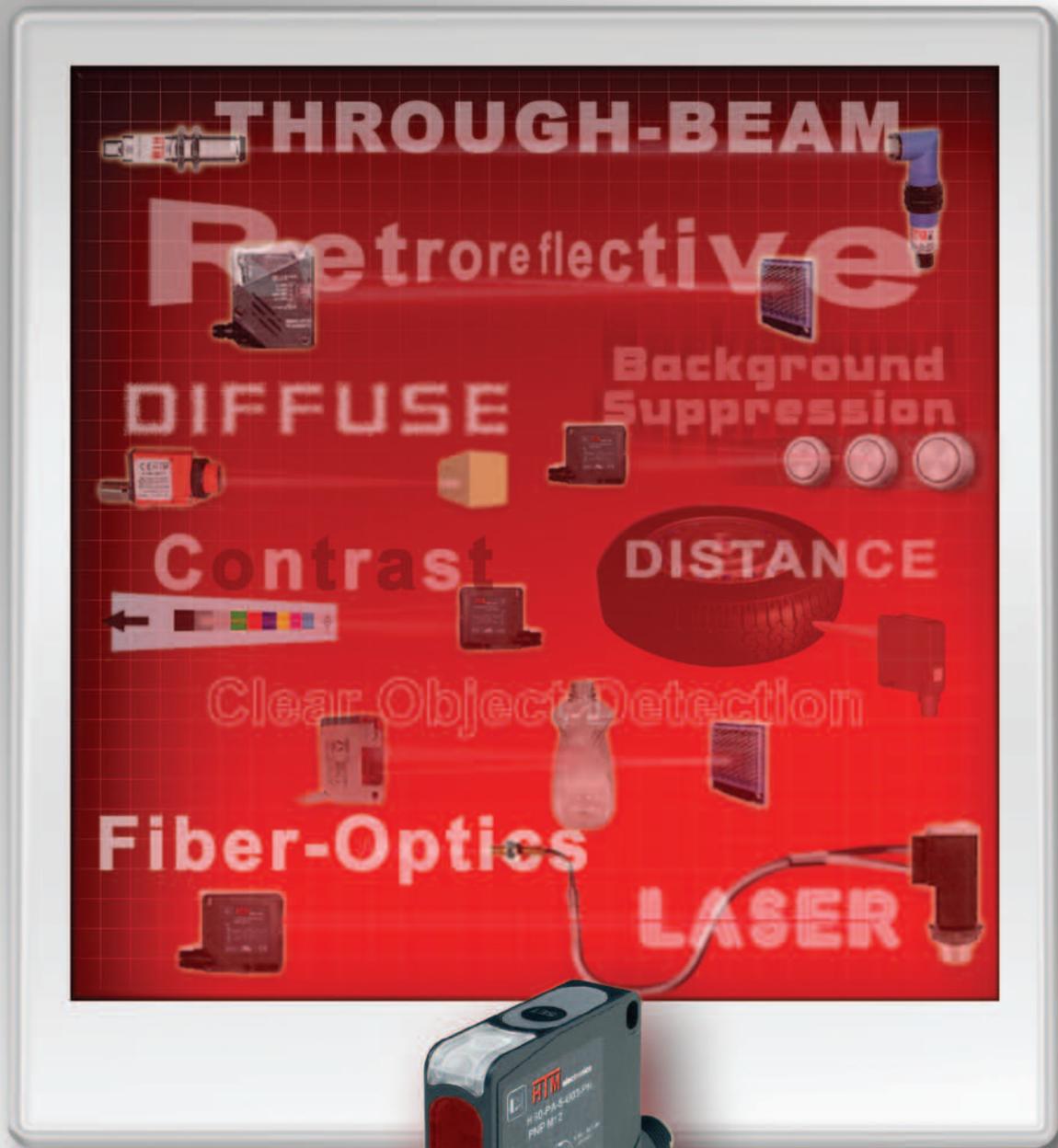


HTM electronics

PHOTOELECTRIC SENSORS



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CONTENTS

H60 Series

Image	Series Description	Modes	Ranges	Page #
	Advanced Performance Photoelectric Sensor <ul style="list-style-type: none"> Standard 50 x 50mm Housing Rotatable M12 Connector High Quality Many Operating Modes Available 	Through Beam	0...20m	4 - 5
		Retroreflective	0.1...20m	
		Diffuse	5...2000mm	
		Background Suppression	7...200mm	
		Contrast	19mm	
		Distance	50...150mm	

RP18 Series

Image	Series Description	Modes	Ranges	Page #
	Compact Photoelectric Sensor <ul style="list-style-type: none"> M18 threaded lens Visible Red LED Several mounting options Multi-voltage 	Through Beam	0.1...20m	6 - 7
		Retroreflective	0.1...2.5mm	
		Diffuse	20...350mm	

MP Series

Image	Series Description	Modes	Ranges	Page #
	Universal Mount Photoelectric Sensor <ul style="list-style-type: none"> Mounts on Standard or Flat Bracket Long Range - Up to 30m Several Detection Modes Compact Size 	Through Beam	30m	8 - 9
		Retroreflective	5m	
		Diffuse	380mm	
		Convergent	43mm	
		Fiber Optic Mode - (range depends on fiber used)		

M18 Series

Image	Series Description	Modes	Range	Page
	Cylindrical Photoelectric Sensor <ul style="list-style-type: none"> Standard 18mm Housing Pre-wired or Quick Disconnect Metal or Plastic Housings Self-contained Amplifier 	Through Beam	15m	10 - 11
		Retroreflective	3m	
		Diffuse	500mm	

M12 Series

Image	Series Description	Modes	Range	Page
	Cylindrical Photoelectric Sensor <ul style="list-style-type: none"> Standard 12mm Housing Pre-wired or Quick Disconnect Self-contained Amplifier 	Through Beam	5.2m	12
		Retroreflective	1m	
		Diffuse	200mm	

CONTENTS

RP74 Series

Image	Series Description	Modes	Ranges	Page #
	Multi-purpose Photoelectric Sensor <ul style="list-style-type: none"> Built-in Timer Modes Several Mounting Options Universal Power Supply Long Range 	Through Beam	61m	13
		Retroreflective	9.14m	
		Diffuse	3.04m	
		Clear Object Detection	1.2m	
		Fiber Optic Mode - (range depends on fiber used)		

RP76 Series

Image	Series Description	Modes	Ranges	Page #
	Terminal (Conduit) Mount <ul style="list-style-type: none"> Back or Bottom Mounting Option Universal Power Supply Built-in Timer Modes 	Through Beam	28m	14
		Retroreflective	10m	
		Diffuse with Background Suppression	300mm	

RS62 Series

Image	Series Description	Modes	Ranges	Page #
	Multi-voltage Photoelectric Sensor <ul style="list-style-type: none"> 12-240 VDC or 24-240 VAC SPDT Relay Models Accurate Detection 	Through Beam	10...30m	15
		Retroreflective	5...7m	
		Diffuse	700mm	

U Series

Image	Series Description	Modes	Ranges	Page #
	Slot Photoelectric Sensor <ul style="list-style-type: none"> 2, 15, 30, 50, 80 and 120mm Widths High Switching Frequency Rugged Die-cast Metal Housings 	Through Beam	2mm...120mm	16 - 17

RP32 Series

Image	Series Description	Modes	Ranges	Page #
	Miniature Photoelectric Sensor <ul style="list-style-type: none"> Compact & Rugged Design Stainless Steel and Glass Fiber Reinforced Plastic Housing Shock & Vibration Resistant 	Through Beam	8.5m	18
		Retroreflective	4m	
		Diffuse	400mm	
		Clear Object Detection	500mm	

H60 SERIES

H60 Series - Advanced Performance Photoelectric Sensor

Image	Series Description	Modes	Ranges
	Advanced Performance Photoelectric Sensor <ul style="list-style-type: none"> Standard 50 x 50mm Housing Rotatable M12 Connector High Quality Many Operating Modes Available 	Through Beam	0...20m
		Retroreflective	0.1...20m
		Diffuse	5...2000mm
		Background Suppression	7...200mm
		Contrast	19mm
		Distance	50...150mm

Ordering Information

Mode	Through-beam (30m range)	Diffuse	Laser Diffuse	Polarized Retroreflective
Operating Range	0...20m (65.6 ft.)	0.005...2m (6.56 ft.)	0...0.6m (1.97 ft.)	0.1...8m (26.2 in.)
Light Emission	Infrared LED, 880nm	Red LED, 880nm	Red Laser, 650nm	Red LED, 600nm

Part Numbers

Emitter	H60-THRU-E-PO-4Q			
NPN	H60-THRU-R-NO-4Q	H60-DIF-NO-4Q	H60-LASER-D-NO-4Q	H60-RETRO-NO-4Q
PNP	H60-THRU-R-PO-4Q	H60-DIF-PO-4Q	H60-LASER-D-PO-4Q	H60-RETRO-PO-4Q

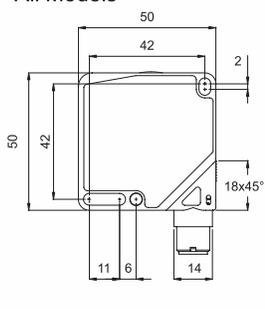
Mode	Laser Retroreflective	Background Suppression	Contrast	Distance
Operating Range	0.1...20m (65.6 ft.)	0.007...0.2m (7.87 in.)	19mm (0.75 in.)	50...150mm (5.9 in.)
Light Emission	Red Laser, 650nm	Red LED, 670nm	White LED, 400-700nm	Red LED, 670nm

Part Numbers

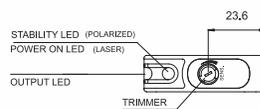
NPN	H60-LASER-R-NO-4Q	H60-BGS-NO-4Q	H60-CONTRAST-NO-4Q	H60-DISTANCE-NO-4Q
PNP	H60-LASER-R-PO-4Q	H60-BGS-PO-4Q	H60-CONTRAST-PO-4Q	H60-DISTANCE-PO-4Q

Dimensions

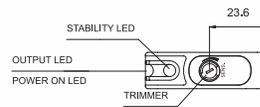
All Models



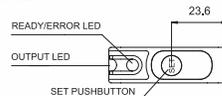
Retroreflective



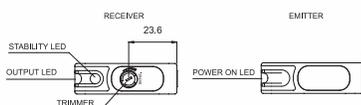
Diffuse



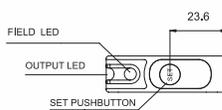
Background Suppression & Contrast



Through-beam

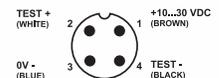
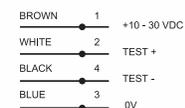


Distance

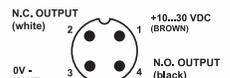
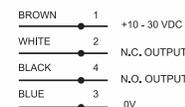


Connections

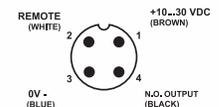
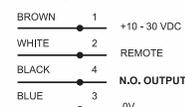
Through-beam Emitter



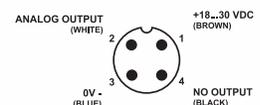
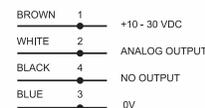
Through-beam Receiver, Diffuse & Retroreflective



Background Suppression & Contrast



Distance



TECHNICAL DATA

	Through-beam	Diffuse		Retroreflective		BGS	Contrast	Distance
		Standard	Laser	Polarized	Laser			
Power Supply:	10...30 VDC							18...30 VDC
Ripple:	≤ 2 Vpp							
Current Consumption:	≤ 35 mA	≤ 40 mA	≤ 35 mA	≤ 40 mA	≤ 35 mA	≤ 30 mA	≤ 30 mA	≤ 60 mA
Spot Dimension:	approx. 200 mm at 4m	approx. 250mm at 1m	approx. 0.2mm @ 15cm approx. 2mm @ 50cm	approx. 90mm at 3m	approx. 10mm	approx. 16mm at 200mm	approx. 3.5mm at 19mm	approx. 16 mm at 150mm
Setting:	sensitivity trimmer					push-button teaching		
Indicators:	yellow: OUTPUT LED green: STABILITY LED green (emitter): POWER ON LED	yellow: OUTPUT LED green: STABILITY LED	yellow: OUTPUT LED green: POWER ON LED	yellow: OUTPUT LED green: STABILITY LED	yellow: OUTPUT LED green: POWER ON LED	yellow: OUTPUT LED green / red READY / ERROR LED		yellow: OUTPUT LED red: FIELD LED
Output Type:	PNP, N.O. and N.C. / NPN, N.O. and N.C.					PNP, N.O. / NPN, N.O.		PNP, NO NPN, NO analog with 0...10 V (8 bit)
Output Current:	≤ 100 mA							
Saturation Voltage:	≤ 2 V							
Response Time:	1 ms	500 μs	250 μs	500 μs	250 μs	500 μs	100 μs	1 ms
Switching Frequency:	500 Hz	1 kHz	2 kHz	1 kHz	2 kHz	1 kHz	5 kHz	500 Hz
Operating Mode:	dark on N.O. / light on N.C.	light on N.O. / dark on N.C.		dark on N.O. / light on N.C.		dark / light configurable	automatic dark / light fine acquisition	automatic dark / light fine acquisition configurable direct / inverse proportionality
Timing Function:	-						20 ms minimum output ON	-
Auxiliary Functions:	Test + and Test -	-		-		remote teach/ keylock		-
Connection:	M12, 4-pin (90° rotatable) - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)							
Electrical Protection:	class 2							
Mechanical Protection:	IP67							
Protection Devices:	Reverse Polarity, Overload, Short-circuit Protection							
Housing Material:	ABS							
Lens Material:	External - PMMA, Internal - Polycarbonate						Glass	External - PMMA, Internal - Polycarbonate
Operating Temperature:	-25...+55°C							
Storage Temperature:	-25...+70°C							
Reference Standard:	EN 60947-5-2 (Laser Models: EN 60947-5-2, EN 60825-1, CDRH21 CFR 1040.10)							

RP18 SERIES

RP18 Series			
Image	Series Description	Modes	Ranges
	Compact Photoelectric Sensor <ul style="list-style-type: none"> • M18 threaded lens • Visible Red LED • Several mounting options • Multi-voltage 	Through Beam	0.1...20m
		Retroreflective	0.1...2m
		Diffuse	20...0.5m

	Through-beam	Diffuse	Diffuse (Fixed-field with Back-ground Suppression)	Retroreflective	Retroreflective - with Polarizing Filter
Operating Range	20m (65.6 ft.)	DC: 500mm (19.7 in.) AC: 300mm (11.8 in.)	100mm (3.94 in)	2m (6.56 ft.)	1m (3.28 ft.)
Light Emission	950nm Infrared LED	Infrared LED, 880 nm	Infrared LED, 880nm	Infrared LED, 950nm	Red LED, 680nm

DC Models - Quick Connect, M12 - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)

Emitter	RP18-T020MD-EY9Q4LE				
NPN	RP18-T020MNCY9Q4UE	RP18-D0500NCY9Q4UE	RP18-D0100NCY9Q4UE-BS	RP18-L2000NCY9Q4UE	RP18-L2000NCY6Q4UE-PF
PNP	RP18-T020MPCY9Q4UE	RP18-D0500PCY9Q4UE	RP18-D0100PCY9Q4UE-BS	RP18-L2000PCY9Q4UE	RP18-L2000PCY6Q4UE-PF

AC Models - Quick Connect, 1/2"-20 UNF - Recommended Mating Cable: part # U-FS4TA-V165 (straight), U-FA4TA-V165 (right-angle)

Emitter (2-wire)	RP18-T020MA-EY9Q4LM				
Light-ON (3-wire)	RP18-T020MALY9Q4UM	RP18-D0300ALY9Q4UM	RP18-D0100ALY9Q4UM-BS	RP18-L2000ALY9Q4UM	RP18-L2000ALY6Q4UM-PF
Dark-ON (3-wire)	RP18-T020MADY9Q4UM	RP18-D0300ADY9Q4UM	RP18-D0100ADY9Q4UM-BS	RP18-L2000ADY9Q4UM	RP18-L2000ADY6Q4UM-PF

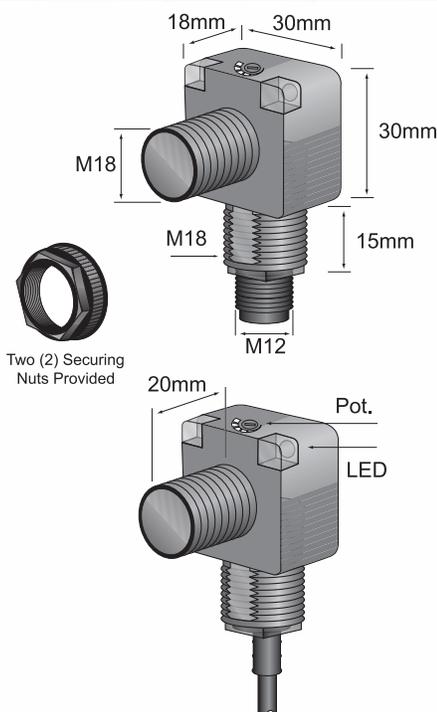
AC/DC Models - Quick Connect, 1/2"-20 UNF - Recommended Mating Cable: part # U-FS4TA-V165 (straight), U-FA4TA-V165 (right-angle)

Emitter (2-wire)	RP18-T020MCEY9Q4LM				
Light-ON (2-wire)	RP18-T020MCLY9Q4UM	RP18-D0300CLY9Q4UM	RP18-D0100CLY9Q4UM-BS	RP18-L2000CLY9Q4UM	RP18-L2000CLY6Q4UM-PF
Dark-ON (2-wire)	RP18-T020MCDY9Q4UM	RP18-D0300CDY9Q4UM	RP18-D0100CDY9Q4UM-BS	RP18-L2000CDY9Q4UM	RP18-L2000CDY6Q4UM-PF

TECHNICAL DATA

	DC	AC	AC/DC
Operating Voltage	10-30 VDC	24-240 VAC	20-250 VAC/DC
Voltage Drop	2.5V or less	3V @300mA AC; 2V @ 15mA AC	3V or less
Current Consumption	30mA or less	5mA or less	30mA or less
Response Time	1.5ms	15ms	15ms
Max. Load Current	200mA	300mA	
Output Operation	Light-ON or Dark-ON selectable by control input wire	Light-ON or Dark-ON selectable by type number	
Reverse Polarity Protection		Yes	
Short Circuit Protection		Yes	
Overload Current Protection		Yes	
Housing Material		PBT (plastic) housing	
Indicators		Red LED indicator	
Environmental Rating		IP67	
Operating Temperature		-25°C to +55°C (Max. relative humidity: 85%)	
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 500 VDC (or 1500 VAC) for 1 min., between all supply terminals connected together and enclosure	
Insulation Resistance		>20MΩ, with 500 VDC (or 1500 VAC) megger between all supply terminals connected together and enclosure.	
Vibration Resistance		IEC 60947-5-2, Part 7.4.2 or 10-55 Hz, 1.0mm amplitude in x, y, and z directions for 30 min.	
Shock Resistance		IEC 60947-5-2, Part 7.4.1 or 30g, 11ms in x, y, and z directions for six times each	
Cable		Standard length 2m. Other lengths available upon request	
Connector	M12x1 DC Micro Connector	1/2-20" UNF	

Dimensions



Connections

AC Emitter	AC	AC Pins
DC Emitter	DC NPN & PNP	DC Pins
	<p>NPN</p> <p>PNP</p> <p><small>D1: Reverse polarity protection diode ZD1: Surge absorption zener diode T1: NPN output transistor</small></p>	<p>Emitter</p> <p>Receiver</p>
AC / DC Emitter	AC / DC	AC / DC Pins

MP SERIES

MP Series

Image	Series Description	Modes	Ranges
	Universal Mount Photoelectric Sensor <ul style="list-style-type: none"> Mounts on Standard or Flat Bracket Long Range - Up to 30m Several Detection Modes Compact Size 	Through Beam	30m
		Retroreflective	5m
		Diffuse	380mm
		Convergent	43mm
		Fiber Optic Mode - (range depends on fiber used)	

DC Models - Quick Connect

Mode	Through-beam (30m range)	Retroreflective	Diffuse	Convergent
Light Emission	Infrared LED, 880nm	Red LED, 650nm	Infrared LED, 880nm	Red LED, 650nm
Operating Range	30m (98.4 ft.)	5m (16.4 ft.)	380mm (14.96 in.)	43mm (1.69 in.)

Part Numbers

Emitter	MP-T030MD-EX9Q4LE			
NPN / PNP	MP-T030MD-CX9Q4UE	MP-L5000D-CX6Q4UE	MP-D0380D-CX9Q4UE	MP-C0043D-CX6Q4UE

Mode	Through-beam (3m range)	Retroreflective (Polarized)	Fiber Optic (Diffuse)	Fiber Optic (Through-beam)
Light Emission	Infrared LED, 880nm	Red LED, 650nm	Infrared LED, 880nm	
Operating Range	3m (9.84 ft.)	2m (6.56 ft.)	Depends on fiber used (see pages 18-21)	

Part Numbers

Emitter	MP-T3000D-EX9Q4LE			
NPN / PNP	MP-T3000D-CX9Q4UE	MP-L2000D-CX6Q4UE-PF	MP-DGFD-CX9Q4UE	MP-TGFD-CX9Q4UE

AC Models - Prewired

Mode	Through-beam (30m range)	Retroreflective	Diffuse	Convergent
Light Emission	Infrared LED, 880nm	Red LED, 650nm	Infrared LED, 880nm	Red LED, 650nm
Operating Range	30m (98.4 ft.)	5m (16.4 ft.)	380mm (14.96 in.)	43mm (1.69 in.)

Part Numbers

Emitter	MP-T030MA-EX9C2L2			
SPST, Solid State	MP-T030MA-CX9C3U2	MP-L5000A-CX6C3U2	MP-D0380A-CX9C3U2	MP-C0043A-CX6C3U2

Mode	Through-beam (3m range)	Retroreflective (Polarized)	Fiber Optic (Diffuse)	Fiber Optic (Through-beam)
Light Emission	Infrared LED, 880nm	Red LED, 650nm	Infrared LED, 880nm	
Operating Range	3m (9.84 ft.)	2m (6.56 ft.)	Depends on fiber used (see pages 18-21)	

Part Numbers

Emitter	MP-T3000A-EX9C2L2			
SPST, Solid State	MP-T3000A-CX9C3U2	MP-L2000A-CX6C3U2-PF	MP-TGFA-CX9C3U2	MP-DGFA-CX9C3U2

TECHNICAL DATA

	DC Models	AC Models
Power Supply	10...30 VDC	20 to 250 VAC
Current Consumption	25mA max.	25mA max. (1.7mA max. for emitter)
Output Configuration	Bipolar: One current sourcing (PNP) and one current sinking (NPN) open-collector transistor	SPST MOSFET solid-state relay with either N.O. or N.C. contact (light/dark operate selectable: 3-wire hook-up)
Voltage Drop	<2.0V @ 150mA	<10V @ 200mA
Current Load Max	150mA	200mA
Response Time	1ms	8ms (4ms for Retroreflective Models)
Adjustments	LIGHT/DARK Operate sensitivity adjustment switch	
Connection	M12 - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)	2 meter cable
Electrical Protection	Short-circuit, Reverse Polarity and Overload Current Protection	-
Mechanical Protection	IP67 (IEC)	
Housing Material	Reinforced thermoplastic polyester housing, totally encapsulated o-ring sealing, acrylic lenses and stainless steel screws	
Environment	-20°C to +70°C (-4°F to 158°F) ; Max. 90% RH @ 50°C	
Reference Standard	IEC 60947-5-2	

DIAGRAMS

Dimensions	Connections																	
<p>DC: M12 x 1</p> <p>30,7 mm 1,21"</p> <p>18 mm dia. 0,71"</p> <p>18 x 1 mm Thread</p> <p>Front View</p> <p>0,95" dia. Mounting Nut (supplied)</p> <p>12,2 mm 0,48"</p> <p>DC: 38,1 mm (1,5") AC: 46,5 mm (1,82")</p> <p>DC: 53,3 mm (2,1") AC: 66 mm (2,6")</p> <p>#4 Screw Clearance (2)</p> <p>3,2 mm 0,125"</p> <p>24,1 mm 0,95"</p> <p>27,4 mm 1,08"</p> <p>19,1 mm 0,75"</p> <p>Mounting Peg (0,25" dia. x 0,10" 6,3 mm dia. x 2,5 mm)</p>	<table border="1"> <thead> <tr> <th>Emitter AC</th> <th>Emitter DC</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td colspan="2"> <table border="1"> <thead> <tr> <th>AC Sensors</th> <th>DC Connector (M12)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td colspan="2"> <table border="1"> <thead> <tr> <th>NPN/PNP</th> <th>DC Connector (M12)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> </td> </tr> </tbody> </table> </td> </tr> </tbody> </table>		Emitter AC	Emitter DC			<table border="1"> <thead> <tr> <th>AC Sensors</th> <th>DC Connector (M12)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td colspan="2"> <table border="1"> <thead> <tr> <th>NPN/PNP</th> <th>DC Connector (M12)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> </td> </tr> </tbody> </table>		AC Sensors	DC Connector (M12)			<table border="1"> <thead> <tr> <th>NPN/PNP</th> <th>DC Connector (M12)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>		NPN/PNP	DC Connector (M12)		
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NPN/PNP	DC Connector (M12)																	

M18 SERIES

M18 Series

Image	Series Description	Modes	Range
	Cylindrical Photoelectric Sensor <ul style="list-style-type: none"> Standard 18mm Housing Pre-wired or Quick Disconnect Metal or Plastic Housings Self-contained Amplifier 	Through Beam	15m
		Retroreflective	3m
		Diffuse	500mm

	Through-beam	Diffuse	Retroreflective	Retroreflective (Polarized)
Operating Range	15m (49.2 ft.)	0.5m (1.6 ft.)	3m (9.8 ft.)	1m (3.2ft.)
Light Emission	880nm Infrared LED			660nm Red LED

DC Models

Part Numbers - Metal Housing

Emitter	M18B-T015MD-EX9Q4LE			
NPN - Light/Dark	M18B-T015MN-CX9Q4UE	M18B-D0500N-CX9Q4UE	M18B-L3000N-CX9Q4UE	M18B-L1000N-CX6Q4UE-PF
PNP - Light/Dark	M18B-T015MP-CX9Q4UE	M18B-D0500P-CX9Q4UE	M18B-L3000P-CX9Q4UE	M18B-L1000P-CX6Q4UE-PF

Part Numbers - Plastic Housing (right-angle body)

Emitter	M18P-T015MD-EZ9Q4LE			
NPN - Light/Dark	M18P-T015MN-CZ9Q4UE	M18P-D0500N-CZ9Q4UE	M18P-L3000N-CZ9Q4UE	M18P-L1000N-CZ6Q4UE-PF
PNP - Light/Dark	M18P-T015MP-CZ9Q4UE	M18P-D0500P-CZ9Q4UE	M18P-L3000P-CZ9Q4UE	M18P-L1000P-CZ6Q4UE-PF

AC Models

Part Numbers - Metal Housing

Emitter	M18B-T015MA-EX9Q4LM			
Light-ON	M18B-T015MA-LX9Q4UM	M18B-D0500A-LX9Q4UM	M18B-L3000A-LX9Q4UM	M18B-L1000A-LX6Q4UM-PF
Dark-ON	M18B-T015MA-DX9Q4UM	M18B-D0500A-DX9Q4UM	M18B-L3000A-DX9Q4UM	M18B-L1000A-DX6Q4UM-PF

Part Numbers - Plastic Housing (right-angle body)

Emitter	M18P-T015MA-EZ9Q4LM			
Light-ON	M18P-T015MA-LZ9Q4UM	M18P-D0500A-LZ9Q4UM	M18P-L3000A-LZ9Q4UM	M18P-L1000A-CZ6Q4UM-PF
Dark-ON	M18P-T015MA-DZ9Q4UM	M18P-D0500A-LZ9Q4UM	M18P-L3000A-DZ9Q4UM	M18P-L1000A-CZ6Q4UM-PF

TECHNICAL DATA

	DC Models	AC Models
Power Supply	10...30 VDC	20 to 250 VAC
Current Consumption	30mA max.	5mA max.
Indicator LEDs	Red LED (output activated)	
Voltage Drop	2.5 V or less	10 VAC
Current Load Max	200mA	300mA
Response Time	1.5ms	-
Connection	M12 - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)	½"-20 UNF - Recommended Mating Cable: part # U-FS4TA-V165 (straight), U-FA4TA-V165 (right-angle)
Electrical Protection	Short-circuit, Reverse Polarity and Overload Current Protection	-
Mechanical Protection	IP67 (IEC)	
Housing Material	Metal: Nickel-plated Brass; Plastic: PBT	
Environment	-25°C to +55°C (-13°F to 131°F) ; 35-85% RH	
Storage Temp.	-25°C to + 70°C (-13°F to +158°F)	
Reference Standard	IEC 60947-5-2	

DIAGRAMS

Dimensions	Connections	
	Emitter AC 	AC Connector (½"-20 UNF)
	AC Through-beam Receiver, Diffuse & Retro 	AC Connector (½"-20 UNF)
	Emitter DC 	DC Connector (M12)
	NPN/PNP 	DC Connector (M12)
	<p><small>D1: Reverse polarity protection diode ZD1: Surge absorption zener diode T1: NPN output transistor</small></p>	
	<p><small>D1: Reverse polarity protection diode ZD1: Surge absorption zener diode T1: PNP output transistor</small></p>	

M12 SERIES

M12 Series

Image



Series Description

Cylindrical Photoelectric Sensor

- Standard 12mm Housing
- Pre-wired or Quick Disconnect
- Self-contained Amplifier

Modes

- Through Beam
- Retroreflective
- Diffuse

Range

- 5.2m
- 1m
- 200mm

	Through-beam	Diffuse	Retroreflective (Polarized)
Operating Range	5.2m (17.06 ft.)	0.2m (0.66 ft.)	1m (3.28 ft.)
Light Emission	880nm Infrared LED		660nm Red LED

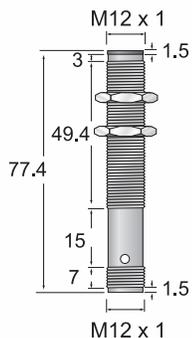
Part Numbers

Emitter	M12B-T5200D-EX9Q4LE		
NPN - Light/Dark	M12B-T5200N-CX9Q4UE	M12B-D0200N-CX9Q4UE	M12B-L1000N-CX6Q4UE-PF
PNP - Light/Dark	M12B-T5200P-CX9Q4UE	M12B-D0200P-CX9Q4UE	M12B-L1000P-CX6Q4UE-PF

Technical Data

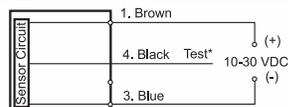
Power Supply	10...30 VDC
Current Consumption	30mA max.
Indicator LEDs	Red LED (output activated)
Voltage Drop	2.5 V or less
Current Load Max	200mA
Response Time	1.5ms
Connection	M12 - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)
Electrical Protection	Short-circuit, Reverse Polarity and Overload Current Protection
Mechanical Protection	IP67 (IEC)
Housing Material	Metal: Nickel-plated Brass; Plastic: PBT
Environment	-25°C to +55°C (-13°F to 131°F) ; 35-85% RH
Storage Temp.	-25°C to + 70°C (-13°F to +158°F)
Reference Standard	IEC 60947-5-2

Dimensions



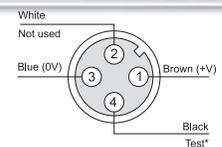
Connections

Emitter

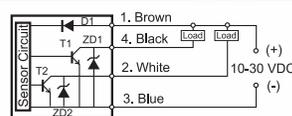


* Connect to 0V to turn off emitter.

Emitter

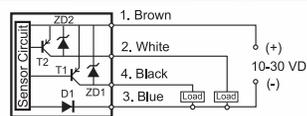


NPN



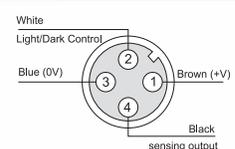
D1: Reverse polarity protection diode
ZD1, ZD2: Surge absorption zener diode
T1, T2: NPN output transistor

PNP



D1: Reverse polarity protection diode
ZD1, ZD2: Surge absorption zener diode
T1, T2: PNP output transistor

NPN / PNP



RP74 SERIES

RP74 Series

Image	Series Description	Modes	Ranges
	Multi-purpose Photoelectric Sensor <ul style="list-style-type: none"> Built-in Timer Modes Several Mounting Options Universal Power Supply Long Range 	Through Beam	61m
		Retroreflective	9.14m
		Diffuse	3.04m
		Clear Object Detection	1.2m
		Fiber Optic Mode - (range depends on fiber used)	

	Through-beam	Diffuse	Retroreflective (Polarized)	Fiber Optic	Clear Object Detection
Operating Range	61m (200 ft.)	3.04m (10 ft.)	9.14m (30 ft.)	Depends on fiber	1.20m (3.9 ft.)
Light Emission	880nm Infrared LED	880nm Red LED	660nm Red LED	880nm Infrared LED	660nm Red LED

DC Models (10-40 VDC) M12 - Recommended Mating Cable: part # R-FS4TZ-V075 (straight), R-FA4TZ-V075 (right-angle)

Emitter	RP74-T061MD-EY9Q4LE				
NPN / PNP - with timing	RP74-T061MD-CY9Q4UE-T	RP74-D3040D-CY9Q4UE-T	RP74-L9140D-CY6Q4UE-T	RP74-FGFD-CY9Q4UE-T	RP74-S1200D-CY6Q4UE-T

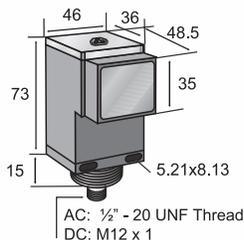
AC Models (12-240 VDC/24-240 VAC) 1/2"-20 UNF - Recommended Mating Cable: part # U-FS5TA-V105 (straight), U-FA5TA-V105 (right-angle)

Emitter	RP74-T061MA-EY9Q4LM				
SPDT Relay	RP74-T061MR-CY9Q5LM-T	RP74-D3040R-CY9Q5LM-T	RP74-L9140R-CY6Q5LM-T	RP74-FGFR-CY9Q5LM-T	RP74-S1200R-CY6Q5LM-T

Technical Data

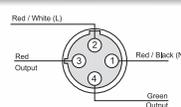
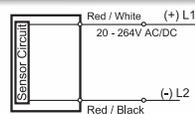
Power Supply	10-40 VDC or 12-240VDC/24-240 VAC
Indicator LEDs	Green: Power, Yellow: Output, Red: Margin
Current Consumption	30mA max.
Saturation Voltage	2.5 V max.
Output Current	30mA max.
Response Time	NPN/PNP: 5ms, SPDT Relay: 23ms
Timing Options	No Delay, On Delay, Off Delay, One-shot (for Models With Timing Delay).
Time Settings	Adjustable, 0.1...15s (for Models with Timing Delay)
Mechanical Protection	IP67
Housing Material	Glass Fiber Reinforced Plastic, Cover Gasket Material: Neoprene
Lens Material	Acrylic
Operating Temp.	-25...+55°C (-13...+131°F)
Storage Temp.	-40...+55°C (-40...+131°F)
Reference Standard	EN 60947-5-2

Dimensions

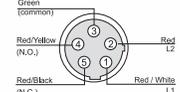
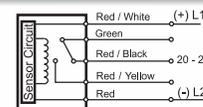


Connections

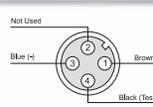
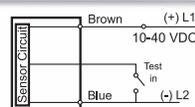
Emitter AC



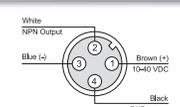
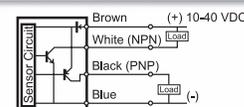
AC Receiver, Diffuse & Retro.



Emitter DC



NPN/PNP



RP76 SERIES

RP76 Series

Image	Series Description	Modes	Ranges
	Terminal (Conduit) Mount <ul style="list-style-type: none"> • Back or Bottom Mounting Option • Universal Power Supply • Built-in Timer Modes 	Through Beam	28m
		Retroreflective	10m
		Diffuse with Background Suppression	300mm

	Through-beam	Diffuse	Retroreflective (Polarized)
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DC Models

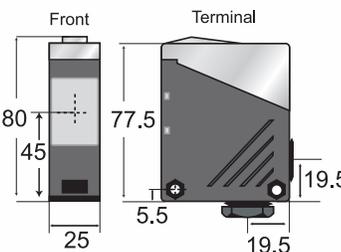
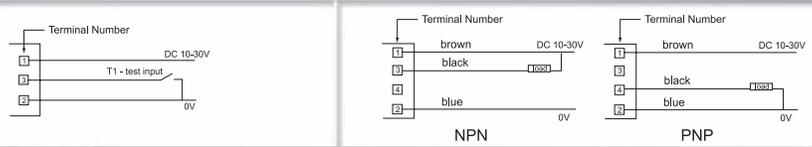
Emitter	RP76-T028MD-EY9T4L		
NPN - Timing Delay	RP76-T028MN-CY9T4U-T	RP76-D0300N-CY9T4U-BT	RP76-L010MN-CY6T4U-TP
PNP - Timing Delay	RP76-T028MP-CY9T4U-T	RP76-D0300P-CY9T4U-BT	RP76-L010MP-CY6T4U-TP

AC Models

Emitter	RP76-T028MA-EY9T4L		
Relay SPST - Timing Delay	RP76-T028MR-CY9T4L-T	RP76-D0300R-CY9T4L-BT	RP76-L010MR-CY6T4L-TP

Technical Data

Operating Range	28m (91.8 ft.)	0.3m (11.8 in.)	10m (32.8ft.)
Light Emission	880nm Infrared LED		660nm Red LED
Power Supply	DC: 10-30 VDC AC: 20-250 VAC		
Current Consumption	DC: <35 mA (no load) AC: <2 VA		
Time Options	No Delay, On Delay, Off Delay, One-shot (for Models With Timing Delay)		
Time Settings	Adjustable, 0.1...15s (for Models with Timing Delay)		
Indicator LEDs	Green: Power, Yellow: Output, Red: Margin / SCP		
Housing Material	Glass fiber reinforced plastic		
Lens Material	Acrylic		
Mechanical Protection	IP66 / NEMA 4		
Circuit Protection	Reverse polarity protected (DC Models also have outputs short circuit and over current protected)		
Operating Temperature	-25°C to +55°C (-13°F to 131°F)		
Storage Temperature	-40°C to +55°C (-40°F to 131°F)		
Reference Standard	IEC 60947-5-2		

Dimensions	Connections	
	Emitter AC	AC Receiver, Diffuse & Retro.
		
	Emitter DC	NPN/PNP
		

RS62 SERIES

RS62 Series

Image	Series Description	Modes	Ranges
	Multi-voltage Photoelectric Sensor <ul style="list-style-type: none"> • 12-240 VDC or 24-240 VAC • SPDT Relay Models • Accurate Detection 	Through Beam	10...30m
		Retroreflective	5...7m
		Diffuse	700mm

	Through-beam	Diffuse	Retroreflective	Retroreflective with Polarizing Filter
Operating Range	30m (98.4 ft.)	700mm (27.56 in.)	7m (22.9 ft.)	5m (16.4 ft.)

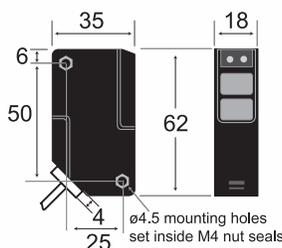
Part Numbers

Emitter	RS62-T030MD-EY9C2L2			
SPDT Relay (Light On)	RS62-T030MR-LY9C5L2	RS62-D0700R-LY9C5L5	RS62-L7000R-LY9C5L5	RS62-L5000R-LY6C5L5-PF
SPDT Relay (Dark On)	RS62-T030MR-DY9C5L2	RS62-D0700R-DY9C5L5	RS62-L7000R-DY9C5L5	RS62-L5000R-DY6C5L5-PF

Technical Data

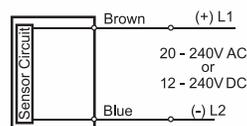
Power Supply	12...240 VDC or 24-240 VAC ± 10%
Current Consumption	2 VA max.
Light Emission	Infrared (Through-beam, Diffuse & Retroreflective) or Modulated Red LED (Polarized Retroreflective)
Setting	Continuously variable adjuster (except for long range through-beam and retroreflective models)
Indicator LEDs	Red LED: Operation Indicator, Green LED: Stability Indicator
Output (Relay contact 1c)	<ul style="list-style-type: none"> * Switching capacity: 250 VAC 1A (resistive load) 30 VDC 2A (resistive load) * Electrical life: 100,000 or more operations (at rated AC load) 50,000 or more operations (at rated DC load) * Mechanical life: 100,000 or more operations
Response Time	10 ms max.
Switching Frequency	10 Hz max.
Connection	2 meter cable
Mechanical Protection	IP66
Housing Material	Housing: ABS, Lens: Polycarbonate
Operating Temp.	-20...+55°C (-4...+131°F)
Reference Standard	EN 60947-5-2

Dimensions

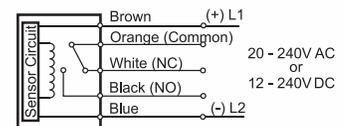


Connections

Wires



Emitter



Receiver & All Others

U SERIES

U Series

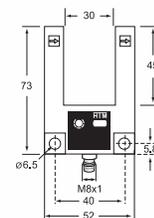
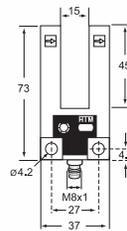
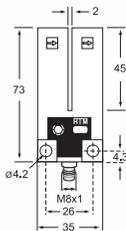
Images



Series Description:	Slot Photoelectric Sensor <ul style="list-style-type: none"> • 2, 15, 30, 50, 80 and 120mm Widths • High Switching Frequency • Rugged Die-cast Metal Housings 	Modes	Ranges
		Through Beam	2mm...120mm

Part Numbers

NPN (red LED, 660nm)	U02-T0002N-CY6Q4UP	U15-T0015N-CY6Q4UP	U30-T0030N-CY6Q4UP
PNP (red LED, 660nm)	U02-T0002P-CY6Q4UP	U15-T0015P-CY6Q4UP	U30-T0030P-CY6Q4UP
Slot Spacing	2mm	15mm	30mm
Supply Voltage	10-30 VDC		
Voltage Drop	< 3V		
Rated Isolated Voltage	75 VDC		
Rated Operational Current	200mA		
No-load Supply Current	≤35mA		
Reverse Polarity Protection	Yes		
Short-circuit Protection	Yes		
On/Off Delay	0.2ms		
Operating Frequency	3000Hz		1500Hz
Switching Hysteresis	≤0.1mm		
Resolution	0.3mm		
Repeatability	0.02mm		
Output Function	Light On / Dark On		
Permissible Ambient Light	10 Klx		
Function Indicator	red LED		
Operating Temp.	-10°C to 60°C (14°F to 140°F)		
Mechanical Protection	IP65		
Reference Standard	IEC 60947-5-2		
Housing Material	Die-cast Zinc		
Connection	M8 4 pin connector - Recommended Mating Cable: Part # C-FS4TZ-V075 (straight), or C-FA4TZ-V075 (right-angle)		

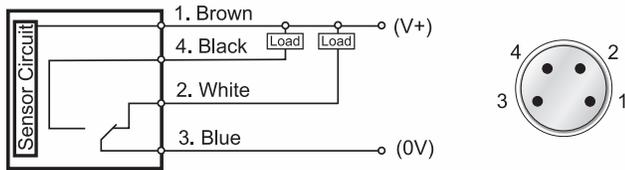


U SERIES

U Series

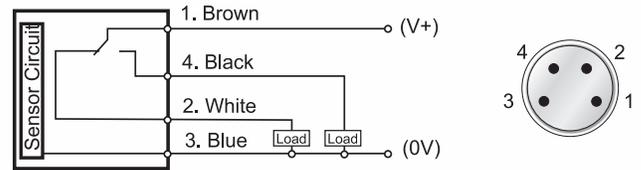
Connections

M8 DC 4-wire NPN - N.O. & N.C.



Black: Light-ON White: Dark-ON

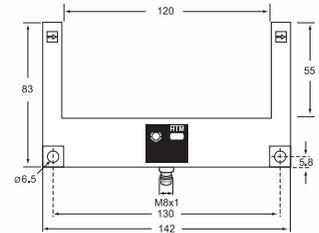
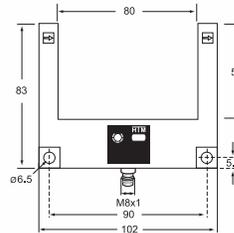
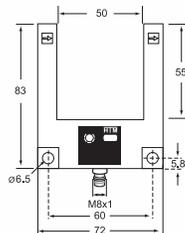
M8 DC 4-wire PNP - N.O. & N.C.



Black: Light-ON White: Dark-ON

Part Numbers

NPN (red LED, 660nm)	U50-T0050N-CY6Q4UP	U80-T0080N-CY6Q4UP	U120-T0120N-CY6Q4UP
PNP (red LED, 660nm)	U50-T0050P-CY6Q4UP	U80-T0080P-CY6Q4UP	U120-T0120P-CY6Q4UP
Slot Spacing	50mm	80mm	120mm
Supply Voltage	10-30 VDC		
Voltage Drop	< 3V		
Rated Isolated Voltage	75 VDC		
Rated Operational Current	200mA		
No-load Supply Current	≤35mA		
Reverse Polarity Protection	Yes		
Short-circuit Protection	Yes		
On/Off Delay	0.2ms	0.33ms	
Operating Frequency	1500Hz		
Switching Hysteresis	≤0.1mm	≤0.2mm	
Resolution	0.5mm		0.8mm
Repeatability	0.04mm	0.06mm	0.08mm
Output Function	Light On / Dark On		
Permissible Ambient Light	10 Kl	5 Kl	
Function Indicator	red LED		
Operating Temp.	-10°C to 60°C (14°F to 140°F)		
Mechanical Protection	IP65		
Reference Standard	IEC 60947-5-2		
Housing Material	Die-cast Zinc		
Connection	M8 4 pin connector - Recommended Mating Cable: Part # C-FS4TZ-V075 (straight), or C-FA4TZ-V075 (right-angle)		



RP32 SERIES

RP32 Series

Image	Series Description	Modes	Ranges
	Miniature Photoelectric Sensor <ul style="list-style-type: none"> • Compact & Rugged Design • Stainless Steel and Glass Fiber Reinforced Plastic Housing • Shock & Vibration Resistant 	Through Beam	8.5m
		Retroreflective	4m
		Diffuse	400mm
		Clear Object Detection	500mm

	Through-beam	Diffuse	Retroreflective	Clear Object Detection
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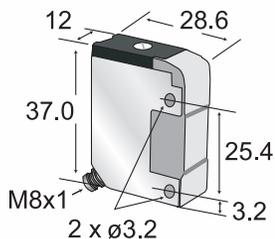
Part Numbers

Emitter	RP32-T8500D-EY6Q4LP			
NPN	RP32-T8500N-CY6Q4UP	RP43-D0400N-CY6Q4UP	RP32-L4000N-CY6Q4UP-PF	RP32-L0500N-CY6Q4UP-PD
PNP	RP32-T8500P-CY6Q4UP	RP43-D0400P-CY6Q4UP	RP32-L4000P-CY6Q4UP-PF	RP32-L0500P-CY6Q4UP-PD

Technical Data

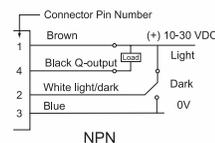
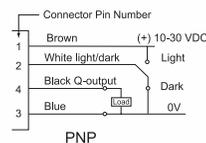
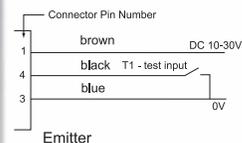
Operating Range	8.5m (27.8 ft.)	400mm (15.7 in.)	4m (13 ft.)	0.5m (19 in.)
Power Supply	10...30 VDC			
Current Consumption	35mA max.			
Ripple	±10% (within Vs tolerance)			
Light Emission	660nm Infrared LED			
Angle of Divergence	approx. 3.5°	approx. 5.0°	approx. 4.5°	
Light Spot Size	approx. 440mm@7m	40mm@400mm	approx. 200mm@2.5m	
Setting	sensitivity trimmer			
Output Voltage	High: PNP: Vs - (≤1.5V); NPN is approx. Vs; Low: PNP is approx. 0V; NPN is ≤1.5V			
Output Current Max.	100mA max., short-circuit protected and over current protected, Vs reverse polarity protected			
Response Time	<15 ms	<2 ms	<0.7 ms	
Switching Frequency	33 Hz	250 Hz	700 Hz	
Connection	M8 4 pin connector - Recommended Mating Cable: Part # C-FS4TZ-V075 (straight), or C-FA4TZ-V075 (right-angle)			
Mechanical Protection	IP67 / NEMA 6			
Housing Material	Stainless Steel / Glass fiber reinforced plastic			
Operating Temp.	-25...+55°C (-13...+131°F)			
Storage Temp.	-40...+70°C (-40...+158°F)			
Reference Standard	EN 60947-5-2			

Dimensions

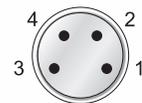


Connections

Wires



Pins



CABLES & BOXES



DC - MICRO

AC - MICRO

M8 - PICO

MINI

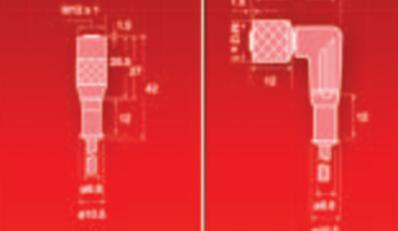
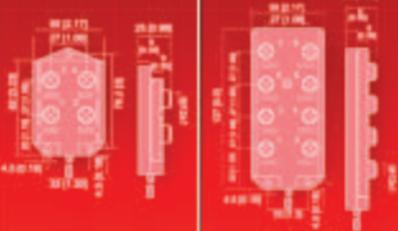
STRAIGHT & 90°

PVC & PUR

YELLOW, GRAY OR BLACK

DOUBLE-ENDED CABLES

SELECTION & ORDERING INFORMATION

Cables				Boxes		
	C Series - M8 Pico		R Series - M12 DC Micro			
						
Part Numbers						
3 Poles	C-FS3TZ-V075	C-FA3TZ-V075				
4 Poles	C-FS4TZ-V075	C-FA4TZ-V075	R-FS4TZ-V075	R-FA4TZ-V075		
4 Port PNP					ASTR4-5/4PA-1005	
4 Port NPN					ASTR-5/4NA-1005	
8 Port PNP						DSTR8-5/4PA-1205
8 Port NPN						DSTR8-5/4NA-1205
Diagrams						
Field Connectors						
						
Part Number	R-FS4KZPG7	R-FA4KZPG7	R-MS4KZPG7	R-MA4KZPG7		
Poles	4 (female)	4 (female)	4 (male)	4 (male)		
Max. Wire Section	18 AWG	18 AWG	18 AWG	18 AWG		
Screw Joint for Cables	PG7 (Φ4.0-6.0mm)	PG7 (Φ4.0-6.0mm)	PG7 (Φ4.0-6.0mm)	PG7 (Φ4.0-6.0mm)		

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Inductive & Capacitive Proximity Sensors



Standard DC, AC & AC/DC, NPN, PNP, N.O., N.C. proximity sensors.

Professional Series Proximity Sensors



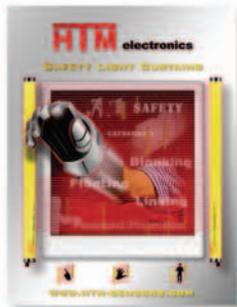
Long Range, MetalHead™, Weld Field Immune, SpatterGuard™ Proximity Sensors for harsh industrial conditions.

Photoelectric Sensors



Through-beam, Diffuse, Retroreflective, Laser, Background Suppression, Contrast, Distance Models

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Category 2 & Category 4 Safety Light Curtains for Finger, Hand & Body Protection.

Non-contact Thermometers



Fixed Mounted, Separate Amplifier and Hand-held models Measure Temperatures at a safe distance.

Cables & Boxes



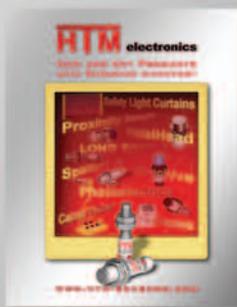
M8 Pico, M12 DC Micro, 1/2"-20 AC Micro Cables, 1/8"-16 Mini Cables, Pre-wired and Quick Connect Distribution Boxes.

Sensor Accessories



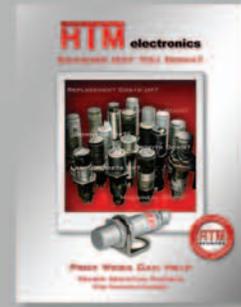
Sensor Testers, Counters, Cushioned Sensor Mounts, Contact Sensor Probes, Mounting Brackets and more.

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