

Photoelectrics Through-beam System, Relay Output Type MPF.RS

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- Industrial doors and gates
- Range: 15 m
- Modulated infrared light
- Option with individually adjustable channel sensitivity
- Amplifier with "Snap-ON" photoelectric switches
- Supply voltage: 12-24 VAC/DC, 115 VAC or 230 VAC
- Output: SPST relay
- LED indications for light ON and supply ON
- 4 module M36 DIN rail housing
- Ø12 mm "Snap-ON", Ø18 or M14 photoelectric housing
- 1, 2 or 3 multiplexed channels
- With make or break test input
- UL 325, EN 12453 (TÜV approved)

Product Description

The MPFRS.. is a family of inexpensive general purpose photoelectric sensors in 3 different types of housings with separate amplifier. They are designed to meet the requirements for industrial doors and gates. The "Snap-ON" photo switch can be mounted in material with a thickness from 0.6 mm and up to 2.25 mm. The sensor set is easy to use and no adjustments are necessary. The amplifier has a

test input designed to disable the emitters and therefore evaluate the sensor function. Multiplexed channels prevent cross-talk between each set of photosensors. The amplifiers are available with the following voltages: 12-24 VAC/DC, 115 VAC and 230 VAC. The output is made as positive security e.g. power lost, short-circuit or broken sensor cable makes the relay go to off state.

Ordering Key

Amplifier

MPF 3 230 RS AI

Type _____
 Number of channels _____
 Voltage supply _____
 Output relay _____
 Safety _____
 Adjustable sensitivity _____
 Inverted test input (break) _____

Sensor

MPF T 15 M14 4C

Type _____
 Emitter _____
 Range _____
 Housing diameter _____
 Optical angle _____
 Connectors on cable _____

Type Selection, Amplifier

Housing W x H x D	Ordering no. Supply: 12-24 VAC/DC	Ordering no. Supply: 115 VAC	Ordering no. Supply: 230 VAC
70 x 57 x 86 mm	MPF1-912 RS	MPF1-115 RS	MPF1-230 RS
	MPF2-912 RS	MPF2-115 RS	MPF2-230 RS
	MPF3-912 RS	MPF3-115 RS	MPF3-230 RS
	MPF1-912 RSI *)	MPF1-115 RSI *)	MPF1-230 RSI *)
	MPF2-912 RSI *)	MPF2-115 RSI *)	MPF2-230 RSI *)
	MPF3-912 RSI *)	MPF3-115 RSI *)	MPF3-230 RSI *)
	MPF1-912 RSA *)	MPF1-115 RSA *)	MPF1-230 RSA *)
	MPF2-912 RSA *)	MPF2-115 RSAv	MPF2-230 RSA
	MPF3-912 RSA *)	MPF3-115 RSA *)	MPF3-230 RSA *)
	MPF1-912 RSAI *)	MPF1-115 RSAI *)	MPF1-230 RSAI *)
	MPF2-912 RSAI *)	MPF2-115 RSAI *)	MPF2-230 RSAI *)
	MPF3-912 RSAI *)	MPF3-115 RSAI *)	MPF3-230 RSAI *)

*) Products available on request

Type Selection, Photoelectric Switch

Housing diameter	Rated operational distance (S _n)	Optical angle	Ordering no. Emitter	Ordering no. Receiver	Ordering no. Fitting
Ø12 mm	15 m	4°	MPFT 15-4	MPFR-4	AMPF-MB1
M14	15 m	4°	MPFT 15-M14-4	MPFR-M14-4	
D18	15 m	4°	MPFT 15-D18-4	MPFR-D18-4	
Ø12 mm	15 m	4°	MPFT 15-4C	MPFR-4C	
M14	15 m	4°	MPFT 15-M14-4C	MPFR-M14-4C	
D18	15 m	4°	MPFT 15-D18-4C	MPFR-D18-4C	
Fitting for Ø12					

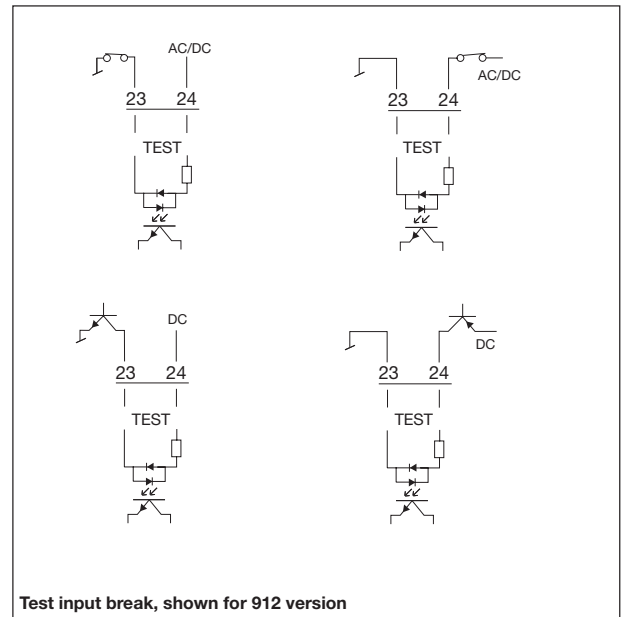
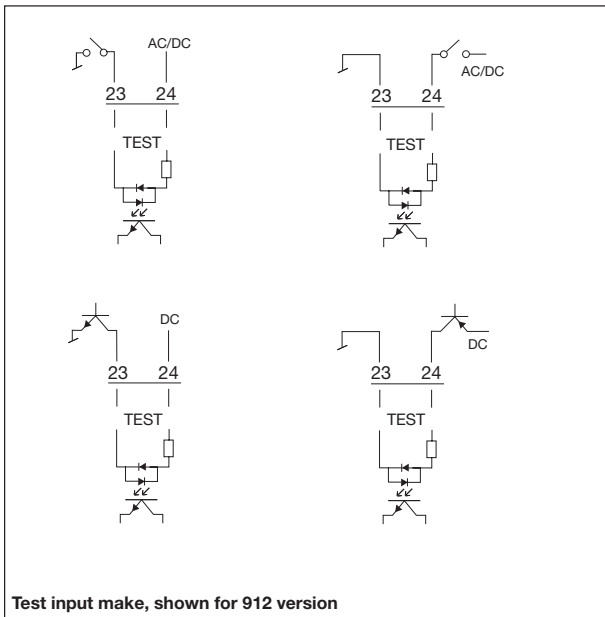
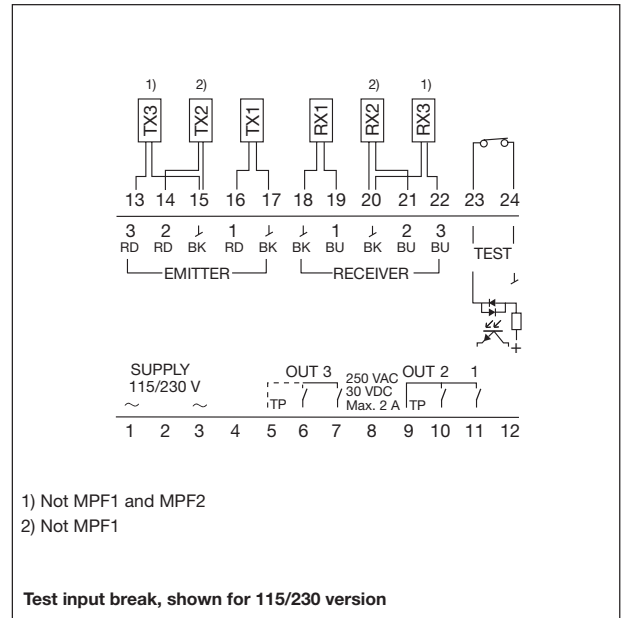
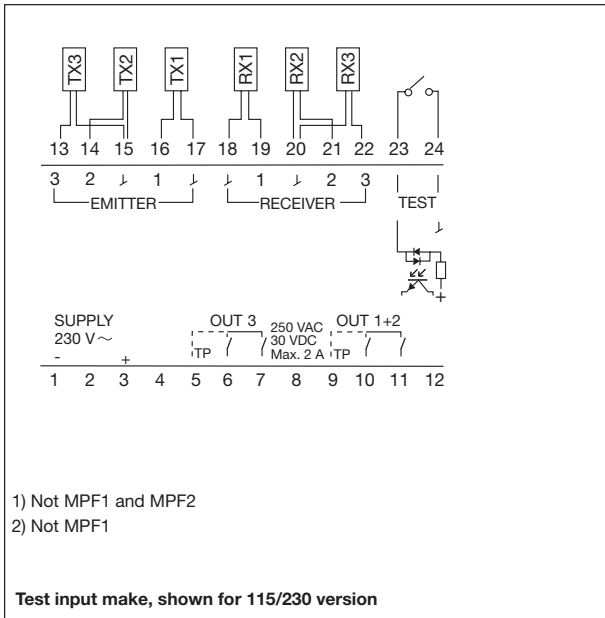
Specifications, Amplifier

Rated operational volt. AC types (U_B) Terminals 1 & 3 MPF.- 230 RS. MPF.- 115 RS. MPF.- 912 RS.	230 VAC ± 15%, 50 to 60 Hz 115 VAC ± 15%, 50 to 60 Hz 12-24 VAC/DC ± 15%, 50 to 60 Hz	Output function MPF1+2 MPF3	Relay 2 x SPST Relay 2 x SPST + 2 x SPST
Dielectric voltage MPF.- 230 RS.	4 kVAC (rms)	Indication function Supply ON Beam ON (no object present)	LED, green LED, yellow
Rated impulse withstand volt.	4 kV (1.2/50 μs)	Environment Overvoltage category Degree of protection Pollution degree	III (IEC 66064) IP 40 (IEC 60529/60947-5-2) 3 (IEC 60664/60664A, 60947-1)
Rated operational power MPF.- 912 RS AC supply DC supply	3 VA 2 W	Temperature Operating Storage	-20° to +60°C (-4° to +140°F) -30° to +80°C (-22° to +176°F)
MPF.- 115/230 RS AC supply DC supply	max. 4.5 VA max. 4.5 VA	Connection	Screw terminals (max. 2.5 mm ²)
Output Specifications Resistive load MPF.-xxx RS, RSA, RSI, RSAI 600.000 switchings 300.000 switchings 100.000 switchings AC15 AC14 DC13	1 A@250 VAC/30 VDC 2 A@250 VAC/30 VDC 2 A@250 VAC/30 VDC (UL) 0.75 A@240 VAC 0.60 A@120 VAC 0.22 A@125 VDC	Protection output	Reverse output, transients, short-circuit
Rated insulation volt. (U_i) MPF.- 230 RS. MPF.- 115 RS. MPF.- 912 RS.	250 VAC (rms) 120 VAC (rms) 50 VAC (rms), 50 VDC	Test input MPF.- 230 RS. MPF.- 115 RS. MPF.- 912 RS. Testfunction activated Testfunction deactivated	Potential-free contact Potential-free contact Max. 28 V@15 mA AC/DC ≥ 3.5 V AC/DC ≤ 1.0 V AC/DC
Operating frequency (f) Light/dark ratio 1:1 Contact output	10 Hz	MPF.- 912 RSI. Testfunction deactivated Testfunction activated	Max. 28 V@15 mA AC/DC ≥ 3.5 V AC/DC ≤ 1.0 V AC/DC
Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 50 ms ≤ 40 ms	Housing material	PC
Power ON delay (t_v)	≤ 300 ms	Weight MPF.- 115/230 RS MPF.- 912 RS	280 g 126 g
		CE-marking UL-marking TÜV-marking	Yes Yes (UL 508, UL 325) Yes (EN 12453)

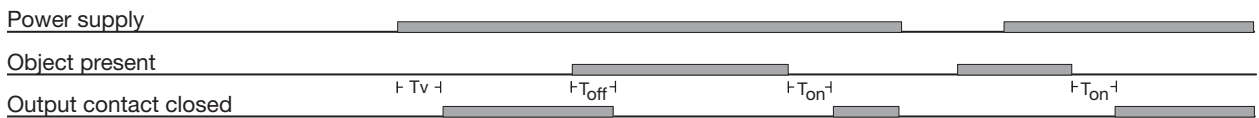
Specifications, Photoelectric Switches

Rated operation dist. (S_n)	15 m - 8 m (UL 325)	MPFT15-XXX-4C MPFR15-XXX-4C <i>Connector is placed 15 cm from sensorhead</i> Cable	Red connector pair White connector pair PVC, grey, 10 m, Ø 2.9 mm ²
Light source	LED 880 nm	Degree of protection	IP 67 (IEC 60529/60947-5-2)
Light type	Infrared modulated	Mounting "Snap-ON" MPFT15-4/C MPFR-4/C	Ø12 mm or fitting
Ambient light	> 20.000 lux	Rubber profile MPFT15-D18-4/C MPFR-D18-4/C	D18
Housing material MPFT15-4/C MPFT15-D18-4/C MPFR-4/C MPFR-D18-4/C Housing Backpart	PC ABS	Threaded barrel MPFT15-M14-4/C MPFR-M14-4/C	M14
MPFT15-M14-4/C MPFR15-M14-4/C Housing Backpart	Stainless steel/PC PTE	CE-marking UL-marking TÜV-marking	Yes Yes (UL 508, UL 325) Yes (EN 12453)
Connection MPFT15-XXX-4 MPFR15-XXX-4 Cable	PVC, grey, 10 m, Ø 2.9 mm ²		

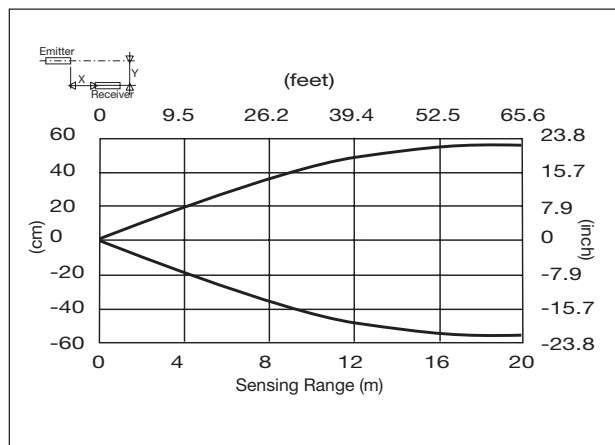
Wiring Diagrams



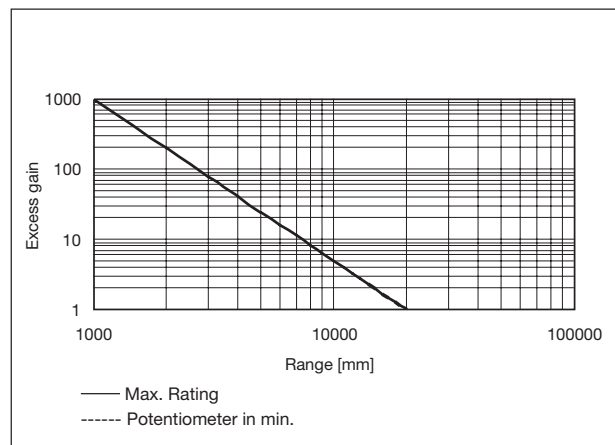
Operation Diagram



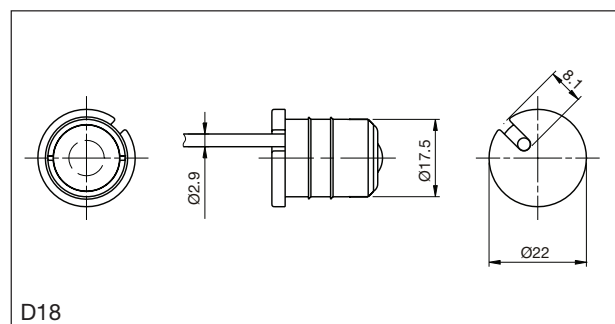
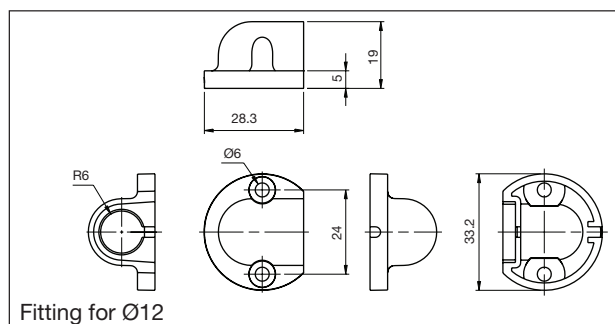
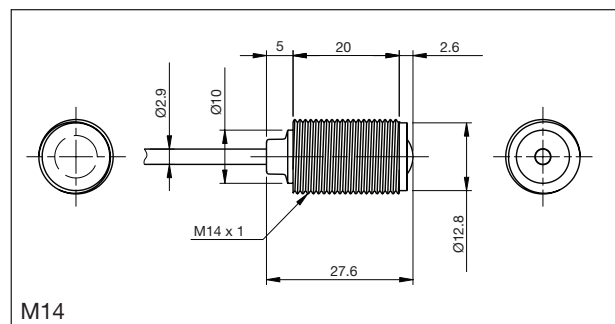
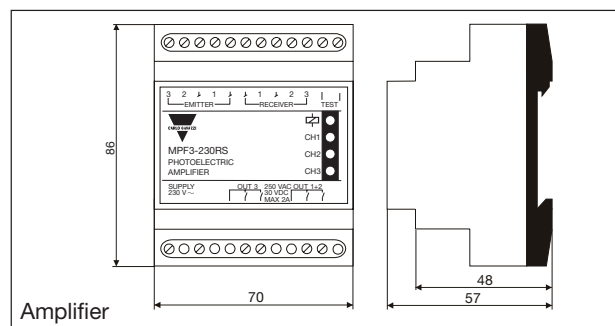
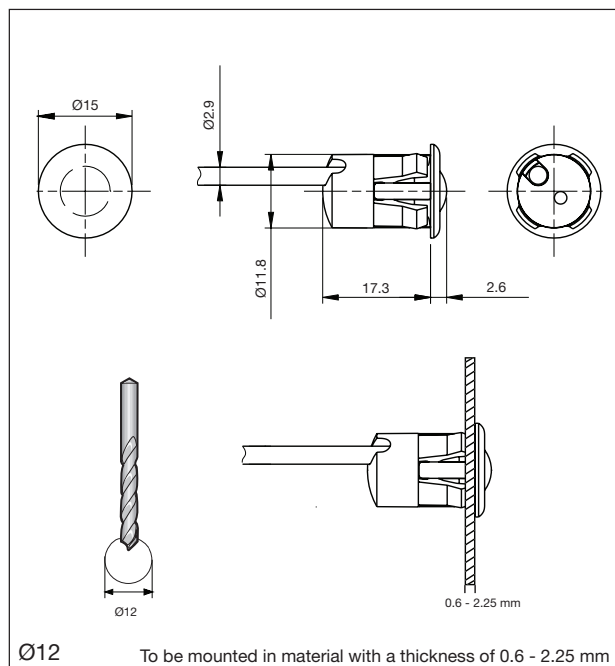
Detection Diagram



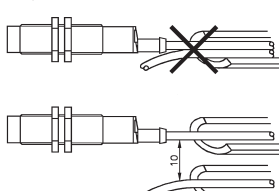
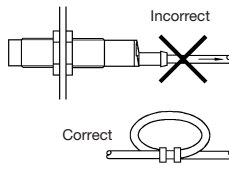
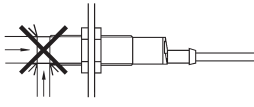
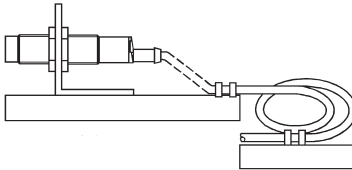
Excess Gain



Dimensions



Installation Hints

<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p> 	<p>Relief of cable strain</p>  <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>A proximity switch should not serve as mechanical stop</p>	<p>Switch mounted on mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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Delivery Contents

- Amplifier, MPF..
- Installation instruction
- **Packaging:** cardboard box