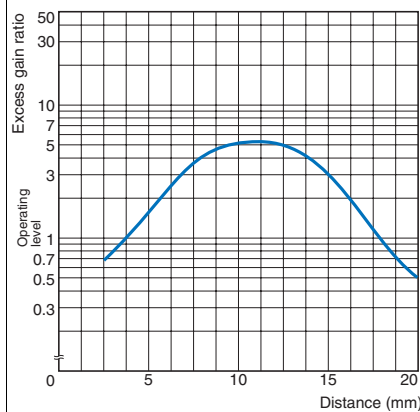


E3C-VM35R

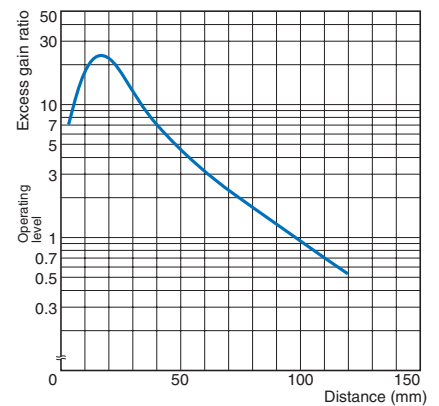


Excess Gain vs. Set Distance

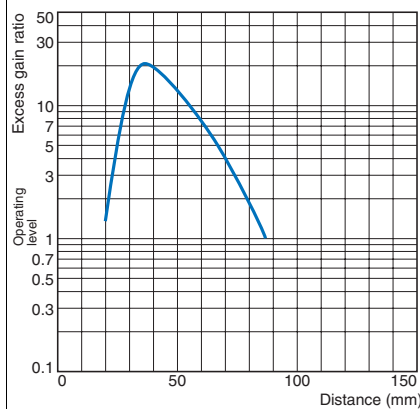
E3C-VS1G



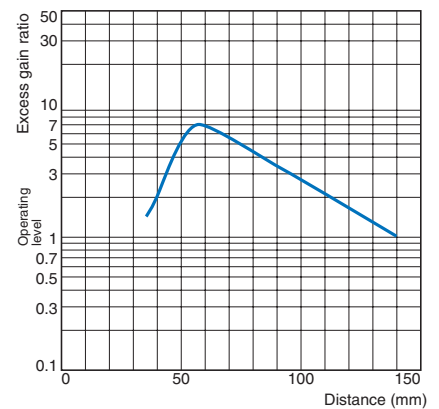
E3C-VS3R



E3C-VM35R



E3C-VS7R



Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

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



Precautions for Correct Use

Do not use the product in atmospheres or environments that exceed product ratings.

● Wiring

For details on [Extension Cables](#), refer to E3C.

Dimensions

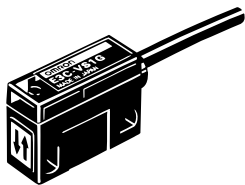
(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

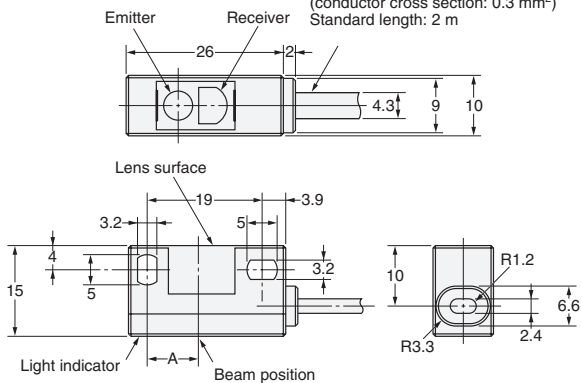
Sensors

Sensor Heads

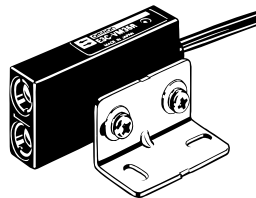
E3C-VS1G E3C-VS3R



Shielded cable,
2.4 dia. × 4.3, with two conductors
(conductor cross section: 0.3 mm²)
Standard length: 2 m

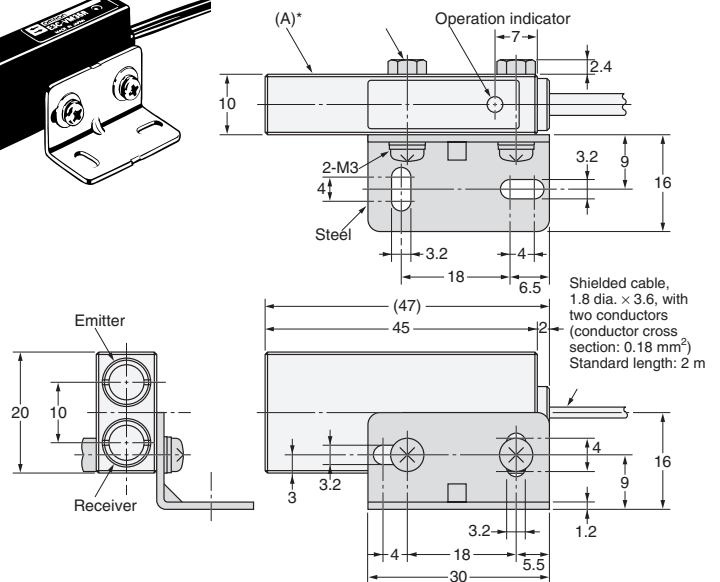


E3C-VM35R E3C-VS7R



With Mounting Bracket Attached

Two hexagonal nuts
for M3 (diagonal: 5.5)



* The Mounting Bracket can be attached to side A.

Amplifier Unit

Refer to *E3C* for details.

Accessories (Order Separately)

Mounting Brackets

Refer to *E39-L/F39-L/E39-S/E39-R* for details.

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2008.11

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