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



- **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**
- **Exellent 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**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Sensitivity adjustment and IR light**

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 EN 60947-5-2

Rated operating distance (S_n)	Up to 200 mm, referece target Kodak test card R27, white, 90% reflective, 100 x 100 mm
Maximum detecting distance @ 200 mm white background	
White object 90% refl.	≤ 200 mm
Grey object 18% refl.	≤ 200 mm
Black object 6% refl.	≤ 200 mm
Blind zone	10 mm
Sensitivity	
Electrical adjustment	210°
Mechanical adjustment	240°
Temperature drift	≤ 0.05%/°C
Hysteresis (H)	≤ 10%
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rpp})	≤ 10%
Output current	
Continuous (I_e)	≤ 100 mA
Short-time (I)	≤ 100 mA (max. load capacity 100 nF)

No load supply current (I_o)	≤ 20 mA @ U_B max ≤ 40 mA @ U_B min
Minimum operational current (I_m)	≤ 0.5 mA
OFF-state current (I_r)	≤ 100 µA
Voltage drop (U_d)	≤ 2 VDC @ I_e max
Protection	Short-circuit, reverse polarity and transients
Light source	GaALAS, LED, 850 nm
Light type	Infrared, modulated
Emitter angle	± 1.5° @ half the sensing distance
Ambient light	≤ 10,000 lux
Operating frequency (f)	≤ 500 Hz
Response time	
OFF-ON (t_{ON})	≤ 1 ms
ON-OFF (t_{OFF})	≤ 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.

ООО «Сенсорен Электро» +7(495)150-48-00 info@sensoren.ru
Sensoren

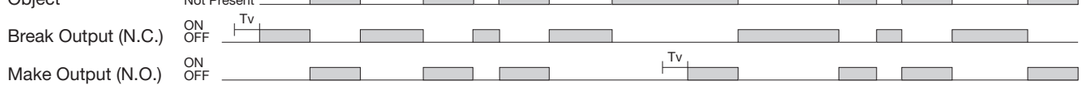
Specifications (cont.) EN 60947-5-2

Indication	
Output ON	LED, yellow
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 150 Hz, 1.0 mm/15 G (IEC 60068-2-6)
Shock	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)

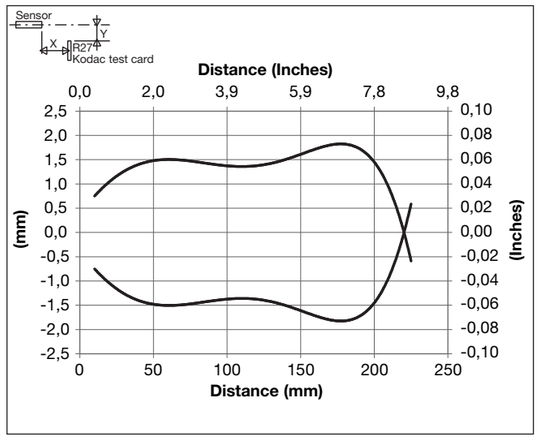
Rated insulation voltage	≤ 500 VAC (rms)
Housing material	
Body	ABS Light Grey
Frontglas	PMMA Red
Trimmer shaft	POM Dark Grey
Connection	
Cable	PVC, black, 2 m 4 x 0.14 mm², Ø = 3.3 mm
Weight	
Cable version	≤ 50 g
CE-marking	Yes
Approvals	cULus (UL 508 + CSA)

Operation Diagram

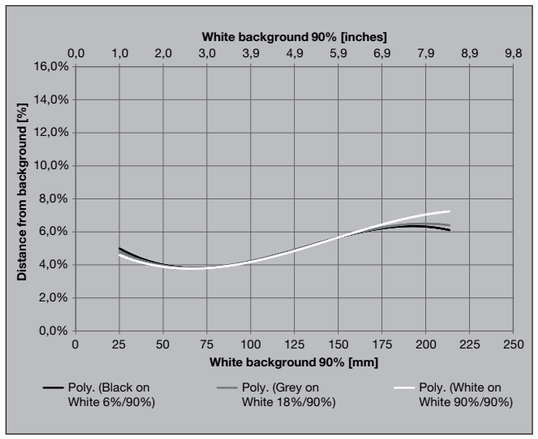
Tv = Power ON delay



Detection Diagram



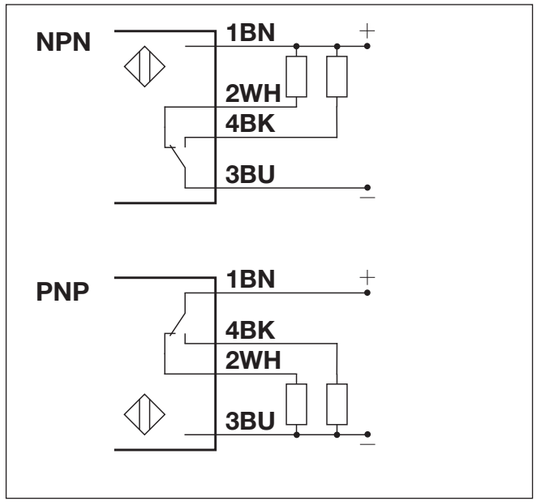
Sensing Conditions



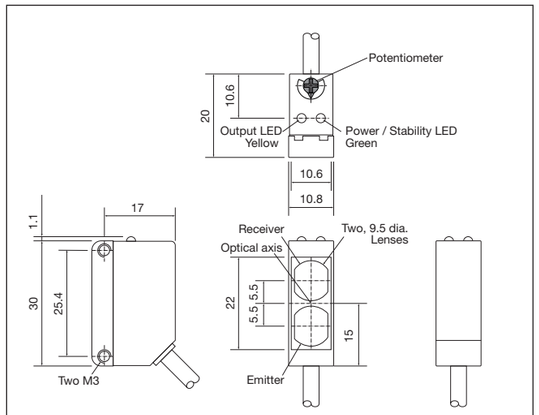
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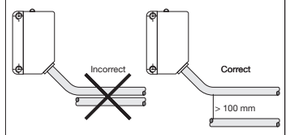
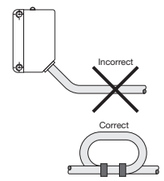
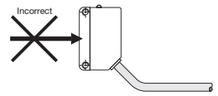
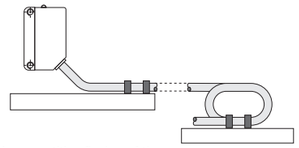
Wiring Diagrams



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*	*Protection of the sensing face*	*Sensor mounted on a mobile carrier*
	 *The cable should not be pulled*	 *A proximity switch should not serve as mechanical stop*	 *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: PD30CTB20 ...
- Screwdriver
- **Packaging:** Plastic bag