Photoelectrics
Diffuse-reflective, Background Suppression
Type PC50CNB50BA



- **Range: 500 mm**
- **Adjustable background suppression 120-500 mm**
- **Modulated, infrared light**
- **Supply voltage: 10 to 30 VDC**
- **Output: 200 mA, NPN or PNP selectable**
- **Make and break switching function programmable**
- **LED for output indication, signal stability and power ON**
- **Protection: reverse polarity, short circuit, transients**
- **Cable and plug version**
- **Color independent detection**
- **Excellent EMC**

Product Description

The PC50CNB. is a family of high accuracy background suppression sensors in a compact square 17 x 50 x 50 mm reinforced PC/ABS-housing. They are useful in applications where color independence or background suppression is necessary. 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

PC50CNB50BAM1

- **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	500 mm	**PC 50 CNB 50 BA**	**PC 50 CNB 50 BAM1**

Specifications

Rated operating distance (S_n)	Up to 500 mm, reference target Kodak test card R 27, 90% white and 18% grey reflectivity, 200 x 200 mm
Blind zone	Max. 120 mm
Sensitivity	Adjustable by two single-turn potentiometers, coarse and fine
Temperature drift	± 0.5%/°C
Hysteresis (H) differential travel	Max. 20% on grey and white
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rpp})	≤ 10%
Output current Continuous (I_e) Short-time (I)	 ≤ 200 mA ≤ 200 mA, (max. load capacity 100 nF)
No load supply current (I_o)	80 mA @ 10 VDC 40 mA @ 30 VDC
Minumum operational current (I_m)	0.5 mA
OFF-state current (I_r)	≤ 100 µA
Voltage drop (U_d)	≤ 2.5 VDC @ 200 mA
Protection	Short-circuit, reverse polarity, transients
Light source	GaAlAs, LED, 850 nm
Light type	Infrared, modulated
Sensing angle	± 2°
Ambient light	Max. 10'000 lux
Operating frequency	250 Hz
Response time OFF-ON (t_{ON}) ON-OFF (t_{OFF})	 ≤ 2 ms ≤ 2 ms
Power ON delay (t_v)	< 300 ms
Output function NPN and PNP Complementary switch	 Switch selectable Make and break (NO + NC)
Indication function Output ON Signal stability ON and power ON	 LED, yellow LED, green
Environment Installation category Pollution degree Degree of protection	 II (IEC 60664/60664A; 60947-1) 3 (IEC 60664/60664A; 60947-1) IP 67 (IEC 60529; 60947-1)

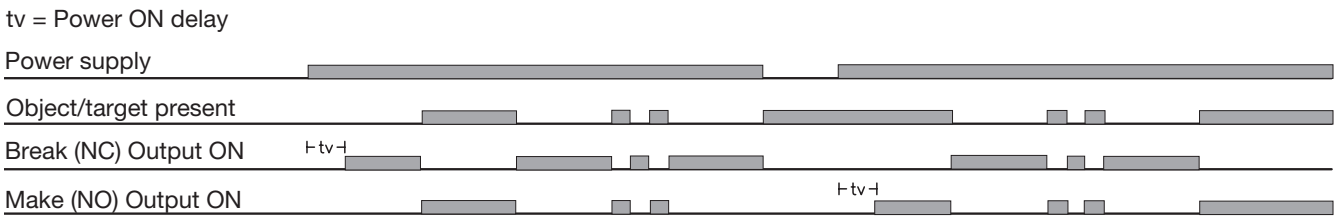
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Specifications (cont.)

Temperature	
Operating	-20° to +60°C (-4° to +140°F)
Storage	-25° to +80°C (-13° to +176°F)
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-6, 60068-2-32)
Rated insulation voltage	50 VAC (rms)

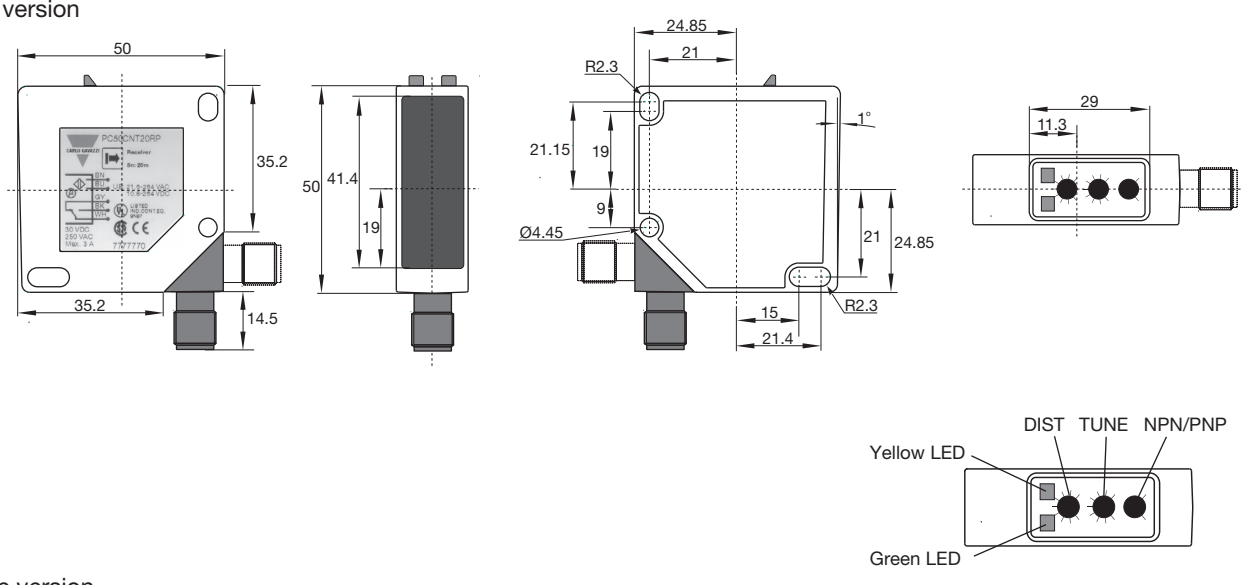
Housing material	
Body	PC/ABS, grey
Front glass	PC black
Mounting bracket	Steel, galvanized
Connection	
Cable	PVC, grey, 2 m, 4 x 0.34 mm²
Plug	PBTP, M12 x 1
Cables for plug (M1)	CON.14NF.. series
Weight	130 g
CE-marking	Yes

Operation Diagram

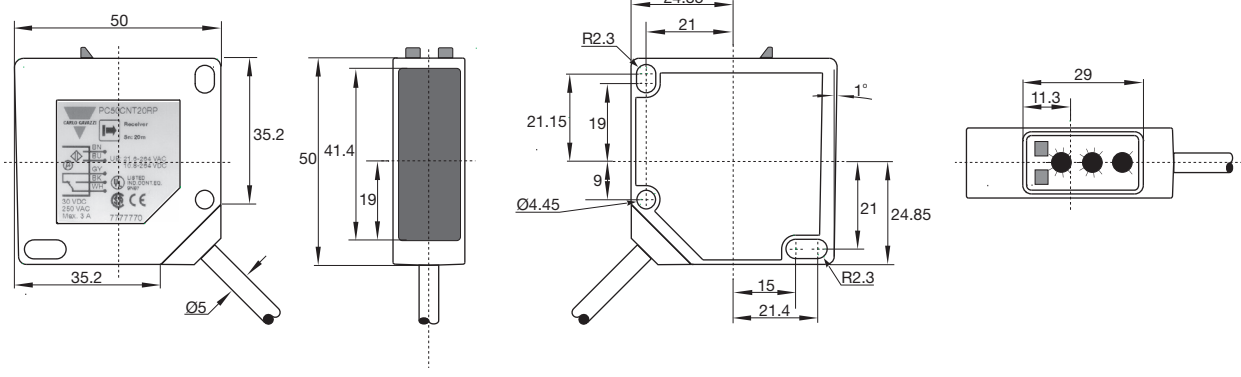


Dimensions

Plug version



Cable version

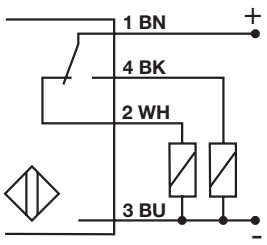


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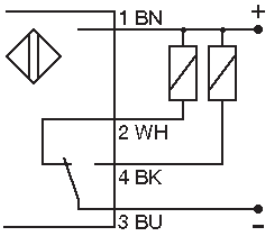
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Wiring Diagrams

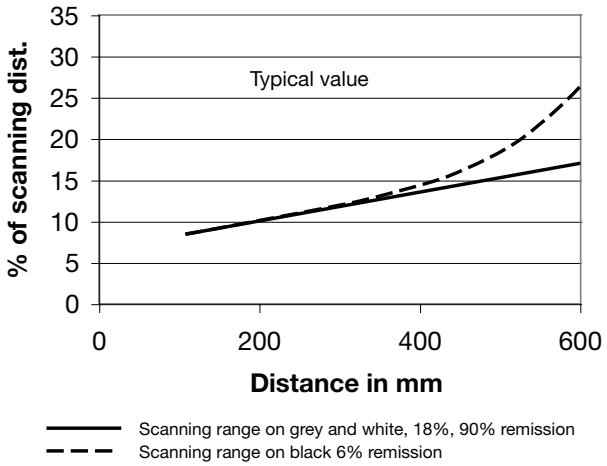
NPN



PNP

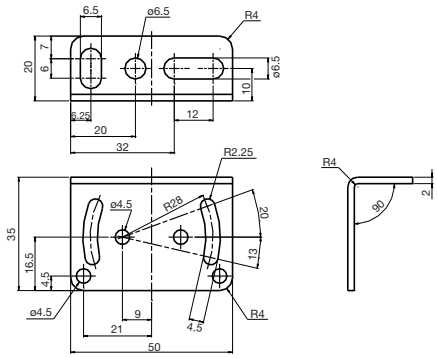


Sensing Conditions



Delivery Contents

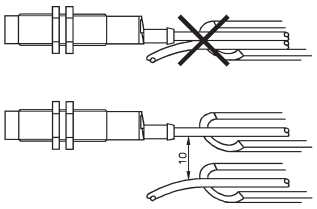
- Photoelectric switch: PC50 CNB..
- Installation instruction
- Mounting bracket APC50-1
- **Packaging:** Cardboard box



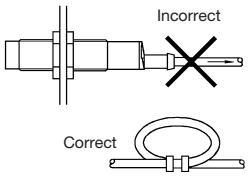
Mounting bracket APC50-1

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

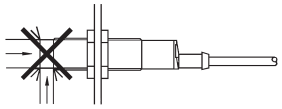


Relief of cable strain



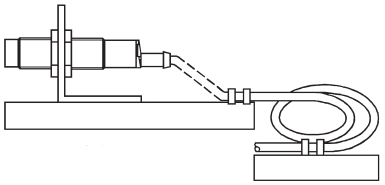
The cable should not be pulled

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

Accessories

- Screwdriver for adjustment: 77-001

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