

412

Stainless protector/Small type
KR-Q, SR-Q series



Industry's standard of transparent object detection sensor

- | Stable detection even at close distances
- | **LED light**
- | **Thin design** which makes detecting through gaps possible

Related products

Digital laser type DR-Q ● P.396	Low cost type Z3R-Q ● P.404
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Selection table

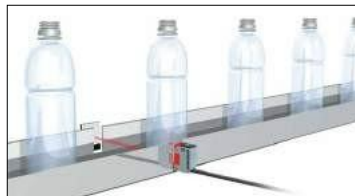
Type	Shape	Sensing distance	Model (Models in parentheses are connector types)	
			NPN type	PNP type
Transparent object detection		10 to 500 mm	KR-Q50NW (KR-Q50CNW)	KR-Q50PW (KR-Q50CPW)
		0.01 to 1.5 m	KR-Q150NW (KR-Q150CNW)	KR-Q150PW (KR-Q150CPW)
		0.01 to 2.5 m	KR-Q300NW (KR-Q300CNW)	KR-Q300PW (KR-Q300CPW)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



Stainless protector/Small type KR-Q, SR-Q series

Stable detection even at close distances

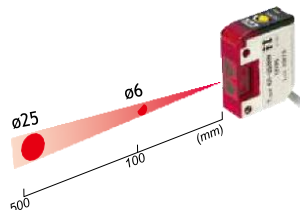
Built-in QX circuit (KR-Q50NW)

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

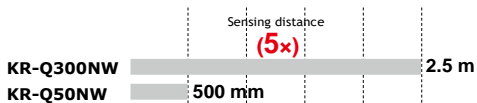
The red spot is always clear, without being influenced by the distance adjustment. The reflector shines in red when light axes match, greatly improving work efficiency.



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.



Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

Transparent Object Sensors

DR-Q

Z3R-Q, ZR-QX

KR-Q, SR-Q

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 x 50.9 mm

Small type



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

Vertical type



P45A
20% of sensing distance
54 x 12.4 mm

Protective mounting bracket

For KR-Q series



LK-S01



LK-S02

For SR-Q series



LS-S01



LS-S02

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

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Stainless protector/Small type **KR-Q, SR-Q** series

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 Connector type	SR-Q50NW SR-Q50CNW
	PNP	Cable type Connector type	SR-Q50PW 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

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DR-Q

Z3R-Q, ZR-QX

KR-Q, SR-Q

Stainless protector/Small type KR-Q, SR-Q series

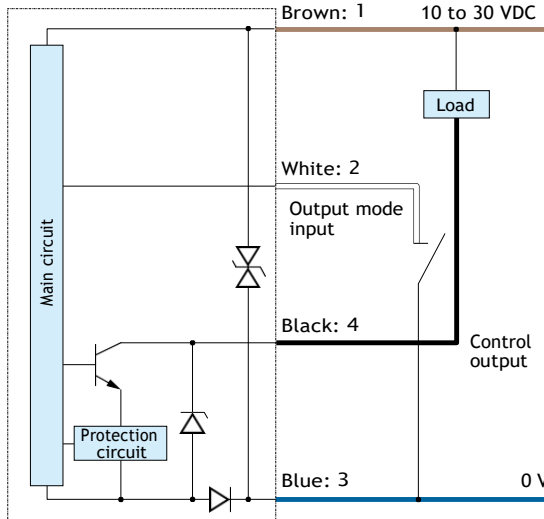
Distance adjustment

Retro-reflective type	Diagram	Potentiometer	Indicators	Adjustment procedure
			ON (Red) (Orange)	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.

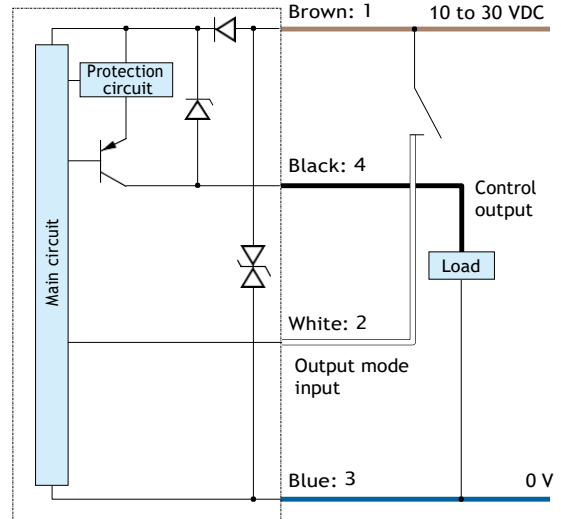
*When Dark ON is set by SR-Q, the indicator (orange) is inverted.

I/O circuit diagram

NPN output type



PNP output type



Connector type

(Pin configuration)

Sensor side Connector cable side



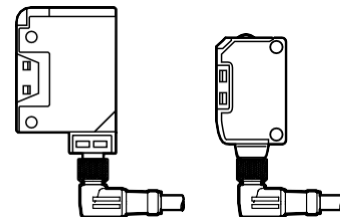
- 1 10 to 30 VDC
- 2 Not connected/
+V: Light ON (NPN)
0 V: Dark ON
- 3 0 V
- 4 Control output

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.

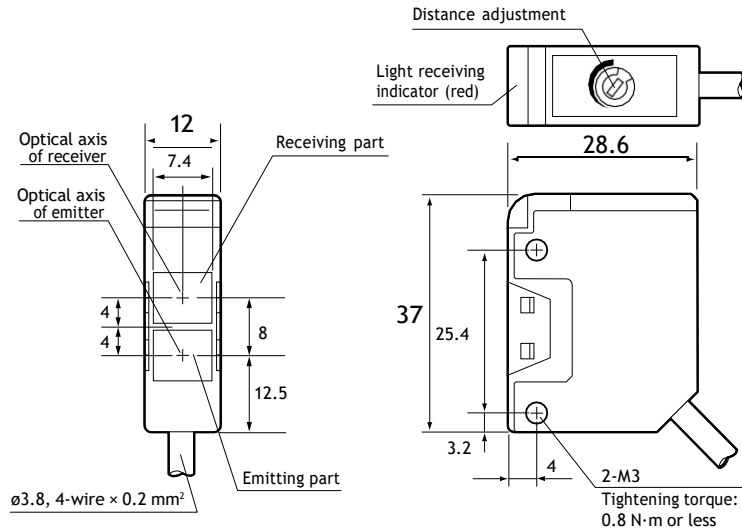


(Unit: mm)

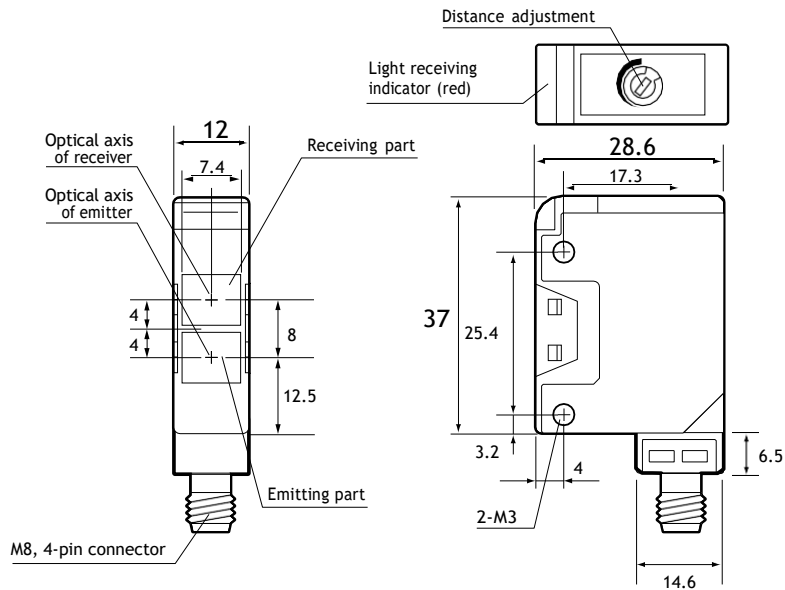
Dimensions

KR-Q series

Cable type



Connector type



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DR-Q

Z3R-Q, ZR-QX

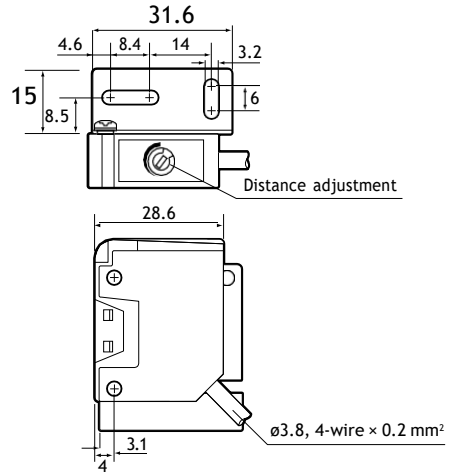
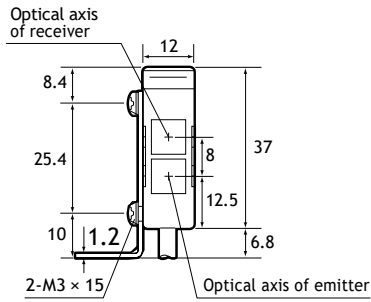
KR-Q, SR-Q

Stainless protector/Small type KR-Q, SR-Q series

Dimensions

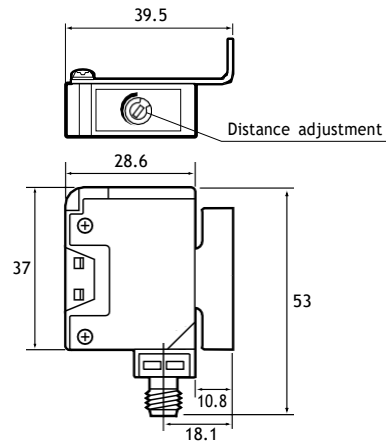
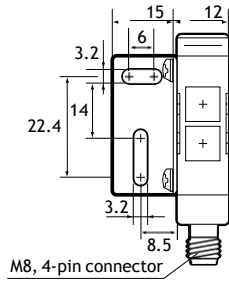
KR-Q with mounting bracket

Cable type



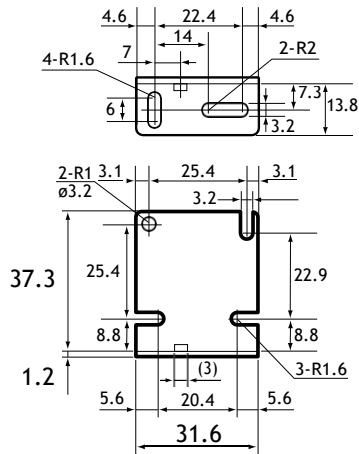
(Unit: mm)

Connector type



Mounting bracket (included)

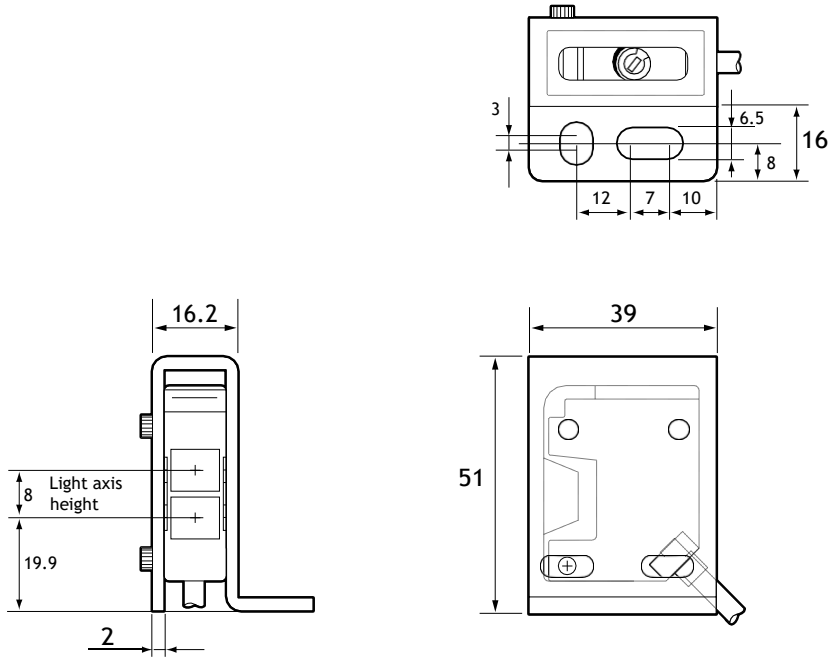
BEF-W170



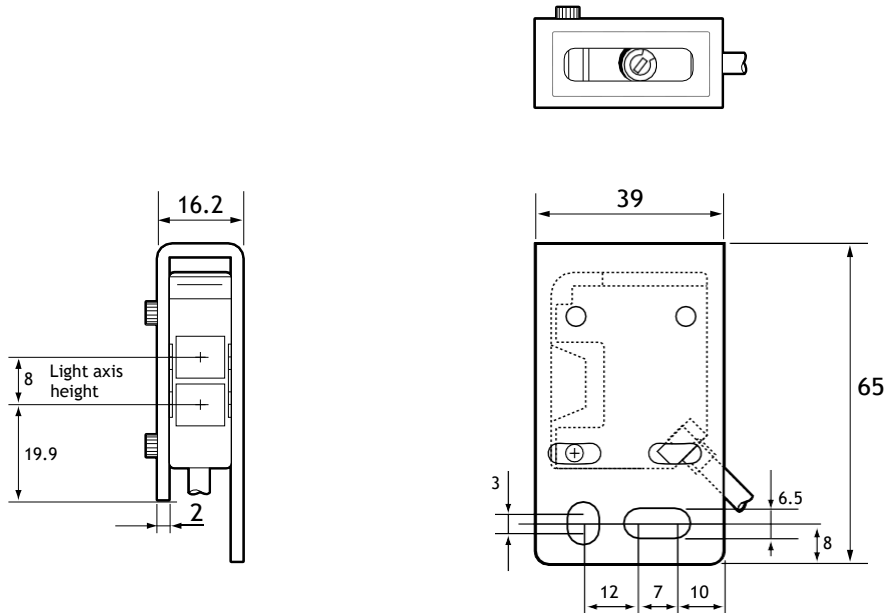
KR-Q series with protective mounting bracket

(Unit: mm)

LK-S01



LK-S02



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DR-Q

Z3R-Q, ZR-QX

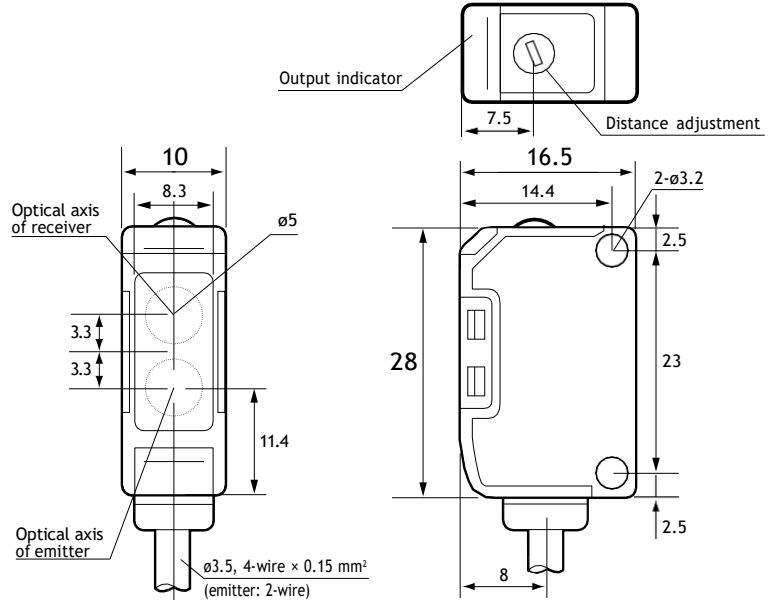
KR-Q, SR-Q

Dimensions

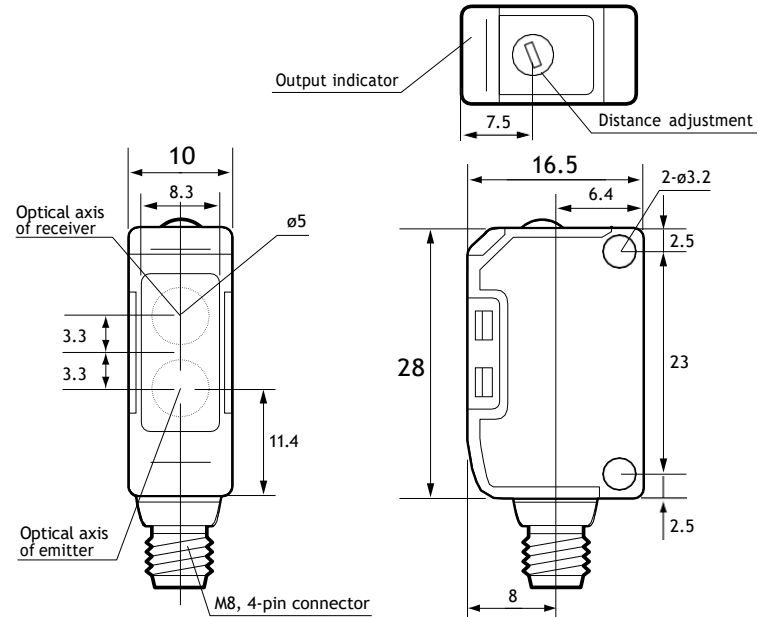
SR-Q series

(Unit: mm)

▮ Cable type



▮ Connector type



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DR-Q

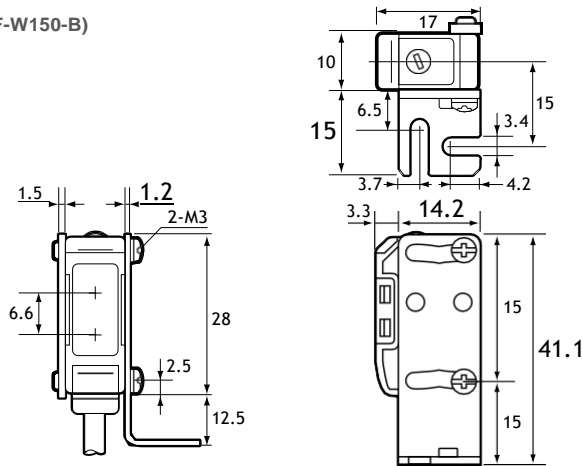
Z3R-Q, ZR-QX

KR-Q, SR-Q

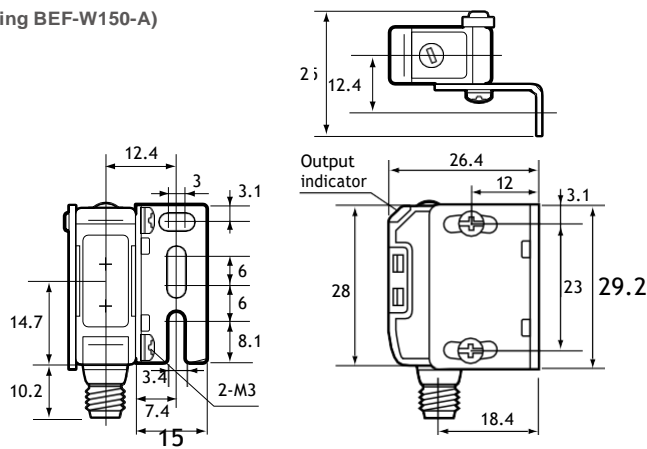
(Unit: mm)

SR-Q series with mounting bracket

▣ Cable type (when using BEF-W150-B)

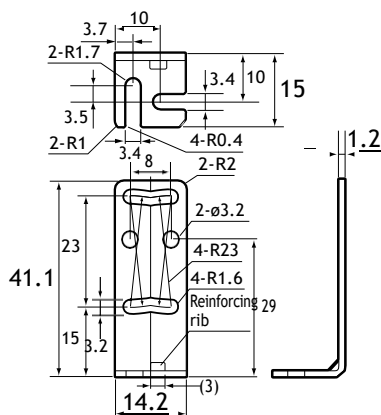


▣ Connector type (when using BEF-W150-A)

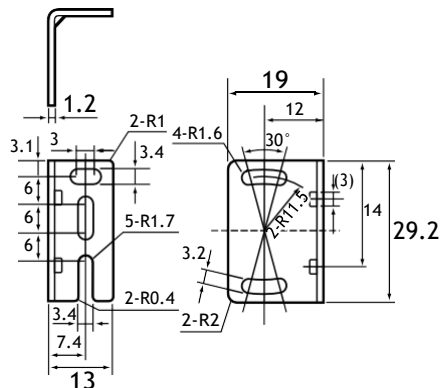


Mounting bracket (included)

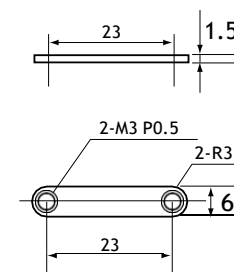
▣ BEF-W150-B (included with sensor)



▣ BEF-W150-A (optional)



▣ Nut plate (included)



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KR-Q, SR-Q

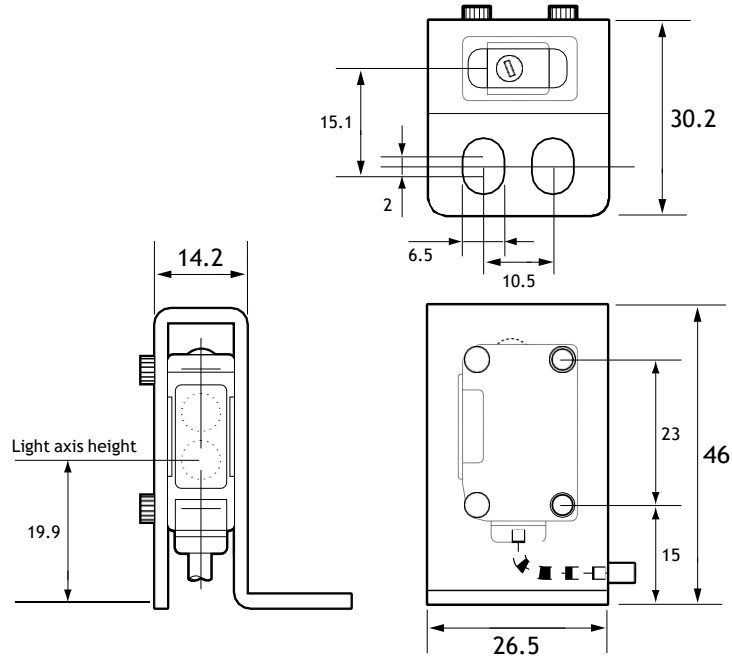
Stainless protector/Small type **KR-Q, SR-Q** series

Dimensions

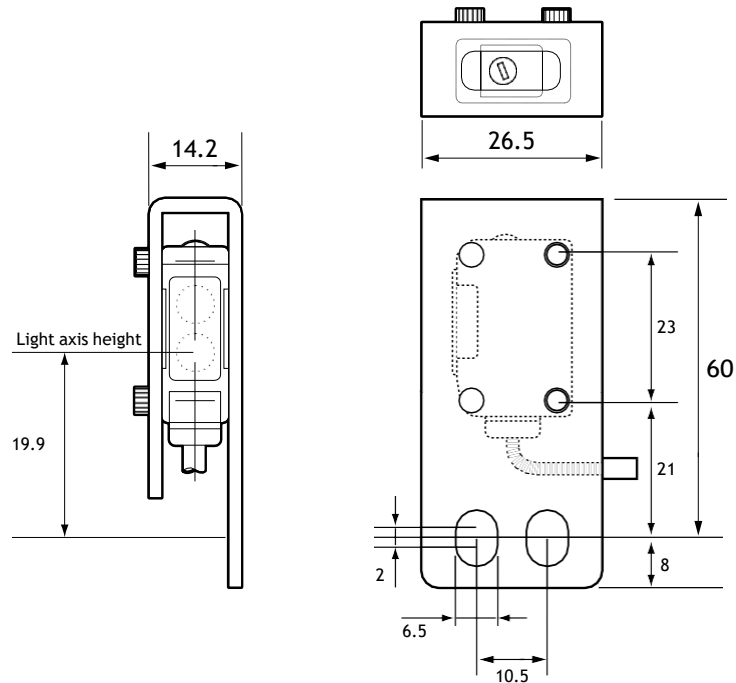
SR-Q series with protective mounting bracket

(Unit: mm)

▣ **LS-S01**
t = 2

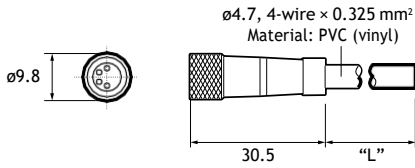


▣ **LS-S02**
t = 2

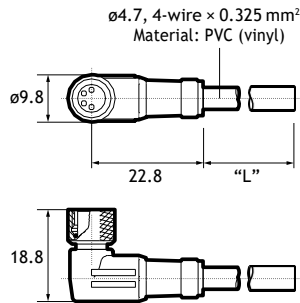


Connector cable (optional)

▣ JCN-S, JCN-5S, JCN-10S



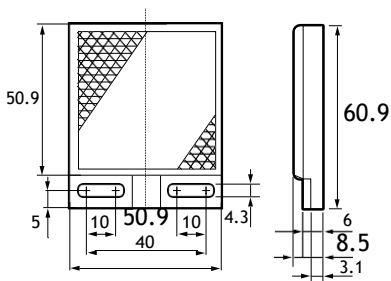
▣ JCN-L, JCN-5L, JCN-10L



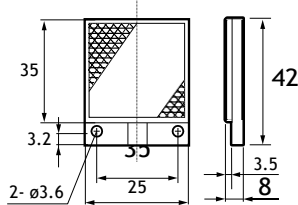
(Unit: mm)

Reflector

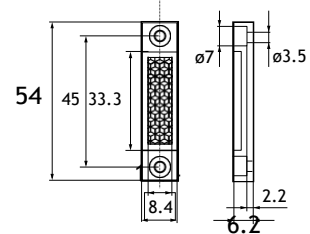
▣ V-61: Standard type reflector (included)



▣ V-42: Small reflector (optional)



▣ P45A: Vertical type reflector (optional)



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KR-Q, SR-Q

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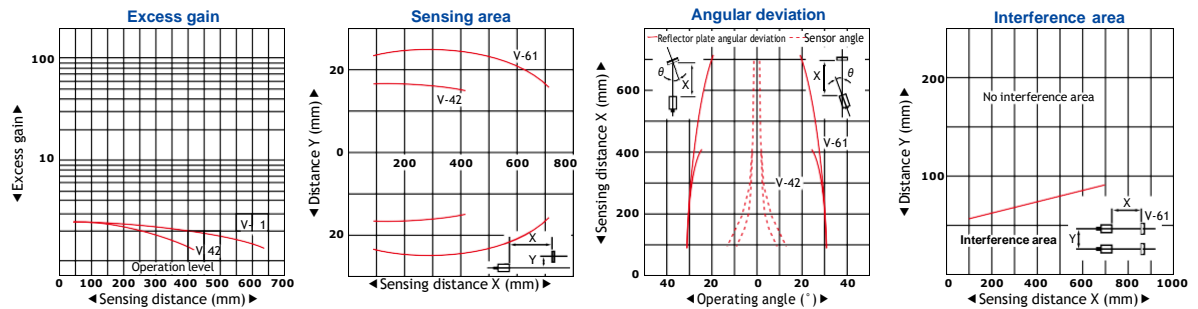
DR-Q

Z3R-Q, ZR-QX

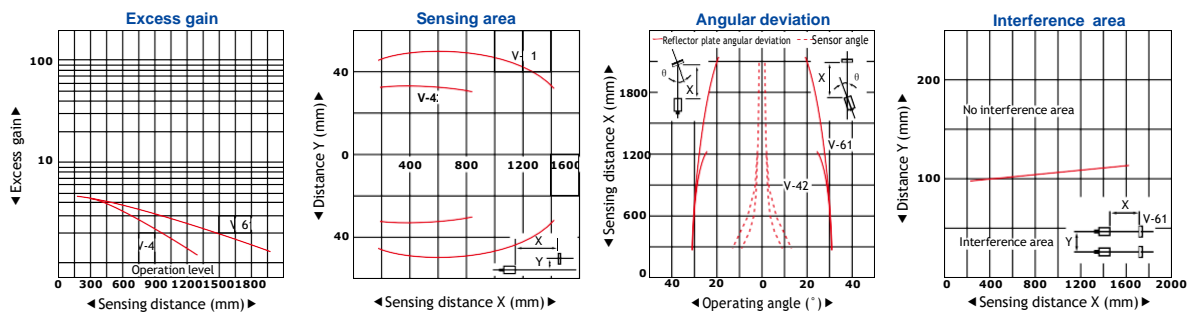
KR-Q, SR-Q

Typical characteristic data

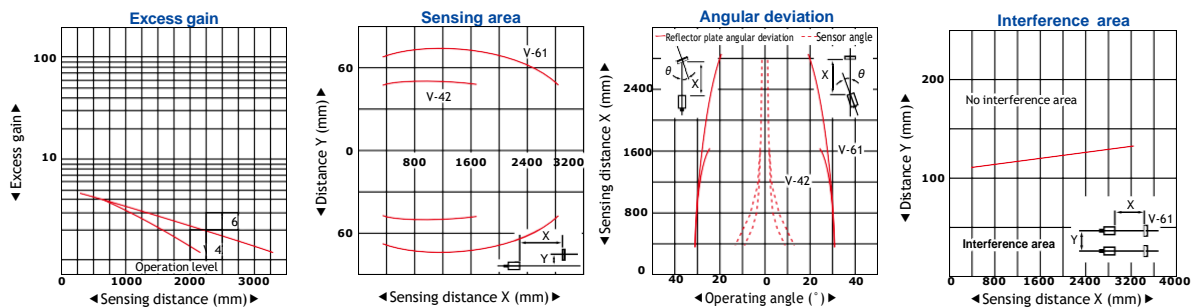
KR-Q50□W



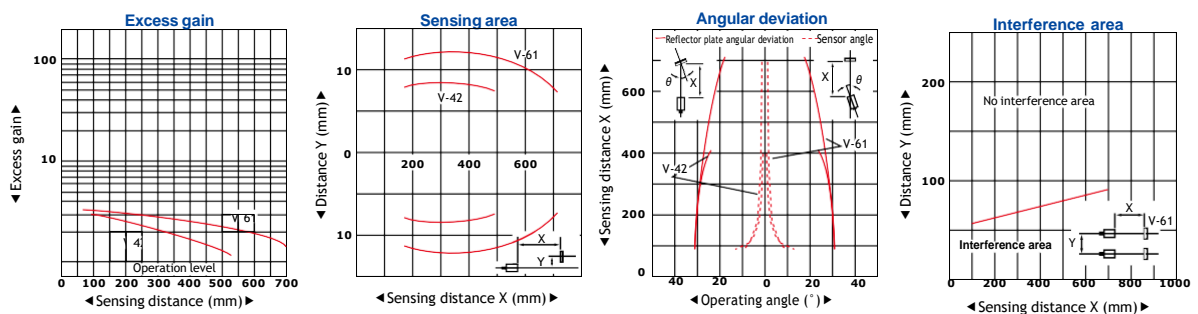
KR-Q150□W



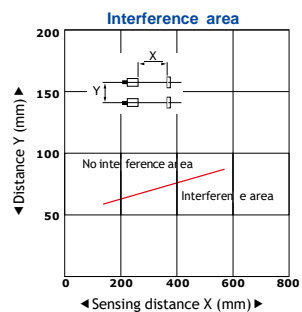
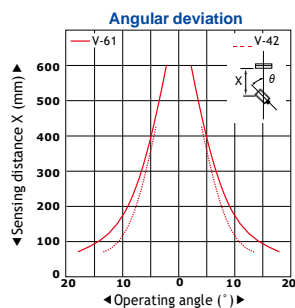
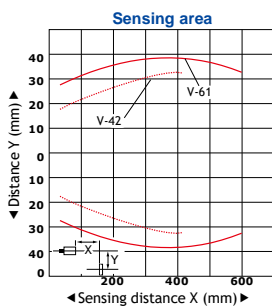
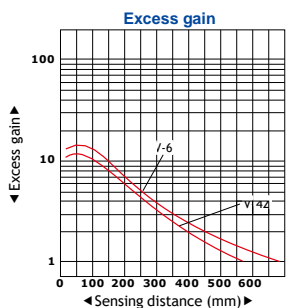
KR-Q300□W



KR-Q50□



SR-Q50□W



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