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

- **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 powerfull 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 usefull 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_n	Ordering no.
25 x 65 x 81 PG 13.5 cable gland	12 m	**PMP 12 RS**

Note: Reflectors are to be ordered separately.

Specifications

Rated operating distance (S_n) (0 to 5,000 lux)	12 m, with reflector type ER 4, ref. target
Blind zone	Max. 15 cm
Sensitivity	fixed
Temperature drift	≤ 0.4%/°C
Differential travel (H) (Hysteresis)	3 to 20%
Rated operational voltage (U_B)	24 ±20% VDC 24 ±20% VAC, 45 to 65 Hz
Rated operational power (relay ON)	≤ 2 W (2.5 VA)
Output 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 10^7 operations ≥ 1 x 10^5 operations at 220 VAC - 3 A Ω-load: 360 impulses/h
Protection	Reverse polarity, transients
Light source **Light type** **Optical angle** **Ambient light**	GaAlAs, LED, 660 nm Visible, modulated ± 1.5° Max. 5'000 lux
Operating frequency	14 Hz
Response time OFF-ON (t_{ON}) ON-OFF (t_{OFF})	 ≤ 20 ms ≤ 30 ms
Power ON delay (t_v)	≤ 300 ms (typ. 100 ms)
Output function Positive safety	2 relays connected in series Contact NO
Indication Target detected	 LED, yellow
Environment 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)
Temperature Operating Storage	 -25°to +55°C (-13° to +131°F) -30°to +80°C (-22° to +176°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
Rated insulation voltage	250 VAC (IEC 60364-4-41)
Housing material Body Front Cover Cable gland Mounting bracket	 PC/ABS, grey, reinforced PMMA, red PC, black PA, black, reinforced Steel, galvanized
Connection Screw terminal Cable gland	 4 x 2 x 1 mm^2 PG 13.5 for cable, 6 to 10 mm
Weight	110 g
Approvals	UL, CSA
CE-marking	Yes

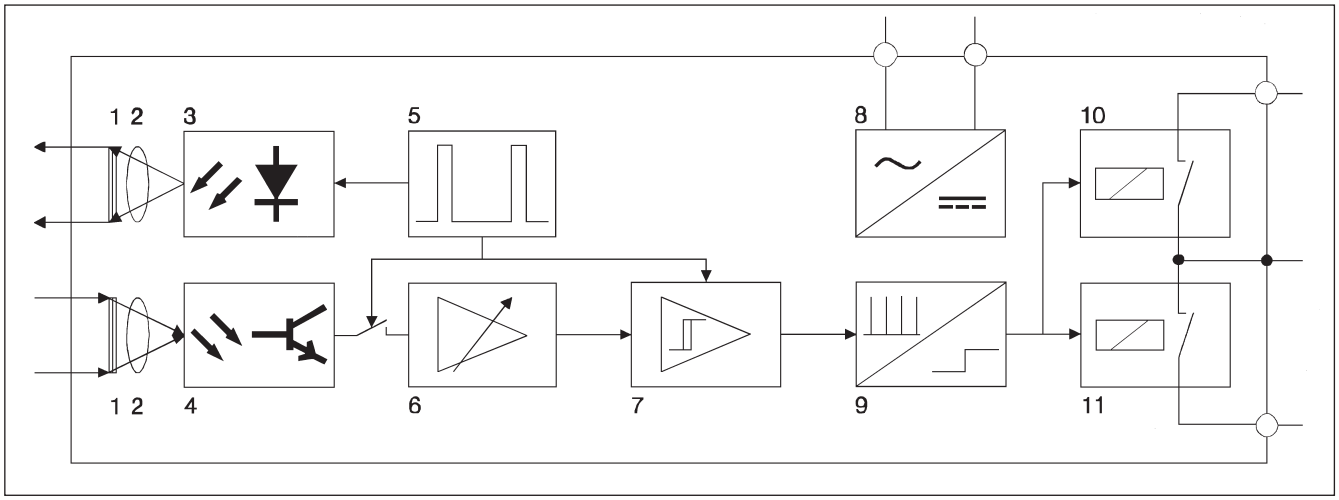
Mode of Operation

The red light beam from the emitter (3), is generated from the modulator (5), collimated in the lens (2) and polarized in the polarizor (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

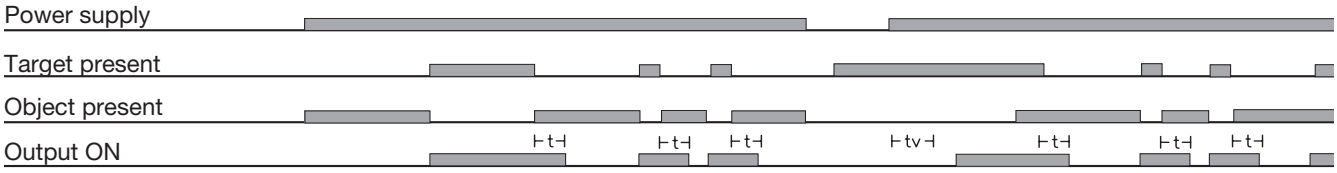


General Information about the Polarization Principle

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 ele-ment. 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.

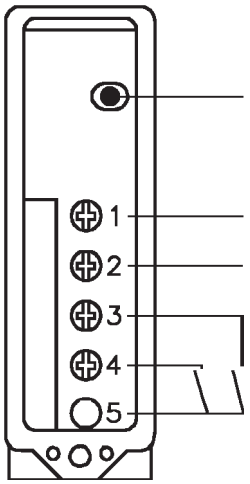
Operation Diagram

tv = Power ON delay



t approx. 40 ms

Connection Diagram



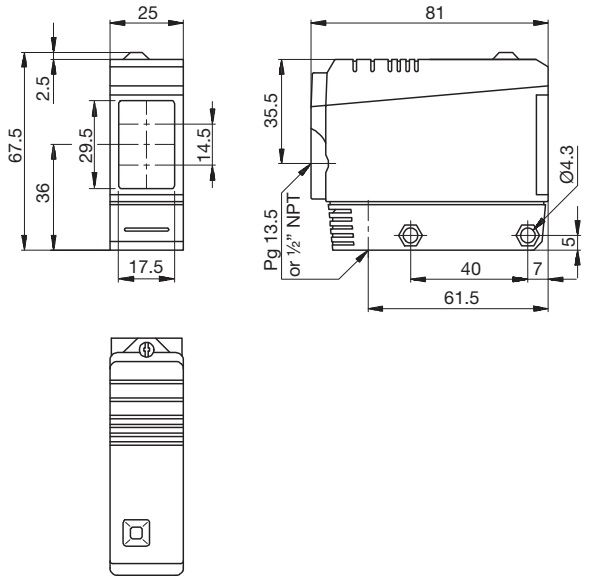
LED

24 VDC or 24 VAC, 50/60 Hz

30 VDC or 50 VAC. Max. 3 A

Pins 1 - 2	Power supply
Pins 3 - 4	Relay output
Pins 5	Test output

Dimensions



Delivery Contents

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

Accessories

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