

# PMR

## Технические характеристики

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# Photoelectrics

## Retro-reflective, Transistor Output

### Type PMR



- Range: 10 m
- Modulated, infrared light
- 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 housing, IP 67
- Timer options (adjustable)



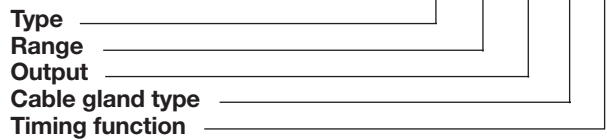
### Product Description

Retro-reflective photoelectric switch. Range up to 10 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

**PMR 10 P G T**



### Type Selection

Housing W x H x D	Range S <sub>n</sub>	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	10 m	PMR 10N G	PMR 10P G	PMR 10N GT	PMR 10P GT
1/2" NPT cable gland	10 m	PMR 10N I	PMR 10P I	PMR 10N IT	PMR 10P IT

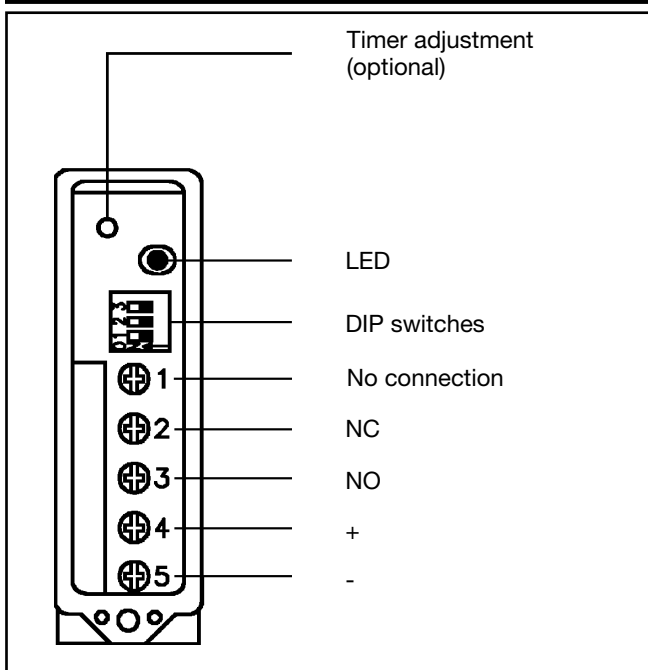
### Specifications

<b>Rated operating distance (S<sub>n</sub>)</b> (0 to 5,000 lux)	10 m With reflector type ER 4, ref. target	<b>Time delay before avail. (t<sub>v</sub>)</b>	≤ 300 ms (typ. 100 ms)
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 40 VDC	<b>Output function</b>	Switch selectable, make or break switching
<b>Ripple (U<sub>rpp</sub>)</b>	10%	<b>Indication</b>	Target detected LED, yellow
<b>Output current</b>		<b>Optional timer</b>	
Continuous (I <sub>a</sub> )	≤ 200 mA	Delay on operate	0.1 to 7 s ± 2 s
Short-time (I)	200 mA,	Delay on release	0.1 to 7 s ± 2 s
max. load capacity	100 nF	One shot	0.1 to 7 s ± 2 s
<b>No load supply current</b>	≤ 40 mA	<b>Environment</b>	
<b>OFF-state current (I<sub>r</sub>)</b>	Max. 100 μA	Overvoltage category	III (IEC 664/664A; 947-1)
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2.5 VDC	Pollution degree	3 (IEC 664/664A; 947-1)
<b>Transient voltage</b>	IEC 947-5-2, level 3, 2.5 kV	Degree of protection	IP 67 (IEC 529; 947-1)
<b>Dielectric voltage</b>	2000 VAC rms (cont./supply)	<b>Temperature</b>	
<b>Sensitivity</b>	Fixed	Operating	-25° to +55°C (-13° to +131°F)
<b>Light source</b>	GaAIAs, LED, 880 nm	Storage	-30° to +80°C (-22° to +176°F)
<b>Light type</b>	Infrared, modulated	<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 68-2-6)
<b>Optical angle</b>	±2°	<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 68-2-32)
<b>Light spot size</b>	280 mm at 4 m	<b>Rated insulation voltage</b>	50 VAC (rms)
<b>Operating frequency</b>	100 Hz	<b>Electrical protection</b>	Short-circuit, reverse polarity, overvoltage, transients
<b>Response time</b>			
OFF-ON (t <sub>ON</sub> )	≤ 4 ms		
ON-OFF (t <sub>OFF</sub> )	≤ 6 ms		

## Specifications (cont.)

<b>Housing material</b>	
Body	PC, grey
Front	PC, black
Cover	PC, black
Cable gland	PA, black, reinforced
Mounting bracket	Steel, black
<b>Connection</b>	
Screw terminal	5 x 2 x 1 mm <sup>2</sup>
Cable gland	PG 13.5 or 1/2" NPT for cable 6 to 10 mm
<b>Weight</b>	
	90 g

## Connection Diagram



## Selection of Function

	Switch 1 2 3	
PMR ...		1 Break switching
		2 Make switching
PMR ... 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

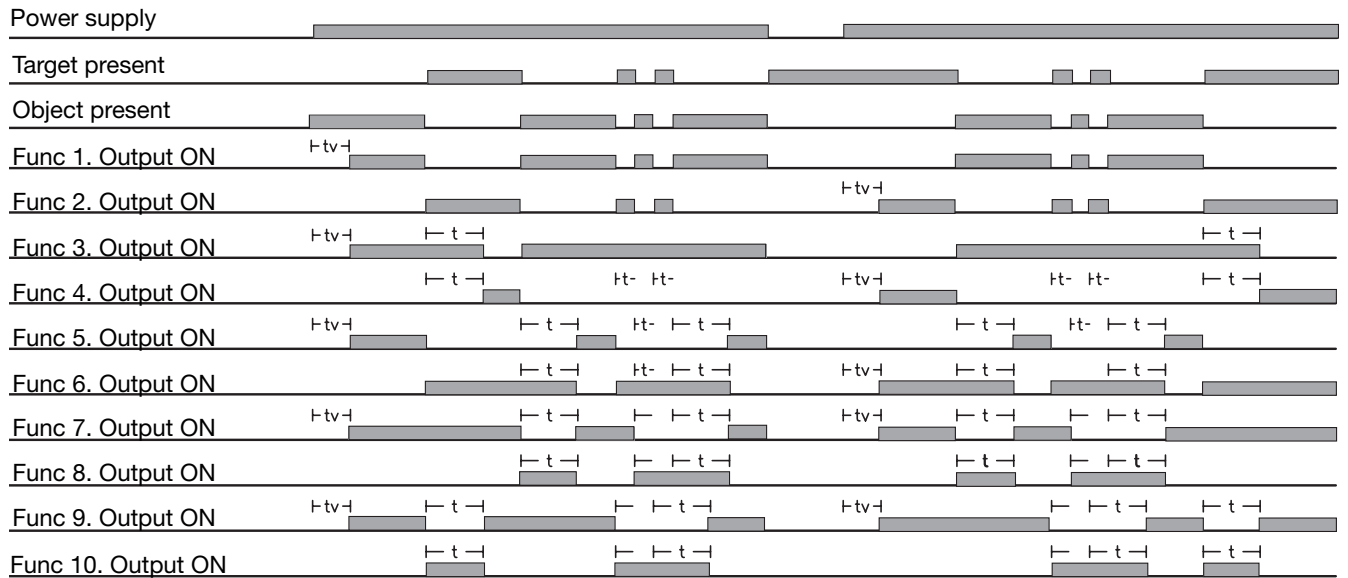
- Reflectors: ER series
- MB02 mounting bracket 90 mm long for mounting PMR from behind

## Delivery Contents

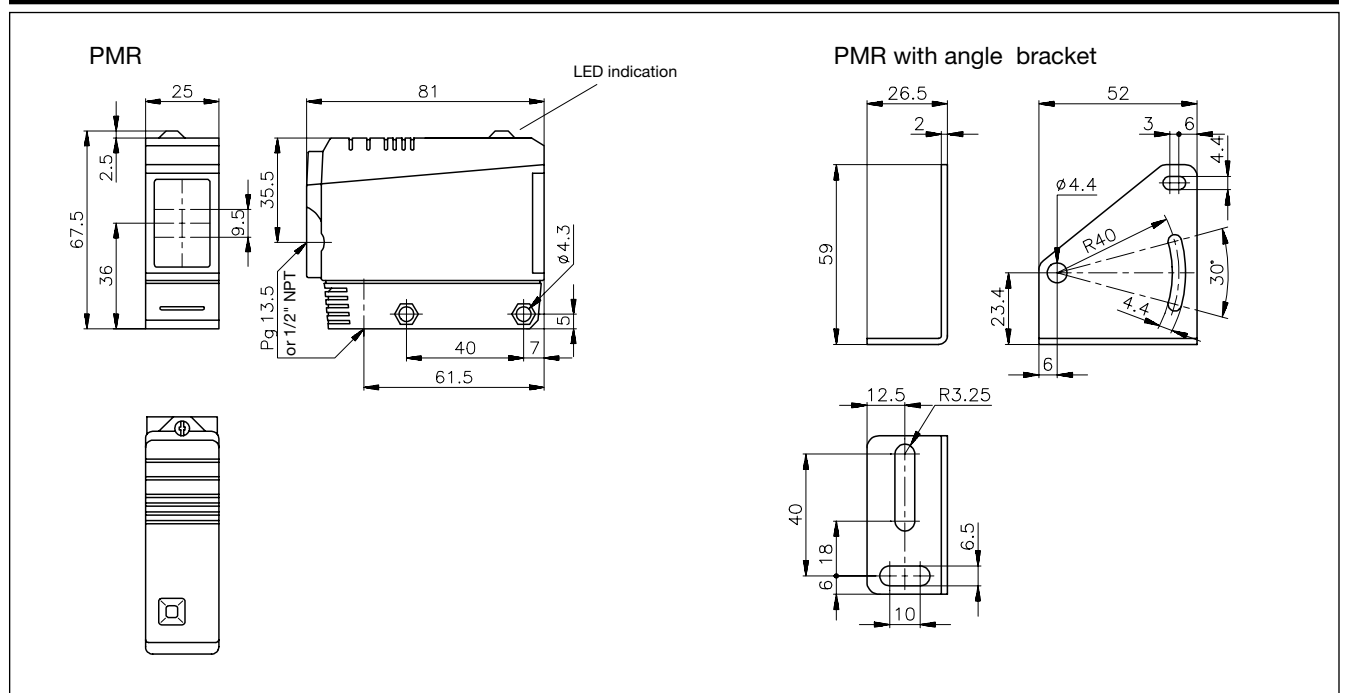
- Photoelectric switch: PMR
- Cable gland
- Installation instruction
- Mounting bracket
- **Packaging:** Corrugated cardboard (environmentally friendly recycling material)

## Operation Diagram

t = Time delay  
tv = Power ON delay



## Dimensions



# Photoelectrics Retro-reflective, Relay Output Type PMR

CARLO GAVAZZI



- Range: 10 m
- Modulated, infrared light
- 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 housing, IP 67
- Timer options (adjustable)
- NO and NC output



## Product Description

Retro-reflective photoelectric switch. Range up to 10 m. Fixed sensitivity. Immune to ambient light. Output function switch selectable. Protection degree IP 67. Screw terminal connection. 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

**PMR10R G T**

Type \_\_\_\_\_  
PG 13.5 cable gland \_\_\_\_\_  
Option: Timer function \_\_\_\_\_

## Type Selection

Housing W x H x D	Range S <sub>n</sub>	Ordering no. without timer	Ordering no. with timer
25 x 65 x 81 PG 13.5 cable gland	10 m	PMR 10R G	PMR 10R GT
1/2" NPT cable gland	10 m	PMR 10R I	PMR 10R IT

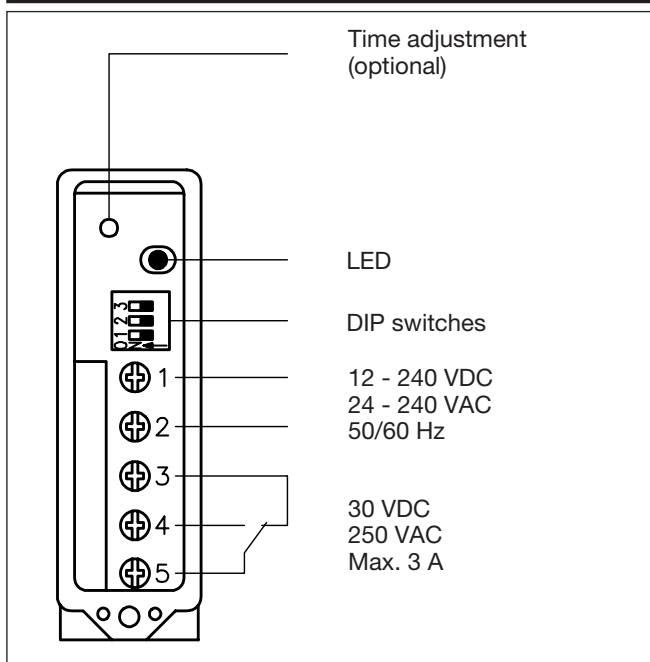
## Specifications

<b>Rated operating dist.</b> (S <sub>n</sub> ) (0 to 5,000 lux)	PMR10.. 10 m with reflector type ER 4, ref. target	<b>Light spot size</b>	280 mm at 4 m
<b>Rated operational volt.</b> (U <sub>B</sub> ) (AC: 45 to 65 Hz)	10.8 to 264 VDC 21.6 to 264 VAC	<b>Operating frequency</b> (f)	20 Hz
<b>Rated operational power</b> (Relay ON)	≤ 1.5 W (2.0 VA)	<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 20 ms ≤ 30 ms
<b>Output</b> Contact ratings (AgCdO) Resistive loads AC 1 DC 1 Small inductive loads AC 15 DC 13	μ (micro gap) 3 A/250 VAC 3 A/30 VDC 2 A/250 VAC 3 A/30 VDC	<b>Power ON delay</b> (t <sub>v</sub> )	≤ 300 ms (typ. 100 ms)
Mechanical life Electrical life	≥ 40 x 10 <sup>6</sup> operations ≥ 5 x 10 <sup>5</sup> operations at 220 VAC - 3 A resistive load: 360 impulses/h	<b>Output function</b>	Switch selectable, make or break switching
<b>Dielectric voltage</b>	2000 VAC rms (cont./supply)	<b>Indication</b> Target detected	LED, yellow
<b>Sensitivity</b>	Fixed	<b>Optional timer</b> 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
<b>Light source</b>	GaAlAs, LED, 880 nm	<b>Environment</b> 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)
<b>Light type</b>	Infrared, modulated	<b>Temperature</b> Operating Storage	-25° to +55°C (-13° to +131°F) -30° to +80°C (-22° to +176°F)
<b>Optical angle</b>	±2°		

## Specifications (cont.)

<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
<b>Rated insulation voltage</b>	250 VAC (rms)
<b>Housing material</b>	
Body	PC, grey
Front	PC, black
Cover	PC, black
Cable gland	PA, black, reinforced
Mounting bracket	Steel, black
<b>Connection</b>	
Screw terminal	5 x 2 x 1 mm <sup>2</sup>
Cable gland	PG 13.5 or 1/2" NPT for cable 6 to 10 mm
<b>Weight</b>	110 g
<b>Approvals</b>	UL, CSA
<b>CE-marking</b>	Yes

## Connection Diagram



## Selection of Function

Switch  
1 2 3

PMR 10R .

PMR 10R .T

1 Break switching

2 Make switching

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

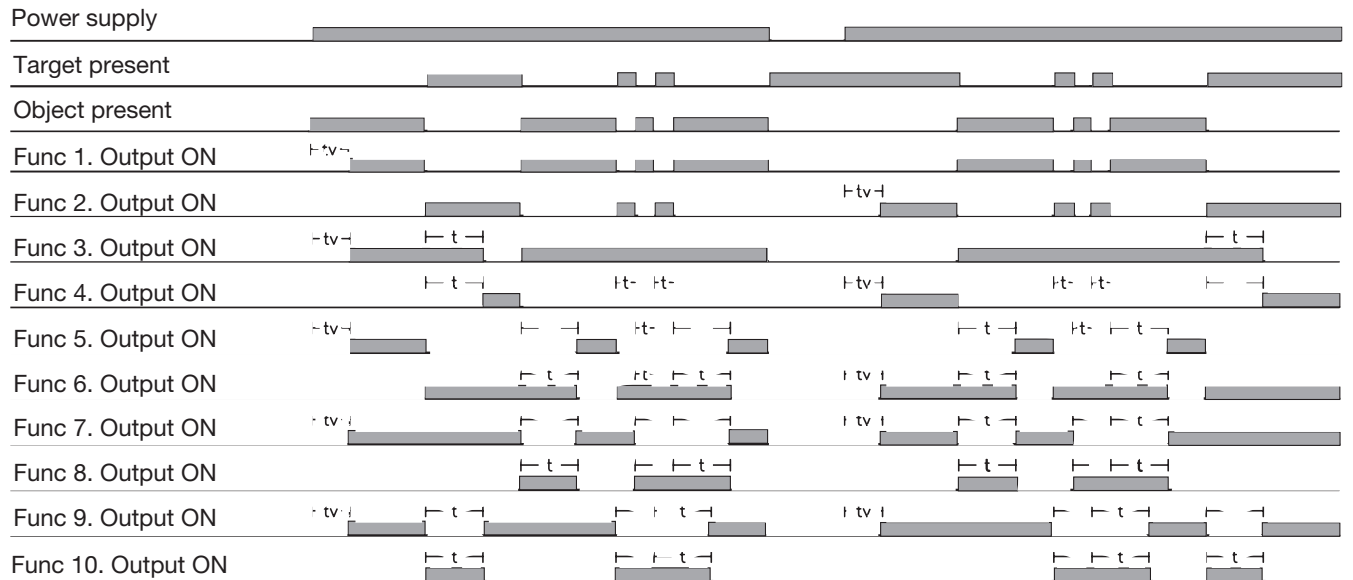
	Make switching		Break switching	
	Yes	No	Yes	No
Object present	Yes	No	Yes	No
LED	OFF	ON	OFF	ON
Load	Non-active	Active	Active	Non-active

## Installation Hints

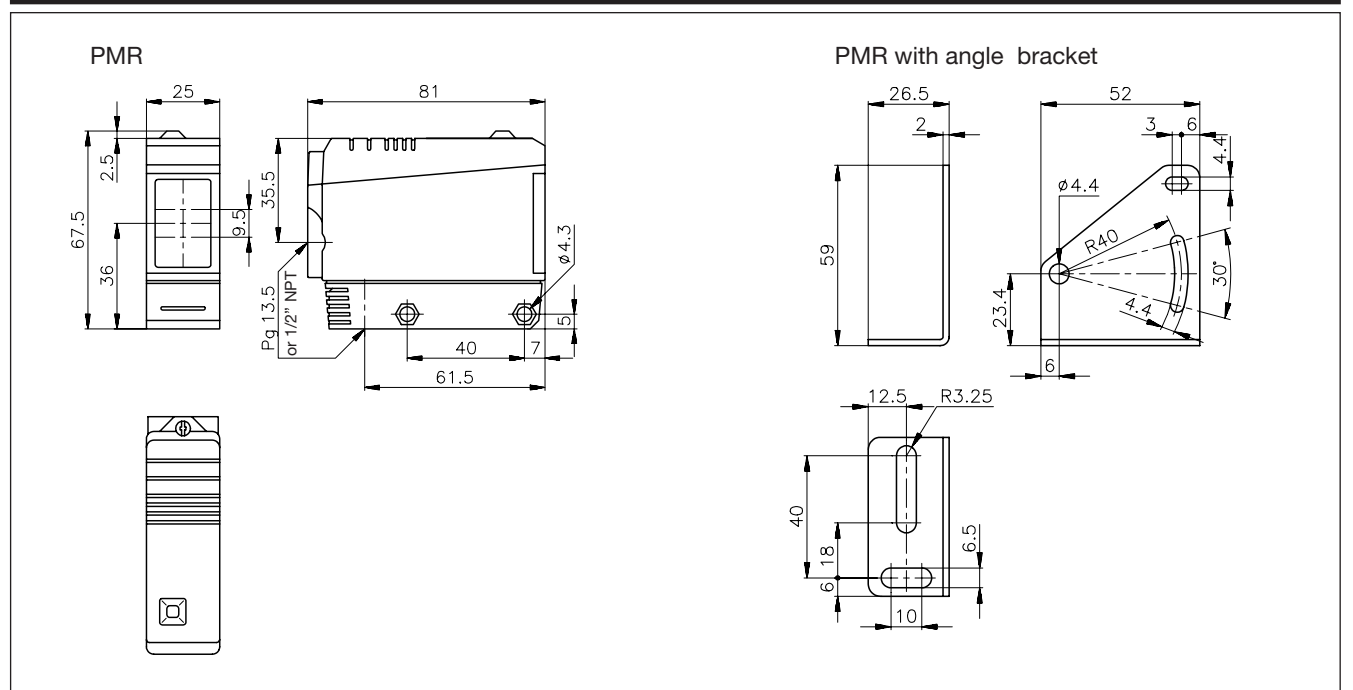
<p>To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables</p>	<p>Relief of cable strain</p> <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing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



## Dimensions



## Accessories

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

For further information refer to "Accessories"

## Delivery Contents

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

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