

Photoelectrics

Diffuse-reflective, Background Suppression

Type PD30CTB20....SA

CARLO GAVAZZI



- Miniature sensor range
- Range: 200 mm
- Sensitivity adjustment by top potentiometer
- Modulated, red light 625 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

PD30CTB20NASA

Type _____
Housing style _____
Housing size _____
Housing material _____
Housing _____
Detection principle _____
Sensing distance _____
Output type _____
Output configuration _____
Sensitivity adjustment _____

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 NASA	PD 30 CTB 20 PASA

Specifications EN 60947-5-2

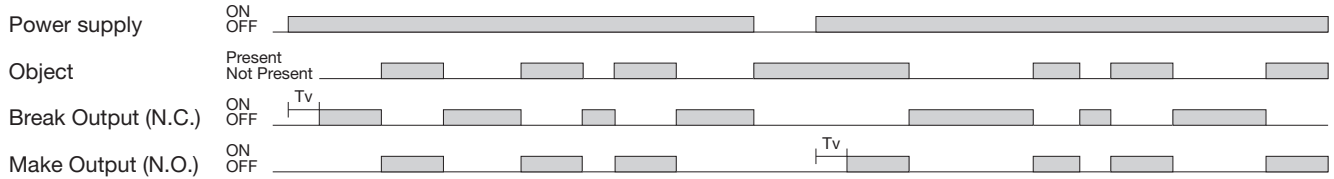
Rated operating distance (S_n)	Up to 200 mm, reference target, Kodak test card R27, white, 90% reflective, 100 x 100 mm	No load supply current (I₀)	≤ 20 mA @ U _B max ≤ 40 mA @ U _B min
Maximum detecting distance @ 200 mm white background White object 90% refl. Grey object 18% refl. Black object 6% refl.	≤ 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	InGaAlP, LED, 625 nm
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Light type	Red, modulated
Ripple (U_{rip})	≤ 10%	Emitter angle	± 2.5° @ 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.) EN 60947-5-2

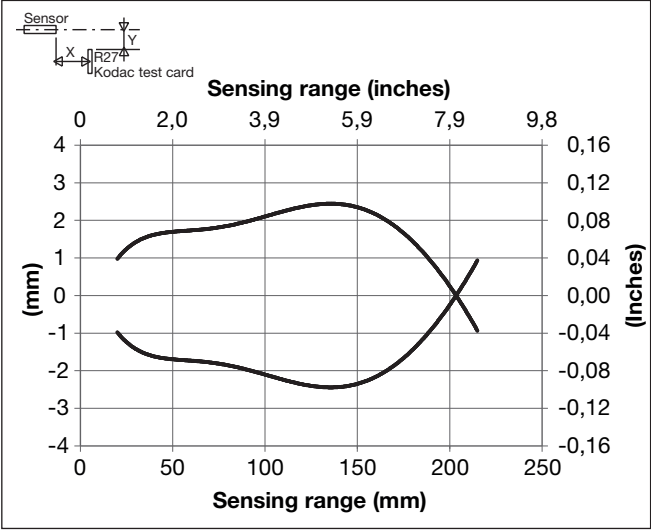
Indication Output ON Power ON	LED, yellow LED, green	Rated insulation voltage	≤ 500 VAC (rms)
Environment Installation category	III (IEC 60664/60664A; 60947-1)	Housing material Body Frontglas Trimmer shaft	ABS Light Grey PMMA Red POM Dark Grey
Pollution degree	3 (IEC 60664/60664A; 60947-1)	Connection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

Operation Diagram

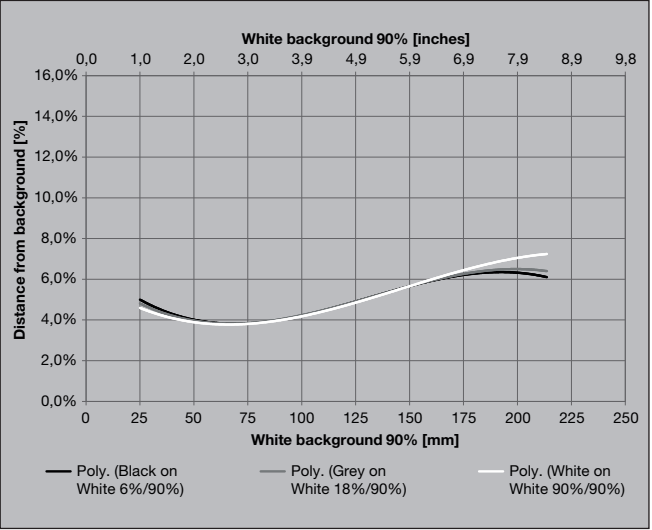
Tv = Power ON delay



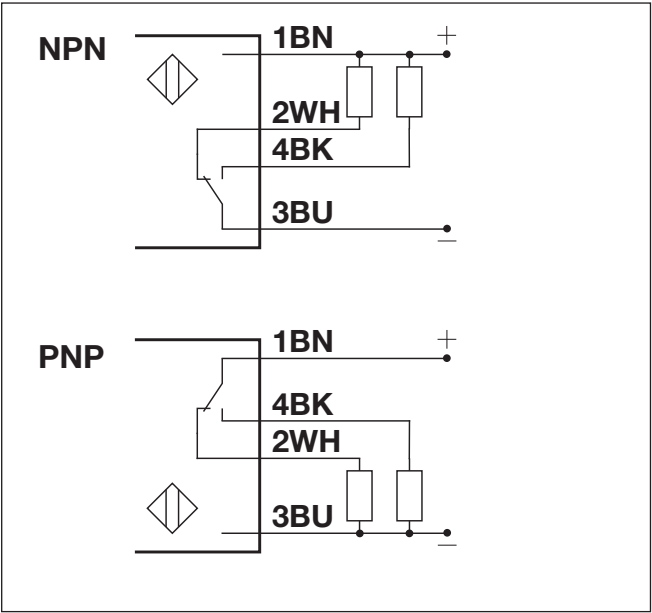
Detection Diagram



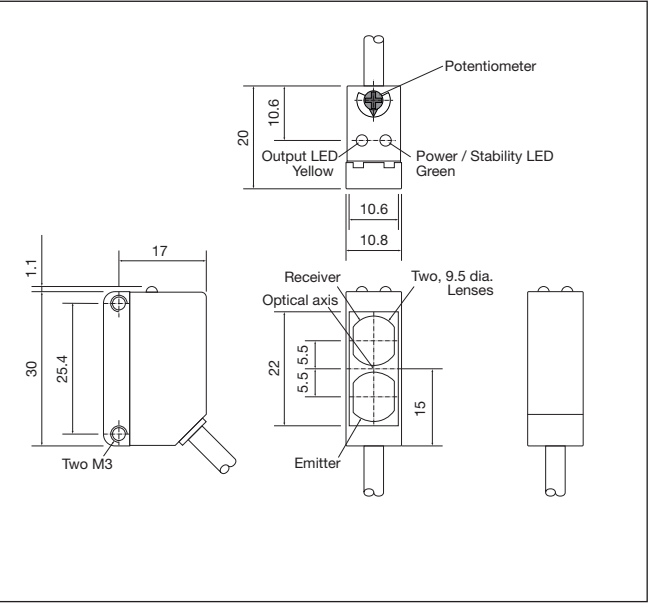
Sensing Conditions



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

Incorrect: Cables are bundled together. Correct: Cables are separated by more than 100 mm.

Relief of the cable strain

Incorrect: Cable is pulled. Correct: Cable is secured with a strain relief.

The cable should not be pulled

Protection of the sensing face

Incorrect: Cable is used as a mechanical stop. Correct: Cable is protected by a separate stop.

A proximity switch should not serve as mechanical stop

Sensor mounted on a mobile carrier

Incorrect: Cable is flexed repeatedly. Correct: Cable is secured with a strain relief.

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