

Standard BGS type

**BGS** series

CE

## Highly balanced BGS standard

- | Spot light can be clearly seen thanks to the high brightness emitting LED
- | Effective against workpiece tilting
- | M8 connector types are also available

Related products

C-MOS laser  
**BGS-HL,**  
**BGS-HDL**  
● P.310



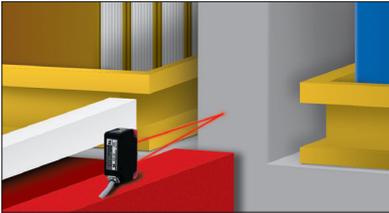
Laser type  
**BGS-ZL**  
● P.326



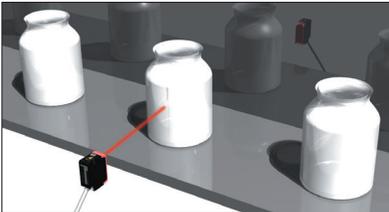
Universal voltage  
**BGS-2V**  
● P.384



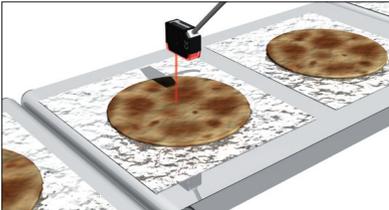
Detection of racks in automatic libraries



Detection of items on stainless steel lines



Detection of pizza crust passage



### Selection table

Type	Shape	Sensing distance (Adjustable distance range shown in parentheses)	Model (Models in parentheses are connector types)	
			NPN type	PNP type
BGS		 0 to 100 mm (40 to 100 mm)	<b>BGS-10N</b> ( <b>BGS-10CN</b> )	<b>BGS-10P</b> ( <b>BGS-10CP</b> )
		 0 to 180 mm (50 to 180 mm)	<b>BGS-20N</b>	<b>BGS-20P</b>
		 0 to 300 mm (100 to 300 mm)	<b>BGS-30N</b> ( <b>BGS-30CN</b> )	<b>BGS-30P</b> ( <b>BGS-30CP</b> )

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

### 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

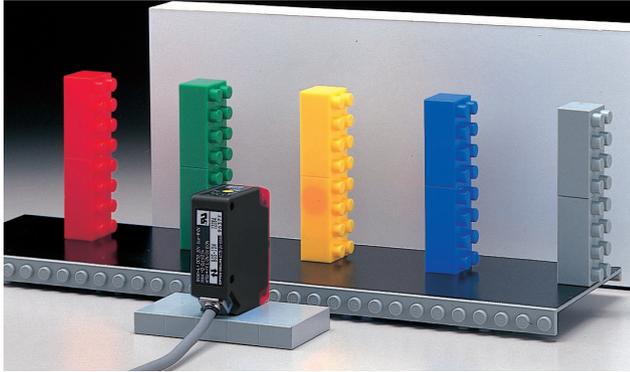


**JCN-L**  
Cable length: 2 m  
**JCN-5L**  
Cable length: 5 m  
**JCN-10L**  
Cable length: 10 m

**Stable detection without being affected by workpiece color**

**BGS Function (Background Suppression)**

The sensor does not turn ON/OFF based on the receiving light quantity, but detects based on the distance to the workpiece. It can also be used safely with both brightly and darkly colored workpieces.



**Effective against workpiece tilting**

**Type with good angular deviation**

With a large spot size of  $\phi 10$  mm/100 mm, stable detection is possible even if workpieces are tilted. It is also highly visible and is extremely convenient for positioning.



**Easy adjusting**

**Finely adjustable 2-turn potentiometer**

Features a wide distance adjustment range to enable fine distance determinations to be made. Since these models also come with indicators, the adjustment position can be confirmed at a glance.



**Water resistant structure**

**Degree of protection on IP67**

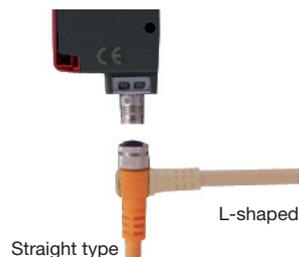
All models in the BGS series conform to IP67 (protective resistance standard) and feature excellent dust and water resistance. It also conforms to CE and UL standards and can be used in a wide range of locations.



**For improved maintenance**

**Connector type also available**

A connector type convenient for replacing sensors or only cables during maintenance is also available. Ideal for use in cleanrooms where the usage of items such as tools is undesirable.



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)

## Specifications

Type		Short-range	Mid-range	
Model	Cable type	<b>BGS-10N</b>	<b>BGS-20N</b>	<b>BGS-30N</b>
	Connector type	<b>BGS-10CN</b>	—	<b>BGS-30CN</b>
Sensing distance	White paper	0 to 100 mm	0 to 180 mm	0 to 300 mm
	Gray paper	10 to 100 mm	10 to 150 mm	20 to 300 mm
	Black paper	15 to 80 mm	15 to 100 mm	30 to 250 mm
Light source		Red LED		
Response time		2 ms or less		
Repeat accuracy		Light axis direction: 0.3 mm Vertical direction: 0.3 mm	Light axis direction: 1.5 mm Vertical direction: 0.5 mm	Light axis direction: 1.5 mm Vertical direction: 0.5 mm
Hysteresis		5% or less		
Distance adjustment		2-turn potentiometer		
Indicators		Light receiving indicator (red)		
Control output		NPN/PNP type open collector Max. 100 mA/30 VDC		
Output mode		Light ON / Dark ON switched by wiring		
Connection type		Cable type: Cable length: 2 m ø3.8 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	25 mA or less		
Applicable regulations		EMC directive (2004/108/EC)		
Applicable standards		EN 60947-5-2		
Company standards		Noise resistance: Feilen Level 4 cleared		
Environmental resistance	Ambient temperature/humidity	-25 to +55°C (no freezing) / 35 to 85% RH (no condensation)		
	Ambient illuminance	Sunlight: 10,000 lx Incandescent lamp: 3,000 lx		
	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 <sup>2</sup> ), 3 times in each of the X, Y, and Z directions		
	Degree of protection	IEC standard, IP67		
Material		Housing: ABS (glass fiber filled, fire resistant), Front cover: Polycarbonate		
Weight without cable		Approx. 20 g		
Included accessories		Mounting bracket: BEF-W190		

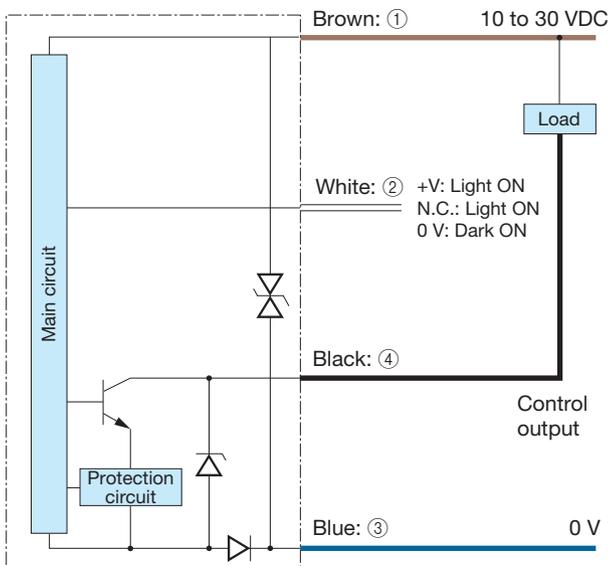
● Specifications are subject to change without prior notice for product improvement purposes.

## Distance adjustment

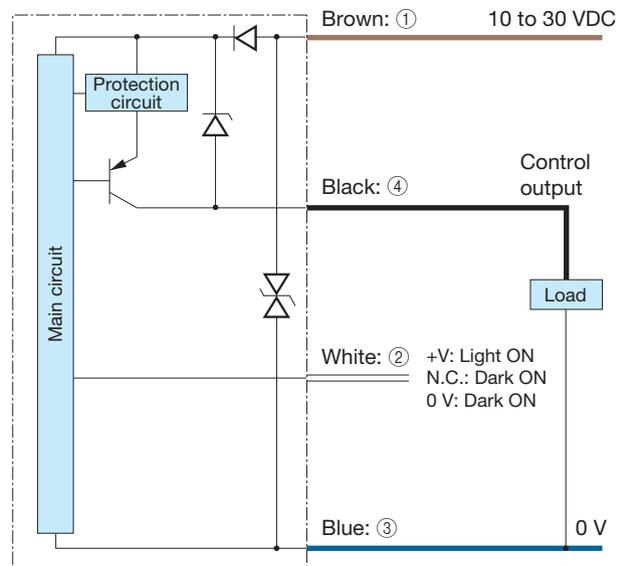
BGS	Order	Diagram	Potentiometer	Light receiving indicator	Adjustment procedure
	1			ON	Set the object in the detection position and gradually raise the distance adjustment potentiometer from the minimum to position A where the light receiving indicator will light up.
	2			OFF	Remove the object and gradually lower the potentiometer from the maximum to position B where the indicator will turn on.
	3			ON	<b>Position C between positions A and B</b> is the optimal position for threshold. Positions A and B may be reversed depending on the model and the detection conditions. Place the workpiece in a fixed position and perform an operational check.

## I/O circuit diagram

### NPN output type



### PNP output type



### Connector type

(Pin configuration)

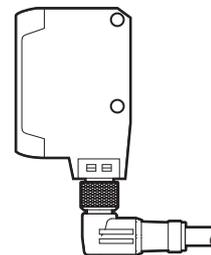
Sensor side      Connector cable side



- ① 10 to 30 VDC
- ② +V: Light ON  
N.C.: (NPN)Light ON  
(PNP)Dark ON  
0 V: Dark ON
- ③ 0 V
- ④ Control output

### 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 in the drawing to the right when you use L-shaped connector cable. Be aware that rotation is not possible.



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BGS-DL

BGS-ZL,  
BGS-Z

BGS-ZM

BGS-S,  
BGS-2S

BGS

BGS-DL  
(potentiometer type)

**Dimensions**

**Sensor**

■ Cable type

(Unit: mm)

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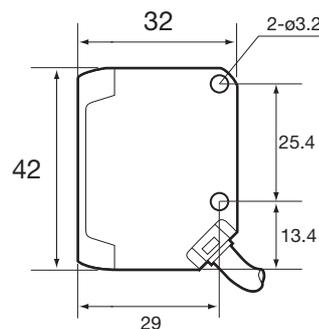
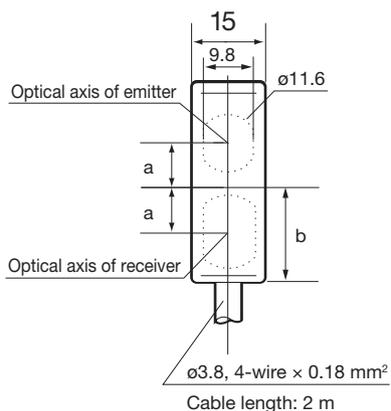
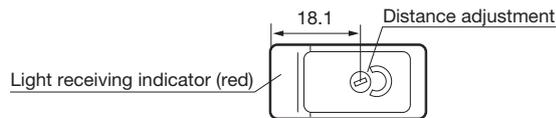
BGS-ZL,  
BGS-Z

BGS-ZM

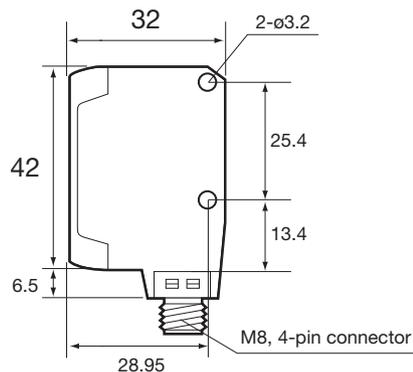
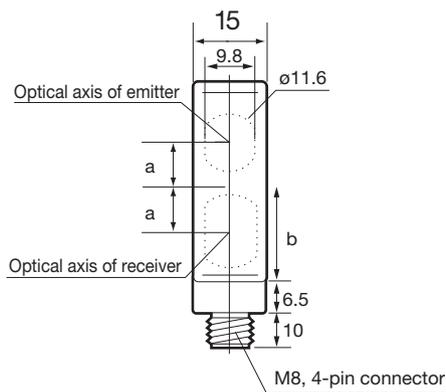
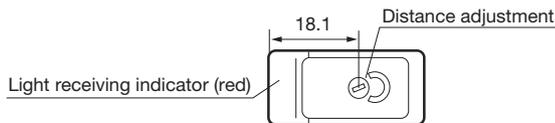
BGS-S,  
BGS-2S

**BGS**

BGS-DL  
(potentiometer type)



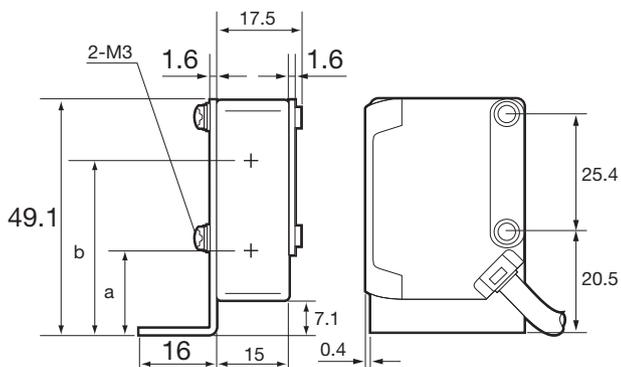
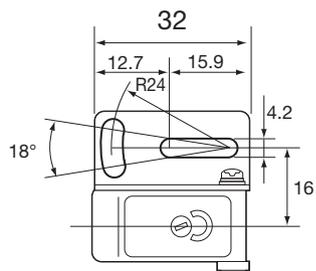
■ Connector type (excluding BGS-20□)



	BGS-10□	BGS-20□	BGS-30□
a	8.5	8.5	9.6
b	19.3	19.3	20.2

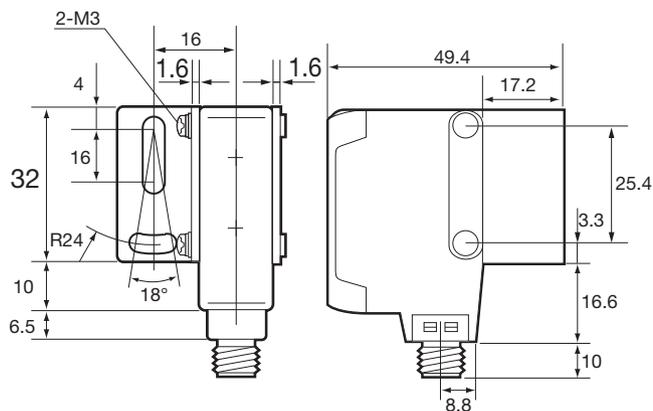
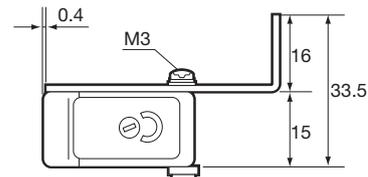
### Mounting bracket

■ Cable type



	BGS-10□	BGS-20□	BGS-30□
a	17.9	17.9	17.7
b	34.9	34.9	36.9

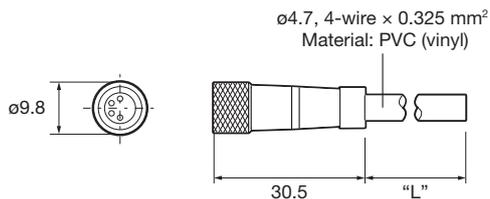
■ Connector type (excluding BGS-20□)



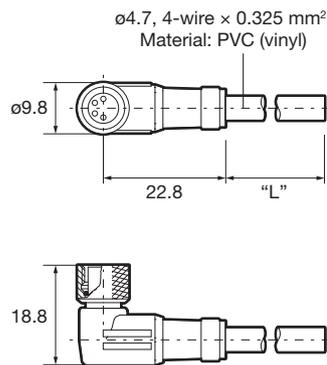
(Unit: mm)

### Connector cable (optional)

■ JCN-S, JCN-5S, JCN-10S



■ JCN-L, JCN-5L, JCN-10L



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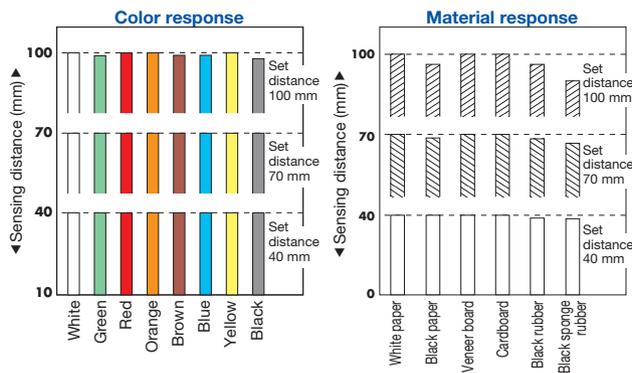
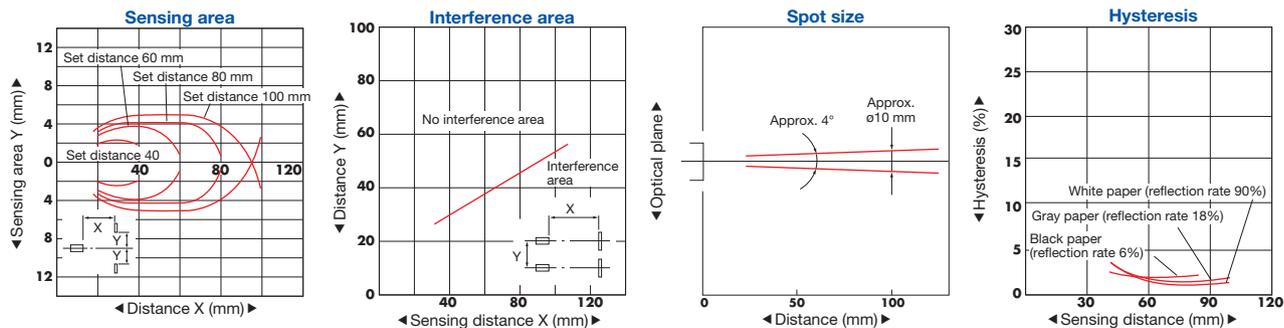
BGS-S,  
BGS-2S

BGS

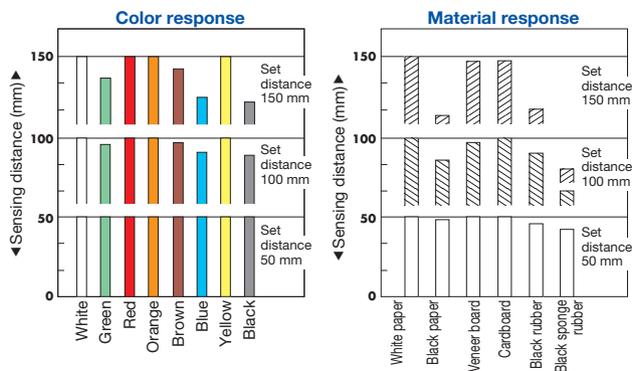
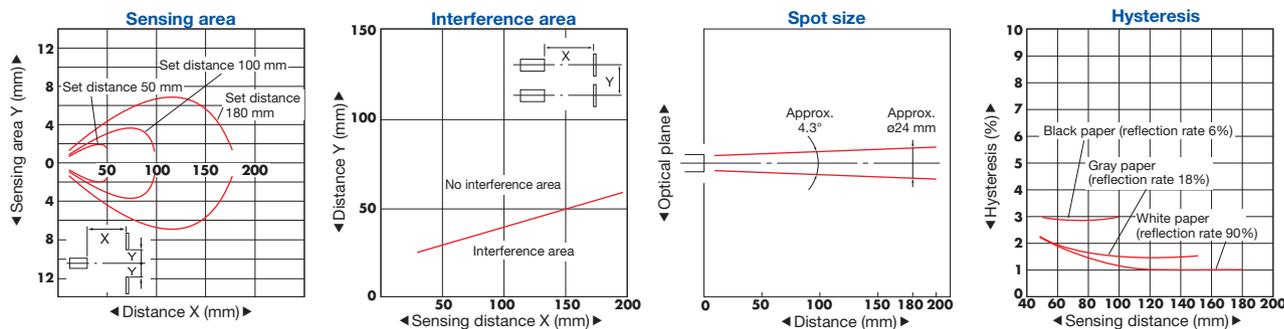
BGS-DL  
(potentiometer type)

Typical characteristic data

**BGS-10**



**BGS-20**



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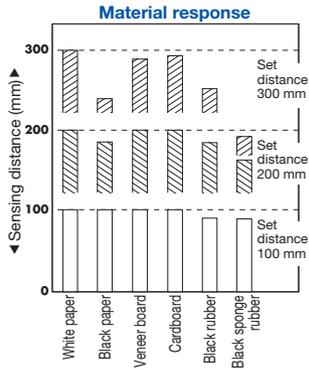
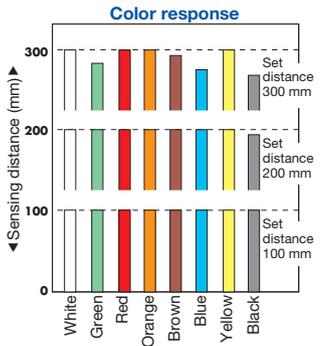
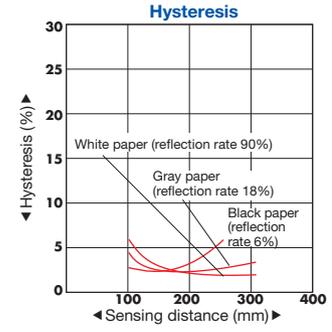
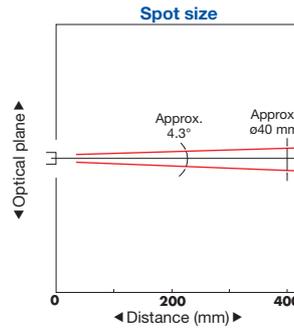
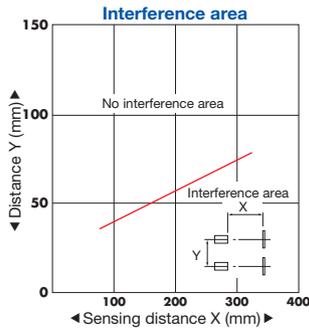
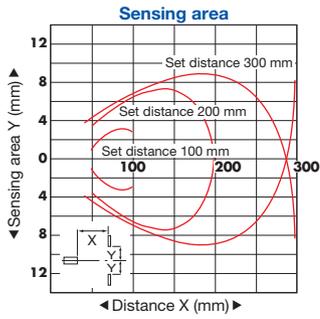
BGS-ZM

BGS-S, BGS-2S

BGS

BGS-DL (potentiometer type)

**BGS-30** □



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(potentiometer type)