

Laser type with potentiometer

BGS-DL series



The low cost laser BGS sensor!

- Class 2 laser
- 2PD (2-photo-diode) used for the receiver element
- Low cost potentiometer type

Related products

C-MOS laser
BGS-HL, BGS-HDL
● P.310

Small laser BGS
BGS-ZL
● P.326

Analog output
CD22
● P.464

Selection table

Type	Shape	Sensing distance	Receiver element	Distance adjustment	Model (Models in parentheses are connector types)	
					NPN type	PNP type
Laser BGS		40 to 100 mm	2PD	Potentiometer type	BGS-DL10N (BGS-DL10CN)	BGS-DL10P (BGS-DL10CP)
		100 to 300 mm	2PD	Potentiometer type	BGS-DL30N (BGS-DL30CN)	BGS-DL30P (BGS-DL30CP)
		100 to 700 mm	2PD	Potentiometer type	BGS-DL70N (BGS-DL70CN)	BGS-DL70P (BGS-DL70CP)

● For the connector type, please purchase an optional JCN series connector cable.

Low cost potentiometer type featuring a 2PD (2-photo-diode) for the receiver element

This is a potentiometer type without digital monitor for customers who love conventional potentiometer type sensors. Because it features a laser light source, it boasts high level positioning performance.

Options/Accessories

Connector cables

Straight
JCN-S
Cable length: 2 m
JCN-5S
Cable length: 5 m
JCN-10S
Cable length: 10 m

L-shaped
JCN-L
Cable length: 2 m
JCN-5L
Cable length: 5 m
JCN-10L
Cable length: 10 m

Specifications

Type			Laser BGS type (potentiometer type)		
Model	NPN	Cable type	BGS-DL10N	BGS-DL30N	BGS-DL70N
		Connector type	BGS-DL10CN	BGS-DL30CN	BGS-DL70CN
	PNP	Cable type	BGS-DL10P	BGS-DL30P	BGS-DL70P
		Connector type	BGS-DL10CP	BGS-DL30CP	BGS-DL70CP
Sensing distance			10 to 100 mm ^{*1}	50 to 300 mm ^{*1}	50 to 700 mm ^{*1}
Adjustable distance range			40 to 100 mm ^{*1}	100 to 300 mm ^{*1}	100 to 700 mm ^{*1}
Light source			Red semiconductor laser Class 2 (IEC/JIS) ^{*2} Wavelength: 650 nm Pulse width: 6 μs		
			Maximum output: 2 mW		Maximum output: 3 mW
Spot size			Approx. ø3 mm / at a distance of 80 mm	Approx. ø6 mm / at a distance of 200 mm	Approx. ø2.5 mm / at a distance of 300 mm
Response time			0.7 ms or less		
Hysteresis			5% or less		5 to 20%
Distance adjustment			4-turn endless potentiometer		
Indicators			Output indicator (orange) Laser emission indicator (green)		
Control output			NPN/PNP open collector Max. 100 mA/30 VDC		
Output mode			Light ON / Dark ON selectable		
Connection type			Cable type: Cable length: 2 m (ø4 mm) / Connector type: M8, 4-pin		
Insulation resistance			20 MΩ or more (with 500 VDC)		
Rating	Supply voltage		10 to 30 VDC, including 10% ripple (p-p)		
	Current consumption		35 mA or less		
Applicable regulations			EMC directive (2004/108/EC) / FDA regulations (21 CFR 1040.10)		
Applicable standards			EN 60947-5-2		
Company standards			Noise resistance: Feilen Level 3 cleared		
Environmental resistance	Ambient temperature/humidity		-10 to +40°C (no freezing) / 35 to 85% RH (no condensation)		
	Ambient illuminance		Sunlight: 10,000 lx or less Incandescent light: 3,000 lx or less		
	Vibration resistance		10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions		
	Shock resistance		Approx. 50 G (500 m/s ²), 3 times in each of the X, Y, and Z directions		
	Degree of protection		IP67		
Material			Housing: ABS Front cover: PMMA		
Weight without cable			Approx. 20 g (excluding cable)		
Included accessories			Mounting bracket: BEF-WK-190		

*1. Using a 100 × 100 mm white sheet of paper.

*2. Classified as Class II in the US FDA standards.

● Specifications are subject to change without prior notice for product improvement purposes.

Output circuit diagram

■ **Connector type**

Connector cable side



- ① 10 to 30 VDC
- ② —
- ③ 0 V
- ④ Control output

Brown: ① 10 to 30 VDC

Black: ② Control output

Blue: ③ 0 V

Main circuit

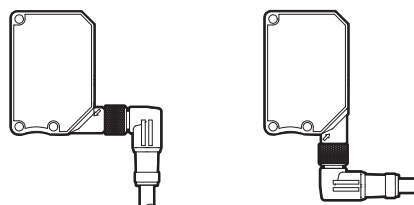
Protection circuit

Load

■ 1 to 4 are connector pin No.

Notes

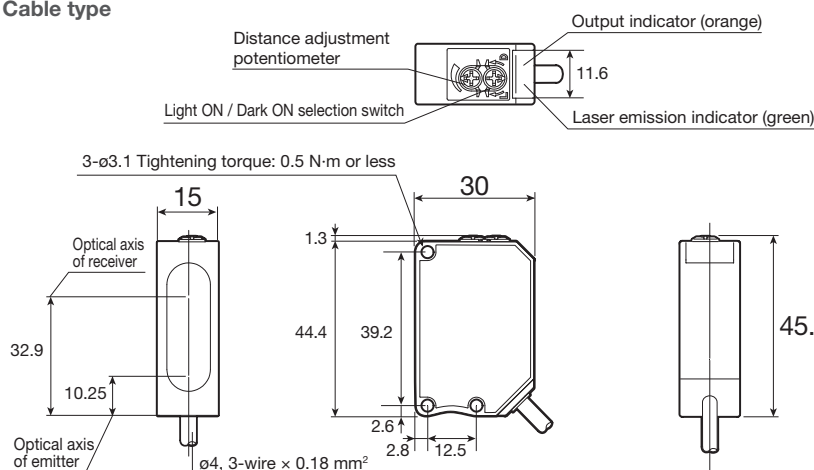
- When using a switching regulator for the power supply, be sure to ground the frame ground terminal.
- Because wiring sensor wires with high-voltage wires or power supply wires can result in malfunctions due to noise, which can cause damage, make sure to wire separately.
- Avoid using the transient state while the power is on (approx. 100 ms).
- The connector direction is fixed as the drawing below when you use L-shaped connector cable.



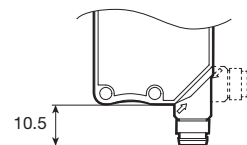
Dimensions

Sensor

■ **Cable type**



■ **Connector type**

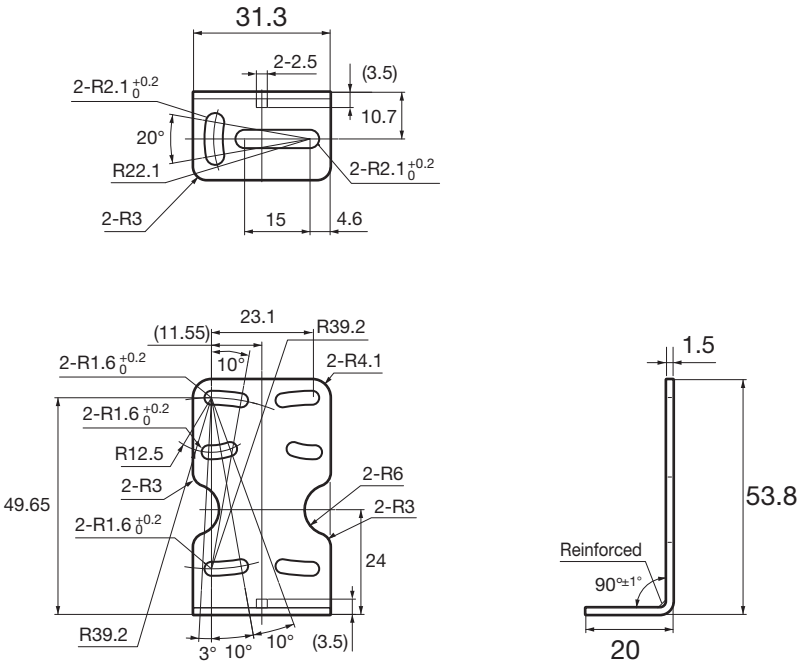


(Unit: mm)

(Unit: mm)

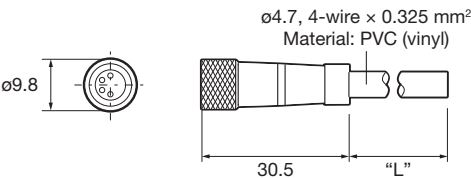
Mounting bracket

■ BEF-WK-190 (included)

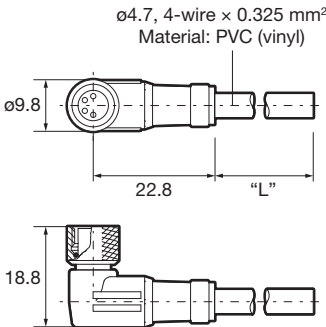


Connector cable (optional)

■ JCN-S, JCN-5S, JCN-10S



■ JCN-L, JCN-5L, JCN-10L



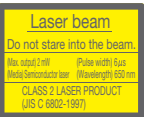
Notes for sensor usage

This product emits a Class 2 (II) visible laser beam that is compliant with JIS C6802/IEC/FDA laser safety standards. Warning and explanation labels are affixed to the sides of the sensor.

Warning Do not look directly at the laser or intentionally shine the laser beam in another person's eyes. Doing so may cause damage to the eyes or health.

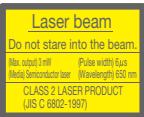
BGS-DL10□□
BGS-DL30□□

Laser aperture



BGS-DL70□□

Laser aperture



Photoelectric
Sensors

Specialized
Photoelectric
Sensors

Laser
Displacement
Sensors

BGS Sensors

BGS-HL,
BGS-HDL

BGS-DL

BGS-ZL,
BGS-Z

BGS-ZM

BGS-S,
BGS-2S

BGS

BGS-DL
(potentiometer type)