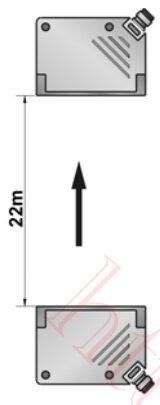



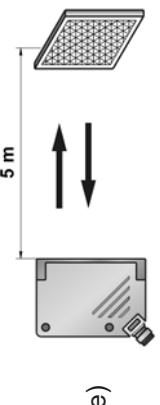





# RP43 SERIES







## Thru-beam Mode & Retroreflective Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<b>Thru-beam Mode</b> Sensing Distance: 22m Light Source: Red Light 	2m Cable 	10-30V DC	Emitter	RP43-T022MD-EY6C3L2
			NPN	RP43-T022MN-CY6C4U2
			PNP	RP43-T022MP-CY6C4U2
			NPN/PNP	RP43-T022MD-CY6C4U2
	Quick Disconnect (Pico-style) 	10-30V DC	Emitter	RP43-T022MD-EY6Q4LP
			NPN	RP43-T022MN-CY6Q4UP
			PNP	RP43-T022MP-CY6Q4UP
			NPN/PNP	RP43-T022MD-CY6Q4UP
	6" Pig Tail (Pico-style) 	10-30V DC	Emitter	RP43-T022MD-EY6P4LP
			NPN	RP43-T022MN-CY6P4UP
			PNP	RP43-T022MP-CY6P4UP
			NPN/PNP	RP43-T022MD-CY6P4UP
<b>Retro-reflective Mode</b> with Polarizing filter Sensing Distance: 5m (Note) Light Source: Red Light 	2m Cable 	10-30V DC	NPN	RP43-L5000N-CY6C4U2-PF
			PNP	RP43-L5000P-CY6C4U2-PF
			NPN/PNP	RP43-L5000D-CY6C4U2-PF
			—	—
	Quick Disconnect (Pico-style) 	10-30V DC	NPN	RP43-L5000N-CY6Q4UP-PF
			PNP	RP43-L5000P-CY6Q4UP-PF
			NPN/PNP	RP43-L5000D-CY6Q4UP-PF
			—	—
	6" Pig Tail (Pico-style) 	10-30V DC	NPN	RP43-L5000N-CY6P4UP-PF
			PNP	RP43-L5000P-CY6P4UP-PF
			NPN/PNP	RP43-L5000D-CY6P4UP-PF
			—	—

Note: Used with RE-6152 (supplied with sensor) reflector.

# RP43 SERIES

## Diffuse Mode with Background Suppression

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<b>Diffuse Mode with Background Suppression</b> Sensing Distance: 100mm Light Source: Red Light	2m Cable 	10-30V DC	NPN	RP43-D0100N-CY6C4U2-BS
			PNP	RP43-D0100P-CY6C4U2-BS
			NPN/PNP	RP43-D0100D-CY6C4U2-BS
			—	—
	Quick Disconnect (Pico-style) 	10-30V DC	NPN	RP43-D0100N-CY6Q4UP-BS
			PNP	RP43-D0100P-CY6Q4UP-BS
			NPN/PNP	RP43-D0100D-CY6Q4UP-BS
			—	—
	6" Pig Tail (Pico-style) 	10-30V DC	NPN	RP43-D0100N-CY6P4UP-BS
			PNP	RP43-D0100P-CY6P4UP-BS
			NPN/PNP	RP43-D0100D-CY6P4UP-BS
			—	—
<b>Diffuse Mode with Background Suppression</b> Sensing Distance: 300mm Light Source: Red Light	2m Cable 	10-30V DC	NPN	RP43-D0300N-CY6C4U2-BS
			PNP	RP43-D0300P-CY6C4U2-BS
			NPN/PNP	RP43-D0300D-CY6C4U2-BS
			—	—
	Quick Disconnect (Pico-style) 	10-30V DC	NPN	RP43-D0300N-CY6Q4UP-BS
			PNP	RP43-D0300P-CY6Q4UP-BS
			NPN/PNP	RP43-D0300D-CY6Q4UP-BS
			—	—
	6" Pig Tail (Pico-style) 	10-30V DC	NPN	RP43-D0300N-CY6P4UP-BS
			PNP	RP43-D0300P-CY6P4UP-BS
			NPN/PNP	RP43-D0300D-CY6P4UP-BS
			—	—

Ad: RP43 SERIES

**RP43 SERIES****Specifications**

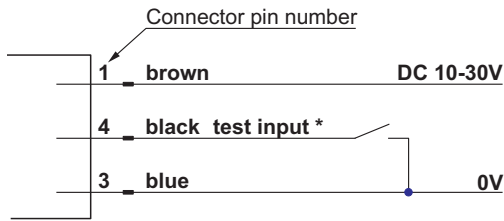
Sensing Mode	Thru-beam Mode		Retro-reflective Mode (with polarizing filter)	Diffuse Mode (With background suppression)
	Emitter	Receiver		
Sensing Range, Adjustable	Max.: 22m (72.2 ft) Typical: 14m (45.9ft)		5 m (Note)	40...100 mm (1.6...3.9 in) 100...300 mm (3.9...11.8 in)
Angle of Divergence	approx.40°		approx.2.5°	approx.40°
Light spot size	approx. 1.5m @ 20m (4.9 ft @ 65.6 ft)		approx. 400mm @ 5m (15.7 in @ 26.2 ft)	approx. 10mm @ 100mm approx. 30mm @ 300mm
Light Source	LED Red			
Response Time/Frequency	<15 ms / 33 Hz		<0.7 ms / 700 Hz	<2 ms / 250 Hz
Supply Voltage	10...30V DC (limit values)			
Current Consumption(no load)	<=35 mA			
Ripple (within Vs tolerance)	< 6 V peak-to-peak			
Output Type	PNP, NPN, NPN+PNP			
Output Voltage High	PNP: Vs - (<=1.5V); NPN: approx. Vs.			
Output Voltage Low	PNP: approx. 0V; NPN: <=1.5V.			
Output Current Max.	100 mA			
Operation Mode	Light or dark switching selectable via switch			
Connection	Cable, M8 4-pin plug, M8 pigtail			
Connecting Cable	PVC, 2m			
Housing Material	ABS			
Enclosure Rating	IP 67 / NEMA 6			
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected (NPN/PNP output without reverse polarity protected)			
Test Input	Vs: light source off, 0 V or no connection: light source on. (only for emitter of thru-beam mode)			
Ambient Operating Temperature	-25...55°C			
Storage Temperature	-40...70°C			
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m (in 30-1000MHz), EFT>1KV, ESD>4KV(contact)			
Voltage With Stand Ability	IEC 60947-5-2, Part 8.3.3.4 or 500VDC for one min, between all supply terminals connected together and enclosure			
Insulation Resistance	>20M $\Omega$ , with 500V DC megger between all supply terminals connected together and enclosure			
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 time each			
Mounting Bracket	MB-4932 (optional)			
Weight	approx. 23g			
Cable	2m or 9m 4.0 $\phi$ 4x0.5 (Emitter :3X0.5) PVC.			
Pigtail Type	See page Pigtail Series or our Cables & Connectors catalogue.			

Note: Used with RE-6152 (supplied with sensor) reflector.

# RP43 SERIES

## Connection Diagrams

### Emitter of Thru-beam Mode



#### Connector face view

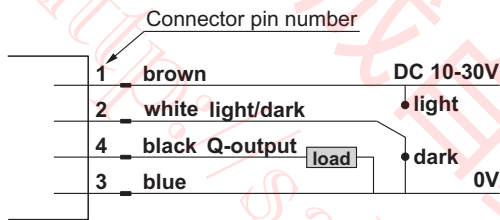
##### Pico-Style



- 1. Brown (+)
- 2. Not used
- 3. Blue (-)
- 4. Black (Test input)

\*: Test input=0V Emitter off.

### PNP output type



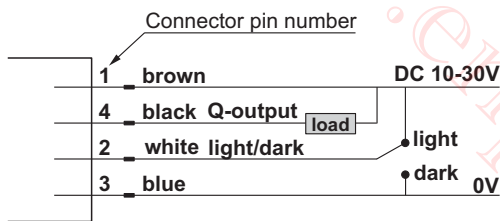
#### Connector face view

##### Pico-Style



- 1. Brown (+)
- 2. White (Light/Dark control)
- 3. Blue (-)
- 4. Black (Output)

### NPN output type



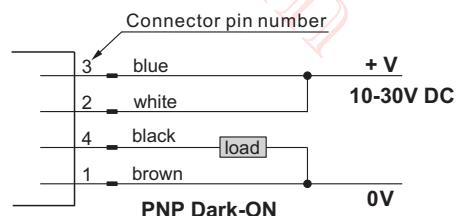
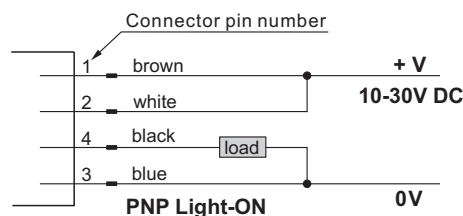
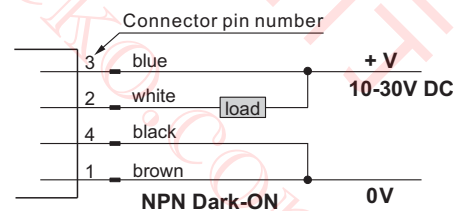
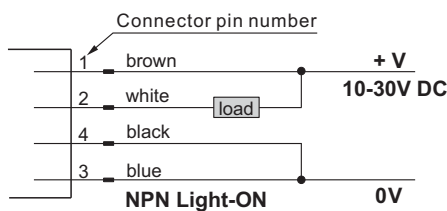
#### Connector face view

##### Pico-Style



- 1. Brown (+)
- 2. White (Light/Dark control)
- 3. Blue (-)
- 4. Black (Output)

### NPN/PNP type



#### Connector face view

##### Pico-Style



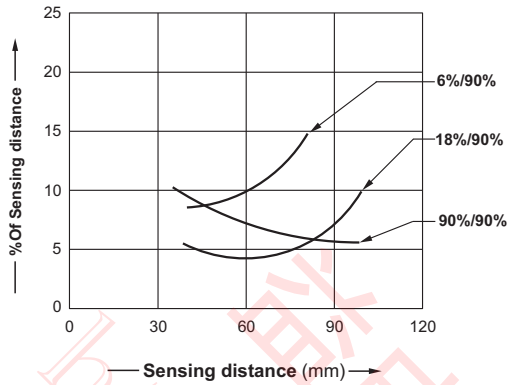
- 1. Brown
- 2. White
- 3. Blue
- 4. Black

Ad: RP43 SERIES

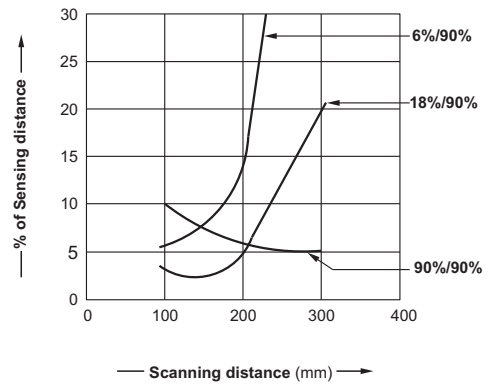
# RP43 SERIES

## Sensing Characteristics (Typical)

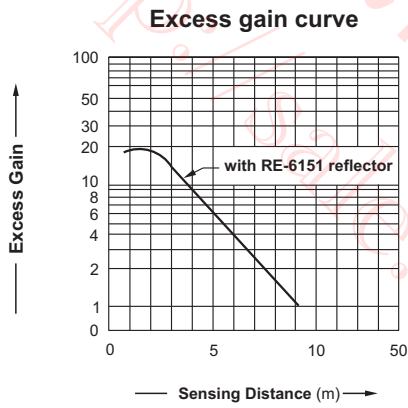
**BGS type Diffuse sensor (Sn=100mm)**



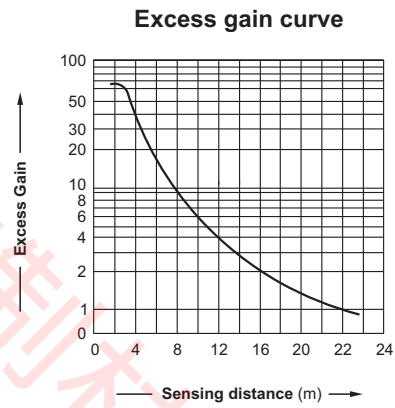
**BGS type Diffuse sensor (Sn=300mm)**



**Retro-reflective sensor (Sn=5m)**



**Thru-beam sensor (Sn=22m)**



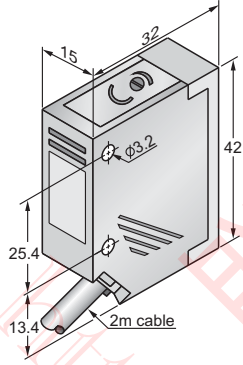
Ad: RP43 SERIES

# RP43 SERIES

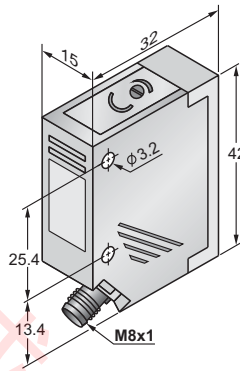
## Dimensions (Unit: mm)

### Sensor Type

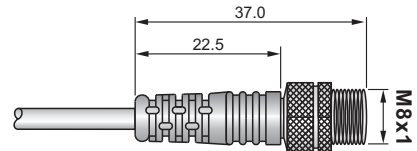
Cable type



Connector Type (Pico-style)

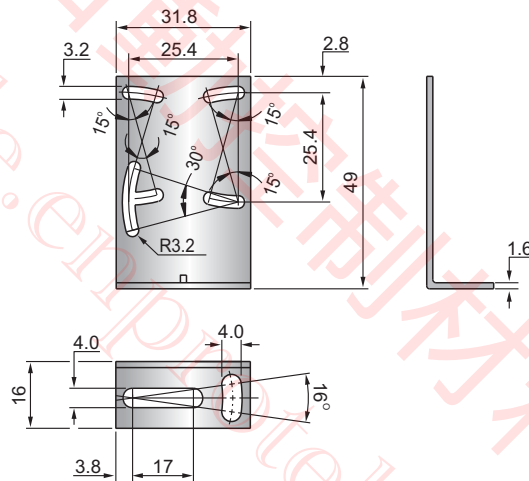
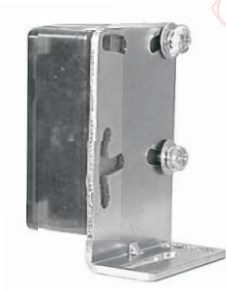


Pigtail\* Type (Pico-style)



\*: Please see **Pigtail Series** or our **Cables & Connectors** catalogue for more information.

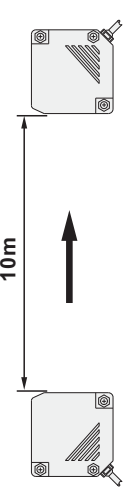




### MB-4932 (Mounting bracket-optional)



Ad: RP43 SERIES

# RP50 SERIES






## Opposed Mode (Standard Range)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Light Source: Red LED</p>  <p>Opposed Mode Sensing Distance: 10m</p>	<p>2m Cable</p> 	10-30V DC	Emitter	<u>RP50-T010MD-EY6C2L2</u>
			NPN	<u>RP50-T010MN-CY6C4U2</u>
			PNP	<u>RP50-T010MP-CY6C4U2</u>
			NPN/PNP	<u>RP50-T010MD-CY6C4U2</u>
		12-240V DC/ 24-240V AC	Emitter (2-wire)	<u>RP50-T010MC-EY6C2L2</u>
			SPDT Relay (5-wire)	<u>RP50-T010MR-CY6C5L2</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T010MC-LY6C2U2</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T010MC-DY6C2U2</u>
	<p>5m Cable</p> 	10-30V DC	Emitter	<u>RP50-T010MD-EY6C2L5</u>
			NPN	<u>RP50-T010MN-CY6C4U5</u>
			PNP	<u>RP50-T010MP-CY6C4U5</u>
			NPN/PNP	<u>RP50-T010MD-CY6C4U5</u>
		12-240V DC/ 24-240V AC	Emitter (2-wire)	<u>RP50-T010MC-EY6C2L5</u>
			SPDT Relay (5-wire)	<u>RP50-T010MR-CY6C5L5</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T010MC-LY6C2U5</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T010MC-DY6C2U5</u>
	<p>Quick Disconnect (swivel 90°)</p> 	10-30V DC (Euro-style)	Emitter	<u>RP50-T010MD-EY6Q4LE-S</u>
			NPN	<u>RP50-T010MN-CY6Q4UE-S</u>
			PNP	<u>RP50-T010MP-CY6Q4UE-S</u>
			NPN/PNP	<u>RP50-T010MD-CY6Q4UE-S</u>
		12-240V DC/ 24-240V AC (Micro-style)	Emitter (2-wire)	<u>RP50-T010MC-EY6Q3LM-S</u>
			SPDT Relay (5-wire)	<u>RP50-T010MR-CY6Q5LM-S</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T010MC-LY6Q3UM-S</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T010MC-DY6Q3UM-S</u>
<p>6" Pigtail</p> 	10-30V DC (Euro-style)	Emitter	<u>RP50-T010MD-EY6P4LE</u>	
		NPN	<u>RP50-T010MN-CY6P4UE</u>	
		PNP	<u>RP50-T010MP-CY6P4UE</u>	
		NPN/PNP	<u>RP50-T010MD-CY6P4UE</u>	
	12-240V DC/ 24-240V AC (Micro-style)	Emitter (2-wire)	<u>RP50-T010MC-EY6P3LM</u>	
		SPDT Relay (5-wire)	<u>RP50-T010MR-CY6P5LM</u>	
		SPST solid-state Light-ON (2-wire)	<u>RP50-T010MC-LY6P3UM</u>	
		SPST solid-state Dark-ON (2-wire)	<u>RP50-T010MC-DY6P3UM</u>	

Note:  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — At-01 —

# RP50 SERIES

## Opposed Mode (Long sensing range)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Light Source: Infrared LED</p>  <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Opposed Mode Sensing Distance: 30m</p>	<p>2m Cable</p> 	10-30V DC	Emitter	<u>RP50-T030MD-EY9C2L2</u>
			NPN	<u>RP50-T030MN-CY9C4U2</u>
			PNP	<u>RP50-T030MP-CY9C4U2</u>
			NPN/PNP	<u>RP50-T030MD-CY9C4U2</u>
		12-240V DC/ 24-240V AC	Emitter (2-wire)	<u>RP50-T030MC-EY9C2L2</u>
			SPDT Relay (5-wire)	<u>RP50-T030MR-CY9C5L2</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T030MC-LY9C2U2</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T030MC-DY9C2U2</u>
	<p>5m Cable</p> 	10-30V DC	Emitter	<u>RP50-T030MD-EY9C2L5</u>
			NPN	<u>RP50-T030MN-CY9C4U5</u>
			PNP	<u>RP50-T030MP-CY9C4U5</u>
			NPN/PNP	<u>RP50-T030MD-CY9C4U5</u>
		12-240V DC/ 24-240V AC	Emitter (2-wire)	<u>RP50-T030MC-EY9C2L5</u>
			SPDT Relay (5-wire)	<u>RP50-T030MR-CY9C5L5</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T030MC-LY9C2U5</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T030MC-DY9C2U5</u>
	<p>Quick Disconnect (swivel 90°)</p> 	10-30V DC (Euro-style)	Emitter	<u>RP50-T030MD-EY9Q4LE-S</u>
			NPN	<u>RP50-T030MN-CY9Q4UE-S</u>
			PNP	<u>RP50-T030MP-CY9Q4UE-S</u>
			NPN/PNP	<u>RP50-T030MD-CY9Q4UE-S</u>
		12-240V DC/ 24-240V AC (Micro-style)	Emitter (2-wire)	<u>RP50-T030MC-EY9Q3LM-S</u>
			SPDT Relay (5-wire)	<u>RP50-T030MR-CY9Q5LM-S</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-T030MC-LY9Q3UM-S</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-T030MC-DY9Q3UM-S</u>
<p>6" Pigtail</p> 	10-30V DC (Euro-style)	Emitter	<u>RP50-T030MD-EY9P4LE</u>	
		NPN	<u>RP50-T030MN-CY9P4UE</u>	
		PNP	<u>RP50-T030MP-CY9P4UE</u>	
		NPN/PNP	<u>RP50-T030MD-CY9P4UE</u>	
	12-240V DC/ 24-240V AC (Micro-style)	Emitter (2-wire)	<u>RP50-T030MC-EY9P3LM</u>	
		SPDT Relay (5-wire)	<u>RP50-T030MR-CY9P5LM</u>	
		SPST solid-state Light-ON (2-wire)	<u>RP50-T030MC-LY9P3UM</u>	
		SPST solid-state Dark-ON (2-wire)	<u>RP50-T030MC-DY9P3UM</u>	

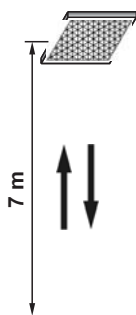
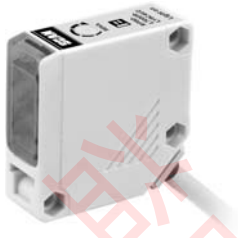



**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — At-02 —

At: RP50 SERIES



# RP50 SERIES






## Retroreflective Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Light Source: Infrared LED</p>  <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Retroreflective Mode Sensing Distance: 7 m (Note)</p>	<p>2m Cable</p> 	10-30V DC	NPN	<u>RP50-L7000N-CY9G4U2</u>
			PNP	<u>RP50-L7000P-CY9G4U2</u>
			NPN/PNP	<u>RP50-L7000D-CY9G4U2</u>
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	<u>RP50-L7000R-CY9G5L2</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-L7000C-LY9G2U2</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-L7000C-DY9G2U2</u>
	<p>5m Cable</p> 	10-30V DC	NPN	<u>RP50-L7000N-CY9G4U5</u>
			PNP	<u>RP50-L7000P-CY9G4U5</u>
			NPN/PNP	<u>RP50-L7000D-CY9G4U5</u>
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	<u>RP50-L7000R-CY9G5L5</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-L7000C-LY9G2U5</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-L7000C-DY9G2U5</u>
	<p>Quick Disconnect (swivel 90°)</p> 	10-30V DC (Euro-style)	NPN	<u>RP50-L7000N-CY9Q4UE-S</u>
			PNP	<u>RP50-L7000P-CY9Q4UE-S</u>
			NPN/PNP	<u>RP50-L7000D-CY9Q4UE-S</u>
		12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	<u>RP50-L7000R-CY9Q5LM-S</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-L7000C-LY9Q3UM-S</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-L7000C-DY9Q3UM-S</u>
<p>6" Pigtail</p> 	10-30V DC (Euro-style)	NPN	<u>RP50-L7000N-CY9P4UE</u>	
		PNP	<u>RP50-L7000P-CY9P4UE</u>	
		NPN/PNP	<u>RP50-L7000D-CY9P4UE</u>	
	12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	<u>RP50-L7000R-CY9P5LM</u>	
		SPST solid-state Light-ON (2-wire)	<u>RP50-L7000C-LY9P3UM</u>	
		SPST solid-state Dark-ON (2-wire)	<u>RP50-L7000C-DY9P3UM</u>	

**Note:** Used with RE-6152 (supplied with sensor) reflector.  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — At-03 —

# RP50 SERIES

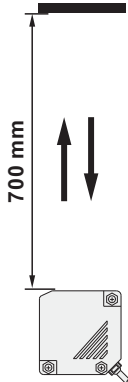




## Retroreflective Mode with Polarizing Filter

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number		
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Light Source: Red LED</p>  <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Retroreflective Mode with Polarizing Filter</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Sensing Distance: 5 m (Note)</p>	<p>2m Cable</p> 	10-30V DC	NPN	RP50-L5000N-CY6G4U2-PF		
			PNP	RP50-L5000P-CY6G4U2-PF		
			NPN/PNP	RP50-L5000D-CY6G4U2-PF		
		12-240V DC/ 24-240V AC	<p>5m Cable</p> 	10-30V DC	NPN	RP50-L5000N-CY6G4U5-PF
					PNP	RP50-L5000P-CY6G4U5-PF
					NPN/PNP	RP50-L5000D-CY6G4U5-PF
				12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP50-L5000R-CY6C5L2-PF
					SPST solid-state Light-ON (2-wire)	RP50-L5000G-LY6G2U2-PF
					SPST solid-state Dark-ON (2-wire)	RP50-L5000G-DY6G2U2-PF
	<p>Quick Disconnect (swivel 90°)</p> 	10-30V DC (Euro-style)	NPN	RP50-L5000N-CY6Q4UE-PS		
			PNP	RP50-L5000P-CY6Q4UE-PS		
			NPN/PNP	RP50-L5000D-CY6Q4UE-PS		
		12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	RP50-L5000R-CY6Q5LM-PS		
			SPST solid-state Light-ON (2-wire)	RP50-L5000G-LY6Q3UM-PS		
			SPST solid-state Dark-ON (2-wire)	RP50-L5000G-DY6Q3UM-PS		
		<p>6" Pigtail</p> 	10-30V DC (Euro-style)	NPN	RP50-L5000N-CY6P4UE-PF	
				PNP	RP50-L5000P-CY6P4UE-PF	
				NPN/PNP	RP50-L5000D-CY6P4UE-PF	
	12-240V DC/ 24-240V AC (Micro-style)		SPDT Relay (5-wire)	RP50-L5000R-CY6P5LM-PF		
			SPST solid-state Light-ON (2-wire)	RP50-L5000G-LY6P3UM-PF		
			SPST solid-state Dark-ON (2-wire)	RP50-L5000G-DY6P3UM-PF		

**Note:** Used with RE-6152 (supplied with sensor) reflector.  
 In Preparation: Part numbers with a line through the middle

# RP50 SERIES

## Diffuse Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Light Source: Infrared LED   Diffuse Mode Sensing Distance: 700 mm	2m Cable  	10-30V DC	NPN	<u>RP50-D0700N-CY9C4U2</u>
			PNP	<u>RP50-D0700P-CY9C4U2</u>
			NPN/PNP	<u>RP50-D0700D-CY9C4U2</u>
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	<u>RP50-D0700R-CY9C5L2</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-D0700C-LY9G2U2</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-D0700C-DY9G2U2</u>
	5m Cable  	10-30V DC	NPN	<u>RP50-D0700N-CY9C4U5</u>
			PNP	<u>RP50-D0700P-CY9C4U5</u>
			NPN/PNP	<u>RP50-D0700D-CY9C4U5</u>
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	<u>RP50-D0700R-CY9C5L5</u>
			SPST solid-state Light-ON (2-wire)	<u>RP50-D0700C-LY9G2U5</u>
			SPST solid-state Dark-ON (2-wire)	<u>RP50-D0700C-DY9G2U5</u>
Quick Disconnect (swivel 90°)  	10-30V DC (Euro-style)	NPN	<u>RP50-D0700N-CY9Q4UE-S</u>	
		PNP	<u>RP50-D0700P-CY9Q4UE-S</u>	
		NPN/PNP	<u>RP50-D0700D-CY9Q4UE-S</u>	
	12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	<u>RP50-D0700R-CY9Q5LM-S</u>	
		SPST solid-state Light-ON (2-wire)	<u>RP50-D0700C-LY9Q3UM-S</u>	
		SPST solid-state Dark-ON (2-wire)	<u>RP50-D0700C-DY9Q3UM-S</u>	
6" Pigtail  	10-30V DC (Euro-style)	NPN	<u>RP50-D0700N-CY9P4UE</u>	
		PNP	<u>RP50-D0700P-CY9P4UE</u>	
		NPN/PNP	<u>RP50-D0700D-CY9P4UE</u>	
	12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	<u>RP50-D0700R-CY9P5LM</u>	
		SPST solid-state Light-ON (2-wire)	<u>RP50-D0700C-LY9P3UM</u>	
		SPST solid-state Dark-ON (2-wire)	<u>RP50-D0700C-DY9P3UM</u>	

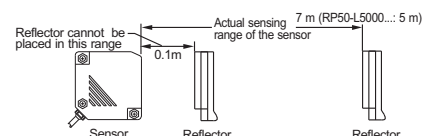
**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — At-05 —

# RP50 SERIES

## Specifications (DC)

Item	Type Model No.	Retroreflective Mode		Diffuse Mode	Opposed Mode	
		(with polarizing filters)	Long sensing range		Standard	Long sensing range
		RP50-L5000...	RP50-L7000...	RP50-D0700...	RP50-T010M...	RP50-T030M...
Sensing range		0.1 to 5 m (Note1)	0.1 to 7 m (Note1)	700 mm (Note2)	10 m	30m
Sensing object		φ 50mm or more opaque translucent or specular object	φ 50mm or more opaque or translucent object	Opaque, translucent or transparent object	φ 20mm or more opaque object (if slit masks are fitted, an object as small as 3x6 mm can be detected)	
Hysteresis		_____		15% or less of sensing distance	_____	
Supply voltage		10 to 30V DC				
Current consumption		<35 mA				
Output Type		PNP, NPN, PNP/NPN				
Output Voltage High		PNP: Vs - (<=1.5V); NPN: approx. Vs.				
Output Voltage Low		PNP: approx. 0V; NPN: <=1.5V.				
Output Current Max.		100 mA				
Operation Mode		Selectable either Light-on Dark-on by the control input wire				
Response time		10 ms or less				
Operation indicator		Red LED (lights up under stable light received condition or stable dark condition )				
Stability indicator		Green LED (lights up under stable light received condition or stable dark condition)				
Power indicator		_____				Red LED (lights up when the power is ON)
Sensitivity adjuster		Continuously variable adjuster	_____	Continuously variable adjuster	Continuously variable adjuster	_____
Interference immunity		Incorporated (Two units of sensors can be mounted closely.)			(Use optional interference prevention filters)	_____
Pollution degree		3 (Industrial environment)				
Enclose category		IP 66 (IEC)				
Ambient temperature		-20 to +55°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: 11,000 lx at the light receiving face, Incandescent light: 3000 lx 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)				
Voltage withstandability		IEC 60947-5-2 Parts 8.3.3.4, or 500V DC for one min between all supply terminals connected together and enclosure				
Insulation resistance		20M Ω, or more, with 500V DC megger between all supply terminals				
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)		Red LED (modulated)	Infrared LED(modulated)
Material		Enclosure: Acrylonitrile Butadine Styrene (ABS), Lens: Polycarbonate, Cover: Acrylonitrile Butadine Styrene (ABS), Front cover: Acrylic (retroreflective type sensor only)				
Cable		0.3mm <sup>2</sup> 5-core (thru-beam emitter: 2-core) cabtyre cable, 2m long				
Cable Length		Extension up to total 100m is possible with 0.3mm <sup>2</sup> , or more, cable (thru-beam type: both emitter and receiver)				
Pigtail type		See <b>Pigtail Series</b> or our <b>Cables &amp; Connectors</b> catalogue.				
Connector type		M12 (Euro-style) connector				
Weight		140g approx.			Emitter: 100g approx. Receiver: 140g approx.	Emitter: 125g approx. Receiver: 140g approx.

Notes: 1) Used with **RE-6152** (supplied with sensor) reflector.  
The sensing range and the sensing object of the retroreflective mode sensor is specified for the reflector. Further, the sensing range is the possible setting range for the reflector  
2) The sensing range of the diffuse mode sensor is specified for white non-glossy paper (200 x 200 mm) as the object.

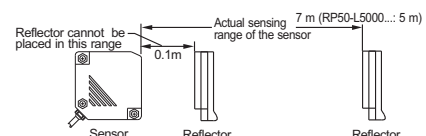


# RP50 SERIES

## Specifications (AC/DC)

Item	Type Model No.	Retroreflective Mode		Diffuse Mode RP50-D0700...	Opposed Mode	
		(with polarizing filters) RP50-L5000...	Long sensing range RP50-L7000...		Standard RP50-T010M...	Long sensing range RP50-T030M...
<b>Sensing range</b>		0.1 to 5 m (Note1)	0.1 to 7 m (Note1)	700 mm (Note2)	10 m	30m
<b>Sensing object</b>		φ 50mm or more opaque translucent or specular object	φ 50mm or more opaque or translucent object	Opaque, translucent or transparent object	φ 20mm or more opaque object (if slit masks are fitted, an object as small as 3x6 mm can be detected)	
<b>Hysteresis</b>		_____		15% or less of sensing distance	_____	
<b>Repeatability</b>		0.2mm or less		0.3mm or less	0.1mm or less	0.2mm or less
<b>Supply voltage</b>		12 to 240V DC 10% or 24 to 240V AC 10%			Ripple P-P 10% or less	
<b>Current consumption</b>		2 VA or less			Emitter: 1VA or less Receiver: 2VA or less	Emitter: 1.5VA or less Receiver: 2VA or less
<b>Output</b>		<b>Relay contact 1c</b> <ul style="list-style-type: none"> <li>Switching capacity: 250V AC 1A (resistive load) 30V DC 2A (resistive load)</li> <li>Electrical life: 100,000 or more operations (at rated AC load) 500,000 or more operations (at rated DC load)</li> <li>Mechanical life: 100,000,000 or more operations</li> </ul>				
<b>Light/Dark Operation</b>		Relay Output: Light-ON or Dark-ON selectable via control wire, SPST Solid state: Either Light-ON or Dark-ON				
<b>Response time</b>		10 ms or less				
<b>Operation indicator</b>		Red LED (lights up under stable light received condition or stable dark condition)				
<b>Stability indicator</b>		Green LED (lights up under stable light received condition or stable dark condition)				
<b>Power indicator</b>		_____				Red LED (lights up when the power is ON)
<b>Sensitivity adjuster</b>		Continuously variable adjuster	_____	Continuously variable adjuster	Continuously variable adjuster	_____
<b>Interference immunity</b>		Incorporated (Two units of sensors can be mounted closely.)			(Use optional interference prevention filters)	
<b>Pollution degree</b>		3 (Industrial environment)				
<b>Enclose category</b>		IP 66 (IEC)				
<b>Ambient temperature</b>		-20 to +55°C (No dew condensation or icing allowed), storage: -30 to +70°C				
<b>Ambient humidity</b>		35 to 85 % RH, storage: 35 to 85% RH				
<b>Ambient illuminance</b>		Sunlight: 11,000 x at the light receiving face, Incandescent light: 3000 x at the light-receiving face.				
<b>EMC</b>		IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)				
<b>Voltage withstandability</b>		IEC 60947-5-2 Parts 8.3.3.4, or 500V DC for one min between all supply terminals connected together and enclosure				
<b>Insulation resistance</b>		20M Ω, or more, with 500V DC megger between all supply terminals				
<b>Vibration resistance</b>		IEC 60947-5-2, Part 7.4.2 or 10-55HZ, 1.0mm amplitude In X, Y and Z directions for 30 min				
<b>Shock resistance</b>		IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in X, Y and Z directions for six times each				
<b>Emitting element</b>		Red LED (modulated)	Infrared LED (modulated)		Red LED (modulated)	Infrared LED(modulated)
<b>Material</b>		Enclosure: Acrylonitrile Butadine Styrene (ABS), Lens: Polycarbonate, Cover: Acrylonitrile Butadine Styrene (ABS), Front cover: Acrylic (retroreflective type sensor only)				
<b>Cable</b>		0.3mm <sup>2</sup> 5-core (thru-beam emitter: 2-core) cabtyre cable, 2m long				
<b>Cable Length</b>		Extension up to total 100m is possible with 0.3mm <sup>2</sup> , or more, cable (thru-beam type: both emitter and receiver)				
<b>Pigtail type</b>		See <b>Pigtail Series</b> or our <b>Cables &amp; Connectors</b> catalogue.				
<b>Connector type</b>		M12 (Micro style) connector				
<b>Weight</b>		140g approx.			Emitter: 100g approx. Receiver: 140g approx.	Emitter: 125g approx. Receiver: 140g approx.

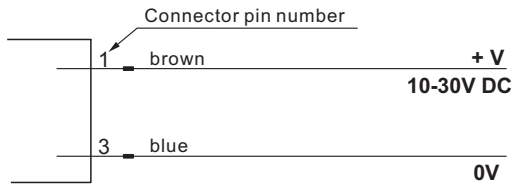
Notes: 1) Used with **RE-6152** (supplied with sensor) reflector.  
The sensing range and the sensing object of the retroreflective mode sensor is specified for the reflector. Further, the sensing range is the possible setting range for the reflector  
2) The sensing range of the diffuse mode sensor is specified for white non-glossy paper (200 x 200 mm) as the object.



# RP50 SERIES

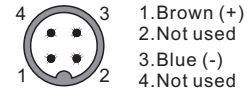
## Connection Diagrams (DC)

### Emitter of Thru-beam Mode

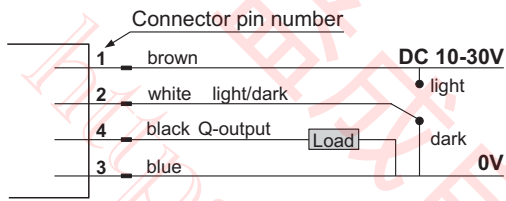


### Connector pin position

#### Euro-style



### PNP output type

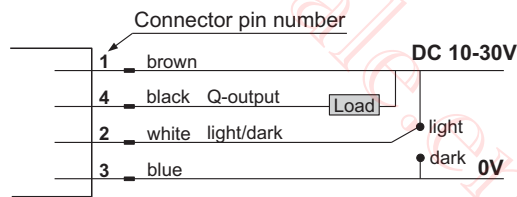


### Connector pin position

#### Euro-style

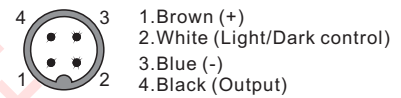


### NPN output type

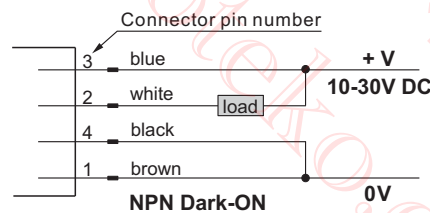
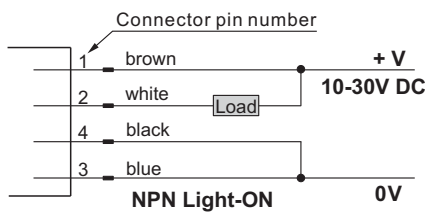


### Connector pin position

#### Euro-style

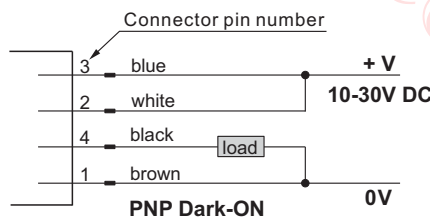
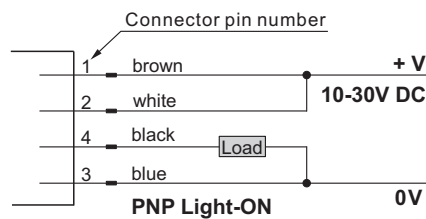
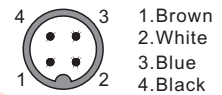


### NPN/PNP output type



### Connector pin position

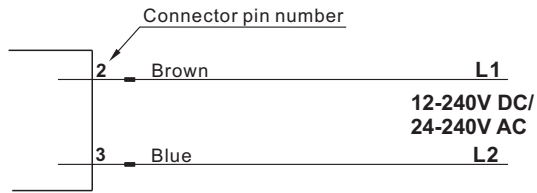
#### Euro-style



# RP50 SERIES

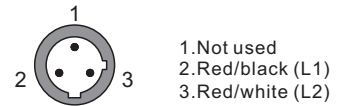
## Connection Diagrams (AC/DC)

### Emitter of Thru-beam Mode

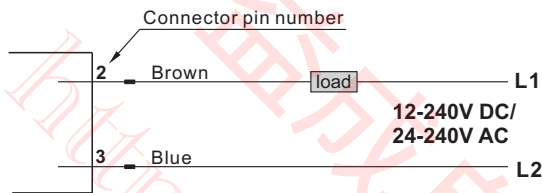


#### Connector face view

##### Micro-style

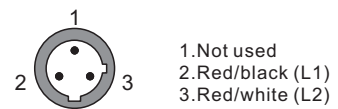


### SPST Solid-state output type

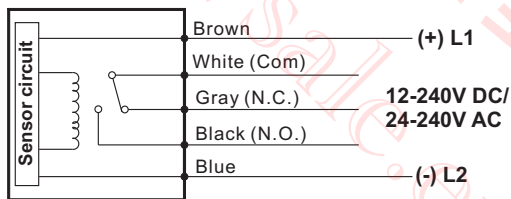


#### Connector face view

##### Micro-style



### SPDT Relay output



#### Connector face view

##### Micro-style



### SPDT Relay Output operation

Sensing Mode		Thru-beam & Retroreflective type				Diffuse type			
		Light-ON type		Dark-ON type		Light-ON type		Dark-ON type	
Output		NO (Black cable)	NC (Gray cable)	NO (Black cable)	NO (Gray cable)	NO (Black cable)	NC (Gray cable)	NO (Black cable)	NO (Gray cable)
Output Condition	Power OFF	Open	Close	Open	Close	Open	Close	Open	Close
	Beam-received	Close	Open	Open	Close	Close	Open	Open	Close
	Beam-interrupted	Open	Close	Close	Open	Open	Close	Close	Open

■ Object detected state

# RP50 SERIES

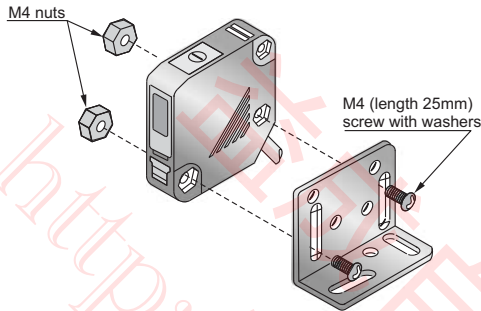
## Precautions For Proper Use

### Cautions:

Don't use the sensor for a safety aim, because it's only designed for a normal object detection

### Mounting

The tightening torque should be 0.8N.m or less.

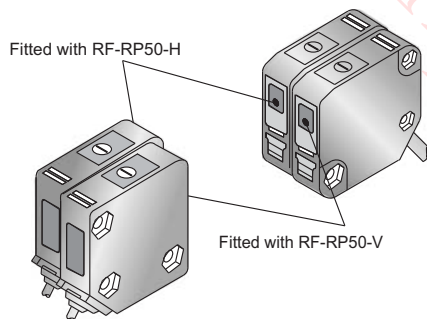


### Others

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

### Interference prevention filter (exclusively for RP50-T010M...)

Use the interference prevention filters (optional) when two units of thru-beam type sensors are mounted closely.



There are two types of interference prevention filters. The two sets of thru-beam type sensors should be fitted with different types of interference prevention filters.

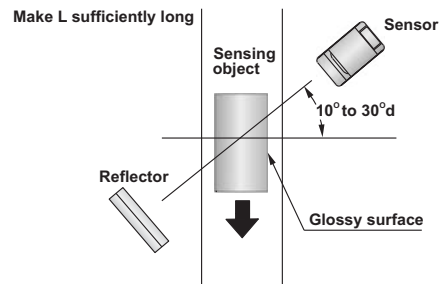
### Retroreflective type sensor (RP50-L7000R-CY9C5L2)

#### • Please take care of the following points when detecting materials having a gloss.

- Make L, shown in the diagram, sufficiently long. Install at an angle of 10 to 30 degrees to the sensing object.

RP50-L5000R-LY6C5L2-PF;

does not need the above adjustment.



### Retroreflective type sensor with polarizing filters (RP50-L5000R-CY6C5L2-PF)

- 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.
- Mcrease the distance between the sensor and the sensing object..

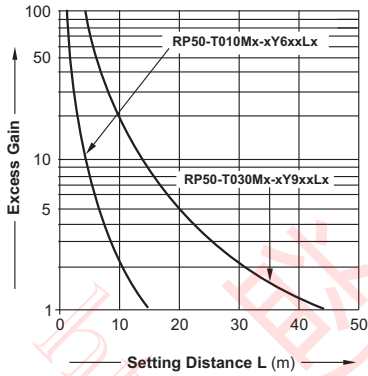


# RP50 SERIES

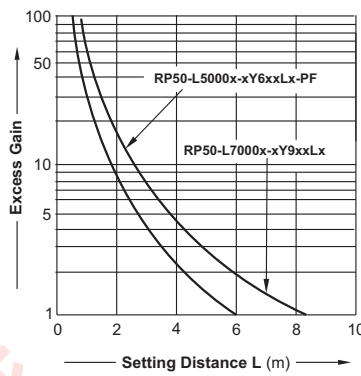
## Sensing Characteristics (Typical)

### All Models

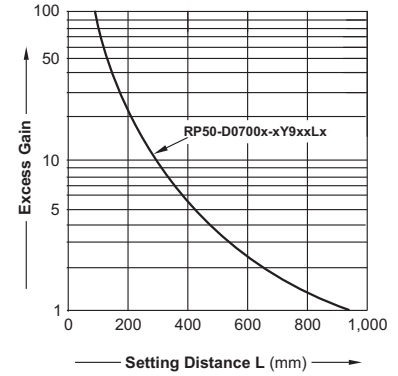
**Opposed Mode**



**Retroreflective Mode**

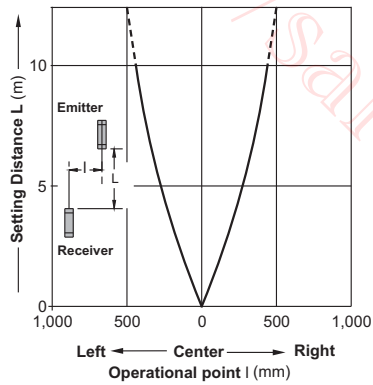


**Diffuse Mode**

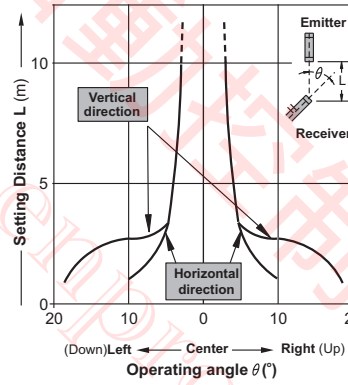


### Opposed mode sensor (sensing range=10m)

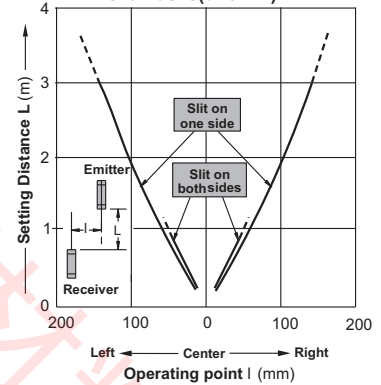
**Parallel Deviation**



**Angular Deviation**

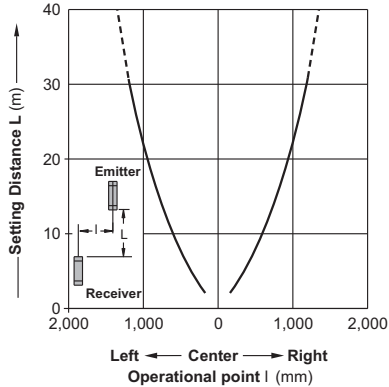


**Parallel Deviation with slit masks(3X6mm)**

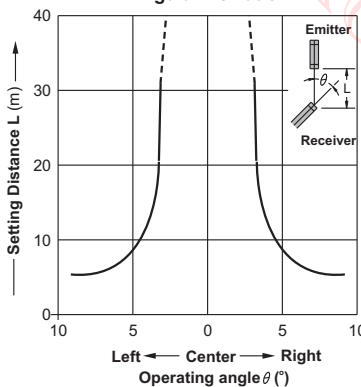


### Opposed mode sensor (sensing range=30m)

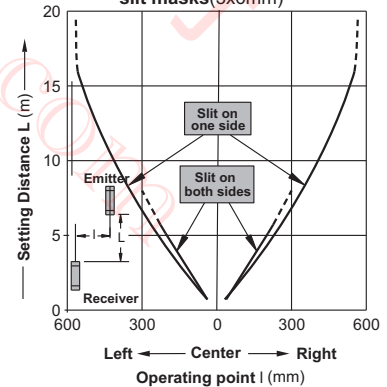
**Parallel Deviation**



**Angular Deviation**



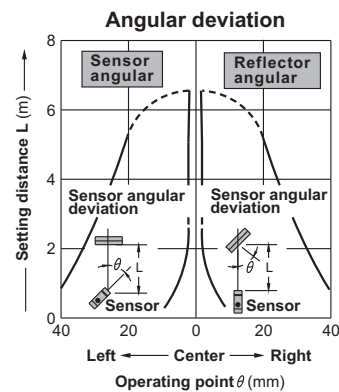
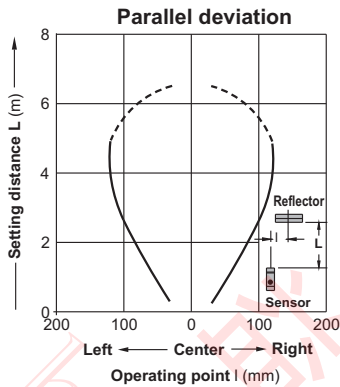
**Parallel Deviation with slit masks(3x6mm)**



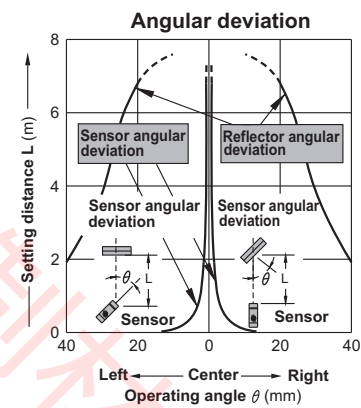
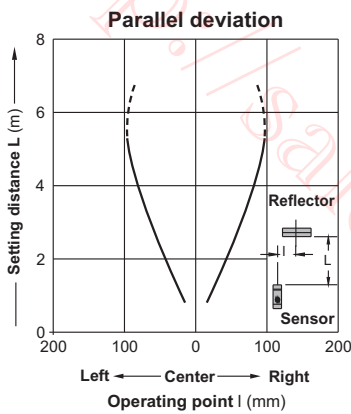
# RP50 SERIES

## Sensing Characteristics (Typical)

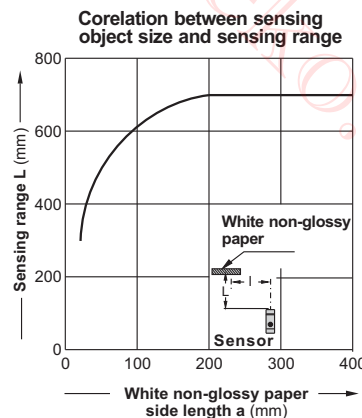
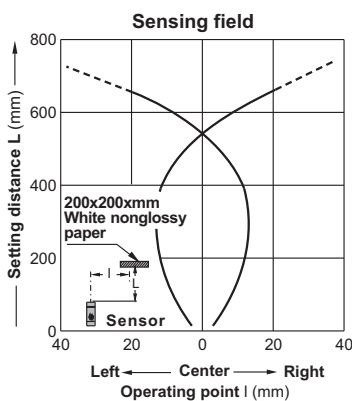
### Polarized retroreflective mode sensor (Sensing Range=5m)



### Long range retroreflective mode sensor (Sensing Range=7m)



### Diffuse mode sensor (Sensing rang=700mm)



As the sensing object size becomes smaller than the standard size (white non-glossy paper 200X200mm), the sensing range shortens, as shown in the left graph.

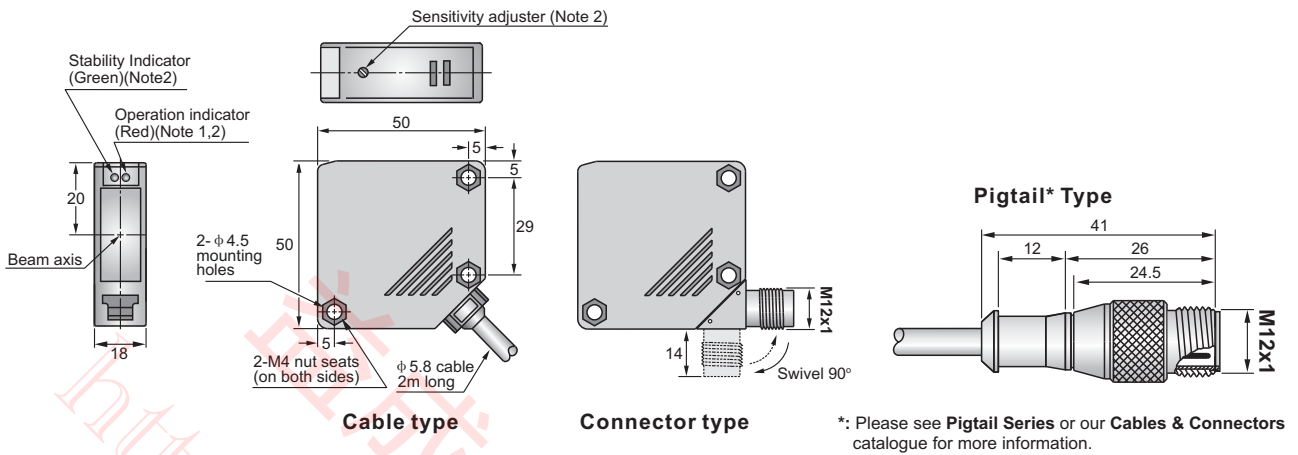
For plotting the left graph, the sensitivity has been set such that a 200X200mm white nonglossy paper is just detectable at a distance of 700mm.

At: RP50 SERIES

# RP50 SERIES

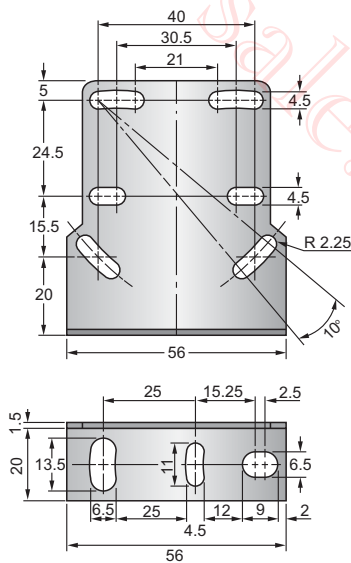
## Dimensions (Unit: mm)

### Sensor Type

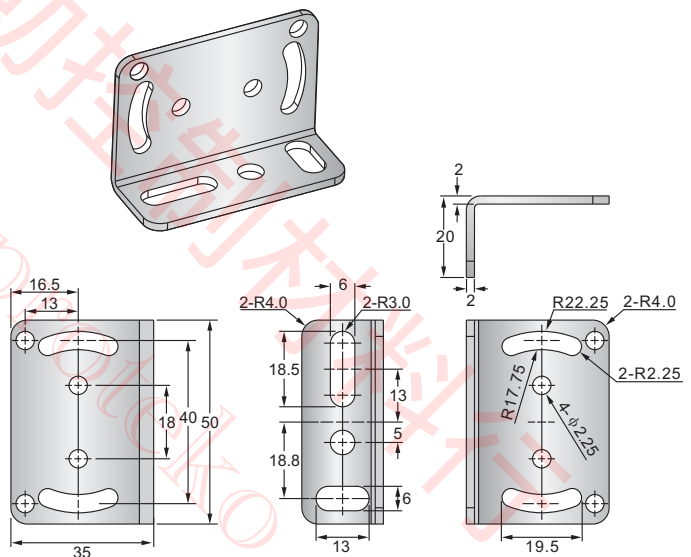


Notes: 1) It is the power indicator(red) on the emitter of thru-beam mode.  
 2) Not incorporated on the emitter of thru-beam mode.

### MB-6556 (optional)

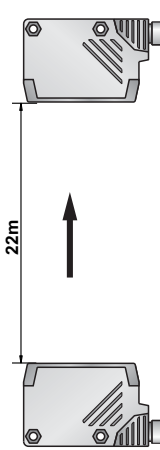






### MB-5035 (optional)



# RP64 SERIES

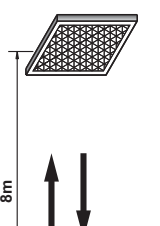




## Thru-beam Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Red Light: 660nm</p>  <p>22m</p> <p>Thru-beam Mode Sensing Distance: 22m</p>	<p>2m Cable</p> 	10-30V DC	Emitter	RP64-T022MD-EY6C3L2
			NPN	RP64-T022MN-CY6C4U2
			PNP	RP64-T022MP-CY6C4U2
			NPN/PNP	RP64-T022MD-CY6C5U2
		12-240V DC/ 24-240V AC	Emitter (2-wire)	RP64-T022MA-EY6C2L2
			Relay L.O./D.O. (5-wire)	RP64-T022MR-CY6C5L2
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>Quick Disconnect (Pico-style)</p> 	10-30V DC	Emitter	RP64-T022MD-EY6Q4LP
			NPN	RP64-T022MN-CY6Q4UP
			PNP	RP64-T022MP-CY6Q4UP
			NPN/PNP	RP64-T022MD-CY6Q5UP
		12-240V DC/ 24-240V AC	————	————
			————	————
			————	————
			————	————
	<p>Quick Disconnect swivel 90°</p> 	10-30V DC (Euro style)	Emitter	RP64-T022MD-EY6Q4LE-S
			NPN	RP64-T022MN-CY6Q4UE-S
			PNP	RP64-T022MP-CY6Q4UE-S
			NPN/PNP	RP64-T022MD-CY6Q5UE-S
		12-240V DC/ 24-240V AC (Micro style)	Emitter (2-wire)	RP64-T022MA-EY6Q3LM-S
			Relay L.O./D.O. (5-wire)	RP64-T022MR-CY6Q5LM-S
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
<p>6" Pigtail</p> 		10-30V DC (Euro style)	Emitter	RP64-T022MD-EY6P4LE
			NPN	RP64-T022MN-CY6P4UE
			PNP	RP64-T022MP-CY6P4UE
			NPN/PNP	RP64-T022MD-CY6P5UE
	12-240V DC/ 24-240V AC (Micro style)	Emitter (2-wire)	RP64-T022MA-EY6P3LM	
		Relay L.O./D.O. (5-wire)	RP64-T022MR-CY6P5LM	
		SPST solid-state Light-ON (2-wire)		
		SPST solid-state Dark-ON (2-wire)		

Note:  
In Preparation: Part numbers with a line through the middle

# RP64 SERIES

## Retroreflective Mode with Polarizing Filter








Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Red Light: 660 nm</p>  <p>8m</p> <p>Retro-reflective Mode with Polarizing Filter Sensing Distance: 8m (Note)</p>	<p>2m Cable</p> 	10-30V DC	NPN	RP64-L8000N-CY6C4U2-PF
			PNP	RP64-L8000P-CY6C4U2-PF
			NPN/PNP	RP64-L8000D-CY6C5U2-PF
		12-240V DC/ 24-240V AC	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>Quick Disconnect (Pico-style)</p> 	10-30V DC	NPN	RP64-L8000N-CY6Q4UP-PF
			PNP	RP64-L8000P-CY6Q4UP-PF
			NPN/PNP	RP64-L8000D-CY6Q5UP-PF
		12-240V DC/ 24-240V AC	_____	_____
			_____	_____
			_____	_____
	<p>Quick Disconnect swivel 90°</p> 	10-30V DC (Euro style)	NPN	RP64-L8000N-CY6Q4UE-PS
			PNP	RP64-L8000P-CY6Q4UE-PS
			NPN/PNP	RP64-L8000D-CY6Q5UE-PS
		12-240V DC/ 24-240V AC (Micro style)	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
<p>6" Pigtail</p> 	10-30V DC (Euro style)	NPN	RP64-L8000N-CY6P4UE-PF	
		PNP	RP64-L8000P-CY6P4UE-PF	
		NPN/PNP	RP64-L8000D-CY6P5UE-PF	
	12-240V DC/ 24-240V AC (Micro style)	Relay L.O./D.O. (5-wire)		
		SPST solid-state Light-ON (2-wire)		
		SPST solid-state Dark-ON (2-wire)		

Ae: RP64 SERIES

**Note:** Used with RE-6152 (supplied with sensor) reflector.  
**In Preparation:** Part numbers with a line through the middle  
**Coming Soon :** Part numbers with underline

# RP64 SERIES






## Diffuse Mode with Background Suppression (Sn=300mm)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 20px;"> <p>Red Light: 660nm</p>  </div> <div style="margin-bottom: 20px;"> <p>300mm</p>  </div> <div> <p>Diffuse Mode with Background Suppression Sensing Distance: 300mm</p>  </div> </div>	<p>2m Cable</p> 	<p>10-30V DC</p>	NPN	RP64-D0300N-CY6C4U2-BS
			PNP	RP64-D0300P-CY6C4U2-BS
			NPN/PNP	
		<p>12-240V DC/ 24-240V AC</p>	Relay L.O./D.O. (5-wire)	RP64-D0300R-CY6C5L2-BS
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>Quick Disconnect (Pico-style)</p> 	<p>10-30V DC</p>	NPN	RP64-D0300N-CY6Q4UP-BS
			PNP	RP64-D0300P-CY6Q4UP-BS
			NPN/PNP	
		<p>12-240V DC/ 24-240V AC</p>	_____	_____
			_____	_____
			_____	_____
	<p>Quick Disconnect swivel 90°</p> 	<p>10-30V DC (Euro style)</p>	NPN	RP64-D0300N-CY6Q4UE-SB
			PNP	RP64-D0300P-CY6Q4UE-SB
			NPN/PNP	
		<p>12-240V DC/ 24-240V AC (Micro style)</p>	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>6" Pigtail</p> 	<p>10-30V DC (Euro style)</p>	NPN	RP64-D0300N-CY6P4UE-BS
			PNP	RP64-D0300P-CY6P4UE-BS
			NPN/PNP	
		<p>12-240V DC/ 24-240V AC (Micro style)</p>	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	

**Note:**  
 In Preparation: Part numbers with a line through the middle  
 Coming Soon : Part numbers with underline — Ae-03 —

# RP64 SERIES

## Diffuse Mode with Background Suppression (Sn=500mm)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Red Light: 660nm</p>  <p>500mm</p> <p>Diffuse Mode with Background Suppression Sensing Distance: 500mm</p>	<p>2m Cable</p> 	10-30V DC	NPN	RP64-D0500N-CY6C4U2-BS
			PNP	RP64-D0500P-CY6C4U2-BS
			NPN/PNP	RP64-D0500D-CY6C5U2-BS
		12-240V DC/ 24-240V AC	Relay L.O./D.O. (5-wire)	RP64-D0500R-CY6C5L2-BS
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>Quick Disconnect (Pico-style)</p> 	10-30V DC	NPN	RP64-D0500N-CY6Q4UP-BS
			PNP	RP64-D0500P-CY6Q4UP-BS
			NPN/PNP	
		12-240V DC/ 24-240V AC	_____	_____
			_____	_____
			_____	_____
	<p>Quick Disconnect swivel 90°</p> 	10-30V DC (Euro style)	NPN	RP64-D0500N-CY6Q4UE-SB
			PNP	RP64-D0500P-CY6Q4UE-SB
			NPN/PNP	
		12-240V DC/ 24-240V AC (Micro style)	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	
	<p>6" Pigtail</p> 	10-30V DC (Euro style)	NPN	RP64-D0500N-CY6P4UE-BS
			PNP	RP64-D0500P-CY6P4UE-BS
			NPN/PNP	
		12-240V DC/ 24-240V AC (Micro style)	Relay L.O./D.O. (5-wire)	
			SPST solid-state Light-ON (2-wire)	
			SPST solid-state Dark-ON (2-wire)	

Ae: RP64 SERIES

**Note:**  
 In Preparation: Part numbers with a line through the middle  
 Coming Soon : Part numbers with underline **— Ae-04 —**

**RP64 SERIES****Specifications (DC)**

Item	Sensing Mode		Thru-beam Mode	
	Diffuse Mode (with background suppression)	Retro-reflective Mode (with polarizing filter)	Emitter	Receiver
Sensing Range, Adjustable	100...300 mm (3.9...11.8 in) 150...500 mm (5.9...19.7 in)	8m (Note)	Max.: 22m(72.2 ft) Typical: 14m(45.9ft)	
Angle of Divergence	approx. 3.0°	approx.2.5°	approx.4.0°	
Light Spot Size	approx. 25mm @ 300mm approx. 35mm @ 500mm	approx. 400mm @ 8m (15.7 in @ 26.2 ft)	approx. 1.5m @ 20m (4.9 ft @ 65.6 ft)	
Light Source	LED Red			
Response Time/Frequency	<15 ms / 33 Hz	<0.7 ms / 700 Hz	<15 ms / 33 Hz	
Supply Voltage	10-30V DC (limit values)			
Current Consumption(no load)	<35 mA			
Ripple (within Vs tolerance)	< 5 V peak-to-peak			
Output Type	PNP, NPN, PNP+NPN			
Output Voltage High	PNP: Vs - (<=1.5V); NPN: approx. Vs.			
Output Voltage Low	PNP: approx. 0V; NPN: <=1.5V.			
Output Current Max.	100 mA			
Operation Mode	Selectable either Light-on Dark-on by the control input wire			
Connection	Cable or M12 4-pin plug			
Connecting Cable	PVC, 2m			
Housing Material	ABS			
Enclosure Rating	IP 67 / NEMA 6			
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected			
Test Input	_____	_____	Vs: light source off, 0 V or no connection: light source on.	
Construction	IEC IP 66; NEMA1,3,4,12,13			
Ambient Operating Temperature	-25...55°C			
Storage Temperature	-40...70°C			
EMC	IEC 60947-5-2, Parts 7.2.6.1, 2.3 or RFI>3V/m (in 30-1000MHz), EFT>1KV, ESD>4KV(contact)			
Voltage with Stand Ability	IEC 60947-5-2, Part 8.3.3.4 or 500VDC for one min, between all supply terminals connected together and enclosure			
Insulation Resistance	>20M $\Omega$ , with 500V DC megger between all supply terminals connected together and enclosure			
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 time each			
Mounting Bracket	MB-7047 (optional)			
Weight	Approx. 140 g with plug; 162 g with cable			
Cable	2m or 9m 6.2 $\phi$ 4X0.5 (Emitter :3X0.5) PVC.			
Pigtail Type	See Pigtail Series or our Cables & Connectors catalogue.			

Note: Used with RE-6152 (supplied with sensor) reflector.



**RP64 SERIES****Specifications (AC/DC)**

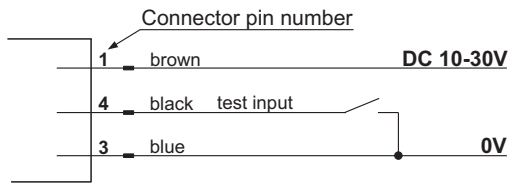
Item	Sensing Mode		Thru-beam Mode	
	Diffuse Mode (with background suppression)	Retro-reflective Mode (with polarizing filter)	Emitter	Receiver
Sensing Range, Adjustable	100...300 mm (3.9...11.8 in) 150...500 mm (5.9...19.7 in)	8 m (Note)	Max.: 22m(72.2 ft) Typical: 14m(45.9ft)	
Angle of Divergence	Approx.3.0°	approx.2.5°	approx.4.0°	
Light Spot Size	approx. 25mm @ 300mm approx. 35mm @ 500mm	approx. 400mm @ 8m (15.7 in @ 26.2 ft)	approx. 1.5m @ 20m (4.9 ft @ 65.6 ft)	
Light Source	LED Red			
Response Time/Frequency	<15 ms / 33 Hz	<0.7 ms / 700 Hz	<15 ms / 33 Hz	
Supply Voltage	12-240V DC, 24-240V AC(10%)			
Power Consumption	<2 VA			
Output Type	Relay SPDT Isolated, SPST solid-state output			
Switching Voltage Max.	250V AC			
Switching Current Max.	3A			
Operation Mode	SPDT Relay Isolated: Selectable either Light-on Dark-on by the control input wire SPST solid-state: Only Light-ON or Dark-ON by type number			
Connection	Cable or M12 5-pin or 3-pin plug			
Connecting Cable	PVC, 2m			
Housing Material	ABS			
Enclosure Rating	IP 67 / NEMA 6			
Circuit Protection	Output Short Circuit Protection (Only for SPST Solid State output)			
Test Input	_____			
Ambient Operating Temperature	-25...55°C(-13...131°F)			
Storage Temperature	-40...70°C(-40...158°F)			
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m (in 30-1000MHz), EFT>1KV, ESD>4KV(contact)			
Voltage with Stand Ability	IEC 60947-5-2, Part 8.3.3.4 or 1500VAC for one min, between all supply terminals connected together and enclosure			
Insulation Resistance	>20M $\Omega$ , with 1500V AC megger between all supply terminals connected together and enclosure			
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 time each			
Mounting Bracket	MB-7047 (optional)			
Weight	approx. 159g			
Cable	2m or 9m 6.2 $\phi$ 4X0.5 (Emitter :3X0.5) PVC.			
Pigtail Type	See Pigtail Series or our Cables & Connectors catalogue.			

Note: Used with RE-6152 (supplied with sensor) reflector.

# RP64 SERIES

## Connection Diagrams

### Emitter of Thru-beam Mode (DC)



### Connector face view

#### Euro-style

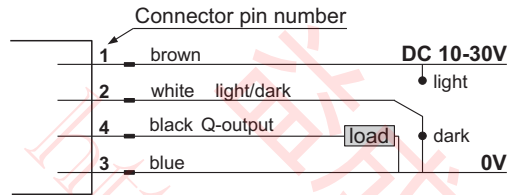


#### Pico-Style



- 1. Brown (+)
- 2. Not used
- 3. Blue (-)
- 4. Black (Test input)

### PNP



### Connector face view

#### Euro-style

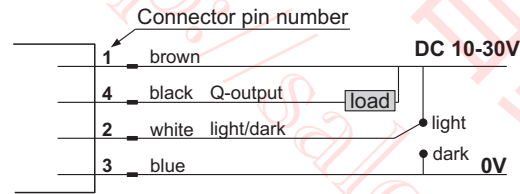


#### Pico-Style



- 1. Brown (+)
- 2. White (Light/Dark control)
- 3. Blue (-)
- 4. Black (Output)

### NPN



### Connector face view

#### Euro-style

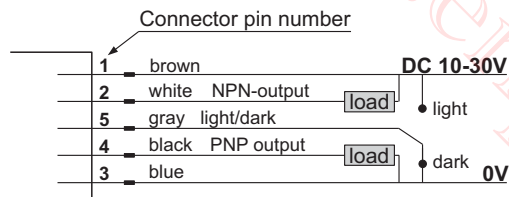


#### Pico-Style



- 1. Brown (+)
- 2. White (Light/Dark control)
- 3. Blue (-)
- 4. Black (Output)

### NPN/PNP



### Connector face view

#### Euro-style

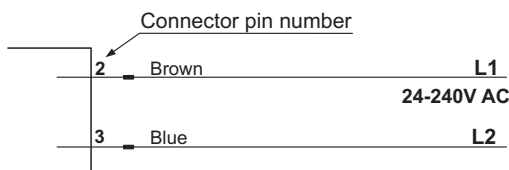


#### Pico-Style



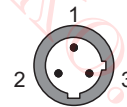
- 1. Brown (+)
- 2. White (NPN output)
- 3. Blue (-)
- 4. Black (PNP output)
- 5. Gray (Light/Dark control)

### Emitter of Thru-beam Mode (AC)



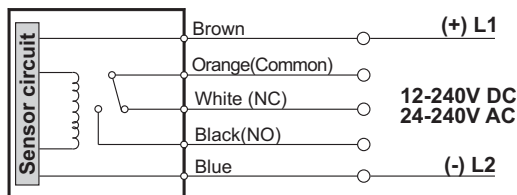
### Connector face view

#### Micro-style



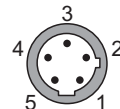
- 1. Green (Not used)
- 2. Red/black (L1)
- 3. Red/white (L2)

### SPDT EM Relay version (AC/DC)



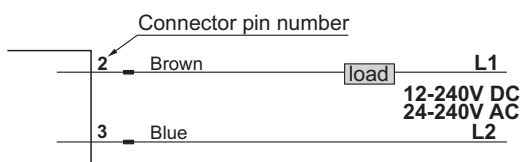
### Connector face view

#### Micro-style



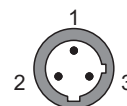
- 1. Red/white (L1)
- 2. Red (L2)
- 3. Green (Common)
- 4. Red/yellow (N.O.)
- 5. Red/black (N.C.)

### SPST solid-state version (AC/DC)



### Connector face view

#### Micro-style



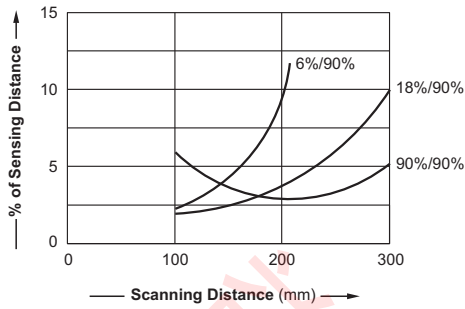
- 1. Green (Not used)
- 2. Red/black (L1)
- 3. Red/white (L2)

Ae: RP64 SERIES

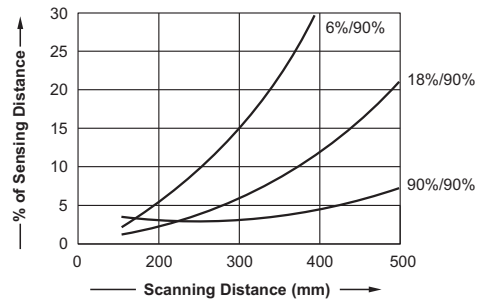
# RP64 SERIES

## Sensing Characteristics (Typical)

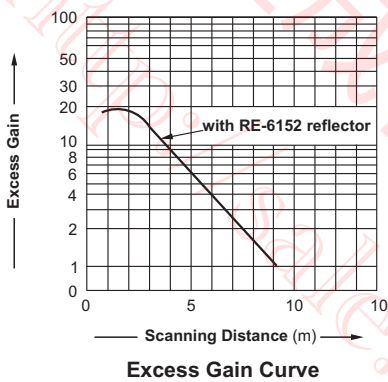
**BGS Type Diffuse Sensor (Sn=300mm)**



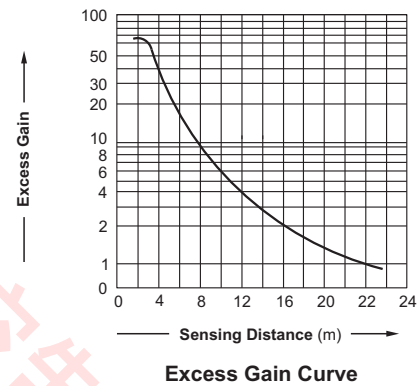
**BGS Type Diffuse Sensor (Sn=500 mm)**



**Retro-reflective Sensor (Sn=8m)**



**Thru-beam Sensor (22m)**



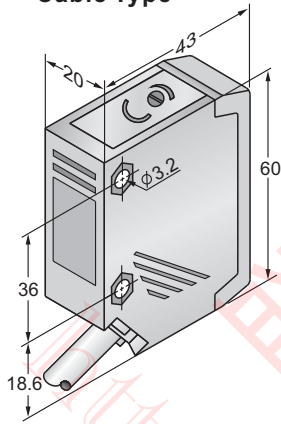
Ae: RP64 SERIES

# RP64 SERIES

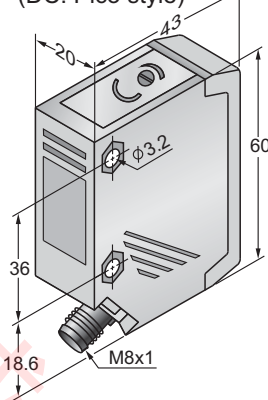
## Dimensions (Unit: mm)

### Sensor Type

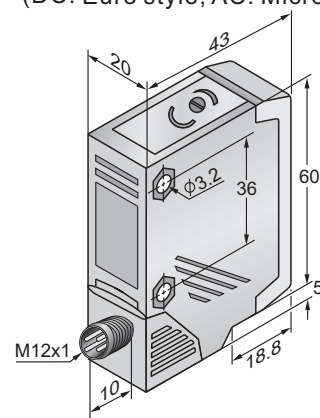
**Cable Type**



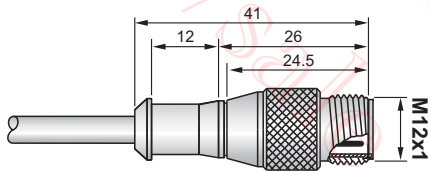
**Quick Disconnect (DC: Pico style)**



**Quick Disconnect swivel 90° (DC: Euro style; AC: Micro style)**

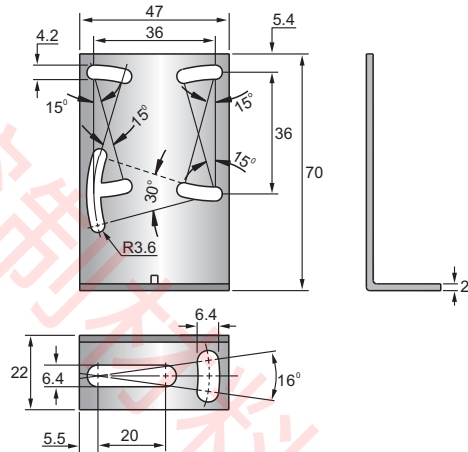


### Pigtail\* Type

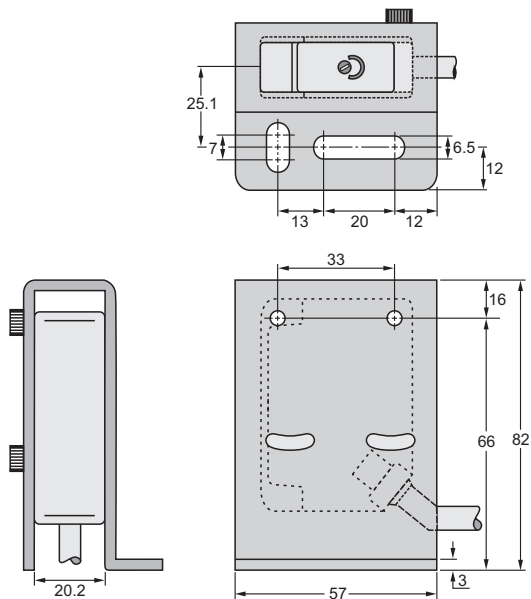


\*: Please see **Pigtail Series** or our **Cables & Connectors** catalogue for more information.

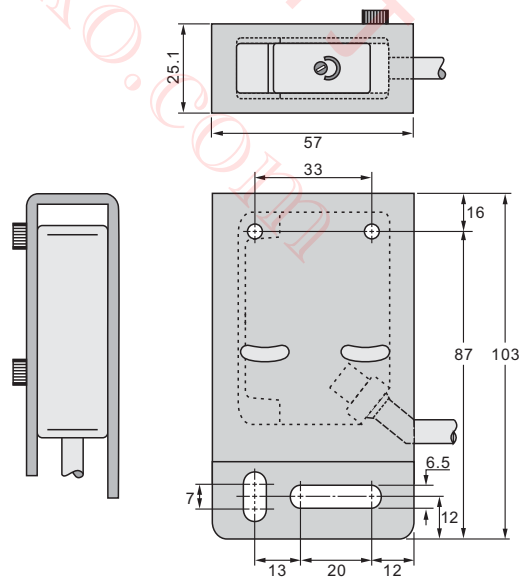
### MB-7047 (Mounting bracket-optional)



### PB-8257 (Protective bracket-optional)






### PB-10357 (Protective bracket-optional)



# RP68 SERIES

Bc: RP68 SERIES

## Diffuse Mode

Sensing Mode	Appearance	Supply Voltage	Output Mode	Part Number
Infrared 860nm  200 to 2000mm  Diffuse Mode Sensing Distance: 200 to 2000mm	2m Cable  	10 to 30V DC	NPN L.O./D.O.	RP68-D2000N-CY9G3U2
			PNP L.O./D.O.	RP68-D2000P-CY9G3U2
			NPN/PNP L.O./D.O.	RP68-D2000D-CY9G4U2
			NPN with Timing	RP68-D2000N-CY9G3U2-T
			PNP with Timing	RP68-D2000P-CY9G3U2-T
			NPN/PNP with Timing	RP68-D2000D-CY9G4U2-T
		12~240V DC/ 24~240V AC	SPDT Relay L.O./D.O. (4-wire)	<u>RP68-D2000R-CY9C4L2</u>
			SPDT Relay with Timing (4-wire)	<u>RP68-D2000R-CY9C4L2-T</u>
			Solid State Isolated Relay L.O./D.O. (4-wire)	RP68-D2000S-CY9C4L2
			Solid State Isolated Relay with Timing (4-wire)	RP68-D2000S-CY9C4L2-T
	SPST Solid-State L.O./D.O. (2-wire)	RP68-D2000G-CY9G2U2		
	Quick Disconnect swivel 90°  	10 to 30V DC (Euro Style)	NPN L.O./D.O.	RP68-D2000N-CY9Q4UE-S
			PNP L.O./D.O.	RP68-D2000P-CY9Q4UE-S
			NPN/PNP L.O./D.O.	RP68-D2000D-CY9Q4UE-S
			NPN with Timing	RP68-D2000N-CY9Q4UE-TS
			PNP with Timing	RP68-D2000P-CY9Q4UE-TS
		12~240V DC/ 24~240V AC (Micro Style)	SPDT Relay L.O./D.O. (4-wire)	RP68-D2000R-CY9Q4LM-S
			SPDT Relay with Timing (4-wire)	RP68-D2000R-CY9Q4LM-TS
			Solid State Isolated Relay L.O./D.O. (4-wire)	RP68-D2000S-CY9Q4LM-S
			Solid State Isolated Relay with Timing (4-wire)	RP68-D2000S-CY9Q4LM-TS
SPST Solid-State L.O./D.O. (2-wire)			RP68-D2000G-CY9Q4UM-S	
6" Pigtail  	10 to 30V DC (Euro Style)	NPN L.O./D.O.	RP68-D2000N-CY9P4UE	
		PNP L.O./D.O.	RP68-D2000P-CY9P4UE	
		NPN/PNP L.O./D.O.	RP68-D2000D-CY9P4UE	
		NPN with Timing	RP68-D2000N-CY9P4UE-T	
		PNP with Timing	RP68-D2000P-CY9P4UE-T	
	12~240V DC/ 24~240V AC (Micro Style)	NPN/PNP with Timing	RP68-D2000D-CY9P4UE-T	
		SPDT Relay L.O./D.O. (4-wire)	RP68-D2000R-CY9P4LM	
		SPDT Relay with Timing (4-wire)	RP68-D2000R-CY9P4LM-T	
		Solid State Isolated Relay L.O./D.O. (4-wire)	RP68-D2000S-CY9P4LM	
		Solid State Isolated Relay with Timing (4-wire)	RP68-D2000S-CY9P4LM-T	
SPST Solid-State L.O./D.O. (2-wire)	RP68-D2000G-CY9P4UM			

Note:  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle

# RP68 SERIES

## Retroreflective Mode with Polarizing Filter

Bc: RP68 SERIES

Sensing Mode	Appearance	Supply Voltage	Output Mode	Part Number
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Retroreflective Mode with Polarizing Filter Sensing Distance: 10m (Note)</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Red Light 700nm</p>	<p>2m Cable</p>	10 to 30V DC	NPN L.O./D.O.	<u>RP68-L010MN-CY6G3U2-PF</u>
			PNP L.O./D.O.	<u>RP68-L010MP-CY6G3U2-PF</u>
			NPN/PNP L.O./D.O.	<u>RP68-L010MD-CY6G4U2-PF</u>
			NPN with Timing	<u>RP68-L010MN-CY6G3U2-TP</u>
			PNP with Timing	<u>RP68-L010MP-CY6G3U2-TP</u>
			NPN/PNP with Timing	<u>RP68-L010MD-CY6G4U2-TP</u>
		12~240V DC/ 24~240V AC	SPDT Relay L.O./D.O. (4-wire)	<u>RP68-L010MR-CY6G4L2-PF</u>
			SPDT Relay with Timing (4-wire)	<u>RP68-L010MR-CY6G4L2-TP</u>
			Solid State Isolated Relay L.O./D.O. (4-wire)	<u>RP68-L010MS-CY6G4L2-PF</u>
			Solid State Isolated Relay with Timing (4-wire)	<u>RP68-L010MS-CY6G4L2-TP</u>
			SPST Solid-State L.O./D.O. (2-wire)	<u>RP68-L010MC-CY6G2U2-PF</u>
	<p>Quick Disconnect swivel 90°</p>	10 to 30V DC (Euro Style)	NPN L.O./D.O.	<u>RP68-L010MN-CY6Q4UE-PS</u>
			PNP L.O./D.O.	<u>RP68-L010MP-CY6Q4UE-PS</u>
			NPN/PNP L.O./D.O.	<u>RP68-L010MD-CY6Q4UE-PS</u>
			NPN with Timing	<u>RP68-L010MN-CY6Q4UE-PT</u>
			PNP with Timing	<u>RP68-L010MP-CY6Q4UE-PT</u>
			NPN/PNP with Timing	<u>RP68-L010MD-CY6Q4UE-PT</u>
		12~240V DC/ 24~240V AC (Micro Style)	SPDT Relay L.O./D.O. (4-wire)	<u>RP68-L010MR-CY6Q4LM-PS</u>
			SPDT Relay with Timing (4-wire)	<u>RP68-L010MR-CY6Q4LM-PT</u>
			Solid State Isolated Relay L.O./D.O. (4-wire)	<u>RP68-L010MS-CY6Q4LM-PS</u>
			Solid State Isolated Relay with Timing (4-wire)	<u>RP68-L010MS-CY6Q4LM-PT</u>
			SPST Solid-State L.O./D.O. (2-wire)	<u>RP68-L010MC-CY6Q4UM-PS</u>
<p>6" Pigtail</p>	10 to 30V DC (Euro Style)	NPN L.O./D.O.	<u>RP68-L010MN-CY6P4UE-PF</u>	
		PNP L.O./D.O.	<u>RP68-L010MP-CY6P4UE-PF</u>	
		NPN/PNP L.O./D.O.	<u>RP68-L010MD-CY6P4UE-PF</u>	
		NPN with Timing	<u>RP68-L010MN-CY6P4UE-TP</u>	
		PNP with Timing	<u>RP68-L010MP-CY6P4UE-TP</u>	
		NPN/PNP with Timing	<u>RP68-L010MD-CY6P4UE-TP</u>	
	12~240V DC/ 24~240V AC (Micro Style)	SPDT Relay L.O./D.O. (4-wire)	<u>RP68-L010MR-CY6P4LM-PF</u>	
		SPDT Relay with Timing (4-wire)	<u>RP68-L010MR-CY6P4LM-TP</u>	
		Solid State Isolated Relay L.O./D.O. (4-wire)	<u>RP68-L010MS-CY6P4LM-PF</u>	
		Solid State Isolated Relay with Timing (4-wire)	<u>RP68-L010MS-CY6P4LM-TP</u>	
		SPST Solid-State L.O./D.O. (2-wire)	<u>RP68-L010MC-CY6P4UM-PF</u>	

Note:

Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 Note: Used with RE-8484 (supplied with sensor) reflector.

## RP68 SERIES

## Specifications (DC)

Bc: RP68 SERIES

Item \ Mode	Diffuse Mode	Retroreflective (with polarizing filter)
Sensing Range	0.2 to 2m	0.5 to 10m (Note)
Setting Distance	0.5 to 2m	—
Light Source (wave length)	Infrared LED (860 nm)	Red LED (700 nm)
Standard Sensing Object	white card 300x300 mm	Opaque: 80 dia. Min.
Response Time	5ms	1ms
Hysteresis (typical)	10% of setting distance	—
Spot size	70 dia. max. at 1m sensing distance	—
Reflectivity Characteristics (black/white error)	10% max. (At 1m sensing distance)	—
Current Consumption	60 mA max.	50 mA max.
Directional Angle	—	Sensor: 1° to 5° ; Reflector: 40° min.
Output Type	NPN, PNP, NPN/PNP	
Supply Voltage	10 to 30V DC including 10% (p-p) ripple	
Output	Load power supply voltage: 30V DC max. Load current: 100mA max. Residual voltage: NPN output: 1.2V max. PNP output: 2.0V max. Open collector output (NPN/PNP selectable)	
Operation Mode	Light-ON/Dark-ON switch selectable	
Circuit Protection	Protection from reversed power supply connection, load short-circuit, and mutual interference	
Time Options	No delay, On delay, Off delay, One-shot (with timer mode only)	
Time Settings	Adjustable, 0.1...1.5s or 0.1...15s (with timer mode only)	
Sensitivity Adjustment	One-turn potentiometer	
Ambient Illumination (receiver side)	Incandescent lamp: 30000 lx max. Sunlight: 10000 lx max.	
Ambient Temperature	Operating: -25°C to 55°C (-13 to 131°F) Storage: -30°C to 70°C (-22 to 158°F) with no icing or condensation	
Relative Humidity	Operating: -35% to 85% Storage: 35% to 95% with no icing or condensation	
Insulation Resistance	20 MΩ min. At 500V DC	
Dielectric Strength	1000VAC, 50/60 Hz for 1 min	
Vibration Resistance	10 to 55Hz, 1.5mm double amplitude for 2 hours each in X, Y and Z axes	
Shock Resistance	500 m/s <sup>2</sup> 3 times each in X, Y, and Z axes	
Degree of Protection	IP 67	
Connection	Cable type: 2m PVC cable ; Connector type: Micro-style connector; Pigtail type: See Pigtail Series or our Cables & Connectors catalogue.	
Weight (packed state)	Approx. 50g	Approx. 150g
Material	Housing: PBT (polybutylene terephthalate); Lens: Acrylic (PMMA); Mounting bracket: Stainless steel (SUS 304), order separately	

Note: Used with RE-8484 (supplied with sensor) reflector.

## RP68 SERIES

## Specifications (AC/DC)

Item \ Mode	Diffuse	Retroreflective (with polarizing filter)
Sensing Range	0.2 to 2m	0.5 to 10m (Note)
Setting Distance	0.5 to 2m	——
Light Source (wave length)	Infrared LED (860 nm)	Red LED(700 nm)
Standard Sensing Object	white card 300x300mm	Opaque: 80 dia. Min.
Hysteresis ( typical)	10% of setting distance	——
Spot Size	70 dia. max. at 1m sensing distance	——
Directional Angle	——	Sensor: 1° to 5° ; Reflector: 40° min.
Reflectivity Characteristics (black/white error)	10% max. (at 1m sensing distance)	——
Supply Voltage	12-240V DC 10% including 10%(p-p)max. Ripple 24-240V AC 10% at 50/60Hz	
Output Type	SPDT EM Relay, Solid State Isolated N.O., SPST solid-state relay	
Current Consumption	< 30 mA (no load)	
Response Time	SPDT EM Relay output:30ms; Solid State Isolated Relay output:2ms; SPST solid-state output:8ms	
Output (max. load current)	Relay output: SPDT,3A (cos $\phi$ = 1) max. At 250V AC or 3A max. At 30V DC Solid State Isolate Relay. : 300mA at 240V DC/AC SPST SCR solid-state relay:750 mA to 50°C ambient, 500mA to 70°C ambient	
Operation Mode	SPST EM Relay and Solid State Isolated Relay.: Light or Dark switching selectable via switch SPST solid-state relay: Light/Dark operate select switch	
Circuit Protection	Protection from mutual interference (SPST Solid State output with short circuit protections)	
Time Options	No delay, On delay, Off delay, One-shot (with timer mode only)	
Time Settings	Adjustable, 0.1...1.5s or 0.1...15s (with timer mode only)	
Sensitivity Adjustment	One-turn potentiometer	
Ambient Illumination (receiver side)	Incandescent lamp: 30000 lx max. Sunlight: 10000 lx max.	
Ambient Temperature	Operating: -25°C to 55°C (-13 to 131°F) Storage: -30°C to 70°C (-22 to 158°F) with no icing or condensation	
Relative Humidity	Operating: -35% to 85% Storage: 35% to 95% with no icing or condensation	
Insulation Resistance	20 M $\Omega$ min. At 500V DC	
Dielectric Strength	1000VAC, 50/60 Hz for 1 min	
Vibration Resistance	10 to 55Hz, 1.5mm double amplitude for 2 hours each in X, Y and Z axes	
Shock Resistance	500 m/s <sup>2</sup> 3 times each in X, Y, and Z axes	
Degree of Protection	IP 67	
Connection	Cable type: 2m PVC cable ; Connector type: Micro-style connector; Pigtail type: See Pigtail Series or our Cables & Connectors catalogue.	
Weight (packed state)	Approx. 50g	Approx. 150g
Material	Housing: PBT (polybutylene terephthalate); Lens: Acrylic (PMMA); Mounting bracket: Stainless steel (SUS 304), order separately	

Note: Used with RE-8484 (supplied with sensor) reflector.



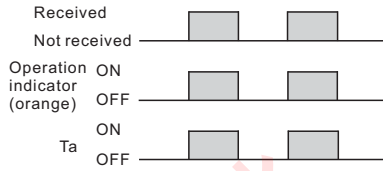
# RP68 SERIES

## Timing Characteristics & Connection Diagrams

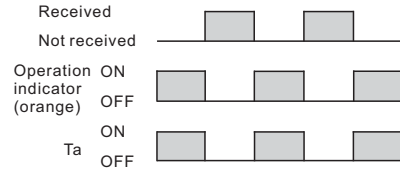
Bc: RP68 SERIES

### Timing Characteristics

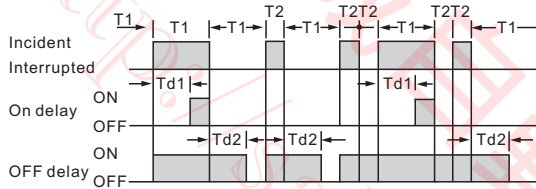
#### Without timer function (Light-ON)



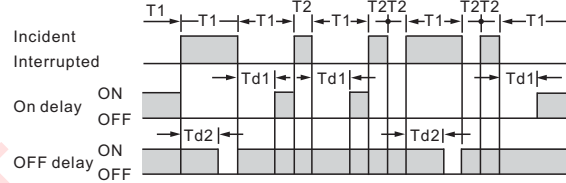
#### Without timer function (Dark-ON)



#### With Timer function (Light-ON)

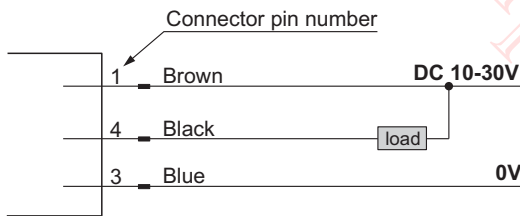


#### With Timer function (Dark-ON)

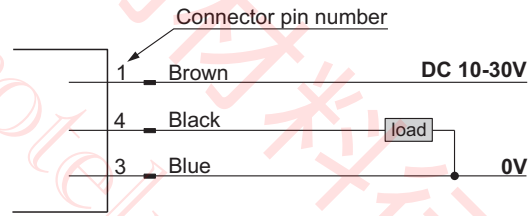


Note: **Td1, Td2**: Delay time (0 to 5s)  
**T1**: A period longer than the delay time.  
**T2**: A period shorter than the delay time.  
 For ON-and OFF-delay timers, Td1 and Td2 are independently variable.

#### NPN output type



#### PNP output type

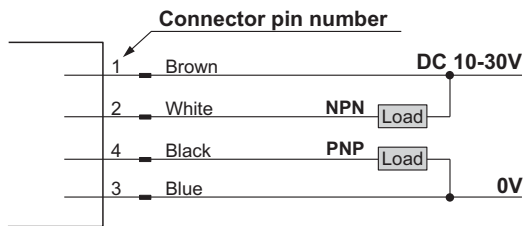


#### Connector pin position

##### Euro-style



#### NPN/PNP output type



#### Connector pin position

##### Euro-style

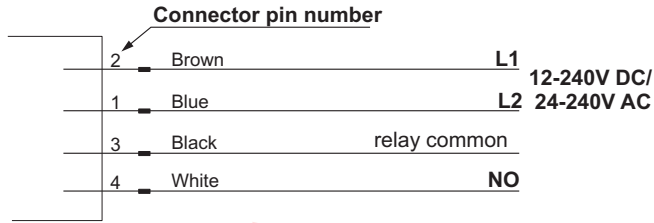


# RP68 SERIES

## Connection Diagrams

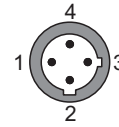
Bc: RP68 SERIES

### SPDT Relay output type



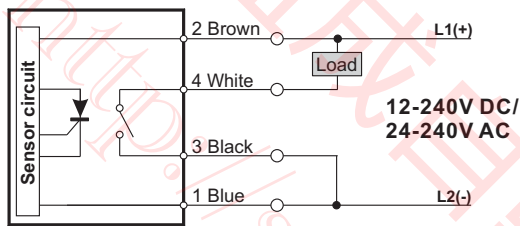
#### Connector pin position

Micro-style

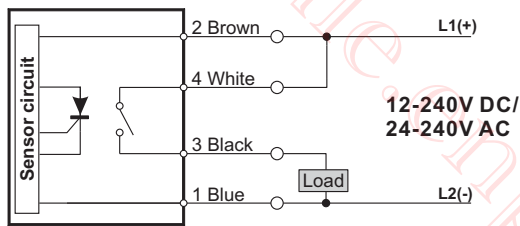


- 1.Red/black(L2)
- 2.Red/white (L1)
- 3.Red (relay common)
- 4.Green (N.O.)

### Solid State Isolated Relay output type

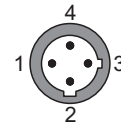


OR



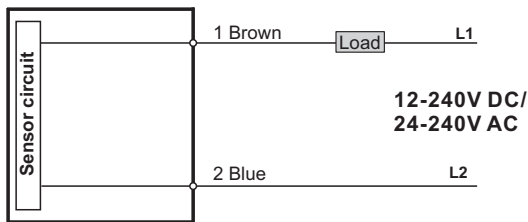
#### Connector pin position

Micro-style



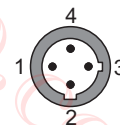
- 1.Red/black(L2)
- 2.Red/white (L1)
- 3.Red (Output)
- 4.Green (Output)

### SPST Solid-State output type



#### Connector pin position

Micro-style



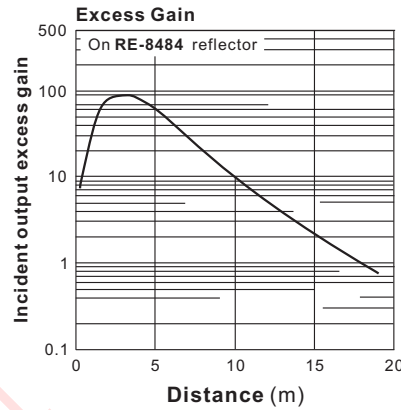
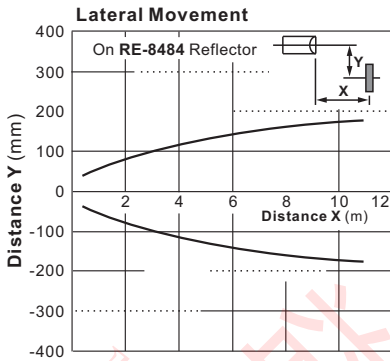
- 1.Red/black(L2)
- 2.Red/white (L1)
- 3.Not used
- 4.Not used

# RP68 SERIES

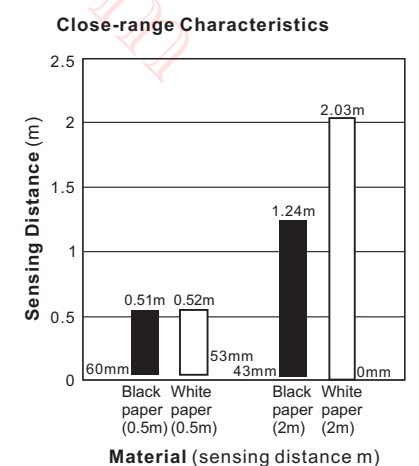
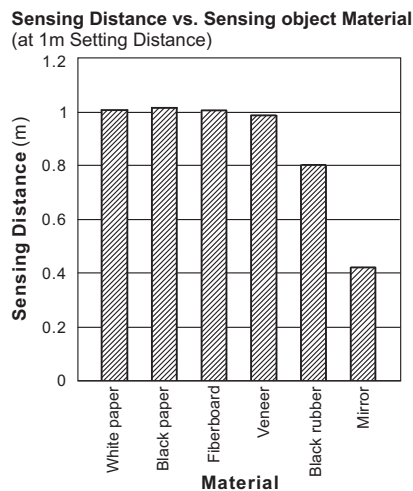
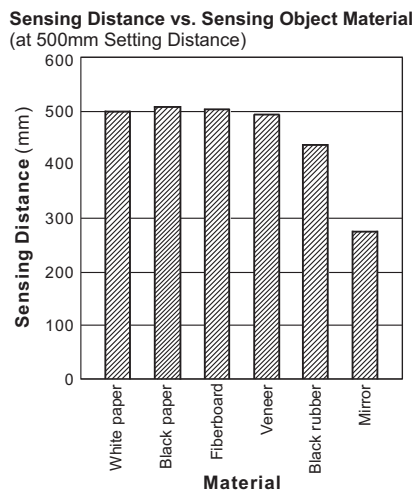
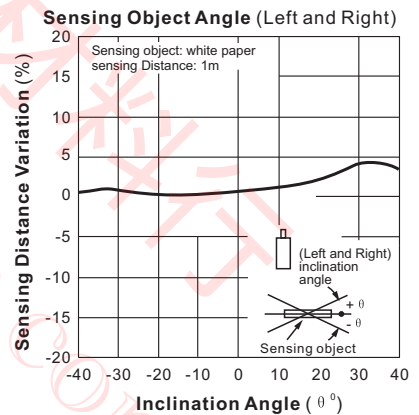
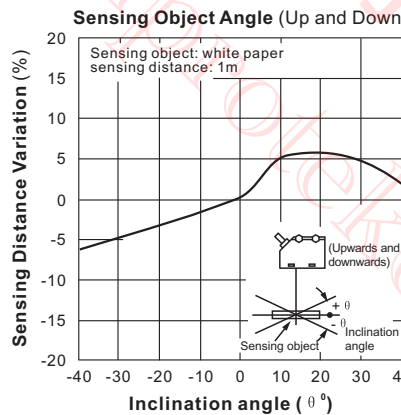
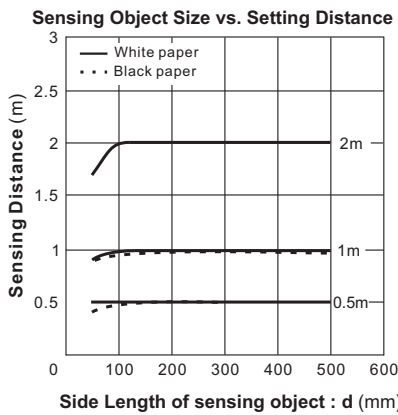
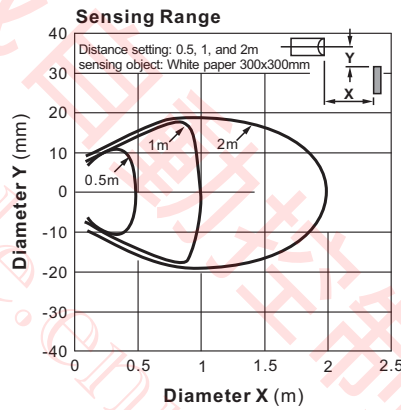
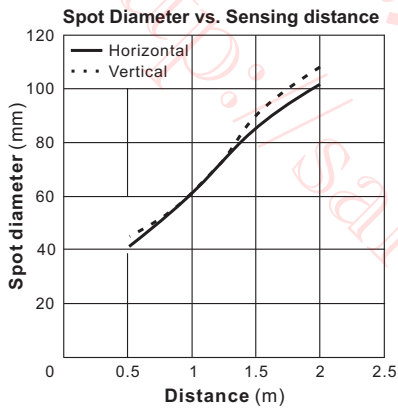
Bc: RP68 SERIES

## Sensing Characteristics (Typical)

### Retroreflective Mode with Polarizing Filter



### Diffuse Mode



# RP68 SERIES

## Installation

Bc: RP68 SERIES

### Wiring

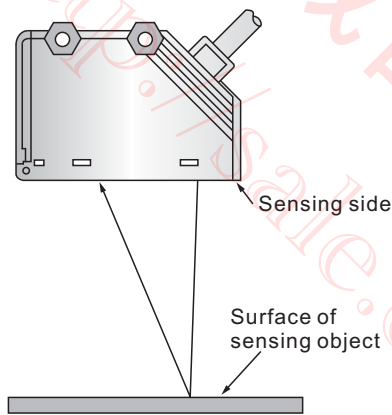
The tensile strength of the cable during operation should not exceed the values shown below.

Part number	Tensile strength
RP68-L010MD-CX6C3U2-PF	50N max.
RP68-L010MD-CX6Q4UE-PS	10N max.

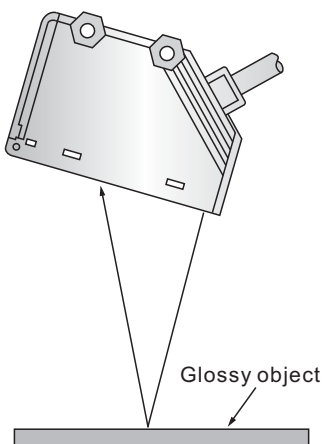
### Mounting Diffuse Models

#### Mounting Directions

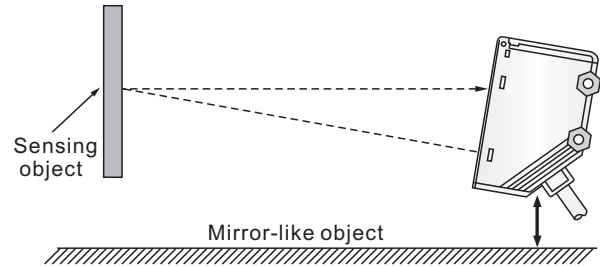
Make sure that the sensing side of the sensor is parallel with the surface of each sensing object. Do not tilt the sensor towards the sensing object.



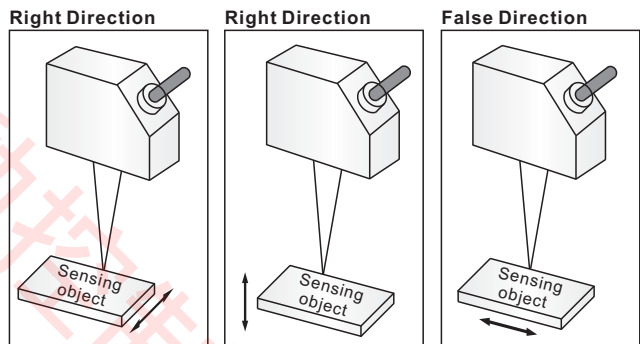
If the sensing object has a glossy surface, tilt the sensor by 5° to 10° as shown below, provided that the sensor is not influenced by any background objects.



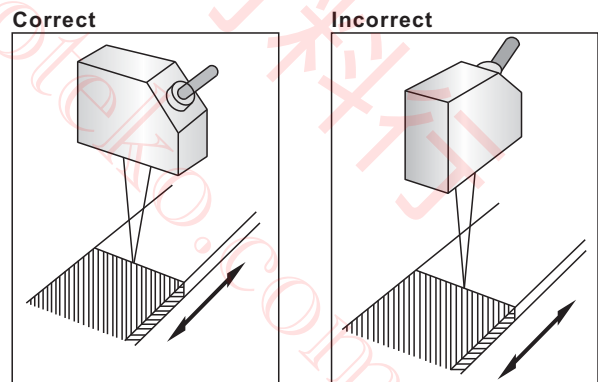
If there is a mirror-like object below the sensor, the sensor may not be in stable operation. Therefore, tilt the sensor or keep the sensor a distance away from the mirror-like object as shown below.



Make sure not to install the sensor in the incorrect direction. Refer to the following.



Install the sensor as shown in the following if each sensing object greatly differs in color or material.



## Precautions for Proper Use

### Precautions

Do not ignore the following items that are essential for securing safety during sensor operation.

- Do not use the sensor in locations with explosive or flammable gas.
- Do not use the sensor in the water or electrically conductive solutions.
- Do not disassemble, repair, or modify the product.
- Make sure that the power supply specifications, such as AC or DC, are correct.
- Do not apply voltage or current exceeding the rated ranges.
- Do not make mistakes in wiring, such as mistakes in polarity.
- Be sure to connect the load correctly.
- Do not short-circuit the load terminals.

### Designing

#### Load relay contact

If sensor is connected to an inductive load with contacts that spark when the load is turned OFF (e.g., A contactor or valve), the normally-closed side may be turned ON before the normally-open side is turned OFF or vice-versa. If both normally-open output and normally-close output are used simultaneously, apply a surge suppressor to the load.

#### Stabilization on Power-up

The sensor needs 100ms to be ready to operate after it is turned ON. The devices connected to RP wait until the sensor is ready to operate. If the sensor and load are connected to separate power supplies, be sure to turn ON the sensor first.

#### Power OFF

A single pulse signal may be output from the sensor immediately after it is turned OFF. This will occur more frequently if a timer or counter is connected to the sensor and power is supplied to the timer or counter independently. Be sure to supply power to the timer or counter from the built-in power supply of the sensor.

#### Power Supply

If a standard switching regulator is used, be sure to ground the FG(frame ground) and G (ground) terminals, otherwise the sensor may malfunction due to the switching noise of the regulator.

#### Repeated cable bending

Do not bend the sensor cable repeatedly.

#### High-tension lines

Do not wire power lines or high-tension lines alongside the lines of the sensor in the same conduit, otherwise the sensor may be damaged or may malfunction due to induction. Be sure to wire the lines of the sensor separated from power lines or high-tension lines or laid in an exclusive, shielded conduit.

### Wiring

The sensor has a built-in function to protect the sensor from load short-circuiting. If load short-circuit results, the output will be turned OFF. In that case, check the wiring and turn ON the sensor again so that the short-circuit protection circuit will be reset. This function will operate if the output current flow is at least 2.0 times the rated load current. If an inductive load is connected to the sensor, make sure that the inrush current does not exceed 1.2 times the rated load current.

The cable can be extended up to a total length of 100m, on condition that the thickness of the wire is at least 0.3mm.

### Mounting

#### Mounting Conditions

If sensors are mounted face-to-face, make sure that no optical axes cross each other. Otherwise, mutual interference may result.

Be sure to install the sensor carefully so that the directional angle range of the sensor will not be directly exposed to intensive light, such as sunlight, fluorescent light, or incandescent light.

Do not strike the Photoelectric sensor with a hammer or any other tool during the installation of the sensor, or the sensor will lose its water-resistive properties.

Use M4 screws to mount the sensor.

When mounting the case, make sure that the tightening torque applied to each screw not exceed  $1.2\text{N} \cdot \text{m}$ .

#### M12 connector

Be sure to connector or disconnect the M12 connector after turning OFF the sensor.

Be sure to hold the connector cover when connecting or disconnecting the M12 connector.

The M12 connector must be only hand-tightened.

If the M12 connector is not connected securely, the proper degree of protection of the sensor may not be maintained or the connector may be disconnected due to vibration.

#### Water Resistance

Do not use the product in water, in rain, or outdoors.

Tighten the operation cover screws and terminal block cover screws to a torque of  $0.3$  to  $0.5\text{N} \cdot \text{m}$  in order to ensure water resistivity.

### Maintenance and Inspection

#### Cleaning

Use only water and mild detergent. Do not use harsh chemicals or solvents.

### Operation Environment

Do not install the sensor in locations with the following conditions.

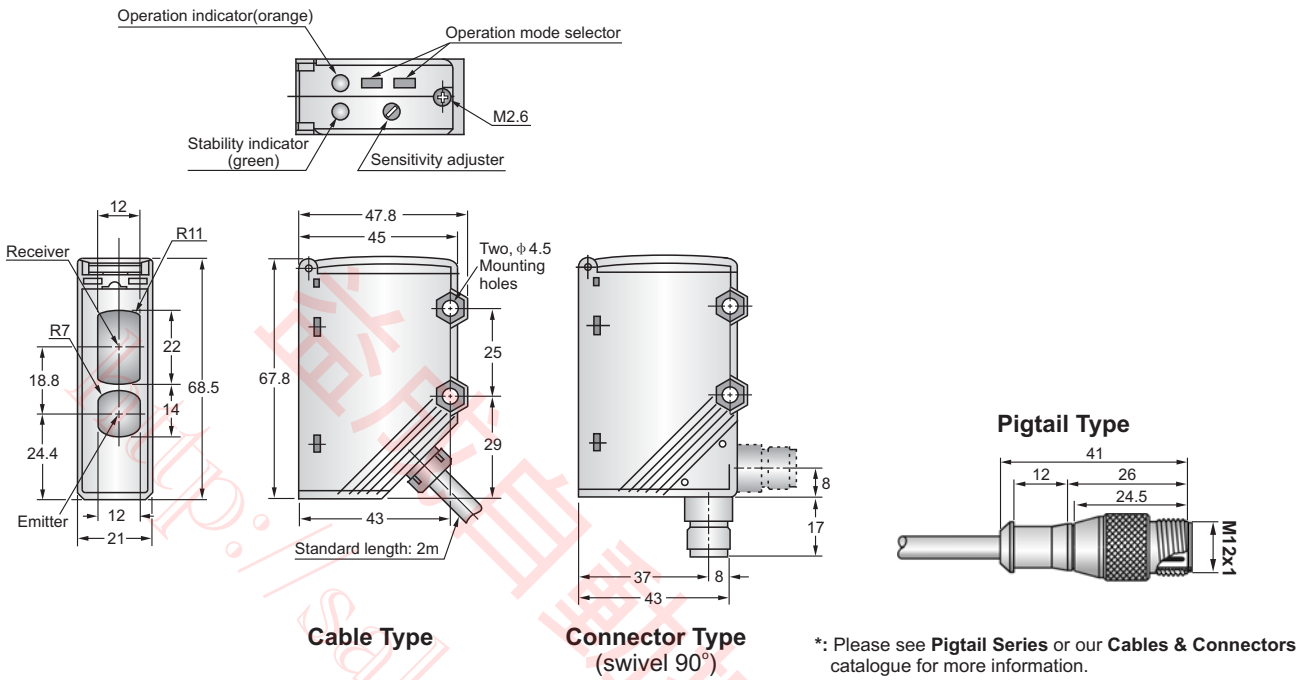
- Excessive dust.
- Corrosive gases.
- Directly exposed to sprays of water, oil, or chemicals.
- Directly exposed to vibration or shock.

# RP68 SERIES

## Dimensions (Unit: mm)

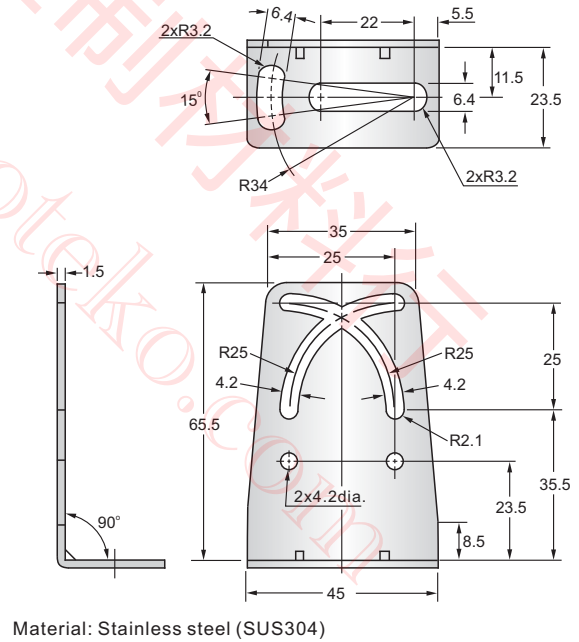
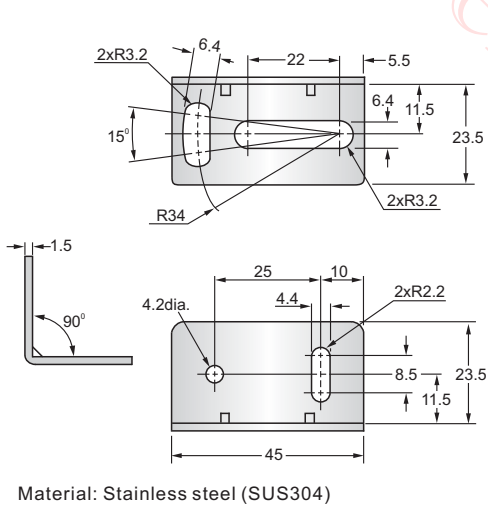
Bc: RP68 SERIES

### Sensor Type



### MB-4524 (Mounting bracket-optional)





### MB-4565 (Mounting bracket-optional)



# RP74 SERIES

## Standard Thru-beam Mode (DC)

Bb: RP74 SERIES

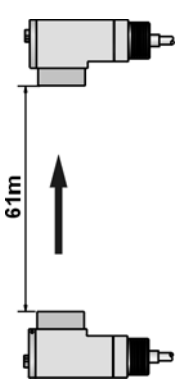




Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Infrared : 880nm  61m Standard Thru-beam Mode Sensing Distance: 61 m	2m Cable  	10-40V DC	Emitter	RP74-T061MD-EY9C3L2
			NPN/PNP	RP74-T061MD-CY9C4U2
			NPN/PNP with Timing	RP74-T061MD-CY9C4U2-T
			NPN/PNP with Timing (New)	
	Quick Disconnect (Euro Style)  	10-40V DC	Emitter	RP74-T061MD-EY9Q4LE
			NPN/PNP	RP74-T061MD-CY9Q4UE
			NPN/PNP with Timing	RP74-T061MD-CY9Q4UE-T
			NPN/PNP with Timing (New)	
	Quick Disconnect (Mini Style)  	10-40V DC	Emitter	RP74-T061MD-EY9Q4LN
			NPN/PNP	RP74-T061MD-CY9Q4UN
			NPN/PNP with Timing	RP74-T061MD-CY9Q4UN-T
			NPN/PNP with Timing (New)	
	6" Pig tail (Euro Style)  	10-40V DC	Emitter	RP74-T061MD-EY9P4LE
			NPN/PNP	RP74-T061MD-CY9P4UE
			NPN/PNP with Timing	RP74-T061MD-CY9P4UE-T
			NPN/PNP with Timing (New)	

**Note:**

Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-01 —

# RP74 SERIES

## Standard Thru-beam Mode (AC/DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p style="text-align: center;">Infrared : 880nm</p>  <p style="text-align: center;">Standard Thru-beam Mode Sensing Distance: 61m</p>	<p>2m Cable</p> 	<p>12-240V DC/ 24-240V AC</p>	Emitter (2-wire)	RP74-T061MA-EY9C2L2
			SPDT Relay (5-wire)	RP74-T061MR-CY9C5L2
			SPDT Relay with Timing (5-wire)	RP74-T061MR-CY9C5L2-T
			SPDT Relay with Timing (New) (5-wire)	
			Solid State Isolated N.O. (4-wire)	RP74-T061MS-CY9C4L2
			Solid State Isolated N.O. with Timing (4-wire)	RP74-T061MS-CY9C4L2-T
			Solid State Isolated N.O. with Timing (New) (4-wire)	
			SPST Solid-state Light-ON/Dark-ON (2-wire)	
	<p>Quick Disconnect (Micro Style)</p> 	<p>12-240V DC/ 24-240V AC</p>	Emitter (2-wire)	RP74-T061MA-EY9Q4LM
			Solid State Isolated N.O. (4-wire)	RP74-T061MS-CY9Q4LM
			Solid State Isolated N.O. with Timing (4-wire)	RP74-T061MS-CY9Q4LM-T
			Solid State Isolated N.O. with Timing (New) (4-wire)	
			SPST Solid-state Light-ON/Dark-ON (2-wire)	
			_____	_____
	<p>Quick Disconnect (Mini Style)</p> 	<p>12-240V DC/ 24-240V AC</p>	Emitter (2-wire)	RP74-T061MA-EY9Q4LN
			SPDT Relay (5-wire)	RP74-T061MR-CY9Q5LN
			SPDT Relay with Timing (5-wire)	RP74-T061MR-CY9Q5LN-T
			SPDT Relay with Timing (New) (5-wire)	
			Solid State Isolated N.O. (4-wire)	RP74-T061MS-CY9Q4LN
			Solid State Isolated N.O. with Timing (4-wire)	RP74-T061MS-CY9Q4LN-T
			Solid State Isolated N.O. with Timing (New) (4-wire)	
			SPST Solid-state Light-ON/Dark-ON (2-wire)	
	<p>6" Pig tail (Micro Style)</p> 	<p>12-240V DC/ 24-240V AC</p>	Emitter (2-wire)	RP74-T061MA-EY9P4LM
			SPDT Relay (5-wire)	RP74-T061MR-CY9P5LM
			SPDT Relay with Timing (5-wire)	RP74-T061MR-CY9P5LM-T
			SPDT Relay with Timing (New) (5-wire)	
			Solid State Isolated N.O. (4-wire)	RP74-T061MS-CY9P4LM
			Solid State Isolated N.O. with Timing (4-wire)	RP74-T061MS-CY9P4LM-T
Solid State Isolated N.O. with Timing (New) (4-wire)				
SPST Solid-state Light-ON/Dark-ON (2-wire)				

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-02 —





Bb: RP74 SERIES



# RP74 SERIES

## Long Range Thru-beam Mode (DC)

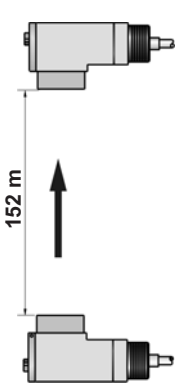




Bb: RP74 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Infrared : 880nm  152 m Long Range Thru-beam Mode Sensing Distance: 152m	2m Cable 	10-40V DC	Emitter	RP74-T152MD-EY9C3L2
			NPN/PNP	RP74-T152MD-CY9C4U2
			NPN/PNP with Timing	RP74-T152MD-CY9C4U2-T
			NPN/PNP with Timing (New)	
	Quick Disconnect (Euro Style) 	10-40V DC	Emitter	RP74-T152MD-EY9Q4LE
			NPN/PNP	RP74-T152MD-CY9Q4UE
			NPN/PNP with Timing	RP74-T152MD-CY9Q4UE-T
			NPN/PNP with Timing (New)	
	Quick Disconnect (Mini Style) 	10-40V DC	Emitter	RP74-T152MD-EY9Q4LN
			NPN/PNP	RP74-T152MD-CY9Q4UN
			NPN/PNP with Timing	RP74-T152MD-CY9Q4UN-T
			NPN/PNP with Timing (New)	
	6" Pig tail (Euro Style) 	10-40V DC	Emitter	RP74-T152MD-EY9P4LE
			NPN/PNP	RP74-T152MD-CY9P4UE
			NPN/PNP with Timing	RP74-T152MD-CY9P4UE-T
			NPN/PNP with Timing (New)	

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-03 —

# RP74 SERIES

## Long Range Thru-beam Mode (AC/DC)

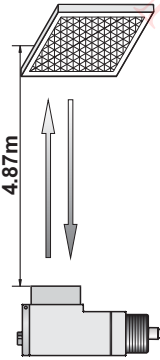




Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
<p>Infrared : 880nm</p>  <p>152 m</p> <p>Long Range Thru-beam Mode Sensing Distance: 152m</p>	2m Cable	12-240V DC/ 24-240V AC	Emitter (2-wire)	RP74-T152MA-EY9C2L2	
			12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-T152MR-CY9C5L2
				SPDT Relay with Timing (5-wire)	RP74-T152MR-CY9C5L2-T
				SPDT Relay with Timing (New) (5-wire)	
				Solid State Isolated N.O. (4-wire)	RP74-T152MS-CY9C4L2
				Solid State Isolated N.O. with Timing (4-wire)	RP74-T152MS-CY9C4L2-T
				Solid State Isolated N.O. with Timing (New) (4-wire)	
				SPST Solid-state Light-ON/Dark-ON (2-wire)	
		Quick Disconnect (Micro Style)		12-240V DC/ 24-240V AC	Emitter (2-wire)
		12-240V DC/ 24-240V AC	Solid State Isolated N.O. (4-wire)		RP74-T152MS-CY9Q4LM
			Solid State Isolated N.O. with Timing (4-wire)		RP74-T152MS-CY9Q4LM-T
			Solid State Isolated N.O. with Timing (New) (4-wire)		
			SPST Solid-state Light-ON/Dark-ON (2-wire)		
			_____		_____
			_____	_____	
	Quick Disconnect (Mini Style)	12-240V DC/ 24-240V AC	Emitter (2-wire)	RP74-T152MA-EY9Q4LN	
			12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-T152MR-CY9Q5LN
				SPDT Relay with Timing (5-wire)	RP74-T152MR-CY9Q5LN-T
				SPDT Relay with Timing (New) (5-wire)	
				Solid State Isolated N.O. (4-wire)	RP74-T152MS-CY9Q4LN
				Solid State Isolated N.O. with Timing (4-wire)	RP74-T152MS-CY9Q4LN-T
				Solid State Isolated N.O. with Timing (New) (4-wire)	
				SPST Solid-state Light-ON/Dark-ON (2-wire)	
		6" Pig tail (Micro Style)		12-240V DC/ 24-240V AC	Emitter (2-wire)
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)		RP74-T152MR-CY9P5LM
			SPDT Relay with Timing (5-wire)		RP74-T152MR-CY9P5LM-T
			SPDT Relay with Timing (New) (5-wire)		
			Solid State Isolated N.O. (4-wire)		RP74-T152MS-CY9P4LM
Solid State Isolated N.O. with Timing (4-wire)			RP74-T152MS-CY9P4LM-T		
Solid State Isolated N.O. with Timing (New) (4-wire)					
SPST Solid-state Light-ON/Dark-ON (2-wire)					

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-04 —

Bb: RP74 SERIES

# RP74 SERIES

## Retroreflective Mode

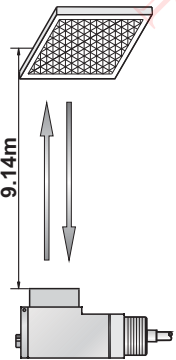




Sensing mode	Connection	Supply Voltage	Output mode	Part number
<p>Red light : 660nm</p>  <p>4.87m</p> <p>Retroreflective mode with polarized</p> <p>Sensing distance: 4.87m</p>	<p>Cable</p> 	10-40V DC	NPN/PNP	RP74-L4870D-CY6C4U2-PF
			NPN/PNP with Timing	RP74-L4870D-CY6C4U2-TP
		12-240VDC/24-240VAC	SPDT Relay	RP74-L4870R-CY6C5L2-PF
			SPDT Relay with Timing	RP74-L4870R-CY6C5L2-TP
			Solid State Isolated N.O.	RP74-L4870S-CY6C4U2-PF
			Solid State Isolated N.O. With Timing	RP74-L4870S-CY6C4U2-TP
	<p>Quick Disconnect</p> 	10-40V DC (Euro)	NPN/PNP	RP74-L4870D-CY6Q4UE-PF
			NPN/PNP with Timing	RP74-L4870D-CY6Q4UE-TP
		12-240VDC/24-240VAC (Micro)	Solid State Isolated N.O.	RP74-L4870S-CY6Q4UM-PF
			Solid State Isolated N.O. with Timing	RP74-L4870S-CY6Q4UM-TP
	<p>Quick Disconnect (Mini)</p> 	10-40V DC	NPN/PNP	RP74-L4870D-CY6Q4UN-PF
			NPN/PNP with Timing	RP74-L4870D-CY6Q4UN-TP
		12-240VDC/24-240VAC	SPDT Relay	RP74-L4870R-CY6Q5LN-PF
			SPDT Relay with Timing	RP74-L4870R-CY6Q5LN-TP
Solid State Isolated N.O.			RP74-L4870S-CY6Q4UN-PF	
Solid State Isolated N.O. with Timing			RP74-L4870S-CY6Q4UN-TP	
<p>Pig tail</p> 		10-40V DC	NPN/PNP	RP74-L4870D-CY6P4U-PF
			NPN/PNP with Timing	RP74-L4870D-CY6P4U-TP
	12-240VDC/24-240VAC	SPDT Relay	RP74-L4870R-CY6P5L-PF	
		SPDT Relay with Timing	RP74-L4870R-CY6P5L-TP	
		Solid State Isolated N.O.	RP74-L4870S-CY6P4U-PF	
		Solid State Isolated N.O. with Timing	RP74-L4870S-CY6P4U-TP	

Bb: RP74 SERIES

# RP74 SERIES

## Retroreflective Mode





Bb: RP74 SERIES

Sensing mode	Connection	Supply Voltage	Output mode	Part number
 <p>Red light : 660nm</p> <p>Retroreflective mode Sensing distance: 9.14m</p>	<b>Cable</b> 	10-40V DC	NPN/PNP	RP74-L9140D-CY6C4U2
			NPN/PNP with Timing	RP74-L9140D-CY6C4U2-T
		12-240VDC/ 24-240VAC	SPDT Relay	RP74-L9140R-CY6C5L2
			SPDT Relay with Timing	RP74-L9140R-CY6C5L2-T
			Solid State Isolated N.O.	RP74-L9140S-CY6C4U2
	Solid State Isolated N.O. with Timing	RP74-L9140S-CY6C4U2-T		
	<b>Quick Disconnect</b> 	10-40V DC (Euro)	NPN/PNP	RP74-L9140D-CY6Q4UE
			NPN/PNP with Timing	RP74-L9140D-CY6Q4UE-T
		12-240VDC/ 24-240VAC (Micro)	Solid State Isolated N.O.	RP74-L9140S-CY6Q4UM
			Solid State Isolated N.O. with Timing	RP74-L9140S-CY6Q4UM-T
	<b>Quick Disconnect (Mini)</b> 	10-40V DC	NPN/PNP	RP74-L9140D-CY6Q4UN
NPN/PNP with Timing			RP74-L9140D-CY6Q4UN-T	
12-240VDC/ 24-240VAC		SPDT Relay	RP74-L9140R-CY6Q5LN	
		SPDT Relay with Timing	RP74-L9140R-CY6Q5LN-T	
		Solid State Isolated N.O.	RP74-L9140S-CY6Q4UN	
Solid State Isolated N.O. with Timing		RP74-L9140S-CY6Q4UN-T		
<b>Pig tail</b> 		10-40V DC	NPN/PNP	RP74-L9140D-CY6P4U
	NPN/PNP with Timing		RP74-L9140D-CY6P4U-T	
	12-240VDC/ 24-240VAC	SPDT Relay	RP74-L9140R-CY6P5L	
		SPDT Relay with Timing	RP74-L9140R-CY6P5L-T	
		Solid State Isolated N.O.	RP74-L9140S-CY6P4U	
Solid State Isolated N.O. with Timing	RP74-L9140S-CY6P4U-T			

# RP74 SERIES

## Standard Diffuse Mode





Bb: RP74 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
Infrared: 880nm  1.52 m  Standard Diffuse Mode Sensing Distance: 1.52m	2m Cable  	10-40V DC	NPN/PNP	RP74-D1520D-CY9C4U2	
			NPN/PNP with Timing	RP74-D1520D-CY9C4U2-T	
			NPN/PNP with Timing (New)		
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-D1520R-CY9C5L2	
			SPDT Relay with Timing (5-wire)	RP74-D1520R-CY9C5L2-T	
			SPDT Relay with Timing (New) (5-wire)		
			Solid State Isolated N.O. (4-wire)	RP74-D1520S-CY9C4L2	
			Solid State Isolated N.O. with Timing (4-wire)	RP74-D1520S-CY9C4L2-T	
			Solid State Isolated N.O. with Timing (New) (4-wire)		
	10-40V DC (Euro-style)	Quick Disconnect  	10-40V DC (Euro-style)	NPN/PNP	RP74-D1520D-CY9Q4UE
				NPN/PNP with Timing	RP74-D1520D-CY9Q4UE-T
				NPN/PNP with Timing (New)	
	12-240V DC/ 24-240V AC (Micro-style)		12-240V DC/ 24-240V AC (Micro-style)	Solid State Isolated N.O. (4-wire)	RP74-D1520S-CY9Q4LM
				Solid State Isolated N.O. with Timing (4-wire)	RP74-D1520S-CY9Q4LM-T
				Solid State Isolated N.O. with Timing (New) (4-wire)	
			SPST Solid-state Light-ON/Dark-ON (2-wire)		
	Quick Disconnect  	10-40V DC (Mini-style)	10-40V DC (Mini-style)	NPN/PNP	RP74-D1520D-CY9Q4UN
				NPN/PNP with Timing	RP74-D1520D-CY9Q4UN-T
				NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC (Mini-style)	12-240V DC/ 24-240V AC (Mini-style)	SPDT Relay (5-wire)	RP74-D1520R-CY9Q5LN
				SPDT Relay with Timing (5-wire)	RP74-D1520R-CY9Q5LN-T
				SPDT Relay with Timing (New) (5-wire)	
Solid State Isolated N.O. (4-wire)			Solid State Isolated N.O. (4-wire)	RP74-D1520S-CY9Q4LN	
			Solid State Isolated N.O. with Timing (4-wire)	RP74-D1520S-CY9Q4LN-T	
			Solid State Isolated N.O. with Timing (New) (4-wire)		
SPST Solid-state Light-ON/Dark-ON (2-wire)					
6" Pig tail  		10-40V DC (Euro-style)	10-40V DC (Euro-style)	NPN/PNP	RP74-D1520D-CY9P4UE
				NPN/PNP with Timing	RP74-D1520D-CY9P4UE-T
				NPN/PNP with Timing (New)	
	12-240V DC/ 24-240V AC (Micro-style)	12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	RP74-D1520R-CY9P5LM	
			SPDT Relay with Timing (5-wire)	RP74-D1520R-CY9P5LM-T	
			SPDT Relay with Timing (New) (5-wire)		
		Solid State Isolated N.O. (4-wire)	Solid State Isolated N.O. (4-wire)	RP74-D1520S-CY9P4LM	
			Solid State Isolated N.O. with Timing (4-wire)	RP74-D1520S-CY9P4LM-T	
			Solid State Isolated N.O. with Timing (New) (4-wire)		
		SPST Solid-state Light-ON/Dark-ON (2-wire)			

**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-09 —

# RP74 SERIES

## Long Range Diffuse Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number		
Infrared: 880nm  3.04m Long Range Diffuse Mode Sensing Distance: 3.04m	2m Cable  	10-40V DC	NPN/PNP	RP74-D3040D-CY9C4U2		
			NPN/PNP with Timing	RP74-D3040D-CY9C4U2-T		
			NPN/PNP with Timing (New)			
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-D3040R-CY9C5L2		
			SPDT Relay with Timing (5-wire)	RP74-D3040R-CY9C5L2-T		
			SPDT Relay with Timing (New) (5-wire)			
			Solid State Isolated N.O. (4-wire)	RP74-D3040S-CY9C4L2		
			Solid State Isolated N.O. with Timing (4-wire)	RP74-D3040S-CY9C4L2-T		
			Solid State Isolated N.O. with Timing (New) (4-wire)			
	Quick Disconnect	Quick Disconnect  	10-40V DC (Euro-style)	NPN/PNP	RP74-D3040D-CY9Q4UE	
				NPN/PNP with Timing	RP74-D3040D-CY9Q4UE-T	
				NPN/PNP with Timing (New)		
	12-240V DC/ 24-240V AC (Micro-style)		Solid State Isolated N.O. (4-wire)	RP74-D3040S-CY9Q4LM		
			Solid State Isolated N.O. with Timing (4-wire)	RP74-D3040S-CY9Q4LM-T		
			Solid State Isolated N.O. with Timing (New) (4-wire)			
			SPST Solid-state Light-ON/Dark-ON (2-wire)			
			_____	_____		
			_____	_____		
	Quick Disconnect	Quick Disconnect  	10-40V DC (Mini-style)	NPN/PNP	RP74-D3040D-CY9Q4UN	
				NPN/PNP with Timing	RP74-D3040D-CY9Q4UN-T	
				NPN/PNP with Timing (New)		
			12-240V DC/ 24-240V AC (Mini-style)	SPDT Relay (5-wire)	RP74-D3040R-CY9Q5LN	
				SPDT Relay with Timing (5-wire)	RP74-D3040R-CY9Q5LN-T	
				SPDT Relay with Timing (New) (5-wire)		
Solid State Isolated N.O. (4-wire)				RP74-D3040S-CY9Q4LN		
Solid State Isolated N.O. with Timing (4-wire)				RP74-D3040S-CY9Q4LN-T		
Solid State Isolated N.O. with Timing (New) (4-wire)						
6" Pig tail			6" Pig tail  	10-40V DC (Euro-style)	NPN/PNP	RP74-D3040D-CY9P4UE
					NPN/PNP with Timing	RP74-D3040D-CY9P4UE-T
					NPN/PNP with Timing (New)	
12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	RP74-D3040R-CY9P5LM				
	SPDT Relay with Timing (5-wire)	RP74-D3040R-CY9P5LM-T				
	SPDT Relay with Timing (New) (5-wire)					
	Solid State Isolated N.O. (4-wire)	RP74-D3040S-CY9P4LM				
	Solid State Isolated N.O. with Timing (4-wire)	RP74-D3040S-CY9P4LM-T				
	Solid State Isolated N.O. with Timing (New) (4-wire)					
SPST Solid-state Light-ON/Dark-ON (2-wire)						

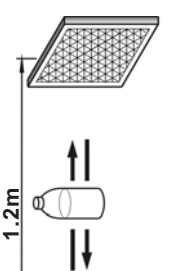




**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-10 —

Bb: RP74 SERIES

# RP74 SERIES

## Clear Object Detector






Bb: RP74 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Red light : 660nm</p>  <p>1.2m</p> <p>Clear Object Detector</p> <p>Sensing Distance: 1.2m (Note)</p>	<p>2m Cable</p> 	10-40V DC	NPN/PNP	RP74-S1200D-CY6C4U2
			NPN/PNP with Timing	RP74-S1200D-CY6C4U2-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-S1200R-CY6C5L2
			SPDT Relay with Timing (5-wire)	RP74-S1200R-CY6C5L2-T
			SPDT Relay with Timing (New) (5-wire)	RP74-S1200R-CY6C5L2-T/N
			Solid State Isolated N.O. (4-wire)	RP74-S1200S-CY6C4L2
			Solid State Isolated N.O. with Timing (4-wire)	RP74-S1200S-CY6C4L2-T
			Solid State Isolated N.O. with Timing (New) (4-wire)	
	SPST Solid-state Light-ON/Dark-ON (2-wire)			
	<p>Quick Disconnect</p> 	10-40V DC (Euro-style)	NPN/PNP	RP74-S1200D-CY6Q4UE
			NPN/PNP with Timing	RP74-S1200D-CY6Q4UE-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC (Micro-style)	Solid State Isolated N.O. (4-wire)	RP74-S1200S-CY6Q4LM
			Solid State Isolated N.O. with Timing (4-wire)	RP74-S1200S-CY6Q4LM-T
			Solid State Isolated N.O. with Timing (New) (4-wire)	
	SPST Solid-state Light-ON/Dark-ON (2-wire)			
	<p>Quick Disconnect</p> 	10-40V DC (Mini-style)	NPN/PNP	RP74-S1200D-CY6Q4UN
			NPN/PNP with Timing	RP74-S1200D-CY6Q4UN-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC (Mini-style)	SPDT Relay (5-wire)	RP74-S1200R-CY6Q5LN
			SPDT Relay with Timing (5-wire)	RP74-S1200R-CY6Q5LN-T
			SPDT Relay with Timing (New) (5-wire)	RP74-S1200R-CY6Q5LN-T/N
			Solid State Isolated N.O. (4-wire)	RP74-S1200S-CY6Q4LN
Solid State Isolated N.O. with Timing (4-wire)			RP74-S1200S-CY6Q4LN-T	
Solid State Isolated N.O. with Timing (New) (4-wire)				
SPST Solid-state Light-ON/Dark-ON (2-wire)				
<p>6" Pig tail</p> 		10-40V DC (Euro-style)	NPN/PNP	RP74-S1200D-CY6P4UE
			NPN/PNP with Timing	RP74-S1200D-CY6P4UE-T
	NPN/PNP with Timing (New)			
	12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	RP74-S1200R-CY6P5LM	
		SPDT Relay with Timing (5-wire)	RP74-S1200R-CY6P5LM-T	
		SPDT Relay with Timing (New) (5-wire)	RP74-S1200R-CY6P5LM-T/N	
		Solid State Isolated N.O. (4-wire)	RP74-S1200S-CY6P4LM	
		Solid State Isolated N.O. with Timing (4-wire)	RP74-S1200S-CY6P4LM-T	
		Solid State Isolated N.O. with Timing (New) (4-wire)		
SPST Solid-state Light-ON/Dark-ON (2-wire)				

Note: Used with RE-D82 (supplied with sensor) reflector.  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Bb-11 —

# RP74 SERIES

## Plastic Fiber Optic Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Red light: 660nm</p>  <p>Plastic Fiber-Optic Mode Sensing Distance (Note)</p>	<p>2m Cable</p> 	10-40V DC	NPN/PNP	RP74-FPFD-CY6C4U2
			NPN/PNP with Timing	RP74-FPFD-CY6C4U2-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	
			SPDT Relay with Timing (5-wire)	
			SPDT Relay with Timing (New) (5-wire)	
			Solid State Isolated N.O. (4-wire)	
			Solid State Isolated N.O. with Timing (4-wire)	
			Solid State Isolated N.O. with Timing (New) (4-wire)	
	SPST Solid-state Light-ON/Dark-ON (2-wire)			
	<p>Quick Disconnect</p> 	10-40V DC (Euro-style)	NPN/PNP	RP74-FPFD-CY6Q4UE
			NPN/PNP with Timing	RP74-FPFD-CY6Q4UE-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC (Micro-style)	Solid State Isolated N.O. (4-wire)	
			Solid State Isolated N.O. with Timing (4-wire)	
			Solid State Isolated N.O. with Timing (New) (4-wire)	
			SPST Solid-state Light-ON/Dark-ON (2-wire)	
			_____	_____
			_____	_____
	<p>Quick Disconnect</p> 	10-40V DC (Mini-style)	NPN/PNP	RP74-FPFD-CY6Q4UN
			NPN/PNP with Timing	RP74-FPFD-CY6Q4UN-T
			NPN/PNP with Timing (New)	
		12-240V DC/ 24-240V AC (Mini-style)	SPDT Relay (5-wire)	
			SPDT Relay with Timing (5-wire)	
SPDT Relay with Timing (New) (5-wire)				
Solid State Isolated N.O. (4-wire)				
Solid State Isolated N.O. with Timing (4-wire)				
Solid State Isolated N.O. with Timing (New) (4-wire)				
SPST Solid-state Light-ON/Dark-ON (2-wire)				
<p>6" Pig tail</p> 			10-40V DC (Euro-style)	NPN/PNP
		NPN/PNP with Timing		RP74-FPFD-CY6P4UE-T
		NPN/PNP with Timing (New)		
		12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	
			SPDT Relay with Timing (5-wire)	
	SPDT Relay with Timing (New) (5-wire)			
	Solid State Isolated N.O. (4-wire)			
	Solid State Isolated N.O. with Timing (4-wire)			
	Solid State Isolated N.O. with Timing (New) (4-wire)			
SPST Solid-state Light-ON/Dark-ON (2-wire)				

Bb: RP74 SERIES






Note: Depends on fiber optic used (Please see our Glass Fiber & Plastic Fiber catalogue for detail information).  
Coming Soon : Part numbers with underline  
In Preparation: Part numbers with a line through the middle



# RP74 SERIES

## Glass Fiber Optic Mode

Bb: RP74 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
Infrared: 880nm	2m Cable 	10-40V DC	NPN/PNP	RP74-FGFD-CY9C4U2	
			NPN/PNP with Timing	RP74-FGFD-CY9C4U2-T	
			NPN/PNP with Timing (New)		
		12-240V DC/ 24-240V AC	SPDT Relay (5-wire)	RP74-FGFR-CY9C5L2	
			SPDT Relay with Timing (5-wire)	RP74-FGFR-CY9C5L2-T	
			SPDT Relay with Timing (New) (5-wire)		
			Solid State Isolated N.O. (4-wire)	RP74-FGFS-CY9C4L2	
			Solid State Isolated N.O. with Timing (4-wire)	RP74-FGFS-CY9C4L2-T	
			Solid State Isolated N.O. with Timing (New) (4-wire)		
	SPST Solid-state Light-ON/Dark-ON (2-wire)				
	Quick Disconnect 	10-40V DC (Euro-style)	NPN/PNP	RP74-FGFD-CY9Q4UE	
			NPN/PNP with Timing	RP74-FGFD-CY9Q4UE-T	
			NPN/PNP with Timing (New)		
		12-240V DC/ 24-240V AC (Micro-style)	Solid State Isolated N.O. (4-wire)	RP74-FGFS-CY9Q4LM	
			Solid State Isolated N.O. with Timing (4-wire)	RP74-FGFS-CY9Q4LM-T	
			Solid State Isolated N.O. with Timing (New) (4-wire)		
			SPST Solid-state Light-ON/Dark-ON (2-wire)		
			_____	_____	
			_____	_____	
	Glass Fiber-Optic Mode Sensing Distance (Note) 	Quick Disconnect 	10-40V DC (Mini-style)	NPN/PNP	RP74-FGFD-CY9Q4UN
				NPN/PNP with Timing	RP74-FGFD-CY9Q4UN-T
				NPN/PNP with Timing (New)	
			12-240V DC/ 24-240V AC (Mini-style)	SPDT Relay (5-wire)	RP74-FGFR-CY9Q5LN
				SPDT Relay with Timing (5-wire)	RP74-FGFR-CY9Q5LN-T
SPDT Relay with Timing (New) (5-wire)					
Solid State Isolated N.O. (4-wire)				RP74-FGFS-CY9Q4LN	
Solid State Isolated N.O. with Timing (4-wire)				RP74-FGFS-CY9Q4LN-T	
Solid State Isolated N.O. with Timing (New) (4-wire)					
SPST Solid-state Light-ON/Dark-ON (2-wire)					
6" Pig tail 		10-40V DC (Euro-style)	NPN/PNP	RP74-FGFD-CY9P4UE	
			NPN/PNP with Timing	RP74-FGFD-CY9P4UE-T	
			NPN/PNP with Timing (New)		
		12-240V DC/ 24-240V AC (Micro-style)	SPDT Relay (5-wire)	RP74-FGFR-CY9P5LM	
			SPDT Relay with Timing (5-wire)	RP74-FGFR-CY9P5LM-T	
	SPDT Relay with Timing (New) (5-wire)				
	Solid State Isolated N.O. (4-wire)		RP74-FGFS-CY9P4LM		
	Solid State Isolated N.O. with Timing (4-wire)		RP74-FGFS-CY9P4LM-T		
	Solid State Isolated N.O. with Timing (New) (4-wire)				
SPST Solid-state Light-ON/Dark-ON (2-wire)					

Note: Depends on fiber optic used (Please see our Glass Fiber & Plastic Fiber catalogue for detail information).  
Coming Soon : Part numbers with underline  
In Preparation: Part numbers with a line through the middle

## RP74 SERIES

## Specifications (DC)

Item \ Sensing Mode	Retroreflective	Diffuse	Clear Object Detector	Thru-beam	Fiber Optic
Sensing Range (Adjustable)	15 m (standard) 10 m (polarized) (Note)	1.52m (standard) 3.04m (long range)	1.2m (Note)	61m or 152m	Depends on Fiber optic cable
Field of View	1.5°	3.5° (standard) 6.5° (long range)	1.5°	1.5°	—
Light Source	Visible red 660nm	Infrared 880nm	Red 660nm	Infrared 880nm	Visible red 660nm or Infrared 880nm
Indicator LEDs	Green: Power Yellow: Output Red: Margin				
Response Time	2 ms(Thru-beam's receiver is with 5ms)				
Supply Voltage	10-40V DC (Ripple<=10%)				
Output Type	NPN/PNP				
Max. Load Current	250 mA				
No Load Current	<30 mA				
Max. Leakage Current	<10 uA				
Voltage Drop	<2.5 V				
Operation Mode	Light-ON/Dark-ON selectable via switch				
Housing Material	Glass fiber reinforced plastic				
Lens Material	Acrylic				
Cover Gasket Material	Neoprene				
Enclosure Rating	IP67				
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected				
Time Options	No delay, On delay, Off delay, One-shot(with timer mode only)				
Time Settings	Adjustable, 0.1...1.5 s or 0...15s (with timer mode only)				
Ambient Operating Temperature	-25...55°C				
Storage Temperature	-40...70°C				
Relative Humidity	5% to 95%				
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)				
Voltage Withstand Ability	IEC 60947-5-2, Part 8.3.3.4 or 500VDC for one min, between all supply terminals connected together and enclosure				
Insulation Resistance	>20M Ω , with 500V DC megger between all supply terminals connected together and enclosure				
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 time each				
Mounting Bracket	RP74-A1 or RP74-A2 or RP74-A3 (please see Accessories)				
Cable	2m 6.1φ 4X0.5 5X0.5 (Emitter :3X0.5) PVC.				
Pigtail Type	See Pigtail Series or our Cables & Connectors catalogue.				

Note: Used with RE-D82 (supplied with sensor) reflector.

## RP74 SERIES

## Specifications (AC/DC)

Item	Sensing Mode				
	Retroreflective	Diffuse	Clear Object Detector	Thru-beam	Fiber Optic
Sensing Range (Adjustable)	15 m (standard) 10 m (polarized) (Note)	1.52m (standard) 3.04m (long range)	1.2m (Note)	61m or 152m	Depends on Fiber optic cable
Field of View	1.5°	3.5° (standard) 6.5° (long range)	1.5°	1.5°	—
Light Source	Visible red 660nm	Infrared 880nm	Visible red 660nm	Infrared 880nm	Visible red 660nm or Infrared 880nm
Indicator LEDs	Green: Power Yellow: Output Red: Margin				
Output Type	SPDT EM Relay , Solid State Isolated N.O. , SPST solid-state				
Supply Voltage	12-240V DC/24-240V AC				
Response Time	SPDT EM Relay output: 15ms Solid State Isolated N.O. output: 2ms SPST SCR solid-state relay output: 8ms(thru-beam's receiver units : SPST EM Relay output: 23ms; Solid state Isolated N.O. output: 15ms; SPST SCR solid-state relay output: 2ms ON and 1ms OFF ), response time is independent of signal strength				
Max. Load Current	SPDT EM Relay: 10A at 120V AC, 5A at 240V AC, 10A at 28V AC Solid State Isolate N.O. : 300mA at 240V AC/DC SPST SCR solid-state relay: 300mA to 50°C ambient, 100mA to 70°C ambient				
No Load Current	<30 mA				
Max. Leakage Current	SPDT EM Relay: 0 ; Solid State Isolate N.O. : 1mA at 240VAC SPST SCR solid-state relay: less than 1.7 mA rms				
Operation Mode	SPST EM Relay and Solid State Isolated N.O: Light or dark switching selectable via switch SPST solid-state output: Light/Dark operate select switch				
Housing Material	Glass fiber reinforced plastic				
Lens Material	Acrylic				
Cover Gasket Material	Neoprene				
Enclosure Rating	IP67				
Circuit Protection	Output short circuit protected (Only for SPST Solid State output type sensor)				
Time Options	No delay, On delay, Off delay, One-shot (with timer mode only)				
Time Settings	Adjustable, 0.1...1.5s or 0...15s (with timer mode only)				
Ambient Operating Temperature	-25...55°C				
Storage Temperature	-40...70°C				
Relative Humidity	5% to 95%				
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m(in 30-1000MHZ), EFT>1KV, ESD>4KV(contact)				
Voltage Withstand Ability	IEC 60947-5-2, Part 8.3.3.4 or 1500VAC for one min, between all supply terminals connected together and enclosure				
Insulation Resistance	>20M Ω , with 1500V AC megger between all supply terminals connected together and enclosure				
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 time each				
Mounting Bracket	RP74-A1 or RP74-A2 or RP74-A3 (please see Accessories)				
Cable	2m 6.1φ 4X0.5 5X0.5 (Emitter :3X0.5) PVC.				
Pigtail Type	See Pigtail Series or our Cables & Connectors catalogue.I				

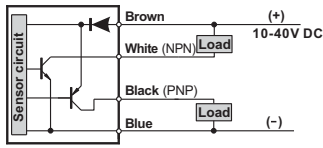
Note: Used with RE-D82 (supplied with sensor) reflector.

# RP74 SERIES

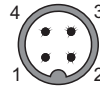
## Connection Diagrams

Bb: RP74 SERIES

### NPN/PNP Connector pin position

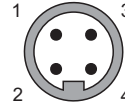


#### Euro-style



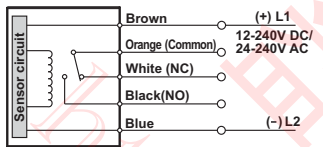
1. Brown (+)
2. White (NPN output)
3. Blue (-)
4. Black (PNP output)

#### Mini-style

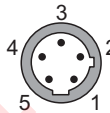


1. Brown (+)
2. White (NPN output)
3. Blue (-)
4. Black (PNP output)

### SPDT Relay Version Connector pin position

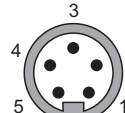


#### Micro-style



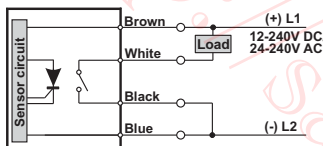
1. Red/white (L1)
2. Red (L2)
3. Green (Common)
4. Red/yellow (N.O.)
5. Red/black (N.C.)

#### Mini-style

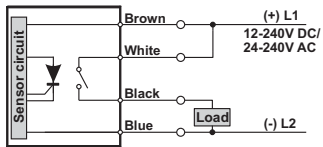


1. Black (N.O.)
2. Blue (L2)
3. Orange (Common)
4. Brown (L1)
5. White (N.C.)

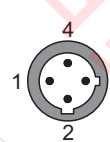
### Solid State Isolated Relay Connector pin position



OR



#### Micro-style



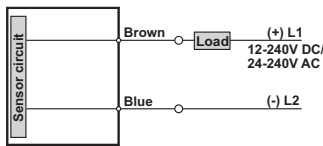
1. Red/black (L2)
2. Red/white (L1)
3. Red (Output)
4. Green (Output)

#### Mini-style

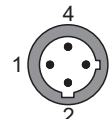


1. Brown (L1)
2. White (Output)
3. Blue (L2)
4. Black (Output)

### SPST solid-state (AC/DC) Connector pin position



#### Micro-style



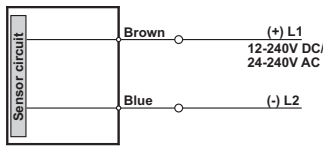
1. Red/black (L2)
2. Red/white (L1)
3. Not used
4. Not used

#### Mini-style

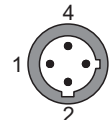


1. Brown (L1)
3. Blue (L2)
2. Not used
4. Not used

### Emitter of Thru-beam Mode (AC/DC) Connector pin position



#### Micro-style



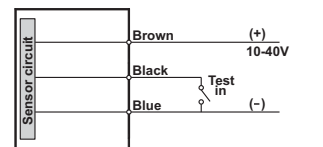
1. Red/black (L2)
2. Red/white (L1)
3. Not used
4. Not used

#### Mini-style

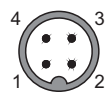


1. Brown (L1)
3. Blue (L2)
2. Not used
4. Not used

### Emitter of Thru-beam Mode (DC) Connector pin position



#### Euro-style



1. Brown (+)
2. Not used
3. Blue (-)
4. Black (Test in)

#### Mini-style



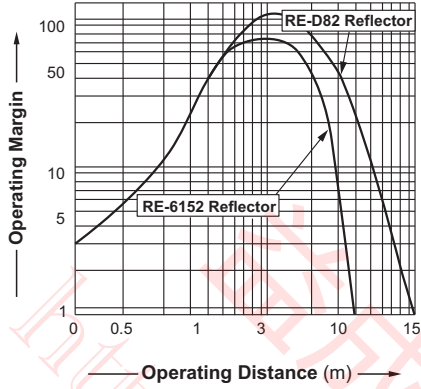
1. Brown (+)
2. Not used
3. Blue (-)
4. Black (Test in)

# RP74 SERIES

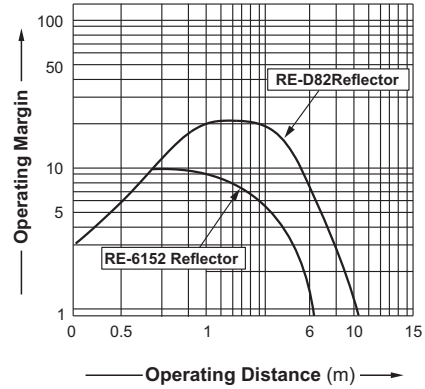
## Sensing Characteristics (Typical)

Bb: RP74 SERIES

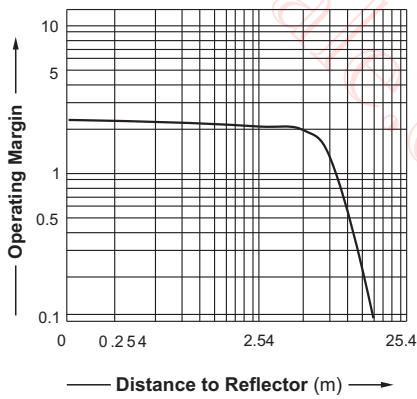
### Retroreflective Mode Sensor (Sn=15m)



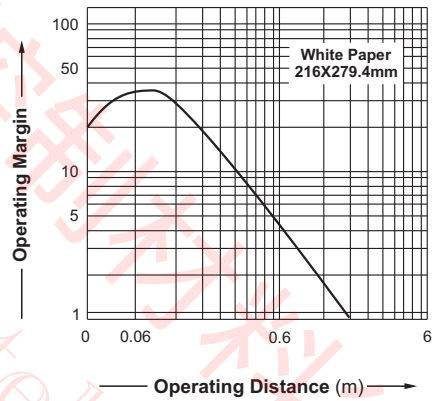
### Polarized Retroreflective Mode (Sn=10m)



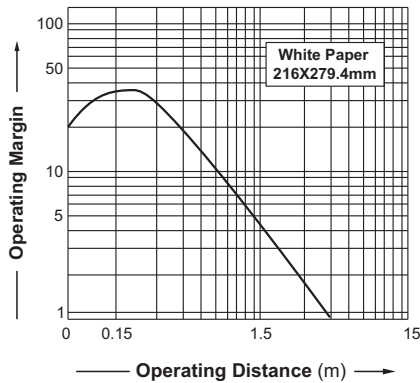
### Clear Object Detector Mode (Sn=1.2 m)



### Standard Diffuse Mode (Sn=1.52 m)



### Long Range Diffuse Mode (Sn=3.04 m)

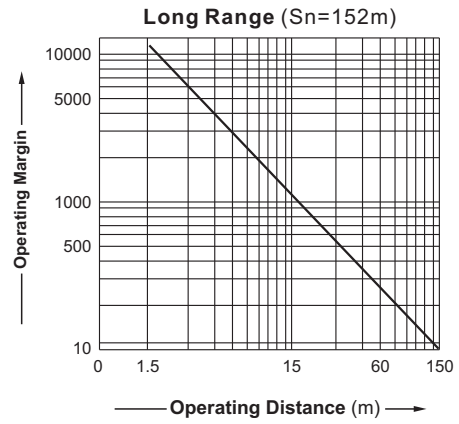
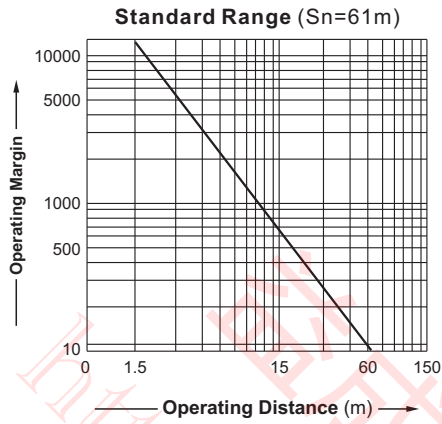


# RP74 SERIES

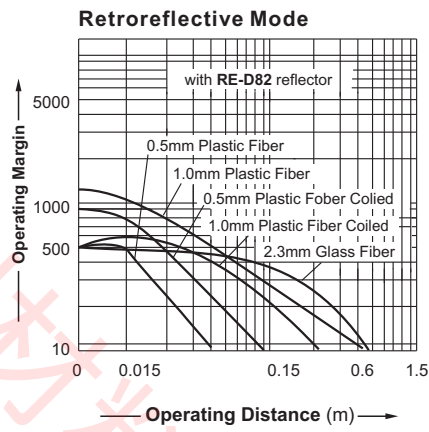
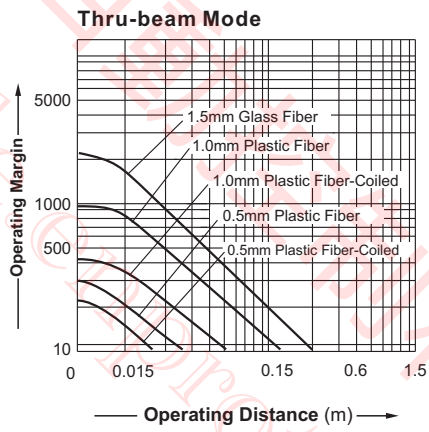
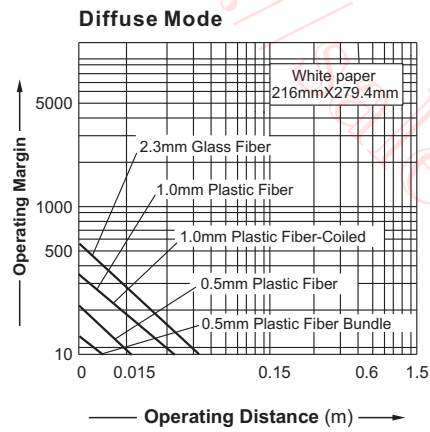
## Sensing Characteristics (Typical)

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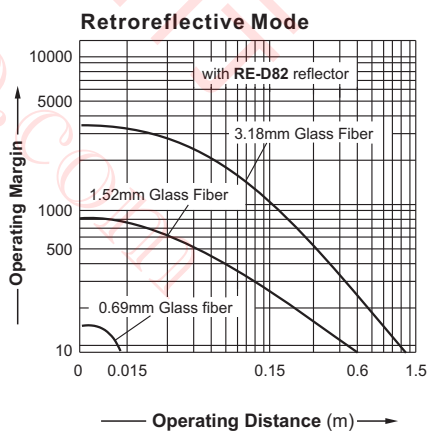
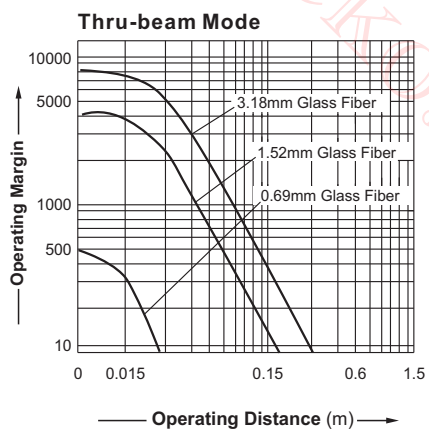
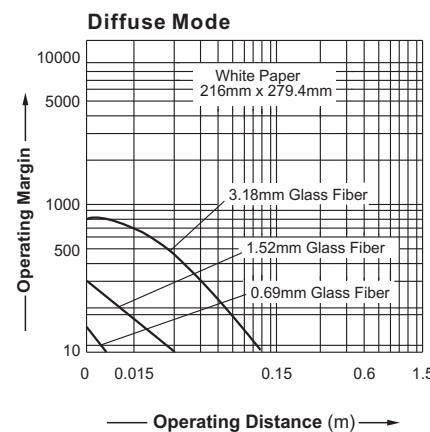
### Thru Beam Mode Sensor



### Visible Red Fiber Optic Sensor



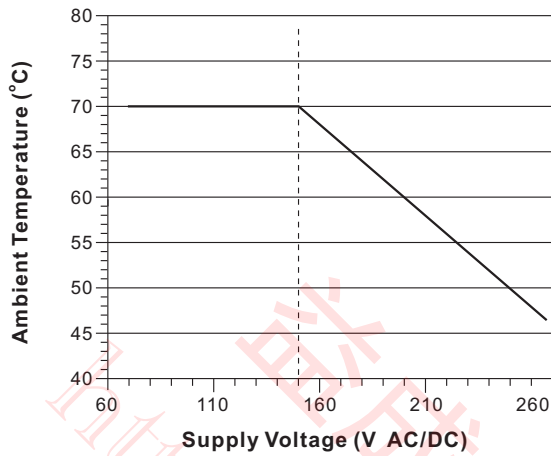
### Infrared Fiber Optic Sensor



# RP74 SERIES

## Precautions for Proper Use

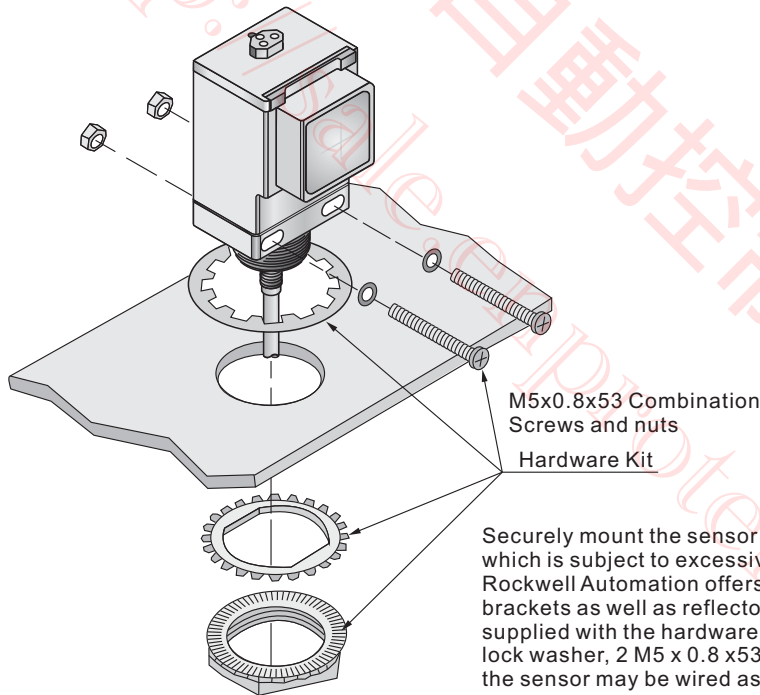
### Ambient Temperature Ratings



All models of the **RP74** Series with the exception of those with the solid-state output and the EM-relay output have a maximum operating temperature of +70°C (+158°F). The maximum operating temperature of the solid-state output and the EM-relay output models can be determined from the graph shown above. That temperature is based on the supply voltage fed to the sensor. For example, if the operating voltage is 100VAC the maximum operating temperature would be +70°C (+158°F). An operating voltage of 220V AC would limit the ambient operating temperature to +55°C (+131°F). Operating of the sensor at ambient temperatures which exceed these limit could result in sensor failure.

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### Mounting



Securely mount the sensor on a firm, stable surface or support. A mounting which is subject to excessive vibration or shifting may intermittent operation. Rockwell Automation offers a wide variety of fixed and adjustable mounting brackets as well as reflectors and quick disconnect cables. The sensor is supplied with the hardware kit which contains a plastic mounting nut, lock washer, 2 M5 x 0.8 x 53 screws and nuts. Once securely mounted, the sensor may be wired as indicated in the wiring diagrams.

### Installing Fiber Optic Cables

1. Ensure that the fiber optic cable locking clip on the sensor is in the **UNLOCK** position.
2. Insert the fiber optic cable.
3. Insert the clip until the locking lever to the **LOCK** position



1. Set clip to **UNLOCK** position.



2. Insert fibers.

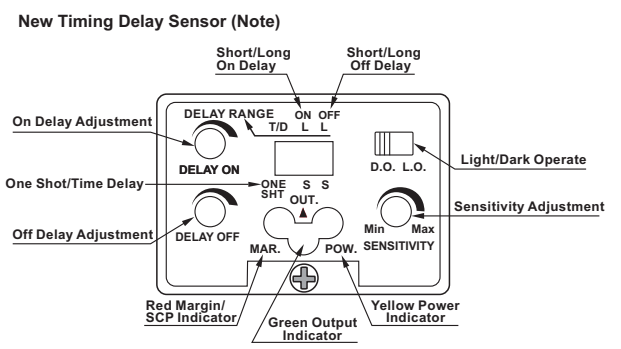
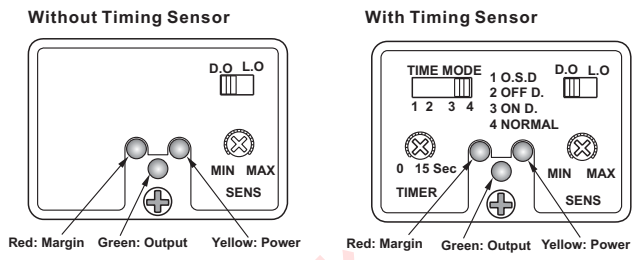


3. Insert the clip to **LOCK** position.

# RP74 SERIES

## Panel Chart & New Timing Chart

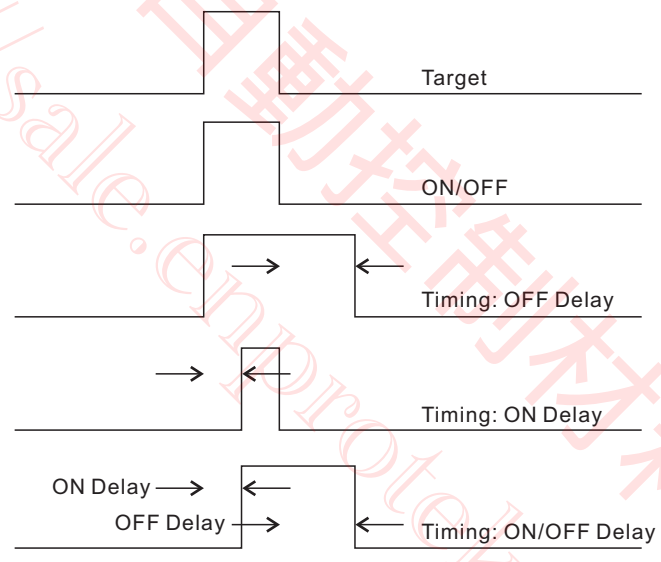
### Sensor's Top View Detail



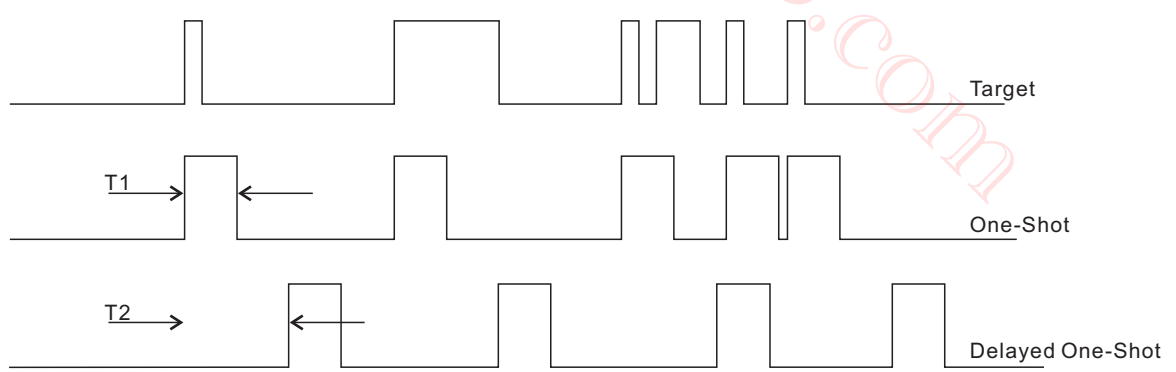
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**Note:** These timers are nonretriggerable. The timing can be set for short (0-1.5 sec) or long (0-15sec) duration using the DIP switches and adjusted via the two 15-turn rotary knobs. Use the illustration below to aid in configuring these timers.

### Typical ON/OFF Timing Diffuse (Light Operate) Nonretriggerable (only for new timing delay sensor)



### Typical ON/OFF Timing Diffuse (Light Operate) Nonretriggerable (only for new timing delay sensor)



T1 is adjusted via the **OFF** delay potentiometer with either a long(0-15sec) or short (0-1.5sec) dip switch setting.  
 T2 is adjusted via the **ON** delay potentiometer with either a long(0-15sec) or short (0-1.5sec) dip switch setting.

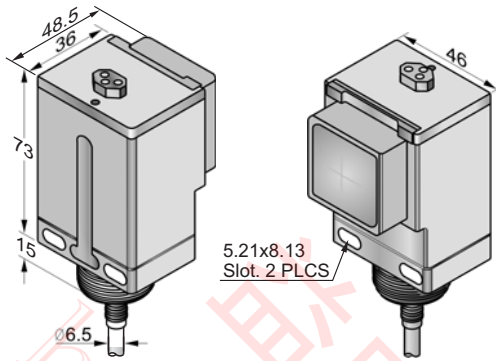


# RP74 SERIES

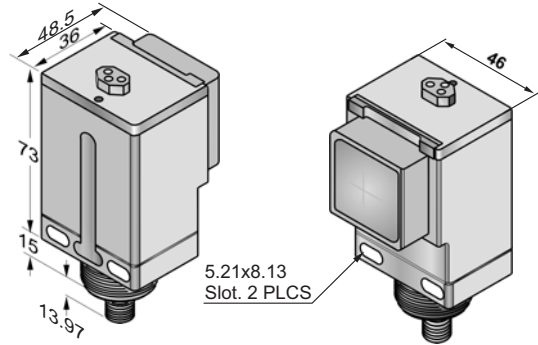
## Dimensions (Unit: mm)

Bb: RP74 SERIES

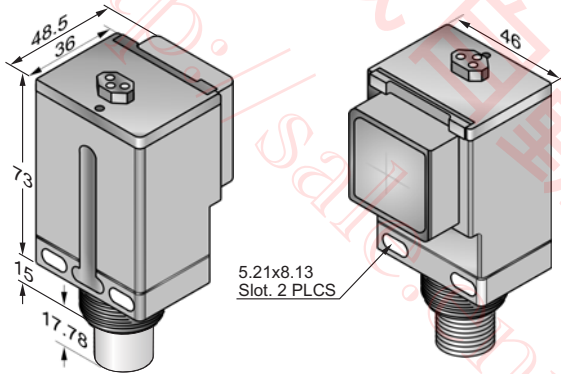
### Cable Type



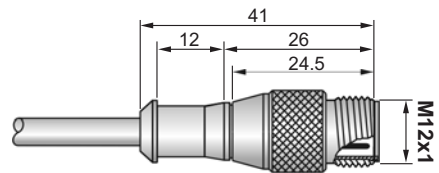
### Euro or Micro Style Connector Type



### Mini-style Connector Type



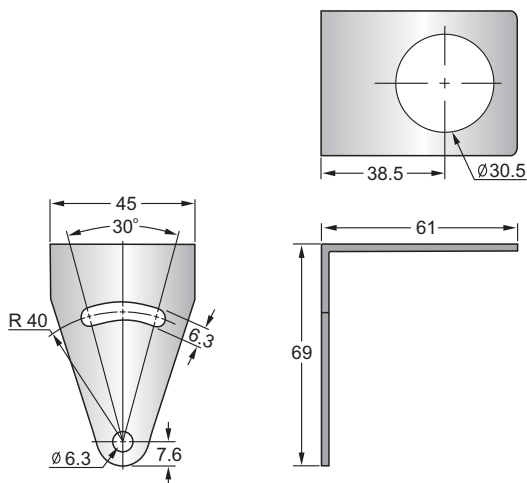
### Pig tail\* Type



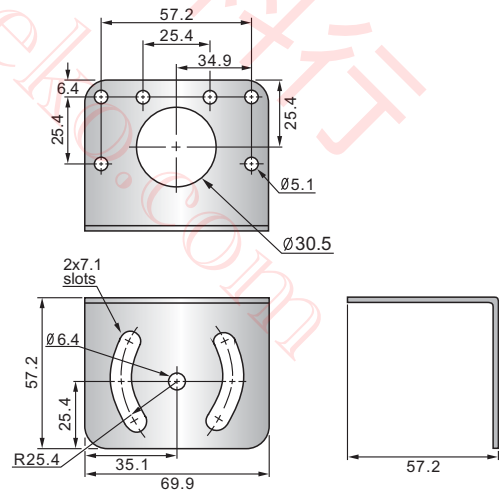
\*: Please see Pigtail Series or our Cables & Connectors catalogue for more information.

## Mounting Bracket

### MB-6961 (optional)



### MB-7057 (optional)

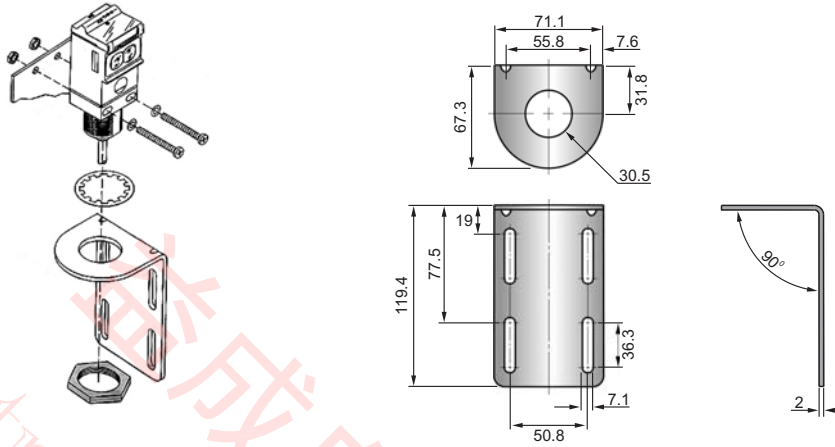


# RP74 SERIES

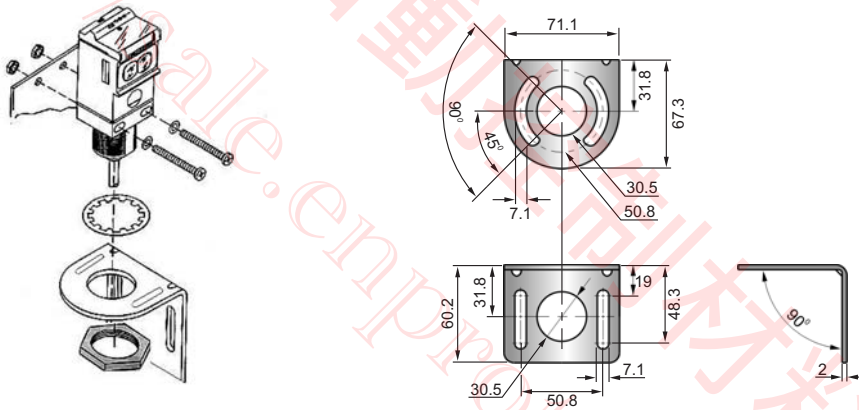
## Dimensions (Unit: mm)

Bb: RP74 SERIES

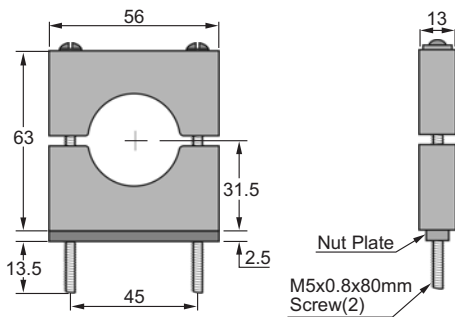
### MB-71120 (optional)



### MB-7160 (optional)

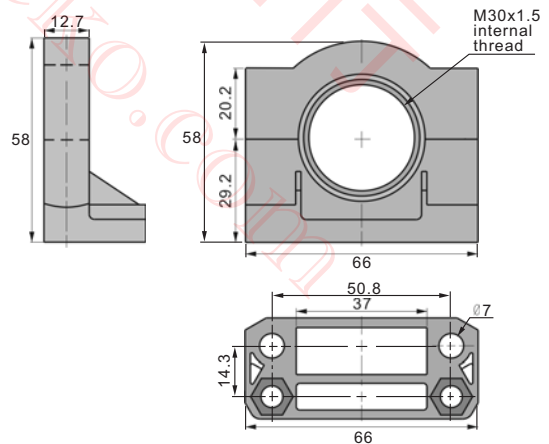


### MB-6356 (optional)



30mm split clamp bracket

### MB-6658 (optional)



Mounting Bracket to Provide 360° Rotation

