

Photoelectrics

Retro-reflective

Type PD30CNR06....MU

CARLO GAVAZZI



- Miniature sensor range
- Range: 6 m, with reflector
- Sensitivity adjustment by Teach-In programming
- Modulated, infrared light 880 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function programmable
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Mute function (Sensor blanking)



Product Description

The PD30CNR06 sensor family comes in a compact 10 x 30 x 20 mm reinforced PMMA/ABS housing. The sensors are useful in applications where high-accuracy detection as well as small size is required. Compact housing and high power LED for excellent performance-size ratio.

The Teach-In function for adjustment of the sensitivity makes the sensors highly flexible. The output type is preset (NPN or PNP), and the output switching function is programmable (NO or NC). The mute function can be used for testing the sensor for: Malfunctioning, disconnection, optical axis adjustment, dusty and dirty lenses.

Ordering Key

PD30CNR06PPM5MU

Type	_____
Housing style	_____
Housing size	_____
Housing material	_____
Housing length	_____
Detection principle	_____
Sensing distance	_____
Output type	_____
Output configuration	_____
Connection type	_____
Mute	_____

Type Selection

Housing W x H x D	Range S _n	Connection	Ordering no. NPN Make or break switching	Ordering no. PNP Make or break switching
10 x 30 x 20 mm	6 m	Cable	PD 30 CNR 06 NPMU	PD 30 CNR 06 PPMU
10 x 30 x 20 mm	6 m	Plug	PD 30 CNR 06 NPM5MU	PD 30 CNR 06 PPM5MU

Note: Reflectors to be ordered separately

Specifications EN 60947-5-2

Rated operating distance (S_n)	Up to 6 m, with reflector Ø 80 mm (ER4) 4 m on ER4060 reflector	Light type	Infrared, modulated
Blind zone	100 mm	Sensing angle	± 2°
Sensitivity	Adjustable by Teach-In	Ambient light	10,000 lux
Temperature drift	≤ 0.1%/ [°] C	Light spot	110 mm @ 1.5 m
Hysteresis (H) (differential travel)	≤ 10%	Operating frequency	1000 Hz
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Response time OFF-ON (t _{ON})	≤ 0.5 ms
Ripple (U_{pp})	≤ 10%	ON-OFF (t _{OFF})	≤ 0.5 ms
Output current		Power ON delay (t_v)	≤ 300 ms
Continuous (I _e)	≤ 100 mA	Output function	Preset
Short-time (I)	≤ 100 mA (max. load capacity 100 nF)	NPN and PNP NO/NC switching function	Set up by button
No load supply current (I_o)	≤ 30 mA @ 24 VDC	Mute function	
Minimum operational current (I_m)	0.5 mA	Emitter off	0 to 3 sec 0 to 2.5 VDC (NPN) 5 to 30 VDC (PNP)
OFF-state current (I_r)	≤ 100 µA	Emitter ½ power	> 3 sec 0 to 2.5 VDC (NPN) 5 to 30 VDC (PNP)
Voltage drop (U_d)	≤ 2.4 VDC @ 100 mA	Operating mode	Not connected
Protection	Short-circuit, reverse polarity and transients	Indication	LED, yellow LED, green
Light source	GaAlAs, LED, 880 nm	Environment	III (IEC 60664/60664A; 60947-1)

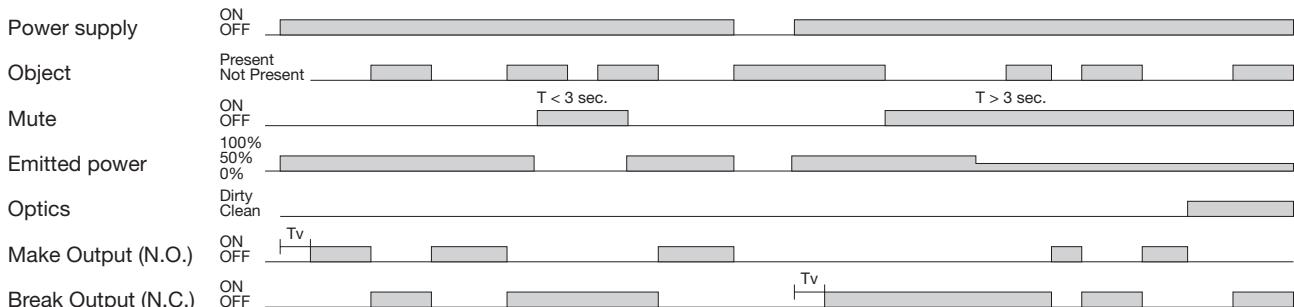
Specifications are subject to change without notice (12.08.2016)

Specifications (cont.) EN 60947-5-2

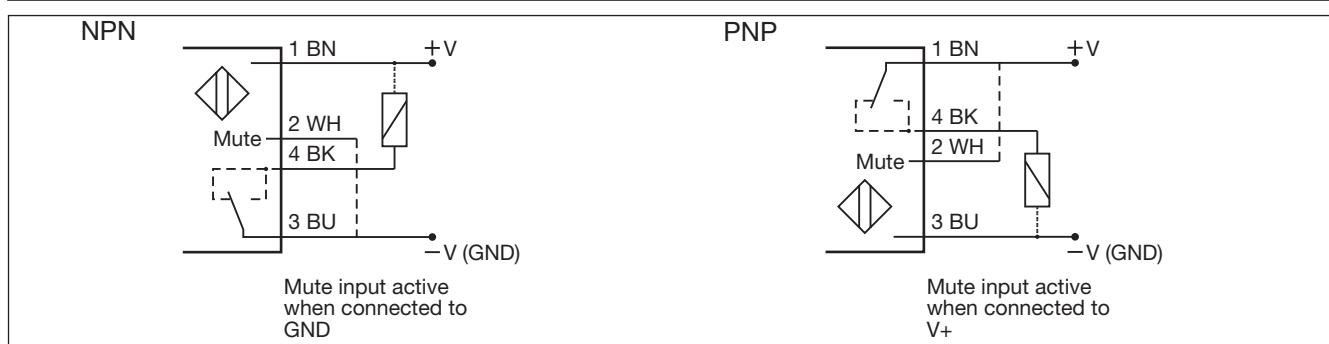
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Housing material	ABS
Degree of protection	IP 67 (IEC 60529; 60947-1)	Body	PMMA, red
Ambient temperature		Front material	
Operating	-25° to +55°C (-13° to +131°F)	Connection	PVC, black, 2 m
Storage	-40° to +70°C (-40° to +158°F)	Cable	4 x 0.14 mm ² , Ø = 3.3 mm
Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	Plug	M8, 4-pin (CON, 54-series)
Shock	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)	Weight	With cable: 40 g With plug: 10 g
Rated insulation voltage	500 VAC (rms)	CE-marking	Yes
		Approvals	cULus (UL508)

Operation Diagram

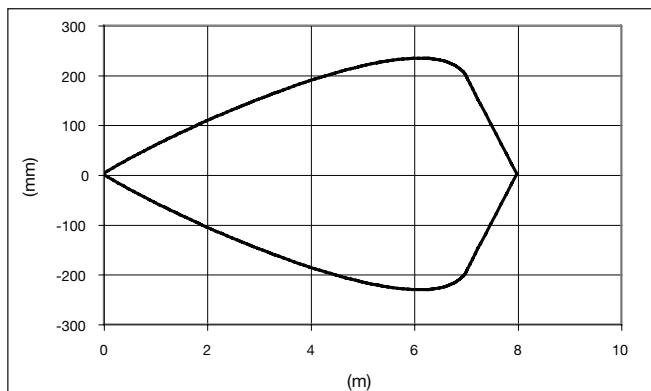
tv = Power ON delay



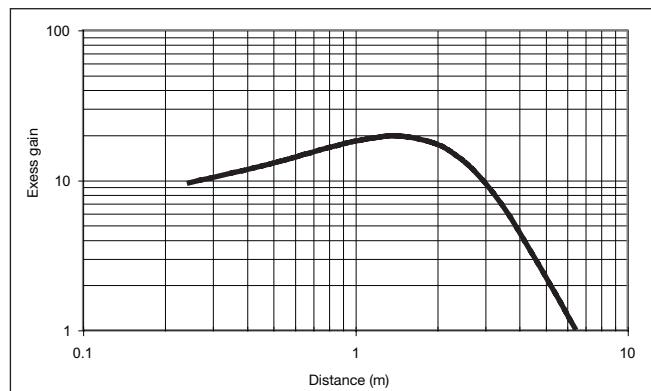
Wiring Diagrams



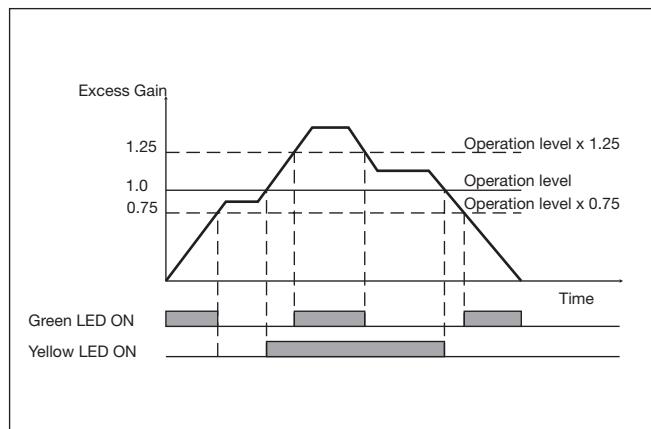
Detection Diagram



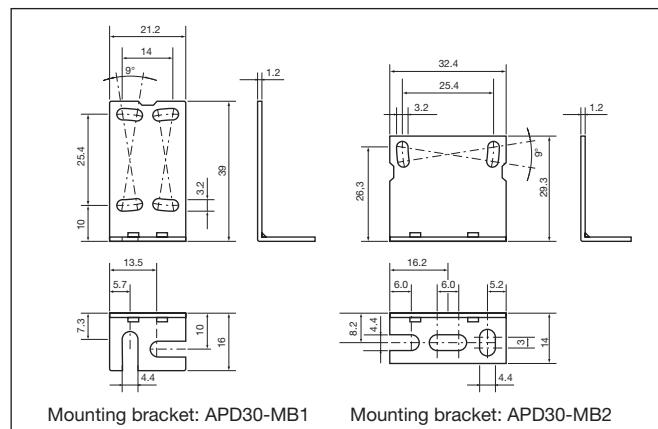
Excess Gain



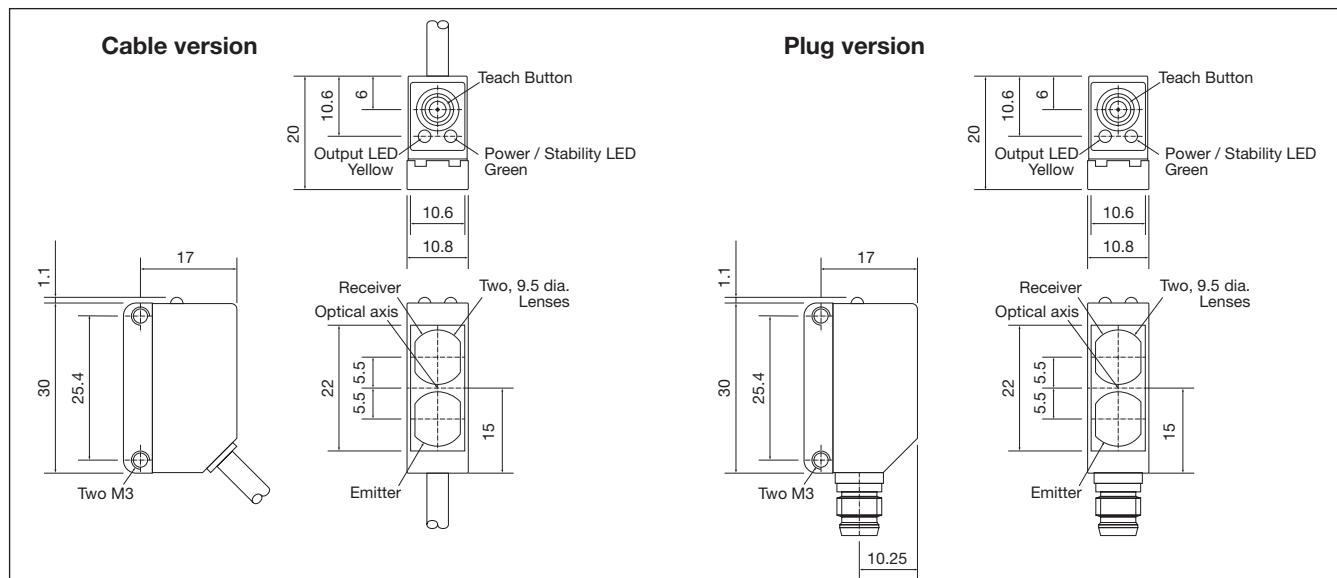
Signal Stability Indication



Accessories

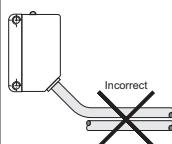


Dimensions

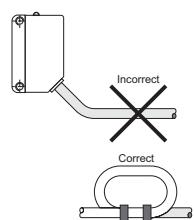


Installation Hints

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

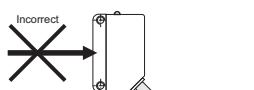


Relief of the cable strain



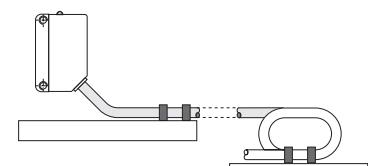
The cable should not be pulled

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

Delivery Contents

- Photoelectric switch: PD 30 CNR 06 ...
- Installation instruction
- Mounting bracket APD30-MB1
- **Packaging:** Cardboard box

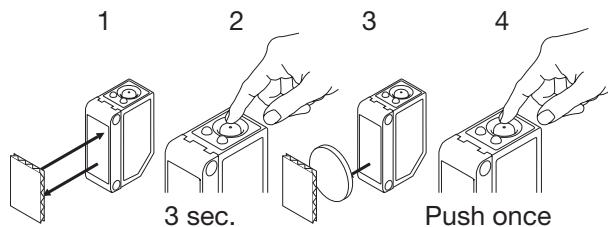
Accessories

- Reflector is to be purchased separately
- Mounting bracket APD30-MB2 to be purchased separately

Teach functions

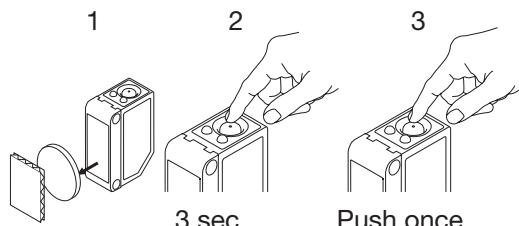
Normal operation, optimized switching point.

1. Line up the sensor with the reflector. Yellow LED and Green LED are ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
(The first switch point is stored)
3. Place the object between the sensor and reflector in the detection zone.
4. Press the button once and the sensor is ready to operate (Green LED ON, Yellow LED ON)
(The second switch point is stored)



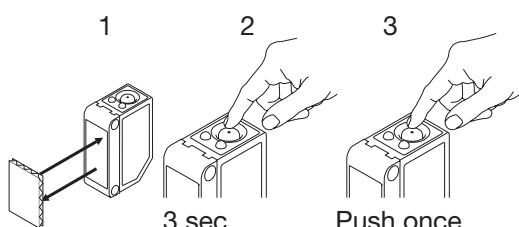
For maximum sensing distance (default setting)

1. Line up the sensor with the reflector, place the object between the sensor and reflector in the detection zone. Yellow LED is OFF and Green LED is ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
(The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate (Green LED ON, Yellow LED ON)
(The second switch point is stored)



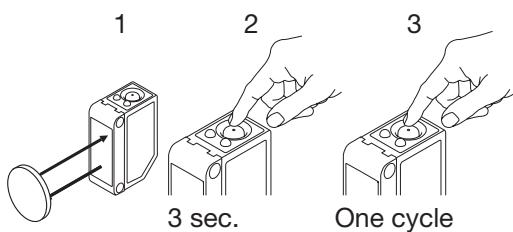
For minimum sensing distance

1. Line up the sensor with the reflector. Yellow LED and Green LED are ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
(The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate (Green LED ON, Yellow LED ON)
(The second switch point is stored)



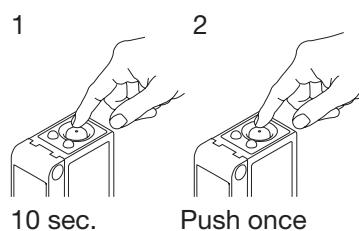
For dynamic set-up (running process)

1. Line up the sensor with the reflector. Green LED is ON, status on the yellow LED is not important.
2. Press the button for 3 second until both LEDs flashes simultaneously.
3. Press the button a second time for at least one second, both LED's flashes fast simultaneously and keep the button pressed for at least one process cycle, release the button and the sensor is ready to operate (The second switch point is stored)



For make or break set-up (N.O. or N.C.)

1. Press the button for 10 seconds, until the green LEDs flashes.
2. While the green LED flashes, the output is inverted each time the button is pressed. Yellow LED indicates N.O. function selected.
If the button is not pressed within the next 10 seconds, the current output is stored.



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