Photoelectrics
Through-beam, Relay Output, Battery Powered
Type PD180CBT30Q/MU

- **Industrial doors and gates**
- **Range 15 m or 30 m**
- **Modulated, infrared light**
- **Supply voltage: 12 to 24 VAC/DC (receiver)**
- **Supply voltage: 2 x 3.6 VDC Lithium batteries (emitter)**
- **SPDT relay output**
- **SPDT relay low battery**
- **LED for output indication**
- **Protection: reverse polarity, transients**
- **Connection, terminal block**
- **Emitter mute**
- **CE and UL325 approved**

Product Description

The PD180CBT30Q/MU sensor is developed specifically for the domestic and industrial door market. The sensor meets the regulations for industrial doors in Europe and North America. The robust polycarbonate housing allows flexible installation as the lenses are adjustable both in horizontal and vertical direction. The sensor is easy to use and no sensitivity adjustments are necessary. The aspherical lens design is superior to previous design of sensors with built-in parabolic reflectors that had corrosion and dust problems. Increased safety by build-in:

- Sensor test function; the emitter has a built-in test input designed to mute the emitter and thus evaluate the sensor function. Test function is to be activated by the door controller or the door function can be activated by a limit switch, magnet sensor or a safety edge profile.

The receiver works with a power-supply from 12 to 24 VAC/DC and the emitter is designed to use 2 x 3.6 V Lithium batteries.

Ordering Key

PD180CBT30Q/MU

- **Type**
- **Housing style**
- **Housing size**
- **Housing material**
- **Battery operated**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Mute function**

Type Selection

Housing size	Range S_n	Ordering no. Emitter	Ordering no. Receiver
180 x 51 x 49 mm	**30 m**	**PD180CBT30MU**	**PD180CBT30Q**

Specifications Emitter

Rated operatibg dist (S_n)	15 m with jumper not activated 30 m with jumper activated
Rated operational volt. (U_e)	2 x 3.6 VDC Lithium batteries Size AA
Battery lifetime	
Jumper not active	15m => 2.5 years
Jumper active	30m => 1.5 years
Supply current	
With Mute active (I_o)	Typ. 29 µA

Protection	Reverse polarity, transients
Mute input	
Normal operation	> 6 KΩ
Mute	< 4 KΩ
Light source	LED, 850 nm
Light type	Infrared, modulated
Optical angle	± 5° (using aperture)*

* Without aperture the distance is increased by 30 %

CARLO GAVAZZI

Specifications Receiver

Rated operating dist. (S_n)	15 or 30 m depended on emitter settings
Blind zone	None
Temperature drift	≤ 0.4%/°C
Hysteresis (H)	3 - 20%
Rated operational volt. (U_e)	Supply class 2 12 to 24 VAC/DC
Ripple (U_{rrp})	≤ 10%
Output current (both outputs)	
Continuous (I_e)	1 A / 30 VDC 0,5 A / 30 VAC
Lifetime contacts	> 100 000 AC11 or DC11
No load supply current (I_o)	≤ 35 mA DC
+ Battery low alarm	≤ 55 mA DC

Ambient light	>20.000 LUX
Optical angle	± 5° (using aperture)**
Protection	Reverse polarity, transients
Operating frequency (f)	25 Hz
Response time OFF-ON (t_{ON})	≤ 20 ms
ON-OFF (t_{OFF})	≤ 20 ms
Power ON delay (t_v)	≤ 300 ms
Indication function	
Power ON	LED, green
Output ON	LED, yellow

** With aperture removed the distance and angle will be increased, and the sensor no longer meets ESPE type 2.

General Specifications

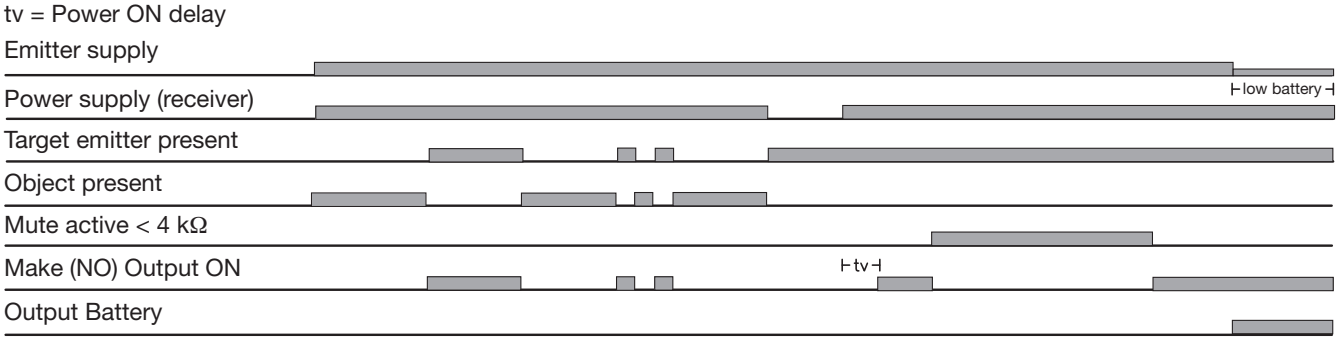
Environment	
Overvoltage category	II (IEC 60664/60664A, 60947-1)
Pollution degree	3 (IEC 60664/60664A, 60947-1)
Degree of protection	IP 55 (IEC 60529, 60947-1)
Temperature	
Operating	-25° to +55°C (-13° to +131°F)
Storage	-25° to +80°C (-13° to +176°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)
Lens adjustment	
Adjustable optics	Horisontal 200° Vertical ±30°

Rated insulation voltage	50 VDC
Housing material	
Front	PC black
Backpart	PC black
Connection	
Emitter	2 pole terminal block
Receiver	6 pole terminal bock
Weight	
Emitter	270 g
Receiver	230 g
CE-marking	EN12445, EN12453, EN12978
UL-Approval c𝑹us	UL325, CSA-C22.2 No.247

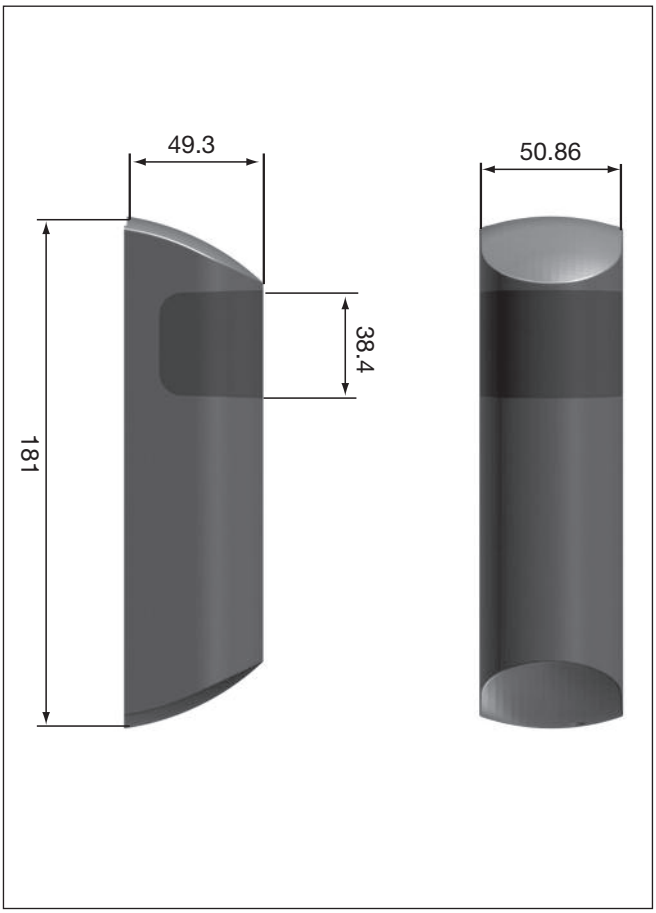
Operation Description

- The sensor shall be mounted with the draining hole facing down.
- The cable must be mounted pointing downwards to avoid water entering the sensor (See Dimensions).
- This product can only be used to detect direct interruption between Tx and Rx; it must not be reflected
- The sensors must be mounted on a hard vibration-free surface
- In order to obtain an “ESPE type 2” safety device, the sensors must be connected to a control system fittet with “Photo test” or similar sensor verification function.

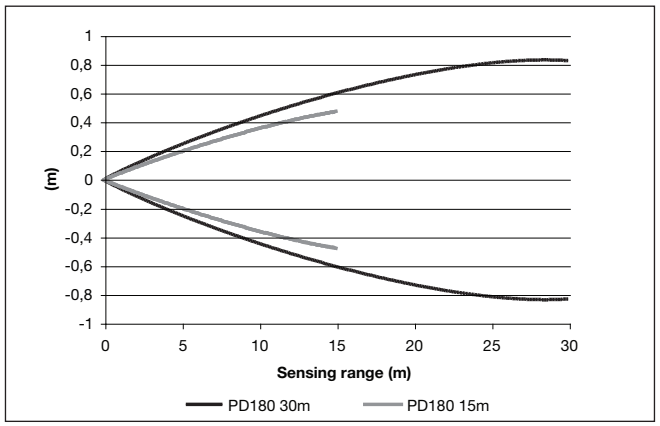
Operation Diagram



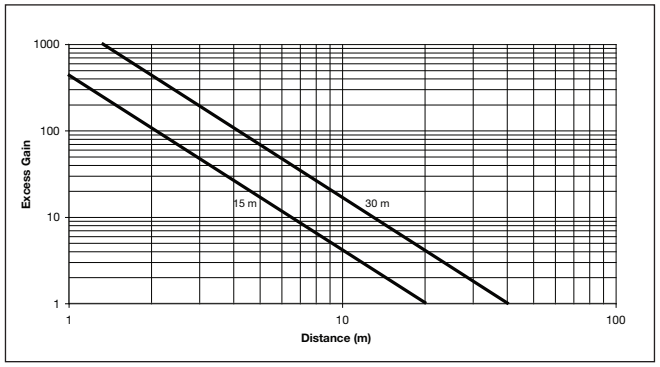
Dimensions



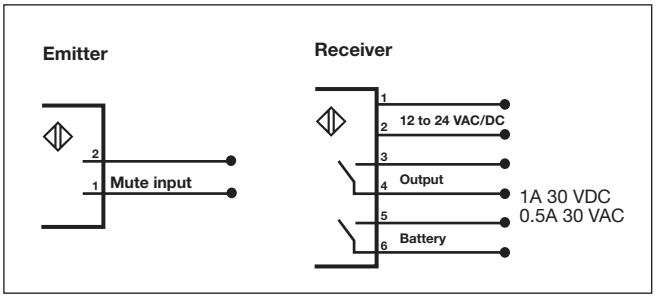
Detection Diagram



Excess Gain



Wiring Diagram

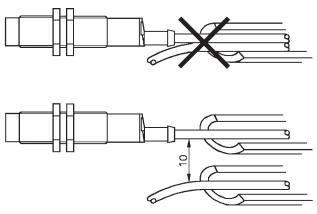


Delivery Contents

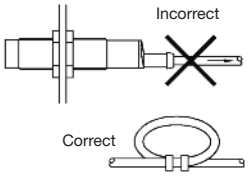
- PD180 emitter or receiver (separate box)
- Installation instruction in emitter box
- **Packaging:** Cardboard box
- 2 x 3 screws for raw plugs ø2.9 x 25 DIN 7981C
- 2 x 3 raw plugs for 8 mm hole
- 2 x 1 Strain releif
- 2 x 2 Screws for strain releif M3 x 12 mm
- 2 x 1 Cable gland

Installation Hints

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

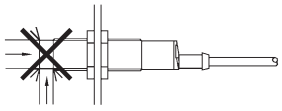


Relief of cable strain



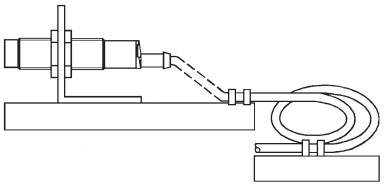
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided