

# Photoelectrics Special Function, Industrial Door Market Type PMP12RS, Retro-reflective, Polarized

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- Range: 12 m
- Polarized, modulated, visible red light
- Positive safety, NF P25-362 NF P25-363 standards
- Supply voltage: 24 VDC and 24 VAC
- LED-indication for target (reflector) detected
- Reinforced PC/ABS housing, 25 x 65 x 81 mm
- 2 x relay output (connected in series), NO output
- High EMC immunity
- UL, CSA and CE

## Product Description

The PMP12RS is a powerful polarized retro reflective sensor. The sensor is designed for the industrial door market. The sensor is made in a strong glass reinforced PC/ABS housing. The long sensing distance

of 12 m makes the sensor useful in applications where dust and weather conditions will influence on the sensing performance. The sensor fulfills the positive safety standards, NF P25-362, NF P25-363.

## Ordering Key

**PMP12RS**

Type family \_\_\_\_\_  
 Type \_\_\_\_\_  
 Sensing distance (m) \_\_\_\_\_  
 Output relay \_\_\_\_\_  
 Safety \_\_\_\_\_

## Type Selection

Housing W x H x D	Range S <sub>n</sub>	Ordering no.
25 x 65 x 81 PG 13.5 cable gland	12 m	<b>PMP 12 RS</b>

Note: Reflectors are to be ordered separately.

## Specifications

<b>Rated operating distance (S<sub>n</sub>)</b> (0 to 5,000 lux)	12 m, with reflector type ER 4, ref. target	<b>Power ON delay (t<sub>v</sub>)</b>	≤ 300 ms (typ. 100 ms)
<b>Blind zone</b>	Max. 15 cm	<b>Output function</b> Positive safety	2 relays connected in series Contact NO
<b>Sensitivity</b>	fixed	<b>Indication</b> Target detected	LED, yellow
<b>Temperature drift</b>	≤ 0.4%/°C	<b>Environment</b> Overvoltage category Pollution degree Degree of protection	III (IEC 60664/664A; 60947-1) 3 (IEC 60664/664A; 60947-1) IP 67 (IEC 60529; 60947-1)
<b>Differential travel (H)</b> (Hysteresis)	3 to 20%	<b>Temperature</b> Operating Storage	-25° to +55°C (-13° to +131°F) -30° to +80°C (-22° to +176°F)
<b>Rated operational voltage (U<sub>B</sub>)</b>	24 ±20% VDC 24 ±20% VAC, 45 to 65 Hz	<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
<b>Rated operational power</b> (relay ON)	≤ 2 W (2.5 VA)	<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
<b>Output</b> Contact ratings (AgCdO) Resistive loads AC 1 DC 1 Small inductive loads AC 15 DC 13 Mechanical life (typical) Electrical life (typical)	μ (micro gap) 3 A/250 VAC 3 A/30 VDC 2 A/250 VAC 3 A/30 VDC ≥ 2 x 10 <sup>7</sup> operations ≥ 1 x 10 <sup>5</sup> operations at 220 VAC - 3 A Ω-load: 360 impulses/h	<b>Rated insulation voltage</b>	250 VAC (IEC 60364-4-41)
<b>Protection</b>	Reverse polarity, transients	<b>Housing material</b> Body Front Cover Cable gland Mounting bracket	PC/ABS, grey, reinforced PMMA, red PC, black PA, black, reinforced Steel, galvanized
<b>Light source</b> <b>Light type</b> <b>Optical angle</b> <b>Ambient light</b>	GaAlAs, LED, 660 nm Visible, modulated ± 1.5° Max. 5'000 lux	<b>Connection</b> Screw terminal Cable gland	4 x 2 x 1 mm <sup>2</sup> PG 13.5 for cable, 6 to 10 mm
<b>Operating frequency</b>	14 Hz	<b>Weight</b>	110 g
<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 20 ms ≤ 30 ms	<b>Approvals</b>	UL, CSA
		<b>CE-marking</b>	Yes

Specifications are subject to change without notice (20.03.01)

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## Mode of Operation

The red light beam from the emitter (3), is generated from the modulator (5), collimated in the lens (2) and polarized in the polarizer (1). The light beam is returned by a triple reflector and passes a second polarizing filter (1) and

the receiver lens (2) before reaching the detector element (4).

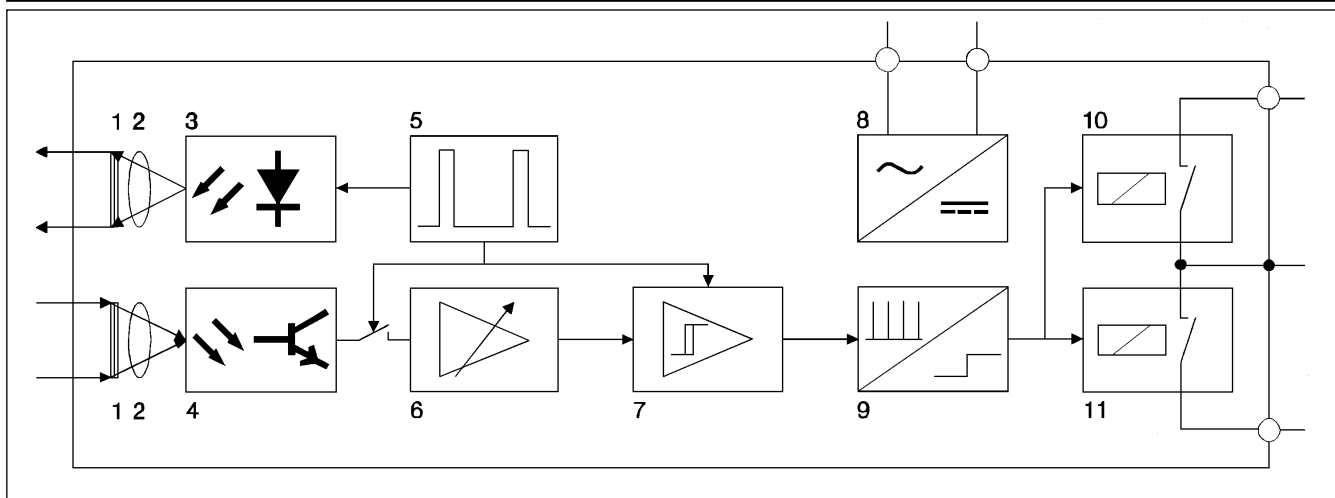
The received signal is amplified by the amplifier (6), and the modulated impulses are synchronized and detected in

the pulse detector (7). The modulated impulses are recognized in the demodulator (9).

The output signal from the demodulator controls 2 relays (10 and 11) which are connec-

ted in the manner prescribed by the NF P25-362 standard. The centre of the two relay contacts is available as a checkpoint for checking each contact individually.

## Block Diagram



## General Information about the Polarization Principle

To avoid false output signals from targets with highly reflective surfaces, a retro-reflective photoelectric switch can be equipped with polarizing filters (anti-glare filters). In this case the emitted light first

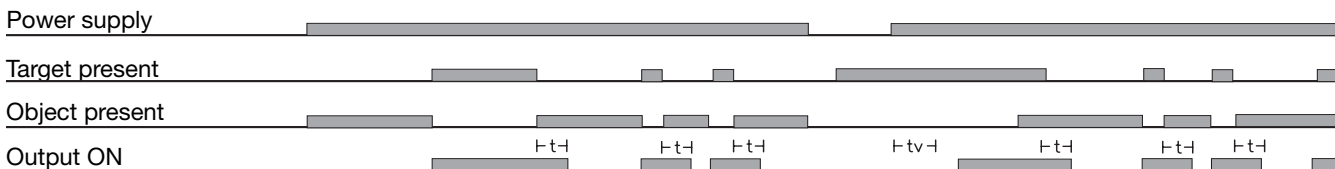
passes through a vertical polarizing filter. The triple reflector turns the polarization 90 degrees and reflects the beam. The 90 degree turned reflected light then passes a second polarizing filter which

enables only horizontally polarized light to pass. In this way, only the light whose polarization plane has been turned 90° by the triple reflector will reach the receiver element. Since usual surfaces do

not depolarize the light, the beam reflected by a shiny target will not be recognized as a reflector and the switching element will therefore only change state when receiving the reflector signal.

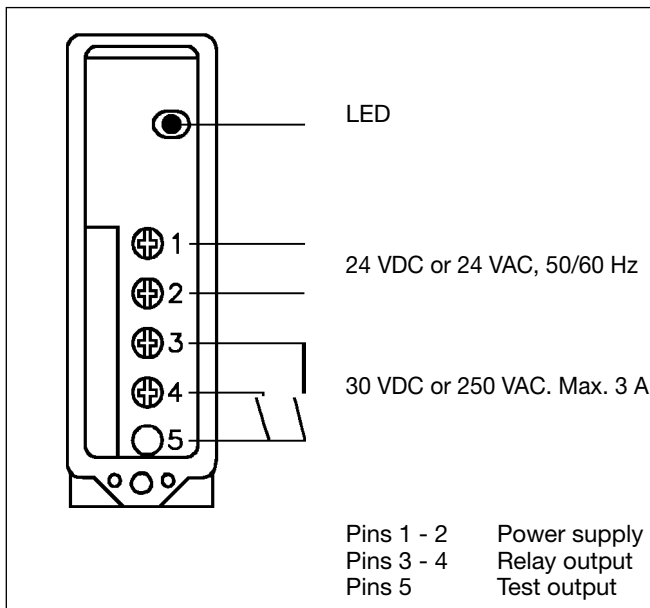
## Operation Diagram

tv = Power ON delay

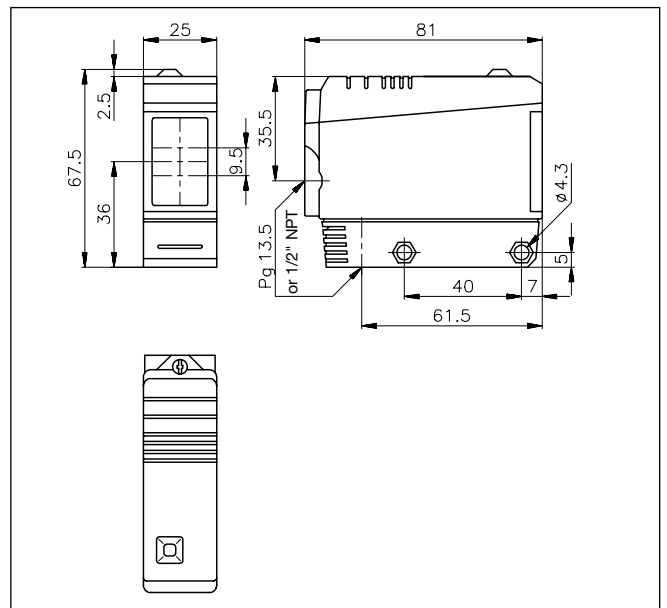


t approx. 40 ms

### Connection Diagram



### Dimensions



### Delivery Contents

- Photoelectric switch: PMP12RS
- Cable gland
- Installation instruction
- Mounting bracket
- **Packaging:** Cardboard box

### Accessories

- Reflectors: ER series
- MB02 (longer mounting bracket)

For further information refer to "Accessories".