

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

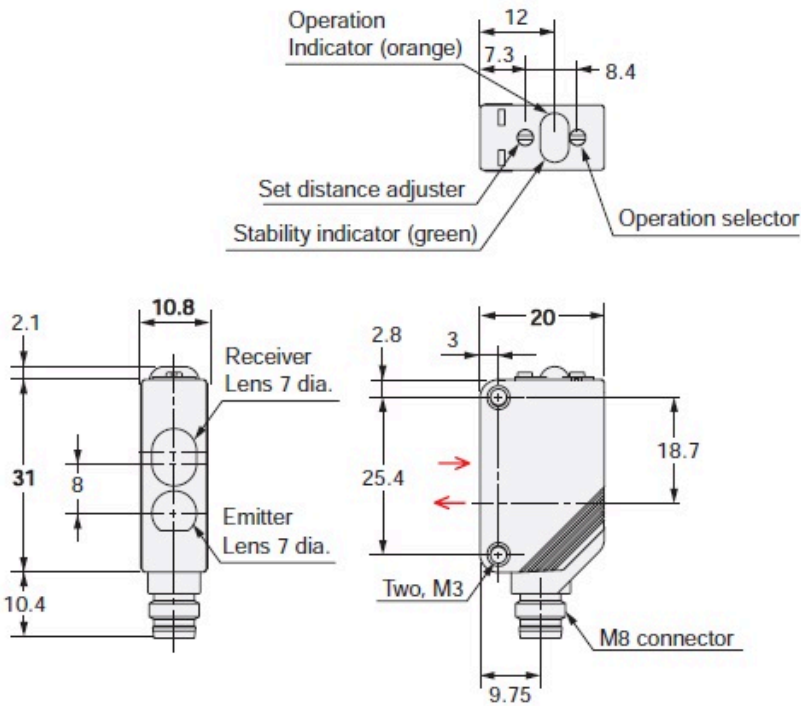
Shape	Square type
Sensing method	Distance-setting
Sensing distance	20 to 200 mm
Setting range	White paper 100 x 100 mm: 40 to 200 mm Black paper 100 x 100 mm: 40 to 160 mm
Detection range	BGS: 20 mm to Setting distance (White paper, Black paper 100 x 100 mm) FGS: Setting distance to 200 mm min. (White 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 (Strage)	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

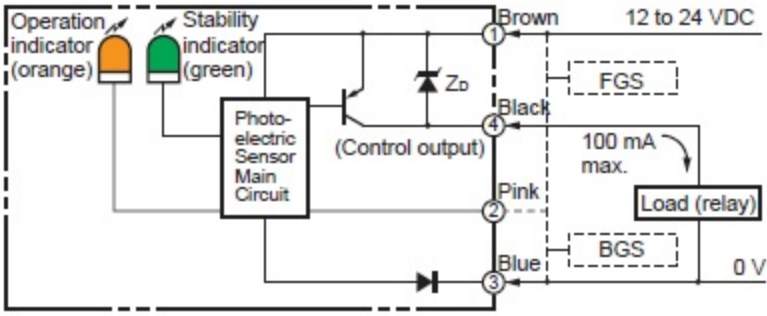


Terminal No.	Specifications
1	+V
2	BGS/FGS switchable
3	0 V
4	Output

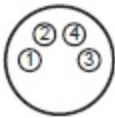
As of July 25, 2024

Output circuit diagram

As of July 25, 2024



Connector Pin Arrangement



As of July 25, 2024

Timing chart

As of July 25, 2024

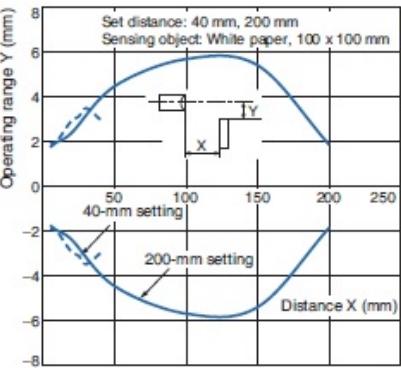
Operation mode	Timing chart	Mode switch	BGS/FGS switch
Light ON		L side (LIGHT ON)	BGS mode
Dark ON		D side (DARK ON)	Either leave the pink wire(2) open or connect it to the blue wire(3)
Light ON		L side (LIGHT ON)	FGS mode
Dark ON		D side (DARK ON)	Connect the pink wire(2) to the brown wire(1)

Operating range

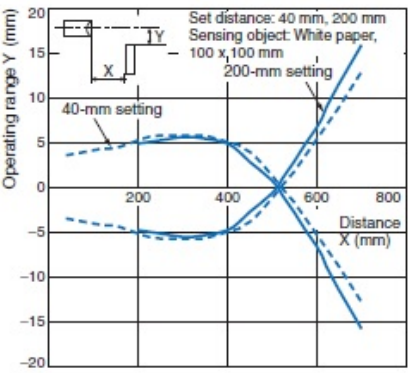
As of July 25, 2024

E3Z-LS□1/LS□6

BGS



FGS



As of July 25, 2024