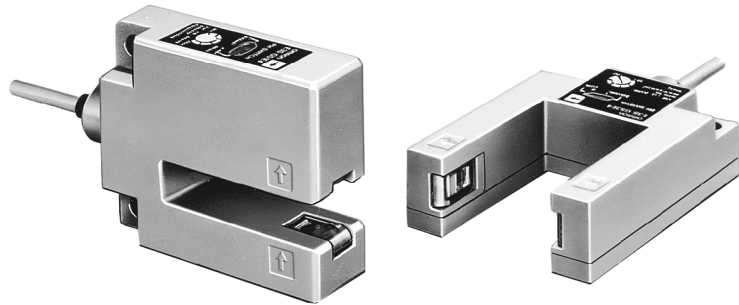


Grooved Head Sensor with Built-In DC Amplifiers

- Fast 1 ms maximum response time ideal for packaging applications
- 1 cm groove type detects marks on transparent film
- 3 cm groove type detects edges, labels and marks
- Emitter and receiver separated by a fixed gap simplifies installation and eliminates alignment problems
- Sensitivity adjustment standard
- Choose NPN and PNP output models
- Wire-selectable light-on/dark-on operation
- Ready-to-use: prewired with 2 m (6.56 ft) cable and includes mounting bracket



Ordering Information

■ SENSORS

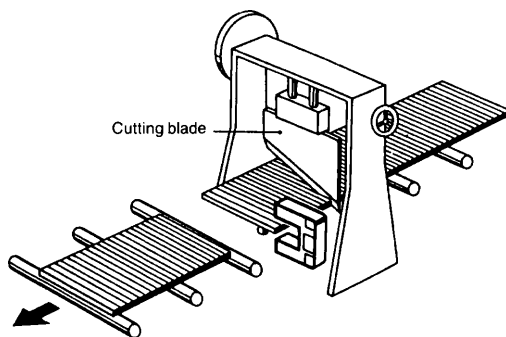
Method of detection		Through-beam, in one-piece grooved head	
Sensing distance		1 cm (0.39 in)	3 cm (1.18 in)
Application		Mark detection	General purpose
Part number	NPN output	E3S-GS1E4	E3S-GS3E4
	PNP output	E3S-GS1B4	E3S-GS3B4

■ REPLACEMENT PARTS

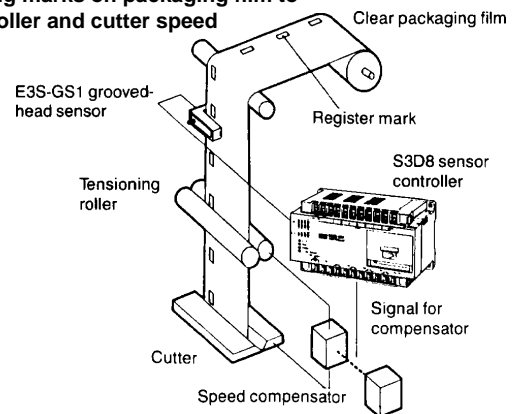
Description	Part number
Sensitivity adjuster knob (supplied with each sensor)	E39-G1

■ TYPICAL APPLICATIONS

Detecting edge of material to activate cutter



Detecting marks on packaging film to adjust roller and cutter speed

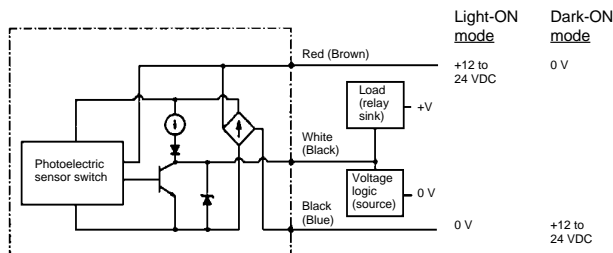


Specifications

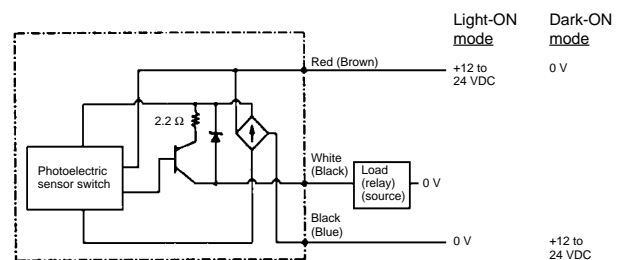
Part number		E3S-GS1□4	E3S-GS3□4
Method of detection		Through-beam, one-piece grooved head	
Supply voltage		12 to 24 VDC	
Current consumption		40 mA max.	
Groove width		1 cm (0.39 in)	3 cm (1.18 in)
Light source		Pulse modulated green LED	Pulse modulated infrared LED
Detectable object type		Marks on transparent sheet, 2 x 3 mm (0.08 x 0.12 in) minimum mark dimension	Opaque materials, 3 mm (0.12 in) minimum diameter
Sensitivity		Adjustable	
Mutual interference protection		Provided	
Control output	DC solid-state	Type	NPN-SPST open collector with constant current source (E3S-GS□E4) PNP-SPST open collector (E3S-GS□B4)
		Max. load	NPN type: Load (relay, sink) logic: 80 mA Voltage (source) logic: 1.5 to 3 mA PNP type: Load (relay, source) logic: 100 mA
		Max. on-state voltage drop	1 VDC
Response time	On	1 ms max.	
	Off	1 ms max.	
Circuit protection	Output short-circuit	Provided	
	DC power supply reverse polarity	Provided	
Indicators		Light Incident (red LED), Output Stability (green LED)	
Materials	Lens	Plastic	
	Case	Plastic	Diecast zinc
	Cable sheath	Plastic	
Mounting		Side mounting with two through holes; Bracket E39-L5 and hardware included	
Connections	Prewired	3-conductor cable, 2 m (6.56 ft) length	
Weight		100 g (3.35 oz.)	230 g (8.11 oz.)
Enclosure ratings	UL	—	
	NEMA	1, 2, 12	1, 4, 4X, 12, 13
	IEC 144	IP65	IP67
Approvals	UL	—	
	CSA	—	
Ambient temperature	Operating	-25° to 55°C (-13° to 131°F)	
	Storage	-40° to 70°C (-40° to 158°F)	

■ OUTPUT CIRCUIT DIAGRAMS

NPN output



PNP output



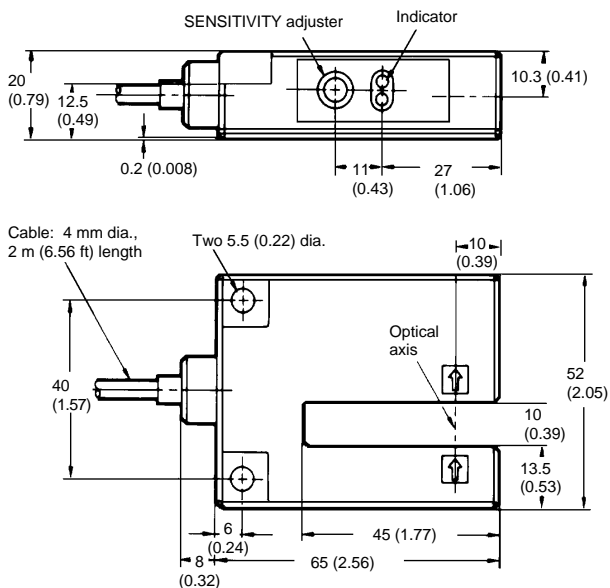
Note: IEC colors are shown in parentheses.

Dimensions

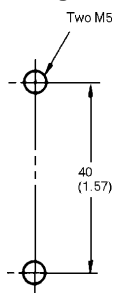
Unit: mm (inch)

SENSORS

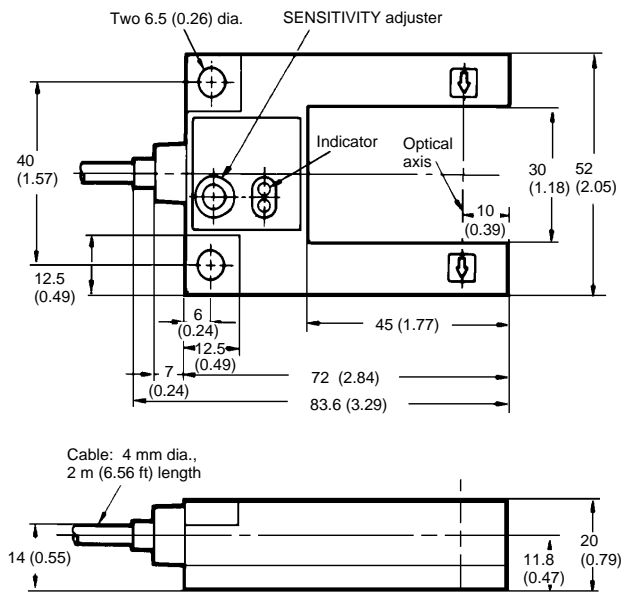
E3S-GS1□4



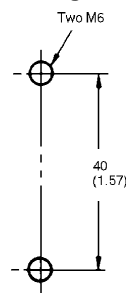
Mounting holes



E3S-GS3□4

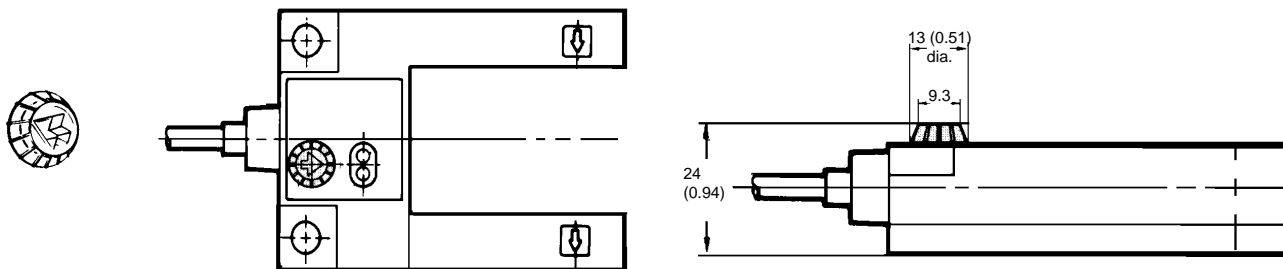


Mounting holes



ACCESSORIES

E3S-G1 Sensitivity Adjuster Knob (included)



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11/01

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