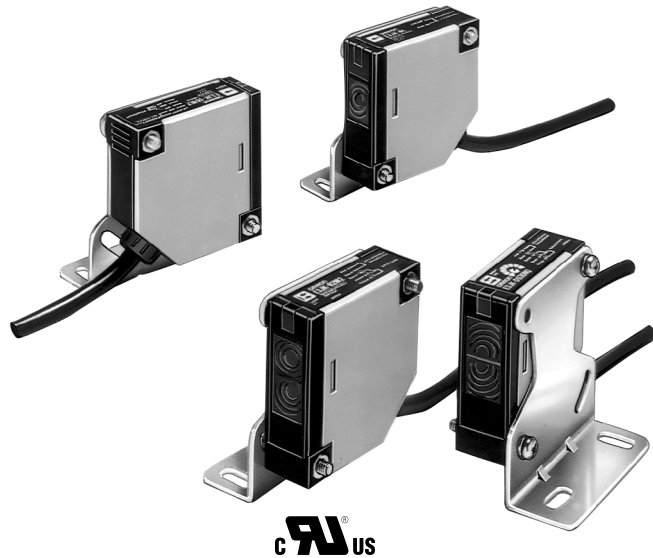


Universal Voltage Cabled Photoelectric

E3JK

Small Cable Sensor with Complementary Outputs

- Universal AC/DC supply voltage
- Relay or NPN/PNP transistor output, light-on or dark-on operation
- Polarized retroreflective models to accurately detect shiny objects
- Cabled models with 2 m (6.56 ft) of cable



Ordering Information

■ SENSORS

| | | | | |
|---------------------|--------------------|---------------|-------------|--------------------|
| Method of detection | | Through-beam | | Diffuse reflective |
| Sensing distance | | 5 m (16.4 ft) | | 30 cm (11.81 in) |
| Output type | | Relay | NPN | Relay |
| Part number | Light-ON operation | E3JK-5M1-US | E3JK-5S3 2M | E3JK-DS30M1-US |
| | Dark-ON operation | E3JK-5M2-US | — | E3JK-DS30M2-US |

| | | | | |
|---------------------|--------------------|---------------------------|--------------------|-----------------|
| Method of detection | | Polarized retroreflective | | Retroreflective |
| Sensing distance | | 2.5 m (8.2 ft) | | 4 m (13.12 ft) |
| Output type | | Relay | NPN/PNP transistor | Relay |
| Part number | Light-ON operation | E3JK-R2M1-US | E3JK-R2H1-G | E3JK-R4M1-US |
| | Dark-ON operation | E3JK-R2M2-US | E3JK-R2H2-G | E3JK-R4M2-US |

■ ACCESSORIES

| | |
|---|-------------|
| Description | Part number |
| Reflector adapter for stud-mounting E39-R1 reflector | E39-L7 |
| Optional large reflector for increased sensing distance | E39-R2 |

■ REPLACEMENT PARTS

| | |
|---|-------------|
| Description | Part number |
| Reflector (supplied with retroreflective sensors) | E39-R1 |
| Mounting bracket (supplied with each sensor) | E39-L40 |

Specifications

■ THROUGH-BEAM AND DIFFUSE REFLECTIVE TYPES

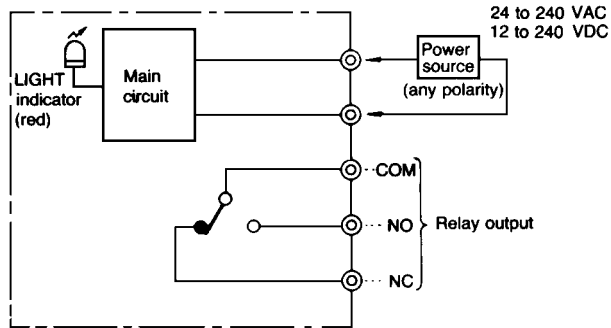
| | | | | | |
|--------------------------------|----------------------------------|---|--|----------------------------------|--------------|
| Part number | | E3JK-5M□-US | E3JK-5S3 2M | E3JK-DS30M□-US | |
| Method of detection | | Through-beam | | Diffuse reflective | |
| Supply voltage | | 24 to 240 VAC, 50/60 Hz; 12 to 240 VDC | | | |
| Power consumption | AC operation | Emitter: 1.5 VA max. | | 2 VA max. | |
| | | Receiver: 1.5 VA max. | | | |
| | DC operation | Emitter: 1.5 W max. | | 2 W max. | |
| | | Receiver: 1.5 W max. | | | |
| Sensing distance | | 5 m (16.4 ft) | 30 cm (11.8 in) with 10 x 10 cm (3.94 x 3.94 in) 90% reflectance white mat paper | | |
| Light source | | Pulse modulated infrared LED | | Pulse modulated infrared LED | |
| Detectable object type | | Opaque materials, 16 mm (0.63 in) minimum dimension | | Opaque and translucent materials | |
| Operation mode | | E3JK-□□□1-US: Light-ON E3JK-□□□2-US: Dark-ON | | | |
| Sensitivity | | Fixed | | Adjustable | |
| Mutual interference protection | | Not provided | | | |
| Control output | Relay | Type | SPDT | — | SPDT |
| | | Max. load | 3 A, 250 VAC | — | 3 A, 250 VAC |
| | | Min. load | 10 mA, 5 VDC | — | 10 mA, 5 VDC |
| | DC solid state | Type | — | NPN | — |
| | | Max. load | — | 100 mA @ 30 VDC | — |
| | | Max. on-state voltage drop | — | 1 V | — |
| Response time | On | 30 ms max. | 3 ms | 30 ms, 3 ms solid state | |
| | Off | 30 ms max. | 3 ms | 30 ms, 3 ms solid state | |
| Circuit protection | Output short-circuit | Not provided | | | |
| | DC power supply reverse polarity | Provided | | | |
| Indicators | | Emitter: Power On (red LED) Receiver: Light Incident (red LED) | | Light Incident (red LED) | |
| Materials | Lens | Plastic | | | |
| | Case | Plastic | | | |
| | Cable sheath | Plastic | | | |
| Mounting | | Side surface mount with two through holes; Bracket E39-L40 and hardware included | | | |
| Connections | Prewired | Emitter: 2-conductor cable, 2 m (6.56 ft) Receiver: 5-conductor cable, 2 m (6.56 ft) | | 5-conductor cable, 2 m (6.56 ft) | |
| Weight | | Emitter: 140 g (5 oz.) Receiver: 140 g (5 oz.) | | 140 g (5 oz.) | |
| Enclosure ratings | NEMA | 1, 2, 12 | | | |
| | IEC 144 | IP64 | | | |
| Approvals | UL | Recognized, File Number E41515 | | | |
| | CSA | Certified, File Number LR45951 | | | |
| Ambient temperature | Operating | -25° to 55°C (-13° to 131°F) | | | |
| | Storage | -30° to 70°C (-22° to 158°F) | | | |

■ RETROREFLECTIVE TYPES

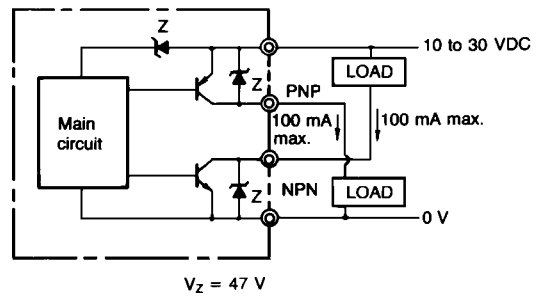
| | | | | |
|--------------------------------|----------------------------------|--|--|--|
| Part number | | E3JK-R2□□-US | E3JK-R4M□-US | |
| Method of detection | | Retroreflective | | |
| Supply voltage | | 24 to 240 VAC, 50/60 Hz; 12 to 240 VDC | | |
| Power consumption | AC operation | 2 VA max. | | |
| | DC operation | 2 W max. | | |
| Sensing distance | | 2.5 m (8.2 ft) with E39-R1 reflector (included) 3 m (9.8 ft) with E39-R2 optional reflector | 4 m (13.1 ft) with E39-R1 reflector (included) 5 m (16.4 ft) with E39-R2 optional reflector | |
| Light source | | Polarized, pulse modulated red LED | Pulse modulated red LED | |
| Detectable object type | | Opaque materials and mirror surface materials 56 mm (2.2 in) minimum dimension | Opaque materials 56 mm (2.2 in) minimum dimension | |
| Operation mode | | E3JK-□□□1-US: Light-ON E3JK-□□□2-US: Dark-ON | | |
| Sensitivity | | Fixed | | |
| Mutual interference protection | | Not provided | | |
| Control output | Relay | Type | SPDT (E3JK-R□M□-US) | |
| | | Max. load | 3 A, 250 VAC | |
| | | Min. load | 10 mA, 5 VDC | |
| | DC solid-state | Type | NPN and PNP (E3JK-R2H□) | |
| | | Max. load | 100 mA at 300 VDC | |
| | | Max. on-state voltage drop | 1 VDC | |
| Response time | On | 30 ms max. for relay; 3 ms max. for transistor | | |
| | Off | 30 ms max. for relay; 3 ms max. for transistor | | |
| Circuit protection | Output short-circuit | Not provided | | |
| | DC power supply reverse polarity | Provided | | |
| Indicators | | Light Incident (red LED) | | |
| Materials | Lens | Plastic | | |
| | Case | Plastic | | |
| | Cable sheath | Plastic | | |
| Mounting | | Side surface mount with two through holes; Bracket E39-L40 and hardware included | | |
| Connections | Prewired | 5-conductor cable, 2 m (6.56 ft) length | | |
| Weight | | 140 g (5 oz.) | | |
| Enclosure ratings | NEMA | 1, 2, 12 | | |
| | IEC 144 | IP64 | | |
| Approvals | UL | Recognized, File Number E41515 | | |
| | CSA | Certified, File Number LR45951 | | |
| Ambient temperature | Operating | -25° to 55°C (-13° to 131°F) | | |
| | Storage | -30° to 70°C (-22° to 158°F) | | |

■ OUTPUT CIRCUIT DIAGRAMS

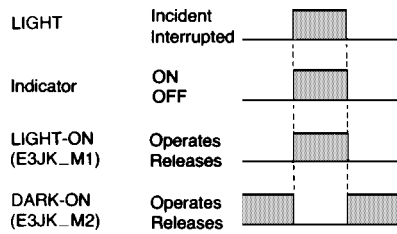
Relay output types E3JK-□□M□-US



Transistor output types E3JK-□□H□-US

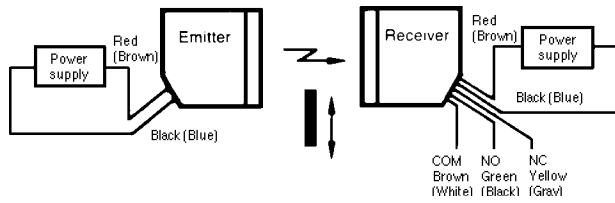


■ TIMING CHART

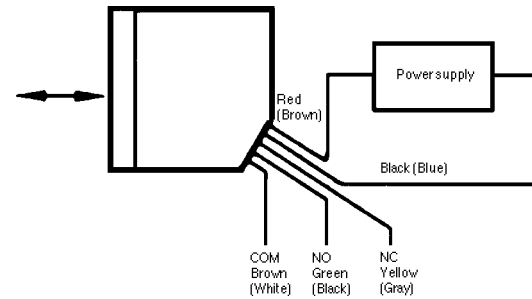


■ CONNECTIONS

Through-beam models



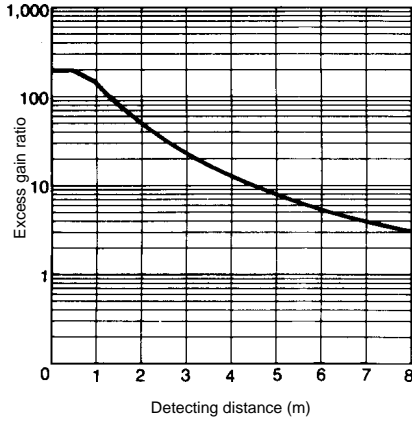
Diffuse and retroreflective models



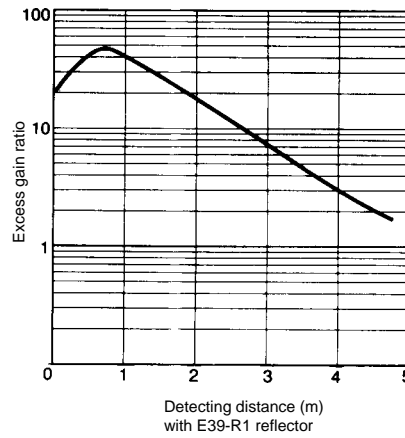
Engineering Data

■ EXCESS GAIN RATIO

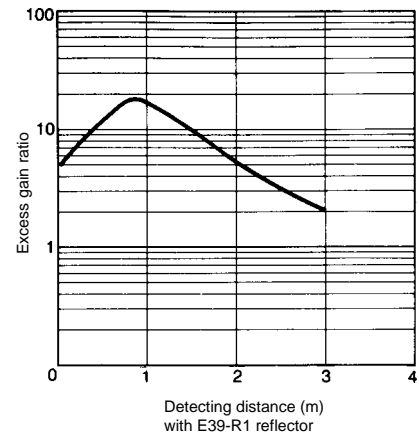
Through-beam type (E3JK-5M□-US)



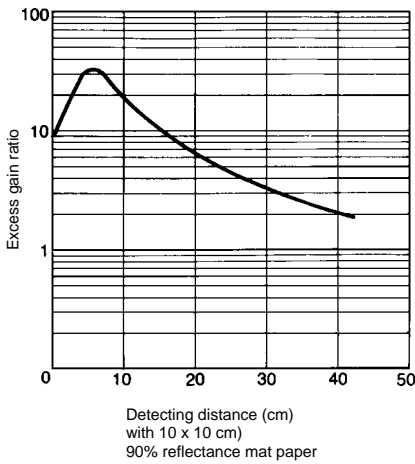
Retroreflective type (E3JK-R4M-US)



Retroreflective type with polarized light source (E3JK-R2M□)

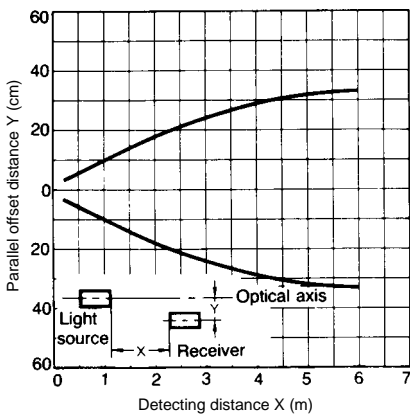


Diffuse reflective type (E3JK-DS30M□-US)

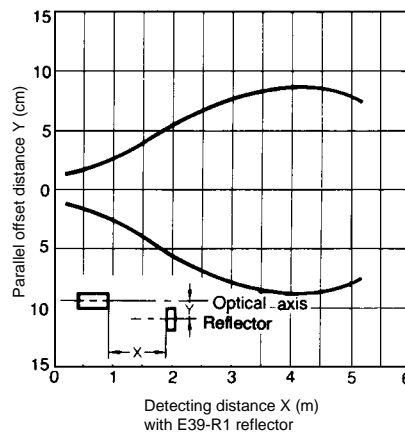


■ OPERATING RANGE

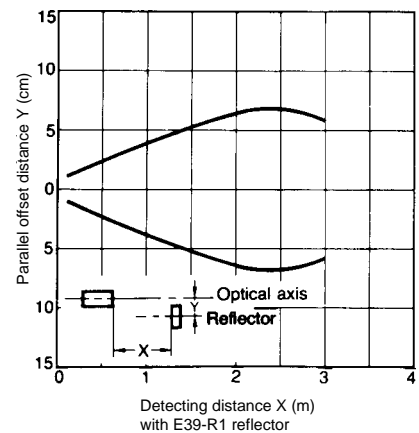
Through-beam type (E3JK-5M□-US)



Retroreflective type (E3JK-R4M□-US)

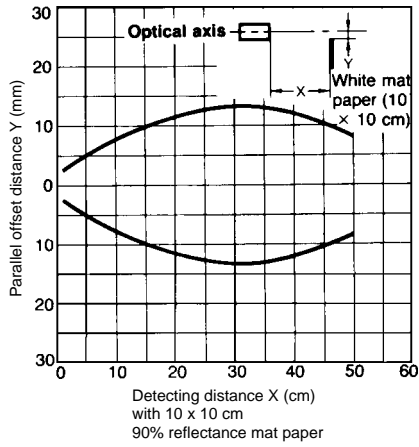


Retroreflective type with polarized light source (E3JK-R2M□)



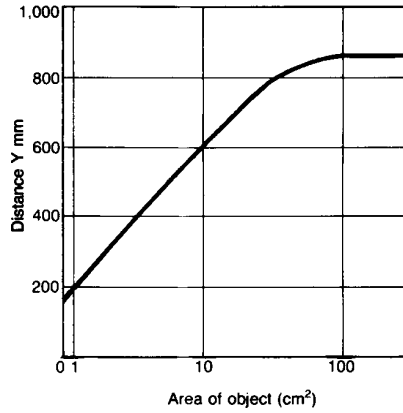
OPERATING RANGE (continued)

Diffuse reflective type
(E3JK-DS30M□-US)



SIZE OF TARGET vs. DETECTING DISTANCE (at maximum sensitivity)

Diffuse reflective type
(E3JK-DS30M□-US)

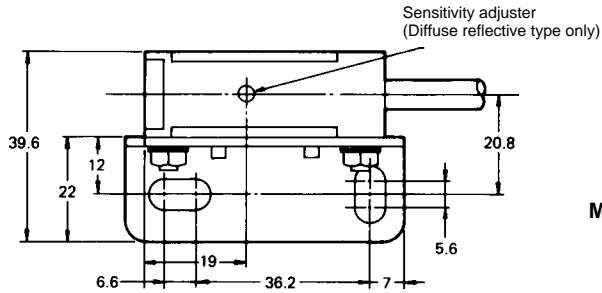
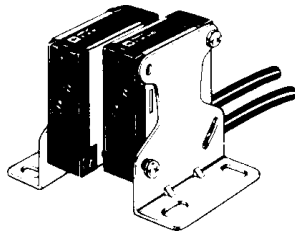


Dimensions

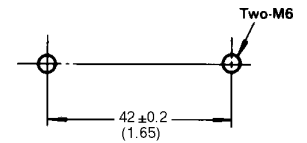
Unit: mm (inch)

SENSORS

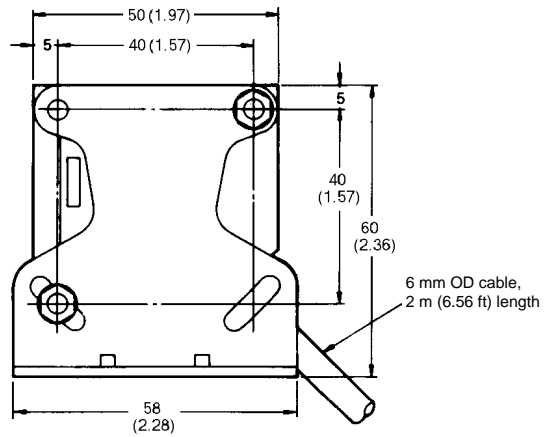
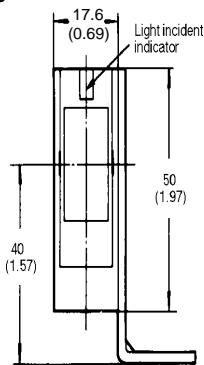
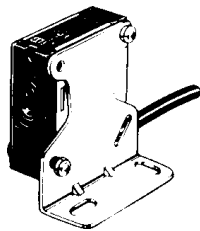
Through-beam type



Mounting holes

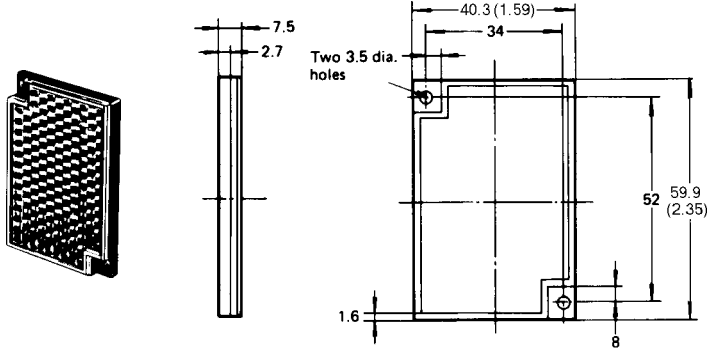


Retroreflective and
Diffuse reflective types

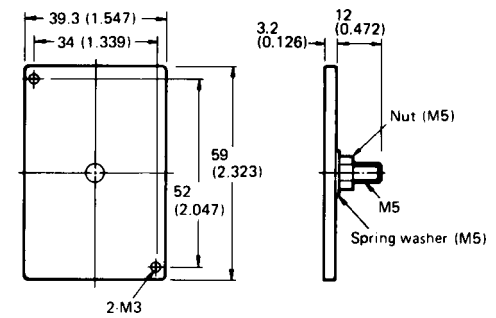


REFLECTORS

E39-R1 Reflector (included with retroreflective sensors)



E39-L7 Reflector Adapter for E39-R1 (optional)



OMRON

OMRON ELECTRONICS LLC.

One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON ON-LINE

Global - <http://www.omron.com>
USA - <http://www.omron.com/oei>
Canada - <http://www.omron.com/oci>

OMRON CANADA, INC.

885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465