Photoelectrics Retro-reflective Type PD30CNR06....DU



PD30CNR06PPM5DU



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 highaccuracy 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 one programmable (NO or NC) and one dust output NO or NC.

Minia	ture	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
- Dust alarm output

Ordering Key

Type ________ Housing style _______ Housing material _______ Housing length _______ Detection principle ______ Sensing distance ______ Output type ______ Output configuration ______ Connection type ______ Dust output ______

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		Cable	PD 30 CNR 06 NPDU	PD 30 CNR 06 PPDU
10 x 30 x 20 mm		Plug	PD 30 CNR 06 NPM5DU	PD 30 CNR 06 PPM5DU

Note: Reflectors to be ordered seperately

Specifications

Rated operating distance (S _n)	Up to 6 m, with reflector Ø 80 mm (ER4) 4 m on ER4060 reflector
Blind zone	100 mm
Sensitivity	Adjustable by Teach-In
Temperature drift	≤ 0.1%/°C
Hysteresis (H) (differential travel)	≤ 10%
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U _{rpp})	≤ 10%
Output current Continuous (I _e) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)
Dust output current	
Continuous (I _e) Short-time (I)	≤ 20 mA ≤ 20 mA (max. load capacity 100 nF)
No load supply current (l _o)	≤ 30 mA @ 24 VDC
Minimum operational current (I_m)	0.5 mA
OFF-state current (I _r)	≤ 100 µA
Voltage drop (U _d)	≤ 2.4 VDC @ 100 mA

Protection	Short-circuit, reverse polarity and transients	
Light source	GaAlAs, LED, 880 nm	
Light type	Infrared, modulated	
Sensing angle	± 2°	
Ambient light	10,000 lux	
Light spot	110 mm @ 1.5 m	
Operating frequency	1000 Hz	
Response time		
OFF-ON (ton)	≤ 0.5 ms	
ON-OFF (t _{OFF})	≤ 0.5 ms	
Power ON delay (t _v)	≤ 300 ms	
Output function		
NPN and PNP	Preset	
NO/NC switching function	Set up by button	
Output configuration		
Programming options		
Output pin 4 black	NO or NC	
Output	NO or NC (dust)	
Dust alarm output		
Delay on operate	20 ms	
Indication		
Output ON	LED, yellow	
Signal stability ON and power ON	LED, green	
Signal Stability ON and power ON	LLD, green	

Specifications are subject to change without notice (09.12.2008)

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Specifications (cont.)

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

Operation Diagram



Wiring Diagrams



Detection Diagram



Excess Gain



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Dimensions



Installation Hints



Delivery Contents

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

Accessories

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



Teach functions

Normal operation, optimized switching point.

- Line up the sensor with the reflector. Yellow LED and 1. 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)

- Line up the sensor with the reflector, place the object 1. 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 detection overhead.

- Line up the sensor with the reflector. Yellow LED and 1. Green LED are ON.
- Press the button for 3 seconds until both LEDs 2. 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)

- Line up the sensor with the reflector. Green LED is ON, 1. status on the yellow LED is not important.
- 2. Press the button for 3 second until both LEDs flashes simultaneously.
- З. Press the button a second time for at least one second, both LED's flashes fast siultainiously 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.



For dust output (N.O. or N.C.)

- Press the button for 15 seconds, until the yellow LEDs 1. flashes.
- 2. While the yellow LED flashes, the dust output is inverted each time the button is pressed. Green LED indicates N.O. function selected. If the button is not pressed within the next 10 seconds, the current output is stored.



15 sec.