

# Photoelectrics Diffuse-reflective Type PD30CTD02..WE

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- Miniature sensor range
- Range: 200 mm - extremely wide angle
- Sensitivity adjustment by top potentiometer
- Modulated, infrared light 850 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Excellent EMC performance



## Product Description

The PD30CTD02..WE sensor family comes in a compact 10 x 30 x 20 mm reinforced PMMA/ABS housing. These sensors are designed to detect PCBs despite large holes in the plates. Compact housing and high power LED for excellent performance-size ratio.

The potentiometer 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 NO and NC output.

## Ordering Key

PD30CTD02NAWE

Type \_\_\_\_\_  
Housing style \_\_\_\_\_  
Housing size \_\_\_\_\_  
Housing material \_\_\_\_\_  
Housing \_\_\_\_\_  
Detection principle \_\_\_\_\_  
Sensing distance \_\_\_\_\_  
Output type \_\_\_\_\_  
Output configuration \_\_\_\_\_  
Extremely Wide Angle \_\_\_\_\_

## Type Selection

Housing W x H x D	Range S <sub>n</sub>	Connection	Ordering no. NPN Make and break switching	Ordering no. PNP Make and break switching
10 x 30 x 20 mm	200 mm	Cable	PD 30 CTD 02 NAW	PD 30 CTD 02 PAW

## Specifications EN 60947-5-2

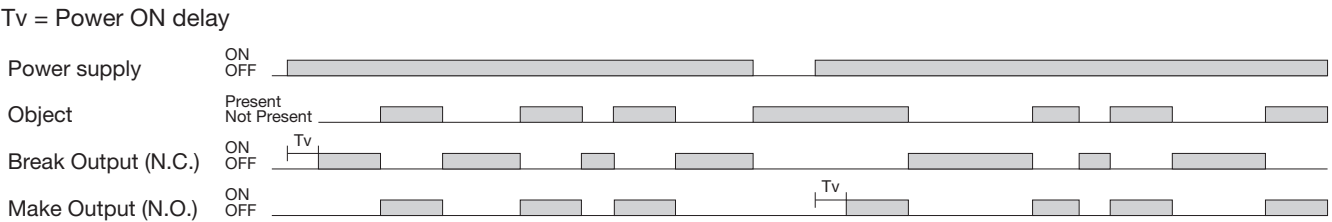
<b>Rated operating distance (S<sub>n</sub>)</b>	Up to 200 mm, reference target Kodak test card R27, white, 90% reflective, 200 x 200 mm	<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2 VDC @ I <sub>e</sub> max
<b>Blind zone</b>	0 mm @ maximum distance	<b>Protection</b>	Short-circuit, reverse polarity and transients
<b>Sensitivity</b> Electrical adjustment Mechanical adjustment	210° 240°	<b>Light source</b>	LED, 850 nm
<b>Temperature drift</b>	≤ 0.2%/°C	<b>Light type</b>	Infrared, modulated
<b>Hysteresis (H)</b>	5% to 20%	<b>Emitter angle</b>	± 15° @ half the sensing distance
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 30 VDC (ripple included)	<b>Light spot</b> 0.5 times the sensing distance	54 x 54 mm
<b>Ripple (U<sub>rip</sub>)</b>	≤ 10%	<b>Ambient light</b>	≤ 10,000 lux
<b>Output current</b> Continuous (I <sub>e</sub> ) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)	<b>Operating frequency (f)</b>	≤ 1000 Hz
<b>No load supply current (I<sub>o</sub>)</b>	≤ 25 mA @ U <sub>B</sub> max	<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 0.5 ms ≤ 0.5 ms
<b>Minimum operational current (I<sub>m</sub>)</b>	≤ 0.5 mA	<b>Power ON delay (t<sub>i</sub>)</b>	≤ 30 ms
<b>OFF-state current (I<sub>r</sub>)</b>	≤ 100 μA	<b>Output function</b> Open collector	NPN or PNP by sensor type
		<b>Output switching function</b>	N.O. and N.C.



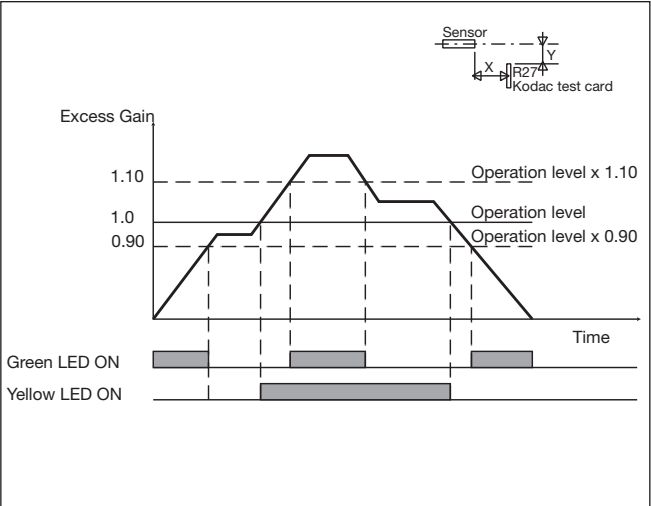
Specifications (cont.)

<b>Indication</b> Output ON Signal stability ON and Power ON	LED, yellow  LED, green. See curve for condition of stability	<b>Rated insulation voltage</b>	≤ 500 VAC (rms)
<b>Environment</b> Installation category  Pollution degree  Degree of protection	III (IEC 60664/60664A; 60947-1)  3 (IEC 60664/60664A; 60947-1)  IP 67 (IEC 60529; 60947-1)	<b>Housing material</b> Body Frontglas Trimmer shaft	ABS Light Grey PMMA Red POM Dark Grey
<b>Ambient temperature</b> Operating Storage	-25° to +60°C (-13° to +140°F) -40° to +70°C (-40° to +158°F)	<b>Connection</b>	PVC, black, 2 m 4 x 0.14 mm², Ø = 3.3 mm
<b>Vibration</b>	10 to 150 Hz, 1.0 mm/15 G (IEC 60068-2-6)	<b>Weight</b>	≤ 50 g
<b>Shock</b>	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)	<b>CE-marking</b>	Yes
		<b>Approvals</b>	cULus (UL508, CSA C22.2)

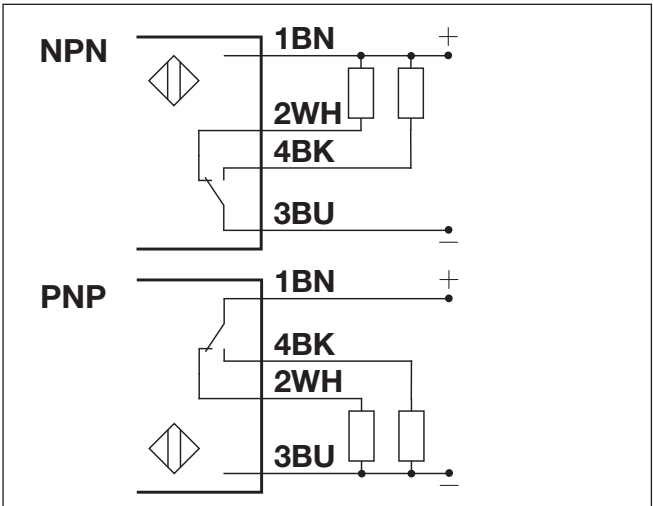
Operation Diagram



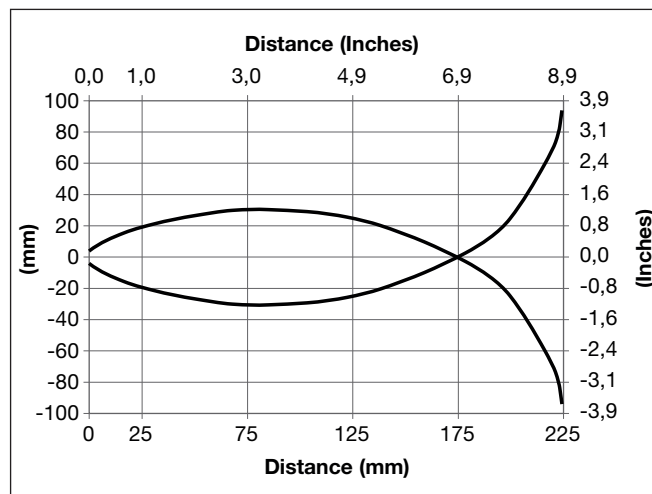
Signal Stability Indication



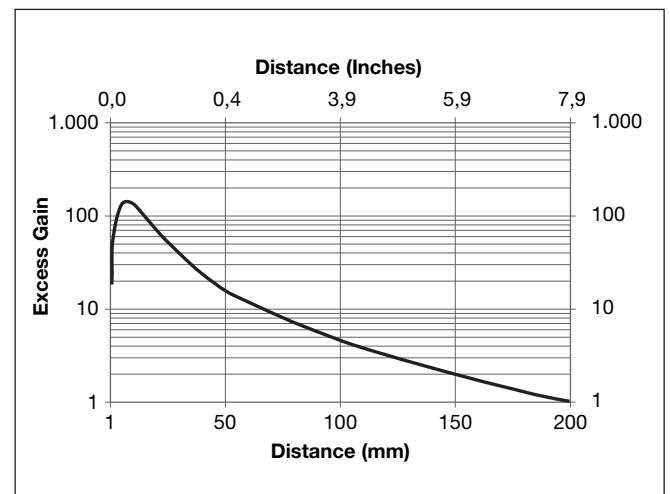
Wiring Diagrams



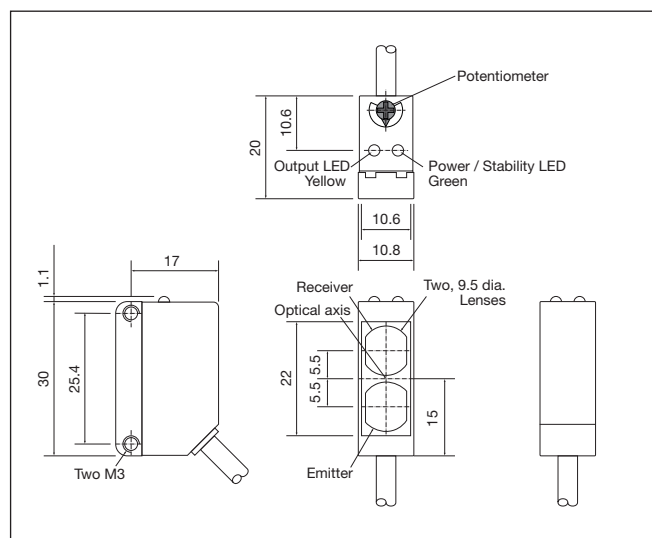
## Detection Diagram



## Excess Gain

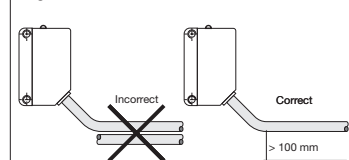


## Dimensions

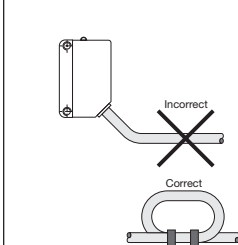


## Installation Hints

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

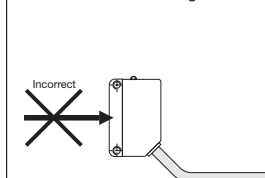


Relief of the cable strain



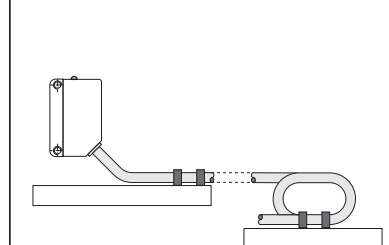
The cable should not be pulled

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

## Accessories

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

## Delivery Contents

- Photoelectric switch: PD30CTD02..WE
- Screwdriver
- **Packaging:** Plastic bag

# Mouser Electronics

Authorized Distributor

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