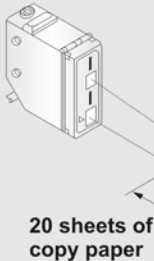


Advantage & Applications

Advantage

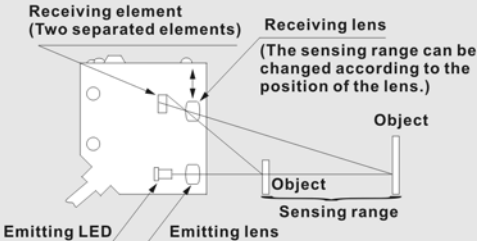
Strong Light Beam



CP35 series offers a strong light beam potential which passes through 20 sheets of paper. For easy maintenance, the sensor is an infrared LED light source strong against dust and dirt.

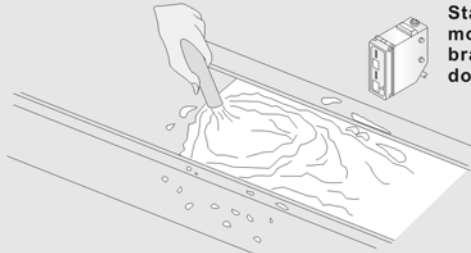
Optical systems

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



Waterproof

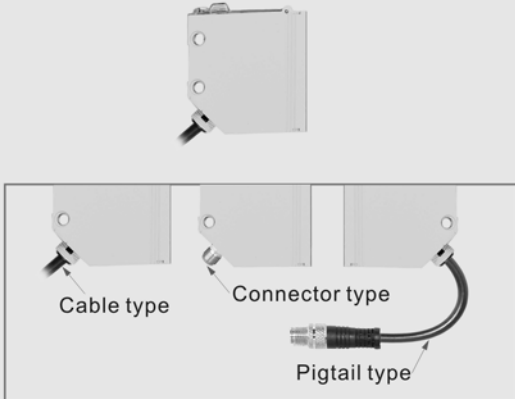
Achieves IP 67. The sensor can be put on machinery washed with water. The mounting bracket (option) is not corrosive as it is made of stainless steel material.



Stainless steel mounting bracket does not rust

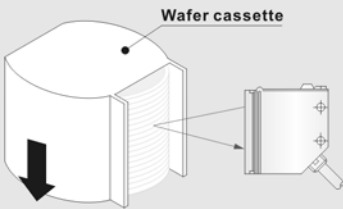
Caution: a water drop on the sensing face may cause the sensor generate the output.

Three connecting ways

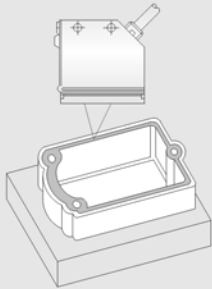


Applications

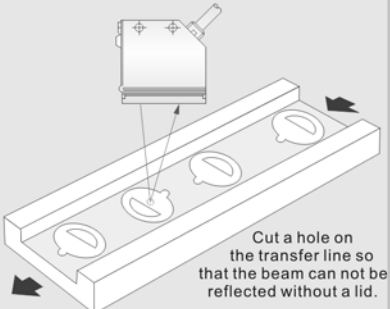
Wafer counting in cassette



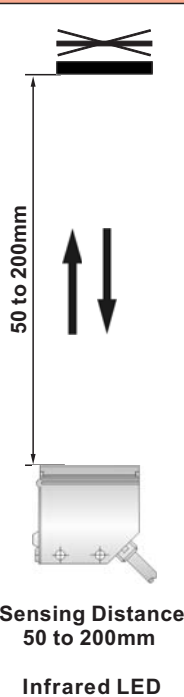



Detecting Gasket on Die-casting



Detecting lids of cups



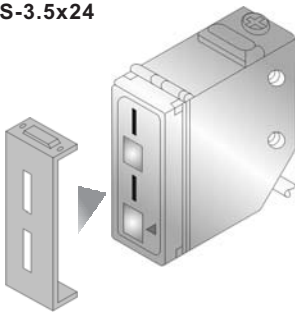
Diffuse Mode with Background Suppression

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
 <p>50 to 200mm</p> <p>Sensing Distance 50 to 200mm</p> <p>Infrared LED</p>	2m Cable 	10-30V DC	NPN	GP35-D0200N-CY9C3U2-BS
			PNP	GP35-D0200P-CY9C3U2-BS
	Quick Disconnect (Pico-Style) 	10-30V DC	NPN	GP35-D0200N-CY9Q4UP-BS
			PNP	GP35-D0200P-CY9Q4UP-BS
	6" Pigtail (Pico-Style) 	10-30V DC	NPN	GP35-D0200N-CY9P4UP-BS
			PNP	GP35-D0200P-CY9P4UP-BS

Options

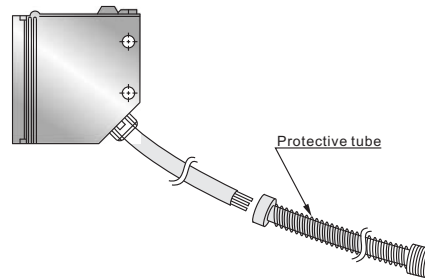
Narrow-view slit mask(optional)

RS-2.5x24
RS-3.0x24
RS-3.5x24



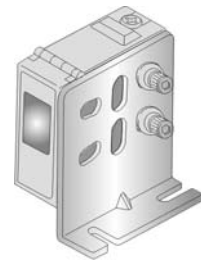
Protective tube (optional)

PT-RP500 / PT-RP1000



Sensor mounting bracket

MB-4537 (optional)



Two M4 hexagon-socket-head bolts are attached.

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	

Note:

In Preparation: Part numbers with a line through the middle

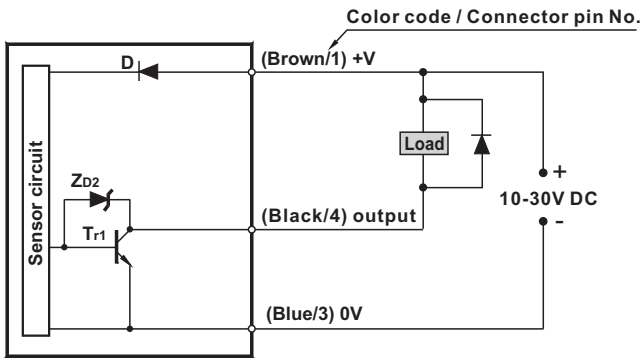
Specifications

Type		Diffuse Mode with Background Suppression			
		NPN output type	PNP output type		
Item	Model No.	CP35-D0200N-CY9xxUx-BS	CP35-D0200P-CY9xxUx-BS		
Sensing distance		50 to 200 mm (with 50x50mm non-glossy white paper)			
Detectable target		More than 30x30mm			
Hysteresis		Less than 10% of sensing distance			
Repeat accuracy		Axial direction: 1mm, Lateral direction to beam axis: 0.5mm to 5x5cm, non-glossy white paper			
Power source		10 to 30V DC 10% Ripple P-P 10% or less			
Current consumption		Less than 40mA			
Sensing output		NPN open-collector transistor Sink current : Max. 100mA Applied voltage: Max. 30V DC Residual voltage: Less than 1.5V at 100mA sink current Less than 0.4V at 16mA sink current	PNP open-collector transistor Source current : Max. 100mA Applied voltage: Max. 30V DC 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, Storage: 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		See Pigtail Series or our Cables & Connectors catalogue.			
Weight		85g approx.			
Accessories		MS-RP-1, MS-RP-2, PT-RP500, PT-RP1000, RS-2.5x24, RS-3.0x24, RS-3.5x24			

Connection Diagrams

NPN output type

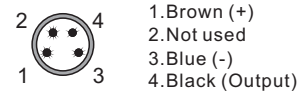
I/O circuit diagram



Symbol...D : Reverse polarity protection diode.
 ZD2: Surge absorption zener diode
 Tr1 : NPN output transistor.

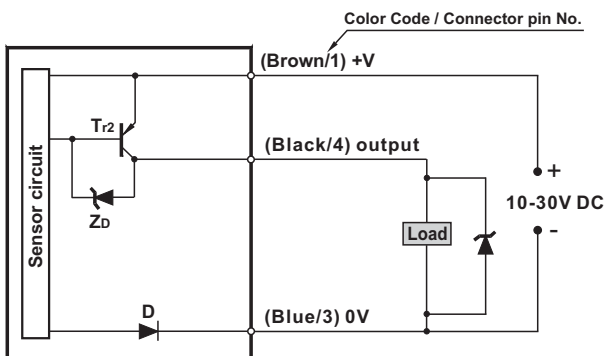
Connector pin position

Pico-Style



PNP output type

I/O circuit diagram



Symbol... D : Reverse supply polarity protection diode
 ZD: Surge absorption zener diode.
 Tr2: PNP output transistor.

Connector pin position

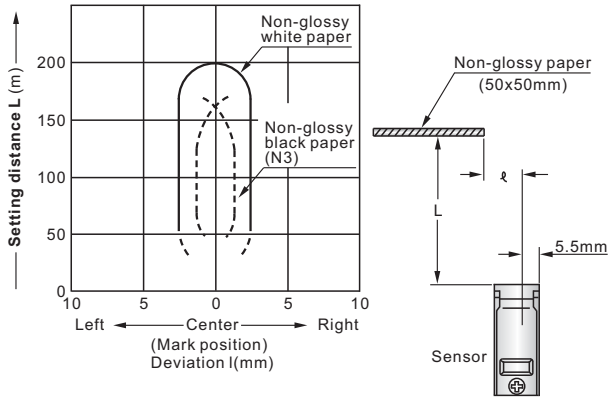
Pico-Style



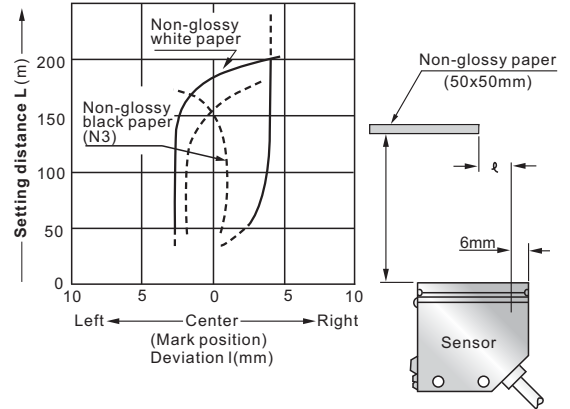
Sensing Characteristics (Typical)

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

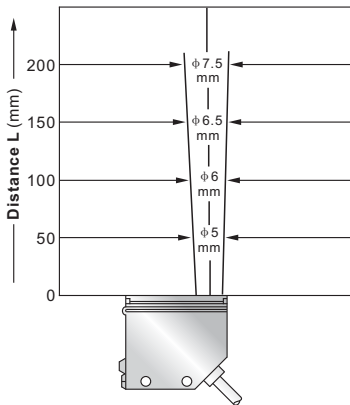
● Lateral approach



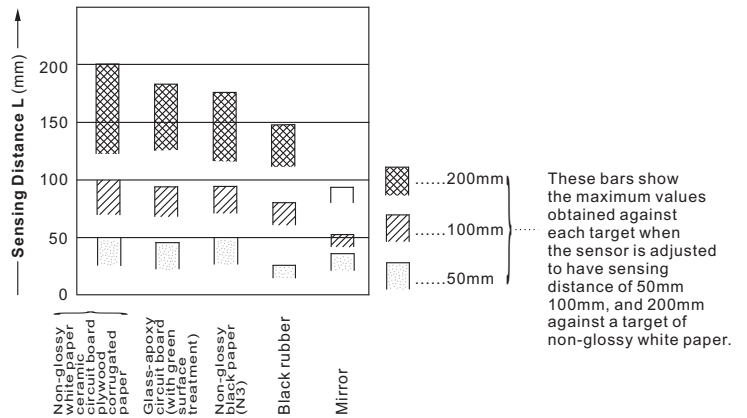
● Axial approach



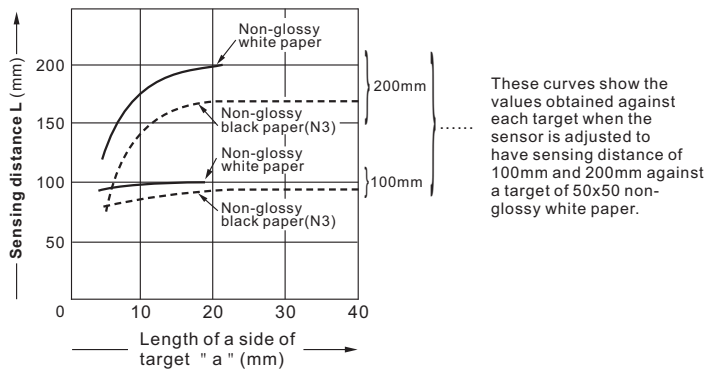
Light Beam Pattern



Material (50x50mm)---Sensing Distance correlation



Target size-sensing distance correlation



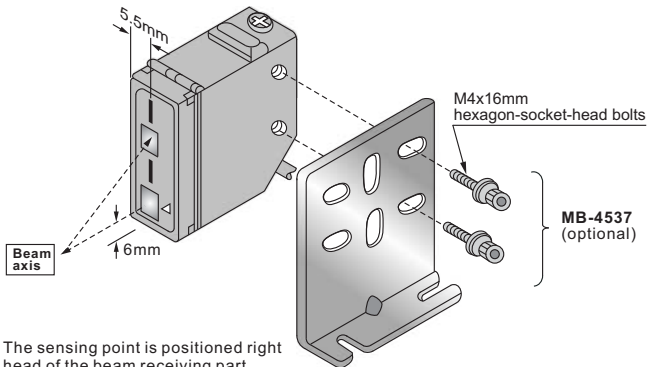
Precautions For Proper Use



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.

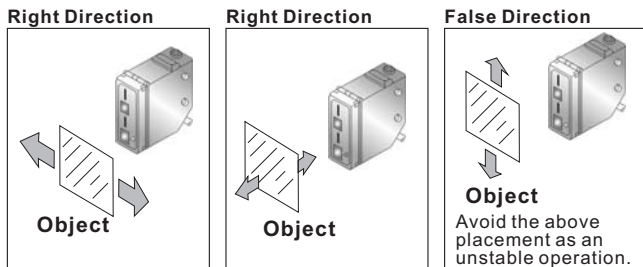
Mounting

- The tightening torque should be 1.17N m{12kgf cm} or less.



The sensing point is positioned right head of the beam receiving part indicated by "◀" mark

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



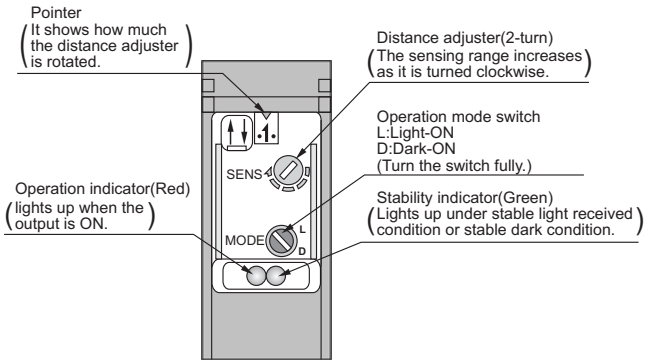
- With a specular sensing object such as an aluminum foil or a copper foil, or a glossy object polished or coated, the detectability may become unsteady by only a small change of the facing angle to the object.
- If there is a specular material facing the sensor even at a distance, it may affect the 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.

Others

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

Distance adjustment

• Adjusters

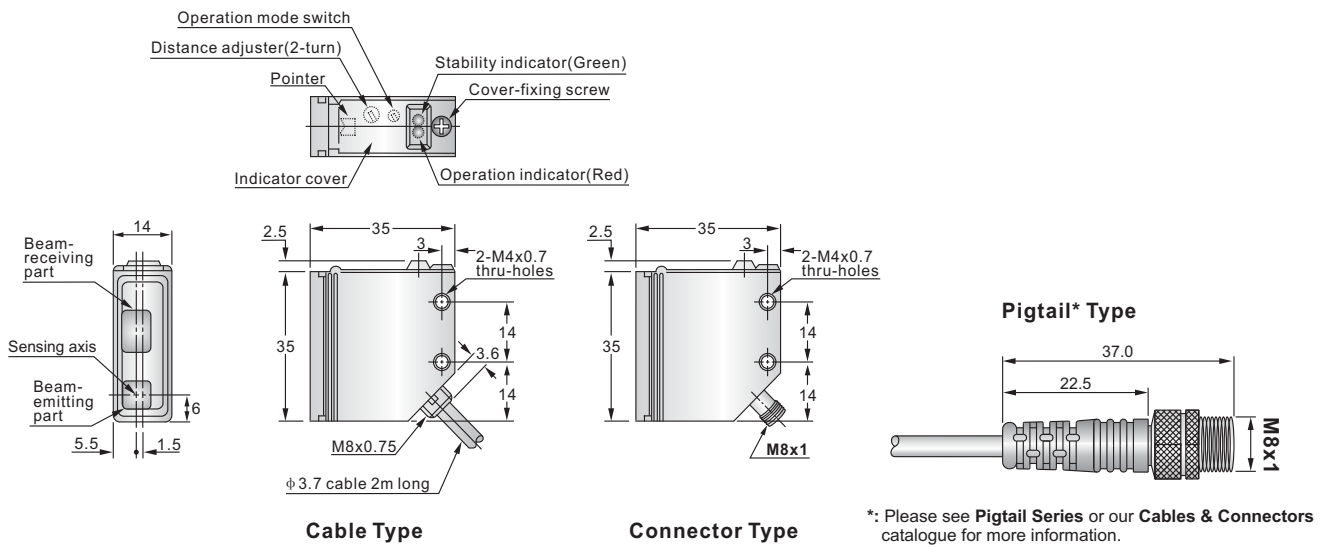


• Adjusting procedure

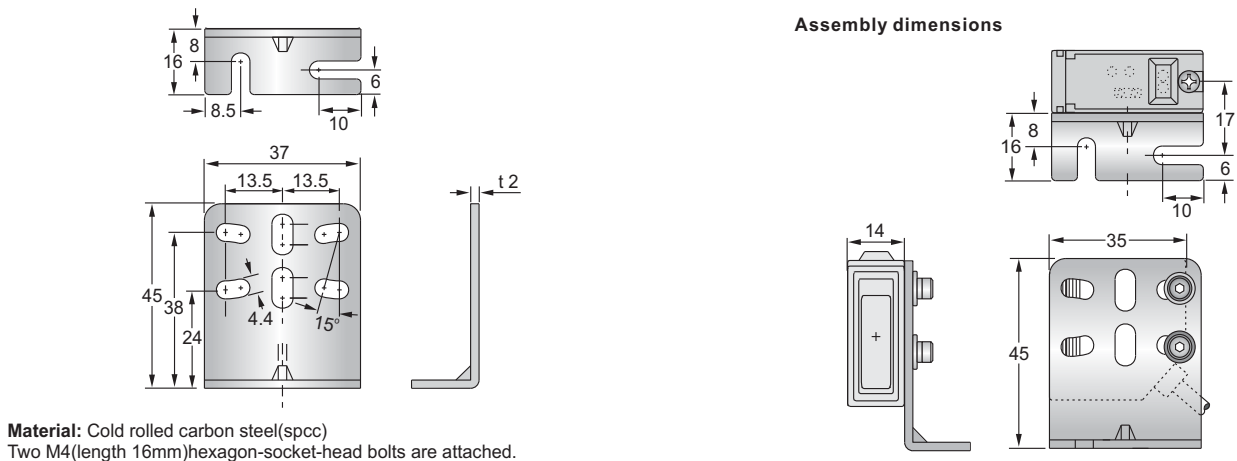
step	Description	Distance adjuster
1	Turn the distance adjuster fully counterclockwise to the minimum sensing ranges position(50 mm 1.969 in approx.). (Do not turn excessively.)	 turn
2	Place an object at the required distance from the sensor, turn the distance adjuster gradually clockwise, and find out point 'A' where the sensor changes to the light received condition.	
3	Remove the object, turn the distance adjuster further clockwise, and find out point 'B' where the again with only the background. (When the sensor does not go to the light received condition even if the adjuster is fully turned clockwise, point 'B' is this extreme point.)	
4	The optimum position to stably detect objects is the center point between 'A' and 'B'	 Optimum position

Dimensions (Unit: mm)

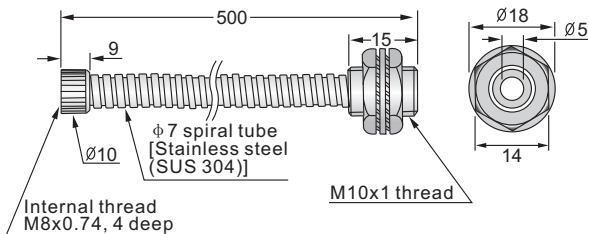
Sensor Type



MB-4537(Sensor mounting bracket-optional)



PT-RP500 (Protective tube-optional)



PT-RP1000 (Protective tube-optional)

