# 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

CE UL CSA

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_n	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

Rated operating distance (S_n)	Up to 1 m, reference target Kodak test card R 27, white, 90% reflectivity, 200 x 200 mm	**Light source** **Light type** **Sensing angle** **Ambient light**	GaAlAs, LED, 880 nm infrared, modulated ± 2° at 1/2 range Max. 5'000 lux
Blind zone	Max. 10 cm	**Operating frequency**	500 Hz
Sensitivity	Adjustable by single-turn potentiometer	**Response time** OFF-ON (t_{ON}) ON-OFF (t_{OFF})	≤ 1 ms ≤ 1 ms
Temperature drift	≤ 0.5%/°C	**Power ON delay** (t_v)	< 300 ms
Hysteresis (H) Differential travel	3 - 20%	**Output function** NPN and PNP Complementary function	Switch selectable Make and break (NO + NC)
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	**Indication function** Output ON Signal stability ON and power ON	LED, yellow LED, green
Ripple (U_{rpp})	≤ 10%		
Output current Continuous (I_e) Short-time (I)	≤ 200 mA ≤ 200 mA (max. load capacity 100 nF)	**Environment** Installation category Pollution degree	II (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1)
No load supply current (I_o)	≤ 40 mA		
Minimum operational current (I_m)	0.5 mA	Degree of protection	IP 67 (IEC 60529; 60947-1)
OFF-state current (I_r)	≤ 100 µA	**Temperature** Operating	-20° to +60°C (-4° to +140°F)
Voltage drop (U_d)	≤ 2.5 VDC @ 200 mA	Storage	-25° to +80°C (-13° to +176°F)
Protection	Short-circuit, reverse polarity, transients		

CARLO GAVAZZI

Specifications (cont.)

Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	Connection	
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)	Cable	PVC, grey, 2 m, 4 x 0.34 mm²
		Plug	PBTP, M12 x 1
		Cables for plug (M1)	CON.1A-series
Rated insulation voltage	50 VAC (rms)	Weight	110 g
Housing material		Approvals	UL, CSA
Body	PC/ABS, grey	CE-marking	Yes
Front glass	PC black		
Mounting bracket	Steel, galvanized		

Operation Diagram

tv = Power ON delay

Power supply

Object/target present

Break (NC) Output ON ⊢tv⊣

Make (NO) Output ON ⊢tv⊣
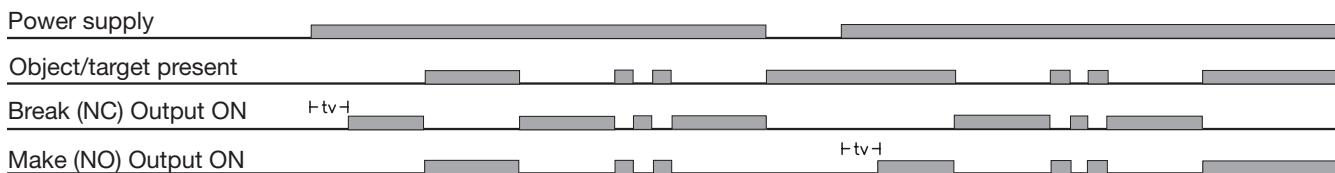
Dimensions

Plug version

Cable version

Specifications are subject to change without notice (27.02.2006)

CARLO GAVAZZI

Wiring Diagrams

NPN

1 BN   +
2 WH
4 BK
3 BU   −

PNP

1 BN   +
4 BK
2 WH
3 BU   −

Detection Diagram

Sensor
X   R274
Kodac test card   Y

(mm)

150,00
100,00
50,00
0,00
-50,00
-100,00
-150,00

0   200,0   400,0   600,0   800,0   1000,0   1200,0
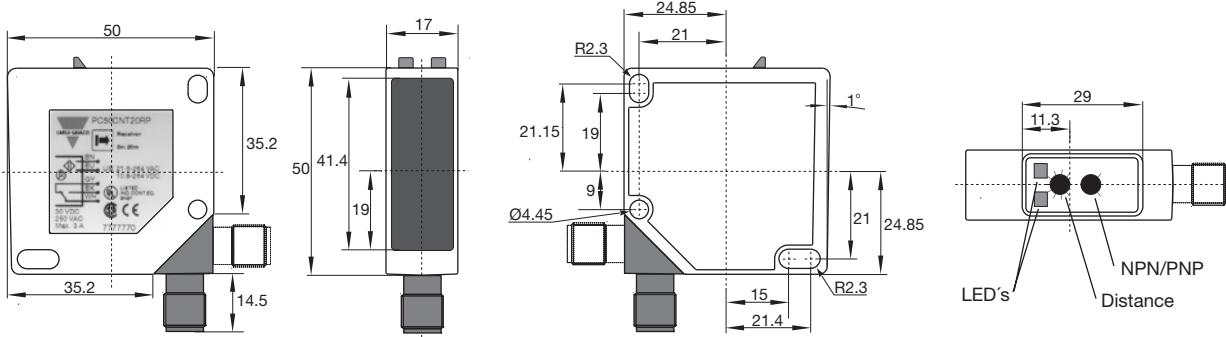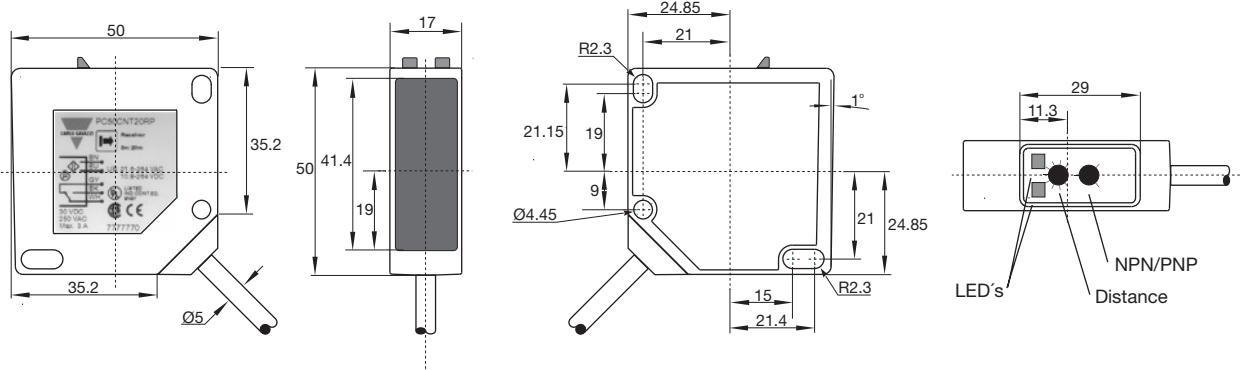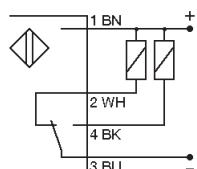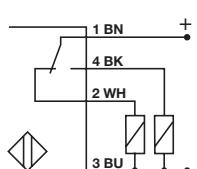
Sensing range (mm)
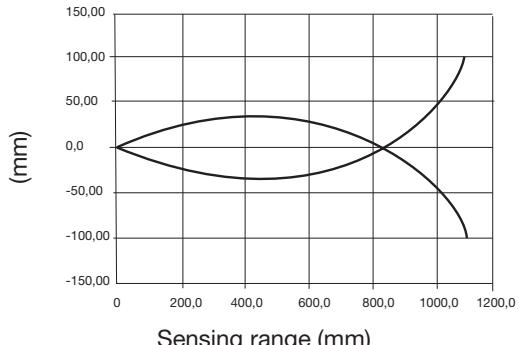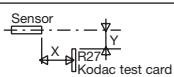
Signal Stability

Excess gain

150%
100%
70%

Time

Green LED ON
Yellow LED ON

Excess Gain

1000,0

100,0

Excess gain

10,0

1,0

1   10   100   1000   10000

Sensing range (mm)
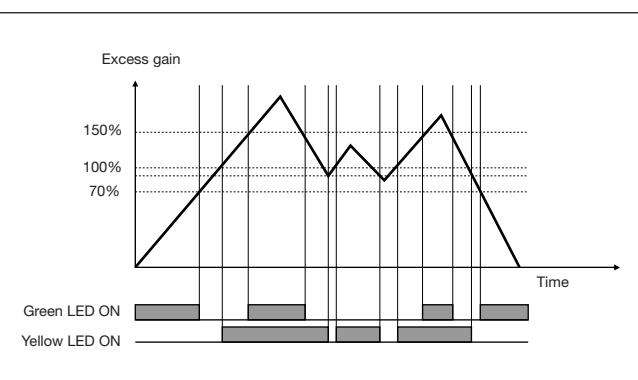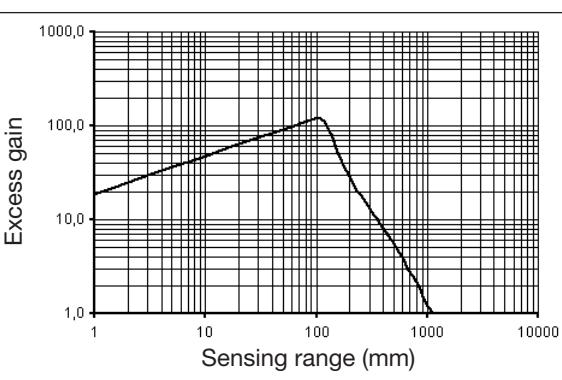
Installation Hints

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	Protection of the sensing face	Switch mounted on mobile carrier
	Incorrect		
10	Correct		
	The cable should not be pulled	A proximity switch should not serve as mechanical stop	Any repetitive flexing of the cable should be avoided
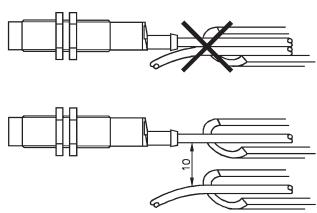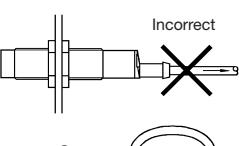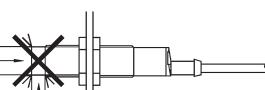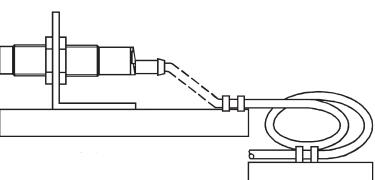
Delivery Contents

Mounting bracket ACP50-1
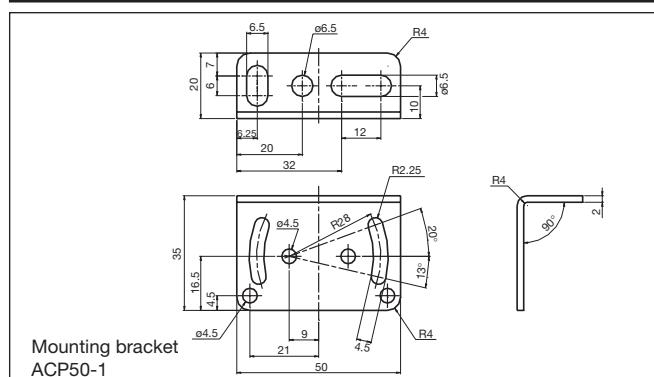
- Photoelectric switch: PC50 CND..
- Installation instruction
- Mounting bracket APC50-1
- **Packaging:** Cardboard box

Accessories

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

For further information refer to "Accessories"