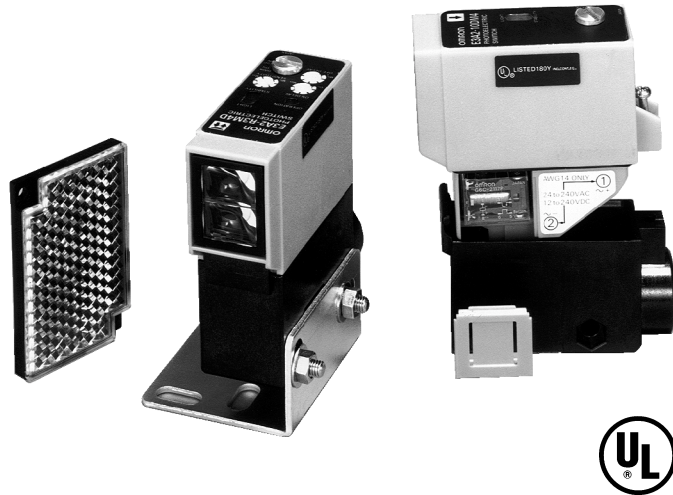


### Slim Sensor with Plug-in Outputs, Built-in Time Delays

- Plug-in replaceable outputs
- Light-ON/Dark-ON operation, switch selectable
- Optional solid-state outputs
- Polarized diffuse and through-beam models
- Timer models provide selectable ON-delay, OFF-delay and one-shot outputs
- Standard with 3 A relay output



## Ordering Information

### ■ SENSORS

Method of detection		Through-beam	Retroreflective	Diffuse reflective
Sensing distance		10 m (32.8 ft)	3 m (9.8 ft)	70 cm (27.6 in)
Part number	Without timer	<b>E3A2-10M4</b>	<b>E3A2-R3M4</b>	<b>E3A2-DS70M4</b>
	ON-delay, OFF-delay, one-shot equal ON- and OFF-delays (0.1 to 5 seconds)	<b>E3A2-10M4T</b>	<b>E3A2-R3M4T</b>	<b>E3A2-DS70M4T</b>
	Independent ON-delays and OFF-delays (0.1 to 5 seconds)	<b>E3A2-10M4D</b>	<b>E3A2-R3M4D</b>	<b>E3A2-DS70M4D</b>

### ■ ACCESSORIES

Description		Part number
Solid-state output modules	AC (SCR) output module; 200 mA, 250 VAC max. load	<b>G3K-2R2P-1</b>
	DC NPN output module; 200 mA, 30 VDC max. load, dual complementary	<b>G3KD-YR2P-1</b>
	DC PNP output module; 200 mA, 30 VDC max. load, dual complementary	<b>G3KD-YR2P-2</b>
Reflector adapter for stud-mounting E39-R1 reflector		<b>E39-L7</b>

### ■ REPLACEMENT PARTS

Description	Part number
Relay output module, SPDT, 3 A at 250 VAC (output supplied with each sensor)	<b>G6C-2117P-DC8</b>
Reflector (supplied with retroreflective sensor)	<b>E39-R1</b>
Mounting bracket (supplied with each sensor)	<b>E39-L34</b>

# Specifications

Part number		E3A2-10□□□	E3A2-R3□□□	E3A2-DS70□□□	
Method of detection		Through-beam	Retroreflective	Diffuse reflective	
Supply voltage		24 to 240 VAC, 50/60 Hz; 12 to 240 VDC			
Power consumption	Relay output type	Emitter: 0.82 W max. Receiver: 1.2 W max.	1.5 W max.		
	DC solid-state output type				
	AC solid-state output type	Emitter: 0.82 VA max. Receiver: 1.2 VA max.	2 VA max.		
Sensing distance		10 m (32.8 ft)	3 m (9.8 ft) with E39-R1 reflector (included)	70 cm (27.6 in) with 10 x 10 cm (3.94 x 3.94 in) 90% reflectance white mat paper	
Light source		Pulse modulated infrared LED (950 nm)	Pulse modulated red LED, polarized (680 nm)	Pulse modulated infrared LED (950 nm)	
Detectable object type		Opaque materials, 26 mm (1.02 in) minimum dimension	Opaque and mirror surface materials, 56 mm (2.20 in) min. dimension	Opaque and translucent materials	
Operation mode		Light-ON/Dark-ON, switch selectable			
Sensitivity		Fixed	Adjustable		
Mutual interference protection		Not provided	Provided		
Control output	Relay	Type	SPDT with G6C-2117P-DC8 output module (standard)		
		Max. load	3 A, 250 VAC (p.f. = 1); 3 A, 30 VDC		
	AC solid-state	Type	SCR with G3K-2R2P-1 output module (optional)		
		Max. load	200 mA, 250 VAC		
		Min. load	5 mA		
		Max. inrush	2 A		
		Off-state leakage current	1 mA max.		
	DC solid-state	Type	NPN-SPDT with G3KD-YR2P-1 output module (optional) PNP-SPDT with G3KD-YR2P-2 output module (optional)		
		Max. load	200 mA, 30 VDC		
Max. on-state voltage drop		2 VDC at 200 mA			
Response time (ON and OFF)	Relay	15 ms max. with G6C-2117P-DC8 output module (standard)			
	AC solid-state output	30 ms max. with G3KD-2R2P-1 output module (optional)			
	DC solid-state	1 ms max. with G3KD-YR2P-1 or -2 output modules (optional)			
Timing functions	Type E3A2-□□□T	Normal, ON-delay, OFF-delay, one-shot or equal ON- and OFF-delays, switch selectable			
	Type E3A2-□□□D	Independent ON- and OFF-delays			
	Range	0.1 to 5 seconds			
Circuit protection	Output short-circuit	Provided (AC solid-state and DC solid-state output modules only)			
	DC power supply reverse polarity	Provided			
Indicators		Emitter: Power On (red LED)  Receiver: Light Incident (red LED) and output stability (green LED); Output Operation (yellow LED) on timer-equipped models	Light Incident (red LED) and Output Stability (green LED);  Output Operation (yellow LED) on timer-equipped models		
Materials	Lens	Plastic			
	Case	Plastic			
Mounting		Side surface mount with two through holes; E39-L34 bracket and hardware included			
Connections	Conduit	1/2-14 NPT			
	Wire	Terminal screws			
Weight		Emitter: 200 g (7.1 oz) Receiver: 200 g (7.1 oz)	200 g (7.1 oz)		

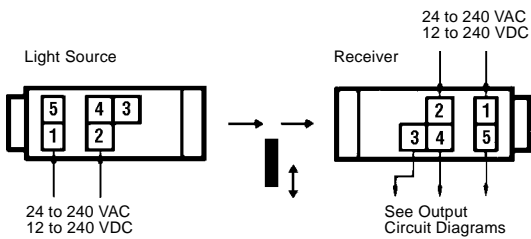
(Table continues on the next page)

Specifications Table - continued from previous page

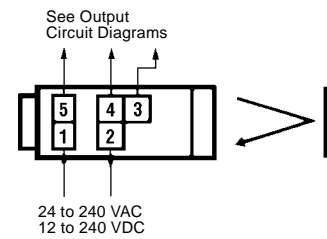
Part number		E3A2-10□□□	E3A2-R3□□□	E3A2-DS70□□□
Enclosure ratings	NEMA	1, 4, 4X, 12		
	IEC 144	IP66		
Approvals	UL	Listed, File Number E41515		
Ambient temperature	Operating	-25° to 55°C (-13° to 131°F)		
	Storage	-30° to 70°C (-22° to 159°F)		

■ CONNECTIONS

Through-Beam Type

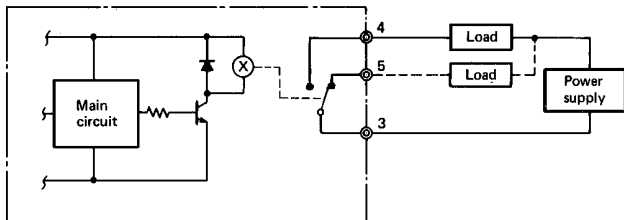


Retroreflective and Diffuse Reflective Types

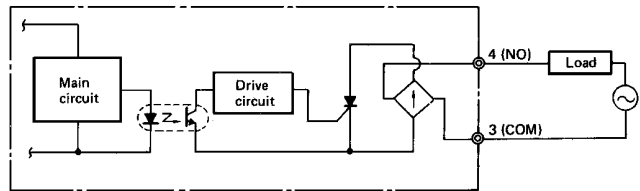


■ OUTPUT CIRCUIT DIAGRAMS

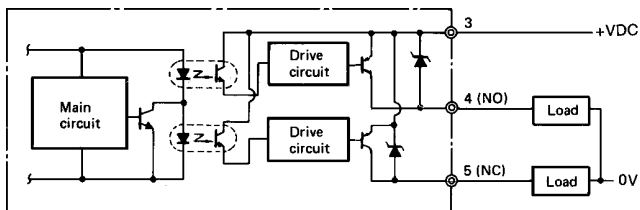
Relay output



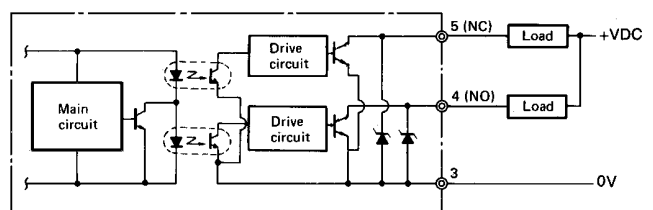
AC solid-state output



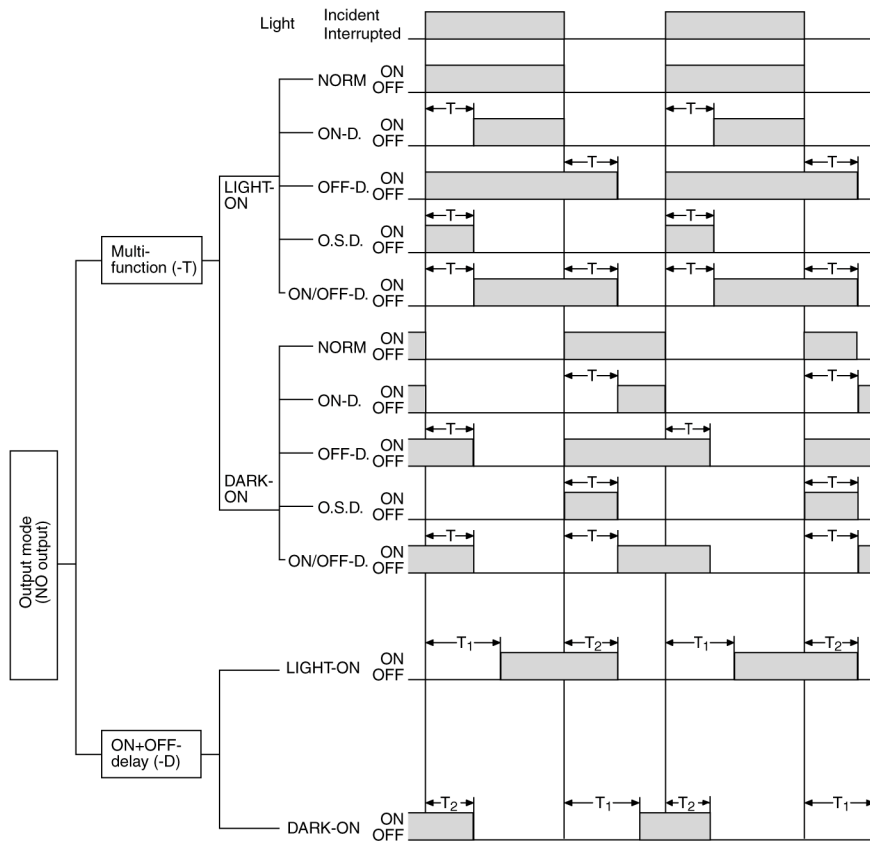
DC solid-state PNP output



DC solid-state NPN output



■ TIMING CHART



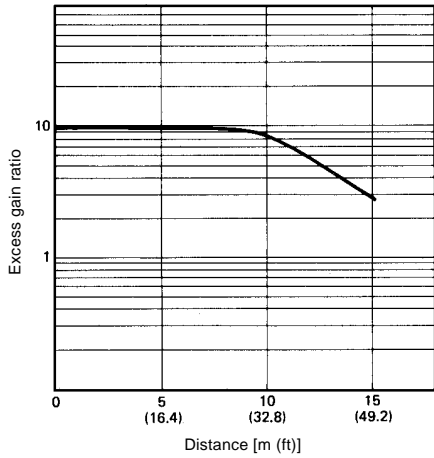
NOTE:

1. For sensors without built-in timer functions, operation follows the NORM mode shown with multi-function time delay models.
2.  $T_1$ ,  $T_2$  and  $T$  denote set time, variable within 0.1 to 5 second range.
3. For multifunction time delay models (part numbers ending in "T"), the ON- and OFF-delay time settings will be the same.
4. For ON- and OFF-delay models (part numbers ending in "D"),  $T_1$  and  $T_2$  are independently variable.
5. O.S.D.: one shot delay

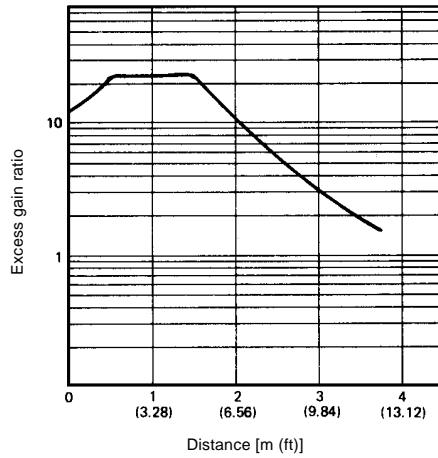
# Engineering Data

## ■ EXCESS GAIN RATIO

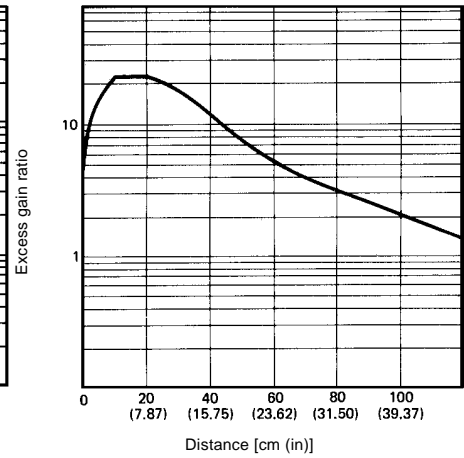
### Through-Beam Type



### Retroreflective Type

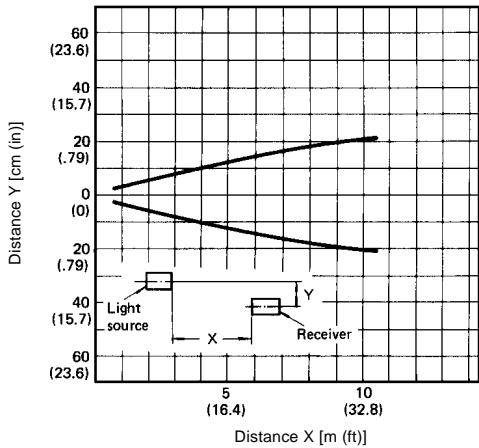


### Diffuse Reflective Type



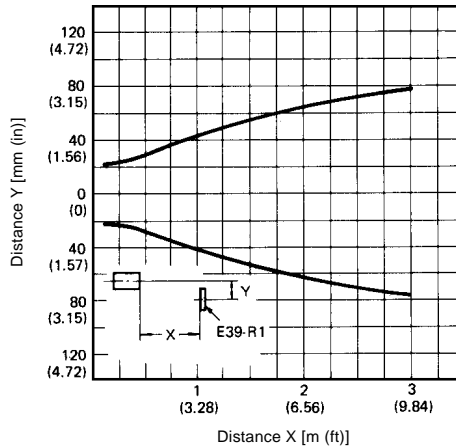
## ■ LIGHT SOURCE/RECEIVER SETTING RANGE

### Through-Beam Type



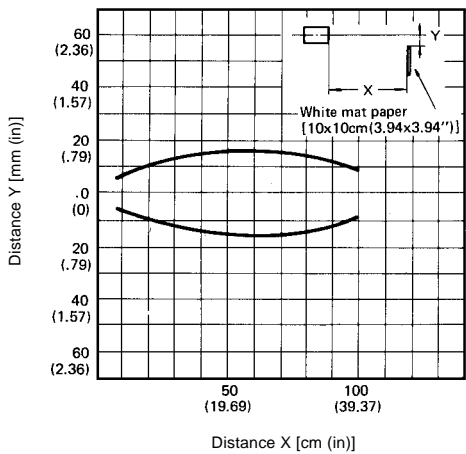
## ■ REFLECTOR SETTING RANGE

### Retroreflective Type



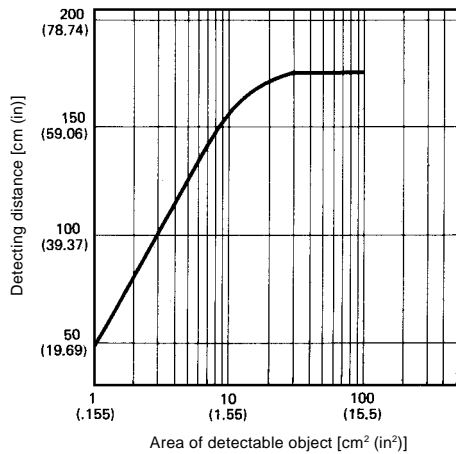
## ■ OPERATING RANGE

### Diffuse Reflective Type



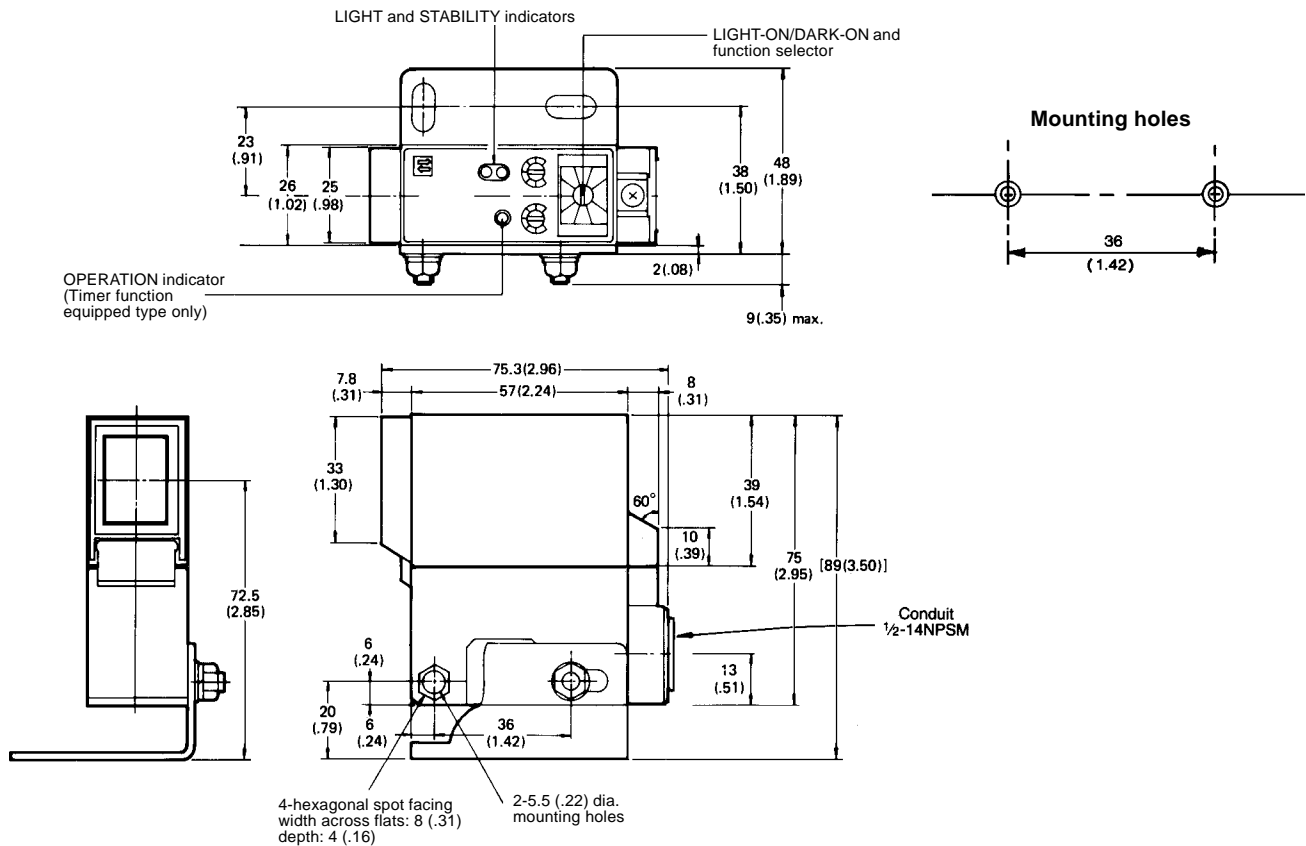
## ■ DETECTING DISTANCE VS. MINIMUM TARGET SIZE (AT MAXIMUM SENSITIVITY)

### Diffuse Reflective Type

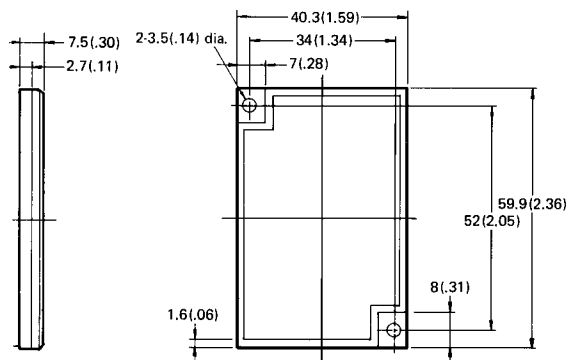


# Dimensions

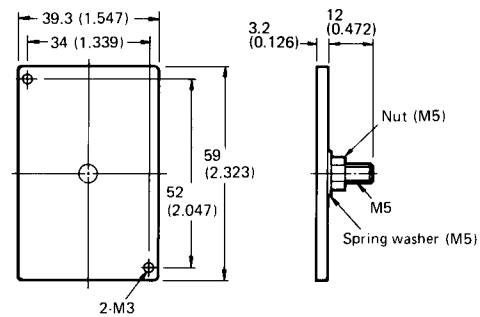
Unit: mm (inch)



## E39-R1 Reflector



## E39-L7 Reflector Adapter



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