

Distance-settable Photoelectric Sensor

E3Z-LS86



Image

Compact Photoelectric Sensor with Built-in Amplifier, Square type, Sensing distance: 20 to 200 mm (BGS max setting), PNP open collector, M8 connector models

Sensing method	Distance-setting
Sensing distance	20 to 200 mm
Light source	Red LED (670 nm)
Connection method	M8 connector models

Ratings/Performance

As of July 25, 2024

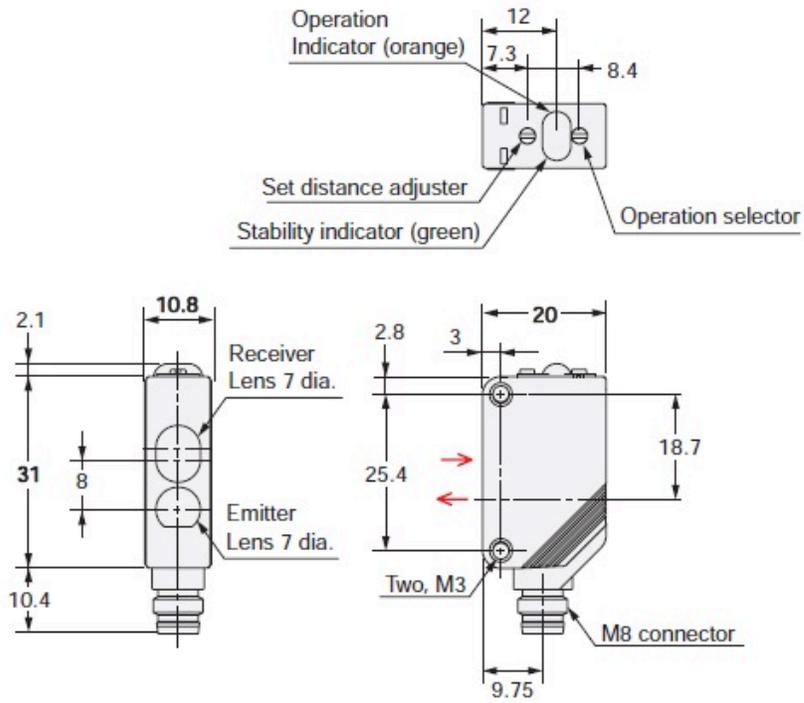
Shape	Square type
Sensing method	Distance-setting
Sensing distance	20 to 200 mm
Setting range	White paper 100 x 100 mm: 40 to 200 mm Black paper 100 x 100 mm: 40 to 160 mm
Detection range	BGS: 20 mm to Setting distance (White paper, Black paper 100 x 100 mm) FGS: Setting distance to 200 mm min. (White paper 100 x 100 mm), Setting distance to 160 mm min. (Black paper 100 x 100 mm)
Differential distance	10% max. of setting distance
Reflectivity characteristic (black-white error)	10% max. of setting distance
Light source	Red LED (670 nm)
Power supply voltage	12 to 24 VDC±10% ripple (p-p) 10% max.
Current consumption	30 mA max.
Control output	PNP open collector 26.4 VDC max. 100 mA max. Residual voltage: 1 V max.
Operation mode	Light-ON/Dark-ON selectable
Protective circuit	Output short-circuit protection, Power supply reverse polarity protection
Response time	Operate or reset: 1 ms max.
Sensitivity setting	5-turn endless adjustment

Ambient illuminance	Incandescent lamp: 3,000 lx max. Sunlight: 10,000 lx max.
Ambient temperature range (Operating)	-25 to 55 °C (with no freezing or condensation)
Ambient temperature range (Storage)	-40 to 70 °C (with no freezing or condensation)
Ambient humidity range (Operating)	35 to 85 % (with no condensation)
Ambient humidity range (Storage)	35 to 95 % (with no condensation)
Insulation resistance	20 MΩ min. (500 VDC megger)
Dielectric strength	1000 VAC 50/60 Hz 1 min
Vibration resistance	Destruction: 10 to 55 Hz, 1.5 mm double amplitude each in X, Y, and Z directions for 2 h
Shock resistance	Destruction: 500 m/s ² 3 times each in X, Y and Z directions
Degree of protection	IEC: IP67
Connection method	M8 connector models
Indicator	Operation indicator (orange), Stability indicator (green)
Weight	Package: Approx. 20 g
Accessories	Instruction manual
Material	Case: Polybutylene terephthalate (PBT) Lens: Denatured Polyarylate

As of July 25, 2024

Dimensions

As of July 25, 2024

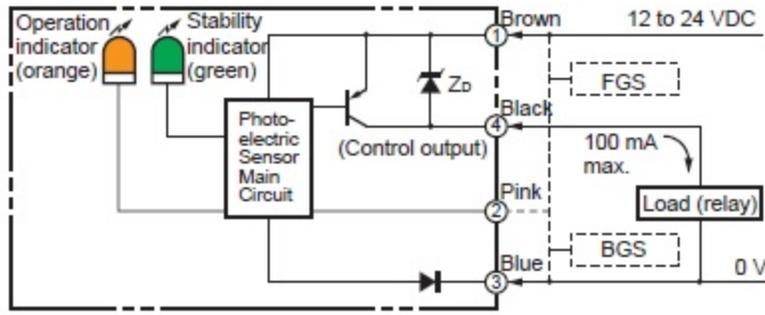


Terminal No.	Specifications
1	+V
2	BGS/FGS switchable
3	0 V
4	Output

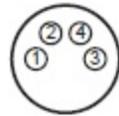
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Output circuit diagram

As of July 25, 2024



Connector Pin Arrangement



As of July 25, 2024

Timing chart

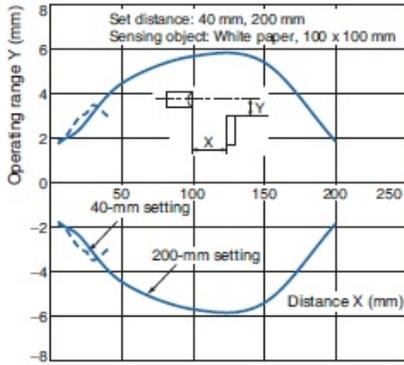
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Operation mode	Timing chart	Mode switch	BGS/FGS switch
Light ON	<p>(Between blue(3) and black(4))</p>	L side (LIGHT ON)	BGS mode
Dark ON	<p>(Between blue(3) and black(4))</p>	D side (DARK ON)	Either leave the pink wire(2) open or connect it to the blue wire(3)
Light ON	<p>(Between blue(2) and black(4))</p>	L side (LIGHT ON)	FGS mode
Dark ON	<p>(Between blue(2) and black(4))</p>	D side (DARK ON)	Connect the pink wire(2) to the brown wire(1)

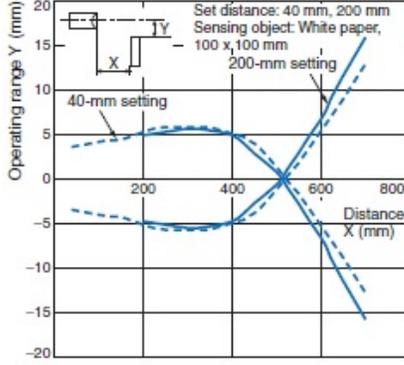
Operating range

As of July 25, 2024

**E3Z-LS□1/LS□6
BGS**



FGS



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