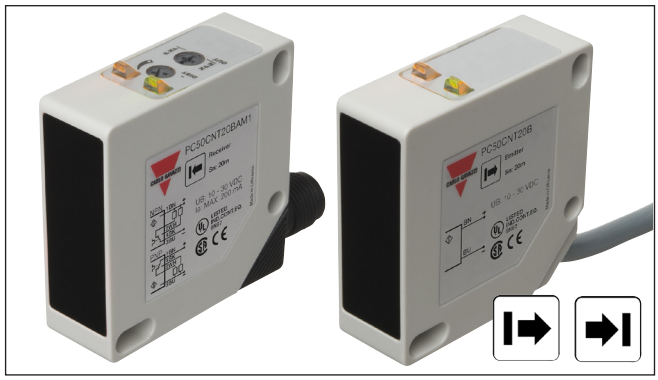
# Photoelectrics
# Through-beam, Transistor Output
# Type PC50CNT20B.

CARLO GAVAZZI



- **Range: 20 m**
- **Adjustable sensitivity**
- **Modulated, infrared light**
- **Supply voltage: 10 to 30 VDC**
- **Output: 200 mA, NPN or PNP selectable**
- **Make and break switching function**
- **LED for output indication, signal stability and power ON**
- **Protection: reverse polarity, short circuit, transients**
- **Cable and plug versions**
- **Excellent EMC**

## Product Description

The PC50CNT. is a family of general purpose through-beam 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

**PC50CNT20BAM1**

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

## Type Selection

| Housing<br>W x H x D | Range<br>$S_n$ | Connection | Ordering no.<br>Receiver<br>NPN & PNP<br>Make & break switching | Ordering no.<br>Emitter |
|---|---|---|---|---|
| 17 x 50 x 50 mm | 20 m | Cable | **PC 50 CNT 20 BA** | **PC 50 CNT 20 B** |
| 17 x 50 x 50 mm | 20 m | Plug | **PC 50 CNT 20 BAM1** | **PC 50 CNT 20 BM1** |

**Note:** Please order emitter and receiver separately

## Specifications Emitter

| | | | |
|---|---|---|---|
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC | **Light type** | Infrared, modulated |
| **Ripple** ($U_{rrp}$) | ≤ 10% | **Optical angle** | ± 2° at 1/2 range |
| **Supply current** | ≤ 50 mA | **Indication function**<br>Power supply ON | LED, green |
| **Protection** | Reverse polarity, transients | | |
| **Light source** | GaAs LED, 950 nm | | |

## Specifications Receiver

| | | | |
|---|---|---|---|
| **Rated operating dist.** ($S_n$) | 20 m | **No load supply current** ($I_o$) | ≤ 40 mA |
| **Blind zone** | None | **Minimum operational current** ($I_m$) | 0.5 mA |
| **Sensitivity** | Adj. by single-turn pot.meter | **OFF-state current** ($I_r$) | ≤100 µA |
| **Temperature drift** | ≤ 0.5%/°C | **Voltage drop** ($U_d$) | ≤ 2.5 VDC @ 200 mA |
| **Hysteresis** (H) | 3 - 20% | **Protection** | Short-circuit, reverse polarity, transients |
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC (ripple included) | **Operating frequency** (f) | 500 Hz |
| **Ripple** ($U_{rrp}$) | ≤ 10% | **Response time** OFF-ON ($t_{ON}$)<br>ON-OFF ($t_{OFF}$) | ≤ 1 ms<br>≤ 1 ms |
| **Output current**<br>Continuous ($I_e$)<br>Short-time (I) | <br>≤ 200 mA<br>≤ 200 mA,<br>(max. load capacity 100 nF) | **Power ON delay** ($t_v$) | ≤ 300 ms |



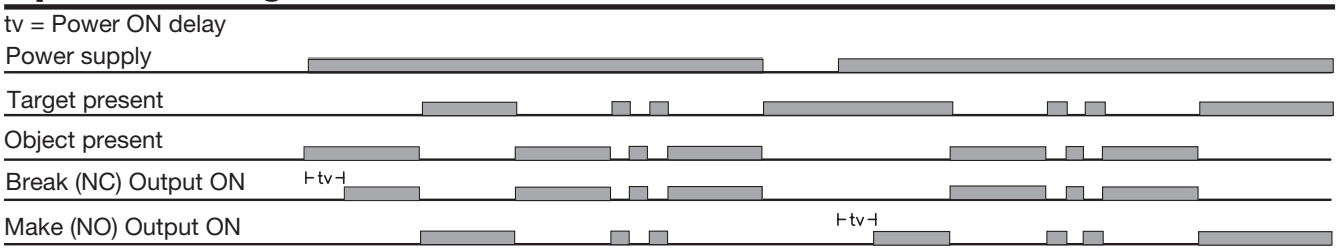
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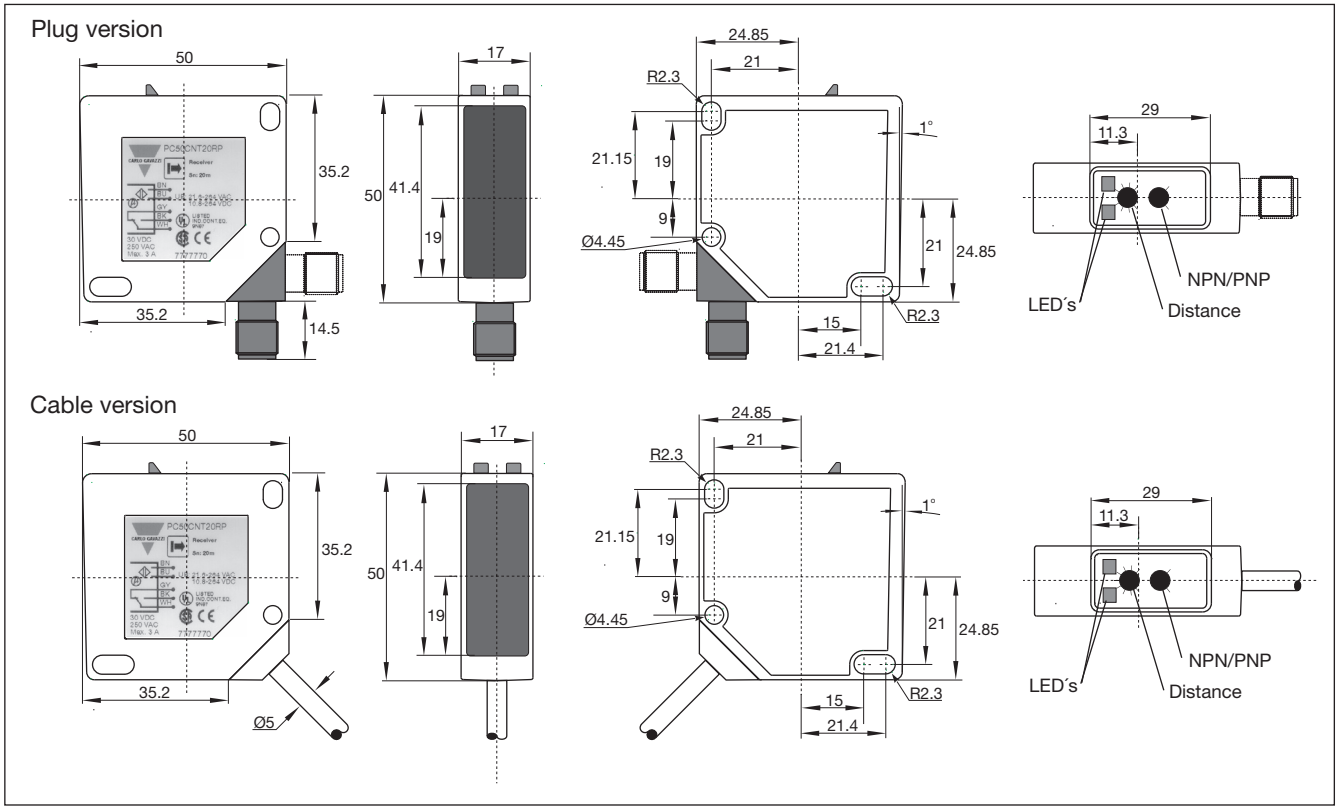
## General Specifications

| | |
|---|---|
| **Output function** | |
| NPN and PNP | Switch selectable |
| Complementary function | Make and break (NO + NC) |
| **Indication function** | |
| Output ON | LED, yellow |
| Signal stability ON and power ON | LED, green |
| **Environment** | |
| Overvoltage category | II (IEC 60664/60664A, 60947-1) |
| Pollution degree | 3 (IEC 60664/60664A, 60947-1) |
| Degree of protection | IP 67 (IEC 60529, 60947-1) |
| **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 60068-2-32) |
| **Rated insulation voltage** | 50 VDC |
| **Housing material** | |
| Body | PC/ABS, grey |
| Front glass | PC black |
| Mounting bracket | Steel, galvanized |
| **Connection** | |
| Cable receiver | PVC, grey, 2 m, 4 x 0.25 mm$^2$ |
| Cable emitter | PVC, grey, 2 m, 2 x 0.25 mm$^2$ |
| Plug (M1) | PBTP, M12 x 1 |
| Cables for plug (M1) | CON.14NF.. series |
| **Weight** | |
| Cable version | 185 g |
| Plug version | 102 g |
| **Approvals** | UL, CSA |
| **CE-marking** | Yes |

## Operation Diagram




## Dimensions



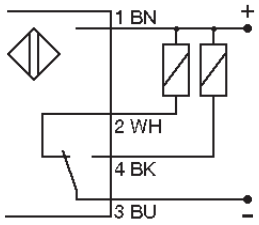



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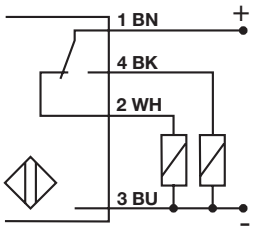
## Wiring Diagrams

Receiver

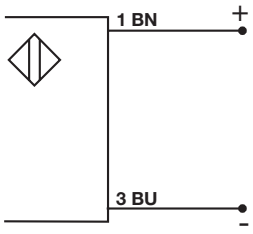
NPN



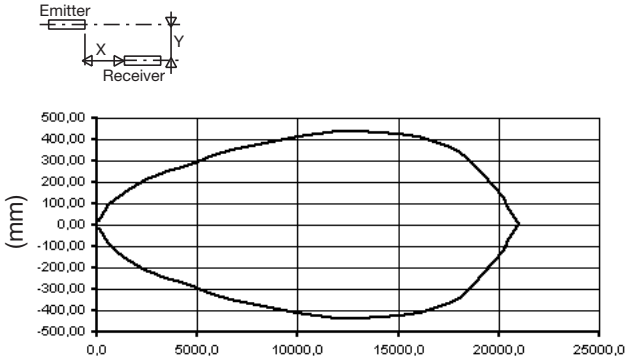

PNP



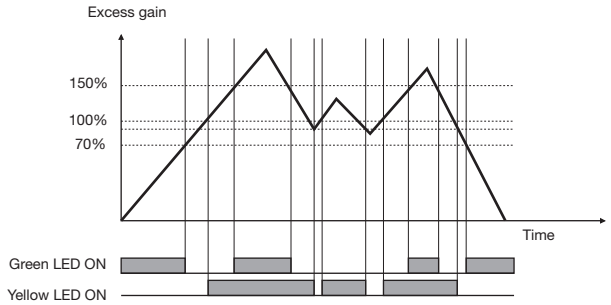

Emitter



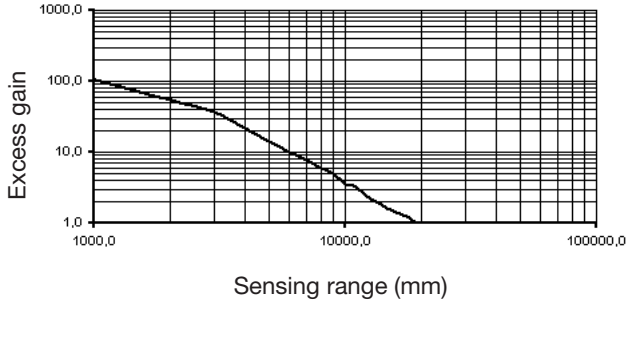

## Detection Diagram




## Signal Stability




## Excess Gain

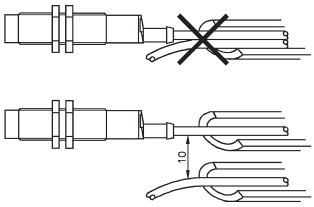




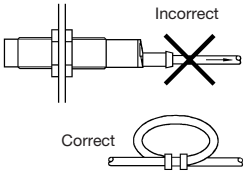

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## Installation Hints

*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*

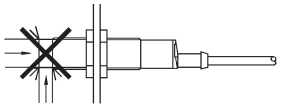



*Relief of cable strain*



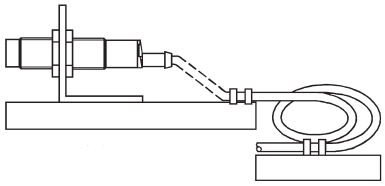

The cable should not be pulled

*Protection of the sensing face*



A proximity switch should not serve as mechanical stop

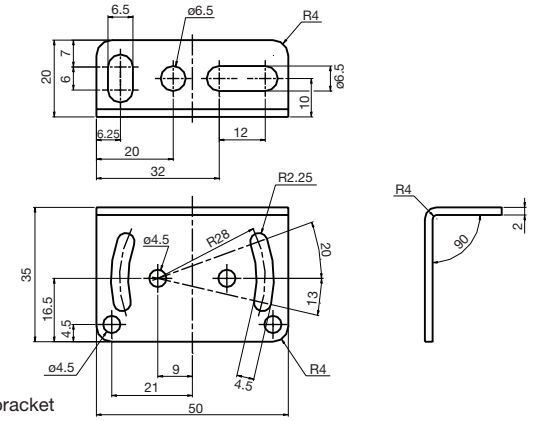
*Switch mounted on mobile carrier*



Any repetitive flexing of the cable should be avoided

## Delivery Contents

- Photoelectric switch: PC50CNT..
- Installation instruction
- Mounting bracket APC50-1
- **Packaging:** Cardboard box




Mounting bracket APC50-1

## Accessories

- Screwdriver 77.001
- Connector type CON.14NF.. serie



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