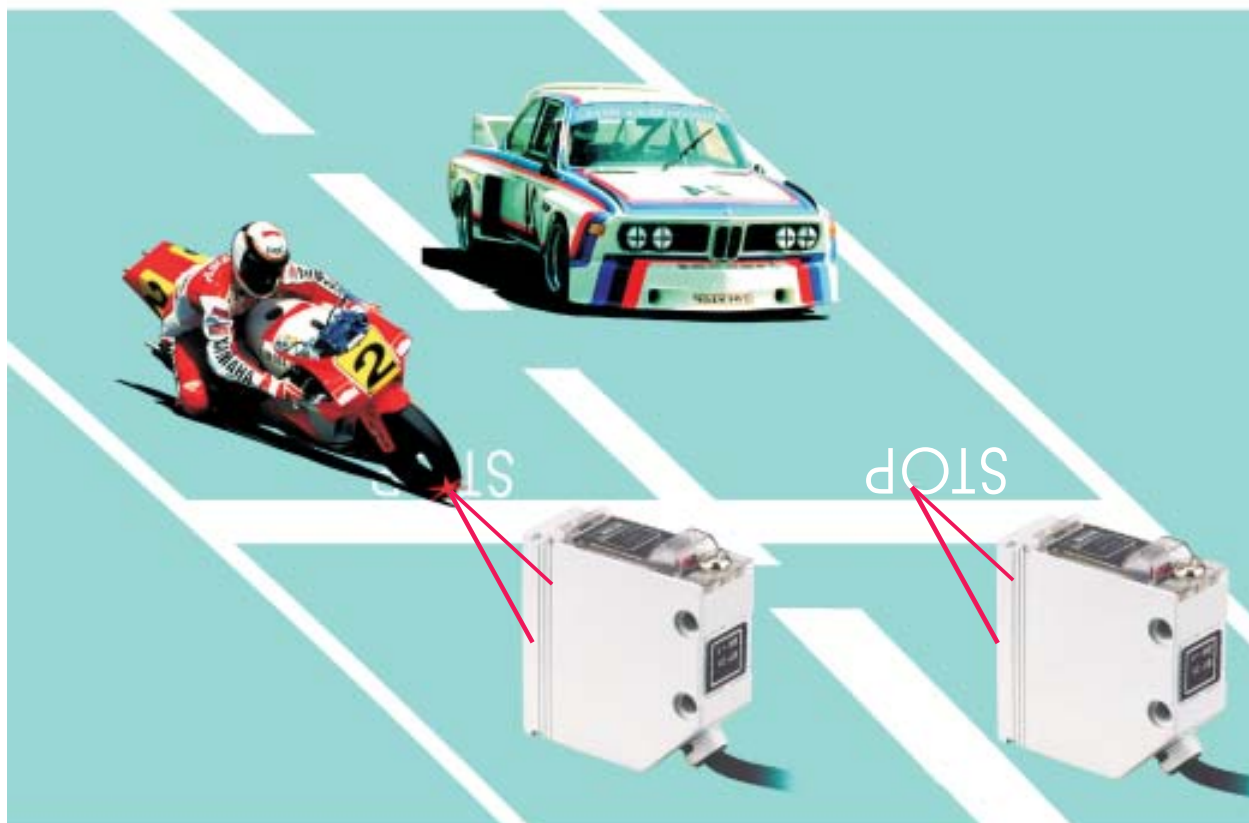


CP35 SERIES

Any target of any color and material can be detected at a consistent distance.....

- Advantage and application.....Q-01
- Order guide..... Q-02
- Options..... Q-03
- Specifications.....Q-04
- I/O circuit and wiring diagrams.....Q-05
- Sensing fields.....Q-06
- Precautions For Proper Use.....Q-07
- Dimensions.....Q-08~09

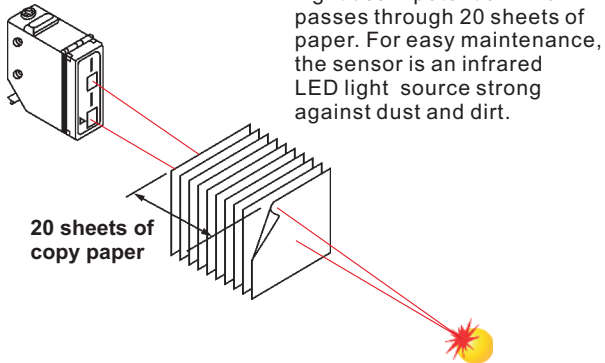


CP35 SERIES

PHOTOELECTRIC ADVANTAGE AND APPLICATION

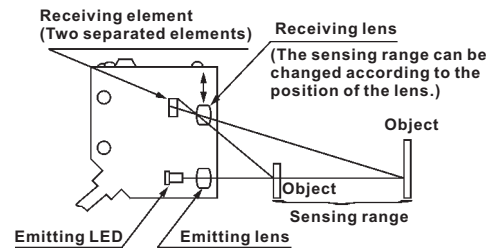
Advantage

Strong Light Beam



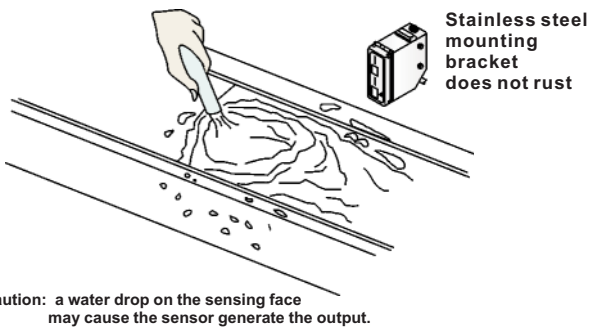
Optical systems

The sensing range that the sensor detects an object is settled by the incident beam angle regardless of the incident beam intensity.

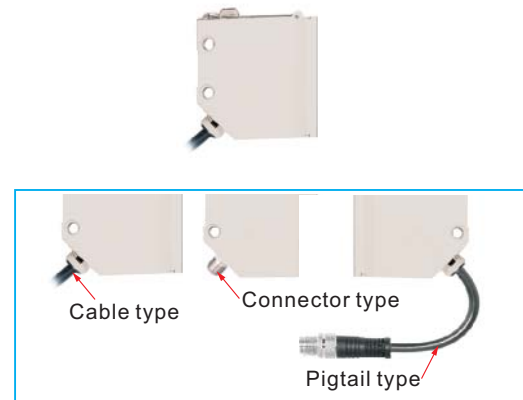


Waterproof

Achieves IP 67. The sensor can be put on machinery washed with water. The mounting bracket (option) is not corrosive as it is made of stainless steel material.

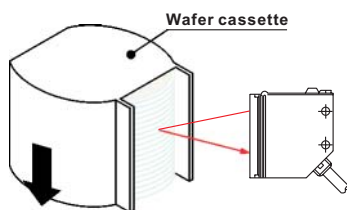


Three connecting ways

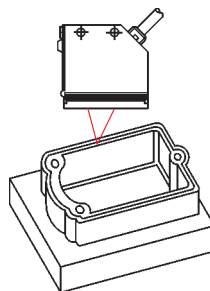


Application

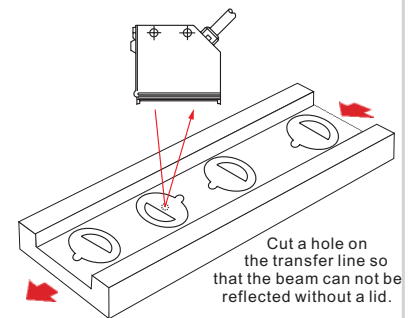
Wafer counting in cassette



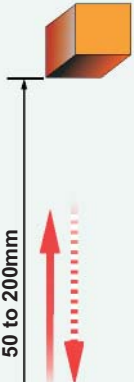

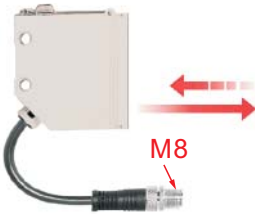
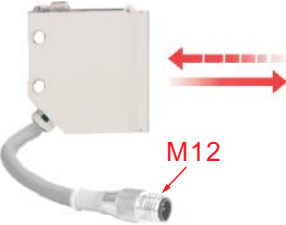

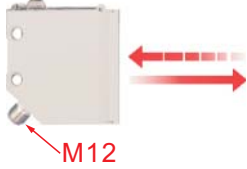
Detecting Gasket on Die-casting



Detecting lids of cups



Order guide

Sensing mode	Appearance	Supply voltage	OUTPUT MODE	Part Number
 <p>Diffuse mode sensing distance 50 to 200mm Red LED</p>		10 to 30V DC	NPN light-ON	CP35-D0200N-LX9C3U2
			NPN dark-ON	CP35-D0200N-DX9C3U2
			PNP light-ON	CP35-D0200P-LX9C3U2
			PNP dark-ON	CP35-D0200P-DX9C3U2
		10 to 30V DC	NPN light-ON	CP35-D0200N-LX9P4UP
			NPN dark-ON	CP35-D0200N-DX9P4UP
			PNP light-ON	CP35-D0200P-LX9P4UP
			PNP dark-ON	CP35-D0200P-DX9P4UP
		10 to 30V DC	NPN light-ON	CP35-D0200N-LX9P4UE
			NPN dark-ON	CP35-D0200N-DX9P4UE
			PNP light-ON	CP35-D0200P-LX9P4UE
			PNP dark-ON	CP35-D0200P-DX9P4UE
		10 to 30V DC	NPN light-ON	CP35-D0200N-LX9Q4UP
			NPN dark-ON	CP35-D0200N-DX9Q4UP
			PNP light-ON	CP35-D0200P-LX9Q4UP
			PNP dark-ON	CP35-D0200P-DX9Q4UP
		10 to 30V DC	NPN light-ON	CP35-D0200N-LX9Q4UE
			NPN dark-ON	CP35-D0200N-DX9Q4UE
			PNP light-ON	CP35-D0200P-LX9Q4UE
			PNP dark-ON	CP35-D0200P-DX9Q4UE

CP35

SERIES

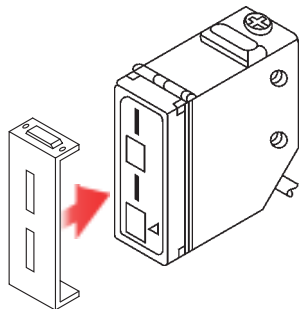
PHOTOELECTRIC

ORDER GUIDE(OPTIONAL)

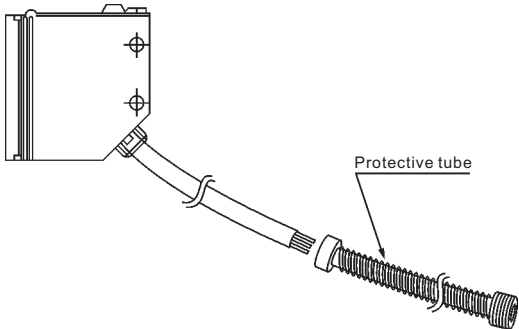
Order guide

Narrow-view slit mask

RS-3.0x24



Protective tube



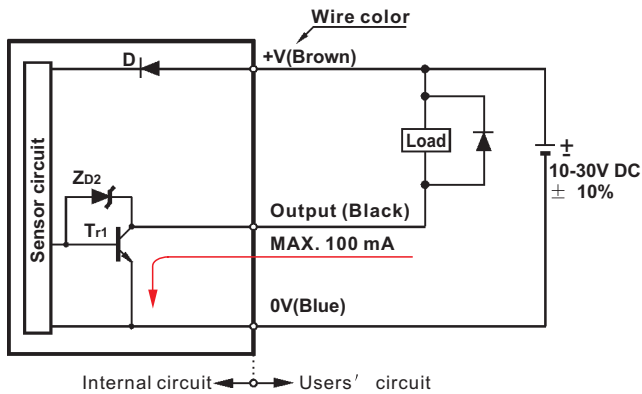
Designation	Model No.	Description		
Narrow-view slit mask	RS-2.5x24	Slit size	2.5x24mm	The sensing view is narrowed laterally so that the sensor detects an object precisely.
	RS-3.0x24		3.0x24mm	
	RS-3.5x24		3.5x24mm	
Protective tube	PT-RP500	Length	500mm	Cable is protected from external forces. It does not rust because of stainless steel.
	PT-RP1000		1000mm	

Specification

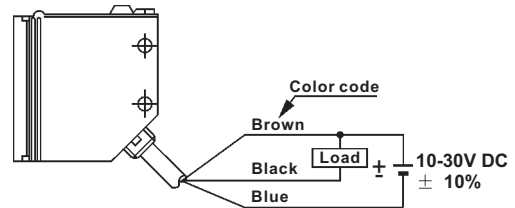
Item	Type	NPN output type	PNP output type
	Model No.	CP35-D0200N-xX9xxUx	CP35-D0200P-xX9xxUx
Sensing distance		50 to 200 mm (to 5x5cm, non-glossy white paper)	
Detectable target		More than 3x3cm	
Hysteresis		Less than 10% of sensing distance (to 5X5 cm, non-glossy white paper)	
Repeat accuracy		Axial direction: 1mm, Lateral direction to beam axis: 0.5mm to 5x5cm, non-glossy white paper	
Power source		10 to 30V DC $\pm 10\%$ Ripple P-P: Less than 10%	
Current consumption		Less than 40mA	
Sensing output		NPN open-collector transistor Sink current : Max. 100mA Applied voltage: Max. 30V DC Residual voltage: Less than 1.0V at 100mA sink current Less than 0.4V at 16mA sink current	PNP open-collector transistor Source current : Max. 100mA Residual voltage: Less than 1V at 100mA source current Less than 0.4V at 16mA source current
Output operation		Light-ON/Dark-ON selectable with selection switch	
Short-circuit protection		Incorporated	_____
Response time		Less than 1 ms	
Operation indicator		Red LED(illuminates when output is ON state)	
Stability indicator		Green LED(illuminates under stable light intensity condition or stable insufficient light intensity condition)	
Distance adjuster		Two revolution mechanical adjustor	
Environmental resistance	Protection	IP 67	
	Ambient temperature	-25 to +60°C (No dew condensation or icing allowed), storage: -30 to +70°C	
	Ambient humidity	35 to 85 % RH	
	Extraneous light	Sunlight: 10000 lx at the light receiving face, Incandescent light: 3000 lx at the light-receiving face.	
	Noise	Power line: 240Vp with 0.5us pulse duration, Radiation: 600Vp with 0.5us pulse duration (by noise simulator)	
	Dielectric	1000 V AC applied between live parts and enclosure for 1 min.	
	Insulation	More than 20M Ω applied between live parts and enclosure at 250V DC	
	Vibration	1.5mm amplitude at frequency of 10 to 500Hz in each of X, Y and Z directions for 3 times each in power OFF state	
Shock		500m/s ² (approx.50G) impulse in each of X, Y and Z directions for 2 hours each in power OFF state.	
Emitting element		Infrared LED (modulated)	
Material		Enclosure: Zinc die casting, Cover: Polyethersulphone, Lens: Polycarbonate	
Cable		0.15mm ² x3cores with 1m of cabtyre cable.	
Cable extension		Up to 100m using more than 0.3mm ² cable	
Pigtail and connector		M8 (pico) 4pin+6" cable; M12(Euro) 4pin+6" cable.	
Weight		85g approx.	
Accessories		MS-RP-1, MS-RP-2, PT-RP500, PT-RP1000, RS-2.5x24, RS-3.0x24, RS-3.5x24	

NPN output type

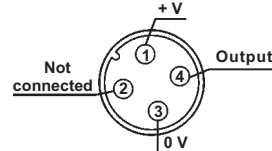
I/O circuit diagram



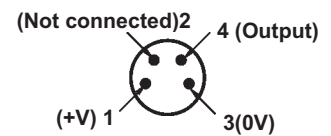
Symbol...D: Reverse polarity protection diode.
Tr1: NPN output transistor.



M12 connector type

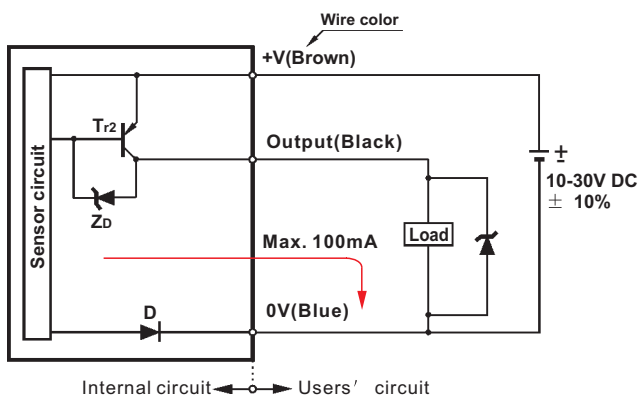


M8 connector type

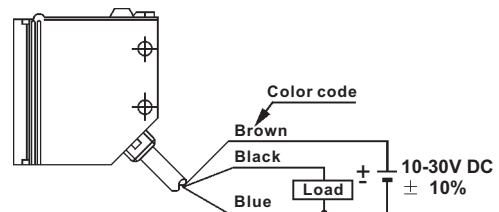


PNP output type

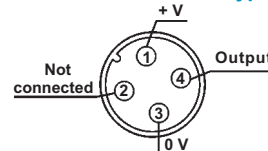
I/O circuit diagram



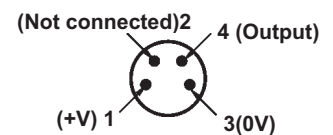
Symbol...Zd: Surge absorption zener diode.
Tr2: PNP output transistor.



M12 connector type



M8 connector type



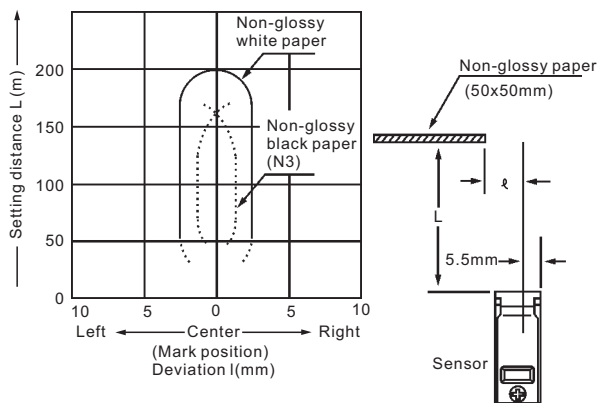
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SENSING FIELDS (TYPICAL)

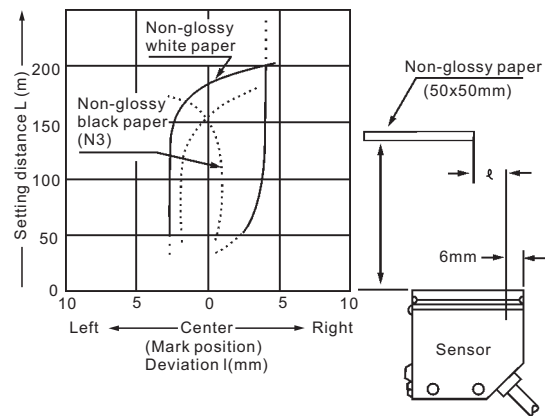
CP35 SERIES

The span adjuster is so adjusted that a non-glossy white paper of 50x50mm is detected at a 200mm distance.

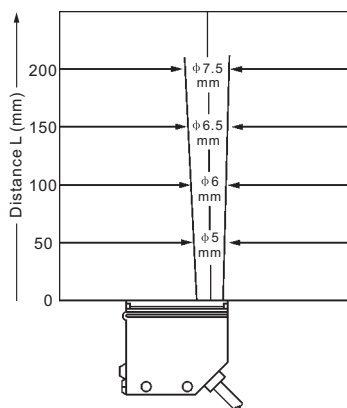
● Lateral approach



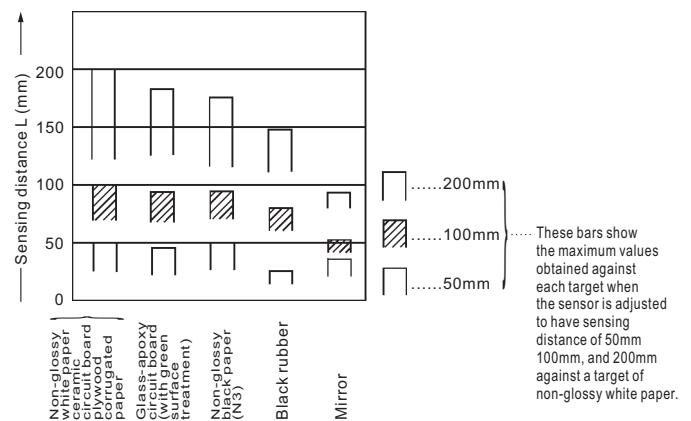
● Axial approach



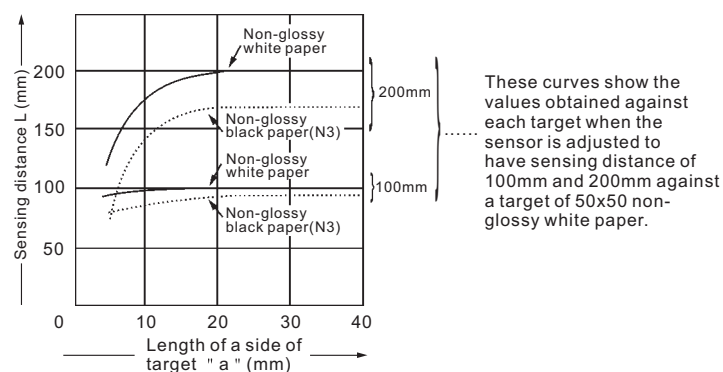
Light beam pattern



Material (50x50mm)---sensing distance correlation



Target size-sensing distance correlation

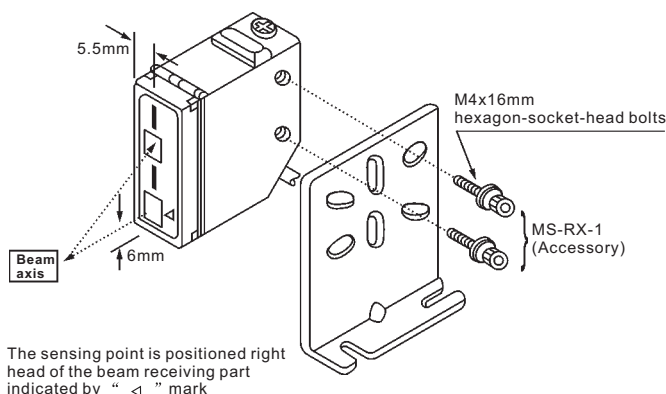




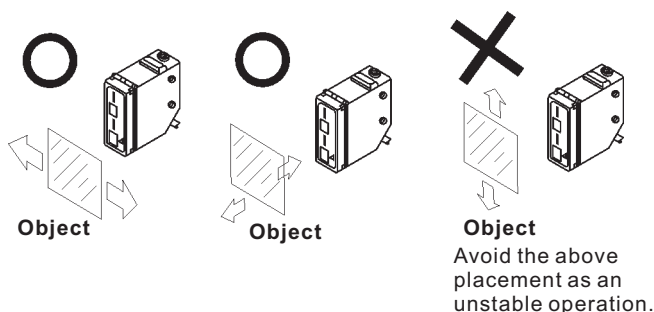
This product is not a safety sensor designed to intend to protect life and prevent bodily injury or property damage from dangerous parts of machinery, but a normal object detection sensor.

Mounting

- The tightening torque should be $1.17\text{N} \cdot \text{m}$ {12kgf · cm} or less.



- Before installing the sensor, make sure of the traveling direction of objects to attitude of the sensor facing to them.



- With a specular sensing object such as an aluminum foil or a copper foil, or a glossy object polished or coated, the detectability may become unsteady by only a small change of the facing angle to the object.
- If there is a specular material facing the sensor even at a distance, it may affect the detectability. In that case, tilt the sensor to avoid the reflection on it.
- If there is a specular material or the like beyond a target object, the sensor may be affected by its angle change. In that case, tilt the sensor to avoid the reflection on the background changeable in angle and make sure of the detectability with the target object.
- Do not install the sensor near to an object less than 50mm because of the unstable detecting range.

Wiring

The CP35 series does not incorporate a short-circuit protection at the output. Do not connect it directly to a power source or a capacitive load.

Others

The transient time duration is 50ms after power-up.

Adjustment of sensing distance

Adjustors revolution indicator

(The reading shows a reference for the number of revolutions.)

Sensing distance
(Sensing distance shortens if turned clockwise.)

Operation mode selection switch

L: output turns ON in the light-receiving state.
D: output turns ON in the light-breaking state.
(Turn the switch until it completely stops.)

Operation indicator
(Glow in the output ON state.)

Stability indicator

(Glow when the light-receiving state or light-breaking state is stable.)

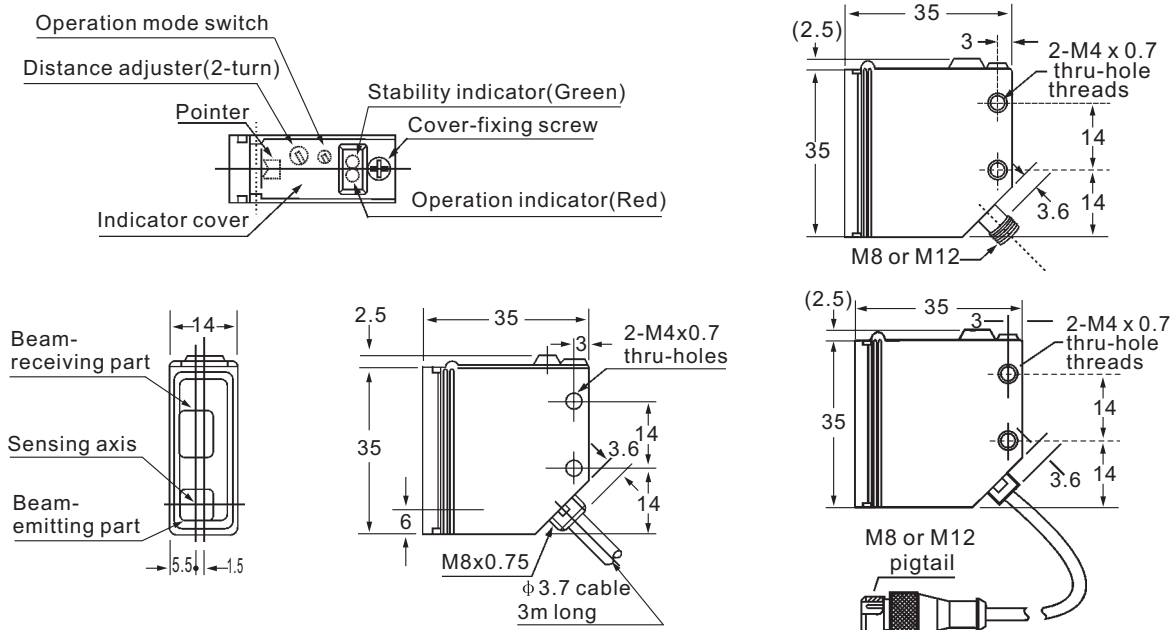
How to adjust

1	Turn the distance adjuster counterclockwise fully to the minimum distance of approx. 50m. (Do not turn excessively.)	Turn
2	Locate your sensing object at the place that you expect the sensor to detect. Turn the adjuster gradually clockwise and find out the point A where the sensor goes into the light condition.	A
3	Remove the object. Turn the adjuster clockwise until the sensor goes into the light condition again. Once it switches on, turn the adjuster back a little until the sensor goes into the dark condition where the point B is identified. If the sensor does not go into the Light condition over the scale without the object, the point B shall be identified as the maximum point in the scale.	B A
4	Settle the adjuster at the center between the point A and B as the optimum sensing point to detect your object.	B A

DIMENSIONS (Unit: mm)

Dimensions

CP35-D0200N-xX9xxUx, CP35-D0200P-xX9xxUx



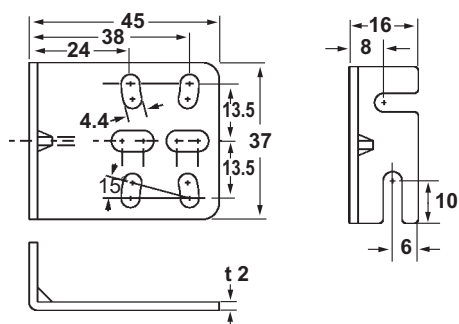
MS-RP-1



Sensor mounting bracket

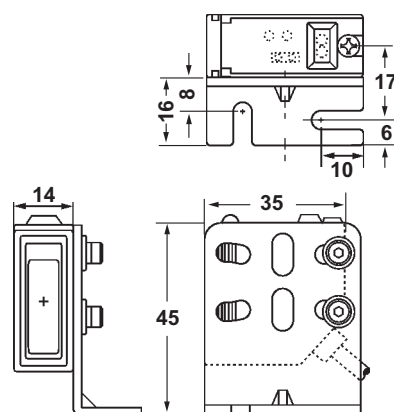
Assembly dimensions

1.



Material: Cold rolled carbon steel(spcc)
Two M4(length 16mm)hexagon-socket-head bolts are attached.

2.



CP35 SERIES

PHOTOELECTRIC DIMENSIONS(Unit: mm)

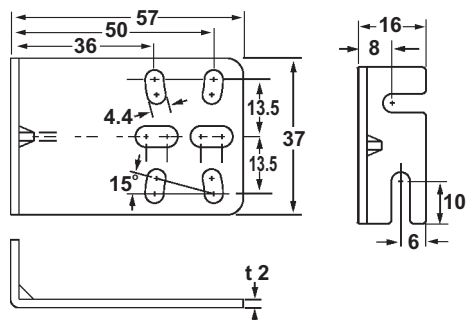
■ Dimensions

MS-RP-2



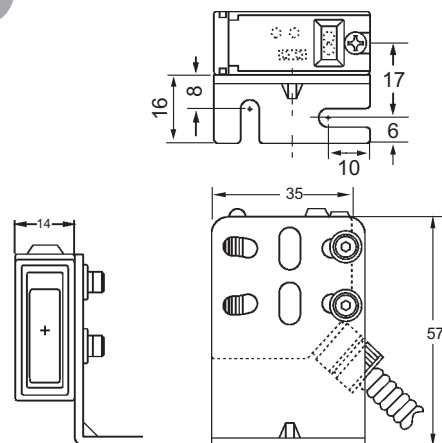
Assembly dimensions

1. Sensor mounting bracket

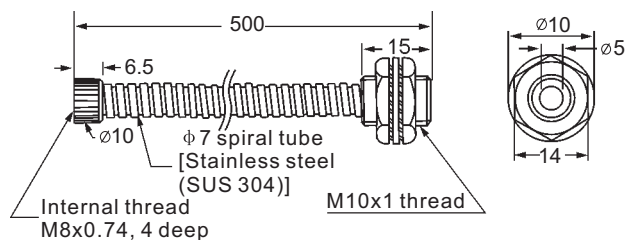


Material: Cold rolled carbon steel(spcc)Two M4(length 16mm) hexagon-socket-head bolts are attached.

2.



PT-RP500



PT-RP1000

