

216

Standard elongated hole type  
**S2** series



## Long range detection with a small body

- | Achieves long range detection
- | Flexible mounting hole design
- | Hi-speed response: 0.5 ms

Related products

Laser type

**Z-L**  
● P.272



Transparent object detection

**Z3R-Q**  
● P.404

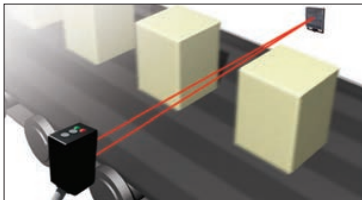


BGS

**BGS-2S**  
● P.342



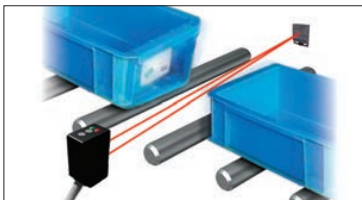
Detection of cardboard passage



Confirmation of wheel passage



Confirmation of plastic container passage



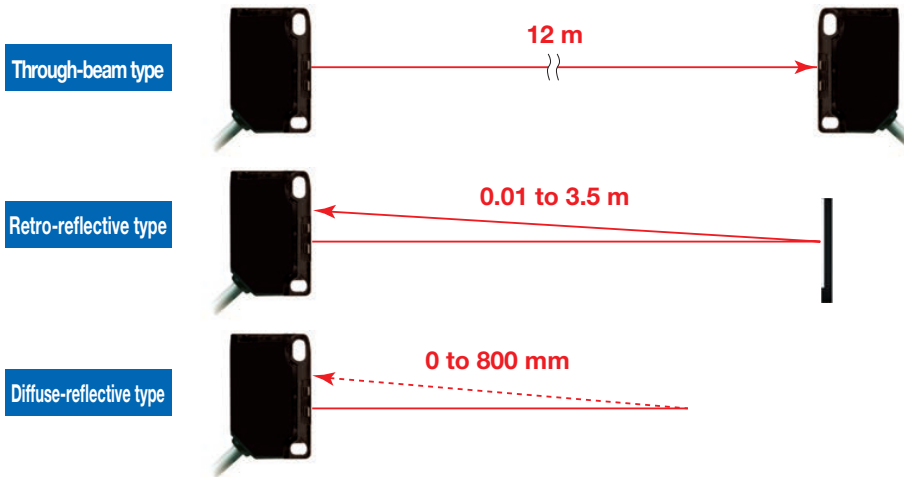
### Selection table

Type	Shape	Sensing distance (Adjustable distance range shown in parentheses)	Model (Models in parentheses are connector types)	
			NPN type	PNP type
Through-beam			<b>S2T-1200N</b> (S2T-1200CN)	<b>S2T-1200P</b> (S2T-1200CP)
Retro-reflective			<b>S2R-350N</b> (S2R-350CN)	<b>S2R-350P</b> (S2R-350CP)
Diffuse-reflective			<b>S2D-80N</b> (S2D-80CN)	<b>S2D-80P</b> (S2D-80CP)
BGS			<b>BGS-2S10N</b> ● P.342	<b>BGS-2S10P</b> ● P.342
			<b>BGS-2S15N</b> (BGS-2S15CN) ● P.342	<b>BGS-2S15P</b> (BGS-2S15CP) ● P.342
			<b>BGS-2S30N</b> (BGS-2S30CN) ● P.342	<b>BGS-2S30P</b> (BGS-2S30CP) ● P.342
			<b>BGS-2S30NT</b> ● P.342	<b>BGS-2S30PT</b> ● P.342

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

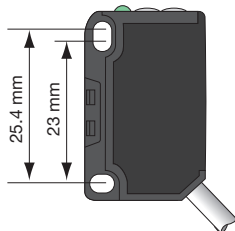
### Achieves long range detection

Achieves top class response time for small, general-purpose photoelectric sensors. This feature makes detection in high speed production line possible.



### Flexible mounting hole design

Flexible mounting is possible using holes whose pitch was altered during machining or holes that were already made.



Mounting hole pitch:  
**23 to 25.4 mm**

### High-speed response

Achieves a response time of 0.5 ms. Can be used on high-speed production lines.

## Options/Accessories

### Reflector



Standard (included)  
Included with retro-reflective type  
**V-61**  
Sensing distance: 3.5 m  
60.9 x 50.9 mm



Small type  
**V-42**  
Sensing distance: 2 m  
42 x 35 mm



Vertical type  
**P45A**  
Sensing distance: 1.2 m  
54 x 12.4 mm

### Sensor stand

Sensor stand  
(Image is for flat surface mounting)  
**PLN-1**  
For PLN-1  
Reflector mounting bracket  
**PLN-1M**



PLN description  
● P.242

### Protective mounting bracket

- Ultra-durable 2 mm thick type
- Rust-resistant stainless steel
- Sensor is firmly secured using M3 Hex socket head cap screws
- The bracket is also firmly secured using M6 screw



**LS2-S01**

### Connector cables



Straight  
**JCN-5**  
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

### Anti-interference filter

For through-beam type  
**BL-140-POLF**

### Slit mask

Slit mask for through-beam type  
**BL-140**  
Shipped with two of each slit width (0.5 mm, 1 mm, 2 mm).

Specifications

Type		Through-beam type	Retro-reflective type	Diffuse-reflective type	
Model	NPN	Cable type	<b>S2T-1200N</b>	<b>S2R-350N</b>	<b>S2D-80N</b>
		Connector type	<b>S2T-1200CN</b>	<b>S2R-350CN</b>	<b>S2D-80CN</b>
	PNP	Cable type	<b>S2T-1200P</b>	<b>S2R-350P</b>	<b>S2D-80P</b>
		Connector type	<b>S2T-1200CP</b>	<b>S2R-350CP</b>	<b>S2D-80CP</b>
Sensing distance		12 m	0.01 to 3.5 m <sup>1</sup>	0 to 800 mm <sup>2</sup>	
Light source		Red LED			
Smallest detectable object		ø4.5 mm	□ 50 mm	—	
Response time		0.5 ms or less			
Hysteresis		—	—	20% or less	
Distance adjustment		1-turn potentiometer			
Indicators		Output indicator (orange LED), Stability indicator (green LED)			
Control output		NPN/PNP type Open collector Max. 100 mA/30 VDC			
Output mode		Light ON / Dark ON selection switch			
Connection type		Cable type: Cable length: 2 m / 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	Emitter: 20 mA or less Receiver: 15 mA or less	20 mA or less		
Applicable regulations		EMC directive (2004/108/EC)			
Applicable standards		EN 60947-5-2			
Company standards		Noise resistance: Feilen Level 3 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: PBT (glass fiber filled), Front cover: Polycarbonate (retro-reflective type is PMMA)			
Weight without cable		Emitter / Receiver: Both 7 g	Approx. 9 g		
Included accessories		Mounting bracket: BEF-W140-B	Mounting bracket: BEF-W140-B Reflector: V-61	Mounting bracket: BEF-W140-B	

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

\*1. With the V-61 reflector

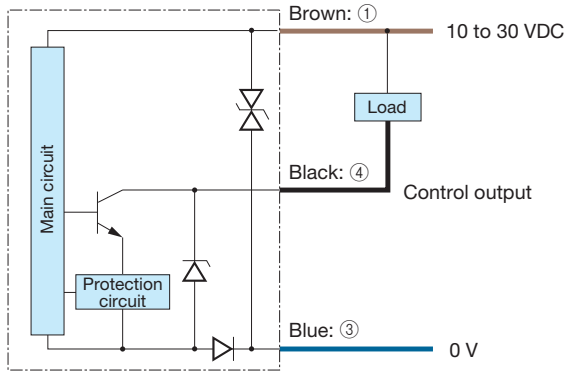
\*2. Using a 100 × 100 mm white sheet of paper.

Distance adjustment

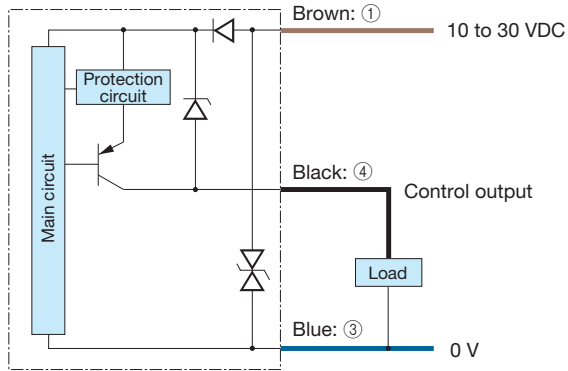
Diffuse type	Order	Diagram	Potentiometer	Output indicator (orange)	Adjustment procedure
Diffuse type	1			Lit (Green) Lit (Orange)	Set the object for detection in the detection position and gradually raise the sensitivity adjustment potentiometer from the minimum to position A where the indicator will light up.
	2			Lit (Green) Not lit (Orange)	Remove the object for detection and gradually lower the sensitivity adjustment potentiometer from the maximum to position B where the orange indicator will go out.
	3			Lit (Green) Lit (Orange)	Position C between positions A and B is the optimal position for sensitivity. 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.

## Output circuit diagram

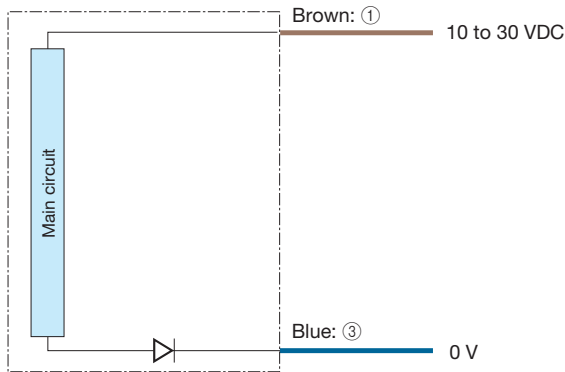
### NPN output type



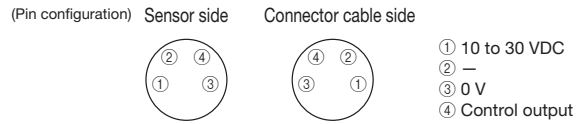
### PNP output type



### Through-beam type emitter



### Connector type

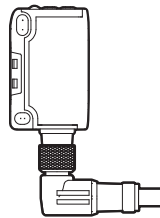


### Connecting

- 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.
- Avoid wiring in parallel with or in the same piping as high-voltage wires or power lines. Doing so may lead to malfunctions caused by noise. Also, shorten the power supply and signal wires as much as possible.
- Avoid using the transient state while the power is on (approx. 100 ms).
- The connector direction is fixed as in the drawing below when you use L-shaped connector cable. Be aware that rotation is not possible.



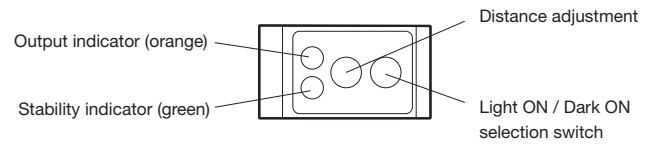
Standard elongated hole type **S2** series

**Dimensions**

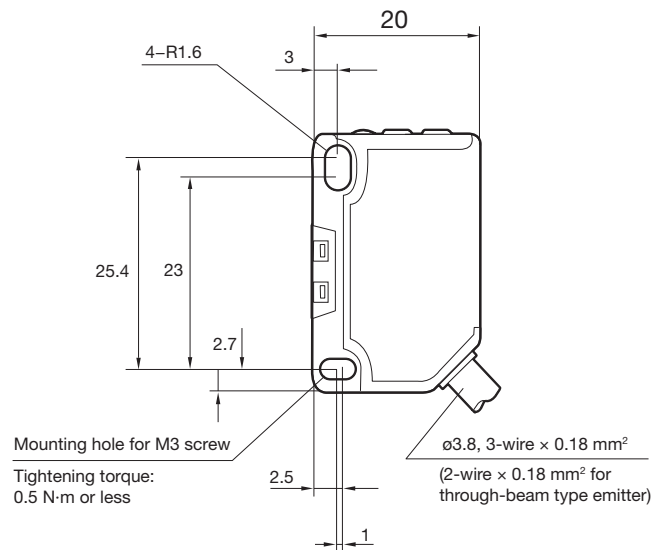
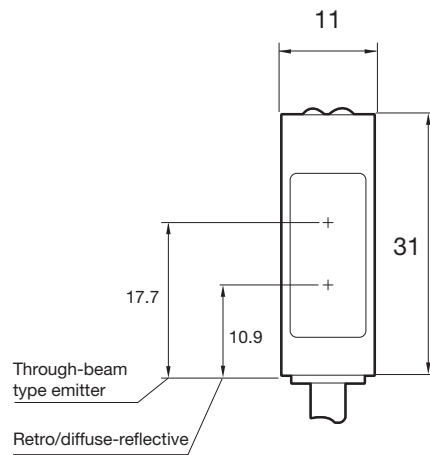
**Sensor**

■ Cable type

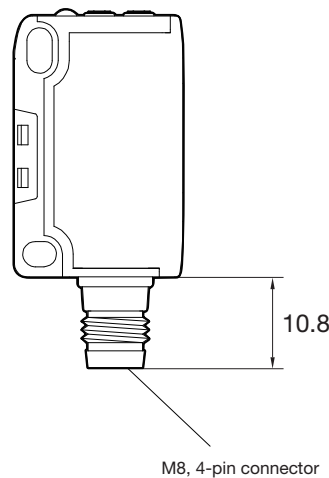
(Unit: mm)



\*Through-beam type emitter is not equipped with indicators, potentiometers, or switches.



■ Connector type

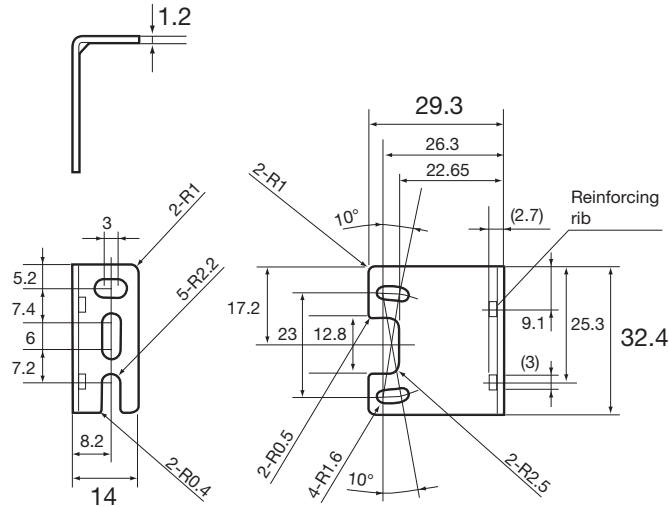
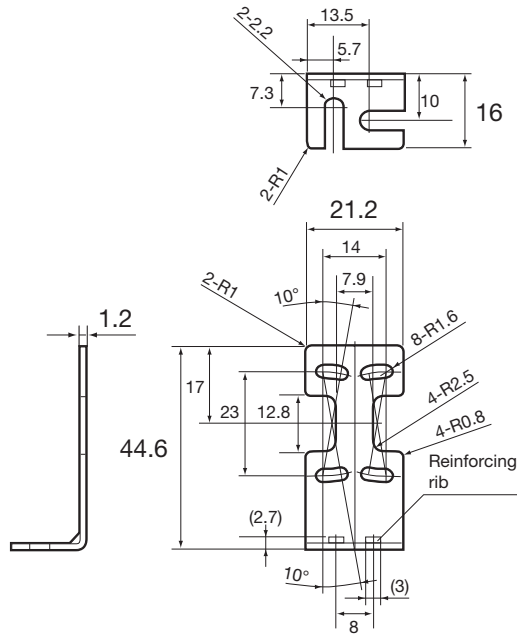


**Mounting bracket**

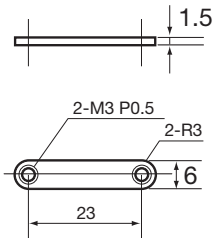
(Unit: mm)

■ BEF-W140-B (included with sensor)

■ BEF-W140-A (optional)



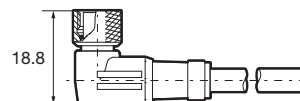
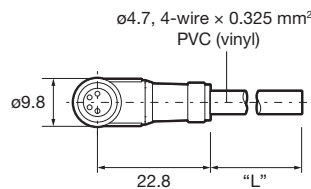
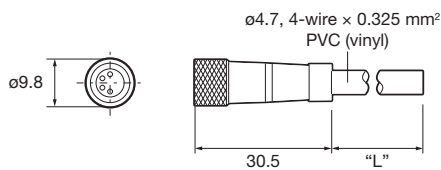
■ Nut plate (included)



**Connector cable (optional)**

■ JCN-S, JCN-5S, JCN-10S

■ JCN-L, JCN-5L, JCN-10L



Standard elongated hole type S2 series

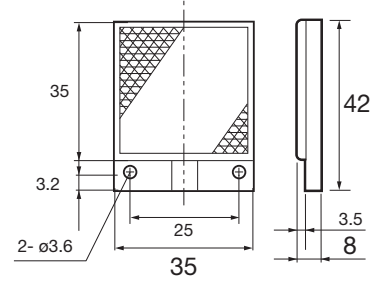
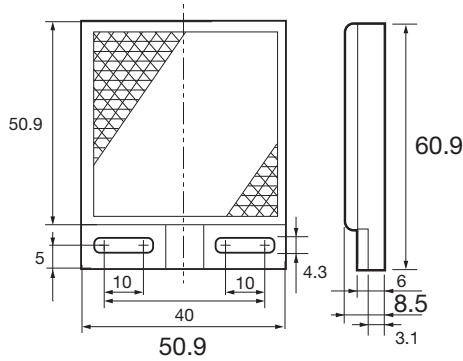
Dimensions

Reflector

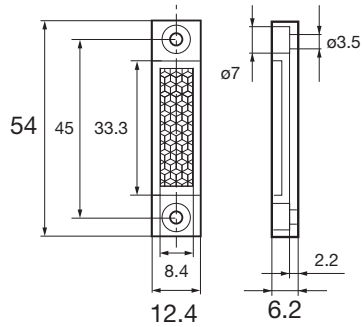
(Unit:mm)

■ V-61: Standard type reflector (included with retro-reflective type)

■ V-42: Small reflector (optional)

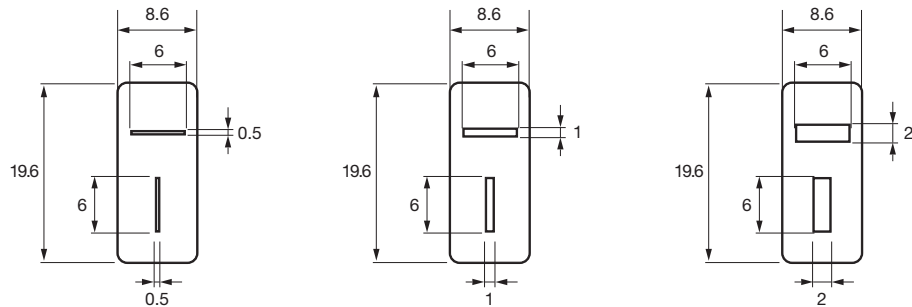


■ P45A: Vertical type reflector (optional)



Slit mask

■ BL-140 (optional)

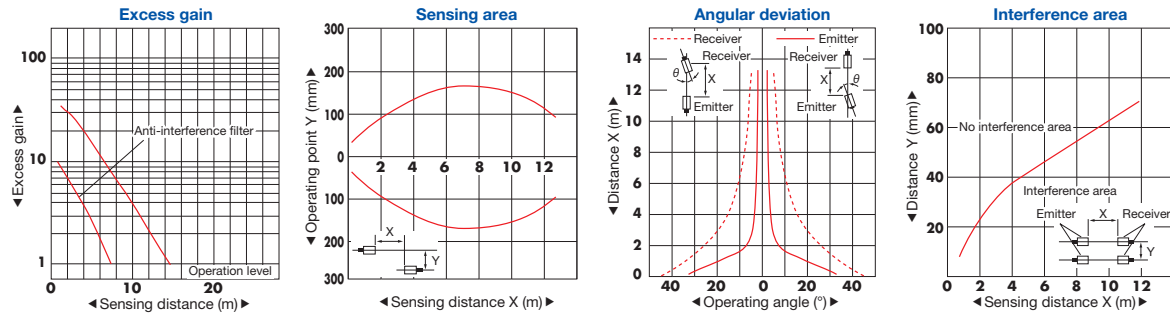


Slit size	Attachment	Smallest detectable object	Max. sensing distance
0.5 × 6 mm	Both emitter and receiver	0.4 mm	2 m
1.0 × 6 mm	Both emitter and receiver	0.8 mm	2 m
2.0 × 6 mm	Both emitter and receiver	1.5 mm	4 m

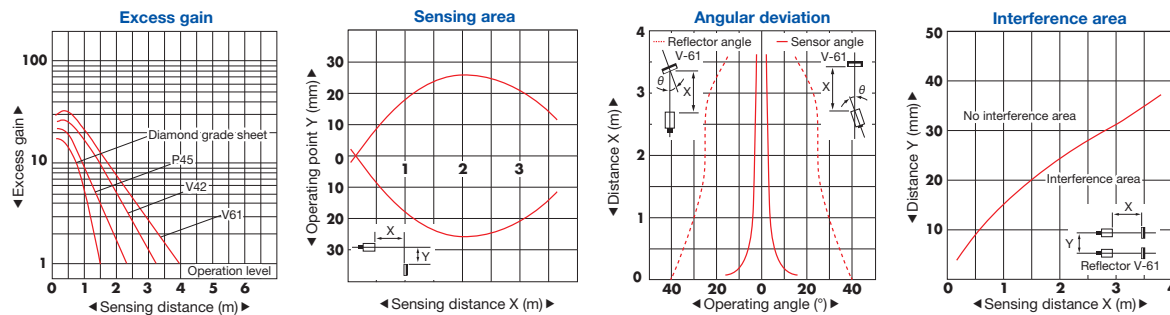
\*Remove the protective seal and affix it to the lens surface.

Typical characteristic data

**S2T-1200**



**S2R-350**



**S2D-80**

