Stainless protector/Small type

KR-Q, SR-Q series

KR-Q series

SR-Q series

CE

Industry's standard of transparent object detection sensor

- Stable detection even at close distances
- Visible red spot light
- Narrow view design which makes detecting through gaps possible

Related products

Digital laser type
DR-Q
● P.396

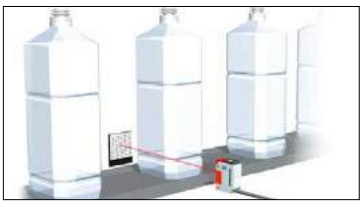
Low cost type
Z3R-Q
● P.404

Selection table

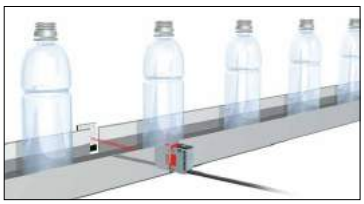
Type	Shape	Sensing distance	Model (Models in parentheses are connector types)	
			NPN type	PNP type
Transparent object detection		10 to 500 mm	**KR-Q50NW** (KR-Q50CNW)	**KR-Q50PW** (KR-Q50CPW)
		0.01 to 1.5 m	**KR-Q150NW** (KR-Q150CNW)	**KR-Q150PW** (KR-Q150CPW)
		0.01 to 2.5 m	**KR-Q300NW** (KR-Q300CNW)	**KR-Q300PW** (KR-Q300CPW)
		10 to 500 mm	**KR-Q50N** (KR-Q50CN)	**KR-Q50P** (KR-Q50CP)
		10 to 300 mm	**SR-Q50NW** (SR-Q50CNW)	**SR-Q50PW** (SR-Q50CPW)

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

Detection of plastic bottle passage



Detection from gaps in the guide



Counting of aligned plastic bottles

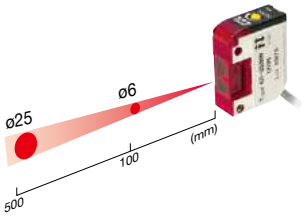
Stable detection even at close distances

Built-in QX circuit (KR-Q50NW)

Stable detection of transparent objects such as film or glass bottles close to the sensor. There is also a refracted light eliminate function to enhance detection of plastic bottles.

Narrow view design which makes detecting through gaps possible (KR-Q50N)

In addition to a long distance detection of 500 mm, transparent workpieces can also be reliably detected from small holes and gaps.



Surpasses the IEC standards

Built-in on-site noise countermeasure circuit (KR-Q series)

Noise level standards set by the International Electrotechnical Commission (IEC) have been cleared. Additionally, company standards (Feilen Test) further improve reliability against on-site noise.

Visible red spot light

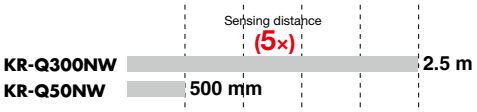
High brightness spot light adopted

The red spot is always clear, without being influenced by the distance adjustment. The reflector shines in red when light axes match, greatly improving work efficiency.

Long range detection of 1 m or more is also possible

Sensing distance: Max. 2.5 m (KR-Q300NW)

A type with an exceptional sensing distance of 2.5 m is also available. Can be used efficiently without changing the step, etc., even when installed on large equipment.



For improved maintenance

Connector type also available

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

Stable even in locations with small mounting space

Small type (SR-Q50NW)

Downsized even further than conventional sizes. Stands out in locations with a short sensing distance but small mounting space.

Options/Accessories

Reflector

Standard (included)

V-61
Sensing distance: As per specifications
60.9 × 50.9 mm

Small type

V-42
60% of sensing distance
42 × 35 mm

Vertical type

P45A
20% of sensing distance
54 × 12.4 mm

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

Protective mounting bracket

For KR-Q series

LK-S01

LK-S02

For SR-Q series

LS-S01

LS-S02

Specifications

Type			Retro-reflective type			
Model	NPN	Cable type	**KR-Q50NW**	**KR-Q150NW**	**KR-Q300NW**	**KR-Q50N**
		Connector type	**KR-Q50CNW**	**KR-Q150CNW**	**KR-Q300CNW**	**KR-Q50CN**
	PNP	Cable type	**KR-Q50PW**	**KR-Q150PW**	**KR-Q300PW**	**KR-Q50P**
		Connector type	**KR-Q50CPW**	**KR-Q150CPW**	**KR-Q300CPW**	**KR-Q50CP**
Sensing distance			10 to 500 mm*	0.01 to 1.5 m*	0.01 to 2.5 m*	10 to 500 mm*
Light source			Red LED			
Smallest detectable object			ø40 mm			ø25 mm (steel bar)
Response time			0.7 ms or less			
Distance adjustment			1-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 / 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		30 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: 20,000 lx Incandescent lamp: 4,000 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. 100 G (1000 m/s^2), 3 times in each of the X, Y, and Z directions			
	Degree of protection		IEC standard, IP67			
Material			Metal cover: SUS304 Housing: ABS Lens: Polycarbonate			
Weight without cable			Approx. 25 g			
Included accessories			Mounting bracket: BEF-W170 Reflector: V-61			

* When reflector V-61 is used

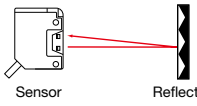
● Specifications are subject to change without prior notice for product improvement purposes.

Type			Retro-reflective type
Model	NPN	Cable type	**SR-Q50NW**
		Connector type	**SR-Q50CNW**
	PNP	Cable type	**SR-Q50PW**
		Connector type	**SR-Q50CPW**
Sensing distance			10 to 300 mm*1
Light source			Red LED
Smallest detectable object			ø40 mm
Response time			0.5 ms or less
Distance adjustment			1-turn potentiometer
Indicators			Output indicator (orange)
Control output			NPN/PNP type open collector Max. 100 mA/30 VDC
Output mode			Light ON / Dark ON switched by wiring
Connection type			Cable length: 2 m Diameter: ø3.5 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		30 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 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. 100 G (1000 m/s^2), 3 times in each of the X, Y, and Z directions
	Degree of protection		IEC standard, IP67
Material			Housing: PSF + PBT (glass fiber filled)
Weight without cable			Approx. 5 g
Included accessories			Mounting bracket: BEF-W150-B Reflector: V-61

*1. When reflector V-61 is used

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

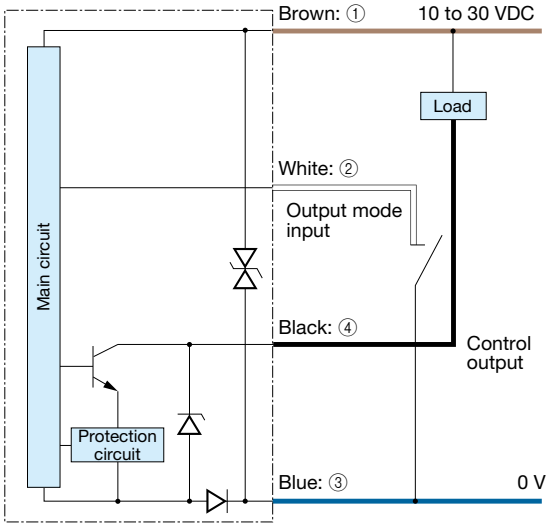
Distance adjustment

	Diagram	Potentiometer	Indicators	Adjustment procedure
Retro-reflective type				Gradually raise the sensitivity adjustment potentiometer from the MIN to MAX, and stop in the position where the indicator lights up. Place the workpiece in a fixed position and perform an operational check.

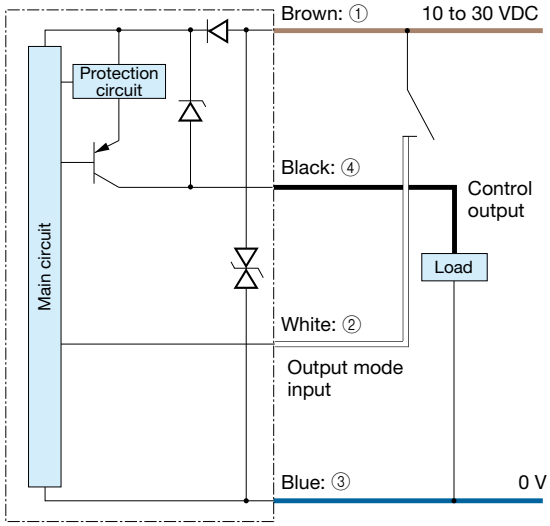
*When Dark ON is set by SR-Q, the indicator (orange) is inverted.

I/O circuit diagram

NPN output type

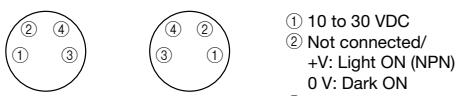


PNP output type



Connector type

(Pin configuration)



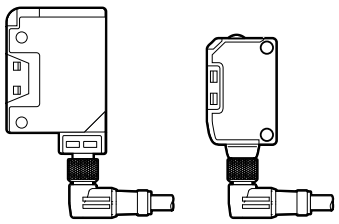
① 10 to 30 VDC
② Not connected/
+V: Light ON (NPN)
0 V: Dark ON
③ 0 V
④ Control output

Connecting

- Turns to Light ON mode when the white wire is connected to +V or not connected and to Dark ON mode when connected to 0 V (for NPN). To use without connecting, disconnect and wrap individually with insulating tape, etc. Do not connect it to any other terminal.
- 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 the drawing below when you use L-shaped connector cable. Be aware that rotation is not possible.

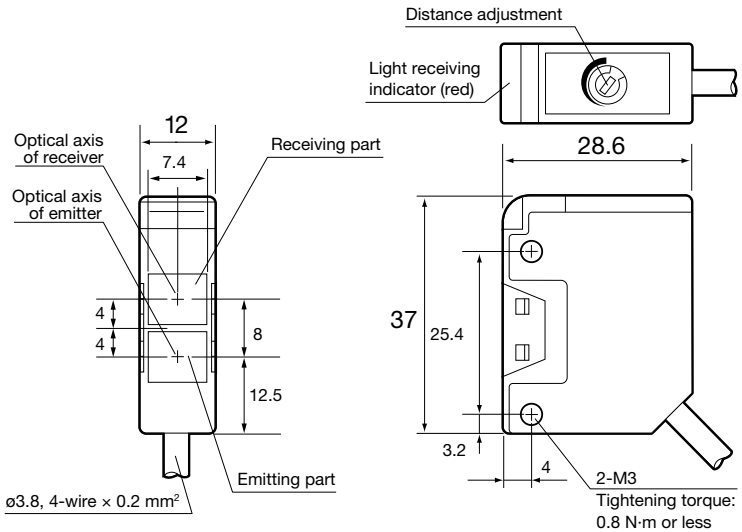


Dimensions

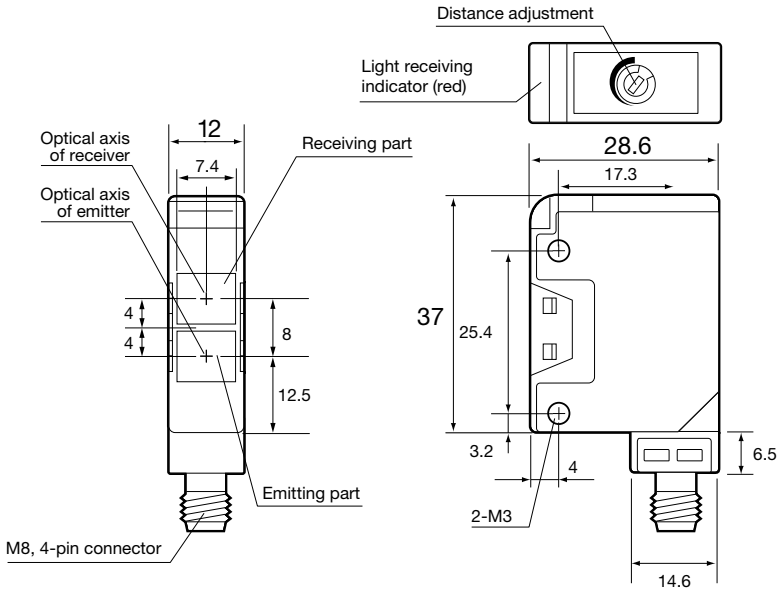
KR-Q series

(Unit: mm)

Cable type



Connector type

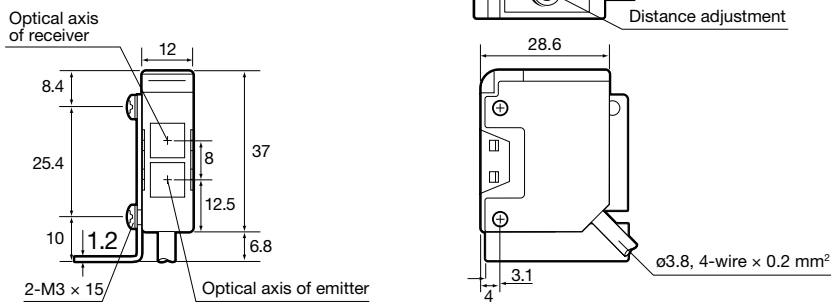


Dimensions

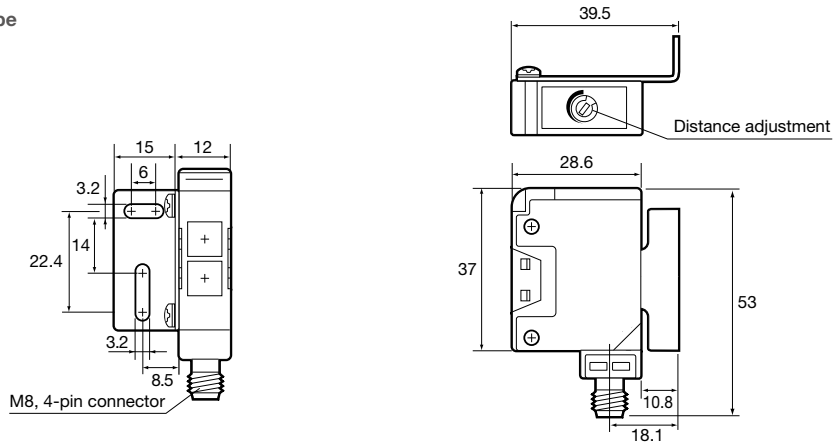
KR-Q with mounting bracket

(Unit: mm)

Cable type

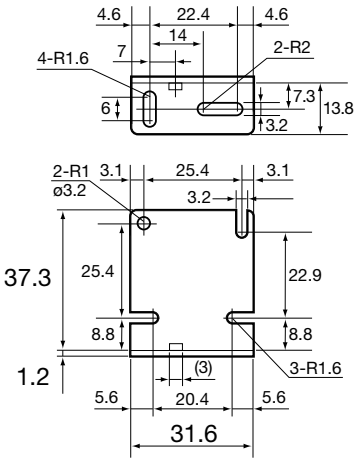


Connector type



Mounting bracket (included)

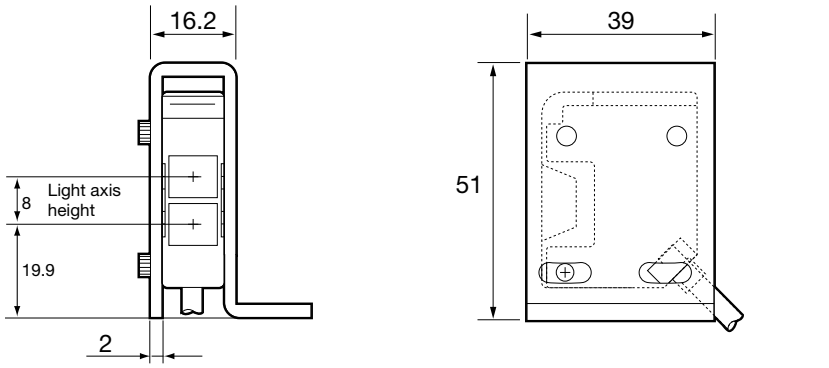
BEF-W170



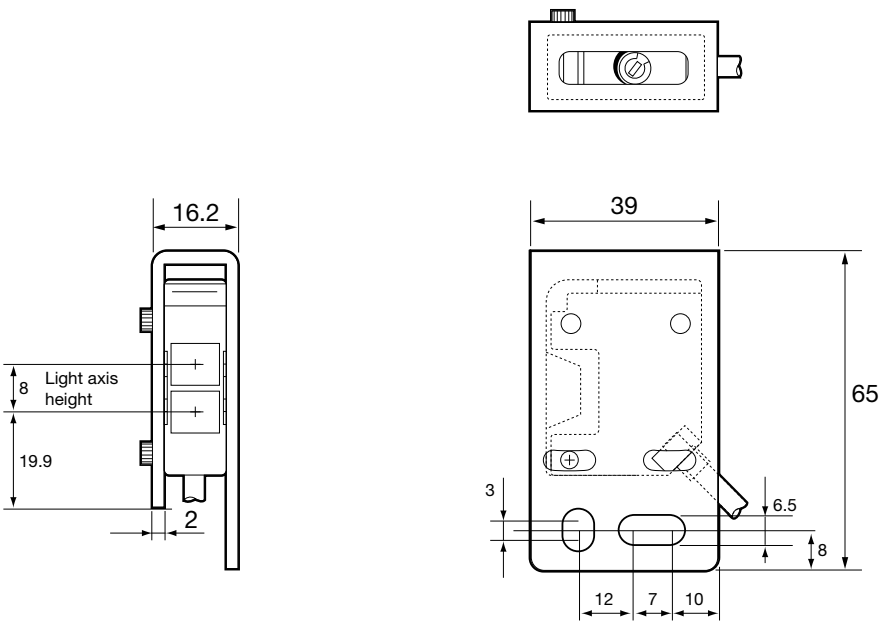
KR-Q series with protective mounting bracket

(Unit: mm)

LK-S01



LK-S02

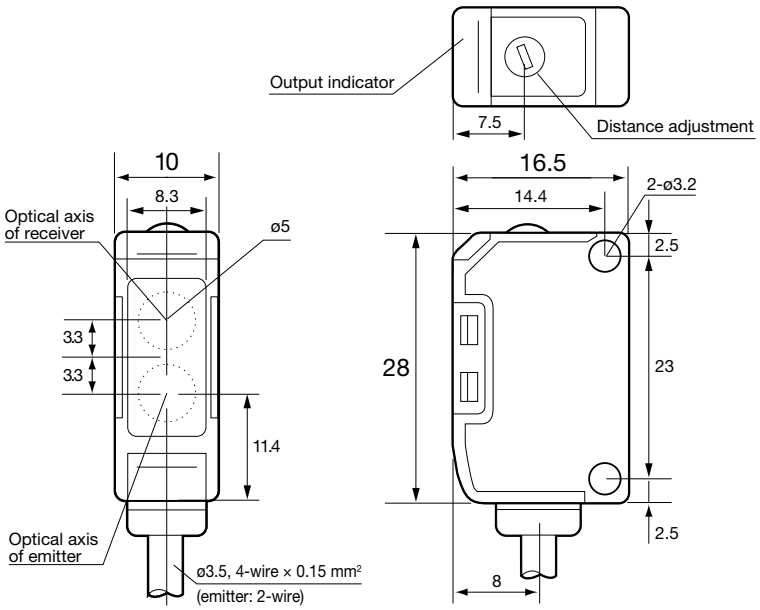


Dimensions

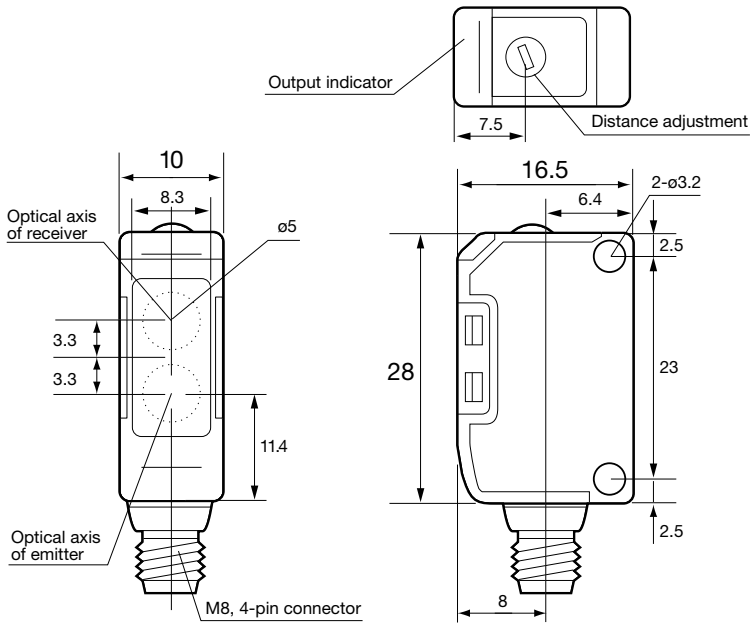
SR-Q series

(Unit: mm)

■ Cable type



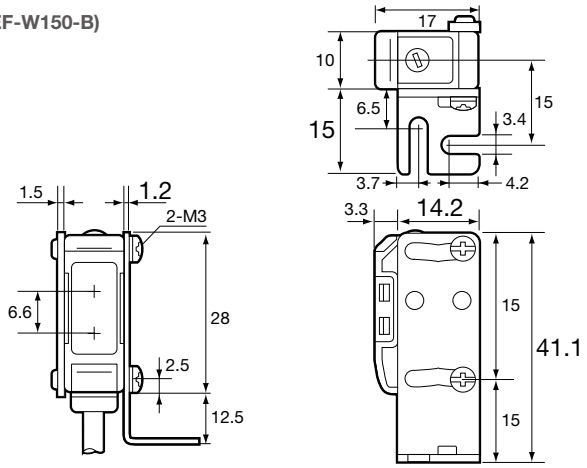
■ Connector type



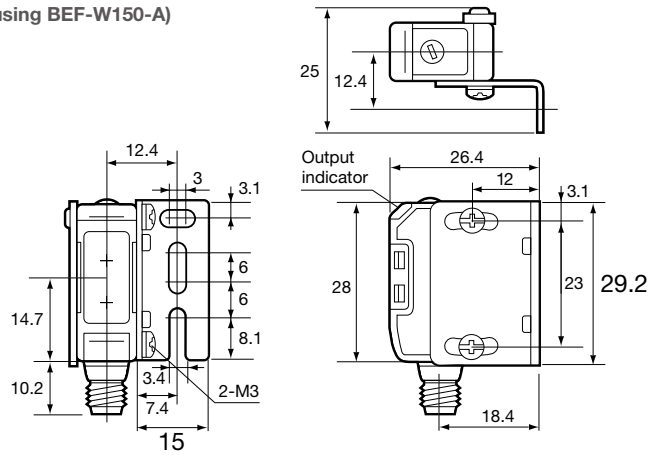
SR-Q series with mounting bracket

(Unit: mm)

Cable type (when using BEF-W150-B)

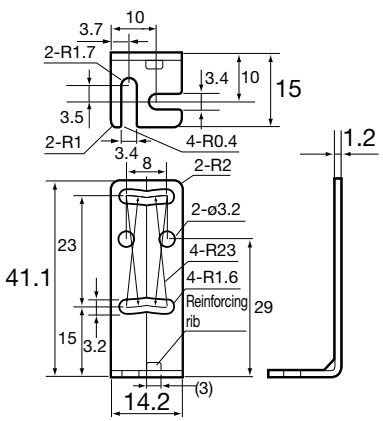


Connector type (when using BEF-W150-A)

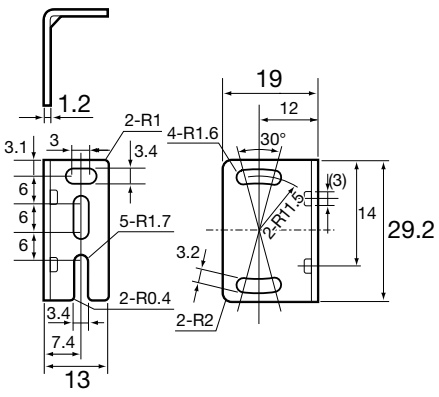


Mounting bracket (included)

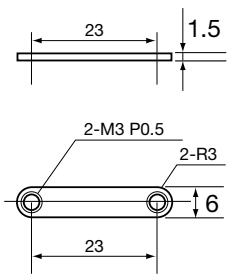
BEF-W150-B (included with sensor)



BEF-W150-A (optional)



Nut plate (included)



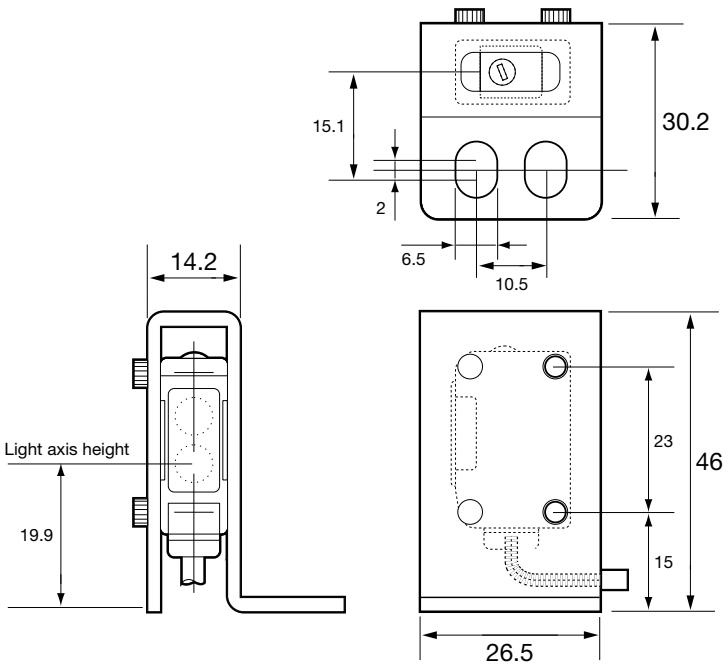
Dimensions

SR-Q series with protective mounting bracket

(Unit: mm)

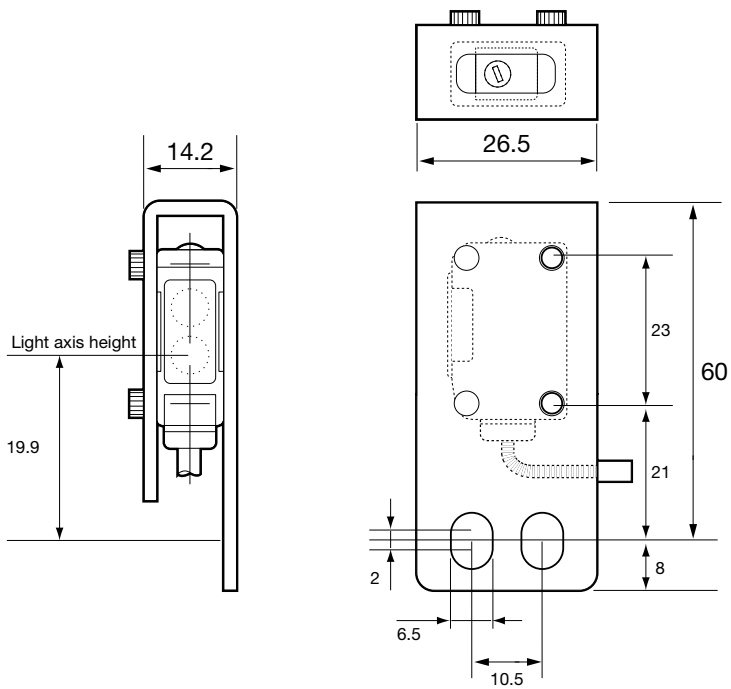
■ **LS-S01**

t = 2



■ **LS-S02**

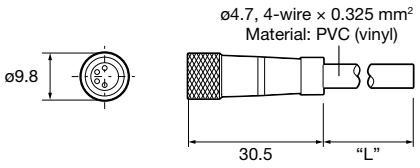
t = 2



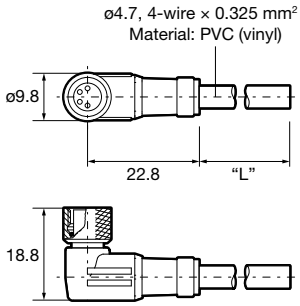
Connector cable (optional)

(Unit: mm)

■ JCN-S, JCN-5S, JCN-10S

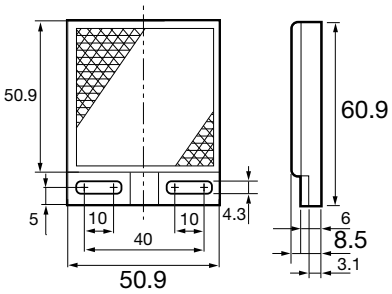


■ JCN-L, JCN-5L, JCN-10L

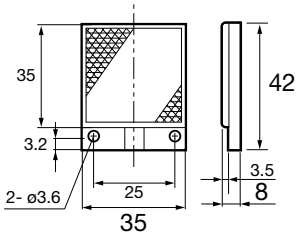


Reflector

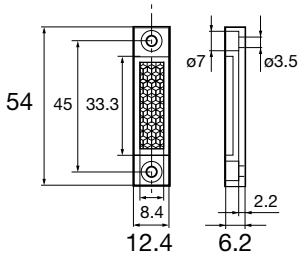
■ V-61: Standard type reflector (included)



■ V-42: Small reflector (optional)

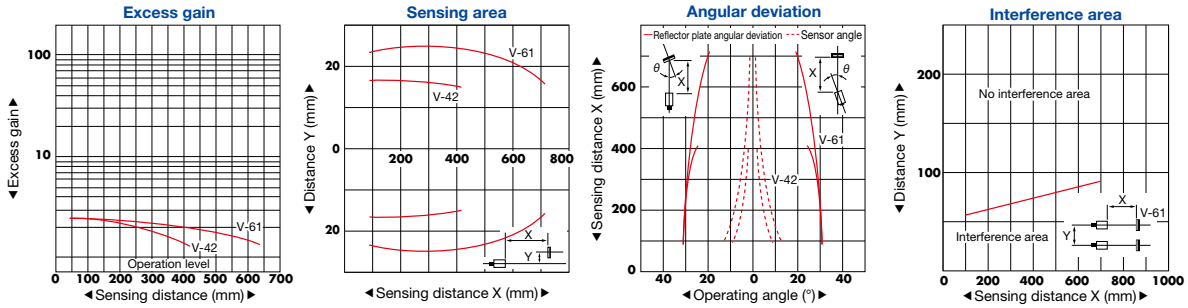


■ P45A: Vertical type reflector (optional)

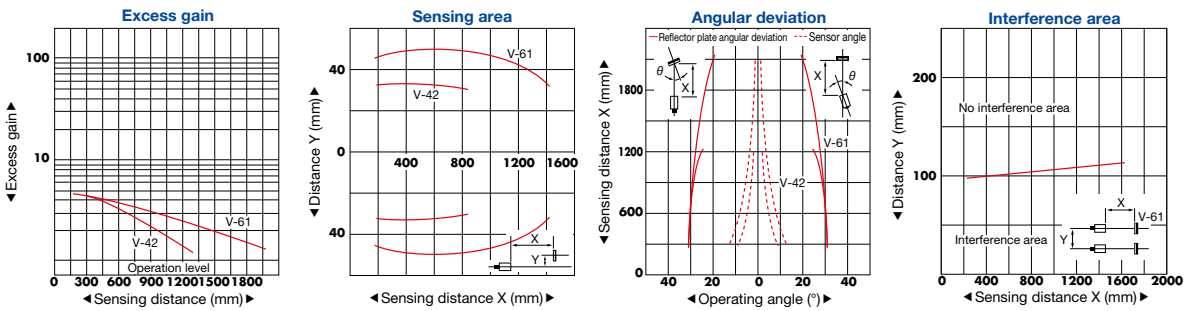


Typical characteristic data

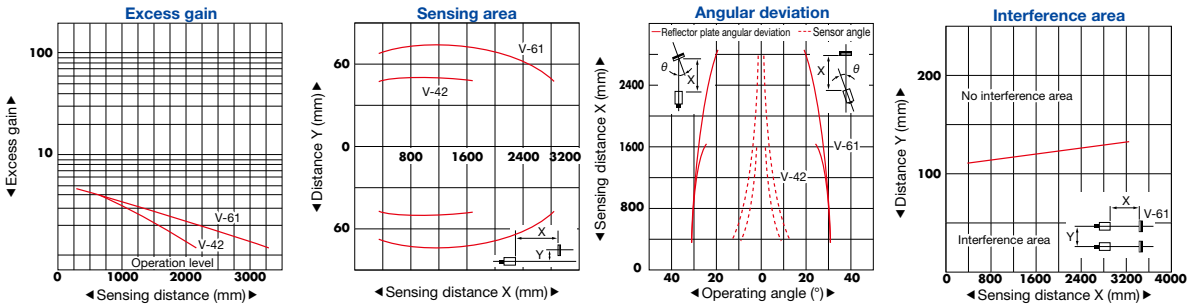
KR-Q50□W



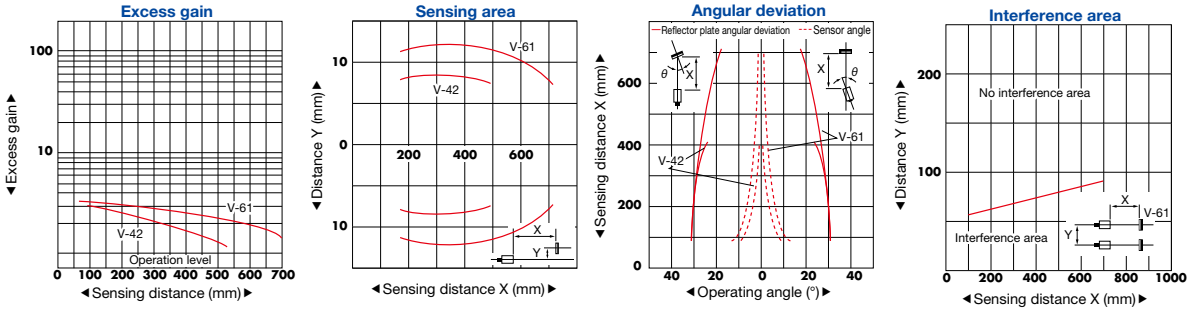
KR-Q150□W



KR-Q300□W

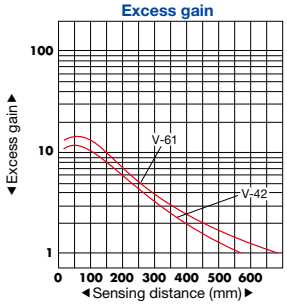


KR-Q50□

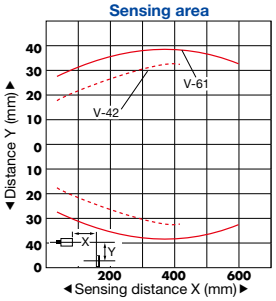


SR-Q50□W

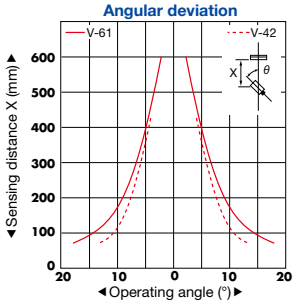
Excess gain



Sensing area



Angular deviation



Interference area