Photoelectrics
Retro-reflective, Industrial Door Market
Type PD86, Polarized, Relay Output, Mute Input



- **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 its mute input, the sensor fulfils 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_n)	Ordering no.
86 x 44 x 39 mm	12 m	**PD86CNP12QPMU**

Specifications

Rated operating dist. (S_n)		12 m @ ER4 ref. target (0 to 5,000 lux)
Blind zone		≤ 0.15 m
Sensitivity		Fixed
Temperature drift		≤ 0.6 %/°C
Differential travel (H)		
Hysteresis		3 to 20%
Rated operational volt. (U_B)		12-24 VDC, - 15% +20%
AC: 45 to 65 Hz		12-24 VAC, - 15% +20%
Rated operational power		
(Relay ON)	12 VAC	648 mW
	24 VAC	1680 mW
	12 VDC	324 mW
	24 VDC	840 mW
Output		
Contact ratings (AgCdO)		µ (micro gap)
Resistive loads	AC 1	0.5 A/30 VAC
	DC 1	1 A/30 VDC
Small inductive loads	AC 15	0.5 A/50 VAC
	DC 13	1 A/30 VDC
Mechanical life (typical)		≥ 1,000 000 cycles
Electrical life (typical)		> 100,000 AC11 or DC11 1,800 operations per hour
Minimum load power		1 mW

Dielectric voltage	1,000 VAC (rms) (cont./supply)
Light source	GaAlAs, LED, 660 nm
Light type	Visible, modulated
Optical angle	± 1.5°
Light spot size	280 mm at 4 m
Ambient light	Max. 5,000 lux
Operating frequency	20 Hz
Response time (object related)	
OFF-ON (t_{ON})	≤ 20 ms
ON-OFF (t_{OFF})	≤ 30 ms
Power ON delay (t_v)	≤ 300 ms (typ. 100 ms)
DIP-switch Selectable functions	
Mute input	active high or active low
Relay output	NO (make) or NC (break)
Mute function	
Active high	≥ 12 VDC/VAC
Response time	< 45 ms
Hold time	< 70 ms
Active low	< 6 VDC/VAC
Response time	< 70 ms
Hold time	< 45 ms
Max current	35 mA @ 24 VDC 70 mA @ 24 VAC

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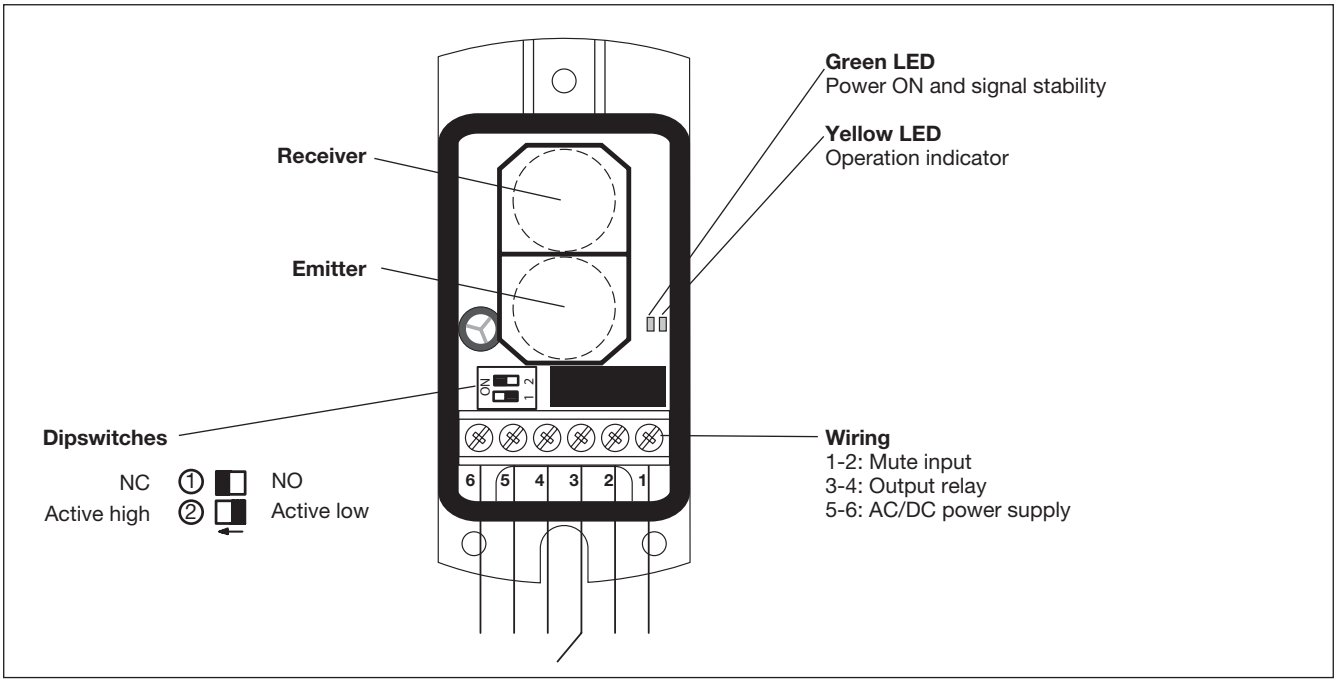
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Specifications (cont.)

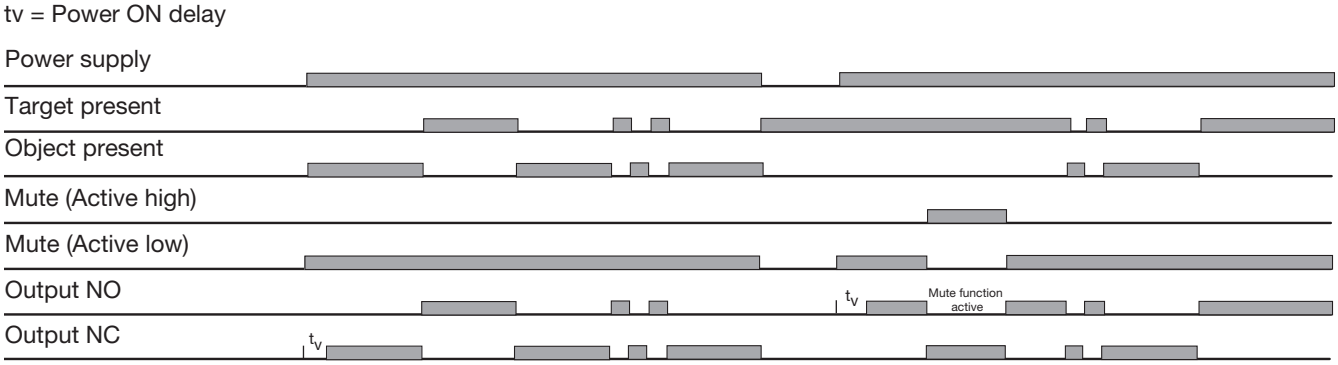
Indication		
Target detected		LED, yellow
	Power	LED, green
	Signal	LED, green
Environment		
Overvoltage category		III (IEC 60664/60664A; 60947-1)
Pollution degree		3 (IEC 60664/60664A; 60947-1)
Degree of protection		IP 66 (IEC 60529; 60947-1)
Temperature		
Operating		-25° to +60°C (-76° to +140°F)
Storage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

Wiring Diagram



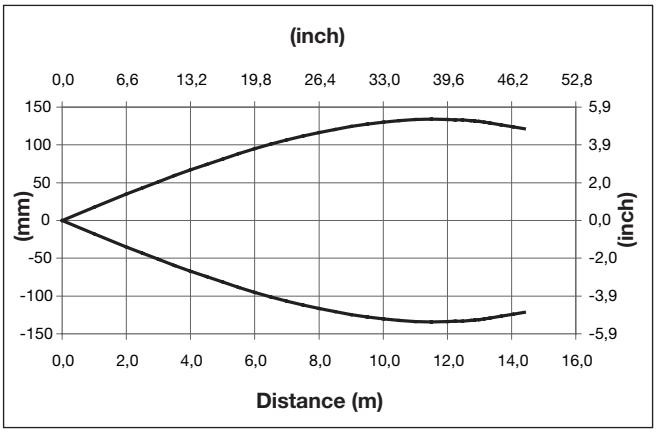
Operation Diagram



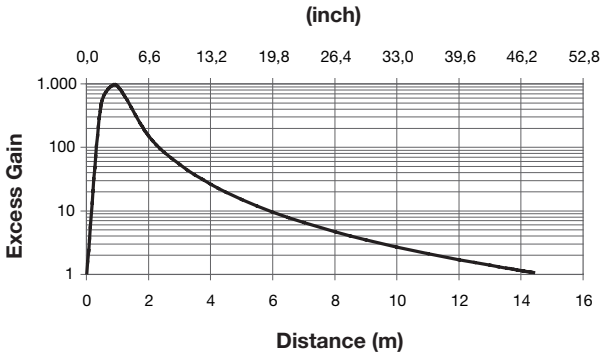
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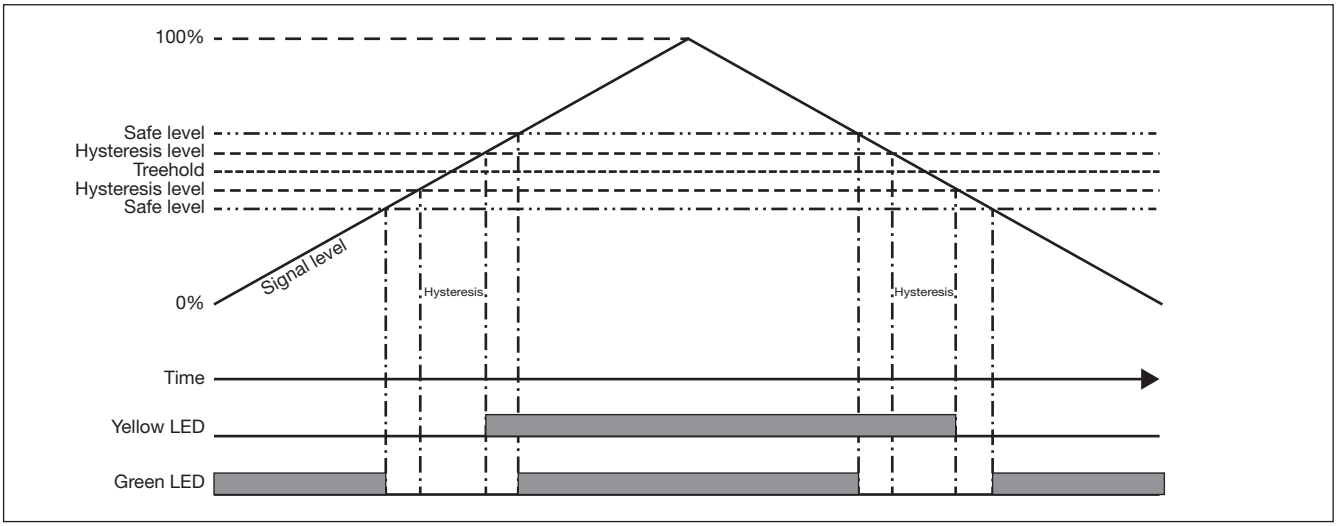
Detection Diagram



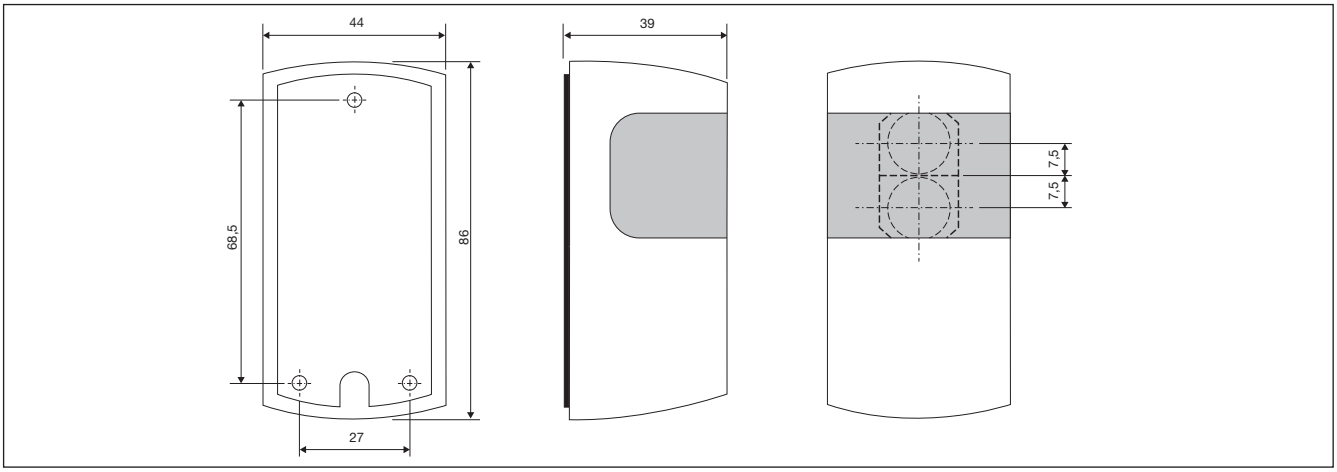
Excess Gain



LED



Dimensions



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Delivery Contents

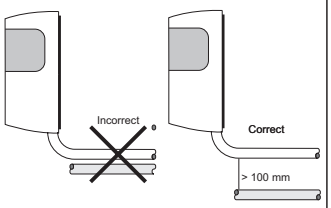
- Photoelectric switch: PD86CNP12QPMU
- Screws and rawlplugs
- Installation instruction
- **Packaging:** Cardboard box

Accessories

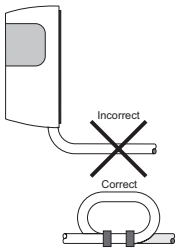
- Reflectors: ER series

Installation Hints

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

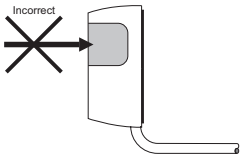


Relief of the cable strain



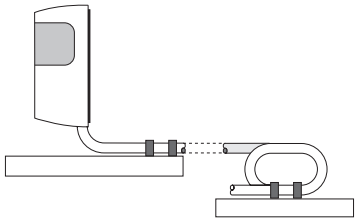
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

Sensor mounted on a mobile carrier



Any repetitive flexing of the cable should be avoided

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