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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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PD30CNB25xxPS



Photoelectrics, Background suppression reflective - PointSpot



Main features

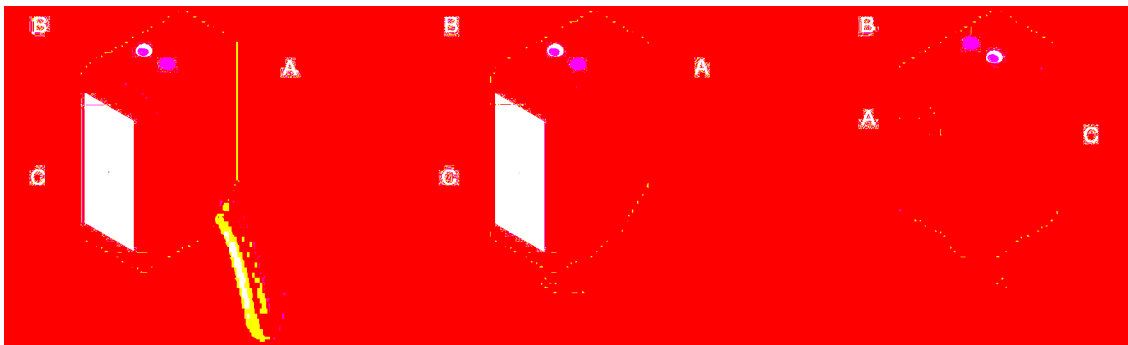
- Miniature sensor range
- The visible red PointSpot light makes alignment very easy
- Range: 250 mm
- Sensitivity adjustment by potentiometer
- Modulated, red light 617 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make and break switching function
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Power supply necessary only on one side of the application

Description

The PD30CNB25... sensor family comes in a compact 10 x 30 x 20 mm ABS housing. They are designed for use in applications where a compact lightbeam without "halo" light is required to assure a high sensing performance. The potentiometer function for adjustment of the sensitivity makes the sensors highly flexible. The output types NPN or PNP feature both N.O. and N.C. output.

Main functions

- Detects presence or absence of objects by cutting off the background information.
- The detection distance is very independent of the colour of the object to detect.
- The PointSpot light source removes halo light and increases detection reliability.



Element	Component	Function
A	Potentiometer	Adjustment
B	2 LEDs	Green LED: Power ON / Signal stability. Yellow LED: Output
C	2 M3	Fixing holes for sensor mounting



References

Product selection key



PD30CNB25 A PS

Enter the code entering the corresponding option instead of

Code	Option	Description
P	-	Photoelectric sensor
D	-	Rectangular housing
30	-	Length of housing
C	-	Plastic housing
N	-	Normal trimmer (back trimmer)
B	-	Diffuse reflective, Background suppression
25	-	Distance [cm]
<input type="checkbox"/>	N	NPN
	P	PNP
A	-	Output: N.O. and N.C.
<input type="checkbox"/>	-	Cable, 2 m
	M5	Connector M8
PS	-	PointSpot emitter

Type selection

Conne- ction	Output	Code
Cable	NPN	PD30CNB25NAPS
	PNP	PD30CNB25PAPS
Plug	NPN	PD30CNB25NAM5PS
	PNP	PD30CNB25PAM5PS

Sensing

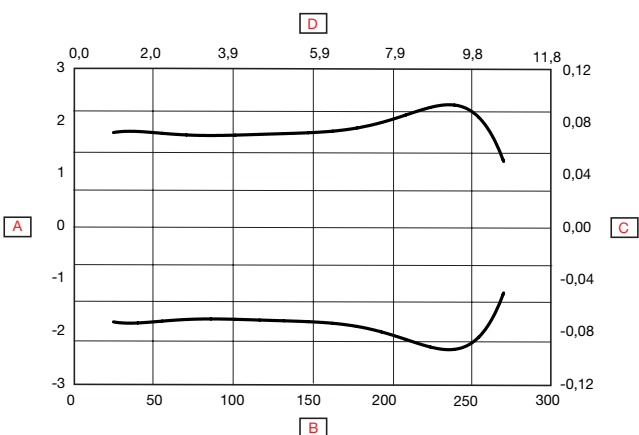
Detection

Rated operating distance (S_n)	≤ 250 mm	Reference target, white paper with 90 % reflectivity, Size 100x100 mm
Maximum detection distance	< 250 mm	White object 90% reflection
	< 250 mm	Grey object 18% reflection
	< 250 mm	Black object 6% reflection
Sensitivity adjustment	25 mm ... 250 mm	Single-turn potentiometer
	210°	Electrical adjustment
	240°	Mechanical adjustment
Blind zone	≤ 15 mm	White object 90% reflection
	≤ 17 mm	Grey object 18% reflection
	≤ 19 mm	Black object 6% reflection
Hysteresis	≤ 10%	
Light source	621 nm	Red - PointSpot
Light type	Red modulated	
Detection angle	± 1.0°	@ 100 mm
Light spot size	5.5 mm	@ 100 mm
Emitter beam angle	± 1.6°	@ 100 mm

Accuracy

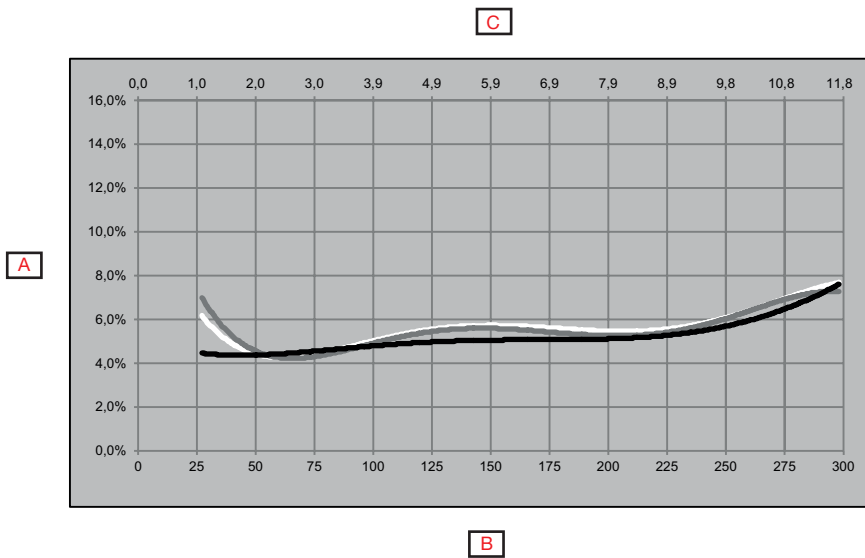
Temperature drift	≤ 0.1%/°C
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

Detection diagram



A	Detection width (mm)	E	Sensor
B	Sensing range (mm)	F	Object
C	Detection width (inches)		
D	Sensing range (inches)		

Sensing conditions



A	Distance from background (%)		Poly. (Black on white 6%/90%)
B	White background 90% (mm)		Poly. (Grey on white 18%/90%)
C	White background 90% (inches]		Poly. (White on white 90%/90%)



Features

Power Supply

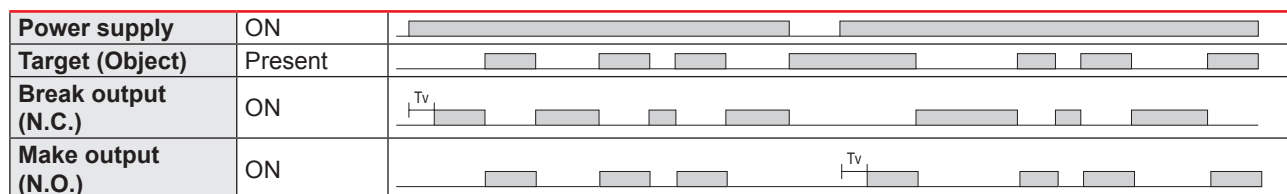
Rated operational voltage (U_B)	10 ... 30 VDC (ripple included)
Ripple (U_{rpp})	$\leq 10\%$
No load supply current (I_o)	≤ 50 mA @ U_B min. ≤ 20 mA @ U_B Max.
Power-ON delay (t_v)	≤ 200 ms

Outputs

Output functions	NPN or PNP by sensor type	Open collector
Output switching function	N.O. and N.C.	
Output current	< 100 mA	Continuous(I_o)
	≤ 100 mA @ 100 nF load	Short-time (I)
Minimum operational current (I_m)	0.5 mA	
OFF-state current(I_r)	100 μ A	
Voltage drop (U_d)	2 VDC @ (I_o) max.	
Protection	Short circuit, reverse polarity and transients	
Utilization category	DC-12	Control of resistive loads and solid-state loads with optical isolation
	DC-13	Control of electromagnets

Operation diagram

T_v = Power-ON delay



Response times

Operating frequency (f)	≤ 500 Hz	
Response times	≤ 1.0 ms	OFF-ON (t_{ON})
	≤ 1.0 ms	ON-OFF (t_{ON})

Indication

Green LED	Yellow LED	Power	Output
ON	OFF	ON	OFF
OFF	OFF	OFF	-
ON	ON	ON	ON

Environmental

Ambient temperature	-25° ... +60°C (-13° ... +140°F)	Operating ¹⁾
	-40° ... +70°C (-40° ... +158°F)	Storage ¹⁾
Ambient light	≤ 45 000 lux	@ 3000 ... 3200 °K
Vibration	10 ... 150 Hz, 1.0 mm/15 g	EN 60068-2-6
Shock	30 g _n / 11ms, 6 pos, 6 neg per axis	EN60068-2-27
Drop test	2 x 1 m and 100 x 0.5 m	EN 60068-2-31
Rated insulation voltage (U _i)	50 VDC	
Dielectric insulation voltage	≥ 500 VAC rms	50/60 Hz for 1 min.
Rated impulse withstand voltage	≥ 2 kV	1.2/50 μs
Pollution degree	3	EN60947-1
Overvoltage category	III	IEC60664; EN60947-1
Degree of protection	IP67	IEC60539; EN60947-1
NEMA Enclosure Types	1	NEMA 250
Ambient humidity range	35% ... 95%	Operating ²⁾
	35% ... 95%	Storage ²⁾

¹⁾ Do not bend the cable in temperatures below -10°C

²⁾ With no icing or condensation

EMC

Electrostatic discharge immunity test	± 8 kV @ air discharge or ± 4 kV @ contact discharge	IEC 61000-4-2
Radiated radio-frequency electromagnetic field immunity test (80 MHz ... 1 GHz and 1..4 GHz ... 2 GHz)	10 V/m	IEC 61000-4-3
Electrical fast transient/Burst immunity test	2 kV / 5 kHz using the capacitive coupling clamp	IEC 61000-4-4
Conducted disturbances induced by radio-frequency fields immunity test (150 kHz ... 80 MHz)	10 Vrms	IEC 61000-4-6
Power frequency magnetic field immunity test	30 A/m 38 μT	IEC 61000-4-8

Mechanics/electronics

▶ Connection

Cable	2 m, 4-wire 4 x 0.14 mm ² , Ø = 3.3 mm, PVC, Black
Plug	M8, 4-pin, male

▶ Wiring

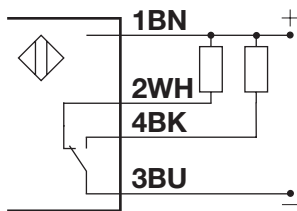


Fig. 1 NPN

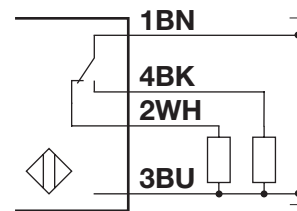


Fig. 2 PNP

Colour code							
BN	Brown	WH	White	BK	Black	BU	Blue

▶ Housing

Body	ABS	
Front glass	PMMA, Red	
Trimmer shaft	POM, Grey	
Indication	TPU, Transparent	
Sealing	NBR70	
Dimensions	10.8 x 30 x 20 mm	
Weight	≤ 50 g	Cable version
	≤ 20 g	Plug version

Dimensions

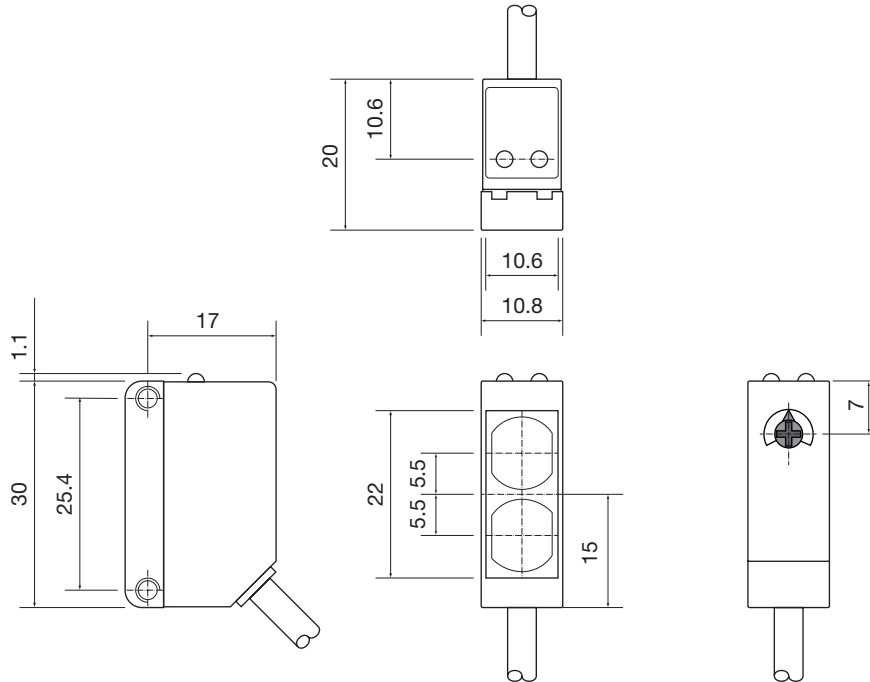


Fig. 3 Cable

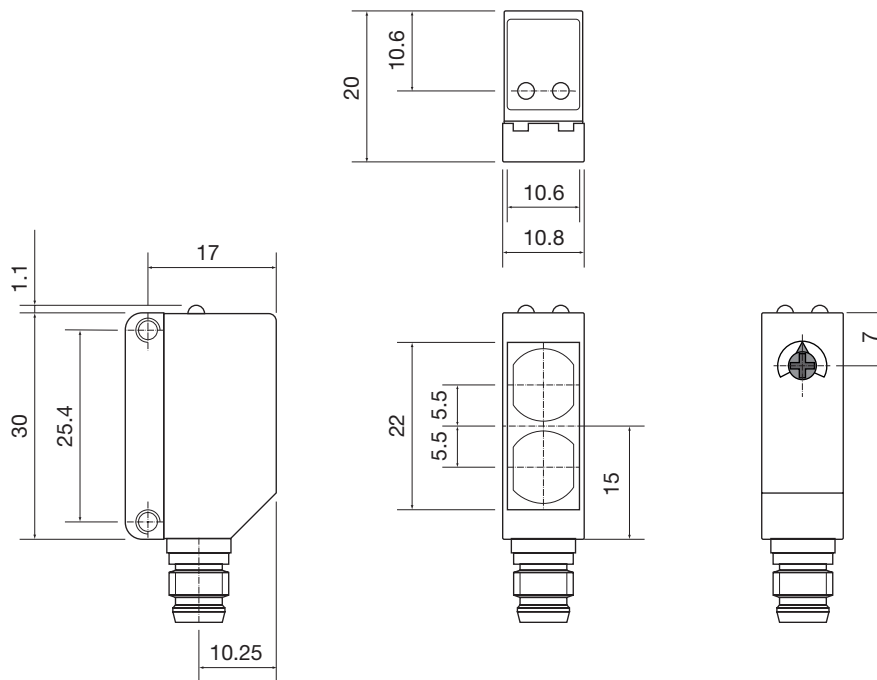




Fig. 4 Plug



Compatibility and conformity

▶ Approvals and markings

General reference	Sensor designed according to EN60947-5-2	
MTTF_d	165 years @ 40°C (+104°F)	EN ISO 13849-1, SN 29500
CE-marking		
Approvals	 (UL508 + C22.2)	

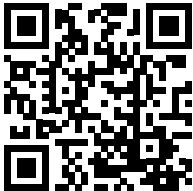
Delivery contents and accessories

Delivery contents

- Photoelectric switch: PD30CNB25...
- Screwdriver
- Packaging: Plastic bag

Accessories

- Mounting bracket: ADP30-MB1 or APD30-MB2 to be purchased separately
- Connector type: CO..54NF... series to be purchased separately



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