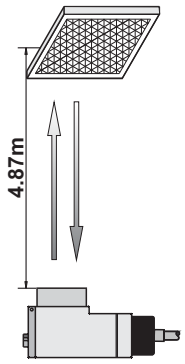
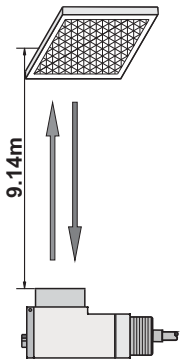
Retroreflective Mode

Sensing mode	Connection	Supply Voltage	Output mode	Part number
Retroreflective mode with polarized Sensing distance: 4.87m Red light : 660nm 	Cable 	10-40V DC	NPN/PNP	RP74-L4870D-CY6C4U2-PF
			NPN/PNPwith 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
	Quick Disconnect 	10-40V DC (Euro)	NPN/PNP	RP74-L4870D-CY6Q4UE-PF
			NPN/PNPwith 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
	Quick Disconnect (Mini) 	10-40V DC	NPN/PNP	RP74-L4870D-CY6Q4UN-PF
			NPN/PNPwith 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
	Pig tail 	10-40V DC (Euro-style)	NPN/PNP	RP74-L4870D-CY6P4UE-PF
			NPN/PNPwith Timing	RP74-L4870D-CY6P4UE-TP
		12-240VDC/ 24-240VAC (Micro-style)	SPDT Relay	RP74-L4870R-CY6P5LM-PF
			SPDT Relay with Timing	RP74-L4870R-CY6P5LM-TP
			Solid State Isolated N.O.	RP74-L4870S-CY6P4LM-PF
			Solid State Isolated N.O. with Timing	RP74-L4870S-CY6P4LM-TP

Retroreflective Mode

Sensing mode	Connection	Supply Voltage	Output mode	Part number
Retroreflective mode Sensing distance: 9.14m Red light : 660nm 	Cable 	10-40V DC	NPN/PNP	RP74-L9140D-CY6C4U2
			NPN/PNPwith 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
	Quick Disconnect 	10-40V DC (Euro)	NPN/PNP	RP74-L9140D-CY6Q4UE
			NPN/PNPwith 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
	Quick Disconnect (Mini) 	10-40V DC	NPN/PNP	RP74-L9140D-CY6Q4UN
			NPN/PNPwith 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
	Pig tail 	10-40V DC (Euro-style)	NPN/PNP	RP74-L9140D-CY6P4UE
			NPN/PNPwith Timing	RP74-L9140D-CY6P4UE-T
		12-240VDC/ 24-240VAC (Micro-style)	SPDT Relay	RP74-L9140R-CY6P5LM
			SPDT Relay with Timing	RP74-L9140R-CY6P5LM-T
			Solid State Isolated N.O.	RP74-L9140S-CY6P4LM
			Solid State Isolated N.O. with Timing	RP74-L9140S-CY6P4LM-T

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, O ffdelay, 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℃**				
Storage Temperature	**-40...70℃**				
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 WithstandAbility	**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**				
Mounting Bracket	**RP74-A1 or RP74-A2 or RP74-A3 (please seeAccessories)**				
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.

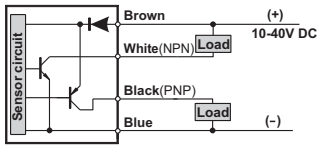
Specifications(AC/DC)

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/24-240VAC				
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: 10Aat 120VAC, 5Aat 240VAC, 10Aat 28VAC Solid State Isolate N.O. : 300mAat 240VAC/DC SPST SCR solid-state relay: 300mAto 50℃ ambient, 100mAto 70C°ambient				
No Load Current	<30 mA				
Max. Leakage Current	SPDT EM Relay: 0 ; Solid State Isolate N.O. : 1mAat 240VAC SPST SCR solid-state relay: less than 1.7 mArms				
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 SPSTSolid State output type sensor)				
Time Options	No delay, On delay, O ffdelay, 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℃				
Storage Temperature	-40...70℃				
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 WithstandAbility	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 1500VAC 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 seeAccessories)				
Cable	2m 6.1ϕ 4X0.5 5X0.5 (Emitter :3X0.5) PVC.				
Pigtail T ype	See Pigtail Series or our Cables & Connectors catalogue.l				

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

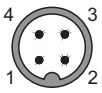
Connection Diagrams

NPN/PNP



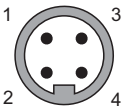
Connector pin position

Euro-style



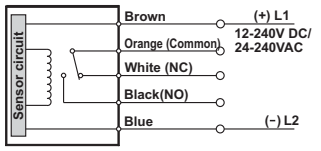
1.Brown (+)
2.White (NPN output)
3.Blue (-)
4.Black (PNPoutput)

Mini-style



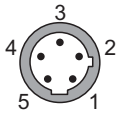
1.Brown (+)
2.White (NPN output)
3.Blue (-)
4.Black (PNPoutput)

SPDT Relay Version



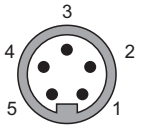
Connector pin position

Micro-style



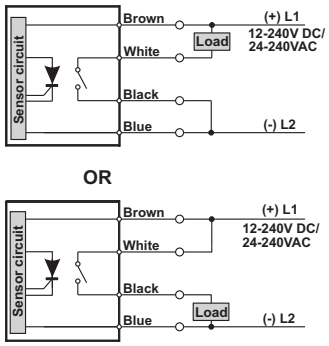
1.Red/white(L1)
2.Red (L2)
3.Green (Common)
4.Red/yellow (N.O.)
5.Red/black (N.C.)

Mini-style



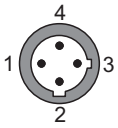
1.Black (N.O.)
2.Blue (L2)
3.Orange (Common)
4.Brown (L1)
5.White (N.C.)

Solid State Isolated Relay



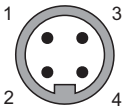
Connector pin position

Micro-style



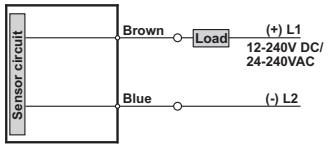
1.Red/black(L2)
2.Red/white (L1)
3.Red (Output)
4.Green (Output)

Mini-style



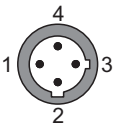
1.Brown (L1)
2.White (Output)
3.Blue (L2)
4.Black (Output)

SPST solid-state (AC/DC)



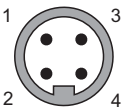
Connector pin position

Micro-style



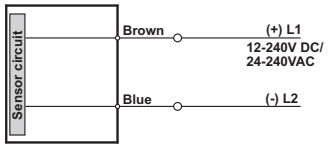
1.Red/black(L2)
2.Red/white (L1)
3.Not used
4.Not used

Mini-style



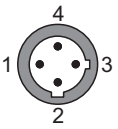
1.Brown (L1)
3.Blue (L2)
2.Not used
4.Not used

Emitter of Thru-beam Mode(AC/DC)



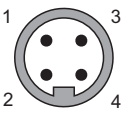
Connector pin position

Micro-style



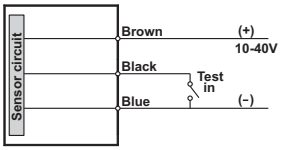
1.Red/black(L2)
2.Red/white (L1)
3.Not used
4.Not used

Mini-style



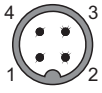
1.Brown (L1)
3.Blue (L2)
2.Not used
4.Not used

Emitter of Thru-beam Mode(DC)



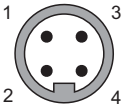
Connector pin position

Euro-style



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

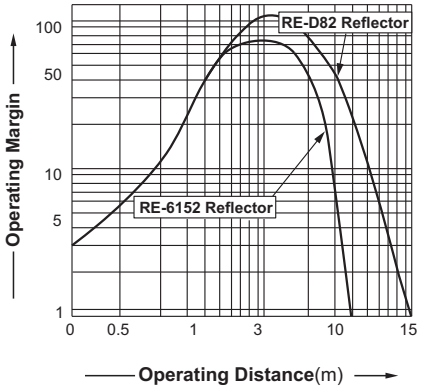
Mini-style



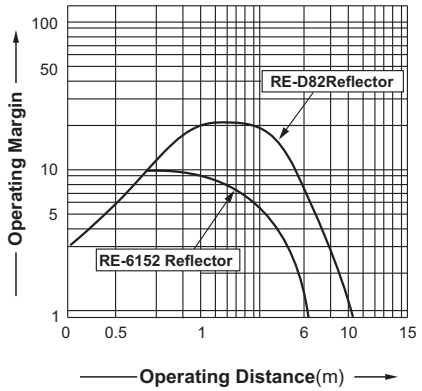
1.Brown (+)
2.Not used
3.Blue (-)
4.Black (Test in)

Sensing Characteristics (Typical)

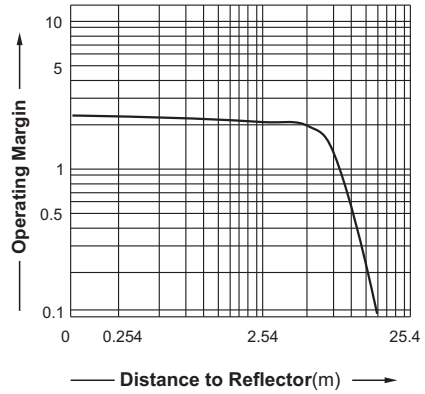
Retroreflective Mode Sensor(Sn=15m)



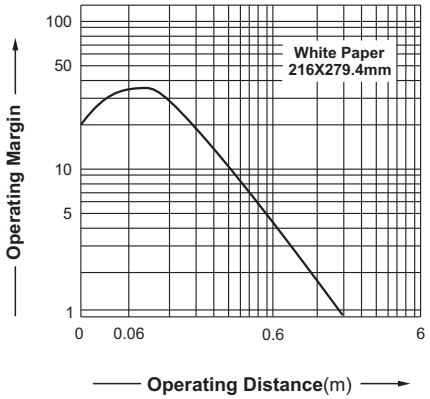
Polarized Retroreflective Mode(Sn=10m)



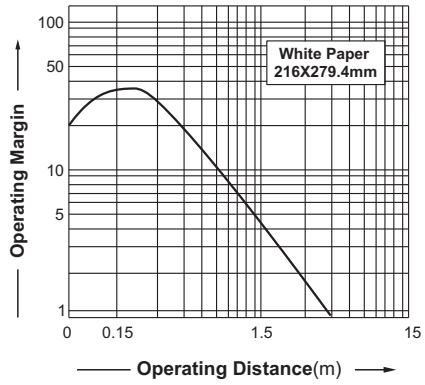
Clear Object Detector Mode(Sn=1.2 m)



Standard Diffuse Mode(Sn=1.52 m)



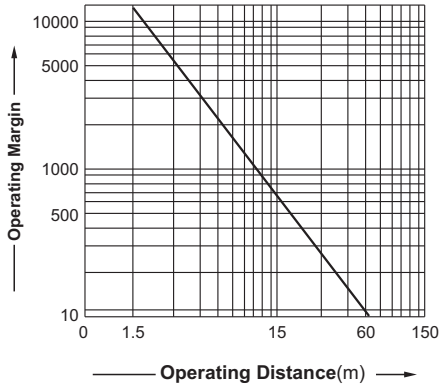
Long Range Diffuse Mode(Sn=3.04 m)



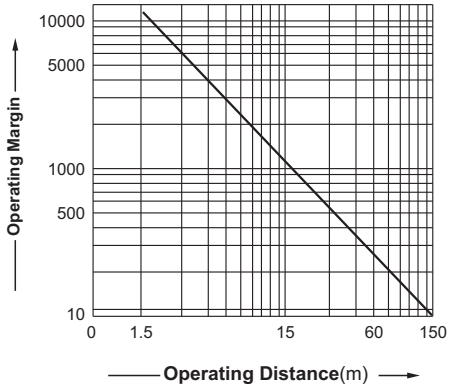
Sensing Characteristics (Typical)

Thru Beam Mode Sensor

Standard Range (Sn=61m)

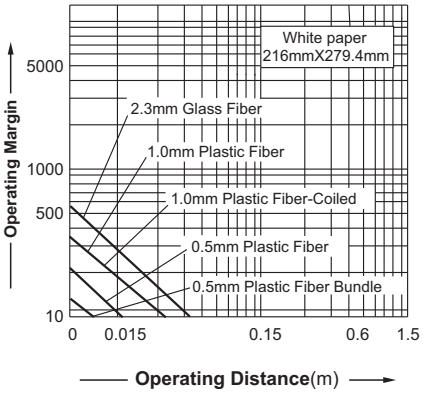


Long Range (Sn=152m)

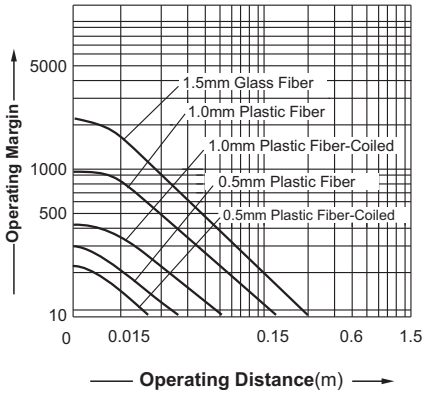


Visible Red Fiber Optic Sensor

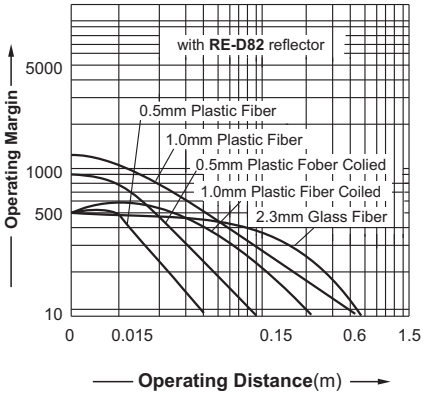
Diffuse Mode



Thru-beam Mode

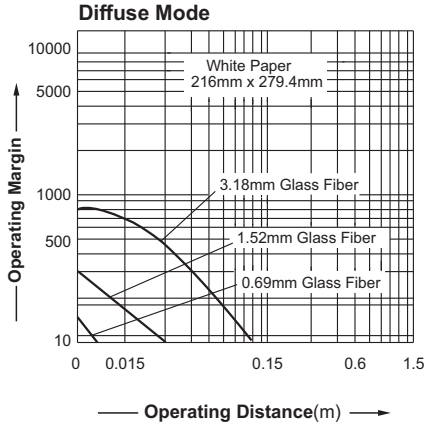


Retroreflective Mode

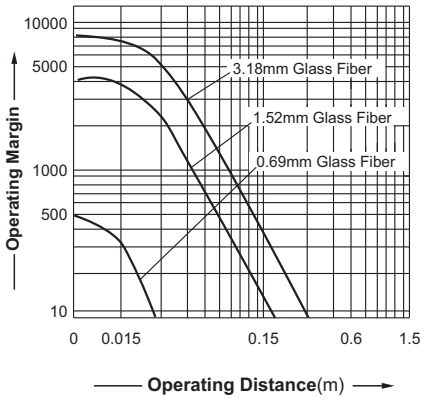


Infrared Fiber Optic Sensor

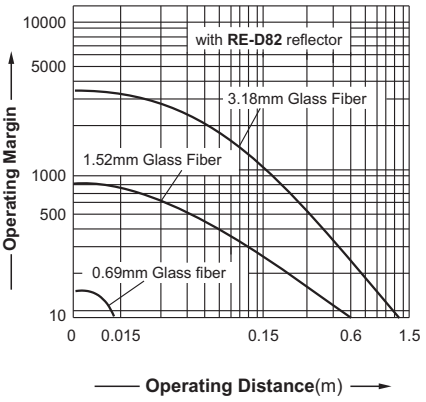
Diffuse Mode



Thru-beam Mode

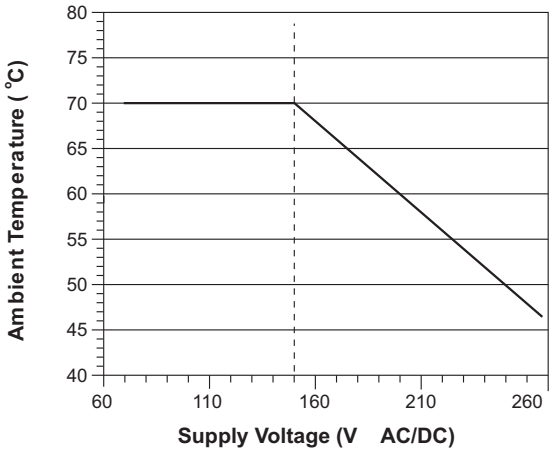


Retroreflective Mode



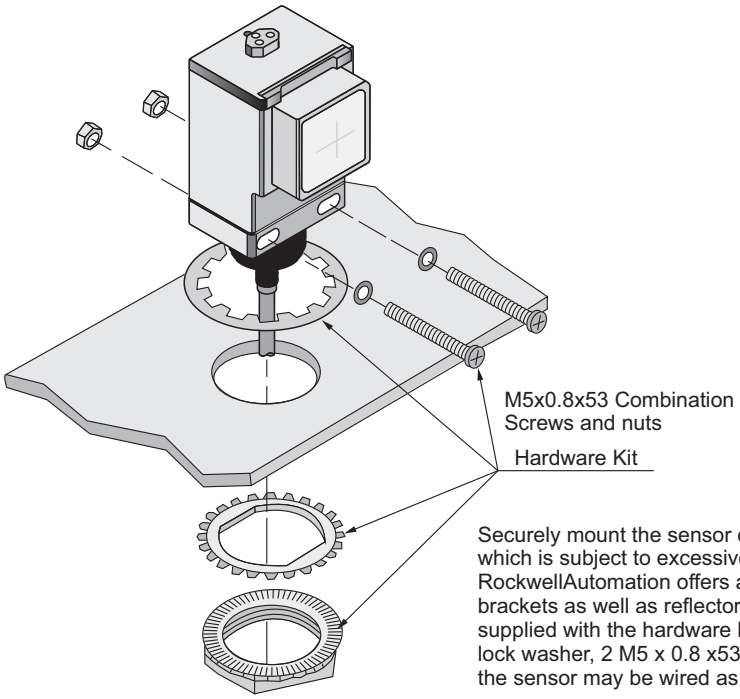
Precautions for Proper Use

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 +70C (+158F).The maximum operating temperature of the solid-state output and the EM-relay output models can be determined from the graph shownabove.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 +70C (+158F). An operating voltage of 220VAC would limit the ambient operating temperature to +55C (+131F). Operating ofthe sensor at ambient temperatures which exceed these limit could result in sensor failure.

Mounting



Securely mount the sensor on a firm, stable surface or support.Amounting which is subject to excessive vibration or shifting may intermittentoperation. RockwellAutomation offers a wide variety of fixed and adjustable mounting brackets as well as reflectors and quick disconnectcables.The senor is supplied with the hardware kit which contains a plastic mounting nut, lock washer, 2 M5 x 0.8 x53 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.

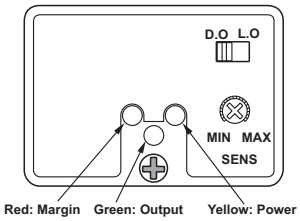
2. Insert fibers.

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

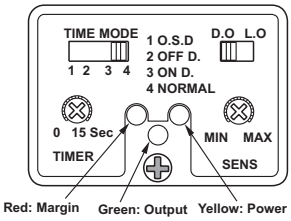
Panel Chart & New Timing Chart

Sensor's Top View Detail

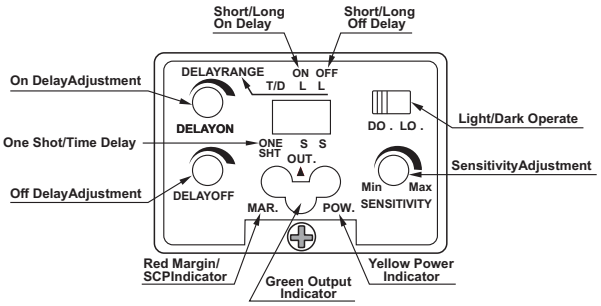
Without Timing Sensor



With Timing Sensor

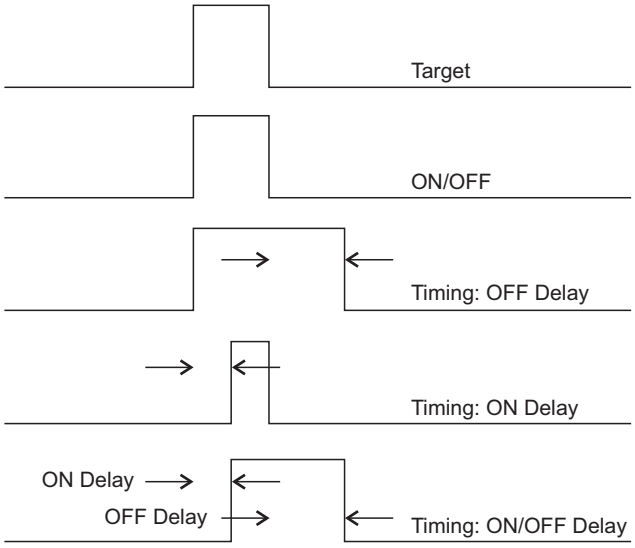


New Timing Delay Sensor (Note)

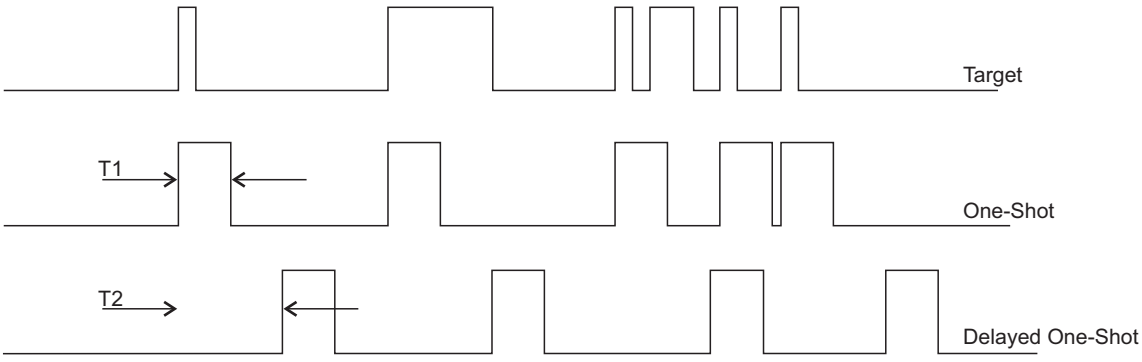


Note: These timers are nonretriggerable.The timing can be set for short (0-1.5 sec) or long (0-15sec) duration using the DIP switches and adjusted viathe two 15-turn rotary knobs.
Use the illustration below to aid in configuring these timers.

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



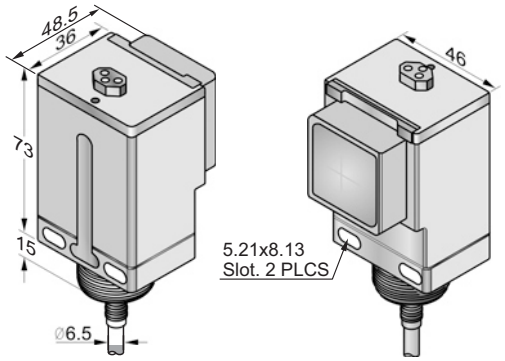
Typical ON/OFF Timing Diffuse (Light Operate) **Nonretriggerable** (only for new timing delay sensor)



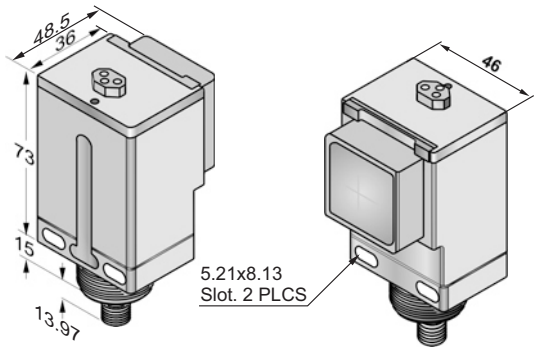
T1 is adjusted via the **OFF** delay potentiometer with either a long(0-15sec) or short (0-1.5sec) dip switch setting.
T2 is adjusted via the **ON** delay potentiometer with either a long(0-15sec) or short (0-1.5sec) dip switch setting.

Dimensions (Unit: mm)

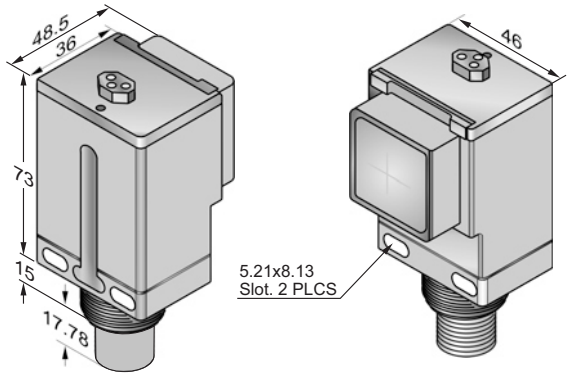
Cable Type



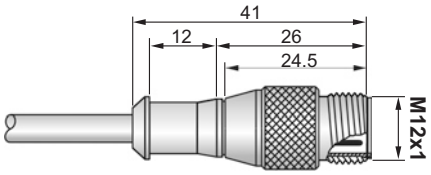
Euro or Micro Style Connector Type



Mini-style Connector Type



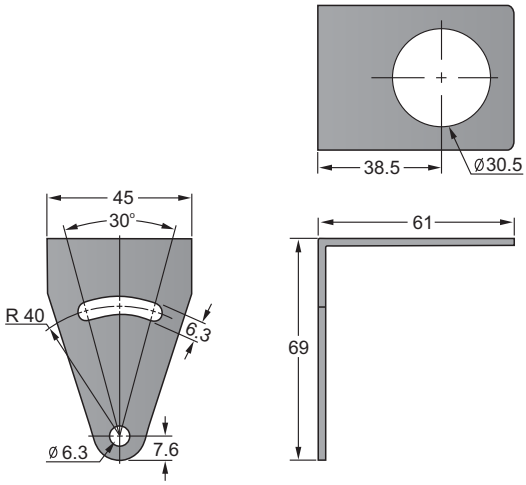
Pig tail* Type



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

Mounting Bracket

MB-6961(optional)



MB-7057(optional)