

# Photoelectrics

## Diffuse-reflective, Background Suppression

### Type PD30CNB15....RT

CARLO GAVAZZI



- Miniature sensor range
- Range: 150 mm
- Sensitivity adjustment by Teach-In programming
- Modulated, red light 660 nm
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP preset
- Make or break switching function programmable
- LED indication for output, stability and power ON
- Protection: reverse polarity, short circuit and transients
- Cable and plug versions
- Excellent EMC performance
- Remote teach features



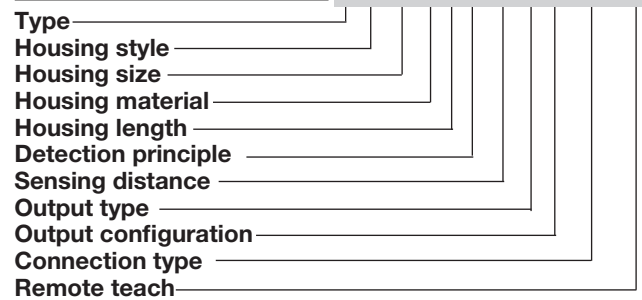
### Product Description

The PD30CNB15 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 Teach-In 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 or NC output. A remote teach feature allow the sensor to be set up from e.g. a PLC.

### Ordering Key

PD30CNB15PPM5RT



### Type Selection

Housing W x H x D	Range S <sub>n</sub>	Connection	Ordering no. NPN Make or break switching	Ordering no. PNP Make or break switching
10 x 30 x 20 mm	150 m m	Cable	PD 30 CNB 15 NPRT	PD 30 CNB 15 PPRT
10 x 30 x 20 mm	150 m m	Plug	PD 30 CNB 15 NPM5RT	PD 30 CNB 15 PPM5RT

### Specifications EN 60947-5-2

<b>Rated operating distance (S<sub>n</sub>)</b>	Up to 150 mm, reference target Kodak test card R27, white, 90% reflective, 200 x 200 mm	<b>Light source</b>	GaAlAs, LED, 660 nm
<b>Blind zone</b>	30 mm	<b>Light type</b>	Red, modulated
<b>Sensitivity</b>	Adjustable by Teach-In	<b>Sensing angle</b>	± 2°
<b>Temperature drift</b>	≤ 0.2%/°C	<b>Ambient light</b>	10,000 lux
<b>Hysteresis (H)</b> 90% White 18% Grey	< 10% < 15%	<b>Light spot</b>	110 mm @ 1.5 m
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 30 VDC (ripple included)	<b>Operating frequency</b>	1000 Hz
<b>Ripple (U<sub>rpp</sub>)</b>	≤ 10%	<b>Response time</b> OFF-ON (t <sub>ON</sub> ) ON-OFF (t <sub>OFF</sub> )	≤ 0.5 ms ≤ 0.5 ms
<b>Output current</b> Continuous (I <sub>a</sub> ) Short-time (I)	≤ 100 mA ≤ 100 mA (max. load capacity 100 nF)	<b>Power ON delay (t<sub>v</sub>)</b>	≤ 400 ms
<b>No load supply current (I<sub>0</sub>)</b>	≤ 32 mA @ 24 VDC	<b>Output function</b> NPN and PNP NO/NC switching function	Preset Set up by button
<b>Minimum operational current (I<sub>m</sub>)</b>	0.5 mA	<b>Remote teach function</b> Teach on  Tamper proof	0 to 2.5 VDC (NPN) 5 to 30 VDC (PNP) When activated more than 20 sec. the sensor goes into a Tamper proof mode.
<b>OFF-state current (I<sub>r</sub>)</b>	≤ 100 μA	<b>Indication</b> Output ON Signal stability ON and power ON	LED, yellow LED, green
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2.4 VDC @ 100 mA		
<b>Protection</b>	Short-circuit, reverse polarity and transients		

Specifications are subject to change without notice (14.06.2016)

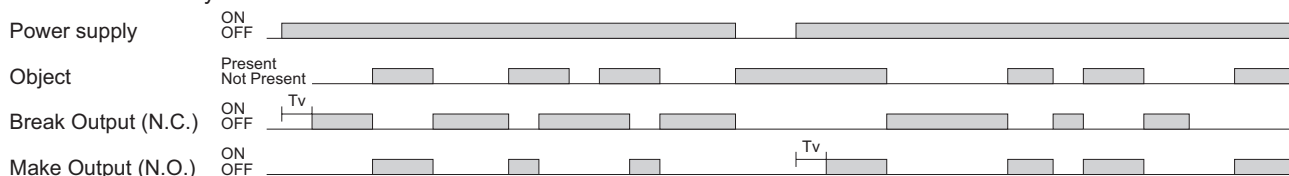


## Specifications (cont.)

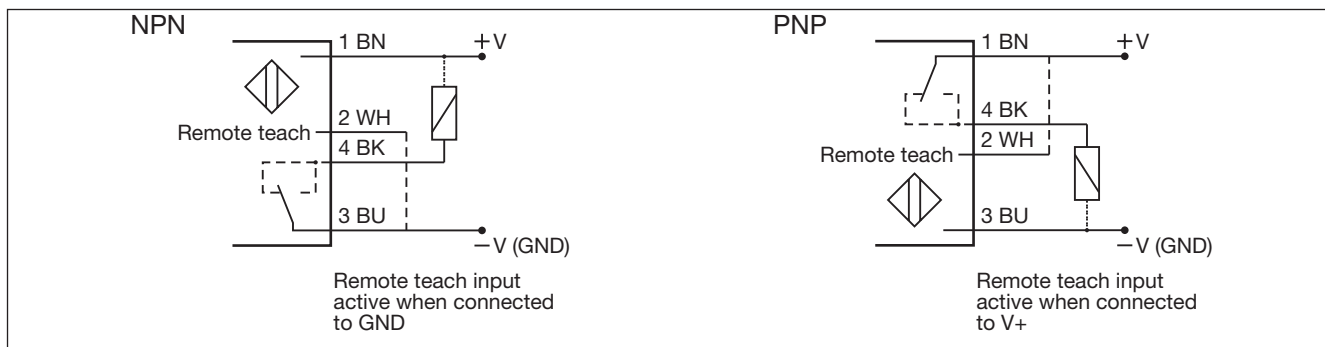
<b>Environment</b>		<b>Rated insulation voltage</b>	
Installation category	III (IEC 60664/60664A; 60947-1)	500 VAC (rms)	
Pollution degree	3 (IEC 60664/60664A; 60947-1)	<b>Housing material</b>	
Degree of protection	IP 67 (IEC 60529; 60947-1)	Body	ABS
<b>Ambient temperature</b>		Front material	PMMA, red
Operating	-25° to +55°C (-13° to +131°F)	<b>Connection</b>	
Storage	-40° to +70°C (-40° to +158°F)	Cable	PVC, black, 2 m 4 x 0.14 mm <sup>2</sup> , Ø = 3.3 mm M8, 4-pin (CON. 54-series)
<b>Vibration</b>		Plug	
10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)		<b>Weight</b>	
<b>Shock</b>		With cable: 40 g With plug: 10 g	
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)	

## Operation Diagram

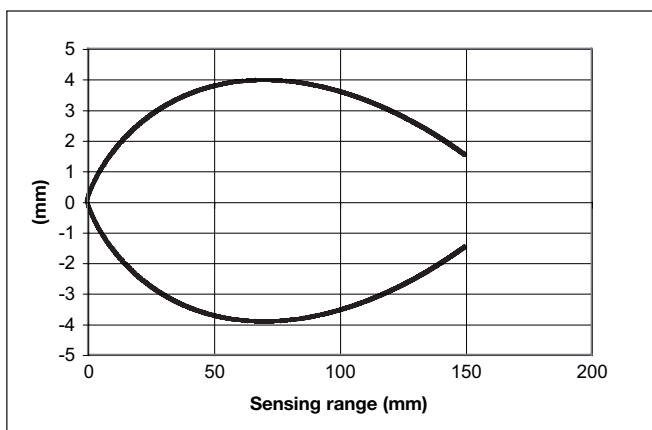
tv = Power ON delay



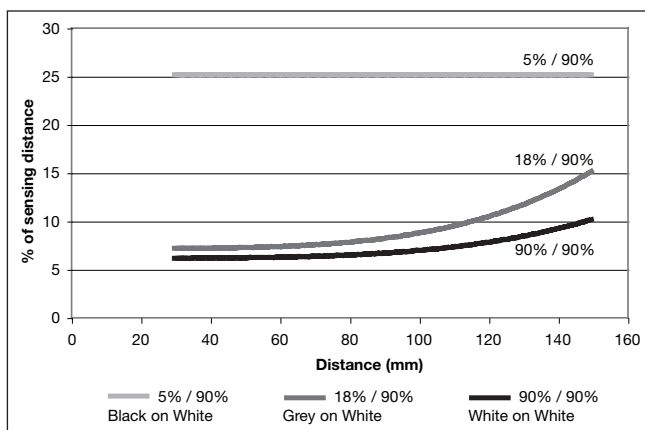
## Wiring Diagrams



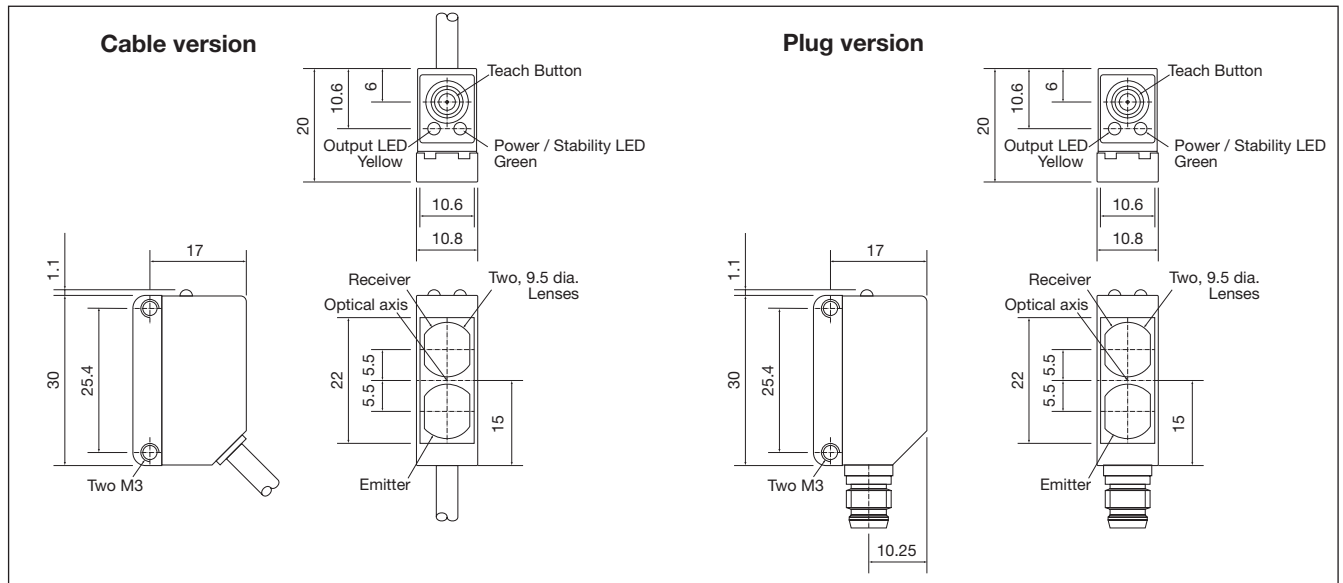
## Detection Diagram



## Sensing Conditions



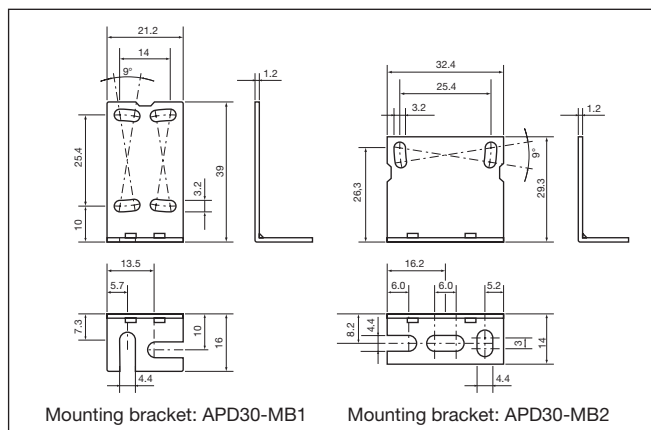
## Dimensions



## Installation Hints

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



- Mounting bracket APD30-MB2 to be purchased separately
- Connector type CONG 5A../CON. 54NF.. series.

## Delivery Contents

- Photoelectric switch: PD 30 CNB 15 ...
- Installation instruction
- Mounting bracket APD30-MB1
- **Packaging:** Cardboard box