

Photoelectrics Diffuse-reflective, Background Suppression, IR Type PD30CTB20...IS

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- Miniature sensor range
- Range: 200 mm
- 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
- Excellent colour matching

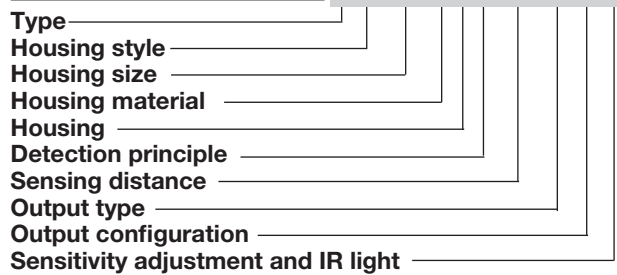


Product Description

The PD30CTB20 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 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 **PD30CTB20NAIS**



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	200 mm	Cable	PD 30 CTB 20 NAIS	PD 30 CTB 20 PAIS

Specifications

Rated operating distance (S_n)	Up to 200 mm, referce target Kodak test card R27, white, 90% reflective, 100 x 100 mm	No load supply current (I_o)	≤ 20 mA @ U _B max ≤ 40 mA @ U _B min
Maximum detecting distance @ 200 mm white background White object 90% refl. Grey object 18% refl. Black object 6% refl.	≤ 200 mm ≤ 200 mm ≤ 200 mm	Minimum operational current (I_m)	≤ 0.5 mA
Blind zone	10 mm	OFF-state current (I_r)	≤ 100 μA
Sensitivity Electrical adjustment Mechanical adjustment	210° 240°	Voltage drop (U_d)	≤ 2 VDC @ I _e max
Temperature drift	≤ 0.05%/°C	Protection	Short-circuit, reverse polarity and transients
Hysteresis (H)	≤ 10%	Light source	GaALAS, LED, 850 nm
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light type	Infrared, modulated
Ripple (U_{rpp})	≤ 10%	Emitter angle	± 1.5° @ half the sensing distance
Output current Continuous (I _e) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)	Ambient light	≤ 10,000 lux
		Operating frequency (f)	≤ 500 Hz
		Response time OFF-ON (t _{ON}) ON-OFF (t _{OFF})	≤ 1 ms ≤ 1 ms
		Power ON delay (t_v)	≤ 200 ms
		Output function Open collector	NPN or PNP by sensor type
		Output switching function	N.O. and N.C.

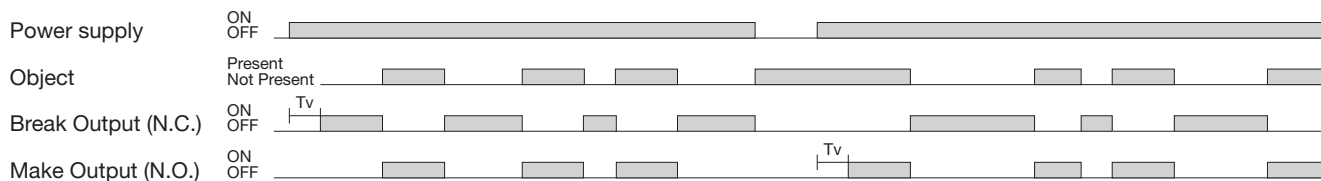


Specifications (cont.)

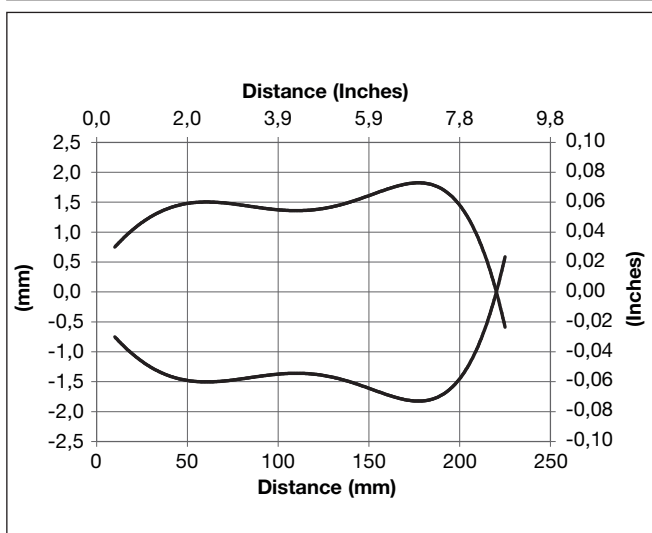
Indication Output ON Power ON	LED, yellow LED, green	Rated insulation voltage	≤ 500 VAC (rms)
Environment Installation category Pollution degree Degree of protection	III (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 67 (IEC 60529; 60947-1)	Housing material Body Frontglas Trimmer shaft	ABS Light Grey PMMA Red POM Dark Grey
Ambient temperature Operating Storage	-25° to +60°C (-13° to +140°F) -40° to +70°C (-40° to +158°F)	Connection Cable	PVC, black, 2 m 4 x 0.14 mm ² , Ø = 3.3 mm
Vibration	10 to 150 Hz, 1.0 mm/15 G (IEC 60068-2-6)	Weight Cable version	≤ 50 g
Shock	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)	CE-marking	Yes
		Approvals	cUL _{US} (UL 508 + CSA)

Operation Diagram

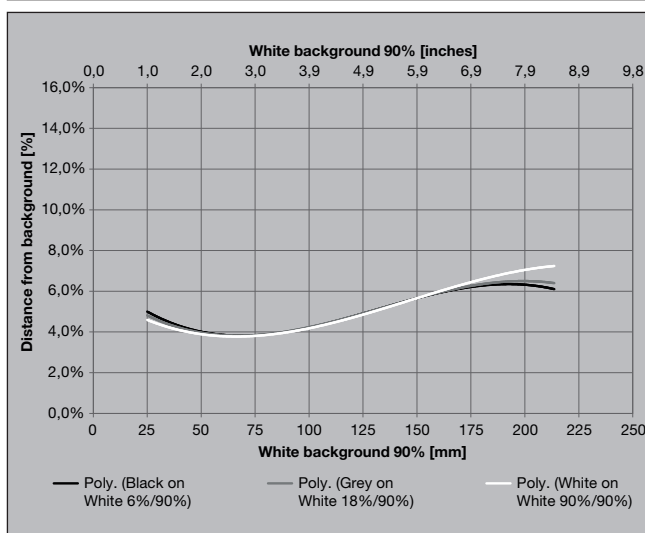
T_v = Power ON delay



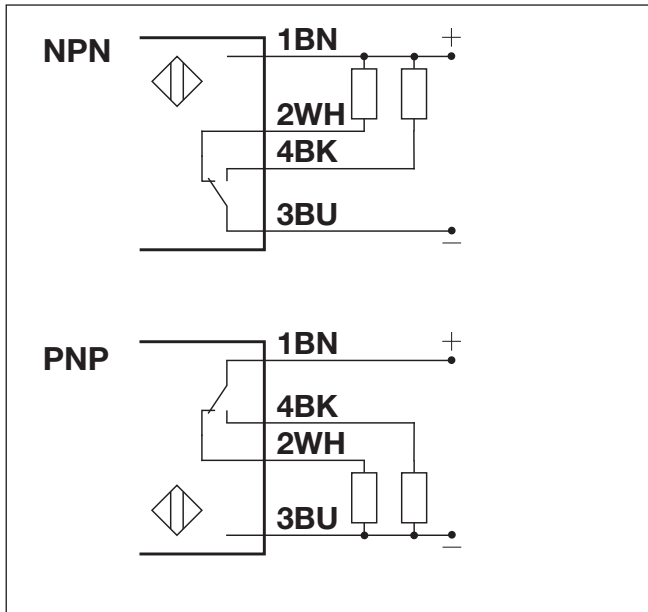
Detection Diagram



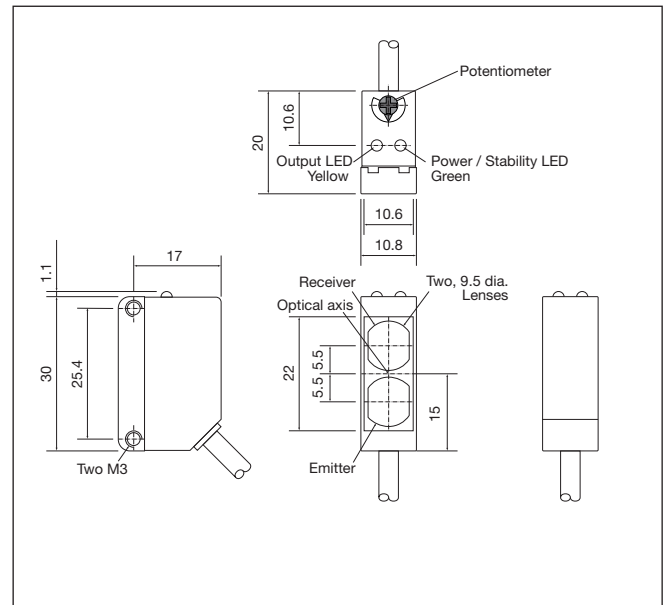
Sensing Conditions



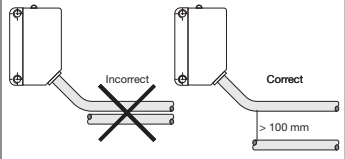
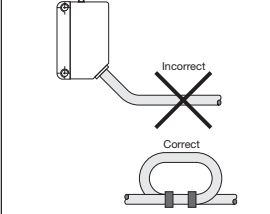
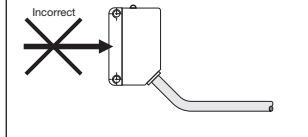
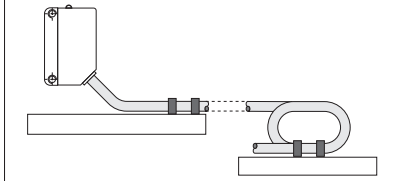
Wiring Diagrams



Dimensions



Installation Hints

<p>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</p>  <p>Incorrect</p> <p>Correct</p> <p>> 100 mm</p>	<p>Relief of the cable strain</p>  <p>Incorrect</p> <p>Correct</p> <p>The cable should not be pulled</p>	<p>Protection of the sensing face</p>  <p>Incorrect</p> <p>A proximity switch should not serve as mechanical stop</p>	<p>Sensor mounted on a mobile carrier</p>  <p>Any repetitive flexing of the cable should be avoided</p>
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Accessories

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

Delivery Contents

- Photoelectric switch: PD30CTB20 ...
- Screwdriver
- **Packaging:** Plastic bag