Standard elongated hole type

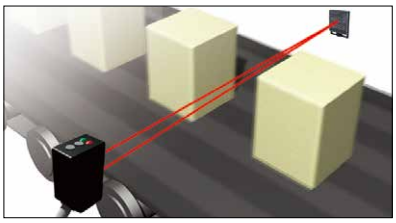
S2 series

Long range detection with a small body

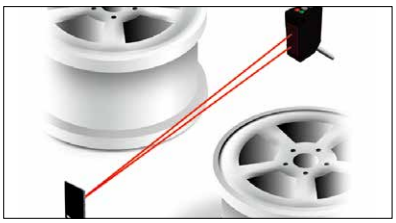
- Achieves long range detection
- Flexible mounting hole design
- Hi-speed response: 0.5 ms

Related products

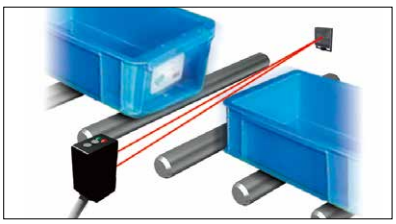
Detection of cardboard passage



Confirmation of wheel passage



Confirmation of plastic container passage



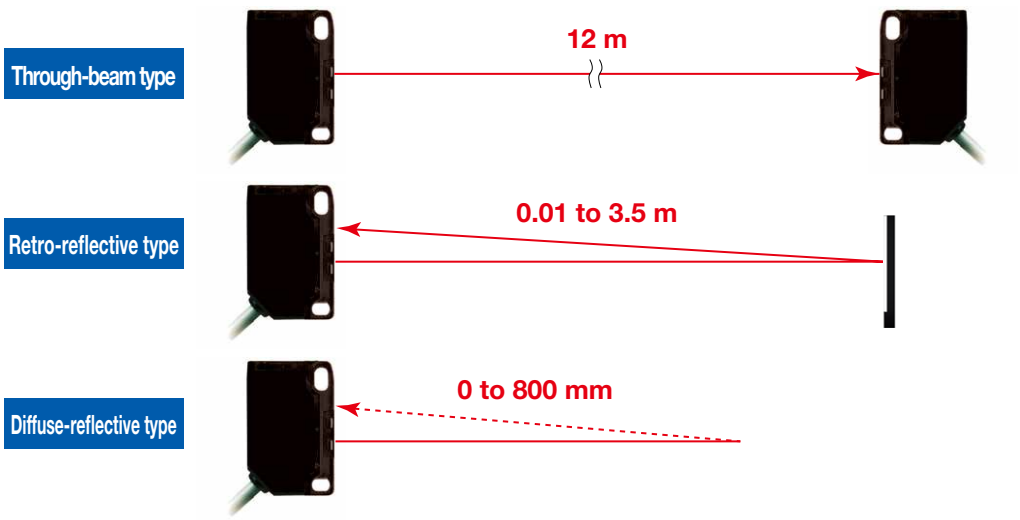
Selection table

Type	Shape	Sensing distance (Adjustable distance range shown in parentheses)	Model (Models in parentheses are connector types) NPN type	PNP type
Through-beam		12 m	**S2T-1200N** (S2T-1200CN)	**S2T-1200P** (S2T-1200CP)
Retro-reflective		0.01 to 3.5 m	**S2R-350N** (S2R-350CN)	**S2R-350P** (S2R-350CP)
Diffuse-reflective		0 to 800 mm	**S2D-80N** (S2D-80CN)	**S2D-80P** (S2D-80CP)
BGS		8 to 100 mm (20 to 100 mm)	**BGS-2S10N** P.342	**BGS-2S10P** P.342
		0 to 150 mm (50 to 150 mm)	**BGS-2S15N** (BGS-2S15CN) P.342	**BGS-2S15P** (BGS-2S15CP) P.342
		5 to 300 mm (25 to 300 mm)	**BGS-2S30N** (BGS-2S30CN) P.342	**BGS-2S30P** (BGS-2S30CP) P.342
		5 to 300 mm (25 to 300 mm)	**BGS-2S30NT** P.342	**BGS-2S30PT** P.342

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

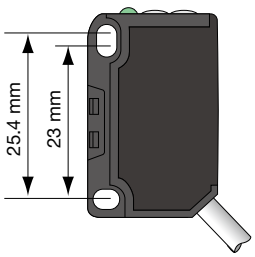
Achieves long range detection

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 × 50.9 mm

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

Vertical type
P45A
Sensing distance: 1.2 m
54 × 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-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

Anti-interference filter

For through-beam type

BL-140-POLF

Slit mask

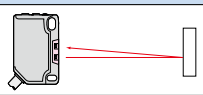
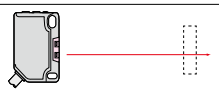
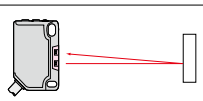
Slit mask for through-beam type
BL-140
Shipped with two of each slit width (0.5 mm, 1 mm, 2 mm).

Specifications

Type			Through-beam type	Retro-reflective type	Diffuse-reflective type
Model	NPN	Cable type	**S2T-1200N**	**S2R-350N**	**S2D-80N**
		Connector type	**S2T-1200CN**	**S2R-350CN**	**S2D-80CN**
	PNP	Cable type	**S2T-1200P**	**S2R-350P**	**S2D-80P**
		Connector type	**S2T-1200CP**	**S2R-350CP**	**S2D-80CP**
Sensing distance			12 m	0.01 to 3.5 m*1	0 to 800 mm*2
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/s²); 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

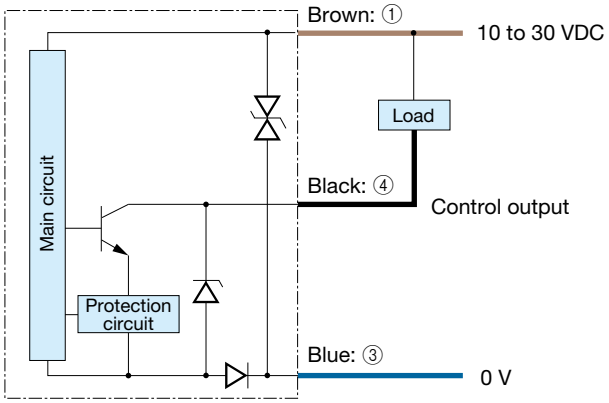
● Specifications are subject to change without prior notice for product improvement purposes.
*1. With the V-61 reflector
*2. Using a 100 × 100 mm white sheet of paper.

Distance adjustment

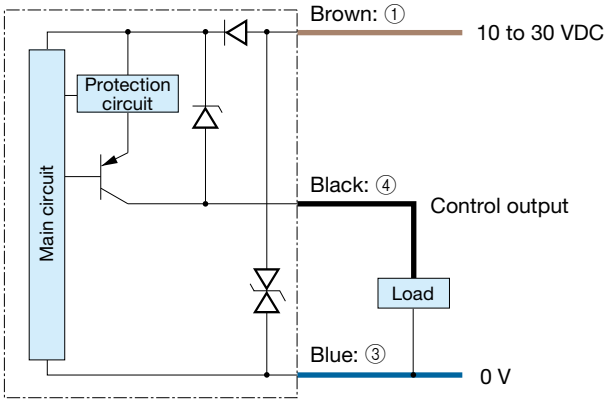
	Order	Diagram	Potentiometer	Output indicator (orange)	Adjustment procedure
Diffuse type	1			Lit (Green) Lit (Orange)	Set the object for detection in the detection position and gradually raise the sensitivity adjustment potentiometer from the minimum to position A where the indicator will light up.
	2			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

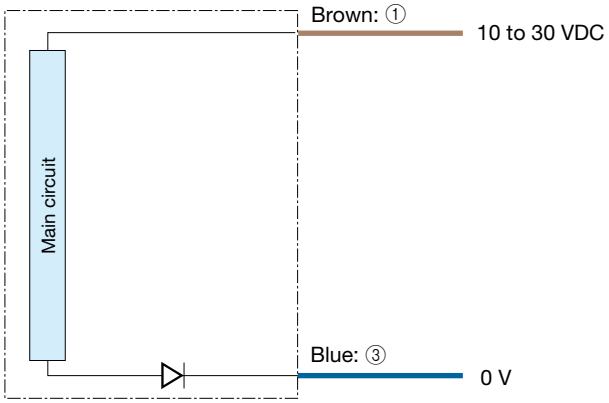
NPN output type



PNP output type

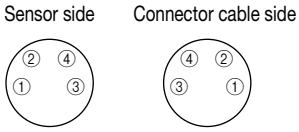


Through-beam type emitter



Connector type

(Pin configuration)



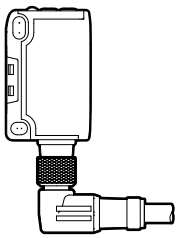
① 10 to 30 VDC
② —
③ 0 V
④ Control output

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.

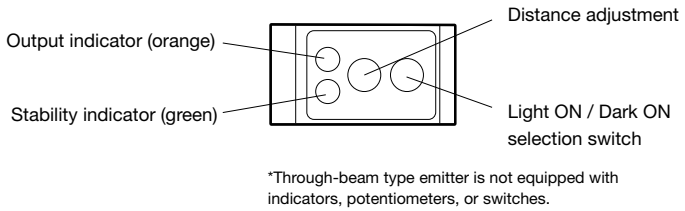


Dimensions

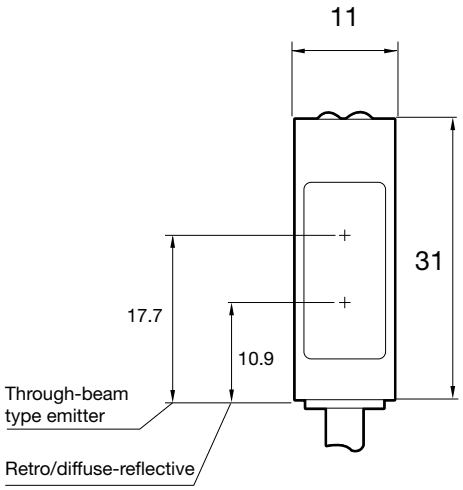
Sensor

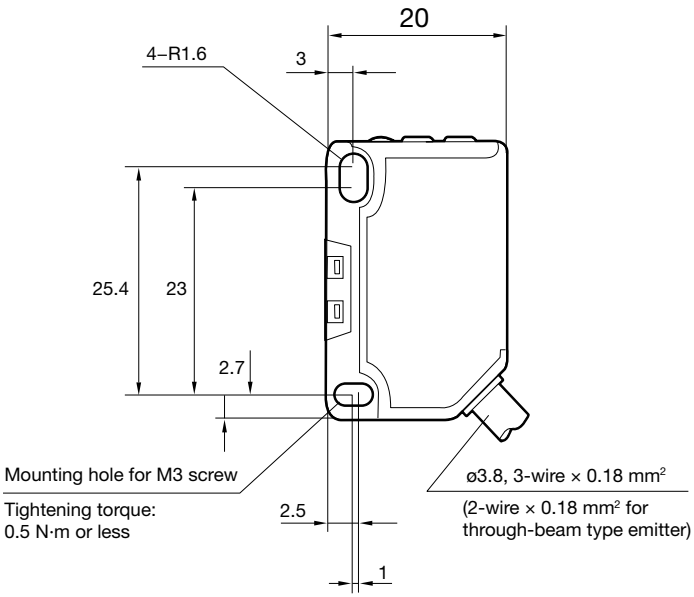
(Unit: mm)

Cable type

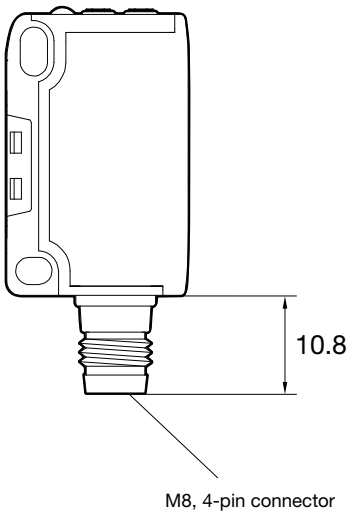


*Through-beam type emitter is not equipped with indicators, potentiometers, or switches.





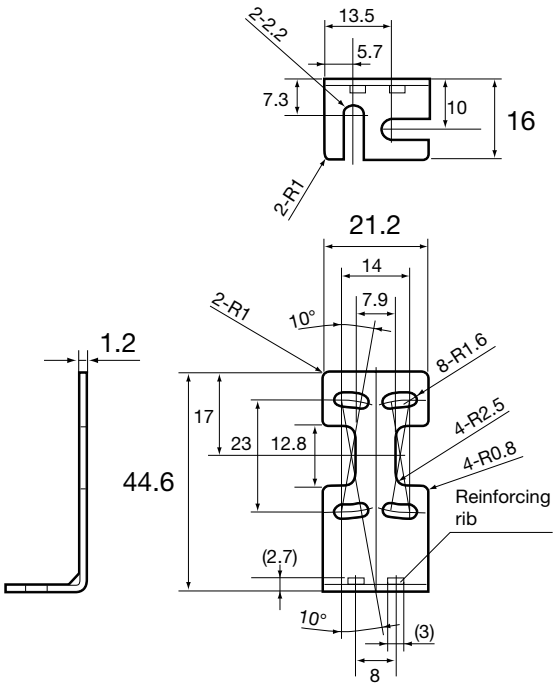
Connector type



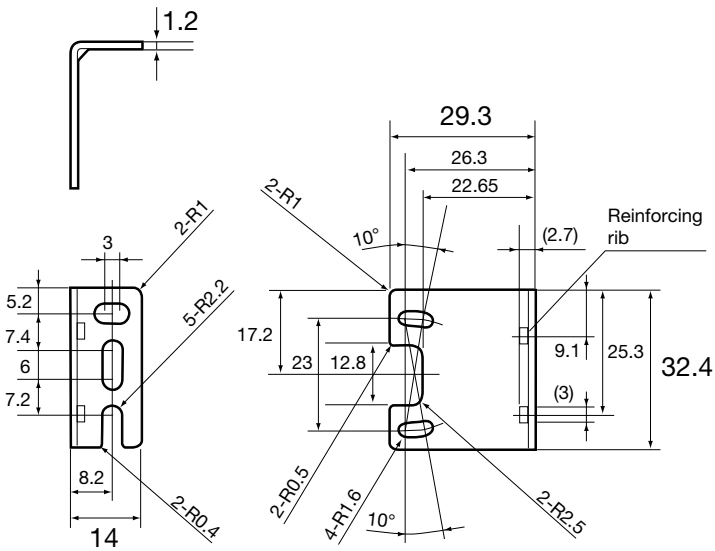
Mounting bracket

(Unit: mm)

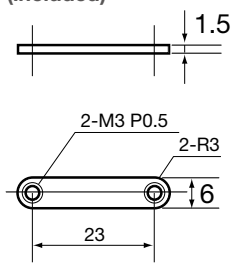
BEF-W140-B (included with sensor)



BEF-W140-A (optional)

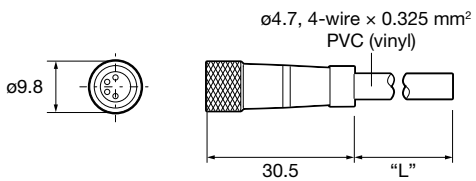


Nut plate (included)

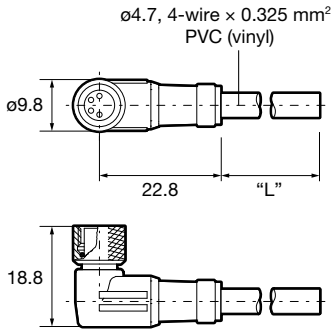


Connector cable (optional)

JCN-S, JCN-5S, JCN-10S



JCN-L, JCN-5L, JCN-10L

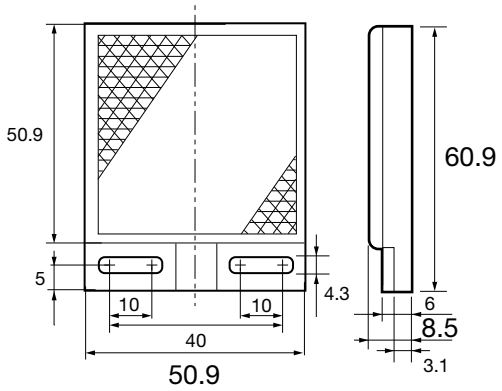


Dimensions

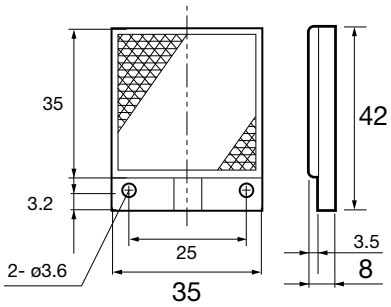
Reflector

(Unit:mm)

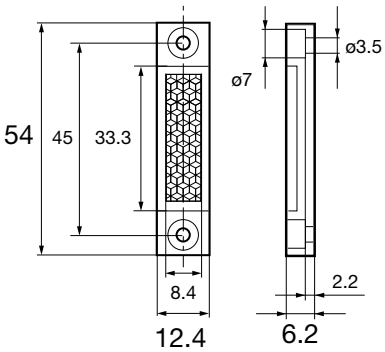
■ V-61: Standard type reflector (included with retro-reflective type)



■ V-42: Small reflector (optional)

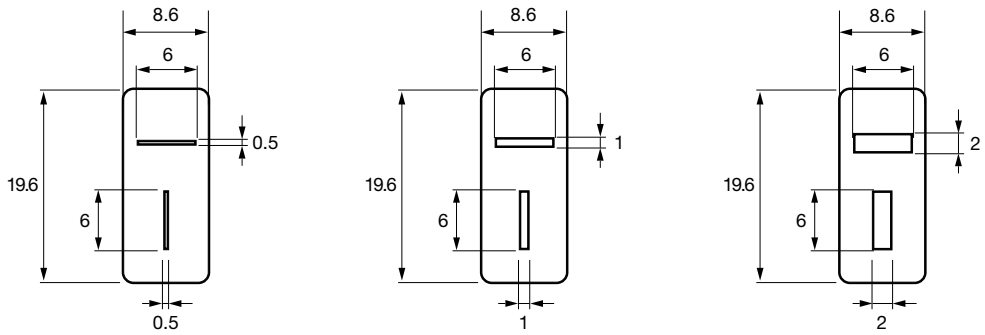


■ P45A: Vertical type reflector (optional)



Slit mask

■ BL-140 (optional)

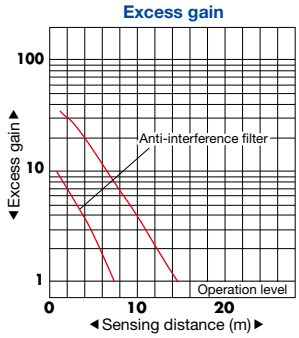


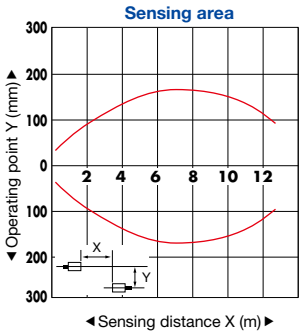
Slit size	Attachment	Smallest detectable object	Max. sensing distance
0.5 × 6 mm	Both emitter and receiver	0.4 mm	2 m
1.0 × 6 mm	Both emitter and receiver	0.8 mm	2 m
2.0 × 6 mm	Both emitter and receiver	1.5 mm	4 m

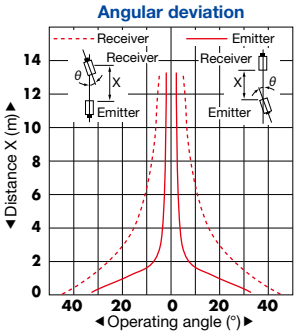
*Remove the protective seal and affix it to the lens surface.

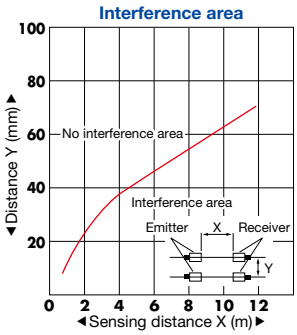
Typical characteristic data

S2T-1200□

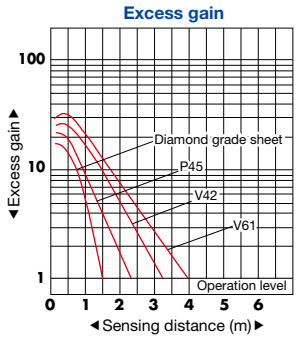


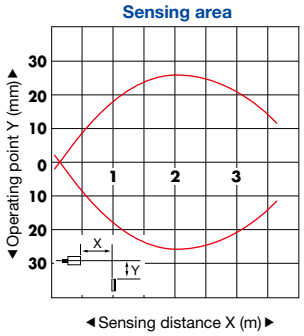


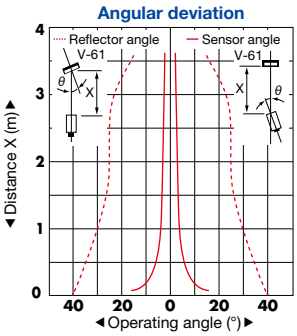


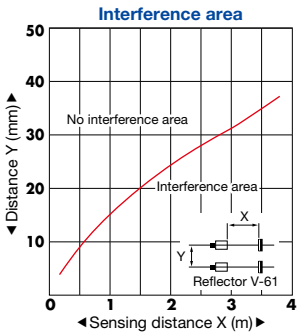


S2R-350□









S2D-80□