

298

Long range type

**D** series



# Long range laser photoelectric sensor!

- | Sensing distance: 40 m (through-beam type)
- | Response time: 0.5 ms or less
- | Larger laser spot

Related products

Transparent object detection

**DR-Q**  
● P.396



C-MOS laser

**BGS-DL**  
● P.318

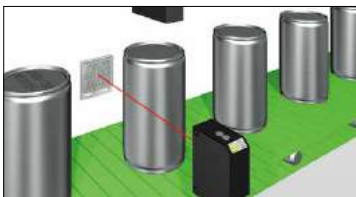


Color/mark detection

**DM**  
● P.426



Triggering for printer



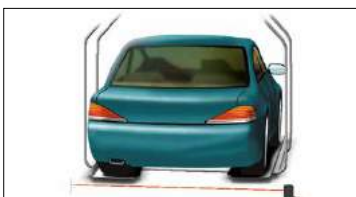
Vehicle checks on final assembly lines



Confirmation of retort pouch food arrival



Confirmation of vehicle stopping position in a parking lot



## Selection table

Type	Shape	Sensing distance	Model (Models in parentheses are connector types)	
			NPN type	PNP type
Laser through-beam		0 to 40 m	<b>DT-4000N</b> (DT-4000CN)	<b>DT-4000P</b> (DT-4000CP)
Laser coaxial retro-reflective		0 to 5 m	<b>DR-500N</b> (DR-500CN)	<b>DR-500P</b> (DR-500CP)
Laser transparent object detection		0 to 1.5 m	<b>DR-Q150TN</b> (DR-Q150TCN)	<b>DR-Q150TP</b> (DR-Q150TCP)
		0 to 4 m	<b>DR-Q400TN</b> (DR-Q400TCN)	<b>DR-Q400TP</b> (DR-Q400TCP)
C-MOS laser		5 to 100 mm (40 to 100 mm)	<b>BGS-DL10TN</b> (BGS-DL10TCN)	<b>BGS-DL10TP</b> (BGS-DL10TCP)
		20 to 250 mm (100 to 250 mm)	<b>BGS-DL25TN</b> (BGS-DL25TCN)	<b>BGS-DL25TP</b> (BGS-DL25TCP)

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

## Options/Accessories

### Reflector

Standard (included)



**P250F**  
Sensing distance: 0 to 5 m  
61 × 51 mm  
Included with retro-reflective type

Small (optional)



**PL20F**  
Sensing distance: 0 to 3 m  
60 × 20 mm

Ultra-small (optional)



**PL10F**  
Sensing distance: 0 to 1 m  
32 × 20 mm

### Connector cables

Straight



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

L-shaped



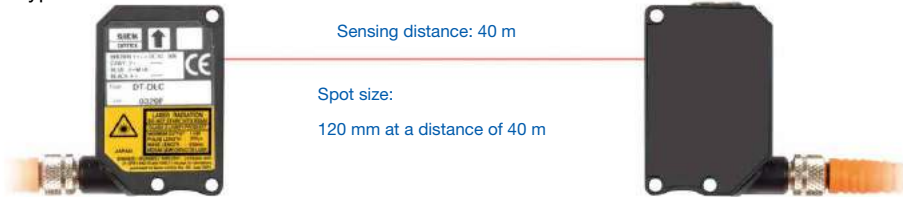
**JCN-L**  
Cable length: 2 m  
**JCN-5L**  
Cable length: 5 m  
**JCN-10L**  
Cable length: 10 m



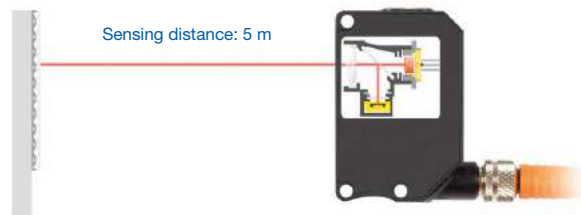
**Achieves long distance, high-accuracy detection**  
**Sensing distance: 40 m (through-beam type)**

Features a sensing distance of 40 m, one of the longest for small photoelectric sensors. Employs red lasers (Class 2) as the light source to enable highly precise positioning detection.

Through-beam type



Coaxial retro-reflective type



**Easy adjustment of light axis**

☉ **Larger laser spot**

Features a larger laser spot for easier light axis adjustments. Because the spot light can be confirmed visually, detection position adjustments can be performed quickly.



Small spot type  
**Z-L** series ○ **P.272**  
**DS** series ○ **P.280**

**For high-speed lines**

☉ **Response time: 0.5 ms**

Features one of the top response times for laser photoelectric sensors in the industry. This feature makes detection in high speed production line possible.

Long range type **D** series

## Specifications

Type		Through-beam type	Retro-reflective type	
Model	NPN	Cable type	<b>DT-4000N</b>	<b>DR-500N</b>
		Connector type	<b>DT-4000CN</b>	<b>DR-500CN</b>
	PNP	Cable type	<b>DT-4000P</b>	<b>DR-500P</b>
		Connector type	<b>DT-4000CP</b>	<b>DR-500CP</b>
Sensing distance		40 m	0 to 5 m (when reflector P250F is used)	
Light source		Red semiconductor laser Class 2 (IEC/JIS)* Wavelength: 650 nm Pulse width: 6 μs Maximum output: 2 mW		
Spot size		Approx. ø15 mm / at a distance of 5 m	Approx. ø20 mm / at a distance of 3.5 m	
Response time		0.5 ms		
Distance adjustment		1-turn potentiometer		
Indicators		Output indicator (orange LED) Laser emission indicator (green LED)		
Control output		NPN/PNP Open collector Max. 100 mA/30 VDC		
Output mode		Light ON / Dark ON selection switch		
Connection type		Cable type: Cable length: 2 m (ø4 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	40 mA or less	30 mA or less	
Applicable regulations		EMC directive (2004/108/EC) / FDA regulations (21 CFR 1040.10)		
Applicable standards		EN 60947-5-2		
Company standards		Noise resistance: Feilen Level 3 cleared		
Environmental resistance	Ambient temperature/humidity	-10 to +40°C / 35 to 95% RH (no freezing or condensation)		
	Ambient illuminance	Sunlight: 10,000 lx or less Incandescent light: 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. 50 G (500 m/s <sup>2</sup> ); 3 times in each of the X, Y, and Z directions		
	Degree of protection	IP67		
Material		Housing: ABS Lens front cover: PMMA		
Weight		Approx. 20 g (excluding cable)		
Included accessories		Mounting bracket: BEF-WK-190	Mounting bracket: BEF-WK-190 Reflector: P250F	

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

\*Classified as Class II in the US FDA standards.

## Laser light precautions

This product emits a Class 2 (II) visible laser beam that is compliant with JIS C6802/ IEC/FDA laser safety standards.

Warning and explanation labels are affixed to the sides of the sensor.

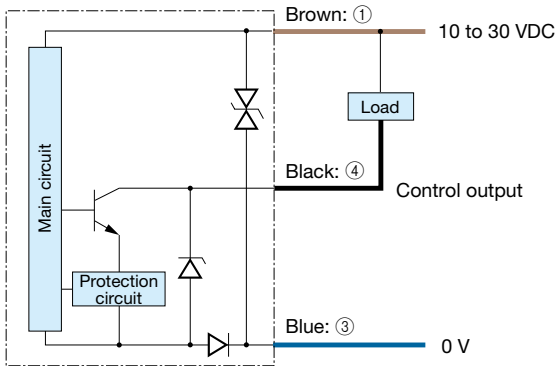


**Warning** Do not look directly at the laser or intentionally shine the laser in another person's eyes.

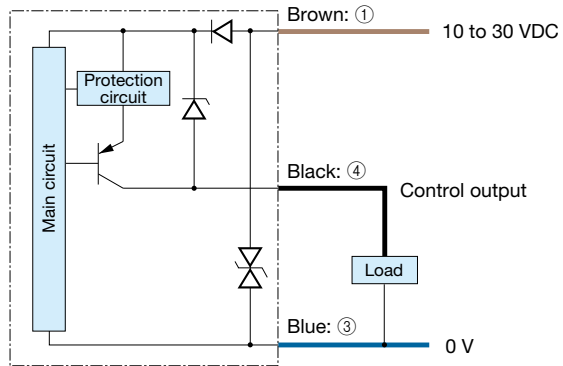


## Output circuit diagram

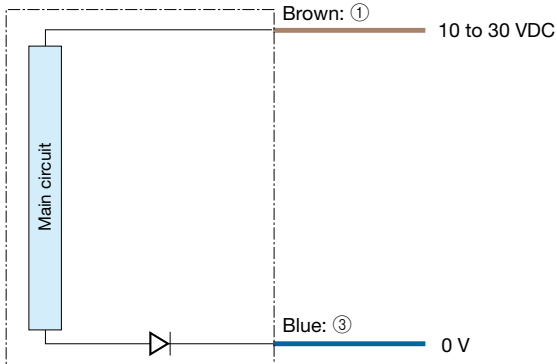
### NPN output type



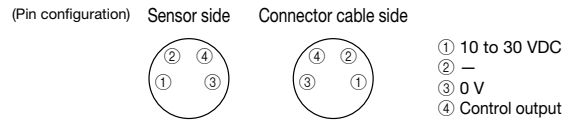
### PNP output type



### Through-beam type emitter



### Connector type

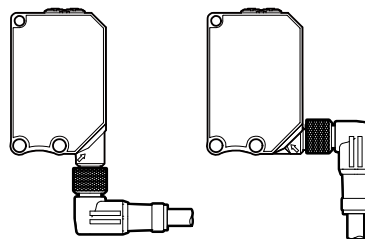


### Connecting

■ 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 the drawing below when you use L-shaped connector cable. Be aware that rotation is not possible.



Long range type **D** series

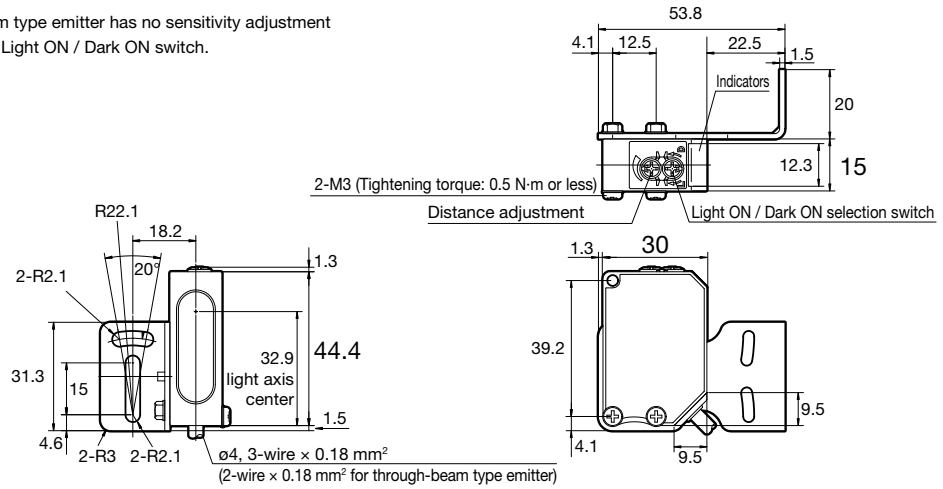
Dimensions

Cable type

(Unit: mm)

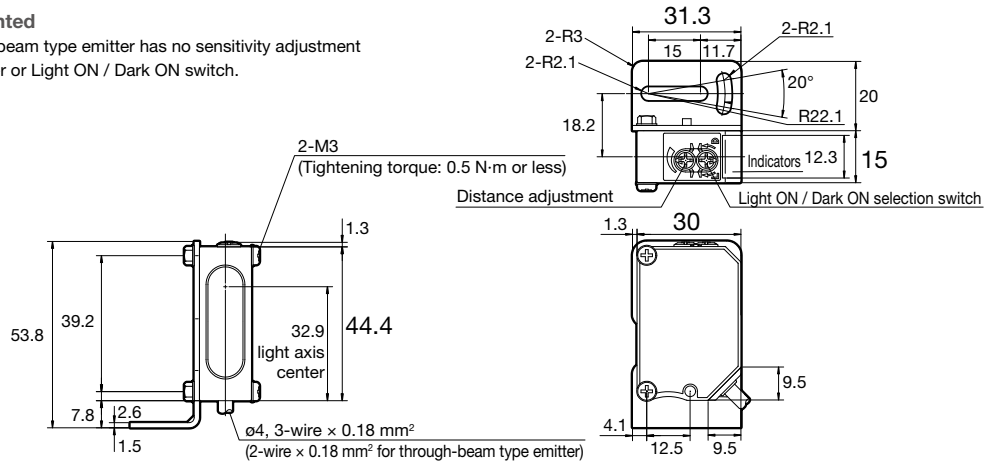
Wall-mounted

\*The through-beam type emitter has no sensitivity adjustment potentiometer or Light ON / Dark ON switch.



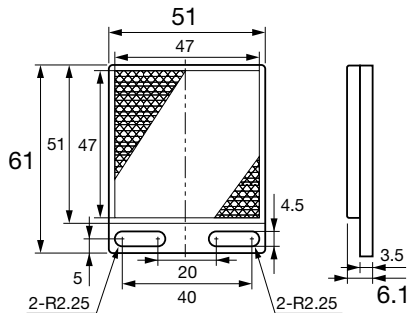
Floor-mounted

\*The through-beam type emitter has no sensitivity adjustment potentiometer or Light ON / Dark ON switch.

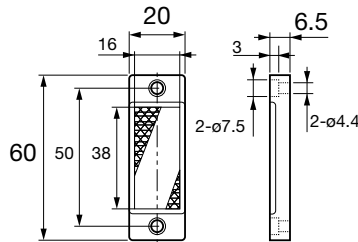


Reflector

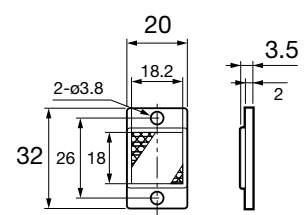
P250F Standard (included)



PL20F Small



PL10F Ultra-small

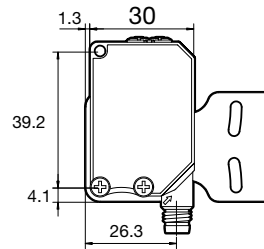
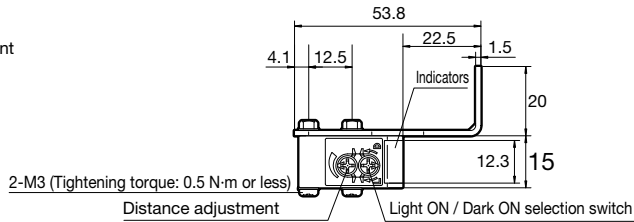
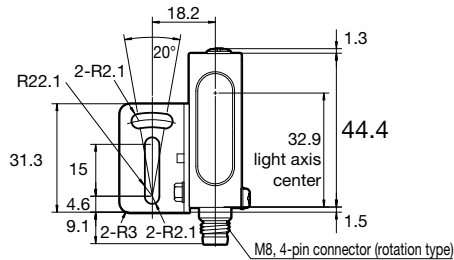


Connector type

(Unit: mm)

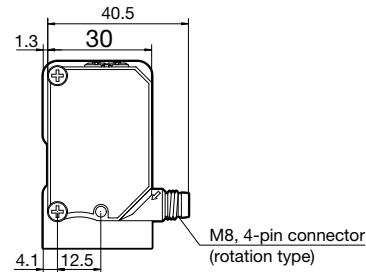
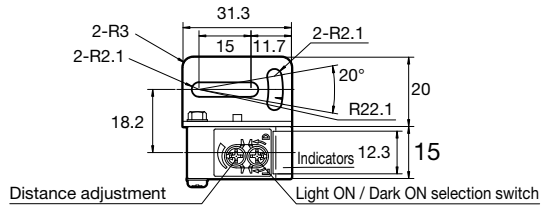
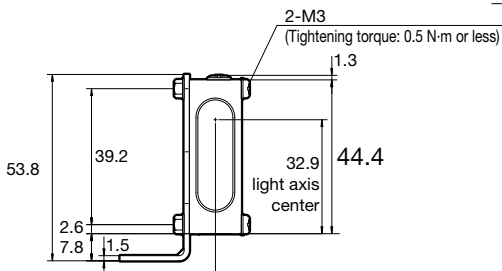
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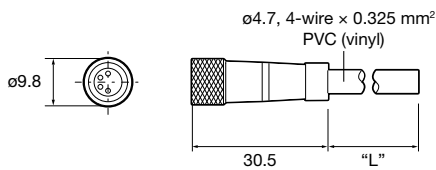
Floor-mounted

\*The through-beam type emitter has no sensitivity adjustment potentiometer or Light ON / Dark ON switch.



Connector cable (optional)

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



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

