

# Photoelectrics

## Retro-reflective, Industrial Door Market

### Type PD86, Polarized, Relay Output, Mute Input

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- Range: 12 m @ ER 4 (15 m @ ER100)
- Modulated, visible light, polarized
- Make or break switching function, selectable by DIP-switch
- Active high or active low mute function (switch selectable)
- LED-indication for target detected and power
- Multi supply voltage: 12-24 VDC/VAC, 50/60 Hz
- 86 x 44 x 39 mm reinforced PC/ABS-housing, IP 66
- SPST relay output
- High EMC and ambient light immunity
- CE, UL325 and UL508 approved



## Product Description

The PD86 is a powerful polarized retro reflective sensor. The sensor is designed to meet the harsh requirements in industrial door and gate environments. With a sensing distance of 12 m, the sensor is useful in applications where dust and weather conditions

will influence on the sensing distance. The sensor is made of a strong glass reinforced PC housing. With the mute input, the sensor fulfills European and North American regulations for industrial doors.

## Ordering Key

**PD86CNP12QPMU**

Type \_\_\_\_\_  
Housing style \_\_\_\_\_  
Housing size \_\_\_\_\_  
Housing material \_\_\_\_\_  
Not used \_\_\_\_\_  
Detection principle \_\_\_\_\_  
Sensing distance \_\_\_\_\_  
Supply voltage \_\_\_\_\_  
Output Function \_\_\_\_\_  
Mute function \_\_\_\_\_

## Type Selection

Housing W x H x D	Range (S <sub>n</sub> )	Ordering no.
86 x 44 x 39 mm	12 m	PD86CNP12QPMU

## Specifications

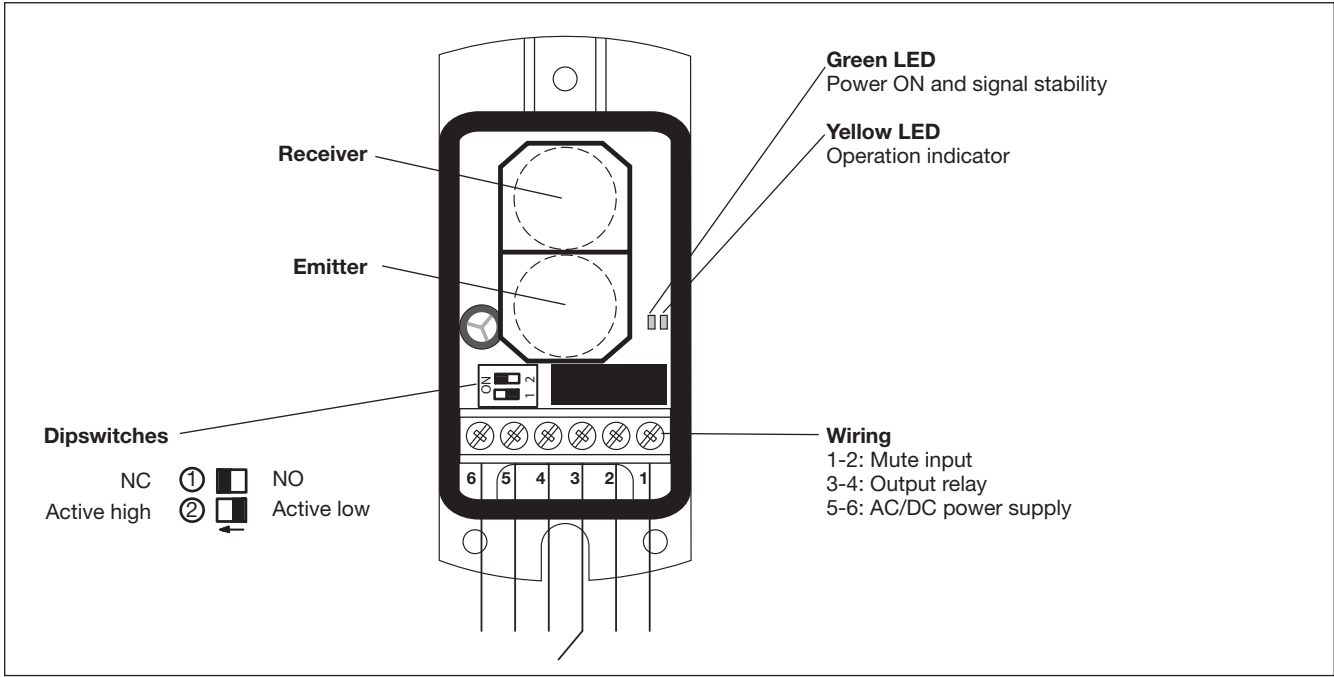
<b>Rated operating dist.</b> (S <sub>n</sub> )	12 m @ ER4 ref. target (0 to 5,000 lux)	<b>Dielectric voltage</b>	1,000 VAC (rms) (cont./supply)
<b>Blind zone</b>	≤ 0.15 m	<b>Light source</b>	GaAlAs, LED, 660 nm
<b>Sensitivity</b>	Fixed	<b>Light type</b>	Visible, modulated
<b>Temperature drift</b>	≤ 0.6 %/°C	<b>Optical angle</b>	± 1.5°
<b>Differential travel</b> (H) Hysteresis	3 to 20%	<b>Light spot size</b>	280 mm at 4 m
<b>Rated operational volt.</b> (U <sub>B</sub> ) AC: 45 to 65 Hz	12-24 VDC, - 15% +20% 12-24 VAC, - 15% +20%	<b>Ambient light</b>	Max. 5,000 lux
<b>Rated operational power</b> (Relay ON)	12 VAC 648 mW 24 VAC 1680 mW 12 VDC 324 mW 24 VDC 840 mW	<b>Operating frequency</b>	20 Hz
<b>Output</b>		<b>Response time</b> (object related) OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 20 ms ≤ 30 ms
Contact ratings (AgCdO)	μ (micro gap)	<b>Power ON delay</b> (t <sub>v</sub> )	≤ 300 ms (typ. 100 ms)
Resistive loads AC 1	0.5 A/30 VAC	<b>DIP-switch Selectable functions</b>	
DC 1	1 A/30 VDC	Mute input	active high or active low
Small inductive loads AC 15	0.5 A/50 VAC	Relay output	NO (make) or NC (break)
DC 13	1 A/30 VDC	<b>Mute function</b>	
Mechanical life (typical)	≥ 1,000 000 cycles	Active high	≥ 12 VDC/VAC
Electrical life (typical)	> 100,000 AC11 or DC11	Response time	< 45 ms
Minimum load power	1 mW	Hold time	< 70 ms
		Active low	< 6 VDC/VAC
		Response time	< 70 ms
		Hold time	< 45 ms
		<b>Max current</b>	35 mA @ 24 VDC 70 mA @ 24 VAC



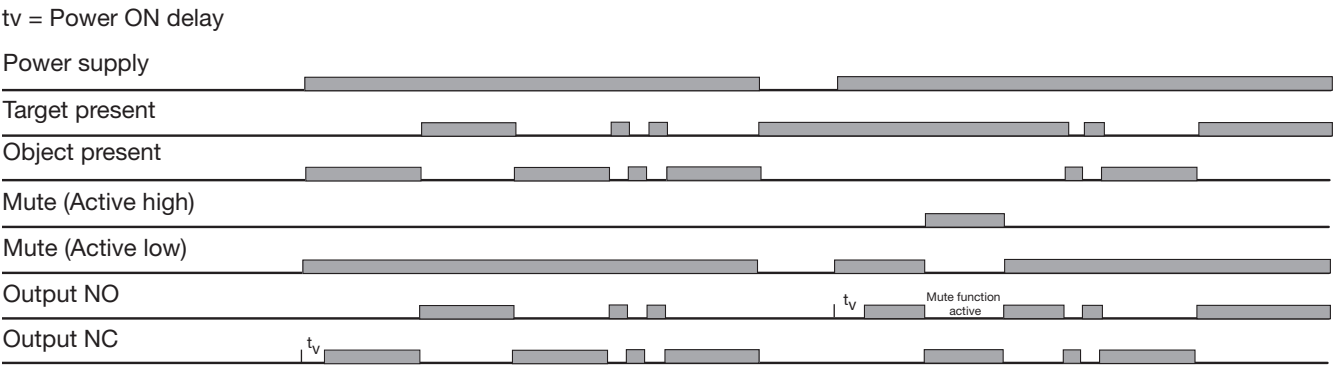
Specifications (cont.)

<b>Indication</b> Target detected Power Signal	LED, yellow LED, green LED, green	<b>Rated insulation voltage</b>	250 VAC (rms)
<b>Environment</b> Overvoltage category  Pollution degree  Degree of protection	III (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 66 (IEC 60529; 60947-1)	<b>Housing material</b> Outer cover Inner cover Backpart Cable outlet	PC, grey PMMA, red ABS, black Kraiburg TC5MLZ or TP5VCZ
<b>Temperature</b> Operating Storage	-25° to +60°C (-76° to +140°F) -35° to +80°C (-31° to +176°F)	<b>Connection</b> Screw terminal One entry	6 x 1.5 mm² terminal block for cable 3 to 6.5 mm
<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	<b>Weight</b>	110 g
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)	<b>UL-Approval</b>	UL325, UL508
		<b>CE-marking</b>	Yes EN12453, EN12445, EN12978

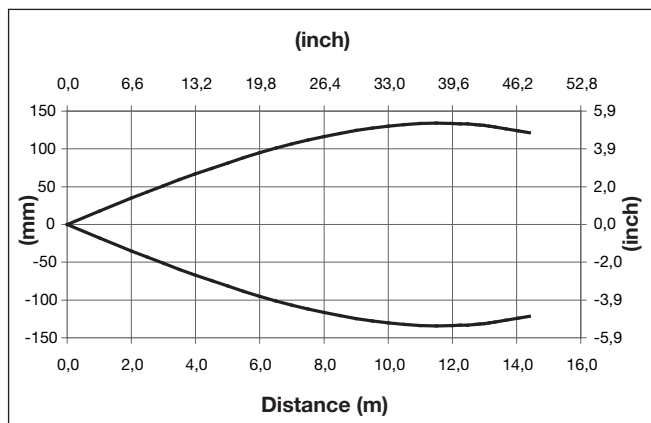
Wiring Diagram



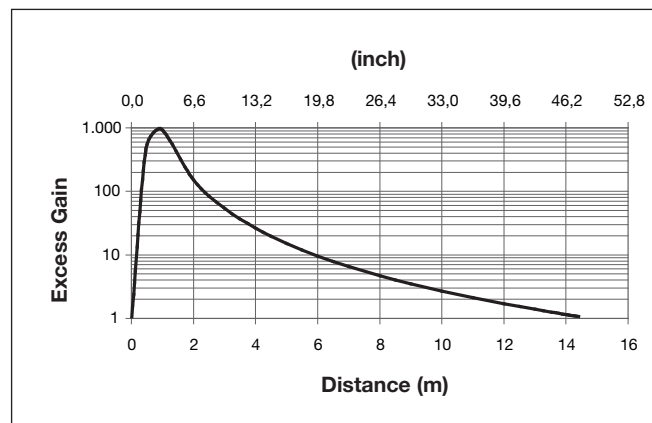
Operation Diagram



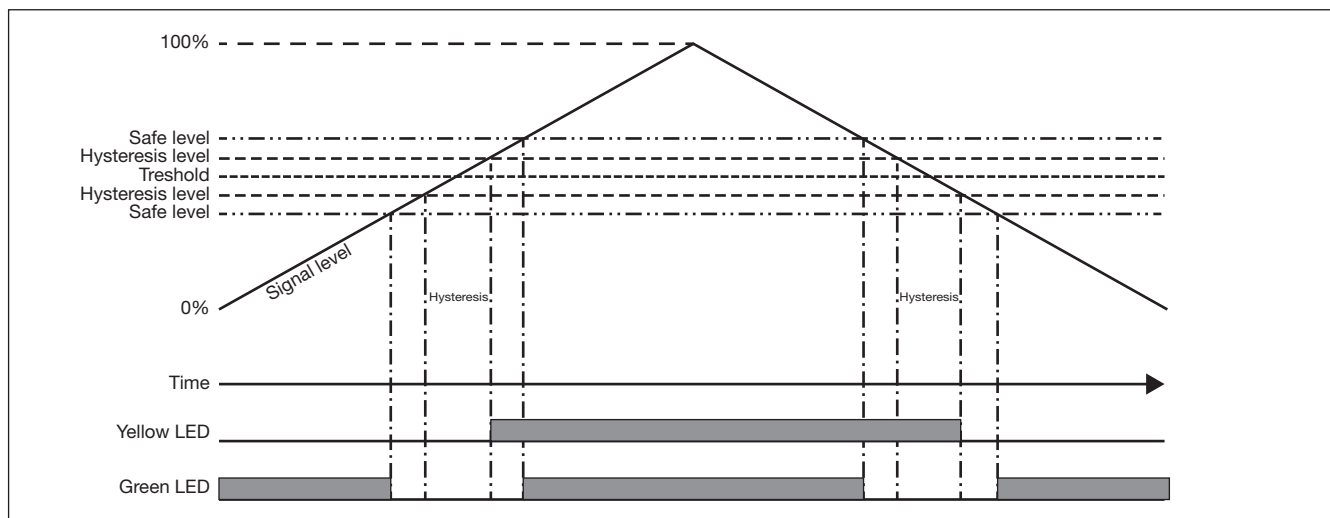
## Detection Diagram



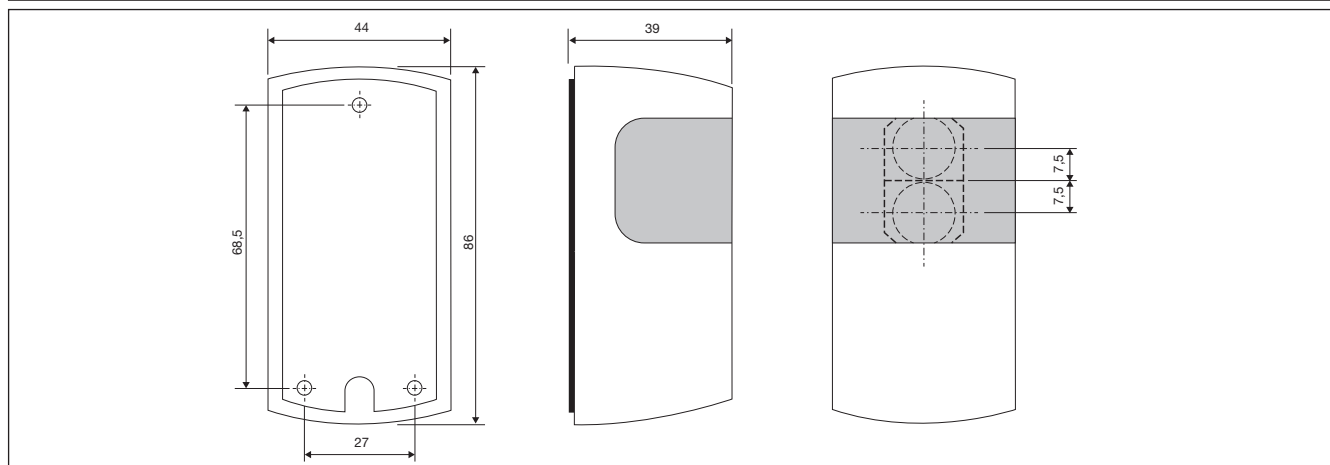
## Excess Gain



## LED



## Dimensions





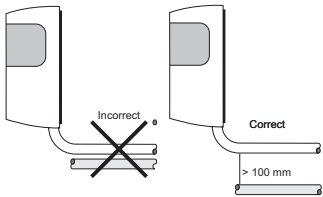
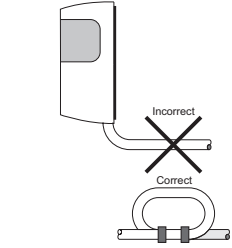
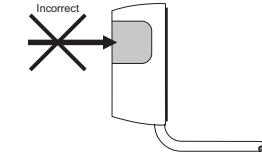
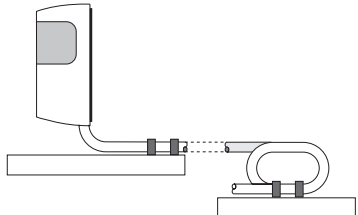
Delivery Contents

- Photoelectric switch: PD86CNP12QPMU
- Screws and rawlplugs
- Installation instruction
- **Packaging:** Cardboard box

Accessories

- Reflectors: ER series

Installation Hints

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