Photoelectrics
Diffuse-reflective
Type PD30CND10....DU

- **Miniature sensor range**
- **Range: 1 m**
- **Sensitivity adjustment by Teach-In programming**
- **Modulated, red light 660 nm**
- **Supply voltage: 10 to 30 VDC**
- **Output: 100 mA, NPN or PNP preset**
- **Make or 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**

Product Description

The PD30CND10 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 one NO or NC output and one dust output NO or NC.

Ordering Key

PD30CND10PPM5DU

- **Type**
- **Housing style**
- **Housing size**
- **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 and break switching	Ordering no. PNP Make and break switching
10 x 30 x 20 mm	1 m	Cable	**PD 30 CND 10 NPDU**	**PD 30 CND 10 PPDU**
10 x 30 x 20 mm	1 m	Plug	**PD 30 CND 10 NPM5DU**	**PD 30 CND 10 PPM5DU**

Specifications

Rated operating distance (S_n)	Up to 1 m, reference target Kodak test card R27, white, 90% reflective, 200 x 200 mm
Blind zone	≤ 20 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)
No load supply current (I_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, 660 nm
Light type	Red, modulated
Sensing angle	± 2°
Ambient light	10,000 lux
Light spot	110 mm @ 1.5 m
Operating frequency (f)	≤ 1000 Hz
Response time OFF-ON (t_{ON}) ON-OFF (t_{OFF})	 ≤ 0.5 ms ≤ 0.5 ms
Power ON delay (t_v)	≤ 300 ms
Output function NPN and PNP Output configuration Programming options Output pin 4 black Output pin 2 white	 Preset NO or NC NO or NC NO or NC (dust)
Dust alarm output Delay on operate	 20 ms

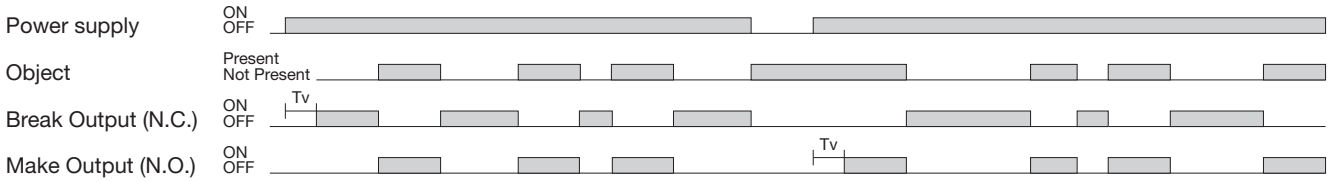
Specifications (cont.)

Indication	
Output ON	LED, yellow
Signal stability ON and Power ON	LED, green
Environment	
Installation category	III (IEC 60664/60664A; 60947-1)
Pollution degree	3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP 67 (IEC 60529; 60947-1)
Ambient temperature	
Operating	-25° to +60°C (-13° to +140°F)
Storage	-40° to +70°C (-40° to +158°F)
Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)

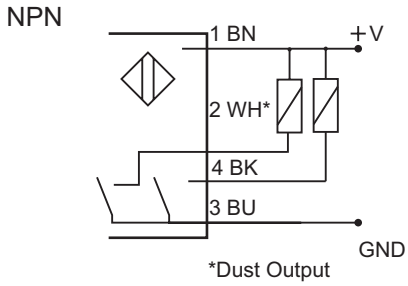
Rated insulation voltage	≤ 500 VAC (rms)
Housing material	
Body	ABS
Frontglas	PMMA Red
Connection	
Cable	PVC, black, 2 m 4 x 0.14 mm², Ø = 3.3 mm
Plug	M8, 4-pin (CON. 54-series)
Weight	
Cable version	≤ 40 g
Plug version	≤ 10 g
CE-marking	Yes
Approvals	cULus (UL508 + CSA)

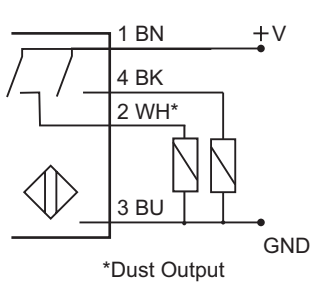
Operation Diagram

Tv = Power ON delay

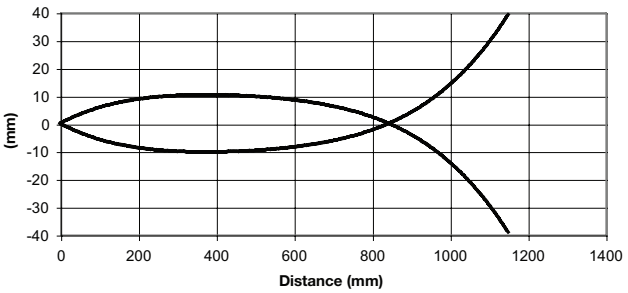


Wiring Diagrams

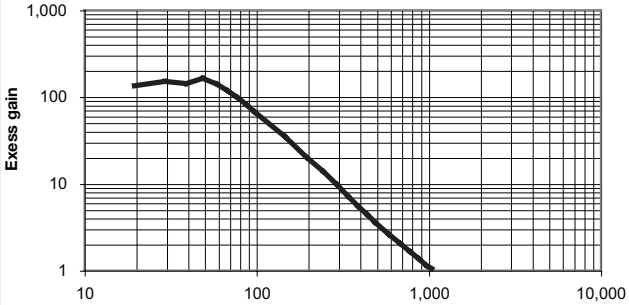




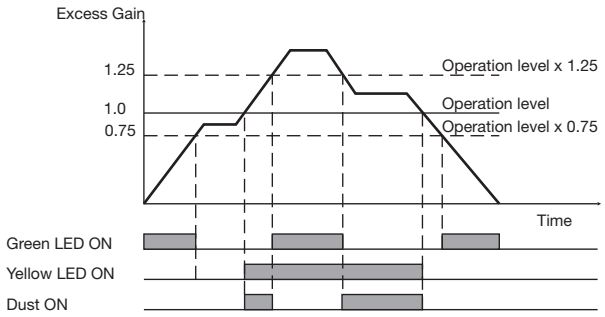
Detection Diagram



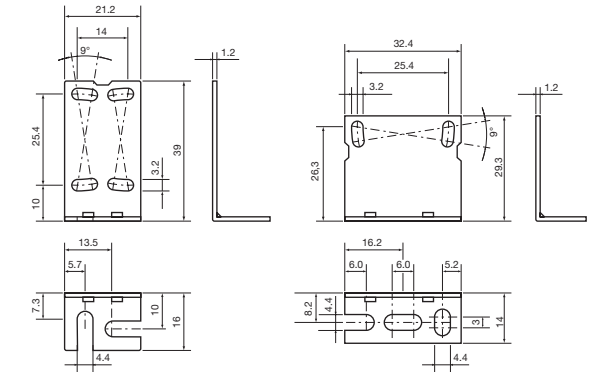
Excess Gain



Signal Stability Indication



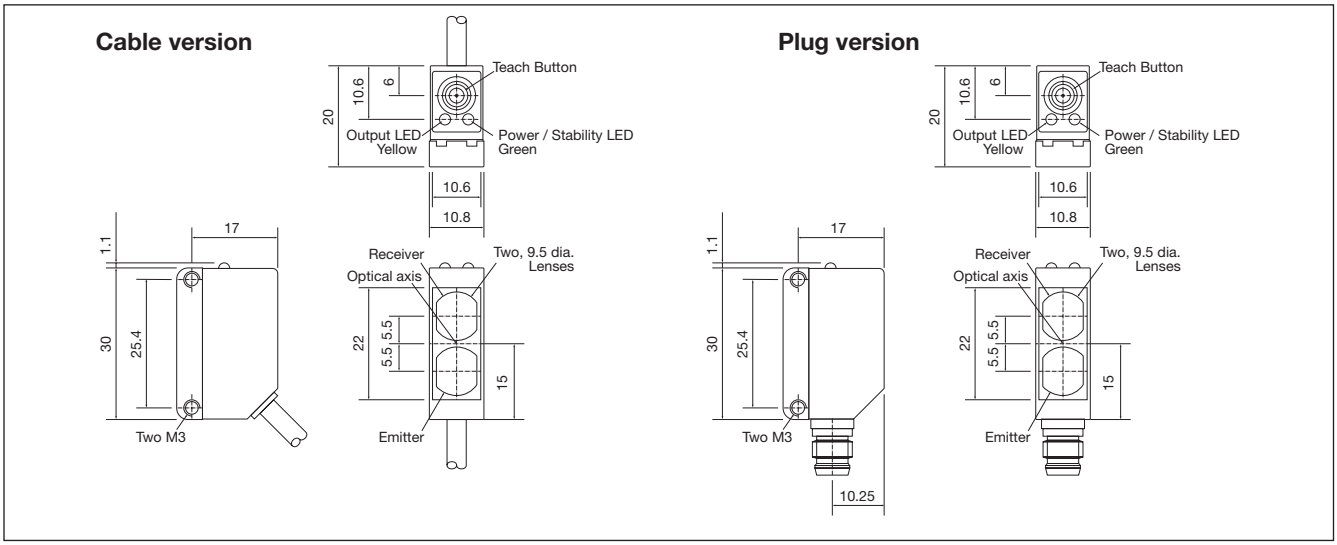
Accessories



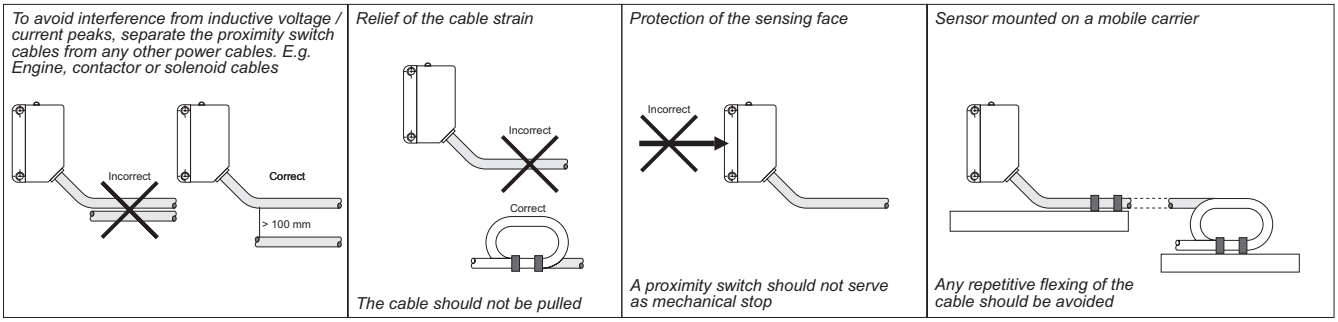
Mounting bracket: APD30-1

Mounting bracket: APD30-2

Dimensions



Installation Hints



Delivery Contents

- Photoelectric switch: PD 30 CND 10 ...
- Installation instruction
- Mounting bracket APD30-MB1
- **Packaging**: Cardboard box

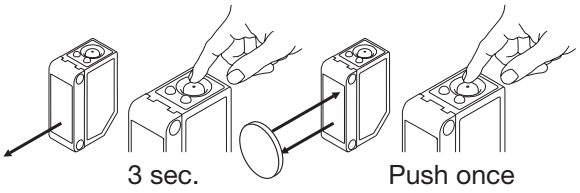
Accessories

- Mounting bracket APD30-MB1 or APD30-MB2 to be purchased separately.

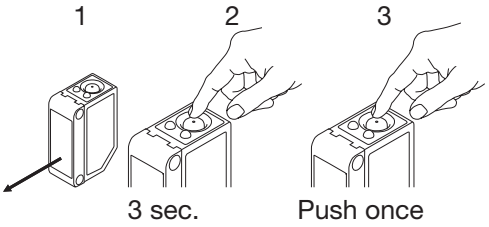
CARLO GAVAZZI

Teach functions

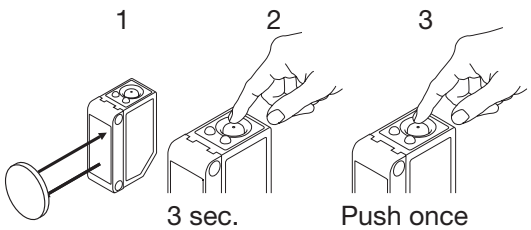
Normal operation, optimized switching point.
1. Line up the sensor at the background. Yellow LED is OFF and Green LED is ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Place the object in the detection zone.
4. Press the button once and the sensor is ready to operate (Green LED ON, Yellow LED ON)
   (The second switch point is stored)



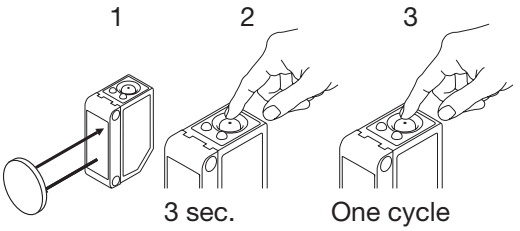
For maximum sensing distance (default setting)
1. Line up the sensor at the background. Yellow LED is OFF and Green LED is ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate (Green LED ON, Yellow LED ON)
   (The second switch point is stored)



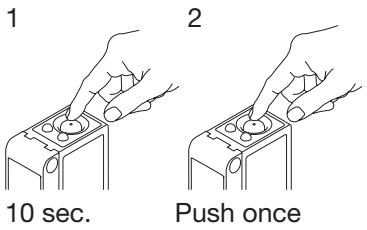
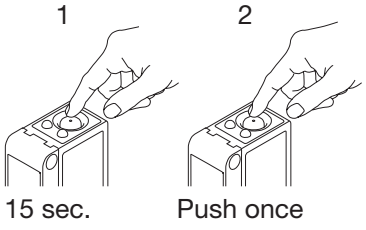
For minimum detection overhead.
1. Line up the sensor at the object. Yellow LED is ON and Green LED is ON.
2. Press the button for 3 seconds until both LEDs flashes simultaneously.
   (The first switch point is stored)
3. Press the button a second time and the sensor is ready to operate(Green LED ON,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



For dynamic set-up (running process)
1. Line up the sensor at the object. 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.



For dust output (N.O. or N.C.)
1. Press the button for 15 seconds, until the yellow LEDs 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.