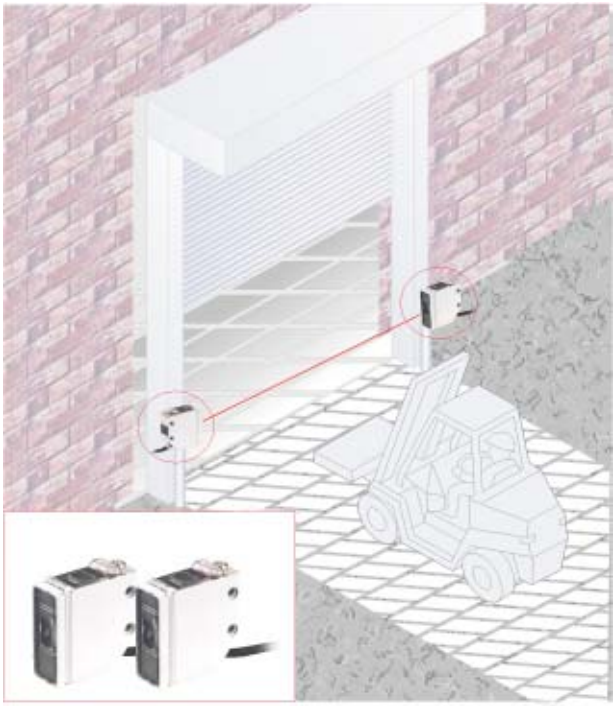
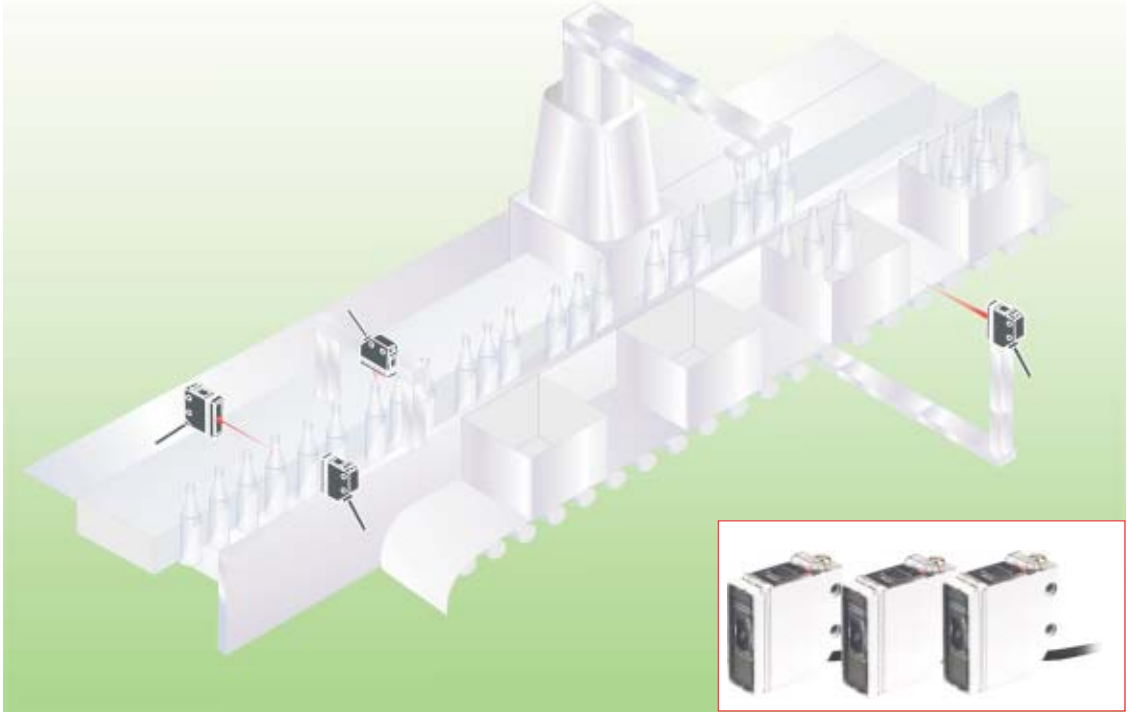
RP35 SERIES





PHOTOELECTRIC

SENSORS SELECTION GUIDE

RP35 SERIES

Automatic Interference Prevention Function

Two sensors can be mounted side by side because of the automatic interference prevention function.

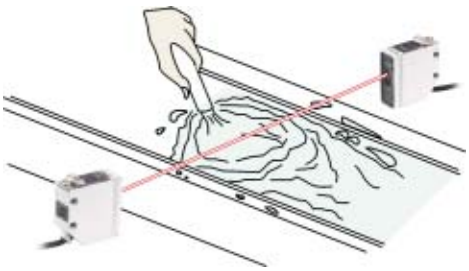
There is no problem even if the beam of the adjoining sensor is incident.

Robust

The enclosure is robust as it is made of die-cast zinc alloy.

Waterproof

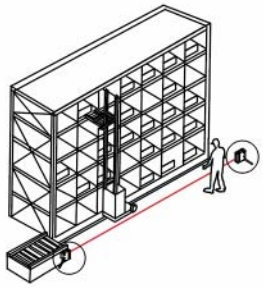
Thesensor can be hosed downbecause of its Ip67 construction. The equipment on which the sensor is mounted can be washed without any problem.



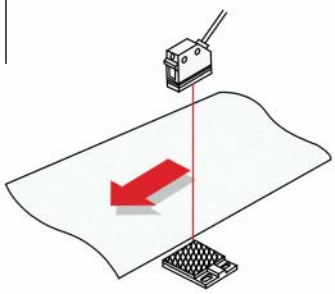
Note: However, take care that if it is exposed to water splashes during operation , it may detect a water drop itself.

Application

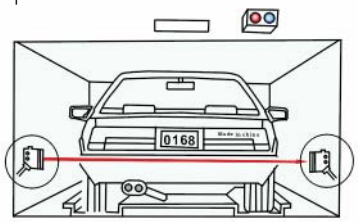
Detecting person entering stacker crane path



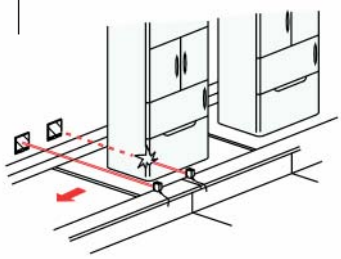
Sensing transparent sheet



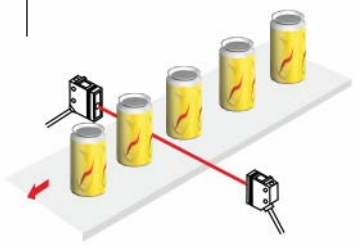
Detecting person entering stacker crane path



Detection of specular goods



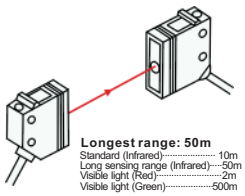
Counting cans



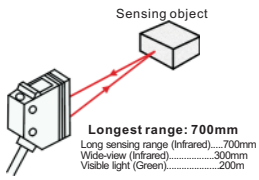
Standard Type

- **Wide variety**

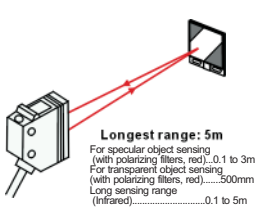
Thru-beam type



- **Diffuse reflective type**



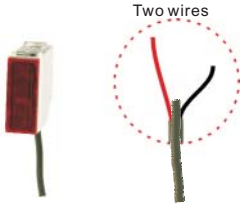
- **Retroreflective type**



DC 2-wirre Type

- **Wiring reduced by 1/3**

Wiring can be completed by using only two, instead of three wires.

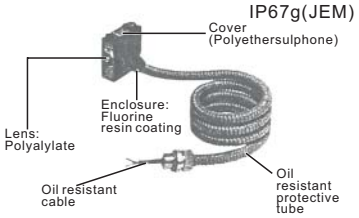


- Power supply cost: reduced to 1/30 or less
  Current consumption: 1mA or less
  An additional power supply for the sensors is not required.

Heavy Duty Type

- **Durable against oil**

IP67g (JEM) protection has been achieved by fluorine resin coating on the enclosure and by using oil resistant protective tube. This sensor can be used in a harsh environment.

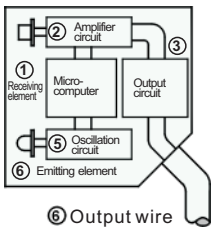


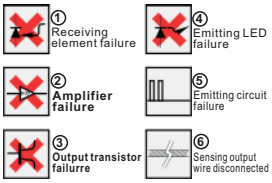
Intelligent Type

- **Self-diagnosis function for internal circuit**

In addition to the beam intensity check , the built-in microcomputer self-diagnoses the internal circuit and detects a circuit failure, should it occur.

The following parts ① to ⑥ are monitored constantly.





Indication of abnormal conditions
- Operation indicator (red) blinks
- Self-diagnosis output is ON.

PHOTOELECTRIC
SENSORS TYPE

RP35 SERIES

			Cable Type	Appearance	Sensing range	Part Number
STAND TYPE	Thru-beam	Infrared	Long sensing range		10m	RP35-T010MD-EY9C2L2
						RP35-T010MN-CY9C3U2
					50m	RP35-T050MD-EY9C2L2
						RP35-T050MN-CY9C3U2
		For mark sensing	Red		2m	RP35-T2000D-EY6C2L2
						RP35-T2000N-CY6C3U2
			Green		500mm	RP35-T0500N-EY5C2L2
						RP35-T0500N-CY5C3U2
	Retro reflective	Red(with polarizing filters)	For transparent object sensing		0.1 to 3m	RP35-L3000N-CY6C3U2-FP
					500mm	RP35-L0500N-CY6C3U2-L
		Infrared (long sensing range)			0.1 to 5m	RP35-L5000N-CY9C3U2
	Diffuse reflective	Infrared	Wide-view		700mm	RP35-D0700N-CY9C3U2
					300mm	RP35-D0300N-CY9C3U2
		Red			200mm	RP35-D0200N-CY6C3U2
DC2-WIRE TYPE	Thru-beam	Infrared			5m	RP35-T5000D-EY9C2L2
						RP35-T5000D-CY9C2U2
	Retro reflective	Red(with polarizing filters)			0.1 to 2m	RP35-L2000D-CY6C2U2-PF
	Diffuse reflective	Infrared			300mm	RP35-D0300D-CY9C2U2
INTELLIGENT TYPE	Thru-beam	Infrared			0.1 to 3m	RP35A-T010MN-EY9C2L2
						RP35A-T010MN-CY9C5U2
	Retro reflective	Red(with polarizing filters)	For transparent object sensing		500mm	RP35A-L3000N-CY6C5U2-PF
						RP35A-L0500N-CY6C5U2-L
	Diffuse reflective	Infrared			700mm	RP35A-D0700N-CY9C5U2
HEAVY DUTY TYPE	Thru-beam	Infrared			5m	RP35B-T5000D-EY9C2L2
						RP35B-T5000N-CY9C3U2
						RP35B-T5000D-EY9C2L3
						RP35B-T5000N-CY9C3U3
						RP35B-T5000D-EY9C2L5
						RP35B-T5000N-CY9C3U5

NOTE: The sensing range is the possible setting range for the reflector.
The sensor can detect an object less than 0.1m away.

Cable Type			Appearance	Sensing range	Part Number
STAND TYPE	Thru-beam	Infrared, Long sensing range		10m	RP35-T010MD-EY9P4LP
					RP35-T010MN-CY9P4UP
				50m	RP35-T050MD-EY9P4LP
					RP35-T050MN-CY9P4UP
		For mark sensing, Red		2m	RP35-T2000D-EY6P4LP
					RP35-T2000N-CY6P4UP
		For mark sensing, Green		500mm	RP35-T0500N-EY5P4UP
					RP35-T0500N-CY5P4UP
	Retro reflective	Red(with polarizing filters), For transparent object sensing		0.1 to 3m	RP35-L3000N-CY6P4LP-FP
				500mm	RP35-L0500N-CY6P4UP-L
		Infrared (long sensing range)		0.1 to 5m	RP35-L5000N-CY9P4UP
	Diffuse reflective	Infrared		700mm	RP35-D0700N-CY9P4UP
		Infrared, Wide-view		300mm	RP35-D0300N-CY9P4UP
		Red		200mm	RP35-D0200N-CY6P4UP
DC2-WIRE TYPE	Thru-beam	Infrared		5m	RP35-T5000D-EY9P4LP
					RP35-T5000D-CY9P4UP
	Retro reflective	Red(with polarizing filters)		0.1 to 2m	RP35-L2000D-CY6P4UP-PF
	Diffuse reflective	Infrared		300mm	RP35-D0300D-CY9P4UP
INTELLIGENT TYPE	Thru-beam	Infrared		0.1 to 3m	RP35A-T010MN-EY9P4LP
					RP35A-T010MN-CY9P5UP
	Retro reflective	Red(with polarizing filters), For transparent object sensing		500mm	RP35A-L3000N-CY6P5UP-PF
					RP35A-L0500N-CY6P5UP-L
	Diffuse reflective	Infrared		700mm	RP35A-D0700N-CY9P5UP

NOTE: The sensing range is the possible setting range for the reflector.
The sensor can detect an object less than 0.1m away.

PHOTOELECTRIC
SENSORS TYPE

RP35 SERIES

			Cable Type	Appearance	Sensing range	Part Number
STAND TYPE	Thru-beam	Infrared	Long sensing range		10m	RP35-T010MD-EY9Q4LP
						RP35-T010MN-CY9Q4UP
					50m	RP35-T050MD-EY9Q4LP
						RP35-T050MN-CY9Q4UP
		For mark sensing	Red			RP35-T2000N-CY6Q4UP
						RP35-T2000D-EY6Q4LP
			Green			RP35-T0500N-EY5Q4UP
					500mm	RP35-T0500N-CY5Q4UP
	Retro reflective	Red(with polarizing filters)	For transparent object sensing		0.1 to 3m	RP35-L3000N-CY6Q4LP-FP
					500mm	RP35-L0500N-CY6Q4UP-L
		Infrared (long sensing range)			0.1 to 5m	RP35-L5000N-CY9Q4UP
	Diffuse reflective	Infrared			700mm	RP35-D0700N-CY9Q4UP
			Wide-view		300mm	RP35-D0300N-CY9Q4UP
		Red			200mm	RP35-D0200N-CY6Q4UP
DC2-WIRE TYPE	Thru-beam	Infrared			5m	RP35-T5000D-EY9Q4LP
						RP35-T5000D-CY9Q4UP
	Retro reflective	Red(with polarizing filters)			0.1 to 2m	RP35-L2000D-CY6Q4UP-PF
	Diffuse reflective	Infrared			300mm	RP35-D0300D-CY9Q4UP
INTELLIGENT TYPE	Thru-beam	Infrared			0.1 to 3m	RP35A-T010MN-EY9Q4LP
						RP35A-T010MN-CY9Q5UP
	Retro reflective	Red(with polarizing filters)	For transparent object sensing		500mm	RP35A-L3000N-CY6Q5UP-PF
						RP35A-L0500N-CY6Q5UP-L
	Diffuse reflective	Infrared			700mm	RP35A-D0700N-CY9Q5UP

NOTE: The sensing range is the possible setting range for the reflector.
The sensor can detect an object less than 0.1m away.

RE-6152

Description Sensing range : **3m[RP31-L3000]**

RE-6041

Description Sensing range : **2.8m[RP31-L3000]**

RE-D63

Description Sensing range : **2.3m[RP31-L3000]**

RE-D31

Description Sensing range : **0.7m[RP31-L3000]**

RE-822

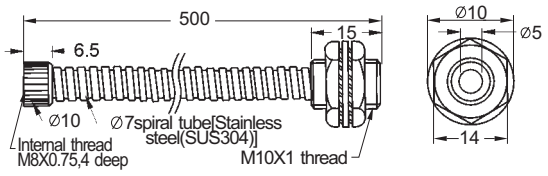
Description Sensing range : **1m[RP31-L3000]**

RE-Q52

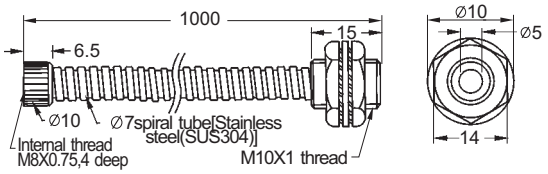
Description Sensing range : **2.5m[RP31-L3000]**

Protective tube

PT-RP500



PT-RP1000



Reflector For retroreflective sensor only

RE-6152

RE-6041

RE-D63

RE-D31

RE-822

RE-Q52

PT-RP500

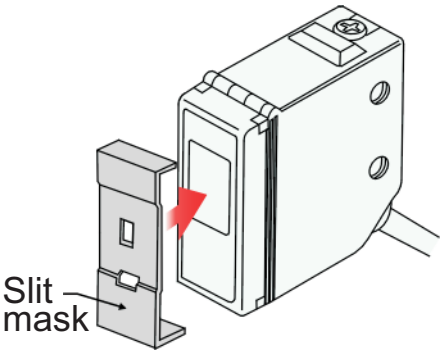
Description Length: **500mm** Cable is protected from external forces.
It does not rust as it is made of stainless steel.

PT-RP1000

Description Length: **1000mm** Cable is protected from external forces.
It does not rust as it is made of stainless steel.

Slit mask .

• Slit size
OS-RP-1 X 5
a b



• Fitted on the front face of the sensor with one touch.

OS-RP-0.5x5
OS-RP-5x0.5

Slit size: 0.5x5mm
Slit size: 5x0.5mm

Slit on emitter
Sensing range: **2.7m [RP35-T010MD** and **RP35A-T010MN]**
1.4m [Rp35-T5000D]
Min ,sensing object : **ø 8mm**

Slit on emitter
Sensing range: **1.9m [RP35-T010MD**
and **Representative 35A-T010MN]**
1m [RP35-T5000D]
Min ,sensing object : **ø 6mm**

Slit on emitter
Sensing range: **0.4m [RP35-T010MD**
and **Representative 35A-T010MN]**
0.2m [RP35-T5000D]
Min ,sensing object : **0.5X5mm**

OS-RP-1x5
OS-RP-5x1

Slit size: 1x5mm
Slit size: 5x1mm

Slit on emitter
Sensing range: **3.8m [RP35-T010MD** and
Representative35A-T010MN]
1.9m [Rp35-T5000D]
Min ,sensing object : **ø 8mm**

Slit on emitter
Sensing range: **2.8m [RP35-T010MD**
and **Representative 35A-T010MN]**
1.4m [RP35-T5000D]
Min ,sensing object : **ø 6mm**

Slit on emitter
Sensing range: **0.8m [RP35-T010MD**
and **Representative 35A-T010MN]**
0.4m [RP35-T5000D]
Min ,sensing object : **1X5mm**

OS-RP-3x5
OS-RP-5x3

Slit size: 3x5mm
Slit size: 5x3mm

Slit on emitter
Sensing range: **7m [RP35-T010MD** and
Representative35A-T010MN]
3.5m [Rp35-T5000D]
Min ,sensing object : **ø 8mm**

Slit on emitter
Sensing range: **4.9m [RP35-T010MD**
and **Representative 35A-T010MN]**
2.5m [RP35-T5000D]
Min ,sensing object : **ø 6mm**

Slit on emitter
Sensing range: **2.6m [RP35-T010MD**
and **Representative 35A-T010MN]**
1.3m [RP35-T5000D]
Min ,sensing object : **3X5mm**

SPECIFICATIONS - Standard type

Type / Item / Model No.	Thru-beam				Retroreflective			Diffuse reflective		
	Infraed	Long sen -sing range	Red	Green	Red(with polarizing filters)	For transparent object sensing	Infraed Long sen -sing range	Infraed	Wide-view	Red
Model No.	RP35-T010MD	RP35-T050MD	RP35-T2000D	RP35-T0500D	RP35-L3000N	RP35-L0500N	RP35-L5000N	RP35-D0700N	RP35-D0300N	RP35-D0200N
Sensing range	10m	50m	2m	500mm	0.1 to 3m	500mm	0.1 to 5m	700mm	300mm	200mm
Sensing object	10mm or more opaque object .				50mm or more opaque,translucent or specular object	50mm or more opaque,translucent or transparent object	50mm or more opaque,translucent object	Opaque,translucent or transparent object(Min. Sensing object: Φ0.5mm copper wire)		
Hysteresis	———							15% or less of operation distance		
Repeatability (Perpendicular to sensing axis)	0.5mm or less				1mm or less	0.2mm or less	1mm or less	0.5mm or less		
Supply voltage	10 to 30V DC Ripple P-P 10% or less									
Current consumption	Emitter:<25mA,Receiver:<25mA 40mA or less									
Sensing output	**NPN** open-collector transistor • Maximum sink Current : 100mA • Applied voltage : 30V DC or less (between sensing output and ov) • Residual voltage : 1.5V or less (at 100mA sink current)									
Utilization category	DC-12 or DC-13									
Output operation	Switchable Either Light-ON or Dark-ON									
Short-circuit protection	Incorporated									
Response time	1ms or less									
Operation indicator	Red LED (lights up when the sensing output is ON)									
Stability indicator	Green LED (lights up under stable light received condition or stable dark condition)									
Emitting indicator	Red LED (lights up during beam emission)				———					
Sensitivity adjuster	Continuously variable adjuster									
Automatic interference prevention function	———				Incorporated (Two units of sensors can be mounted closely.)					
Environmental resistance: Pollution degree	3 (Industrial environment)									
Environmental resistance: Protection	IP67(IEC)									
Environmental resistance: Ambient temperature	-25 to +60 C°(No dew condensation or icing allowed), Storage:-30 to +70 C°									
Environmental resistance: Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH									
Environmental resistance: Environmental resistance Ambient illuminance	Sunlight: 11,000 lx at the light-receiving face, Incandescent light: 3,500 x at the light-receiving face									
Environmental resistance: EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)									
Environmental resistance: Vlotage withstandability	1,000V AC for one min. Between all supply terminals connected together and enclosure									
Environmental resistance: Insulation resistance	20MΩ ,or more, with 250V DC megger between all supply terminals connected together and enclosurre									
Environmental resistance: Vibration resistance	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min									
Environmental resistance: Shock resistance	IEC 60947-5-2, Part 7.4.1 or 30g,11ms in X,Y and Z directions for six times each									
Emitting element	Infrared LED (modulated)		Red LED (modulated)	Green LED (modulated)	Red LED (modulated)		Infrared LED (modulated)			Red LED (modulated)
Material	Enclosure: Die-cast zinc alloy, Indicator cover: Polyethersulphone, Lens: Polycarbonate(retroreflective type:Acrylic)									
Cable	Emitter:0.15mm² 2-core oil, heat and cold resistant cabtyre cable,2m long Receiver:0.15mm²3-core oil, heat and cold resistant cabtyre cable,2m long				0.15mm² 3-core oil, heat and cold resistant cabtyre cable, 2m long					
Cable extension	Extension up to total 100m is possible with 0.3mm², or more,cable(thru-bram type:both emitter and receiver).									
Pigtail type	M8 pico 4pin+6″ . cable									
Connection type	M8 pico 4pin									
Weight	75g approx.									
Accessories	**MS-RP-1** (Sensor mounting bracket): 2 sets Adjusting screwdriver: 1 No.				**MS-RP-1**(Sensor mounting bracket):1 set **RF-230**(Reflector):1 Number Adjusting screwdriver:1 No.			**MS-RP-1** (Sensor mounting bracket): 1 sets Adjusting screwdriver: 1 No.		

PHOTOELECTRIC

SPECIFICATIONS - DC 2-wire type

RP35 SERIES

Item \ Type	Thru-beam	Retroreflective (With polarizing filters)	Diffuse reflective
Model No.	RP35-T5000D-EY9C2L2	RP35-L2000D-EY6C2U2-PF	RP35-D0300D-CY9C2U2
Sensing range	5m	0.1 to 2m	300mm
Sensing object	10mm or more opaque object .	Φ50mm or more opaque, translucent or specular object	Opaque, translucent & transparent object
Hysteresis	———		15% or less of operation distance
Repeatability (Perpen-dicular to sensing axis)	0.5mm or less	1mm or less	0.5mm or less
Supply voltage	10 to 30V DC Ripple P-P 10% or less		
Current consumption	Emitter:8mA or less, Receiver.0.8mA or less	1mA or less	
Sensing output	**Non** contact DC 2-wire type • Load Current : 5 to 100mA • Residual voltage : 4V or less		
Output operation	Switchable Either Light-ON or Dark-ON		
Short-circuit protection	Incorporated		
Response time	3ms or less		
Operation indicator	Red LED (lights up when the output is ON)		
Stability indicator	Green LED (Light-ON mode: lights up under stable light received condition / Dark-ON mode: lights up under stable dark condition)		
Emitting indicator	Red LED (lights up during beam emission)	———	
Sensitivity adjuster	Continuously variable adjuster		
Environmental resistance: Protection	IP67(IEC)		
Ambient temperature	-20 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		
Ambient illuminance	Sunlight: 11,000ℓx at the light-receiving face, Incandescent light: 3,500ℓx at the light-receiving face		
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)		
Vlotage withstandability	1,000V AC for one min. Between all supply terminals connected together and enclosure		
Insulation resistance	20MΩ ,or more, with 250V DC megger between all supply terminals connected together and enclosurre		
Vibration resistance	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min		
Shock resistance	IEC 60947-5-2, Part 7.4.1 or 30g,11ms in X,Y and Z directions for six times each		
Emitting element	Infrared LED (modulated)	Red LED (modulated)	Infrared LED (modulated)
Material	Enclosure: Die-cast zinc alloy, Indicator cover: Polyethersulphone, Lens: Polycarbonate		
Cable	0.15mm² 2-core oil, heat and cold resistant cabtyre cable, 2m long		
Cable extension	———		
Pigtail type	M8 pico 4pin+6″ . cable		
Connection type	M8 pico 4pin		
Weight	75g approx.		
Accessories	**MS-RP-1** (Sensor mounting bracket): 2 sets Adjusting screwdriver: 1 No.	**MS-RP-1**(Sensor mounting bracket):1 set **RF-230**(Reflector):1 Number Adjusting screwdriver:1 No.	**MS-RP-1** (Sensor mounting bracket): 1 sets Adjusting screwdriver: 1 No.

RP35 SERIES

PHOTOELECTRIC

SPECIFICATIONS - Intelligent type

Item \ Type	Thru-beam	Retroreflective (With polarizing filters)		Diffuse reflective
			For transparent object sensing	
Model No.	RP35A-T010MN-EY9C2L2	RP35A-L3000N-EY6C5L2-PF	RP35A-L0500N-CY6C5L2-L	RP35A-L0700N-CY9C5L2
Sensing range	10m	0.1 to 3m	500mm	700mm
Sensing object	Ø 10mm or more opaque object	Ø 50mm or more opaque,translucent or specular object	Ø 50mm or more opaque,translucent or specular object	Opaque, translucent & transparent object
Hysteresis	———			15% or less of operation distance
Repeatability (Perpendicular to sensing axis)	0.5mm or less	1mm or less	0.2mm or less	0.5mm or less
Supply voltage	10 to 30V DC Ripple P-P 10% or less			
Current consumption	Emitter:20mA or less Receiver:45mA or less	40mA or less		
Sensing output	**NPN** open-collector transistor • Maximum sink Current : 100mA • Applied voltage : 30V DC or less (between sensing output and ov) • Residual voltage : 1.5V or less (at 100mA sink current)			
Output operation	Switchable either Light-ON or Dark-ON			
Short-circuit protection	Incorporated			
Self-diagnosis output	**NPN** open-collector transistor • Maximum sink Current : 100mA • Applied voltage : 30V DC or less (between sensing output and ov) • Residual voltage : 1V or less (at 100mA sink current)			
Output operation	ON under unstable sensing or the sensor circuit failure conditions			
Short-circuit protection	———			
Response time	3ms or less			
Test input	Incorporated			
Operation indicator	Red LED (lights up when the sensing output is ON, blinks when the sensor circuit has failed)			
Stability indicator	Green LED (lights up when the sensing output wire is disconnected, lights up under stable received condition or stable dark condition, and blinks under unstable sensing condition)			
Emitting indicator	Red LED (lights up during beam emission)	———		
Stability indicator	Continuously variable adjuster			
Automatic interference prevention function	———	Incorporated (Two units of sensors can be mounted closely.)		
Self-diagnosis function	Self-diagnosis of incident light intensity and internal circuit failure			
Environmental resistance: Protection	IP67(IEC)			
Ambient temperature	-25 to +60℃ (No dew condensation or icing allowed), Storage:-30 to +70℃			
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH			
Ambient illuminance	Sunlight: 11,000ℓx at the light-receiving face, Incandescent light: 3,500ℓx at the light-receiving face			
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)			
Vlotage withstandability	1,000V AC for one min. Between all supply terminals connected together and enclosure			
Insulation resistance	20MΩ ,or more, with 250V DC megger between all supply terminals connected together and enclosurre			
Vibration resistance	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min			
Shock resistance	IEC 60947-5-2, Part 7.4.1 or 30g,11ms in X,Y and Z directions for six times each			
Emitting element		Red LED (modulated)		Infrared LED (modulated)
Material	Enclosure: Die-cast zinc alloy, Indicator cover: Polyethersulphone, Lens: Polycarbonate(retroreflective type :Acrylic)			
Cable	0.15mm² 5-core (thru-beam type:4-core) oil, heat and cold resistant cabtyre cable, 2m long			
Cable extension	Extension up to total 100m is possible with 0.3mm², or more , cable (thru-beam type: both emitter and receiver).			
Pigtail type	M8 pico 4pin+6″ . cable			
Connection type	M8 pico 4pin			
Weight	75g approx.			
Accessories	**MS-RP-1** (Sensor mounting bracket): 2 sets Adjusting screwdriver: 1 No.	**MS-RP-1**(Sensor mounting bracket):1 set **RF-230**(Reflector):1 Number Adjusting screwdriver:1 No.		**MS-RP-1** (Sensor mounting bracket): 1 sets Adjusting screwdriver: 1 No.

PHOTOELECTRIC

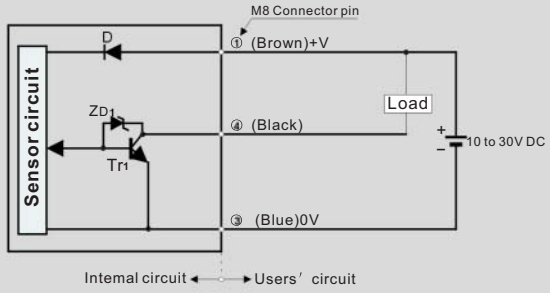
SPECIFICATIONS - Heavy duty type

RP35 SERIES

Type / Item / Model No.	Thru-beam		
	Cable length 2m	Cable length 3m	Cable length 5m
Model No.	RP35B-T5000D-EY9C2L2	RP35B-T5000D-EY9C2L2	RP35B-T5000D-EY9C2L5
Sensing range	5m		
Sensing object	Ø 10mm or more opaque object		
Repeatability (Perpen-dicular to sensing axis)	0.5mm or less		
Supply voltage	10 to 30V DC , Ripple P-P 10% or less		
Current consumption	Emitter:20mA or less, Receiver:25mA or less		
Sensing output	**NPN** open-collector transistor • Maximum sink Current : 100mA • Applied voltage : 30V DC or less (between sensing output and ov) • Residual voltage : 1.5V or less (at 100mA sink current)		
Output operation	Switchable either Light-ON or Dark-ON		
Short-circuit protection	Incorporated		
Response time	1ms or less		
Test input	Incorporated		
Operation indicator	Red LED (lights up when the sensing output is ON)		
Stability indicator	Green LED (lights up under stable light received condition or stable dark condition)		
Emitting indicator	Red LED (lights up during beam emission)		
Stability indicator	Continuously variable adjuster		
Environmental resistance: Protection	IP67(IEC), IP67g (JEM)		
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		
Ambient illuminance	Sunlight: 11,000ℓx at the light-receiving face, Incandescent light: 3,500ℓx at the light-receiving face		
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)		
Vlotage withstandability	1,000V AC for one min. Between all supply terminals connected together and enclosure		
Insulation resistance	20MΩ ,or more, with 250V DC megger between all supply terminals connected together and enclosurre		
Vibration resistance	IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min		
Shock resistance	IEC 60947-5-2, Part 7.4.1 or 30g,11ms in X,Y and Z directions for six times each		
Emitting element	Infrared LED (modulated)		
Material	Enclosure: Die-cast zinc alloy(Fluorine resin coating), Indicator cover: Polyethersulphone, Lens: Polycarbonate, Protective tube sheath: Oil resistant PVC		
Cable	0.15mm 5-core (thru-beam type:3-core) oil, heat and cold resistant cabtyre cable		
Protective tube length	1m	2m	4m
Cable extension	Extension up to total 100m is possible for both emitter and receiver with 0.3mm ,or more, cable		
Weight	Emitter:175g approx.,Receiver:175g approx.	Emitter:265g approx.,Receiver:265g approx.	Emitter:495g approx.,Receiver:495g approx.
Accessories	**MS-RP-2** (Sensor mounting bracket) : 2 sets, Adjusting screwdriver: 1 No.		

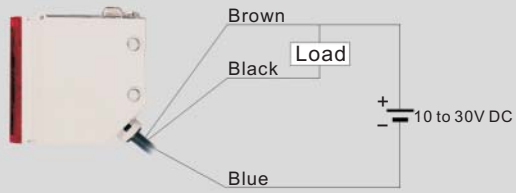
Standard type

1. I/O circuit diagram



2. Wiring diagram

Receiver of thru-beam type sensor, retroreflective and diffuse reflective type sensors



Symbols...D:Reverse supply polarity protection diode
ZD1:Surge absorption zener diode
Tr1,Tr2:NPN output transistor

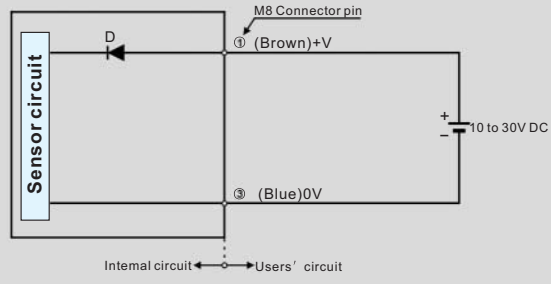
3. Connector pin position (Pigtailed type)

Emitter of thru-beam type sensor

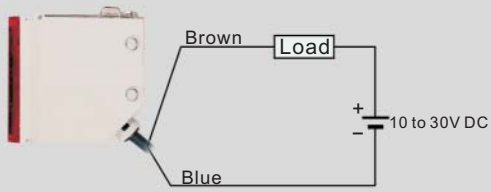
Intelligent type

1. I/O circuit diagram

Receiver of thru-beam type sensor, retroreflective and diffuse reflective type sensors



2. Wiring diagram



3. Connector pin position (Pig tailed type)

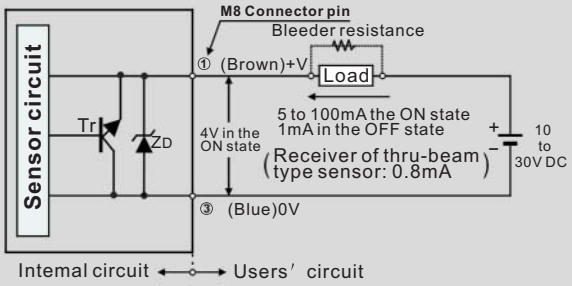
Receiver of thru-beam type sensor, retroreflective and diffuse reflective type sensors

Connector pin position

DC 2-wire type

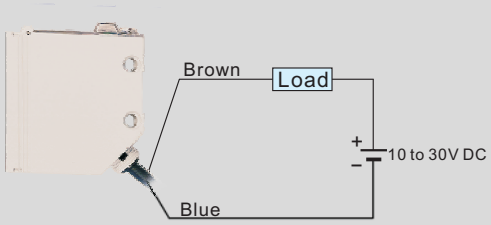
1. I/O circuit diagram

Receiver of thru-beam type sensor, retroreflective and diffuse reflective type sensors



2. Wiring diagram

Receiver of thru-beam type sensor, retroreflective and diffuse reflective type sensors



Symbols...D:Reverse supply polarity protection diode
ZD:Surge absorption zener diode
Tr :PNP output transistor

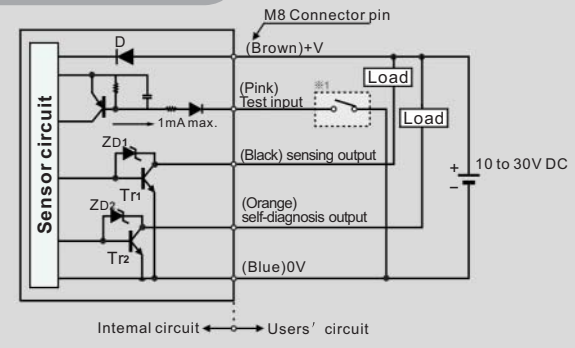
3. Connector pin position (Pigtailed type)

Conditions for the load

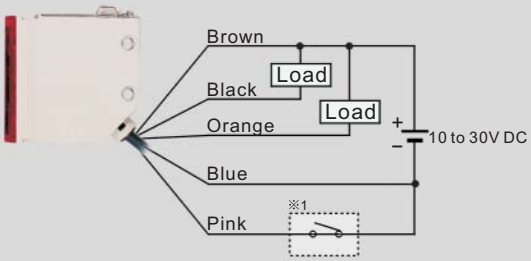
1) The load should not be actuated by the leakage current (1mA; 0.8mA for receiver of thru-beam type sensor) in the OFF state.
2) The load should be actuated by (supply voltage - 4V) in the ON state.
3) The current in the ON state should be between 5 to 100mA DC.
In case the current is less than 5mA, connect a bleeder resistance in parallel to the load (shown in dotted line above) so that a current of 3mA, or more, flows.

Intelligent type

1. I/O circuit diagram



2. Wiring diagram



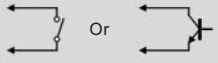
Notes: 1) The receiver of the thru-beam type sensor does not incorporate the test input.
2) The emitter of the thru-beam type sensor does not incorporate the sensing output.

Symbols...D : Reverse supply polarity protection diode
Zd1 : Surge absorption zener diode
Tr1,Tr2 : NPN output transistor

3. Connector pin position (Pig tailed type)

Connector pin position

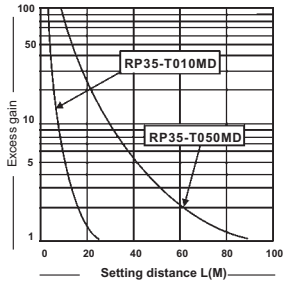
※1 Non-voltage contact or NPN open-collector transistor

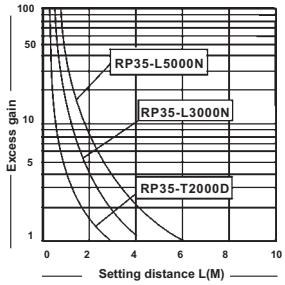


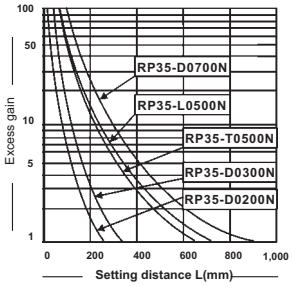
[Supply voltage -2.5V] or more (4.5V or more for the RP3 model): **emission**
[Supply voltage -3.3V] or less (2.5V or less for the RP3 model): **emission stopped**

SENSING CHARACTERISTICS(typical)

RP35-□ All mobels

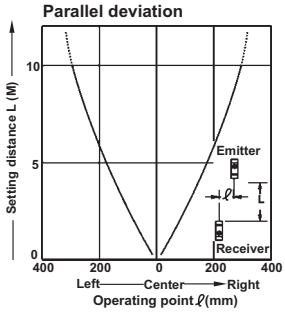




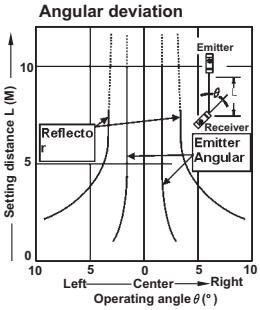


RP35-T010MD RP35A-T010MN Thru-beam type

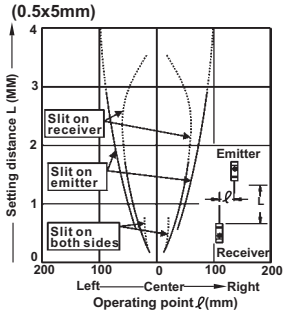
Parallel deviation



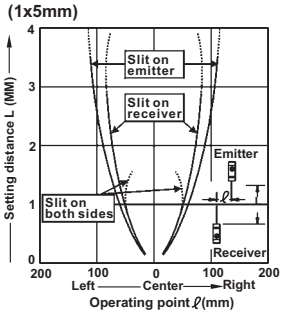
Angular deviation



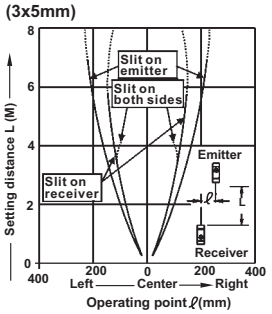
Parallel deviation with slit masks (0.5x5mm)



Parallel deviation with slit masks (1x5mm)



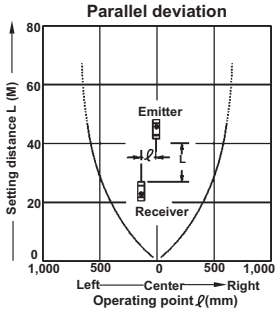
Parallel deviation with slit masks (3x5mm)



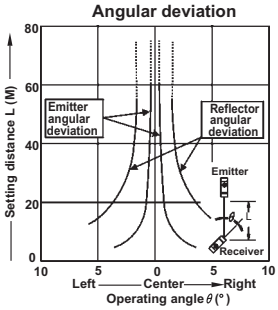
RP35-T050MD

Thru-beam type

Parallel deviation



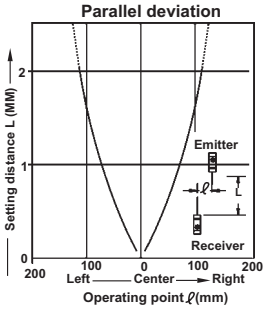
Angular deviation



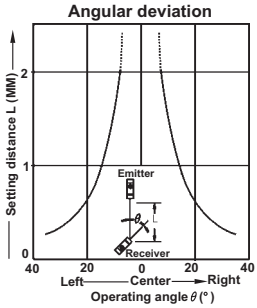
RP35-T2000D

Thru-beam type

Parallel deviation

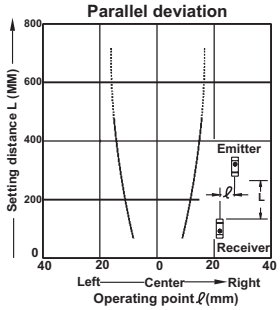


Angular deviation

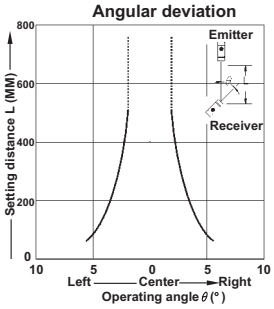


RP35-T0500N Thru-beam type

Parallel deviation

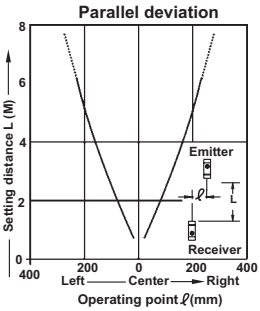


Angular deviation

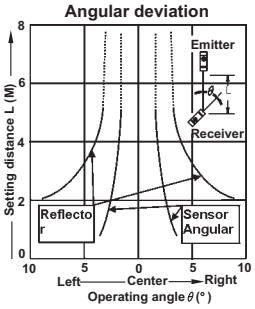


RP35-T5000D Thru-beam type

Parallel deviation

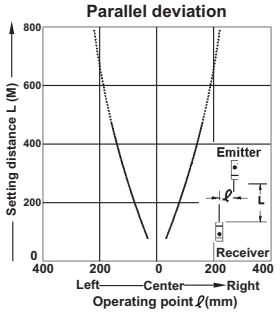


Angular deviation

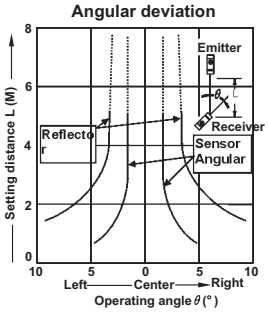


RP35-T5000D Thru-beam type

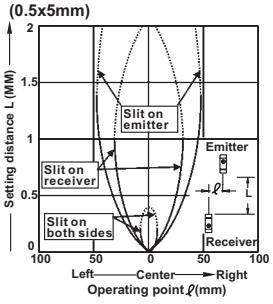
Parallel deviation



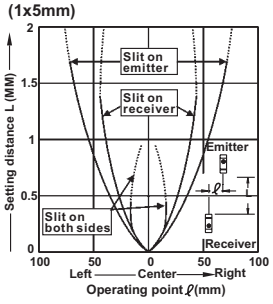
Angular deviation



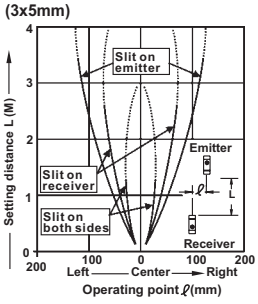
Parallel deviation with slit masks (0.5x5mm)



Parallel deviation with slit masks (1x5mm)

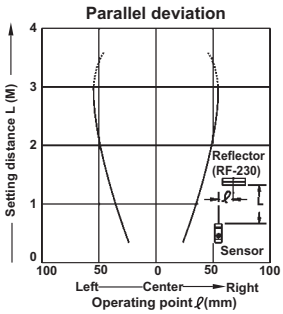


Parallel deviation with slit masks (3x5mm)

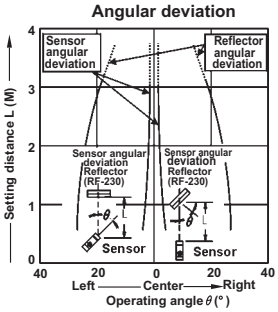


RP35-L3000N RP35A-L3000N Retroreflective type

Parallel deviation

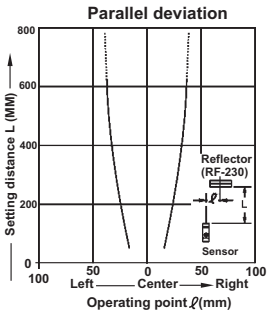


Angular deviation

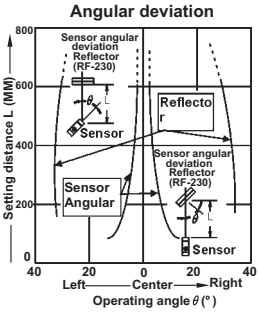


RP35-L0500D RP35A-L0500N Retroreflective type

Parallel deviation

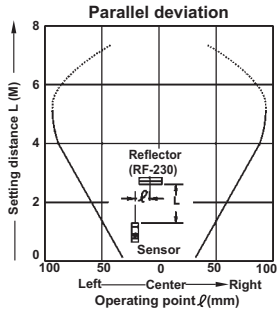


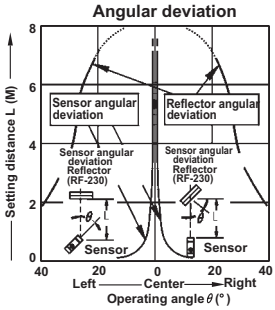
Angular deviation



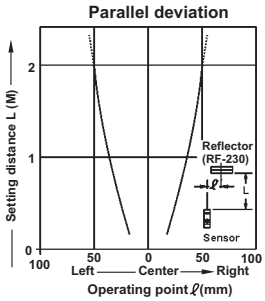
SENSING CHARACTERISTICS(typical)

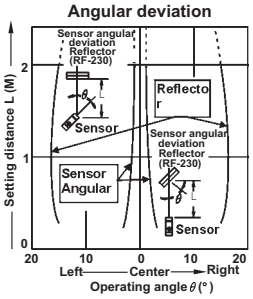
RP35-L5000P Retroreflective type



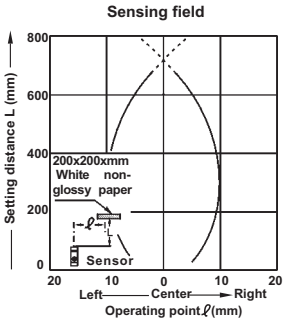


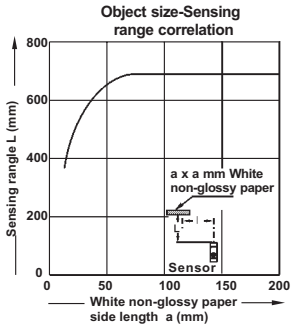
RP35-L2000P Retroreflective type





RP35-D0700N RP35A-D0700N Diffuse reflective type

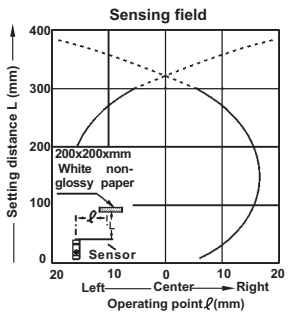


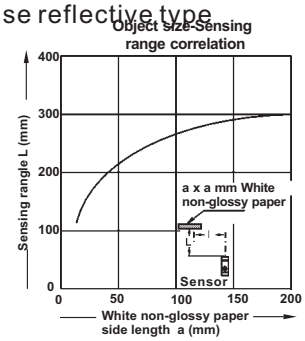


As the sensing abject size becomes smaller than the standard size (white non-glossy paper 200x200mm), the sensing range shortens, as shown in the left graph.

For plotting the left graph, the sensitivity has been set such that a 200 x 200mm white non-glossy paper is just detectable at a distance of 700mm.

RP35-D0300N Diffuse reflective type

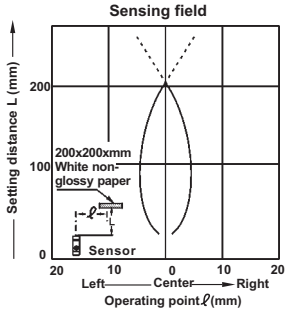


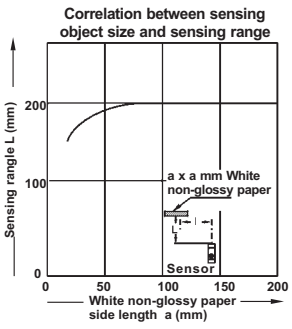


As the sensing abject size becomes smaller than the standard size (white non-glossy paper 200x200mm), the sensing range shortens, as shown in the left graph.

For plotting the left graph, the sensitivity has been set such that a 200 x 200mm white non-glossy paper is just detectable at a distance of 300mm.

RP35-D0200N Diffuse reflective type



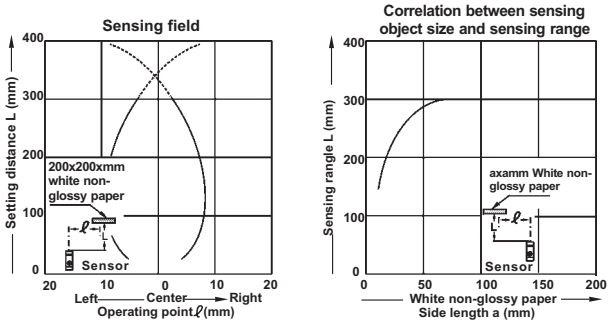


As the sensing abject size becomes smaller than the standard size (white non-glossy paper 200x200mm), the sensing range shortens, as shown in the left graph.

For plotting the left graph, the sensitivity has been set such that a 200 x 200mm white non-glossy paper is just detectable at a distance of 200mm.

SENSING CHARACTERISTICS(typical)
PRECAUTIONS FOR PROPER USE

RP35-D0300D Diffuse reflective type



As the sensing abject size becomes smaller than the standard size (white non-glossy paper 200x200mm), the sensing range shortens, as shown in the left graph.

(For plotting the left graph, the sensitivity has been set such that a 200 x 200mm white non-glossy paper is just detectable at a distance of 300mm.)

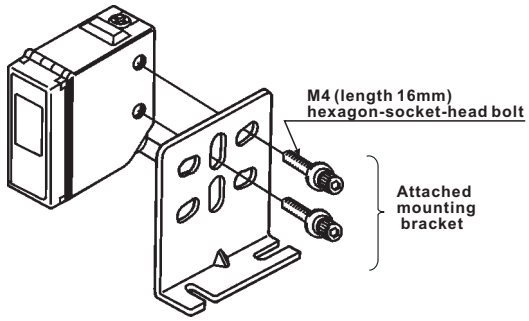
PRECAUTIONS FOR PROPER USE

All models

This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Mounting

- The tightening torque should be 1.17N • m or less.



Wiring

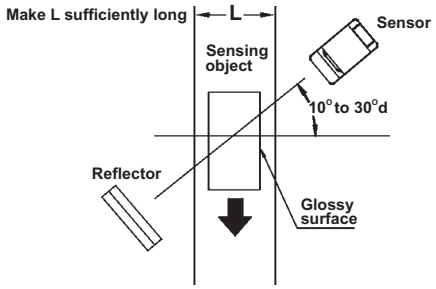
The self-diagnosis output is not incorporated with a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

Others

Do not use during the initial transient time (50ms) after the power supply is switched on.

RP35-L5000

- **Glossy object sensing**
  - Please take care of the following points when detecting materials having a gloss.
    ① Make L, shown in the diagram, sufficiently long.
    ② Install at an angle of 10 to 30 degrees to the sensing object.



RP35-L3000N RP35-L0500N RP35-L2000D

- **Retroreflective type sensor with polarizing filters**
  - If a shiny object is covered or wrapped with a transparent film such as those described below, the retroreflective type sensor with polarizing filters may not be able to detect it. In that case, follow the steps given below.

Example of sensing objects

- Can wrapped by clear film
- Aluminum sheet covered by plastic film
- Gold or silver color (glossy) label or wrapping paper

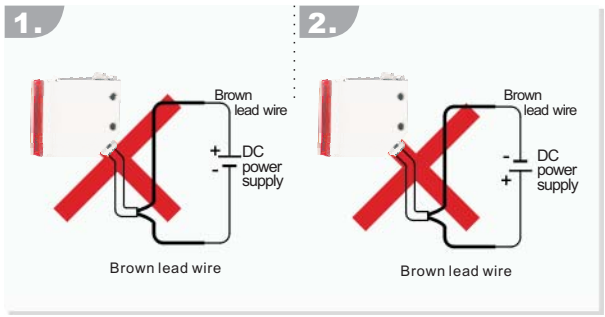
Steps

- Tilt the sensor with respect to the sensing object while fitting.
  Reduce the sensitivity.
  Increase the distance between the sensor and the sensing object.

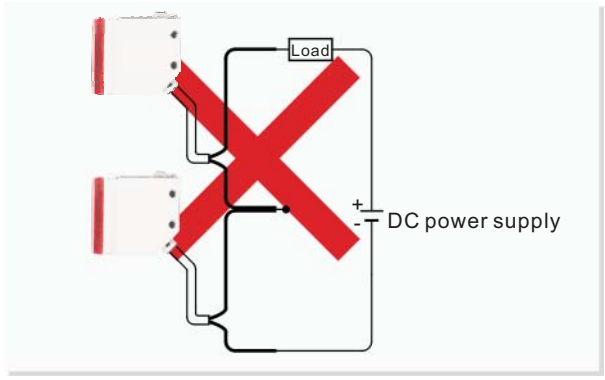
Dc 2-wire type

Wiring

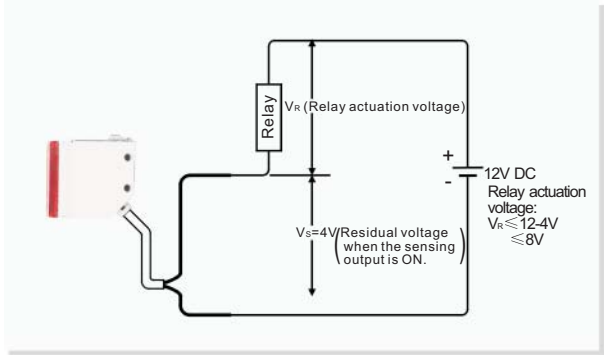
- Alwaays connect the sensor to the power supply through a load . If the sensor is connected to the power supply directly, the short-circuit protection makes the sensor inoperable (The output stays in the OFF state and no indicator lights up). If this happens , connect the sensor to the power supply through a load.Further , note that the sensor will be damaged if the power supply is connected in reverse without a load.



- Do not connect sensors in series (AND circuit)



- The residual voltage of the sensor is 4V . Before connecting to a relay, be aware of the actuation voltage of the relay. (Not all 12V relays may be connected as the load.)

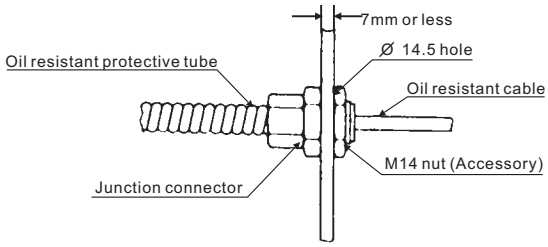


Heavy duty type

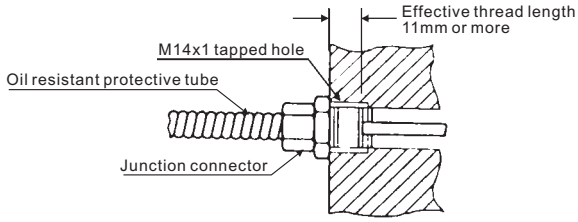
- **Connection of protective tube connector**

Connect the junction connector securely as shown below. The tightening torque should be 0.98N • m or less.

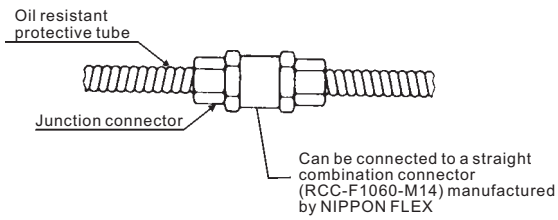
- **When mounted on a plate**



- **When mounted with a female screw**



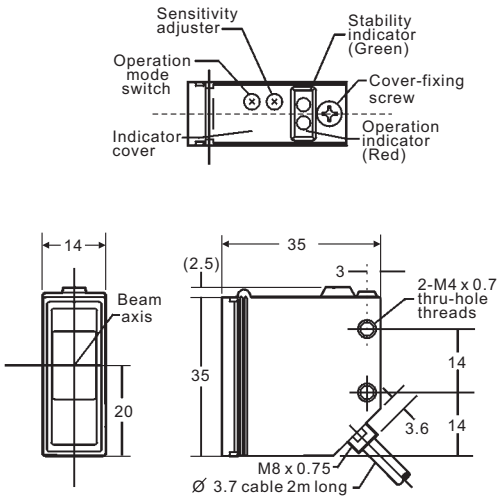
- **When connected to another protective tube**



RP35-T010MD* RP35-T2000D* RP35-T0500N* RP35-T5000D* RP35A-T010MN*

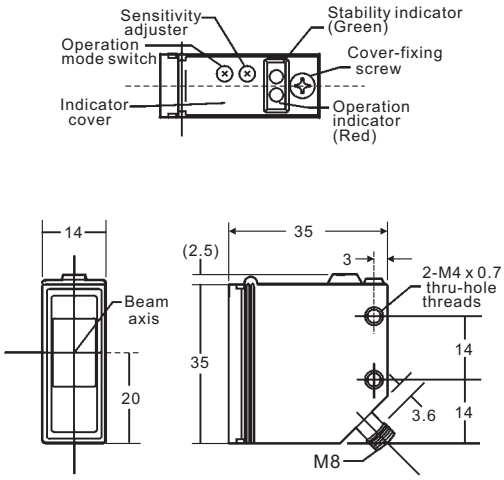
DIMENSIONS(Unit: mm)

1.



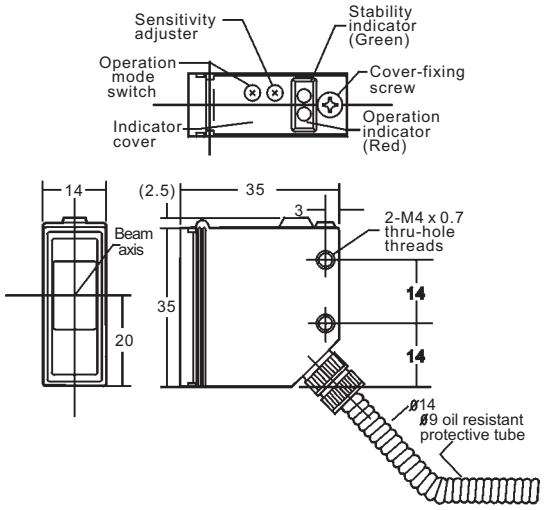
Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

2.

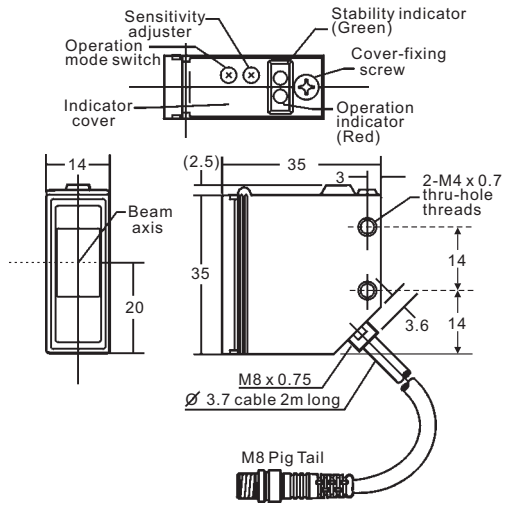


Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

3.



Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

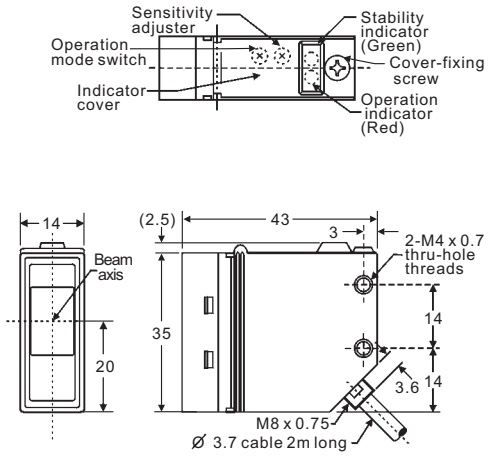


Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

RP35-T050MD

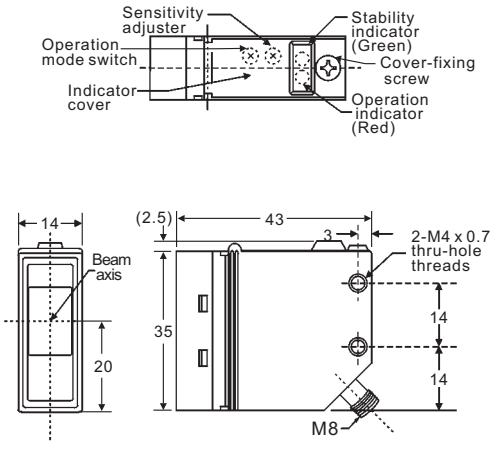
DIMENSIONS(Unit: mm)

1.

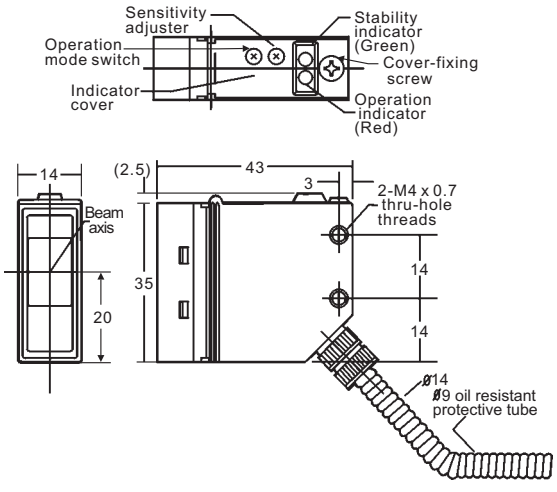


Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

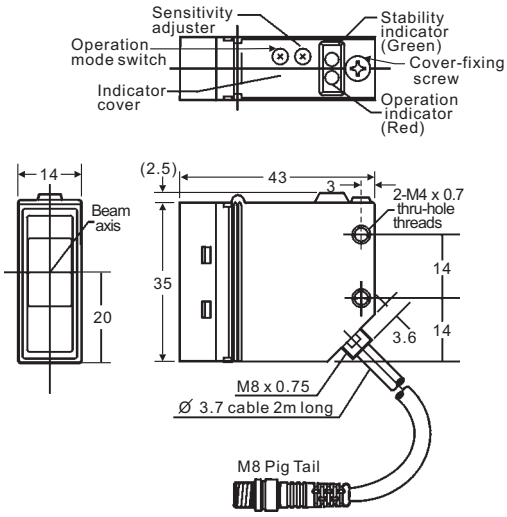
2.



Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

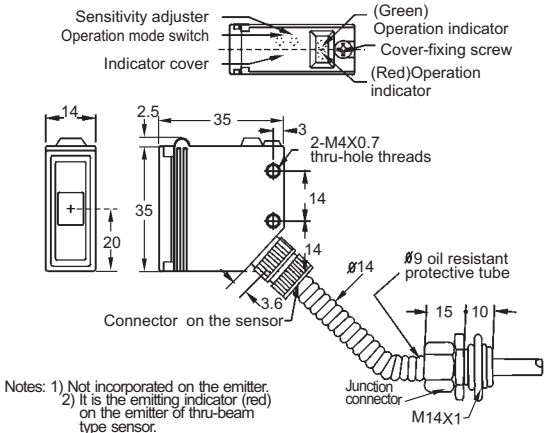


Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.



Notes: 1) Not incorporated on the emitter.
2) It the emitting indicator (red) on the emitter of the thru-beam type sensor.

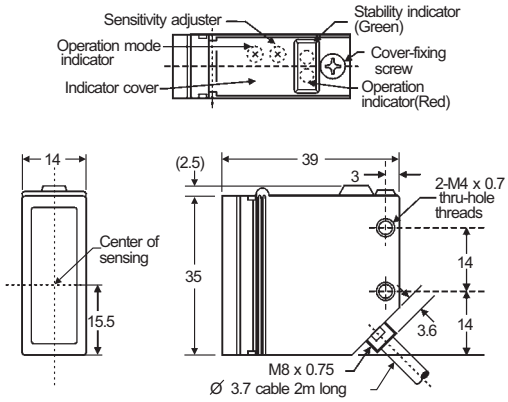
RP35B-T5000D



Notes: 1) Not incorporated on the emitter.
2) It is the emitting indicator (red) on the emitter of thru-beam type sensor.
3) The given length of the protective tube is for **RP4-M5-C3.(RP4-M5: 1m, RP4-M5-C5: 4m)**

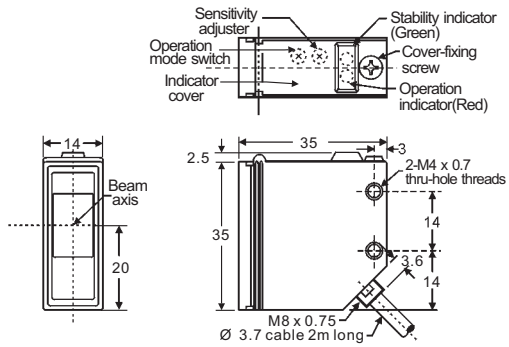
RP35-L3000N RP35-L0500N RP35-L5000N RP35-L2000D RP35A-L3000N RP35A-L0500N

DIMENSIONS(Unit: mm)



RP35-D0700N RP35-D0300N RP35-D0200N RP35-D0300D RP35A-D0700N

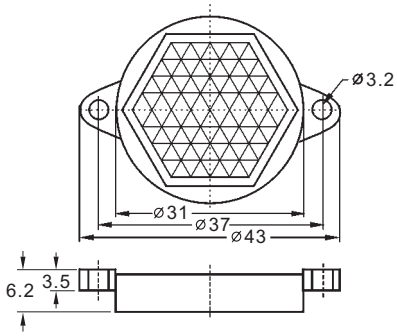
DIMENSIONS(Unit: mm)



Reflecor

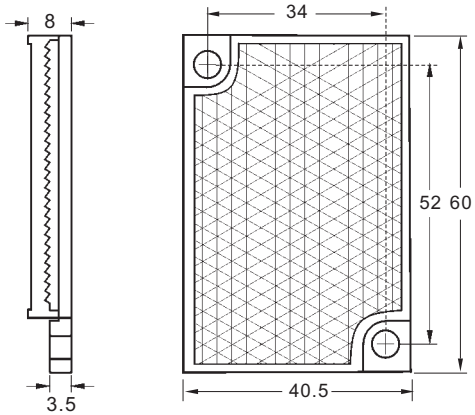
1. RE-D31

DIMENSIONS(Unit: mm)



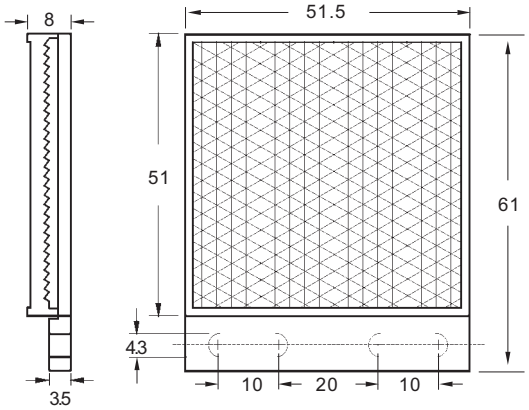
2. RE-6041

DIMENSIONS(Unit: mm)



3. RE-6152

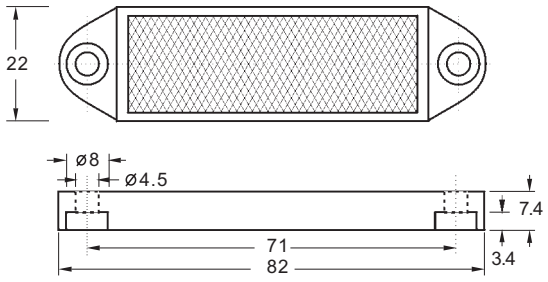
DIMENSIONS(Unit: mm)



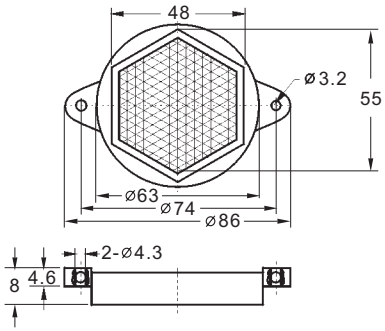
RE-Q52

Assembly dimensions

1. Assembly dimensions



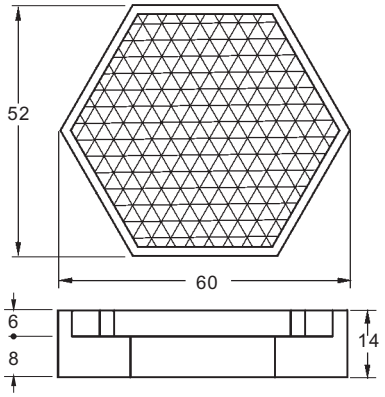
2. Assembly dimensions



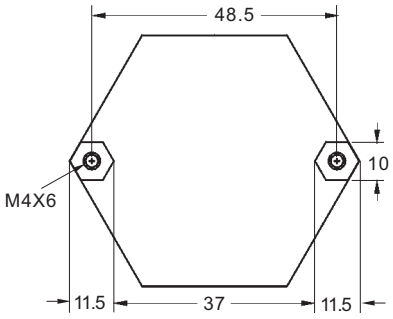
RE-Q52

Assembly dimensions

1.



2.

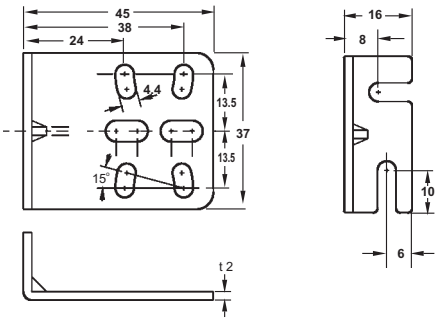


MS-RP-1

Sensor mounting bracket

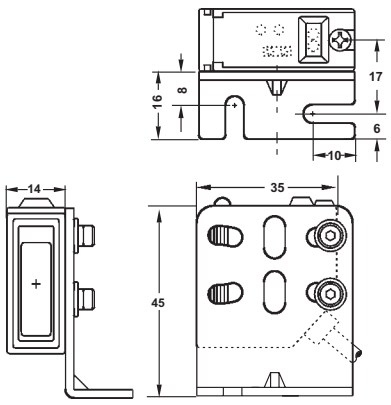
Assembly dimensions

1.



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

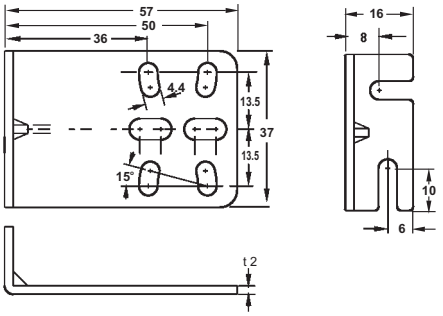
2. Assembly dimensions Mounting dawing with RP-D700



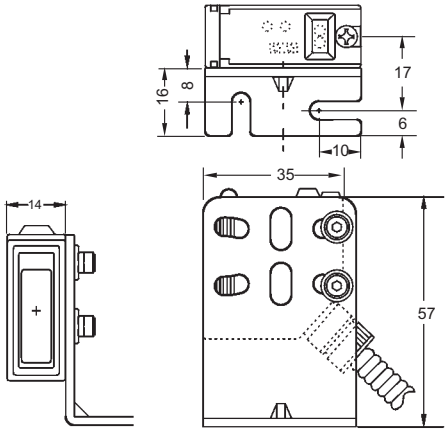
MS-RP-2

Assembly dimensions

1. Sensor mounting bracket

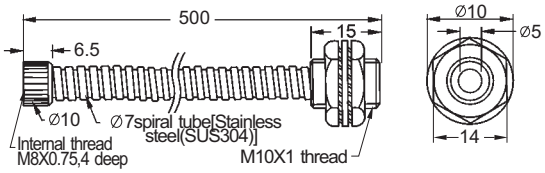


2.



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

PT-RP500



PT-RP1000