

PMP

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

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Photoelectrics

Retro-reflective, Polarized, Transistor Output

Type PMP

CARLO GAVAZZI



- Range: 6 m
- Modulated, visible light, polarized
- Rated operational voltage: 10 to 40 VDC
- Output: 200 mA, NPN or PNP
- Make or break switching function (switch selectable)
- Fully protected
- LED-indication for target detected
- High immunity to ambient light
- 25 x 65 x 81 mm reinforced PC/ABS housing, IP 67
- Timer options (adjustable)

Product Description

Retro-reflective photoelectric switch with polarized light. Range up to 6 m. Fixed sensitivity. High immunity to ambient light. Output function switch selectable. Protection degree IP 67. Screw terminal

connection. 25 x 65 x 81 mm polycarbonate housing. PG 13.5 or 1/2" NPT cable gland. Timer options: Delay on operate, delay on release, one shot (triggered on leading or trailing edge).

Ordering Key

PMP 6 P G T

Type _____
 Range _____
 Output _____
 Cable gland type _____
 Timing function _____

Type Selection

Housing W x H x D	Range S _n	Ordering no. without timer NPN	Ordering no. without timer PNP	Ordering no. with timer NPN	Ordering no. with timer PNP
25 x 65 x 81 PG 13.5 cable gland 1/2" NPT cable gland	6 m 6 m	PMP 6N G PMP 6N I	PMP 6P G PMP 6P I	PMP 6N GT PMP 6N IT	PMP 6P GT PMP 6P IT

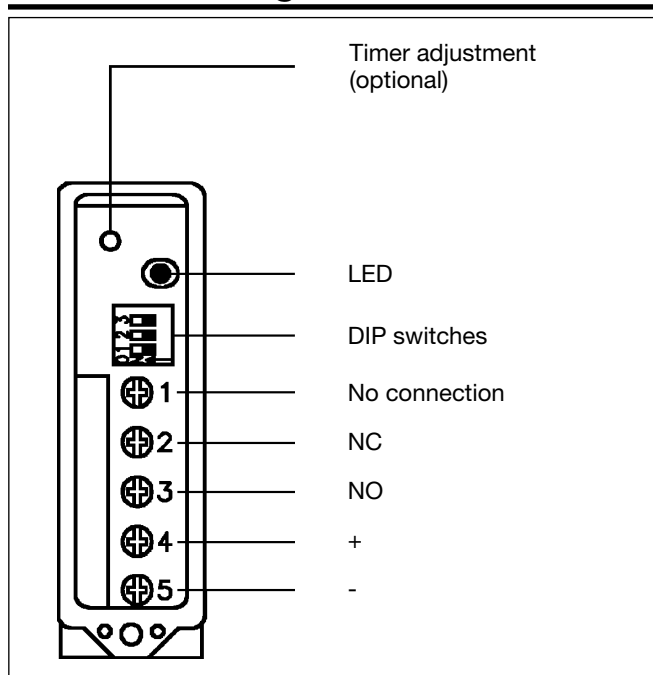
Specifications

Rated operating distance (S_n) (0 to 5,000 lux)	6 m With reflector type ER 4, ref. target	Time delay before avail. (t_v)	≤ 300 ms (typ. 100 ms)
Rated operational volt. (U_B)	10 to 40 VDC	Output function	Switch selectable, make or break switching
Ripple (U_{rpp})	10%	Indication Target detected	LED, yellow
Output current Continuous (I _a) Short-time (I)	≤ 200 mA 200 mA, max. load capacity 100 nF	Optional timer Delay on operate Delay on release One shot	0.1 to 7 s ± 2 s 0.1 to 7 s ± 2 s 0.1 to 7 s ± 2 s
No load supply current	≤ 40 mA	Environment Overvoltage category	III (IEC 60664/60664A; 60947-1)
OFF-state current (I_r)	Max. 100 μA	Pollution degree	3 (IEC 60664/60664A; 60947-1)
Voltage drop (U_d)	≤ 2.5 VDC	Degree of protection	IP 67 (IEC 60529; 60947-1)
Transient voltage	IEC 60947-5-2, level 3, 2.5 kV	Temperature Operating Storage	-25° to +55°C (-13° to +131°F) -30° to +80°C (-22° to +176°F)
Dielectric voltage	2000 VAC rms (cont./supply)	Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Sensitivity	Fixed	Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
Light source	GaAlAs, LED, 660 nm	Rated insulation voltage	50 VAC (rms)
Light type	Visible, modulated	Electrical protection	Short-circuit, reverse polarity, overvoltage, transients
Optical angle	±2°		
Light spot size	280 mm at 4 m		
Operating frequency	100 Hz		
Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 4 ms ≤ 6 ms		

Specifications (cont.)

Housing material	
Body	PC/ABS, grey
Front	PC, red
Cover	PC, black
Cable gland	PA, black, reinforced
Mounting bracket	Steel, black
Connection	
Screw terminal	5 x 2 x 1 mm ²
Cable gland	PG 13.5 or 1/2" NPT for cable 6 to 10 mm
Weight	90 g
CE-marking	Yes

Connection Diagram



Selection of Function

	Switch 1 2 3	
PMP ...		1 Break switching
		2 Make switching
PMP ...T		3 Delay on operate - Break switching
		4 Delay on operate - Make switching
		5 Delay on release - Break switching
		6 Delay on release - Make switching
		7 One shot, trailing edge - Break switching
		8 One shot, trailing edge - Make switching
		9 One shot, leading edge - Break switching
		10 One shot, leading edge - Make switching
		Don't care
		Upper position ON (Mode 1) Lower position OFF (Mode 0)

Truth Table

	Make switching		Break switching	
	Yes	No	Yes	No
Object present	Yes	No	Yes	No
LED	OFF	ON	OFF	ON
Load	Non-active	Active	Active	Non-active

Accessories

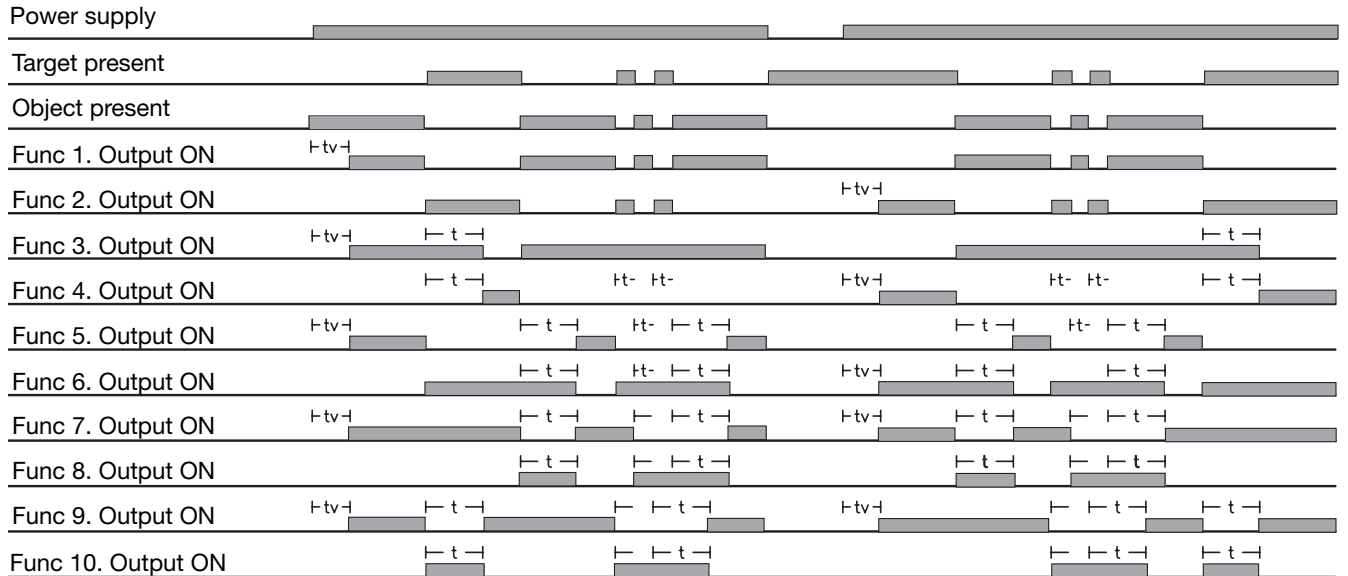
- Reflectors: ER series
- MB02 mounting bracket 90 mm long for mounting PMP from behind

Delivery Contents

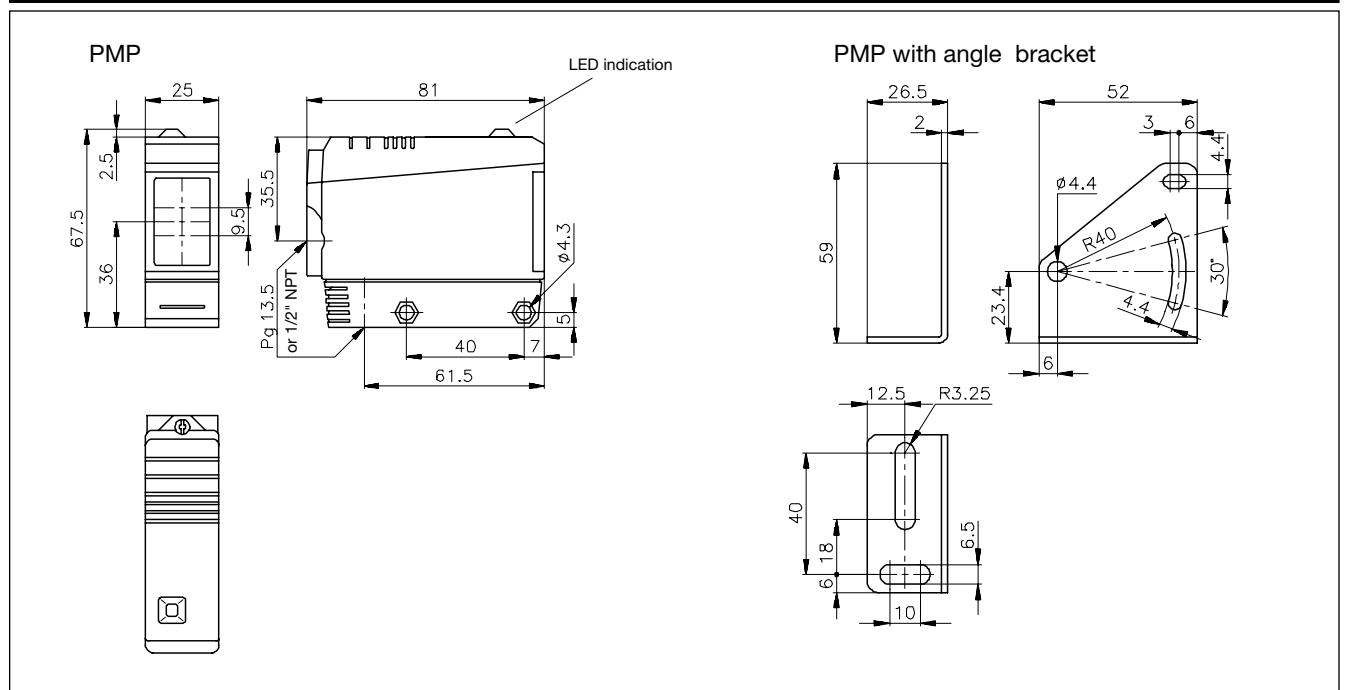
- Photoelectric switch: PMP
- Cable gland
- Installation instruction
- Mounting bracket
- **Packaging:** Corrugated cardboard (environmentally friendly recycling material)

Operation Diagram

t = Time delay
tv = Power ON delay



Dimensions



Photoelectrics

Retro-reflective, Polarized, Relay Output

Type PMP

CARLO GAVAZZI



- Range: 6 m
- Modulated, visible light, polarized
- Make or break switching function (switch selectable)
- LED-indication for target detected
- Multi supply voltage:
12 to 240 VDC and
24 to 240 VAC, 50/60 Hz
- 25 x 65 x 81 mm reinforced PC/ABS- housing, IP 67
- Timer options (adjustable)
- NO and NC output



Product Description

Retro-reflective photoelectric switch with polarized light. Range up to 6 m. Fixed sensitivity. Immune to ambient light. Output function switch selectable. Protection degree IP 67. Screw terminal connec-

tion. 25 x 65 x 81 mm plastic housing, PG 13.5 or 1/2" NPT cable gland. Timer options: Delay on operate, delay on release, one shot (triggered on leading or trailing edge).

Ordering Key

PMP 6 R G T

Type _____
 Range _____
 Output _____
 Cable gland type _____
 Timer function _____

Type Selection

Housing W x H x D	Range (S _n)	Ordering no. with timer
25 x 65 x 81 PG 13.5 cable gland 1/2" NPT cable gland	6 m 6 m	PMP 6R GT PMP 6R IT

Specifications

Rated operating dist. (S _n) (0 to 5,000 lux)	PMP6.. 6 m with reflector type ER 4, ref. target	Operating frequency	20 Hz
Blind zone	≤ 0.15 m	Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 20 ms ≤ 30 ms
Rated operational volt. (U _B) AC: 45 to 65 Hz	10.8 to 264 VDC 21.6 to 264 VAC	Power ON delay (t _v)	≤ 300 ms (typ. 100 ms)
Rated operational power (relay ON)	≤ 2 W (2.5 VA)	Output function	Switch selectable, make or break switching
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 ≥ 40 x 10 ⁶ operations ≥ 5 x 10 ⁵ operations at 220 VAC - 3 A resistive load: 360 impulses/h	Indication Target detected	LED, yellow
Dielectric voltage	2,000 VAC (rms) (cont./supply)	Optional timer Delay on operate Delay on release One shot	0.1 to 7 s ± 2 s 0.1 to 7 s ± 2 s 0.1 to 7 s ± 2 s
Sensitivity	Fixed	Environment Overvoltage category Pollution degree Degree of protection	III (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 67 (IEC 60529; 60947-1)
Light source Light type Optical angle Light spot size	GaAlAs, LED, 660 nm Visible, modulated ±2° 280 mm at 4 m	Temperature Operating Storage	-25° to +55°C (-13° to +131°F) -30° to +80°C (-22° to +176°F)

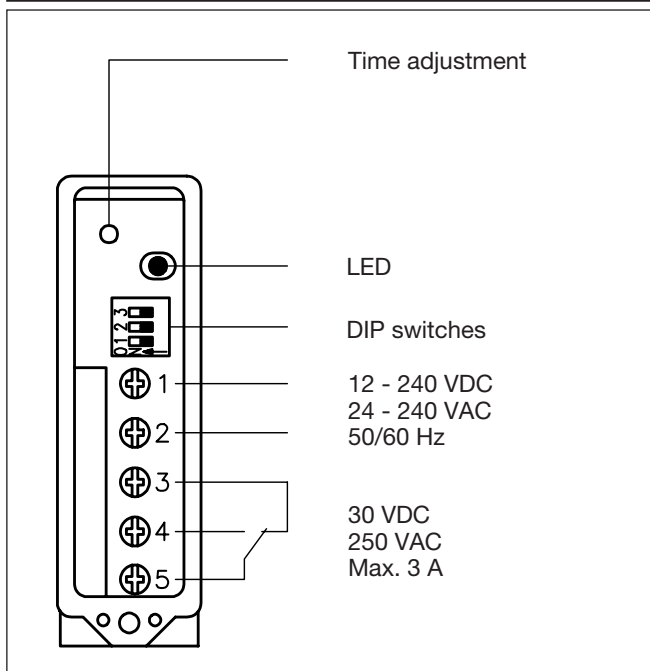
Specifications (cont.)

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 (rms)
Housing material	PC/ABS, grey Front PMMA, red Cover PC, black Cable gland PA, black, reinforced Mounting bracket Steel, black
Connection	Screw terminal 5 x 2 x 1 mm ² Cable gland PG 13.5 or 1/2" NPT for cable 6 to 10 mm
Weight	110 g
Approvals	UL, CSA
CE-marking	Yes

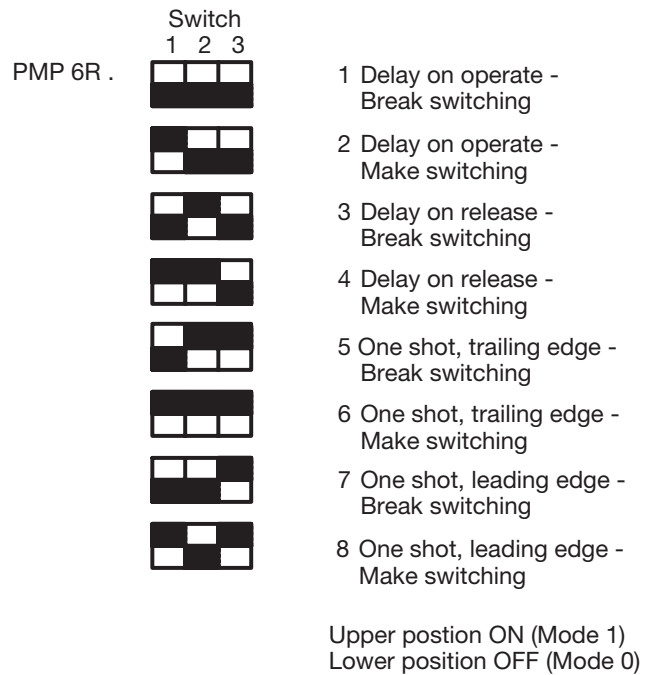
Truth Table

	Make switching		Break switching	
Object present	Yes	No	Yes	No
LED	OFF	ON	OFF	ON
Load	Non-active	Active	Active	Non-active

Connection Diagram



Selection of Function

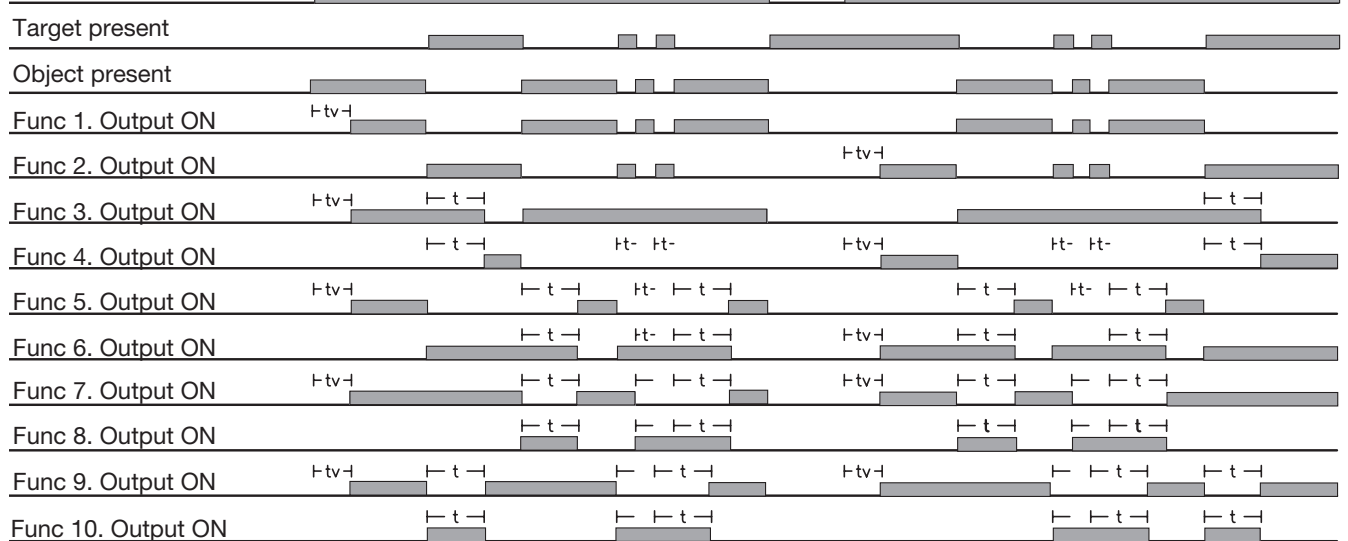


Installation Hints

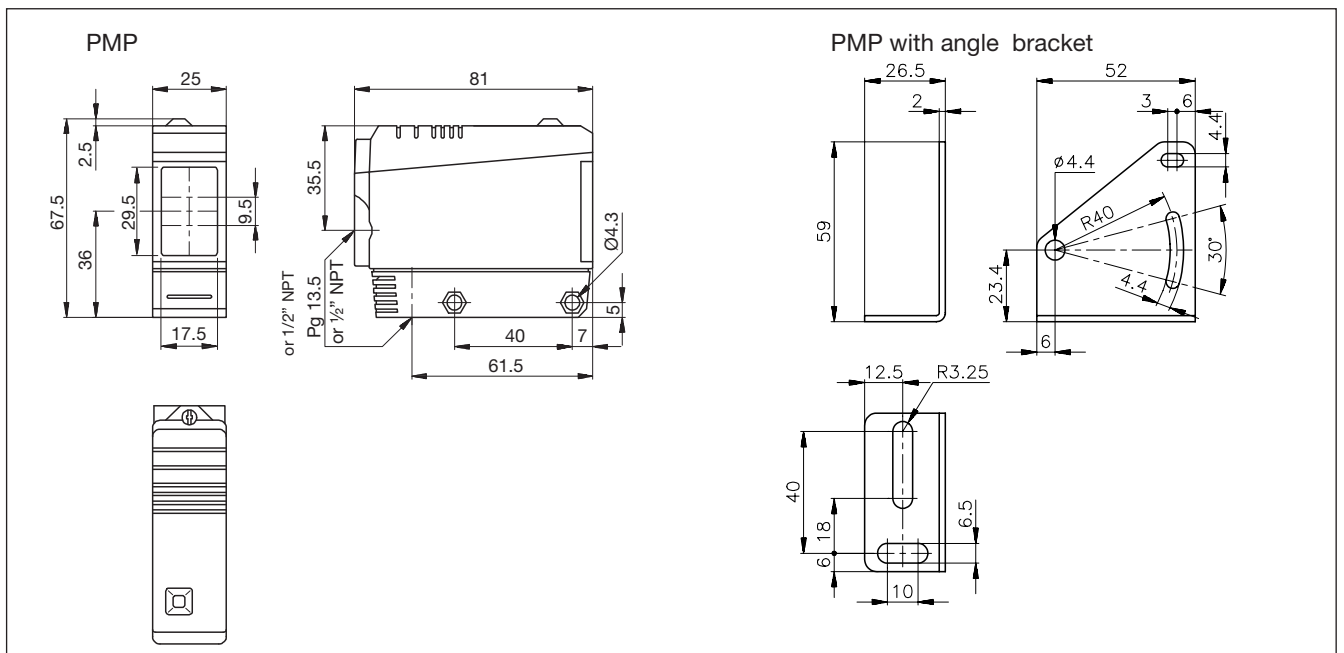
<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p>	<p>Relief of cable strain</p> <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing 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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Operation Diagram

t = Time delay
 tv = Power ON delay
 Power supply



Dimensions



Accessories

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

Delivery Contents

- Photoelectric switch: PMP
- Cable gland
- Installation instruction
- Mounting bracket
- **Packaging:** Corrugated cardboard (environmentally friendly recycling material)

Photoelectrics

Special Function, Industrial Door Market

Type PMP12RS, Retro-reflective, Polarized

CARLO GAVAZZI



- 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 _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	Power ON delay (t _v)	≤ 300 ms (typ. 100 ms)
Blind zone	Max. 15 cm	Output function Positive safety	2 relays connected in series Contact NO
Sensitivity	fixed	Indication Target detected	LED, yellow
Temperature drift	≤ 0.4%/°C	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)
Differential travel (H) (Hysteresis)	3 to 20%	Temperature Operating Storage	-25° to +55°C (-13° to +131°F) -30° to +80°C (-22° to +176°F)
Rated operational voltage (U _n)	24 ±20% VDC 24 ±20% VAC, 45 to 65 Hz	Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Rated operational power (relay ON)	≤ 2 W (2.5 VA)	Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
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	Rated insulation voltage	250 VAC (IEC 60364-4-41)
Protection	Reverse polarity, transients	Housing material Body Front Cover Cable gland Mounting bracket	PC/ABS, grey, reinforced PMMA, red PC, black PA, black, reinforced Steel, galvanized
Light source Light type Optical angle Ambient light	GaAlAs, LED, 660 nm Visible, modulated ± 1.5° Max. 5'000 lux	Connection Screw terminal Cable gland	4 x 2 x 1 mm ² PG 13.5 for cable, 6 to 10 mm
Operating frequency	14 Hz	Weight	110 g
Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 20 ms ≤ 30 ms	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 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).

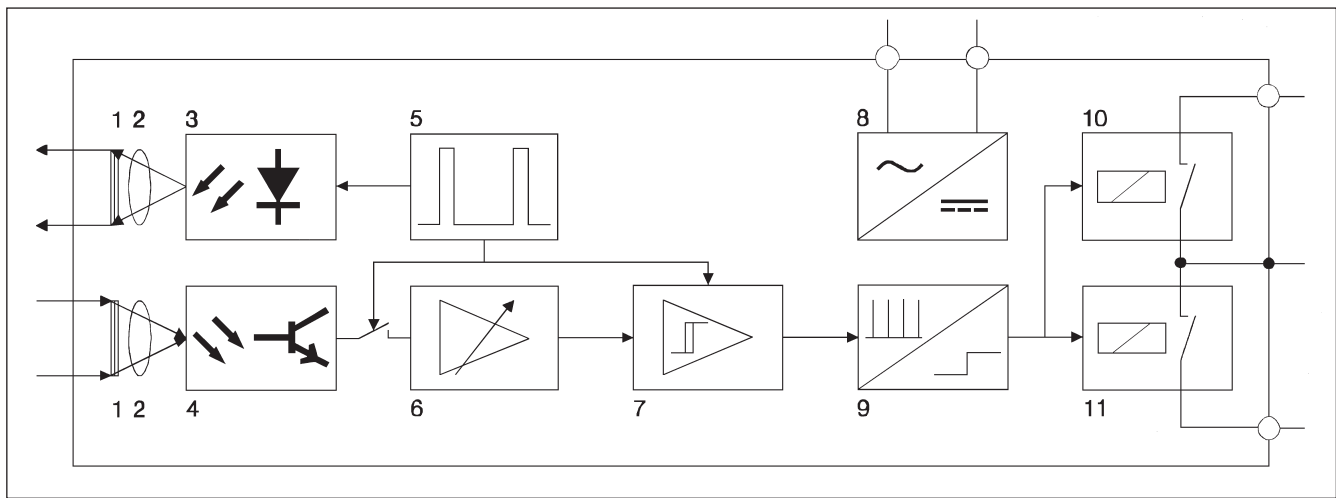
The received signal is amplified by the amplifier (6), and the modulated impulses are synchronized and detected

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 con-

nected 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

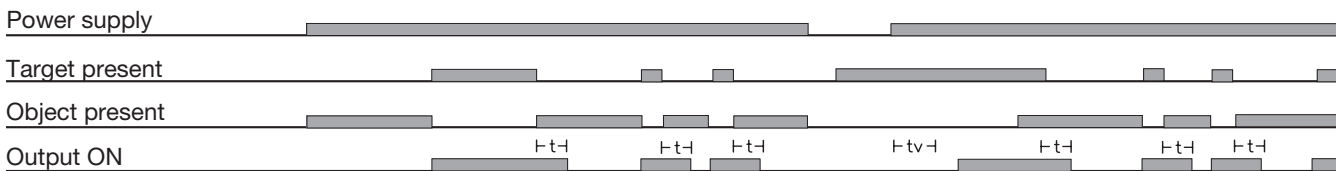
polarizing filter. The triple reflector turns the polarization 90 degrees and reflects the beam. The 90 degree turned reflected light then passes a second polarizing filter which enables only horizon-

tally 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.

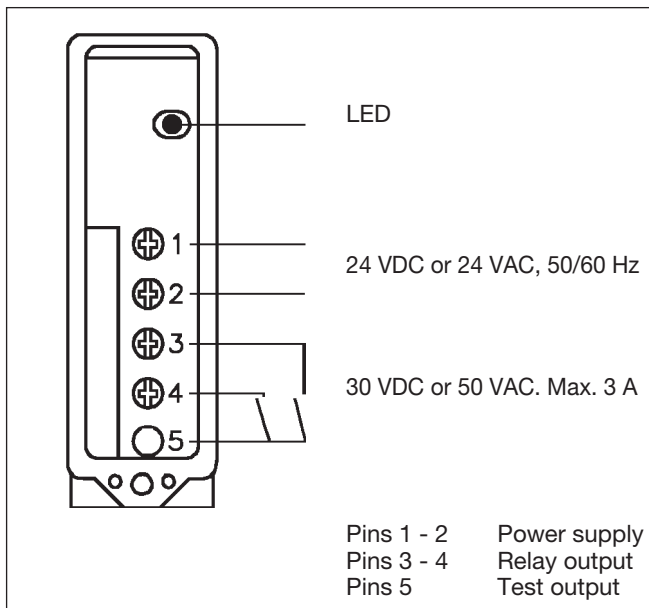
Operation Diagram

tv = Power ON delay

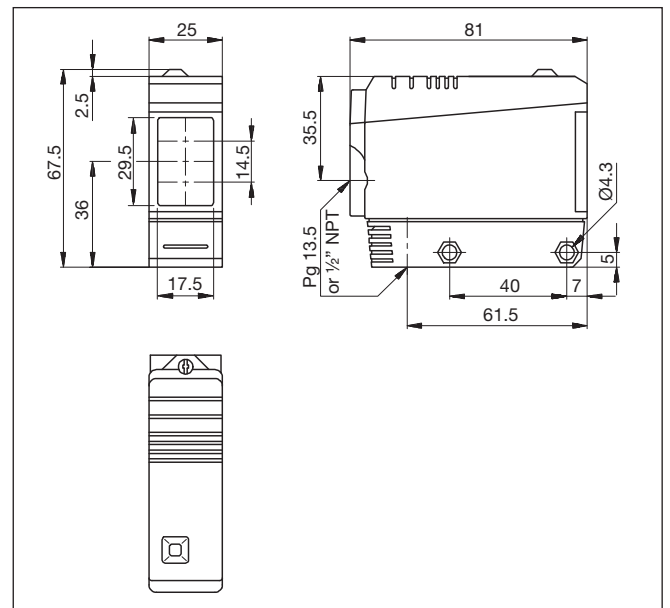


t approx. 40 ms

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)

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