








# RP75 SERIES

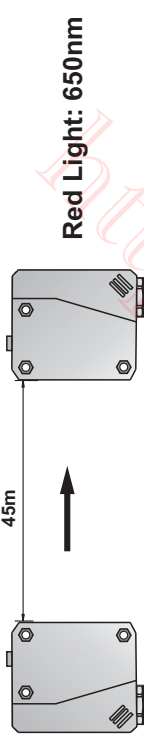





## Thru-beam Mode (DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Af: RP75 SERIES</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 20px;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Red Light</div>  </div> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Thru-beam Mode Sensing Distance: 45m</div>  </div> </div>	<p>2m Cable</p> 	10-30V DC	Emitter	<u>RP75-T045MD-EY6C2L2</u>	
				NPN	RP75-T045MN-CY6C3U2
				PNP	<u>RP75-T045MP-CY6C3U2</u>
				NPN/PNP	<u>RP75-T045MD-CY6C4U2</u>
				NPN , Timing delay	RP75-T045MN-CY6C3U2-T
				PNP , Timing delay	RP75-T045MP-CY6C3U2-T
				NPN/PNP,Timing delay	RP75-T045MD-CY6C4U2-T
	Terminal		10-30V DC	Emitter	<u>RP75-T045MD-EY6T4L</u>
				NPN	RP75-T045MN-CY6T4U
				PNP	<u>RP75-T045MP-CY6T4U</u>
				NPN/PNP	<u>RP75-T045MD-CY6T4U</u>
				NPN , Timing delay	RP75-T045MN-CY6T4U-T
				PNP , Timing delay	RP75-T045MP-CY6T4U-T
				NPN/PNP,Timing delay	RP75-T045MD-CY6T4U-T
	Quick Disconnect (0°or 90°settled)		10-30V DC (Euro Style)	Emitter	<u>RP75-T045MD-EY6Q4LE</u>
				NPN	RP75-T045MN-CY6Q4UE
				PNP	<u>RP75-T045MP-CY6Q4UE</u>
				NPN/PNP	<u>RP75-T045MD-CY6Q4UE</u>
				NPN , Timing delay	RP75-T045MN-CY6Q4UE-T
				PNP , Timing delay	RP75-T045MP-CY6Q4UE-T
				NPN/PNP,Timing delay	RP75-T045MD-CY6Q4UE-T
Quick Disconnect swivel 90°		10-30V DC (Euro Style)	Emitter	<u>RP75-T045MD-EY6Q4LE-S</u>	
			NPN	RP75-T045MN-CY6Q4UE-S	
			PNP	<u>RP75-T045MP-CY6Q4UE-S</u>	
			NPN/PNP	<u>RP75-T045MD-CY6Q4UE-S</u>	
			NPN , Timing delay	RP75-T045MN-CY6Q4UE-TS	
			PNP , Timing delay	RP75-T045MP-CY6Q4UE-TS	
			NPN/PNP,Timing delay	RP75-T045MD-CY6Q4UE-TS	
6" Pigtail		10-30V DC (Euro Style)	Emitter	<u>RP75-T045MD-EY6P4LE</u>	
			NPN	RP75-T045MN-CY6P4UE	
			PNP	<u>RP75-T045MP-CY6P4UE</u>	
			NPN/PNP	<u>RP75-T045MD-CY6P4UE</u>	
			NPN , Timing delay	RP75-T045MN-CY6P4UE-T	
			PNP , Timing delay	RP75-T045MP-CY6P4UE-T	
			NPN/PNP,Timing delay	RP75-T045MD-CY6P4UE-T	

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

# RP75 SERIES

## Thru-beam Mode (AC/DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
<p>Red Light: 650nm</p>  <p>45m</p> <p>Thru-beam Mode Sensing Distance: 45m</p>	<p>2m Cable</p> 	<p>24-240V DC/ 24-240V AC</p>	<p>Emitter (2-wire)</p>	<p><u>RP75-T045MC-EY6C2L2</u></p>	
			<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-T045MR-CY6C4L2</u></p>	
			<p>Relay, Timing delay (4-wire)</p>	<p><u>RP75-T045MR-CY6C4L2-T</u></p>	
			<p>SPST Solid-state Light-ON/Dark-ON (2-wire)</p>	<p><u>RP75-T045MC-CY6C2U2</u></p>	
		<p>Terminal</p> 	<p>24-240V DC/ 24-240V AC</p>	<p>Emitter (2-wire)</p>	<p><u>RP75-T045MC-EY6T4L</u></p>
		<p>Relay L.O./D.O. (4-wire)</p>		<p><u>RP75-T045MR-CY6T4L</u></p>	
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-T045MR-CY6T4L-T</u></p>	
		<p>SPST Solid-state Light-ON/Dark-ON (2-wire)</p>		<p><u>RP75-T045MC-CY6T4U</u></p>	
		<p>Quick Disconnect (0° or 90° settled)</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	<p>Emitter (2-wire)</p>	<p><u>RP75-T045MC-EY6Q4LM</u></p>
		<p>Relay L.O./D.O. (4-wire)</p>		<p><u>RP75-T045MR-CY6Q4LM</u></p>	
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-T045MR-CY6Q4LM-T</u></p>	
		<p>SPST Solid-state Light-ON/Dark-ON (2-wire)</p>		<p><u>RP75-T045MC-CY6Q4UM</u></p>	
	<p>Quick Disconnect swivel 90°</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	<p>Emitter (2-wire)</p>	<p><u>RP75-T045MC-EY6Q4LM-S</u></p>	
	<p>Relay L.O./D.O. (4-wire)</p>		<p><u>RP75-T045MR-CY6Q4LM-S</u></p>		
	<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-T045MR-CY6Q4LM-TS</u></p>		
	<p>SPST Solid-state Light-ON/Dark-ON (2-wire)</p>		<p><u>RP75-T045MC-CY6Q4UM-S</u></p>		
	<p>6" Pigtail</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	<p>Emitter (2-wire)</p>	<p><u>RP75-T045MC-EY6P4LM</u></p>	
	<p>Relay L.O./D.O. (4-wire)</p>		<p><u>RP75-T045MR-CY6P4LM</u></p>		
	<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-T045MR-CY6P4LM-T</u></p>		
	<p>SPST Solid-state Light-ON/Dark-ON (2-wire)</p>		<p><u>RP75-T045MC-CY6P4UM</u></p>		






**Note:**

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# RP75 SERIES

## Diffuse Mode (DC)

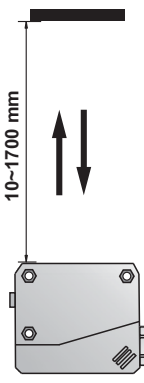





Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Diffuse Mode Sensing Distance: 10-1700mm Red: 680nm 10~1700mm	2m Cable 	10-30V DC	NPN	<u>RP75-D1700N-CY6C3U2</u>
			PNP	<u>RP75-D1700P-CY6C3U2</u>
			NPN/PNP	<u>RP75-D1700D-CY6C4U2</u>
			NPN , Timing delay	<u>RP75-D1700N-CY6C3U2-T</u>
			PNP , Timing delay	<u>RP75-D1700P-CY6C3U2-T</u>
			NPN/PNP, Timing delay	<u>RP75-D1700D-CY6C4U2-T</u>
	Terminal 	10-30V DC	NPN	<u>RP75-D1700N-CY6T4U</u>
			PNP	<u>RP75-D1700P-CY6T4U</u>
			NPN/PNP	<u>RP75-D1700D-CY6T4U</u>
			NPN , Timing delay	<u>RP75-D1700N-CY6T4U-T</u>
			PNP , Timing delay	<u>RP75-D1700P-CY6T4U-T</u>
			NPN/PNP, Timing delay	<u>RP75-D1700D-CY6T4U-T</u>
	Quick Disconnect (0° or 90° settled) 	10-30V DC (Euro Style)	NPN	<u>RP75-D1700N-CY6Q4UE</u>
			PNP	<u>RP75-D1700P-CY6Q4UE</u>
			NPN/PNP	<u>RP75-D1700D-CY6Q4UE</u>
			NPN , Timing delay	<u>RP75-D1700N-CY6Q4UE-T</u>
			PNP , Timing delay	<u>RP75-D1700P-CY6Q4UE-T</u>
			NPN/PNP, Timing delay	<u>RP75-D1700D-CY6Q4UE-T</u>
	Quick Disconnect swivel 90° 	10-30V DC (Euro Style)	NPN	<u>RP75-D1700N-CY6Q4UE-S</u>
			PNP	<u>RP75-D1700P-CY6Q4UE-S</u>
			NPN/PNP	<u>RP75-D1700D-CY6Q4UE-S</u>
			NPN , Timing delay	<u>RP75-D1700N-CY6Q4UE-TS</u>
			PNP , Timing delay	<u>RP75-D1700P-CY6Q4UE-TS</u>
			NPN/PNP, Timing delay	<u>RP75-D1700D-CY6Q4UE-TS</u>
6" Pigtail 	10-30V DC (Euro Style)	NPN	<u>RP75-D1700N-CY6P4UE</u>	
		PNP	<u>RP75-D1700P-CY6P4UE</u>	
		NPN/PNP	<u>RP75-D1700D-CY6P4UE</u>	
		NPN , Timing delay	<u>RP75-D1700N-CY6P4UE-T</u>	
		PNP , Timing delay	<u>RP75-D1700P-CY6P4UE-T</u>	
		NPN/PNP, Timing delay	<u>RP75-D1700D-CY6P4UE-T</u>	

**Note:**  
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 — Af-03 —

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## Diffuse Mode (AC/DC)

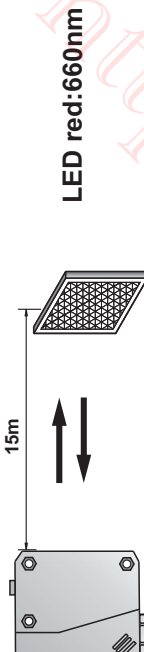





Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Diffuse Mode</p> <p>Sensing Distance: 10-1700mm</p> <p>Red: 680nm</p> <p>10~1700 mm</p> 	<p>2m Cable</p> 	<p>24-240V DC/ 24-240V AC</p>	Relay L.O./D.O. (4-wire)	<u>RP75-D1700R-CY6C4L2</u>
			Relay, Timing delay (4-wire)	<u>RP75-D1700R-CY6C4L2-T</u>
			SPST Solid-state L.O./D.O. (2-wire)	<u>RP75-D1700C-CY6C2U2</u>
	<p>Terminal</p> 	<p>24-240V DC/ 24-240V AC</p>	Relay L.O./D.O. (4-wire)	<u>RP75-D1700R-CY6T4L</u>
			Relay, Timing delay (4-wire)	<u>RP75-D1700R-CY6T4L-T</u>
			SPST Solid-state L.O./D.O. (2-wire)	<u>RP75-D1700C-CY6T4U</u>
	<p>Quick Disconnect (0° or 90° settled)</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	Relay L.O./D.O. (4-wire)	<u>RP75-D1700R-CY6Q4LM</u>
			Relay, Timing delay (4-wire)	<u>RP75-D1700R-CY6Q4LM-T</u>
			SPST Solid-state L.O./D.O. (2-wire)	<u>RP75-D1700C-CY6Q4UM</u>
	<p>Quick Disconnect swivel 90°</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	Relay L.O./D.O. (4-wire)	<u>RP75-D1700R-CY6Q4LM-S</u>
			Relay, Timing delay (4-wire)	<u>RP75-D1700R-CY6Q4LM-TS</u>
			SPST Solid-state L.O./D.O. (2-wire)	<u>RP75-D1700C-CY6Q4UM-S</u>
	<p>6" Pigtail</p> 	<p>24-240V DC/ 24-240V AC (Micro Style)</p>	Relay L.O./D.O. (4-wire)	<u>RP75-D1700R-CY6P4LM</u>
			Relay, Timing delay (4-wire)	<u>RP75-D1700R-CY6P4LM-T</u>
			SPST Solid-state L.O./D.O. (2-wire)	<u>RP75-D1700C-CY6P4UM</u>

**Note:**  
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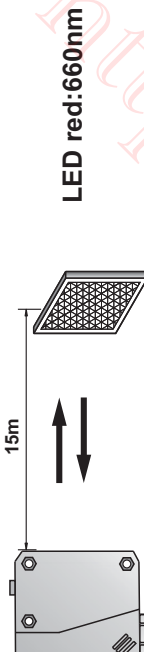





## Retroreflective Mode with Polarizing Filter (DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p><b>Retroreflective Mode</b> (With polarizing filter) Sensing Distance: 15m (Note)</p>  <p>LED red:660nm</p>	<p>2m Cable</p> 	<p>10-30V DC</p>	NPN	<u>RP75-L015MN-CY6C3U2-PF</u>
			PNP	<u>RP75-L015MP-CY6C3U2-PF</u>
			NPN/PNP	<u>RP75-L015MD-CY6C4U2-PF</u>
			NPN , Timing delay	<u>RP75-L015MN-CY6C3U2-TP</u>
			PNP , Timing delay	<u>RP75-L015MP-CY6C3U2-TP</u>
			NPN/PNP,Timing delay	<u>RP75-L015MD-CY6C4U2-TP</u>
	<p>Terminal</p> 	<p>10-30V DC</p>	NPN	<u>RP75-L015MN-CY6T4U-PF</u>
			PNP	<u>RP75-L015MP-CY6T4U-PF</u>
			NPN/PNP	<u>RP75-L015MD-CY6T4U-PF</u>
			NPN , Timing delay	<u>RP75-L015MN-CY6T4U-TP</u>
			PNP , Timing delay	<u>RP75-L015MP-CY6T4U-TP</u>
			NPN/PNP,Timing delay	<u>RP75-L015MD-CY6T4U-TP</u>
	<p>Quick Disconnect (0°or 90°settled)</p> 	<p>10-30V DC (Euro Style)</p>	NPN	<u>RP75-L015MN-CY6Q4UE-PF</u>
			PNP	<u>RP75-L015MP-CY6Q4UE-PF</u>
			NPN/PNP	<u>RP75-L015MD-CY6Q4UE-PF</u>
			NPN , Timing delay	<u>RP75-L015MN-CY6Q4UE-TP</u>
			PNP , Timing delay	<u>RP75-L015MP-CY6Q4UE-TP</u>
			NPN/PNP,Timing delay	<u>RP75-L015MD-CY6Q4UE-TP</u>
	<p>Quick Disconnect swivel 90°</p> 	<p>10-30V DC (Euro Style)</p>	NPN	<u>RP75-L015MN-CY6Q4UE-PS</u>
			PNP	<u>RP75-L015MP-CY6Q4UE-PS</u>
			NPN/PNP	<u>RP75-L015MD-CY6Q4UE-PS</u>
			NPN , Timing delay	<u>RP75-L015MN-CY6Q4UE-PT</u>
			PNP , Timing delay	<u>RP75-L015MP-CY6Q4UE-PT</u>
			NPN/PNP,Timing delay	<u>RP75-L015MD-CY6Q4UE-PT</u>
<p>6" Pigtail</p> 	<p>10-30V DC (Euro Style)</p>	NPN	<u>RP75-L015MN-CY6P4UE-PF</u>	
		PNP	<u>RP75-L015MP-CY6P4UE-PF</u>	
		NPN/PNP	<u>RP75-L015MD-CY6P4UE-PF</u>	
		NPN , Timing delay	<u>RP75-L015MN-CY6P4UE-TP</u>	
		PNP , Timing delay	<u>RP75-L015MP-CY6P4UE-TP</u>	
		NPN/PNP,Timing delay	<u>RP75-L015MD-CY6P4UE-TP</u>	

**Note:** Used with RE-6152 (supplied with sensor) reflector.  
 Coming Soon : Part numbers with underline  
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# RP75 SERIES

## Retroreflective Mode with Polarizing Filter (AC/DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
<p><b>Retroreflective Mode</b> (With polarizing filter) Sensing Distance: 15m (Note)</p>  <p>LED red:660nm</p>	<p>2m Cable</p> 	<p>12-240V DC/ 24-240V AC</p>	<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-L015MR-CY6C4L2-PF</u></p>	
			<p>Relay, Timing delay (4-wire)</p>	<p><u>RP75-L015MR-CY6C4L2-TP</u></p>	
			<p>SPST Solid-state L.O./D.O. (2-wire)</p>	<p><u>RP75-L015MC-CY6C2U2-PF</u></p>	
		<p>Terminal</p> 	<p>12-240V DC/ 24-240V AC</p>	<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-L015MR-CY6T4L-PF</u></p>
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-L015MR-CY6T4L-TP</u></p>	
		<p>SPST Solid-state L.O./D.O. (2-wire)</p>		<p><u>RP75-L015MC-CY6T4U-PF</u></p>	
		<p>Quick Disconnect (0°or 90°settled)</p> 	<p>12-240V DC/ 24-240V AC (Micro Style)</p>	<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-L015MR-CY6Q4LM-PF</u></p>
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-L015MR-CY6Q4LM-TP</u></p>	
		<p>SPST Solid-state L.O./D.O. (2-wire)</p>		<p><u>RP75-L015MC-CY6Q4UM-PF</u></p>	
		<p>Quick Disconnect swivel 90°</p> 	<p>12-240V DC/ 24-240V AC (Micro Style)</p>	<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-L015MR-CY6Q4LM-PS</u></p>
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-L015MR-CY6Q4LM-PT</u></p>	
		<p>SPST Solid-state L.O./D.O. (2-wire)</p>		<p><u>RP75-L015MC-CY6Q4UM-PS</u></p>	
		<p>6" Pigtail</p> 	<p>12-240V DC/ 24-240V AC (Micro Style)</p>	<p>Relay L.O./D.O. (4-wire)</p>	<p><u>RP75-L015MR-CY6P4LM-PF</u></p>
		<p>Relay, Timing delay (4-wire)</p>		<p><u>RP75-L015MR-CY6P4LM-TP</u></p>	
		<p>SPST Solid-state L.O./D.O. (2-wire)</p>		<p><u>RP75-L015MC-CY6P4UM-PF</u></p>	

**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  
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Af: RP75 SERIES

## RP75 SERIES

## Specifications (DC)

Item \ Sensing Mode	Thru-beam	Diffuse	Retroreflective Mode (With polarizing filter)
Sensing Range, Adjustable	45m	1.7 m	15m (Note)
Angle of Divergence	Approx. 1.4° Approx. 6°	Approx. 1°	Approx. 1.6°
Light Spot Size	0 mm @ 40m	38 mm @ 1.3m	280 mm @ 10m
Light Source	LED Red		
Response Time/Frequency	≤0.5ms		
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 is Vs-(≤2.5V); NPN is approx. Vs		
Output Voltage Low	PNP is approx. 0V; NPN is ≤1.5V		
Output Current Max.	100 mA		
Operation Mode	Light or dark switching selectable via switch		
Material	Housing: ABS, Optics:PMMA		
Enclosure Rating	IP 66		
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected		
Switching frequency	1000/s		
Connection types	2mCable, terminal chamber, M12 plug (4-pin), M12 pigtail (4-pin)		
Time Options	No delay, On delay, Off delay, One-shot (with timer mode only)		
Time Settings	0.1 ... 5s Variable (with timer mode only)		
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 80-1000MHz), 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	>20MΩ, 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		
Weight	Approx. 150 g		
Mounting Bracket	MB-8347 (optional)		

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

## RP75 SERIES

## Specifications (AC/DC)

Item \ Sensing Mode	Thru-beam	Diffuse	Retroreflective Mode (With polarizing filter)
Sensing Range, Adjustable	45m	1.7 m	15m (Note)
Angle of Divergence	Approx. 1.4° Approx. 6°	Approx. 1°	Approx. 1.6°
Light Spot Size	1 mm @ 40m	38 mm @ 1.3m	280 mm @ 10m
Light Source	LED Red		
Response Time / Frequency	≤20 ms		
Supply Voltage	12-240V DC / 24-240V AC (10%)		
Power Consumption	≤30mA		
Output Type	Relay NO isolated (provide arc suppression for inductive / capacitive loads), SPST Solid-state with either normally closed or normally open contact		
Switching Frequency	25/S		
Switching Current Max.	3 A/240VAC: 3A/30 VDC		
Current Consumption (No load)	≤ 5 VA		
Operation Mode	Relay NO isolated: Light or dark switching selectable via switch SPST Solid-state: Light/Dark operate selectable via switch		
Material	Housing: ABS, Optics: PMMA		
Enclosure Rating	IP 66		
Circuit Protection	Output short circuit protected (Not for Relay output), Vs reverse polarity protected		
Time Options	No delay, On delay, Off delay, One-shot (with timer mode only)		
Time Settings	Adjustable, 0.1...5 s (with timer mode only)		
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 Withstand Ability	IEC 60947-5-2, Part 8.3.3.4 or 1500V AC for one min, between all supply terminals connected together and enclosure		
Insulation Resistance	>20M Ω, with 500V 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		
Weight	approx. 150 g		
Connection types	2m Cable, Terminal, M12 connector, M12 swivel 90° connector, M12 pigtail		
Mounting Bracket	MB-8347 (optional)		

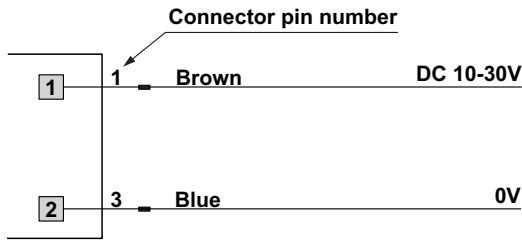
Note: on RE-6152 (supplied with sensor) reflector.



# RP75 SERIES

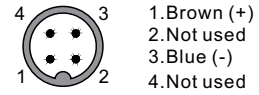
## Connection Diagrams

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

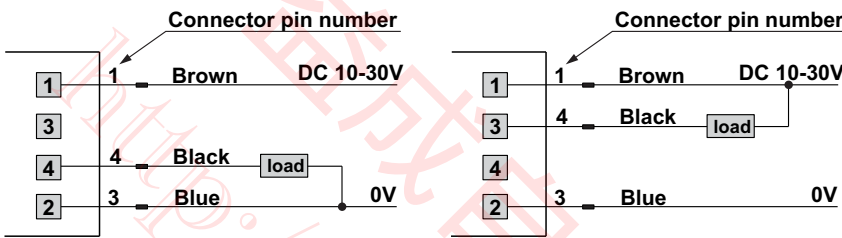


#### Connector pin position

##### Euro-style

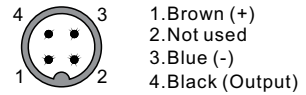


### PNP output NPN output

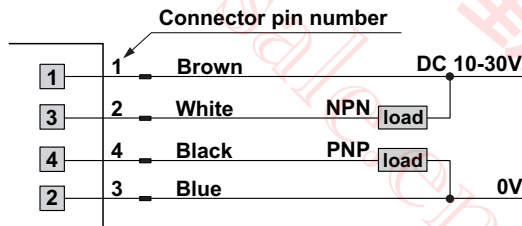


#### Connector pin position

##### Euro-style

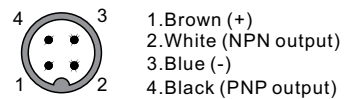


### NPN/PNP output

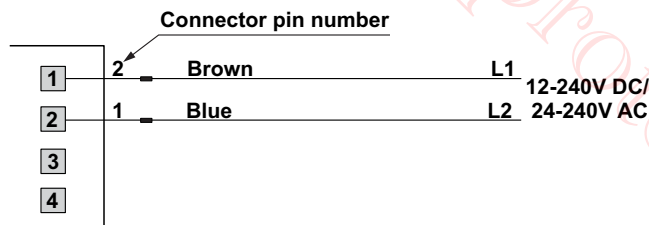


#### Connector pin position

##### Euro-style



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

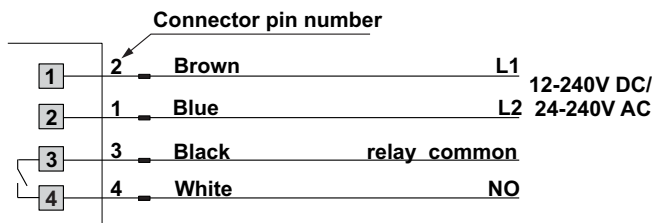


#### Connector pin position

##### Micro-style



### Relay output (AC/DC)

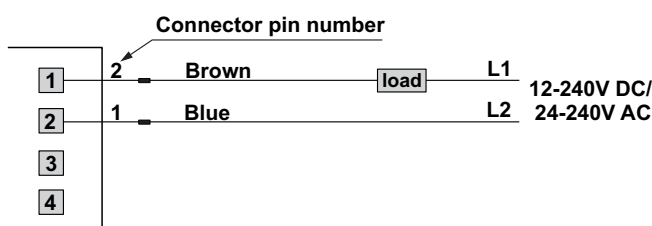


#### Connector pin position

##### Micro-style

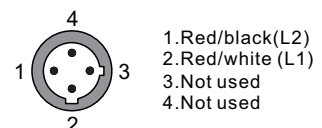


### SPST Solid-state output (AC/DC)



#### Connector pin position

##### Micro-style

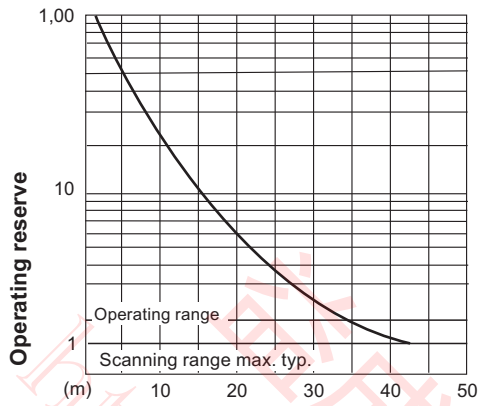


Af: RP75 SERIES

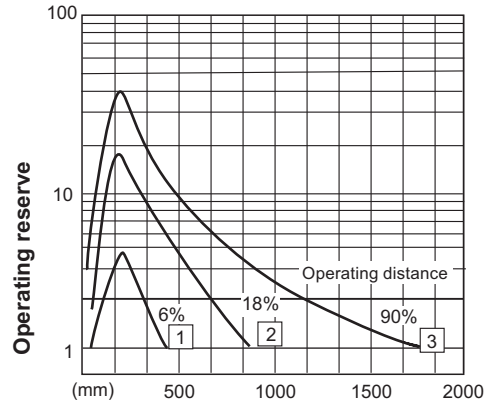
# RP75 SERIES

## Sensing Characteristics (Typical)

### Thru-beam Mode (Sn=45m)

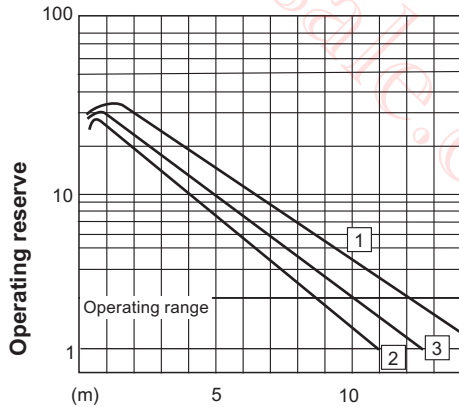


### Diffuse Mode (Sn=1.7m)



- 1 Scanning distance on black, 6% remission
- 2 Scanning distance on grey, 18% remission
- 3 Scanning distance on white, 90% remission

### Retroreflective Mode with Polarizing Filter (Sn=15m)



	Reflector type	Operating range
1	RE-8484	0.01...13.0m
2	RE-6152	0.01...10.0m
3	RE-6041	0.01...11.0m

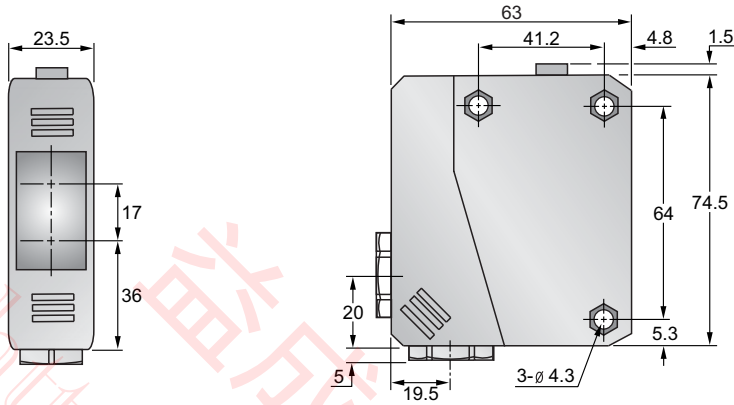
Af: RP75 SERIES

# RP75 SERIES

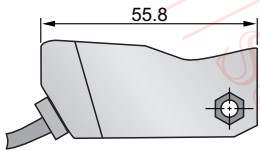
## Dimensions (Unit: mm)

### Sensor Type

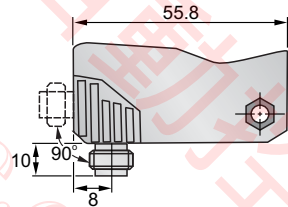
Terminal Type



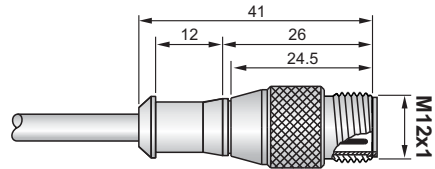
Cable Type



M12 connector (Swivel 90°)

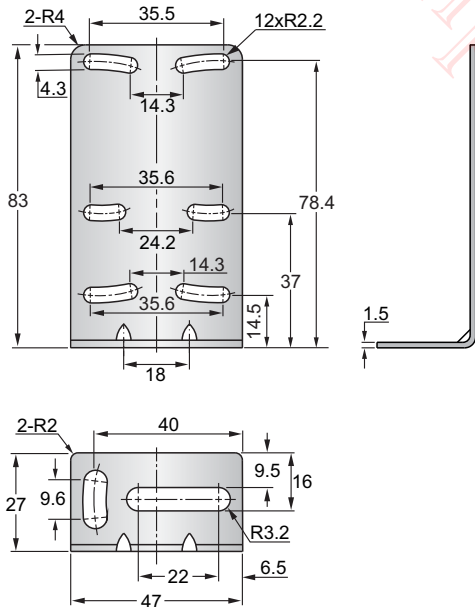


Pigtail\* Type



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

MB-8347 (Mounting bracket-optional)










Af: RP75 SERIES

# RP76 SERIES

## Thru-beam Mode (DC)

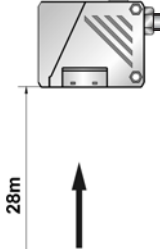




Ag: RP76 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Infrared: 880nm	Terminal 	10-30V DC	Emitter	RP76-T028MD-EY9T4L
			NPN	RP76-T028MN-CY9T4U
			PNP	RP76-T028MP-CY9T4U
			NPN/PNP	RP76-T028MD-CY9T4U
			NPN, Timing delay	RP76-T028MN-CY9T4U-T
			PNP, Timing delay	RP76-T028MP-CY9T4U-T
			NPN/PNP, Timing delay	RP76-T028MD-CY9T4U-T
Thru-beam Mode Sensing Distance: 28m 	Quick Disconnect (0° or 90° settled) 	10-30V DC (Euro Style)	Emitter	RP76-T028MD-EY9Q4LE
			NPN	RP76-T028MN-CY9Q4UE
			PNP	RP76-T028MP-CY9Q4UE
			NPN/PNP	RP76-T028MD-CY9Q4UE
			NPN, Timing delay	RP76-T028MN-CY9Q4UE-T
			PNP, Timing delay	RP76-T028MP-CY9Q4UE-T
			NPN/PNP, Timing delay	RP76-T028MD-CY9Q4UE-T
Thru-beam Mode Sensing Distance: 28m 	Quick Disconnect swivel 90° 	10-30V DC (Euro Style)	Emitter	RP76-T028MD-EY9Q4LE-S
			NPN	RP76-T028MN-CY9Q4UE-S
			PNP	RP76-T028MP-CY9Q4UE-S
			NPN/PNP	RP76-T028MD-CY9Q4UE-S
			NPN, Timing delay	RP76-T028MN-CY9Q4UE-TS
			PNP, Timing delay	RP76-T028MP-CY9Q4UE-TS
			NPN/PNP, Timing delay	RP76-T028MD-CY9Q4UE-TS
Thru-beam Mode Sensing Distance: 28m 	6" Pigtail 	10-30V DC (Euro Style)	Emitter	RP76-T028MD-EY9P4LE
			NPN	RP76-T028MN-CY9P4UE
			PNP	RP76-T028MP-CY9P4UE
			NPN/PNP	RP76-T028MD-CY9P4UE
			NPN, Timing delay	RP76-T028MN-CY9P4UE-T
			PNP, Timing delay	RP76-T028MP-CY9P4UE-T
			NPN/PNP, Timing delay	RP76-T028MD-CY9P4UE-T

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

# RP76 SERIES

## Thru-beam Mode (AC/DC)

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
Infrared: 880nm    Thru-beam Mode Sensing Distance: 28m	Terminal  	12-240V DC/ 24-240V AC	Emitter (2-wire)	RP76-T028MA-EY9T4L	
	Quick Disconnect (0° or 90° settled)  		12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-T028MR-CY9T4L
				Relay NO, Timing delay (4-wire)	RP76-T028MR-CY9T4L-T
				SPST Solid-state Light-ON/Dark-ON (2-wire)	
		Emitter (2-wire)		RP76-T028MA-EY9Q4LM	
	Quick Disconnect swivel 90°  	12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-T028MR-CY9Q4LM	
			Relay NO, Timing delay (4-wire)	RP76-T028MR-CY9Q4LM-T	
			SPST Solid-state Light-ON/Dark-ON (2-wire)		
			Emitter (2-wire)	RP76-T028MA-EY9Q4LM-S	
	6" Pigtail  	12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-T028MR-CY9Q4LM-S	
			Relay NO, Timing delay (4-wire)	RP76-T028MR-CY9Q4LM-TS	
			SPST Solid-state Light-ON/Dark-ON (2-wire)		
Emitter (2-wire)			RP76-T028MA-EY9P4LM		
			Relay NO (4-wire)	RP76-T028MR-CY9P4LM	
			Relay NO, Timing delay (4-wire)	RP76-T028MR-CY9P4LM-T	
			SPST Solid-state Light-ON/Dark-ON (2-wire)		


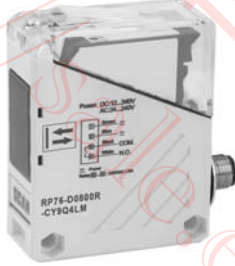


**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 — Ag-02 —

Ag: RP76 SERIES

# RP76 SERIES

## Diffuse Mode

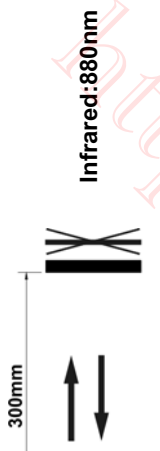




Ag: RP76 SERIES

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
Infrared: 880nm  800mm Diffuse Mode Sensing Distance: 800mm	Terminal  	10-30V DC	NPN	RP76-D0800N-CY9T4U
			PNP	RP76-D0800P-CY9T4U
			NPN/PNP	RP76-D0800D-CY9T4U
			NPN , Timing delay	RP76-D0800N-CY9T4U-T
			PNP , Timing delay	RP76-D0800P-CY9T4U-T
			NPN/PNP, Timing delay	RP76-D0800D-CY9T4U-T
	12-240V DC/ 24-240V AC	Relay NO (4-wire)	RP76-D0800R-CY9T4L	
		Relay NO, Timing delay (4-wire)	RP76-D0800R-CY9T4L-T	
		SPST Solid-state L.O./D.O. (2-wire)		
	Quick Disconnect (0° or 90° settled)  	10-30V DC (Euro Style)	NPN	RP76-D0800N-CY9Q4UE
			PNP	RP76-D0800P-CY9Q4UE
			NPN/PNP	RP76-D0800D-CY9Q4UE
			NPN , Timing delay	RP76-D0800N-CY9Q4UE-T
			PNP , Timing delay	RP76-D0800P-CY9Q4UE-T
			NPN/PNP, Timing delay	RP76-D0800D-CY9Q4UE-T
	12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-D0800R-CY9Q4LM	
		Relay NO, Timing delay (4-wire)	RP76-D0800R-CY9Q4LM-T	
		SPST Solid-state L.O./D.O. (2-wire)		
	Quick Disconnect swivel 90°  	10-30V DC (Euro Style)	NPN	RP76-D0800N-CY9Q4UE-S
			PNP	RP76-D0800P-CY9Q4UE-S
			NPN/PNP	RP76-D0800D-CY9Q4UE-S
			NPN , Timing delay	RP76-D0800N-CY9Q4UE-TS
			PNP , Timing delay	RP76-D0800P-CY9Q4UE-TS
			NPN/PNP, Timing delay	RP76-D0800D-CY9Q4UE-TS
12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-D0800R-CY9Q4LM-S		
	Relay NO, Timing delay (4-wire)	RP76-D0800R-CY9Q4LM-TS		
	SPST Solid-state L.O./D.O. (2-wire)			
6" Pigtail  	10-30V DC (Euro Style)	NPN	RP76-D0800N-CY9P4UE	
		PNP	RP76-D0800P-CY9P4UE	
		NPN/PNP	RP76-D0800D-CY9P4UE	
		NPN , Timing delay	RP76-D0800N-CY9P4UE-T	
		PNP , Timing delay	RP76-D0800P-CY9P4UE-T	
		NPN/PNP, Timing delay	RP76-D0800D-CY9P4UE-T	
	12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-D0800R-CY9P4LM	
		Relay NO, Timing delay (4-wire)	RP76-D0800R-CY9P4LM-T	
		SPST Solid-state L.O./D.O. (2-wire)		

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

# RP76 SERIES

## Diffuse Mode with Background Suppression

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number			
<p style="text-align: center;">Infrared: 880nm</p>  <p style="text-align: center;">300mm</p> <p style="text-align: center;">Diffuse Mode with Background Suppression Sensing Distance: 300mm</p>	<p>Terminal</p> 	10-30V DC	NPN	RP76-D0300N-CY9T4U-BS			
			PNP	RP76-D0300P-CY9T4U-BS			
			NPN/PNP	RP76-D0300D-CY9T4U-BS			
			NPN , Timing delay	RP76-D0300N-CY9T4U-BT			
			PNP , Timing delay	RP76-D0300P-CY9T4U-BT			
			NPN/PNP, Timing delay	RP76-D0300D-CY9T4U-BT			
		12-240V DC/ 24-240V AC	Relay NO (4-wire)	RP76-D0300R-CY9T4L-BS			
			Relay NO, Timing delay (4-wire)	RP76-D0300R-CY9T4L-BT			
			SPST Solid-state L.O./D.O. (2-wire)				
			Quick Disconnect (0° or 90° settled)		10-30V DC (Euro Style)	NPN	RP76-D0300N-CY9Q4UE-BS
						PNP	RP76-D0300P-CY9Q4UE-BS
						NPN/PNP	RP76-D0300D-CY9Q4UE-BS
	NPN , Timing delay	RP76-D0300N-CY9Q4UE-BT					
	PNP , Timing delay	RP76-D0300P-CY9Q4UE-BT					
	NPN/PNP, Timing delay	RP76-D0300D-CY9Q4UE-BT					
	Quick Disconnect swivel 90°		10-30V DC (Euro Style)	NPN	RP76-D0300N-CY9Q4UE-SB		
				PNP	RP76-D0300P-CY9Q4UE-SB		
				NPN/PNP	RP76-D0300D-CY9Q4UE-SB		
				NPN , Timing delay	RP76-D0300N-CY9Q4UE-TB		
				PNP , Timing delay	RP76-D0300P-CY9Q4UE-TB		
				NPN/PNP, Timing delay	RP76-D0300D-CY9Q4UE-TB		
			12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-D0300R-CY9Q4LM-SB		
				Relay NO, Timing delay (4-wire)	RP76-D0300R-CY9Q4LM-TB		
				SPST Solid-state L.O./D.O. (2-wire)			
6" Pigtail					10-30V DC (Euro Style)	NPN	RP76-D0300N-CY9P4UE-BS
						PNP	RP76-D0300P-CY9P4UE-BS
						NPN/PNP	RP76-D0300D-CY9P4UE-BS
	NPN , Timing delay	RP76-D0300N-CY9P4UE-BT					
	PNP , Timing delay	RP76-D0300P-CY9P4UE-BT					
	NPN/PNP, Timing delay	RP76-D0300D-CY9P4UE-BT					
12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-D0300R-CY9P4LM-BS					
	Relay NO, Timing delay (4-wire)	RP76-D0300R-CY9P4LM-BT					
	SPST Solid-state L.O./D.O. (2-wire)						

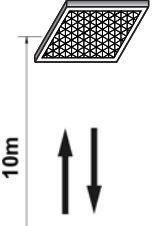

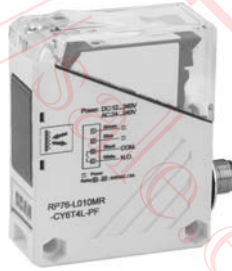


**Note:**  
 Coming Soon : Part numbers with underline  
 In Preparation: Part numbers with a line through the middle  
 —Ag-04—

Ag: RP76 SERIES

# RP76 SERIES

## Retroreflective Mode with Polarizing Filter

Ag: RP76 SERIES

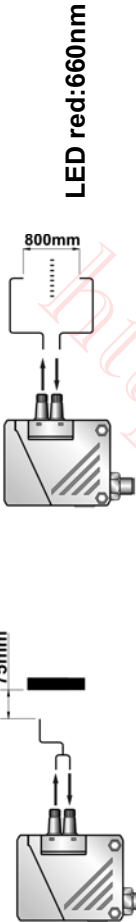
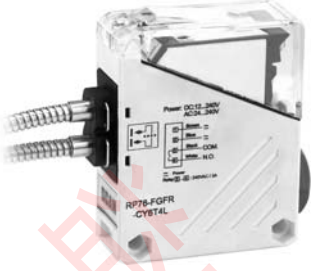
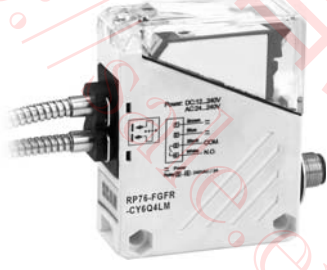


Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>LED red:660nm</p>  <p>10m</p> <p>Retro-reflective Mode with Polarizing Filter Sensing Distance:10m (Note)</p>	<p>Terminal</p> 	<p>10-30V DC</p>	NPN	RP76-L010MN-CY6T4U-PF
			PNP	RP76-L010MP-CY6T4U-PF
			NPN/PNP	RP76-L010MD-CY6T4U-PF
			NPN , Timing delay	RP76-L010MN-CY6T4U-TP
			PNP , Timing delay	RP76-L010MP-CY6T4U-TP
			NPN/PNP,Timing delay	RP76-L010MD-CY6T4U-TP
	<p>QuickDisconnect (0°or90°settled)</p> 	<p>10-30V DC (Euro Style)</p>	NPN	RP76-L010MN-CY6Q4UE-PF
			PNP	RP76-L010MP-CY6Q4UE-PF
			NPN/PNP	RP76-L010MD-CY6Q4UE-PF
			NPN , Timing delay	RP76-L010MN-CY6Q4UE-TP
			PNP , Timing delay	RP76-L010MP-CY6Q4UE-TP
			NPN/PNP,Timing delay	RP76-L010MD-CY6Q4UE-TP
	<p>Quick Disconnect swivel 90°</p> 	<p>10-30V DC (Euro Style)</p>	NPN	RP76-L010MN-CY6Q4UE-PS
			PNP	RP76-L010MP-CY6Q4UE-PS
			NPN/PNP	RP76-L010MD-CY6Q4UE-PS
			NPN , Timing delay	RP76-L010MN-CY6Q4UE-PT
			PNP , Timing delay	RP76-L010MP-CY6Q4UE-PT
			NPN/PNP,Timing delay	RP76-L010MD-CY6Q4UE-PT
	<p>6" Pigtail</p> 	<p>10-30V DC (Euro Style)</p>	NPN	RP76-L010MN-CY6P4UE-PF
			PNP	RP76-L010MP-CY6P4UE-PF
			NPN/PNP	RP76-L010MD-CY6P4UE-PF
			NPN , Timing delay	RP76-L010MN-CY6P4UE-TP
			PNP , Timing delay	RP76-L010MP-CY6P4UE-TP
			NPN/PNP,Timing delay	RP76-L010MD-CY6P4UE-TP
<p>12-240V DC/ 24-240V AC</p>	<p>12-240V DC/ 24-240V AC (Micro Style)</p>	Relay NO (4-wire)	RP76-L010MR-CY6T4L-PF	
		Relay NO, Timing delay (4-wire)	RP76-L010MR-CY6T4L-TP	
		SPST Solid-state L.O./D.O. (2-wire)		
		Relay NO (4-wire)	RP76-L010MR-CY6Q4LM-PF	
		Relay NO, Timing delay (4-wire)	RP76-L010MR-CY6Q4LM-TP	
		SPST Solid-state L.O./D.O. (2-wire)		

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



# RP76 SERIES

## Glass Fiber Optic Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number	
<p>LED red:660nm</p>  <p>800mm</p> <p>75mm</p> <p>Glass Fiber-optic Sensing Distance (Note)</p>	<p>Terminal</p> 	10-30V DC	NPN	RP76-FGFN-CY6T4U	
			PNP	RP76-FGFP-CY6T4U	
			NPN/PNP	RP76-FGFD-CY6T4U	
			NPN , Timing delay	RP76-FGFN-CY6T4U-T	
			PNP , Timing delay	RP76-FGFP-CY6T4U-T	
			NPN/PNP, Timing delay	RP76-FGFD-CY6T4U-T	
	<p>Quick Disconnect (0° or 90° settled)</p> 	10-30V DC (Euro Style)	Relay NO (4-wire)	RP76-FGFR-CY6T4L	
			Relay NO, Timing delay (4-wire)	RP76-FGFR-CY6T4L-T	
			SPST Solid-state L.O./D.O. (2-wire)		
	<p>Quick Disconnect swivel 90°</p> 	10-30V DC (Euro Style)	NPN	RP76-FGFN-CY6Q4UE	
			PNP	RP76-FGFP-CY6Q4UE	
			NPN/PNP	RP76-FGFD-CY6Q4UE	
			NPN , Timing delay	RP76-FGFN-CY6Q4UE-T	
			PNP , Timing delay	RP76-FGFP-CY6Q4UE-T	
			NPN/PNP, Timing delay	RP76-FGFD-CY6Q4UE-T	
	<p>6" Pigtail</p> 	10-30V DC (Euro Style)	Relay NO (4-wire)	RP76-FGFR-CY6Q4LM	
			Relay NO, Timing delay (4-wire)	RP76-FGFR-CY6Q4LM-T	
			SPST Solid-state L.O./D.O. (2-wire)		
			12-240V DC/ 24-240V AC	NPN	RP76-FGFN-CY6P4UE
				PNP	RP76-FGFP-CY6P4UE
				NPN/PNP	RP76-FGFD-CY6P4UE
				NPN , Timing delay	RP76-FGFN-CY6P4UE-T
				PNP , Timing delay	RP76-FGFP-CY6P4UE-T
				NPN/PNP, Timing delay	RP76-FGFD-CY6P4UE-T
			12-240V DC/ 24-240V AC (Micro Style)	Relay NO (4-wire)	RP76-FGFR-CY6P4LM
				Relay NO, Timing delay (4-wire)	RP76-FGFR-CY6P4LM-T
				SPST Solid-state L.O./D.O. (2-wire)	

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

## RP76 SERIES

## Specifications (DC)

Item \ Sensing Mode	Thru-beam	Retroreflective (with polarizing filter)	Standard Diffuse	Diffuse (background suppression)	Glass Fiber Optic
<b>Sensing Range, Adjustable</b>	28m	10m (Note)	800 mm	300 mm	Depends on fiber optic used
<b>Angle of Divergence</b>	approx. 1°	approx. 1.7°	approx. 1.1°	approx. 1.7°	——
<b>Light Spot Size</b>	350mm@20m	150mm@5m	15mm@800mm	17mm@300mm	——
<b>Light Source</b>	Infrared 880nm	Red Light 660nm	Infrared 880nm	Infrared 880nm	Red Light 660nm
<b>Response Time/Frequency</b>	<=1ms/500Hz			<=2ms/250Hz	<=1ms/500Hz
<b>Supply Voltage</b>	10-30V DC (limit values)				
<b>Current Consumption (no load)</b>	<35 mA				
<b>Ripple (within Vs tolerance)</b>	<= 5 V peak-to-peak				
<b>Indicator LED</b>	Yellow: Power, Green: Output, Red: Margin (Emitter of thru-beam mode: Red LED)				
<b>Output Type</b>	PNP, NPN, PNP/NPN				
<b>Output Voltage High</b>	PNP is Vs (<=2.5V); NPN is approx. Vs				
<b>Output Voltage Low</b>	PNP is approx. 0V; NPN is <=1.5V				
<b>Output Current Max.</b>	100 mA				
<b>Operation Mode</b>	Light or dark switching selectable via switch				
<b>Housing Material</b>	ABS				
<b>Enclosure Rating</b>	IP 66 / NEMA 4				
<b>Circuit Protection</b>	Outputs short circuit and over current protected, Vs reverse polarity protected				
<b>Test Input</b>	0 V: light source off; VS or no connection: light source on (only for thru-beam mode)				
<b>Time Options</b>	No delay, On delay, Off delay, One-shot (with timer mode only)				
<b>Time Settings</b>	0.1 ... 5s Variable (with timer mode only)				
<b>Ambient Operating Temperature</b>	-25...55°C				
<b>Storage Temperature</b>	-40...70°C				
<b>EMC</b>	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m (in 80-1000MHz), EFT>1KV, ESD>4KV(contact)				
<b>Voltage With Stand Ability</b>	IEC 60947-5-2, Part 8.3.3.4 or 500VDC for one min, between all supply terminals connected together and enclosure				
<b>Insulation Resistance</b>	>20MΩ, with 500V DC megger between all supply terminals connected together and enclosure				
<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 time each				
<b>Weight</b>	Approx. 120 g				
<b>Mounting Bracket</b>	MB-7263 (optional)				
<b>Pigtail Type</b>	See our <b>pigtail series</b> or our <b>Cables &amp; Connectors</b> catalogue				

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

## RP76 SERIES

## Specifications (AC/DC)

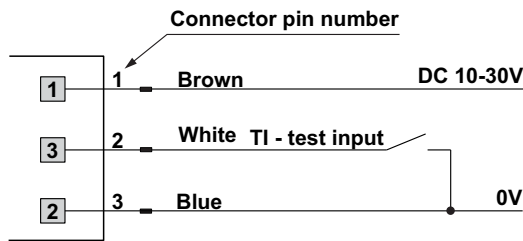
Item \ Sensing Mode	Thru-beam	Retroreflective (with polarizing filter)	Standard Diffuse	Diffuse (background suppression)	Glass Fiber Optic
<b>Sensing Range, Adjustable</b>	28m	10m (Note)	800 mm	300 mm	Depends on fiber optic used
<b>Angle of Divergence</b>	approx.1°	approx.1.7°	approx.1.1°	approx.1.7°	——
<b>Light Spot Size</b>	350mm@20m	150mm@5m	15mm@800mm	17mm@300mm	——
<b>Light Source</b>	Infrared 880nm	Red Light 660nm	Infrared 880nm	Infrared 880nm	Red Light 660nm
<b>Response Time / Frequency</b>	<20 ms /25 Hz				
<b>Supply Voltage</b>	12-240V DC / 24-240V AC ( 10%)				
<b>Power Consumption</b>	< 2 VA				
<b>Indicator LED</b>	Yellow: Power, Green: Output, Red: Margin (Emitter of thru-beam mode: Red LED)				
<b>Output Type</b>	Relay NO isolated (provide arc suppression for inductive / capacitive loads), SPST Solid-state with either normally closed or normally open contact				
<b>Switching Voltage Max.</b>	240 V AC				
<b>Switching Current Max.</b>	3 A				
<b>Current Consumption(No load)</b>	< 30 mA				
<b>Operation Mode</b>	Light or dark switching selectable via switch				
<b>Housing Material</b>	ABS				
<b>Enclosure Rating</b>	IP 66 / NEMA 4				
<b>Circuit Protection</b>	Output short circuit protected (only for 2-wire type), Vs reverse polarity protected				
<b>Time Options</b>	No delay, On delay, Off delay, One-shot (with timer mode only)				
<b>Time Settings</b>	Adjustable, 0.1...5 s (with timer mode only)				
<b>Ambient Operating Temperature</b>	-25...55°C				
<b>Storage Temperature</b>	-40...70°C				
<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 Withstand Ability</b>	IEC 60947-5-2, Part 8.3.3.4 or 1500V AC for one min, between all supply terminals connected together and enclosure				
<b>Insulation Resistance</b>	>20MΩ , with 500V AC megger between all supply terminals connected together and enclosure				
<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 time each				
<b>Mounting Bracket</b>	MB-7263 (optional)				
<b>Weight</b>	approx. 120 g				
<b>Pig tail Type</b>	See <b>Pigtail Series</b> or our <b>Cables &amp; Connector</b> catalogue				

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

# RP76 SERIES

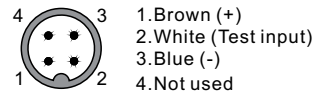
## Connection Diagrams

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

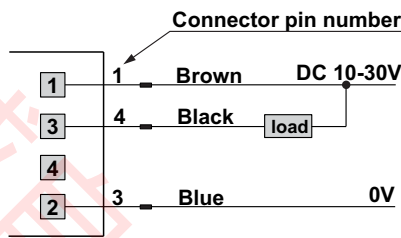
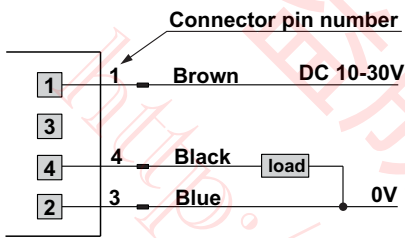


#### Connector pin position

##### Euro-style

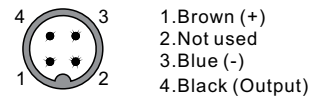


### PNP output type      NPN output type

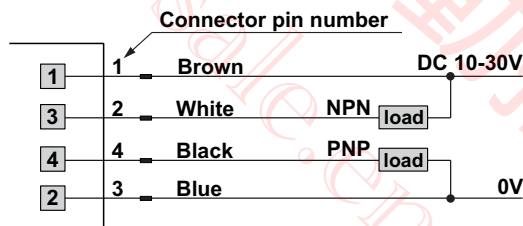


#### Connector pin position

##### Euro-style

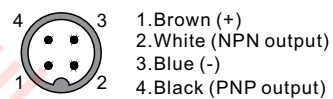


### NPN/PNP output type

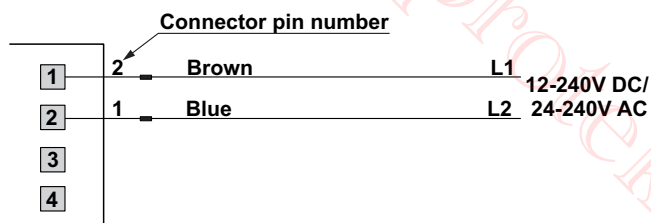


#### Connector pin position

##### Euro-style

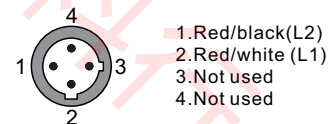


### Emitter of Thru-beam Mode (AC/DC)

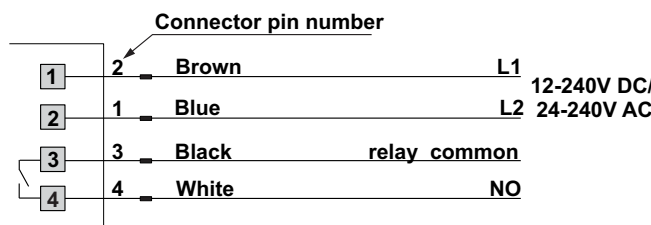


#### Connector pin position

##### Micro-style



### Relay output (AC/DC)

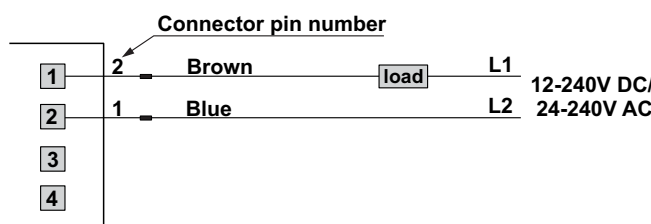


#### Connector pin position

##### Micro-style

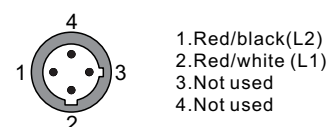


### SPST Solid-state output (AC/DC)



#### Connector pin position

##### Micro-style

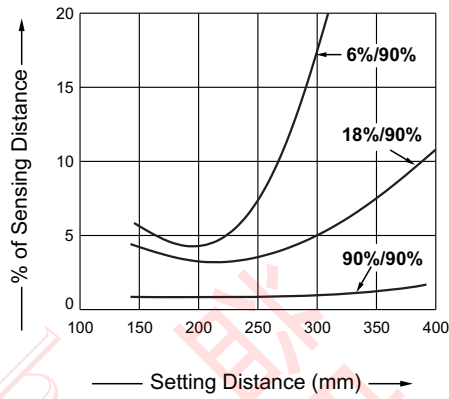


Ag: RP76 SERIES

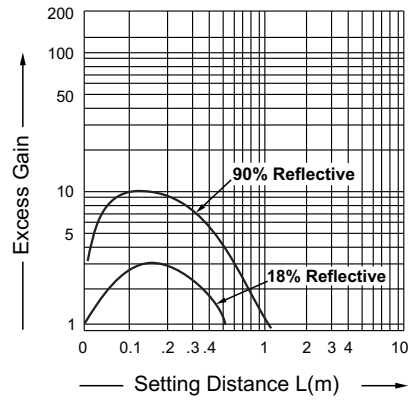
# RP76 SERIES

## Sensing Characteristics (Typical)

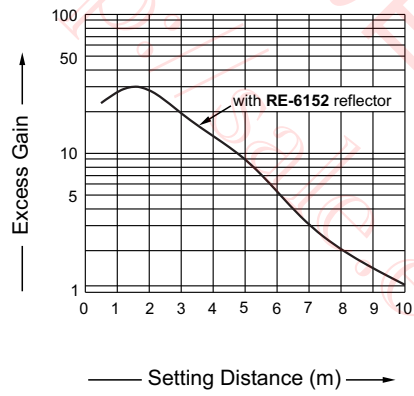
### Background Suppression Diffuse (Sn=300 mm)



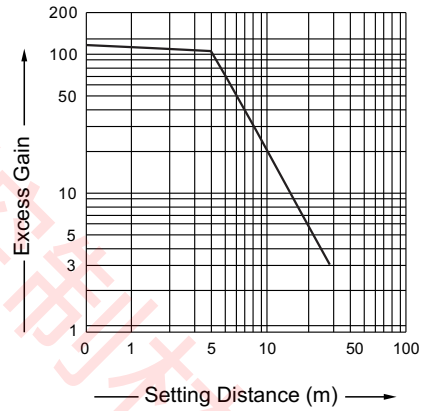
### Diffuse Mode (Sn=800 mm)



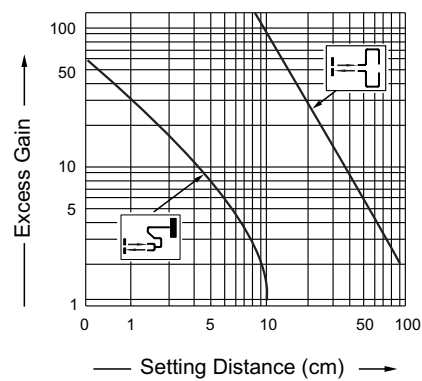
### Polarized Retro-reflective Mode (Sn=10m)



### Thru-beam Mode (Sn=28 m)



### Glass Fiber-Optic Mode



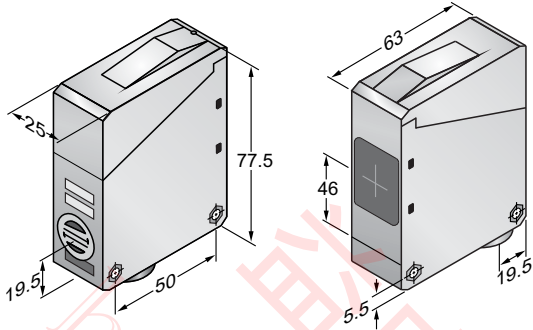
Ag: RP76 SERIES

# RP76 SERIES

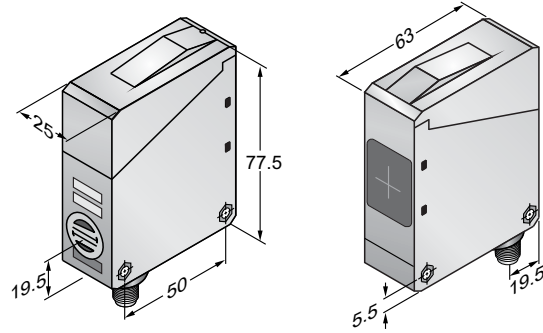
## Dimensions (Unit: mm)

### Sensor Type

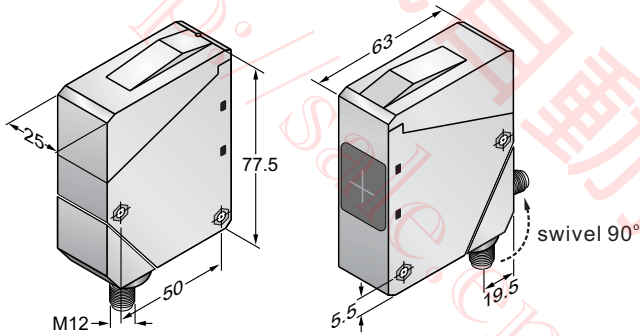
#### Terminal Type



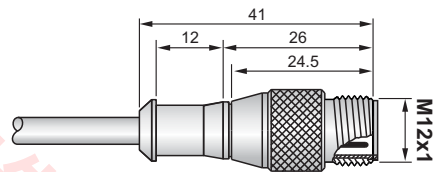
#### Quick Disconnect (0 or 90° settled)



#### Quick Disconnect (Swivel 90°)



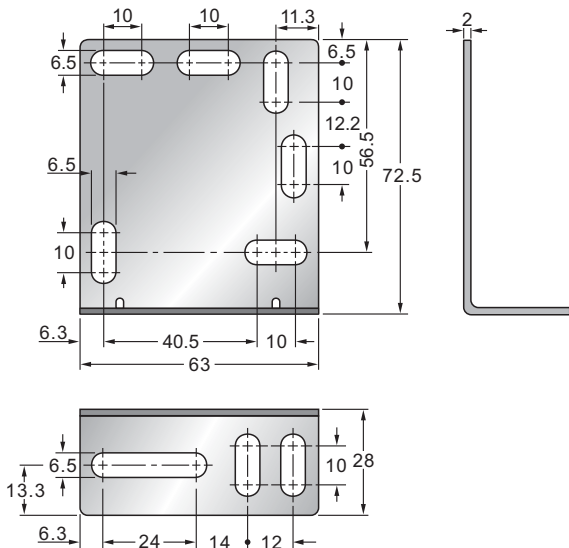
#### Pigtail\* Type



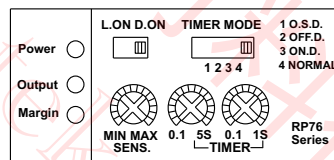
\*: Please see **Pigtail Series** or our **Cables & Connectors** catalogue for more information.

Ag: RP76 SERIES

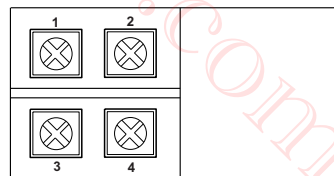
### MB-7263 (Mounting bracket-optional)



### Timer Mode Panel

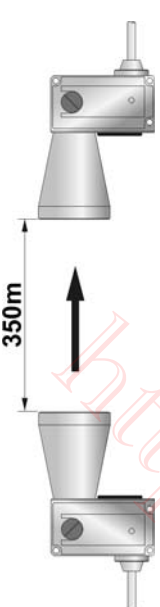




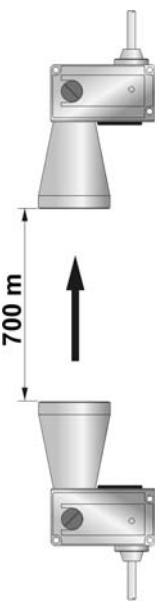






### Terminal Type



# RP80 SERIES

## Thru-beam Mode

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
 <p><b>Thru-beam Mode</b> Sensing Distance: <b>350m</b> Light Source : <b>Infrared 880nm</b></p>	<b>2m Cable</b> 	<b>10 -30V DC</b>	Emitter	RP80-T350MD-EY9C2L2
			NPN	RP80-T350MN-CY9C4U2
			PNP	RP80-T350MP-CY9C4U2
			NPN/PNP	RP80-T350MD-CY9C4U2
	<b>Quick Disconnect (Euro-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T350MD-EY9Q4LE
			NPN	RP80-T350MN-CY9Q4UE
			PNP	RP80-T350MP-CY9Q4UE
			NPN/PNP	RP80-T350MD-CY9Q4UE
	<b>Quick Disconnect (Mini-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T350MD-EY9Q4LN
			NPN	RP80-T350MN-CY9Q4UN
			PNP	RP80-T350MP-CY9Q4UN
			NPN/PNP	RP80-T350MD-CY9Q4UN
	<b>6" Pigtail (Euro-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T350MD-EY9P4LE
			NPN	RP80-T350MN-CY9P4UE
			PNP	RP80-T350MP-CY9P4UE
			NPN/PNP	RP80-T350MD-CY9P4UE
 <p><b>Thru-beam Mode</b> Sensing distance: <b>700m</b> Light Source : <b>Infrared 880nm</b></p>	<b>2m Cable</b> 	<b>10 -30V DC</b>	Emitter	RP80-T700MD-EY9C2L2
			NPN	RP80-T700MN-CY9C4U2
			PNP	RP80-T700MP-CY9C4U2
			NPN/PNP	RP80-T700MD-CY9C4U2
	<b>Quick Disconnect (Euro-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T700MD-EY9Q4LE
			NPN	RP80-T700MN-CY9Q4UE
			PNP	RP80-T700MP-CY9Q4UE
			NPN/PNP	RP80-T700MD-CY9Q4UE
	<b>Quick Disconnect (Mini-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T700MD-EY9Q4LN
			NPN	RP80-T700MN-CY9Q4UN
			PNP	RP80-T700MP-CY9Q4UN
			NPN/PNP	RP80-T700MD-CY9Q4UN
	<b>6" Pigtail (Euro-style)</b> 	<b>10 -30V DC</b>	Emitter	RP80-T700MD-EY9P4LE
			NPN	RP80-T700MN-CY9P4UE
			PNP	RP80-T700MP-CY9P4UE
			NPN/PNP	RP80-T700MD-CY9P4UE

Aw: RP80 SERIES

# RP80 SERIES

## Specifications

Sensing Mode Item	Diffuse Mode	Retro-reflective Mode	Thru-beam Mode	
Sensing range	3m	6m (Note)	700m (Long range), 350m (Standard)	
Power Source	10 to 30 V DC , Ripple P-P: 10% or less			
Current Consumption	55 mA or less		70 mA or less	
Response Time	5 ms or less			
Modulation Method	Pulse Modulation System			
Sensing output	<b>NPN</b> open-collector transistor Maximum sink Current : 200mA Applied voltage : 30V DC or less (between sensing output and 0V) Residual voltage : 1.5V or less (at 100mA sink current )	<b>PNP</b> open-collector transistor Maximum sink Current : 200mA Applied voltage : 30V DC or less (between sensing output and +V) Residual voltage : 1.5V or less (at 100mA sink current )		
Output Operation Mode	Light-ON/Dark-ON selectable			
Operation Indicator	A red LED glows when light received			
Light Emitting Element	Infrared LED x3			
Light Receiving Element	Silicon Photo Diode			
Extraneous Light Immunity	Sunlight : 11000 lx (illuminance on light receiving plane) Incandescent Lamp : 3500 lx (illuminance on light receiving plane)			
Sensing Object	Ø 50mm or more opaque, translucent or specular object			
EMC	IEC 60947-5-2, Parts 7.2.6.1. 2.3 or RFI>3V/m(in 301000MHZ), EFT>1KV, ESD>4KV(contact)			
Vibration With Stand	IEC 60947-5-2, Part 8.3.3.4 or 1500VAC for one min, between all supply terminals connected together and enclosure			
Mechanical Shock Withstand	IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x , y and z directions for six time each			
Ambient Temperature	Operation : -10 ... +60°C			
Ambient Humidity	35 to 85% RH			
Enclosure Protection	IP 66 (IEC-144) , Water-proof type			
Enclosure Material	Zinc Alloy Die-Casting , Lens Holder : Aluminum , Lens : Glass , coated in brown colour			
Cable	Type : 0.3 mm <sup>2</sup> , 4 core cabtyre cable (2 cores for emitter) Standard length : 2 m Extension : Extensible up to 100 m by using 0.3 mm <sup>2</sup> or bigger cable			
	Colour of Lead wires		<b>Receiver</b>	<b>Emitter</b>
		Brown	+ V	+V
		Black	Output (Light-ON)	—————
		White	Output (Dark-ON)	—————
Blue	0V	0V		
Weight	Approx. 580 g		Approx. 1260 g (Emitter & receiver)	
Accessories	1 pc , of Adjustment Screwdriver , instruction Manual			

Aw: RP80 SERIES

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

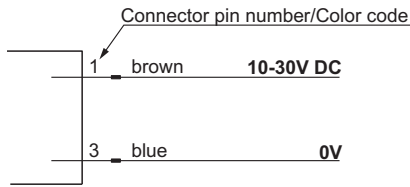


# RP80 SERIES

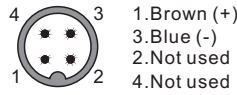
## Connection Diagrams

### Emitter of Thru-beam Mode

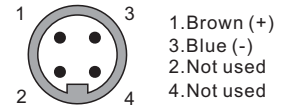
### Connector pin position



#### Euro-style

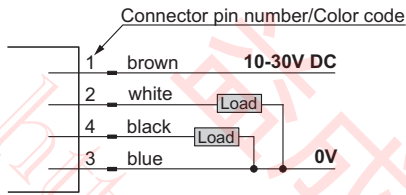


#### Mini-style



### PNP Output type

### Connector pin position



#### Euro-style

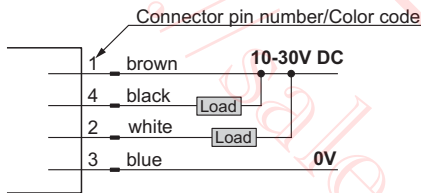


#### Mini-style



### NPN Output type

### Connector pin position



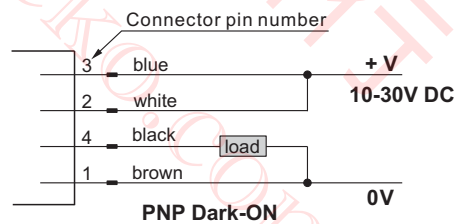
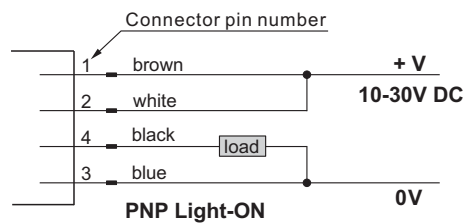
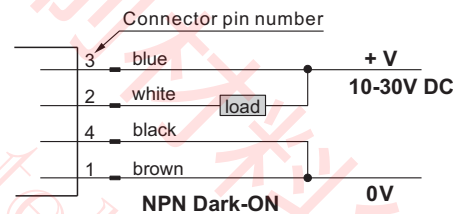
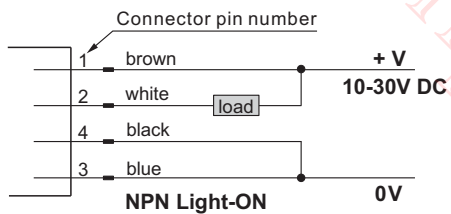
#### Euro-style



#### Mini-style

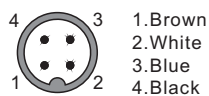


### NPN/PNP output type

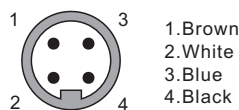


### Connector pin position

#### Euro-style



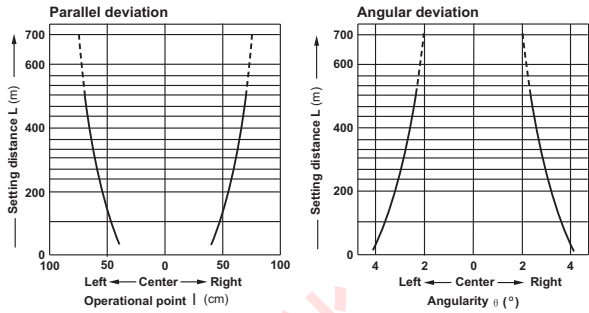
#### Mini-style



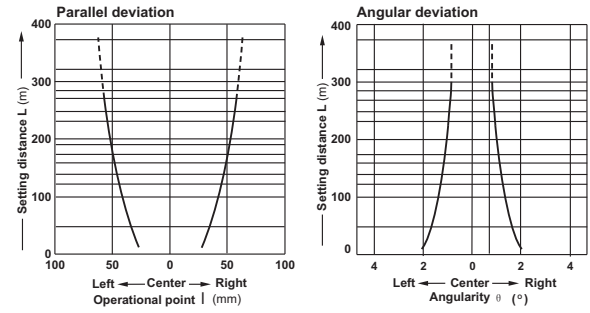
# RP80 SERIES

## Sensing Characteristics(Typical)

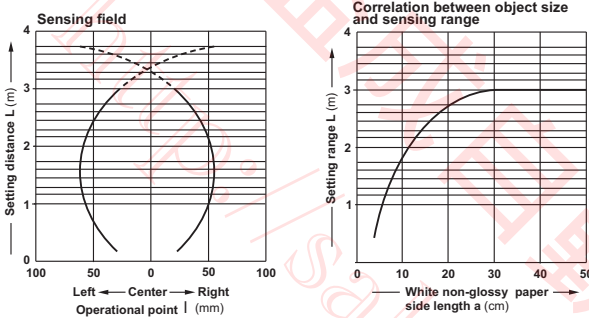
### Thru-beam Mode (Sn=700m)



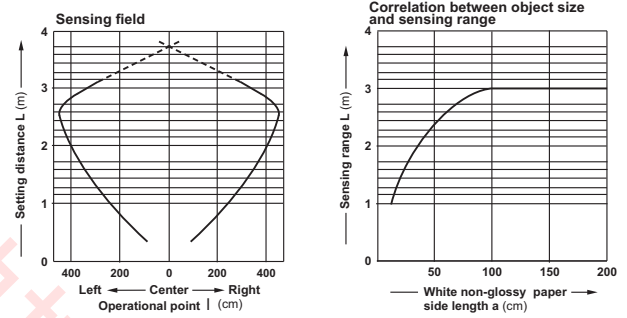
### Thru-beam Mode (Sn=350m)



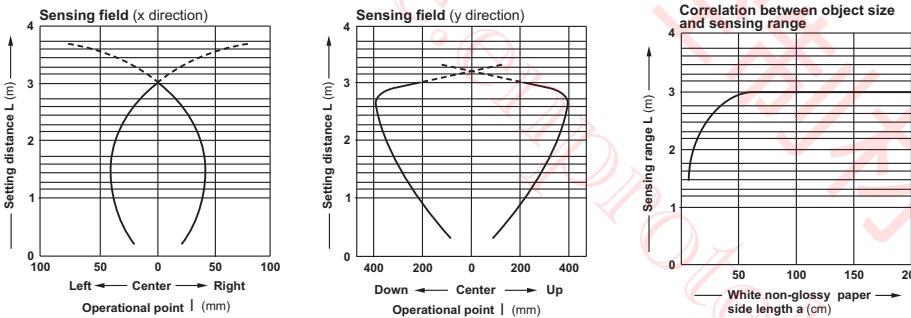
### Diffuse Mode (Standard type)



### Diffuse Mode (Bell-mounted Angle type)



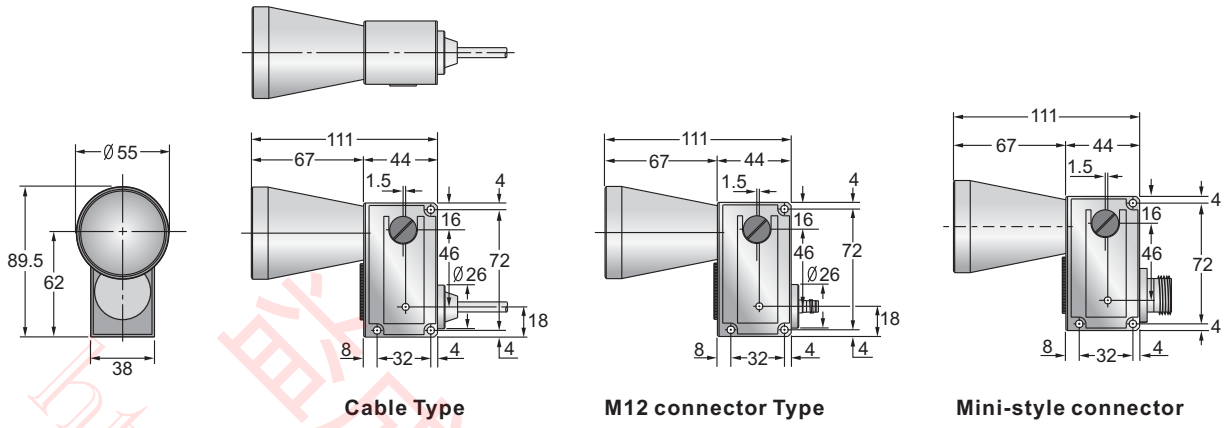
### Diffuse Mode (Fan-shaped Angle type)



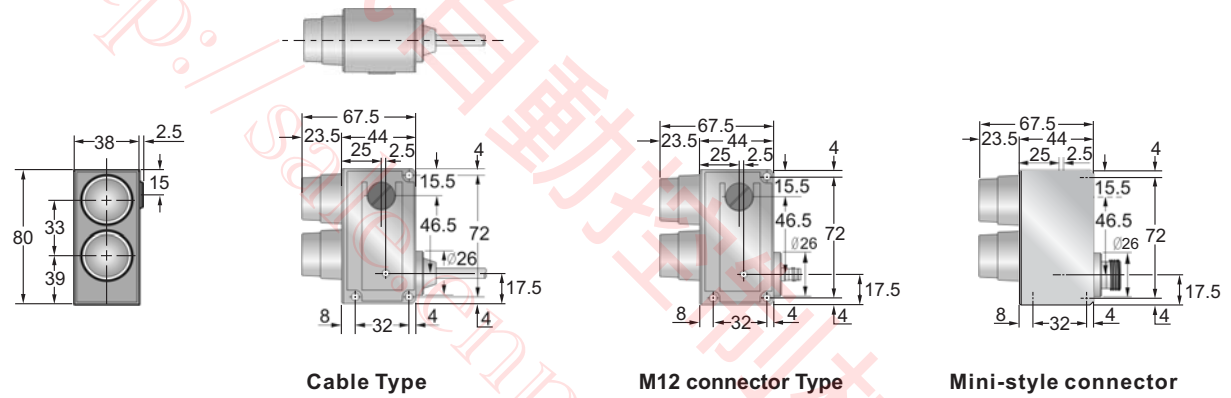
# RP80 SERIES

## Dimensions (Unit: mm)

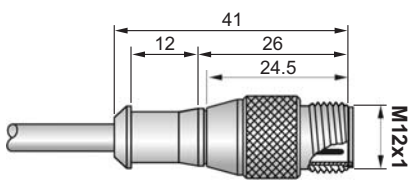
### Thru-beam Mode Sensor



### Diffuse & Retroreflective Mode Sensor

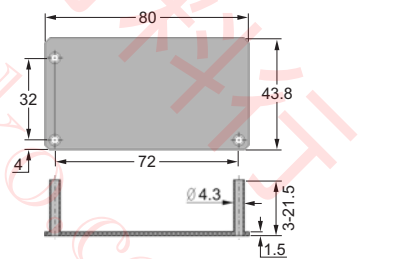


### Pigtail\* Type

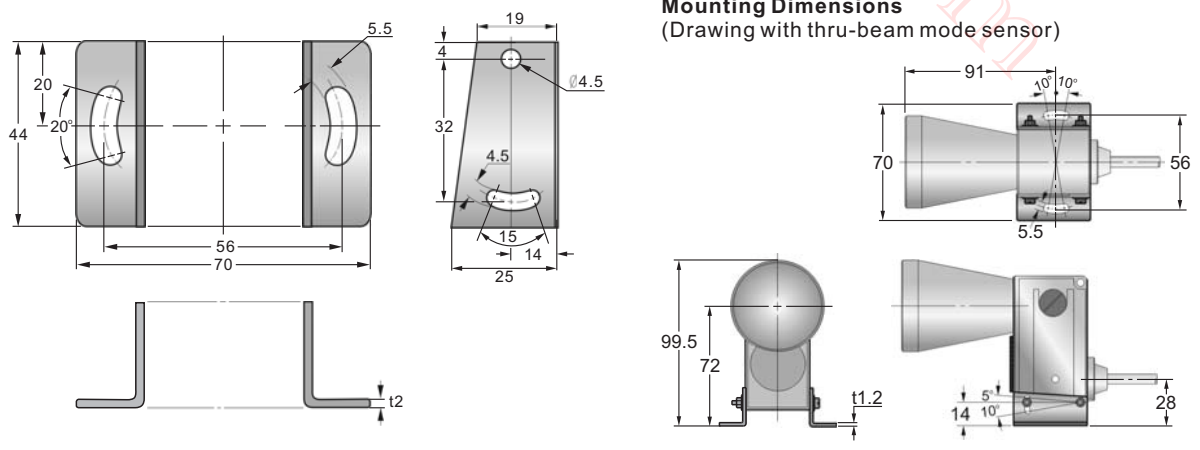


\*: Please see Pigtail Series or our Cables & Connectors catalogue for more information.

### Insulating Block (supplied with sensor)



### RP80-A1 (Mounting bracket-optional)

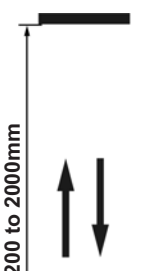




Aw: RP80 SERIES

# RP85 SERIES

## Diffuse Mode

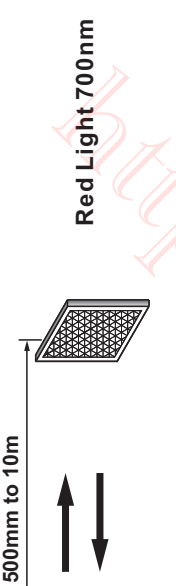


Bd: RP85 SERIES

Sensing Mode	Appearance	Supply Voltage	Output Mode	Part Number	
<p>Infrared 860nm</p>  <p>200 to 2000mm</p> <p>Diffuse Mode</p> <p>Sensing Distance: 200 to 2000mm</p>	<p>Terminal</p> 	10-30V DC	NPN	<u>RP85-D2000N-CY9T4U</u>	
			PNP	<u>RP85-D2000P-CY9T4U</u>	
			NPN/PNP	<u>RP85-D2000D-CY9T4U</u>	
			NPN with Timing	<u>RP85-D2000N-CY9T4U-T</u>	
			PNP with Timing	<u>RP85-D2000P-CY9T4U-T</u>	
			NPN/PNP with Timing	<u>RP85-D2000D-CY9T4U-T</u>	
		12~240V DC/ 24~240V AC		SPDT Relay (4-wire)	<u>RP85-D2000R-CY9T4L</u>
				SPDT Relay with Timing (4-wire)	<u>RP85-D2000R-CY9T4L-T</u>
				Solid State Isolated Relay (4-wire)	<u>RP85-D2000S-CY9T4L</u>
				Solid State Isolated Relay with Timing (4-wire)	<u>RP85-D2000S-CY9T4L-T</u>
				SPST solid-state L.O./D.O. (2-wire)	<u>RP85-D2000C-CY9T4U</u>
	<p>6" Pigtail</p> 	10-30V DC (Euro-style)	NPN	<u>RP85-D2000N-CY9P4UE</u>	
			PNP	<u>RP85-D2000P-CY9P4UE</u>	
			NPN/PNP	<u>RP85-D2000D-CY9P4UE</u>	
			NPN with Timing	<u>RP85-D2000N-CY9P4UE</u>	
			PNP with Timing	<u>RP85-D2000P-CY9P4UE</u>	
			NPN/PNP with Timing	<u>RP85-D2000D-CY9P4UE</u>	
12~240V DC/ 24~240V AC (Micro-style)			SPDT Relay (4-wire)	<u>RP85-D2000R-CY9P4LM</u>	
			SPDT Relay with Timing (4-wire)	<u>RP85-D2000R-CY9P4LM-T</u>	
			Solid State Isolated Relay (4-wire)	<u>RP85-D2000S-CY9P4LM</u>	
			Solid State Isolated Relay with Timing (4-wire)	<u>RP85-D2000S-CY9P4LM-T</u>	
			SPST solid-state L.O./D.O. (2-wire)	<u>RP85-D2000C-CY9P4UM</u>	

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

# RP85 SERIES

## Retroreflective with Polarizing Filter

Sensing Mode	Appearance	Supply Voltage	Output Mode	Part Number
<p>Red Light 700nm</p>  <p>500mm to 10m</p> <p>Retroreflective Mode (with polarizing filter) Sensing Distance: 500mm to 10m (Note)</p>	<p>Terminal</p> 	10-30V DC	NPN	RP85-L010MN-CY6T4U-PF
			PNP	RP85-L010MP-CY6T4U-PF
			NPN/PNP	RP85-L010MD-CY6T4U-PF
			NPN with Timing	RP85-L010MN-CY6T4U-TP
			PNP with Timing	RP85-L010MP-CY6T4U-TP
			NPN/PNP with Timing	RP85-L010MD-CY6T4U-TP
		12~240V DC/ 24~240V AC	SPDT Relay (4-wire)	RP85-L010MR-CY6T4L-PF
			SPDT Relay with Timing (4-wire)	RP85-L010MR-CY6T4L-TP
			Solid State Isolated Relay (4-wire)	RP85-L010MS-CY6T4L-PF
			Solid State Isolated Relay with Timing (4-wire)	RP85-L010MS-CY6T4L-TP
	<p>6" Pigtail</p> 	10-30V DC (Euro-style)	NPN	RP85-L010MN-CY6P4UE-PF
			PNP	RP85-L010MP-CY6P4UE-PF
			NPN/PNP	RP85-L010MD-CY6P4UE-PF
			NPN with Timing	RP85-L010MN-CY6P4UE-TP
			PNP with Timing	RP85-L010MP-CY6P4UE-TP
			NPN/PNP with Timing	RP85-L010MD-CY6P4UE-TP
		12~240V DC/ 24~240V AC (Micro-style)	SPDT Relay (4-wire)	RP85-L010MR-CY6P4LM-PF
			SPDT Relay with Timing (4-wire)	RP85-L010MR-CY6P4LM-TP
			Solid State Isolated Relay (4-wire)	RP85-L010MS-CY6P4LM-PF
			Solid State Isolated Relay with Timing (4-wire)	RP85-L010MS-CY6P4LM-TP
			SPST solid-state L.O./D.O. (2-wire)	RP85-L010MC-CY6T4U-PF
			SPST solid-state L.O./D.O. (2-wire)	RP85-L010MC-CY6P4UM-PF

Bd: RP85 SERIES

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

## RP85 SERIES

## Specifications (DC)

Bd: RP85 SERIES

Sensing Mode	Diffuse	Retroreflective (with polarizing filter)
Item		
Sensing Distance	0.2 to 2m	0.5 to 10m (Note)
Setting Distance	0.5 to 2m	——
Standard Sensing Object	90% white card 300x300 mm	Opaque: 80 dia. Min.
Hysteresis (typical)	10% of setting distance	——
Directional Angle	——	Sensor: 1° to 5° ; Reflector: 40° min.
Reflectivity Characteristics (black/white error)	± 10% max. (At 1m sensing distance)	——
Light Source (wave length)	Infrared LED (860 nm)	Red LED (700 nm)
Spot Size	70 dia. max. at 1m sensing distance	——
Current Consumption	60 mA max.	50 mA max.
Response Time	5ms	1ms
Output Type	NPN, PNP, NPN/PNP	
Supply Voltage	10 to 30VDC including 10% (p-p) ripple	
Output (max. load current)	Load power supply voltage: 30V DC max. Load current: 100 mA 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 selectable via switch	
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 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 Method	Terminal block; 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.

## RP85 SERIES

## Specifications (AC/DC)

Bd: RP85 SERIES

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	Terminal type; 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	

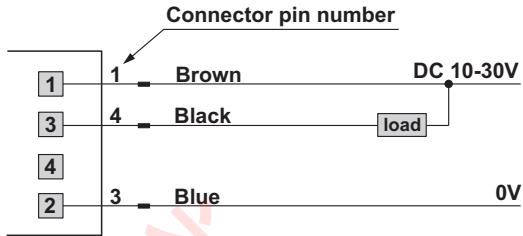
Note: Used with RE-8484 (supplied with sensor) reflector.

# RP85 SERIES

## Connection Diagrams

Bd: RP85 SERIES

### NPN output

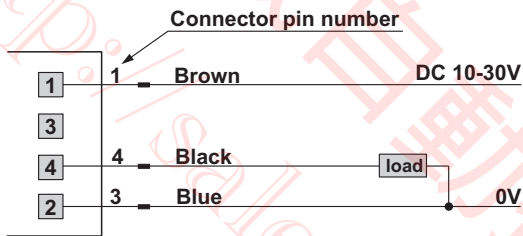


### Connector pin position

#### Euro-style



### PNP output

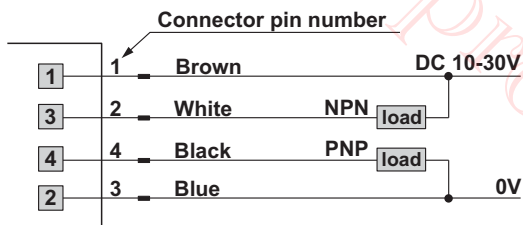


### Connector pin position

#### Euro-style

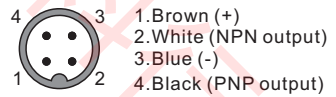


### NPN/PNP output



### Connector pin position

#### Euro-style





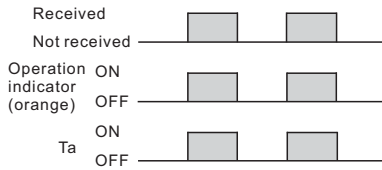
# RP85 SERIES

## Timing Chart & Connection Diagrams

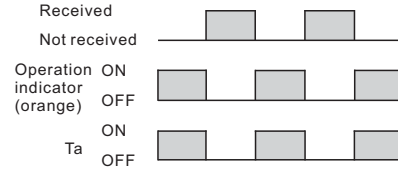
Bd : RP85 SERIES

### Timing Chart (with timer mode only)

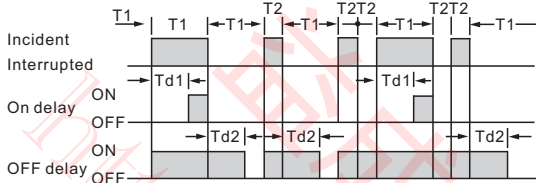
#### Without timer function (Light-ON)



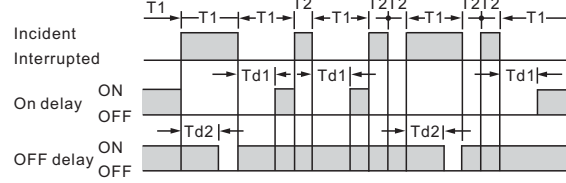
#### Without timer function (Dark-ON)



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

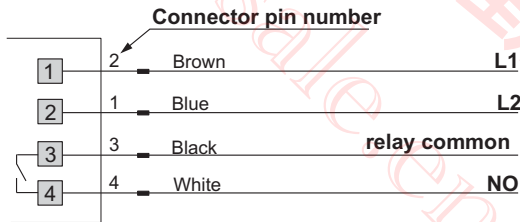


#### With Timer function (Dark-ON)



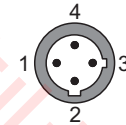
Note: Td1, Td2: Delay time (0 to 5s)  
 T1: A period longer than the delay time.  
 T2: A period shorter than the delay time.  
 For ON-and OFF- delay timers, Td1 and Td2 are independently variable.

### SPDT Relay Output



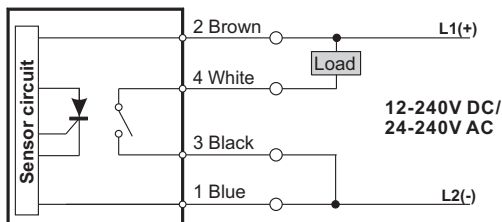
#### Connector pin position

Micro-style

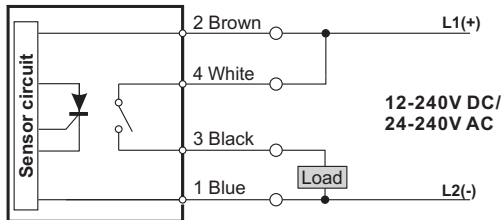


- 1.Red/black(L2)
- 2.Red/white (L1)
- 3.Red (relay common)
- 4.Green (N.O.)

### Solid State Isolated Relay output

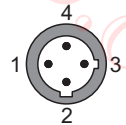


OR



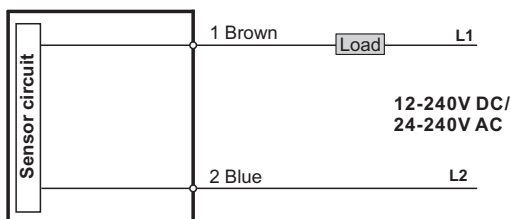
#### Connector pin position

Micro-style



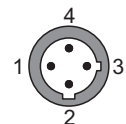
- 1.Red/black(L2)
- 2.Red/white (L1)
- 3.Red (Output)
- 4.Green (Output)

### SPST Solid-State output



#### Connector pin position

Micro-style

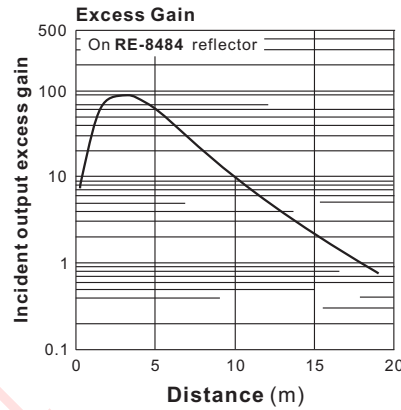
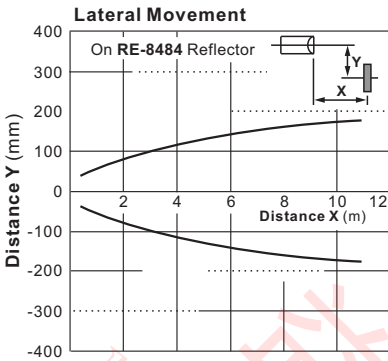


- 1.Red/black(L1)
- 2.Red/white (L2)
- 3.Not used
- 4.Not used

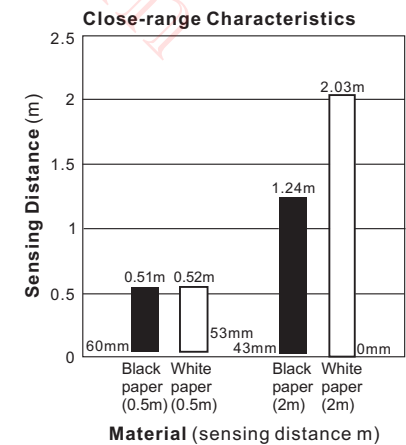
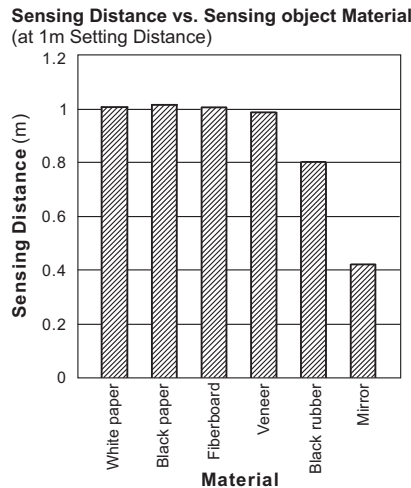
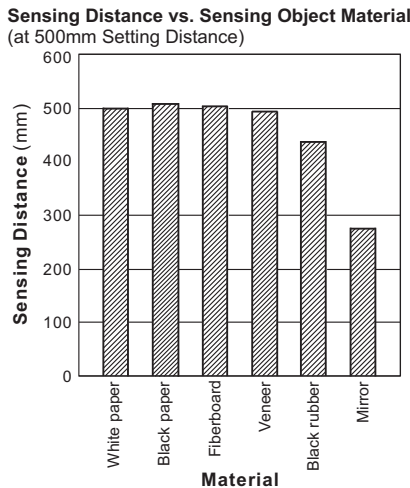
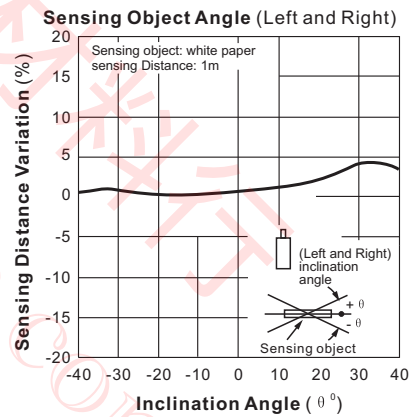
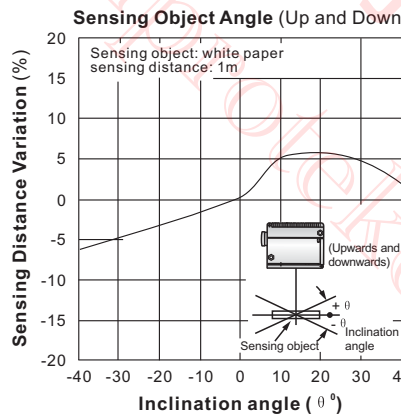
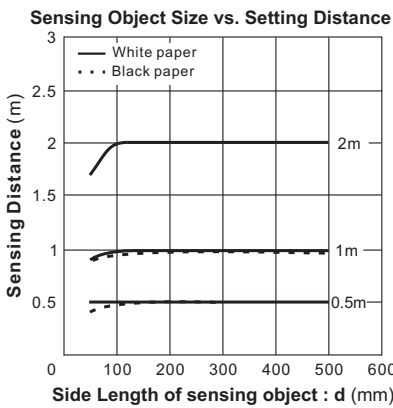
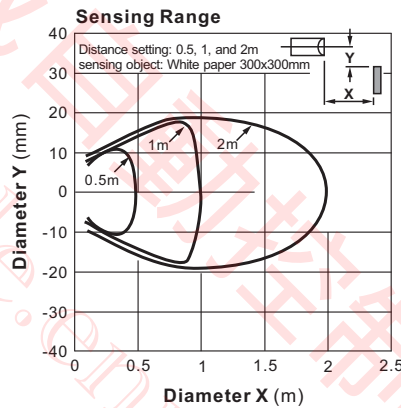
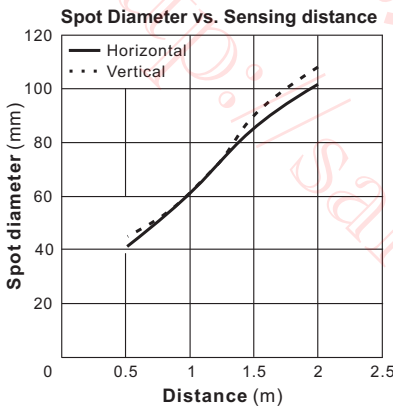
# RP85 SERIES

## Sensing Characteristics (Typical)

### Retroreflective Mode with Polarizing Filter



### Diffuse Mode



# RP85 SERIES

## Installation

### Power Supply

A power supply with full-wave rectification can be connected to the **RP85-L010MR-CX6T4L-TP**.

### Wiring

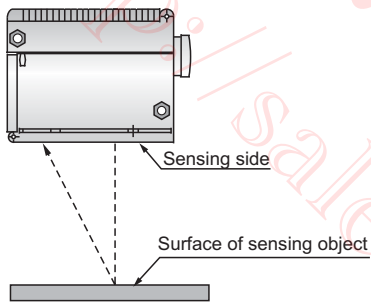
The tensile strength of the cable during operation should not exceed the values shown below.

Part number	Tensile strength
<b>RP85-L010MR-CY6T4L-PF</b>	50 N max.

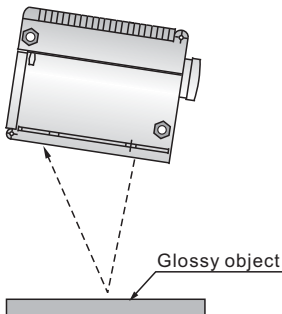
### Mounting Diffuse Models

#### Mounting Directions

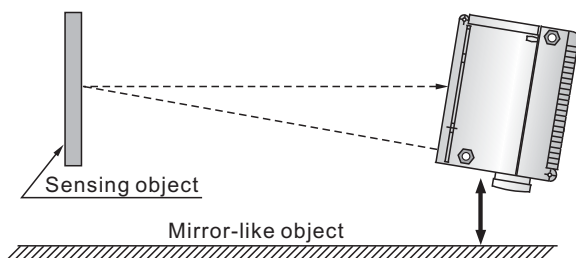
Make sure that the sensing side of the sensor is parallel with the surface of each sensing object. Do not tilt the sensor towards the sensing object.



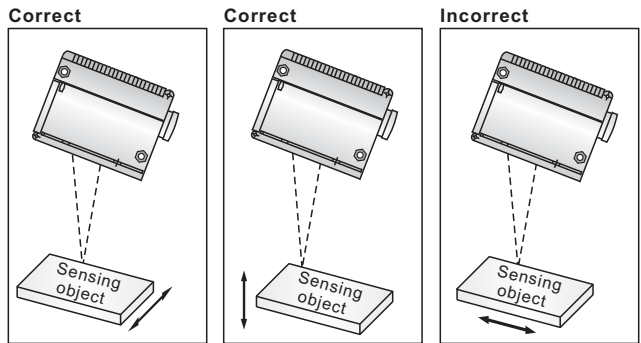
If the sensing object has a glossy surface, tilt the sensor by 5° to 10° as shown below, provided that the sensor is not influenced by any background objects.



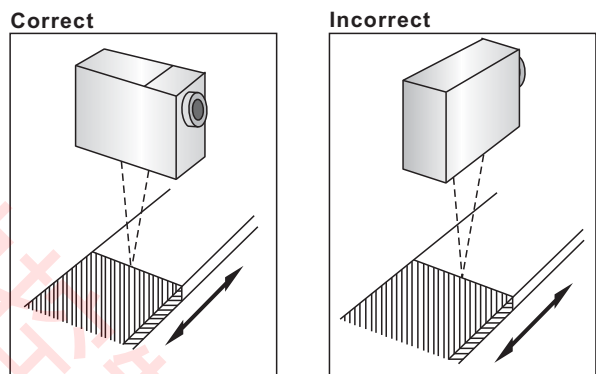
If there is a mirror-like object below the sensor, the sensor may not be in stable operation. Therefore, tilt the sensor or keep the sensor a distance away from the mirror-like object as shown below.



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.



### Terminal Block Type

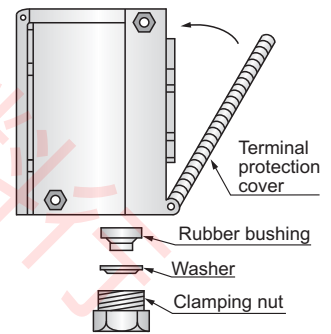
#### Wiring

The cable with an external diameter of 8mm is recommended.

Be sure to attach the cover with screws securely in order to maintain the water-and dust-resistant properties of the product.

#### Terminal Cover

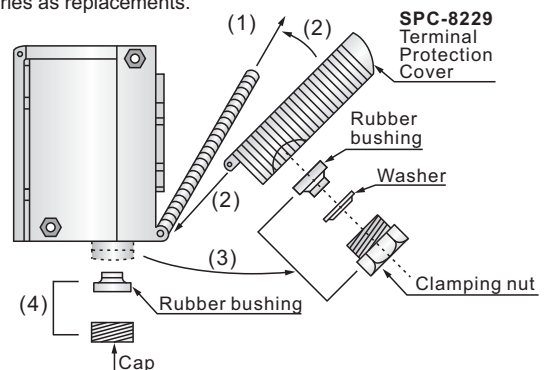
Do not tighten the terminal protection cover with wires pinched between the sensor and the cover in order to maintain the water and dust resistant properties of the product.



### Changing Cable Exit

#### Procedure

1. Remove the present cover. (Item 1 below)
2. Attach the **SPC-8229** Terminal Protection Cover for side-pull-out cable.
3. Remove the clamping nut, washer, and rubber bushing of the **RP85** series. These are used for the side-pull out cable.
4. Attach the rubber bushing and cap provided with the **SPC-8229** to the **RP85** series as replacements.



## 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

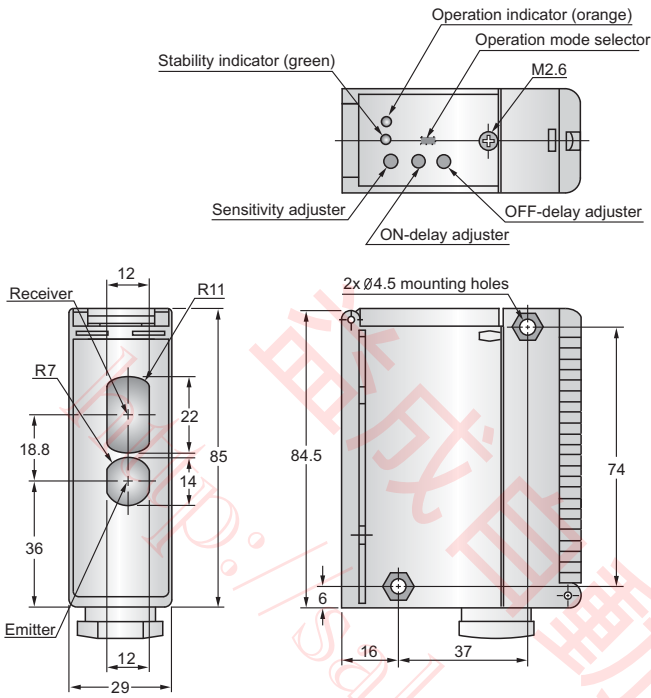
Do not install the sensor in locations with the following conditions.

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

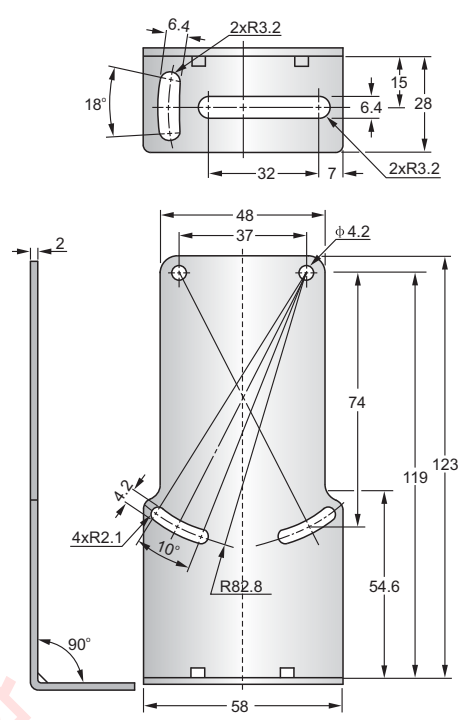
# RP85 SERIES

## Dimensions (Unit: mm)

### Sensor Type

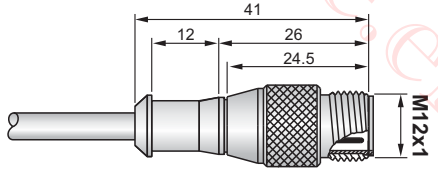


### SMB-58123 (Mounting bracket-optional)



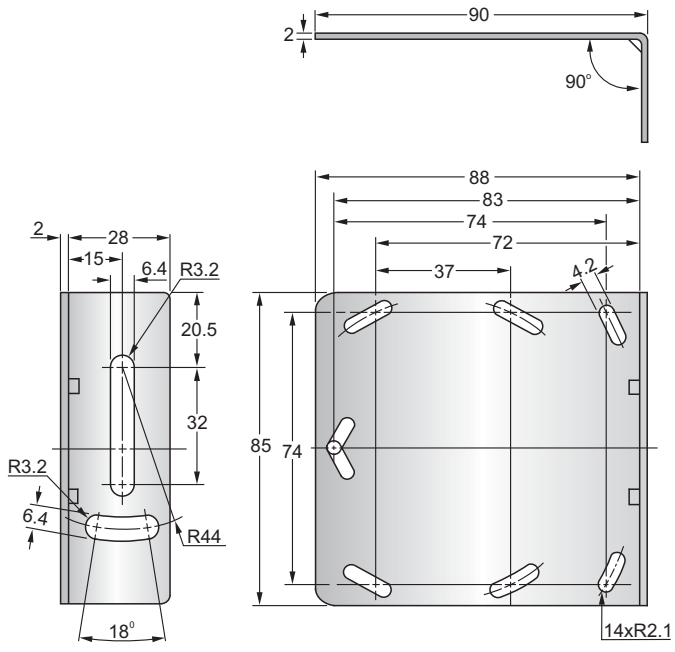
Bd : RP85 SERIES

### Pigtail\* Type

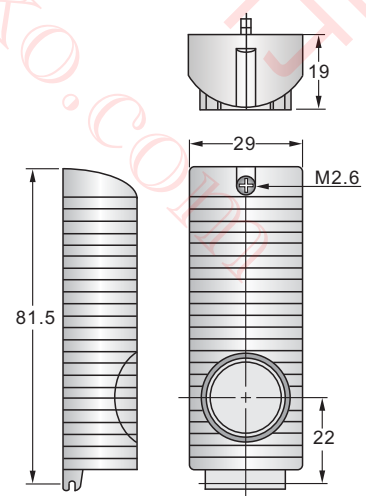


\*: Please see **Pigtail Series** or our **Cables & Connectors** catalogue for more information.

### SMB-9085 (Mounting bracket-optional)






### SPC-8229 (Terminal protection cover-optional)



# RP90 SERIES

## Diffuse Mode with Background Suppression (Sn=1000mm)

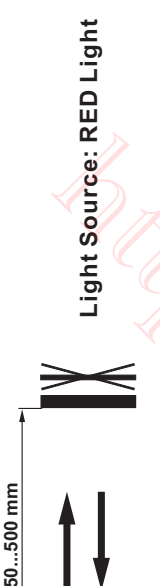


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Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Light Source: Infrared</p>  <p>50...1000 mm</p> <p>Diffuse Mode with Background Suppression Sensing Distance: 50...1000mm</p>	<p>Terminal</p> 	<p>10-30V DC (50ms on/off)</p>	NPN	RP90-D1000N-CY9T5U-BS
			PNP	RP90-D1000P-CY9T5U-BS
			NPN/PNP	RP90-D1000D-CY9T5U-BS
			NPN , Timing delay	RP90-D1000N-CY9T5U-BT
			PNP , Timing delay	RP90-D1000P-CY9T5U-BT
			NPN/PNP, Timing delay	RP90-D1000D-CY9T5U-BT
		<p>10-30V DC (5ms on/off)</p>	NPN	RP90-D1000N-CY9T5U-BH
			PNP	RP90-D1000P-CY9T5U-BH
			NPN/PNP	RP90-D1000D-CY9T5U-BH
			NPN , Timing delay	RP90-D1000N-CY9T5U-BHT
			PNP , Timing delay	RP90-D1000P-CY9T5U-BHT
			NPN/PNP, Timing delay	RP90-D1000D-CY9T5U-BHT
	<p>M18 connector</p> 	<p>10-30V DC (50ms on/off)</p>	NPN	RP90-D1000N-CY9Q4UG-BS
			PNP	RP90-D1000P-CY9Q4UG-BS
			NPN/PNP	RP90-D1000D-CY9Q4UG-BS
			NPN , Timing delay	RP90-D1000N-CY9Q4UG-BT
			PNP , Timing delay	RP90-D1000P-CY9Q4UG-BT
			NPN/PNP, Timing delay	RP90-D1000D-CY9Q4UG-BT
		<p>10-30V DC (5ms on/off)</p>	NPN	RP90-D1000N-CY9Q4UG-BH
			PNP	RP90-D1000P-CY9Q4UG-BH
			NPN/PNP	RP90-D1000D-CY9Q4UG-BH
			NPN , Timing delay	RP90-D1000N-CY9Q4UG-BHT
			PNP , Timing delay	RP90-D1000P-CY9Q4UG-BHT
			NPN/PNP, Timing delay	RP90-D1000D-CY9Q4UG-BHT

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

# RP90 SERIES

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

Sensing Mode	Connection	Supply Voltage	Output Mode	Part Number
<p>Light Source: RED Light</p>  <p>50...500 mm</p> <p>Diffuse Mode with Background Suppression Sensing Distance: 50...500mm</p>	<p>Terminal</p> 	<p>10-30V DC (50ms on/off)</p>	NPN	RP90-D0500N-CY6T5U-BS
			PNP	RP90-D0500P-CY6T5U-BS
			NPN/PNP	RP90-D0500D-CY6T5U-BS
			NPN , Timing delay	RP90-D0500N-CY6T5U-BT
			PNP , Timing delay	RP90-D0500P-CY6T5U-BT
			NPN/PNP, Timing delay	RP90-D0500D-CY6T5U-BT
		<p>10-30V DC (5ms on/off)</p>	NPN	RP90-D0500N-CY6T5U-BH
			PNP	RP90-D0500P-CY6T5U-BH
			NPN/PNP	RP90-D0500D-CY6T5U-BH
			NPN , Timing delay	RP90-D0500N-CY6T5U-BHT
			PNP , Timing delay	RP90-D0500P-CY6T5U-BHT
			NPN/PNP, Timing delay	RP90-D0500D-CY6T5U-BHT
	<p>M18 connector</p> 	<p>10-30V DC (50ms on/off)</p>	NPN	RP90-D0500N-CY6Q4UG-BS
			PNP	RP90-D0500P-CY6Q4UG-BS
			NPN/PNP	RP90-D0500D-CY6Q4UG-BS
			NPN , Timing delay	RP90-D0500N-CY6Q4UG-BT
			PNP , Timing delay	RP90-D0500P-CY6Q4UG-BT
			NPN/PNP, Timing delay	RP90-D0500D-CY6Q4UG-BT
		<p>10-30V DC (5ms on/off)</p>	NPN	RP90-D0500N-CY6Q4UG-BH
			PNP	RP90-D0500P-CY6Q4UG-BH
			NPN/PNP	RP90-D0500D-CY6Q4UG-BH
			NPN , Timing delay	RP90-D0500N-CY6Q4UG-BHT
			PNP , Timing delay	RP90-D0500P-CY6Q4UG-BHT
			NPN/PNP, Timing delay	RP90-D0500D-CY6Q4UG-BHT

Be: RP90 SERIES

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

## RP90 SERIES

## Specifications

Item \ Sensing Mode	Diffuse Mode with Background Suppression	
Supply Voltage	10-30V DC (limit values)	
Ripple (within Vs tolerance)	10% peak-to-peak	
Sensing Range, Adjustable	1000mm (adjustable)	500mm (adjustable)
Light Spot Size	25 mm @ 1000mm	12 mm @ 500mm
Light Source	Infrared Light	Visible Red Light
Angle of Divergence	1.5°	
Response Time/Frequency	Standard Type: 50 ms/10Hz; High Speed Type: 5ms/70Hz	
Switching Current	200 mA max.	
No Load Current	100 mA	
Output Type	NPN, PNP, NPN/PNP	
Operation Mode	Light or dark switching selectable via switch	
Circuit Protection	Outputs short circuit and over current protected, Vs reverse polarity protected	
Time Delay	Optional	
Enclosure Rating	IP 65	
Ambient Operating Temperature	-20...60°C	
Storage Temperature	-20...75°C	
EMC	IEC 60947-5-2, Parts 7.2.6.1.2.3 or RFI>3V/m(in 80-1000MHZ), 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 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	
Connection	Terminal, 4-pin M18 connector	
Weight	Approx. 180 g	
Material	Housing: Terluran GV15, Optical face: Glass	

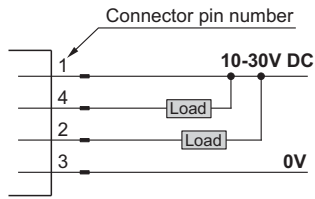


# RP90 SERIES

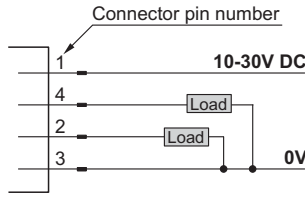
## Connection Diagrams / Sensing Characteristics / Dimensions

### Connection Diagrams

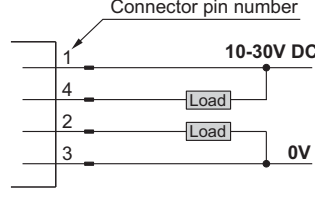
**NPN Output type**



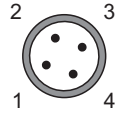
**PNP Output type**



**NPN/PNP output type**

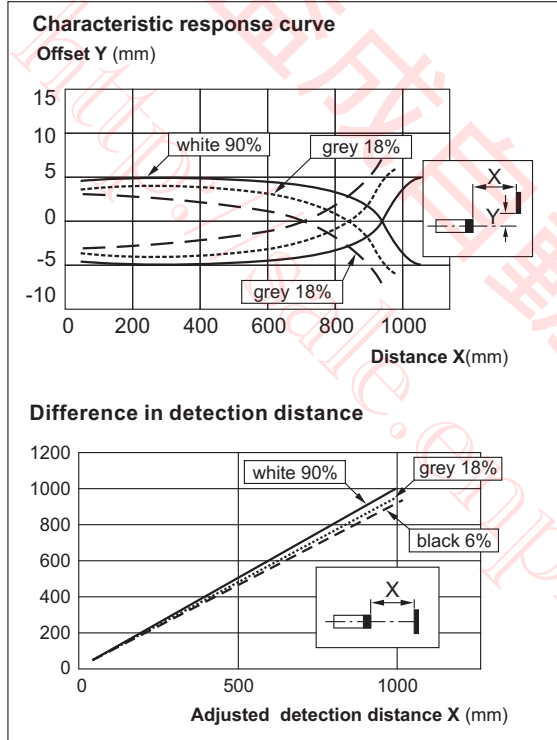


**M18 Connector**

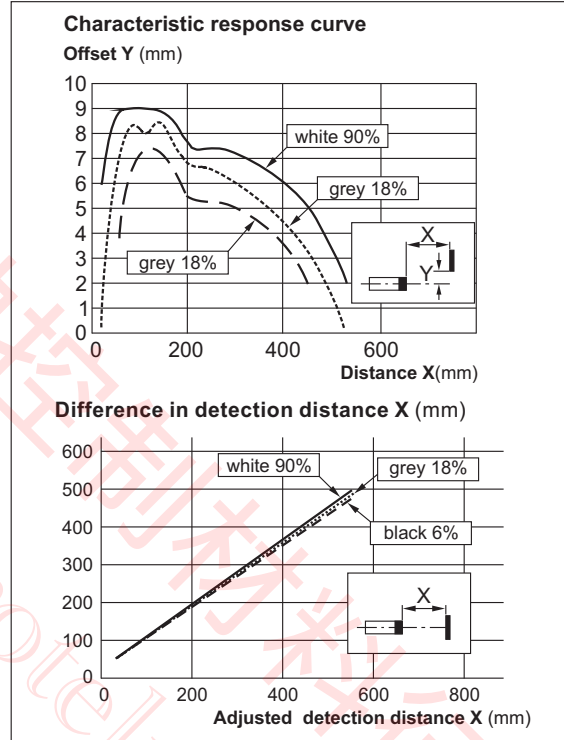


### Sensing Characteristics (Typical)

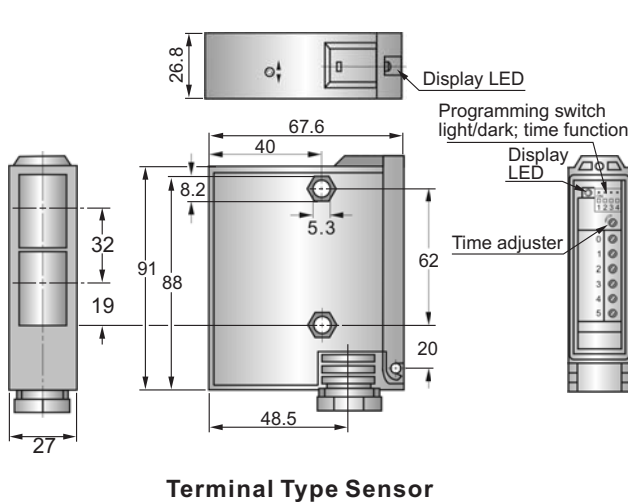
**Sensing Range=1000mm**



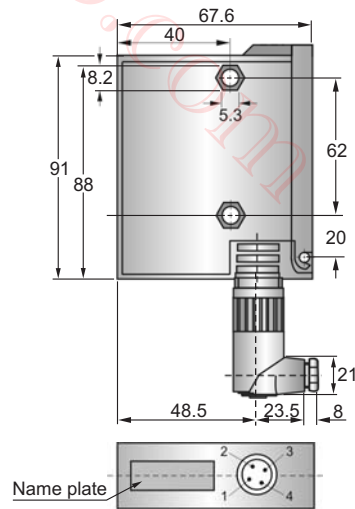
**Sensing Range=500mm**



### Dimensions (Unit: mm)



**Terminal Type Sensor**



**M18 Connector Type Sensor**

Be: RP90 SERIES