

# Photoelectrics

## Diffuse-reflective, Transistor Output

### Type PC50CND10BA

CARLO GAVAZZI



- Range: 1 m
- Adjustable sensitivity
- Modulated, infrared light
- Supply voltage: 10 to 30 VDC
- Output: 200 mA, NPN or PNP
- Make and break switching function selectable
- LED for output indication, signal stability and power ON
- Protection: reverse polarity, short circuit, transients
- Cable and plug version
- High EMC immunity

## Product Description

The PC50CND. is a family of general purpose diffuse-reflective sensors in a compact square 17 x 50 x 50 mm reinforced PC/ABS-housing. They are useful in applications where basic sensors provide adequate sensing

performance. The long sensing range together with sensitivity adjustment gives a very flexible sensor. The DC types are with a transistor output and the configuration is fully programmable (NPN, PNP, NO and NC).

## Ordering Key

**PC50CND10BAM1**

Type	
Housing style	
Housing size	
Housing material	
Housing length	
Detection principle	
Sensing distance	
Output type	
Output configuration	
Connection type	

## Type Selection

Housing W x H x D	Range S <sub>n</sub>	Ordering no. NPN & PNP cable Make & break switching	Ordering no. NPN & PNP plug Make & break switching
17 x 50 x 50 mm	1 m	PC 50 CND 10 BA	PC 50 CND 10 BAM1

## Specifications

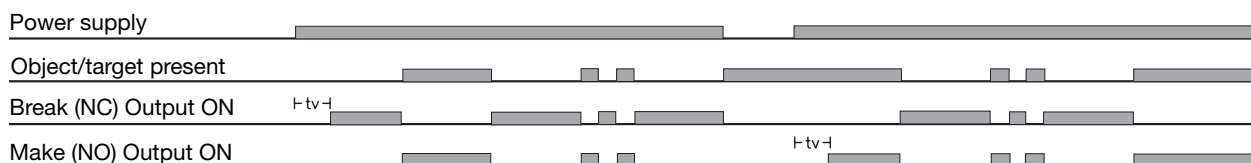
<b>Rated operating distance (S<sub>n</sub>)</b>	Up to 1 m, reference target Kodak test card R 27, white, 90% reflectivity, 200 x 200 mm	<b>Light source</b>	GaAlAs, LED, 880 nm infrared, modulated
<b>Blind zone</b>	Max. 10 cm	<b>Light type</b>	infrared, modulated
<b>Sensitivity</b>	Adjustable by single-turn potentiometer	<b>Sensing angle</b>	± 2° at 1/2 range
<b>Temperature drift</b>	≤ 0.5%/°C	<b>Ambient light</b>	Max. 5'000 lux
<b>Hysteresis (H)</b>		<b>Operating frequency</b>	500 Hz
Differential travel	3 - 20%	<b>Response time</b>	
<b>Rated operational volt. (U<sub>B</sub>)</b>	10 to 30 VDC (ripple included)	OFF-ON (t <sub>ON</sub> )	≤ 1 ms
<b>Ripple (U<sub>rpp</sub>)</b>	≤ 10%	ON-OFF (t <sub>OFF</sub> )	≤ 1 ms
<b>Output current</b>		<b>Power ON delay (t<sub>v</sub>)</b>	< 300 ms
Continuous (I <sub>a</sub> )	≤ 200 mA	<b>Output function</b>	
Short-time (I)	≤ 200 mA (max. load capacity 100 nF)	NPN and PNP	Switch selectable
<b>No load supply current (I<sub>o</sub>)</b>	≤ 40 mA	Complementary function	Make and break (NO + NC)
<b>Minimum operational current (I<sub>m</sub>)</b>	0.5 mA	<b>Indication function</b>	
<b>OFF-state current (I<sub>r</sub>)</b>	≤ 100 µA	Output ON	LED, yellow
<b>Voltage drop (U<sub>d</sub>)</b>	≤ 2.5 VDC @ 200 mA	Signal stability ON and power ON	LED, green
<b>Protection</b>	Short-circuit, reverse polarity, transients	<b>Environment</b>	
		Installation category	II (IEC 60664/60664A; 60947-1)
		Pollution degree	3 (IEC 60664/60664A; 60947-1)
		Degree of protection	IP 67 (IEC 60529; 60947-1)
		<b>Temperature</b>	
		Operating	-20° to +60°C (-4° to +140°F)
		Storage	-25° to +80°C (-13° to +176°F)

## Specifications (cont.)

<b>Vibration</b>	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	<b>Connection</b>	PVC, grey, 2 m, 4 x 0.34 mm <sup>2</sup>
<b>Shock</b>	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)	Cable Plug Cables for plug (M1)	PBTP, M12 x 1 CON.1A-series
<b>Rated insulation voltage</b>	50 VAC (rms)	<b>Weight</b>	110 g
<b>Housing material</b>		<b>Approvals</b>	UL, CSA
Body	PC/ABS, grey	<b>CE-marking</b>	Yes
Front glass	PC black		
Mounting bracket	Steel, galvanized		

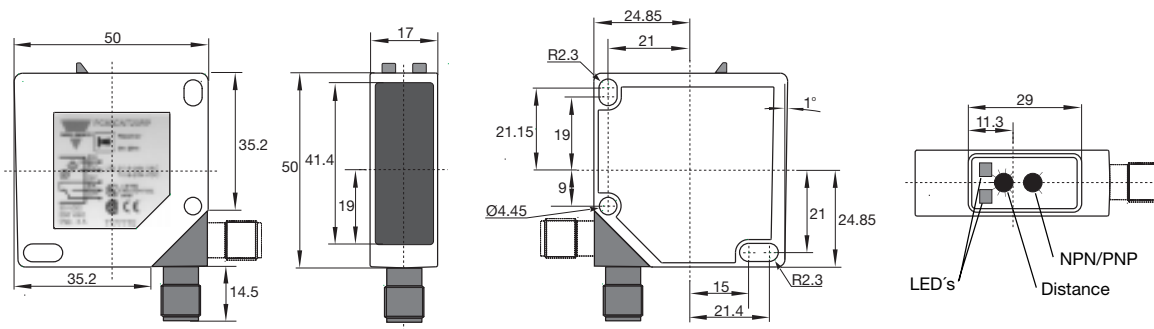
## Operation Diagram

tv = Power ON delay

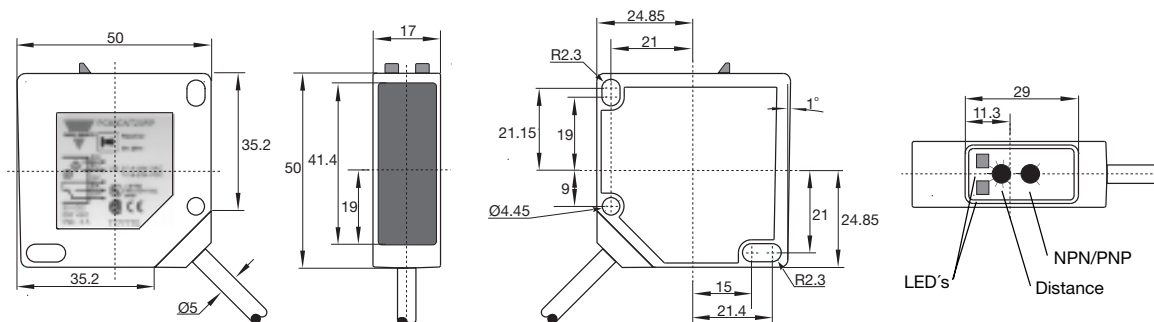


## Dimensions

Plug version

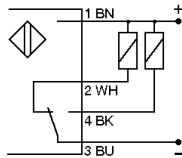


Cable version

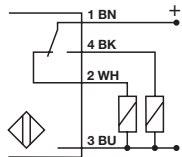


## Wiring Diagrams

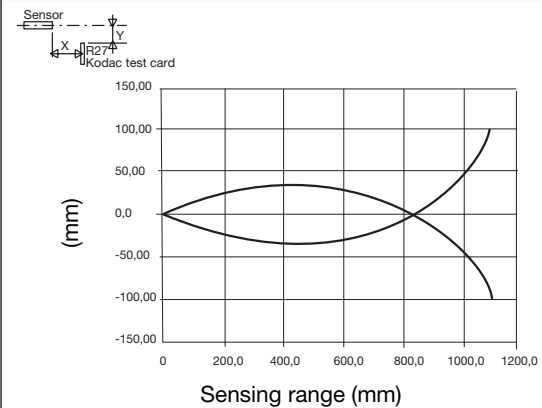
NPN



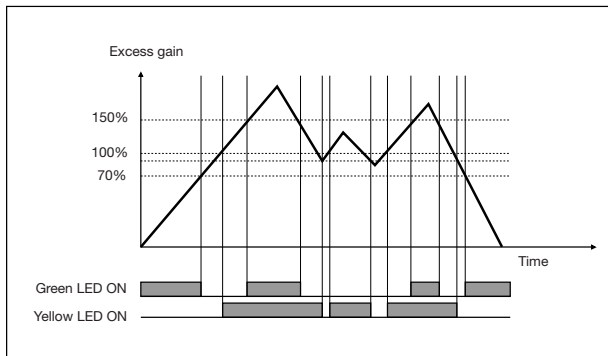
PNP



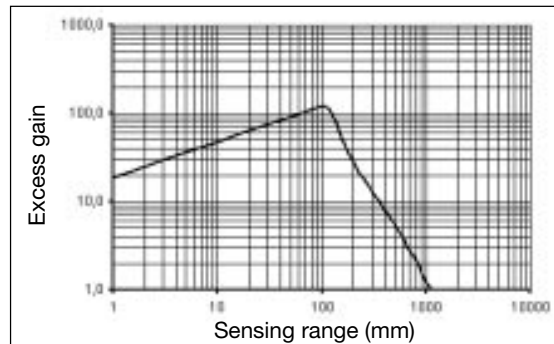
## Detection Diagram



## Signal Stability

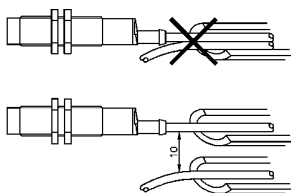


## Excess Gain

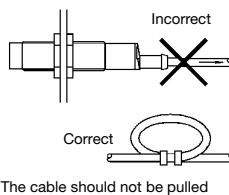


## Installation Hints

To avoid interference from inductive voltage/current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables

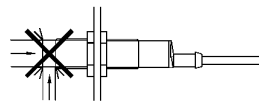


Relief of cable strain



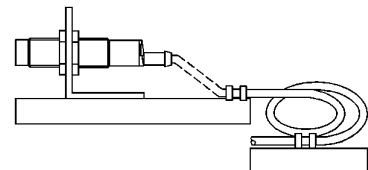
The cable should not be pulled

Protection of the sensing face



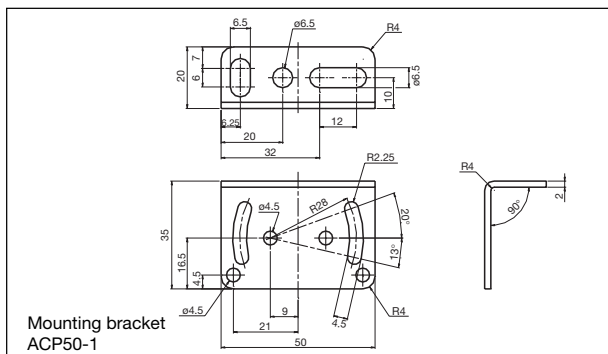
A proximity switch should not serve as mechanical stop

Switch mounted on mobile carrier



Any repetitive flexing of the cable should be avoided

## Delivery Contents



- Photoelectric switch: PC50 CND..
- Installation instruction
- Mounting bracket APC50-1
- **Packaging:** Cardboard box

## Accessories

- Screwdriver for adjustment: 77-001
- Connector type CON.1A..

For further information refer to "Accessories"