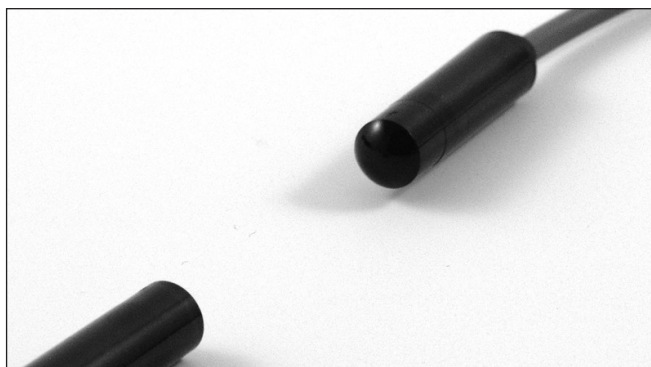


Photoelectrics Through-beam, Transistor Output Type PB10CNT20..

CARLO GAVAZZI



- Elevators, Escalators and Entrance control
- Range 20 m
- ESPE-Type 2, PL C.
- Modulated, infrared light
- Supply voltage: 10 to 30 VDC
- Output: 100 mA, NPN or PNP type
- Make or break switching
- LED for output indication or power supply
- Protection: reverse polarity, short circuit, transients
- Cable versions with or without connector
- Emitter mute and power adjustment
- CE, UL325 and UL508 approved



Product Description

The PB10CNT. is a through beam sensor set specially designed for Elevators, Escalators, Entrance control to meet the requirements in the door market. The housing is very robust and is

known for its high long term reliability. The emitter has a mute input to turn it off for evaluation of the sensor function. Available in 10-30 VDC version.

Ordering Key

PB10CNT20NO-C2

Type _____
Housing style _____
Housing size _____
Housing material _____
Sensor code _____
Detection principle _____
Sensing distance _____
Output type _____
Output configuration _____
Connection type _____
Cable connector _____

Type Selection

Housing diameter	Range S _n	Con- nec- tor	Ordering no. Receiver NPN, NO	Ordering no. Receiver NPN, NC	Ordering no. Receiver PNP, NO	Ordering no. Receiver PNP, NC	Ordering no. Emitter
Ø 10 mm	20 m	NO	PB10CNT20NO	PB10CNT20NC	PB10CNT20PO	PB10CNT20PC	PB10CNT20
Ø 10 mm	20 m	YES	PB10CNT20NO-C2	PB10CNT20NC-C2	PB10CNT20PO-C2	PB10CNT20PC-C2	PB10CNT20-C2

Note: Please order emitter and receiver separately

Specifications Emitter

Rated operational volt. (U _B)	10 to 30 VDC
Ripple (U _{rrp})	≤ 10%
Supply current	≤ 20 mA
Protection	Reverse polarity, transients
Power ON delay (t _v)	≤ 100 ms
Control input	
Normal oper.	> 1.5 VDC
Mute	< 1.2 VDC
Light source	LED, 860 nm

Light type	Infrared, modulated
Light spot	1580 mm @ 12 m
Emitter angle	± 3.8° @ 12 m
Indication function	
Power supply ON	LED, green
Mute input ON	LED, green flashing, 3.5 Hz
Power adjustment	
R _x ~ 3 kΩ -10 kΩ	4...24 m in 19 steps

Specifications Receiver

Rated operating dist. (S_n)	20 m	Utility category	DC12	Control of resistive loads and solid state loads with optical insulation
Blind zone	None		DC13	Control of electromagnets
Temperature drift	≤ 0.4%/°C	Ambient light		> 80.000 Lux (EN60947-5-2)
Hysteresis (H)	3 - 20%	Detection angle		± 2.9° @ 12 m
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Operating frequency (f)		100 Hz
Ripple (U_{rrp})	≤ 10%	Response time	OFF-ON (t _{ON})	≈ 6.5 ms
No load supply current (I_o)	≤ 16 mA		ON-OFF (t _{OFF})	≈ 3.5 ms
Output current		Power ON delay (t_v)		≤ 100 ms
Continuous (I _a)	≤ 100 mA	Output function	NPN or PNP	Make or break (NO or NC)
Short-time (I)	≤ 100 mA, (max. load capacity 100 nF)	Indication function	Output ON	LED, yellow
Minimum operational current (I_m)	0.5 mA			
OFF-state current (I_r)	≤ 100 µA			
Voltage drop (U_d)	≤ 1.6 VDC @ 100 mA			
Protection	Short-circuit, reverse polarity, transients			

General Specifications

Environment		Surge (EN 61000-4-5)	
Overvoltage category	III (IEC 60664/60664A, 60947-1)	Power-supply	> 1 kV (with 500 Ω)
Pollution degree	3 (IEC 60664/60664A, 60947-1)	Sensor output	> 1 kV (with 500 Ω)
Degree of protection	IP67 (IEC 60529; EN60947-1) 1, 2, 3, 4, 6, 12, 13 (NEMA types)	Wire conducted disturbances (EN 61000-4-6)	> 10 Vrms
Temperature		Power-frequency magnetic fields (EN 61000-4-8)	
Operating	-20° to +50°C (-4° to +122°F)	Continuous	> 30 A/m, 38 µ tesla
Storage	-25° to +80°C (-13° to +176°F)	Short-time	> 300 A/m, 380 µ tesla
Rated insulation voltage	75 VDC	Vibration (IEC 60068-2-6)	10 to 150 Hz, 1 mm / 15 g
Dielectric test voltage	500 Vac rms (EN60947-1)	Shock (IEC 60068-2-27)	30 G / 11 ms, 6 pos, 6 neg per axis
Rated impulse withstand test	800 V (1.2 / 50 µs) (EN60947-1)	Free fall (IEC 60068-2-31)	2 times from 1 m 100 times from 0.5 m
ESPE	Type 2	Pig-tail connector (-C2)	3-pol micro MATE-N-LOK Series, AMP/TE
PFH_d	6 x 10 ⁻⁸ failure per hour (worst case SRP for CS)	Housing material	
Diagnostic coverage	99 % (EN13849-1: 2008)	Body	PC black
Performance level	C (EN13849-1: 2008)	Connection	
MTTF_d (worst case full sensor)	345 Years (worst case full receiver) EN ISO 13849-1, SN 29500 412 Years (worst case full emitter) EN ISO 13849-1, SN 29500	Cable	PVC, Emitter: grey / Receiver: black, 5 m, 3 x 0.14 mm ² , Ø 2.9 mm
Electrostatic discharge (EN61000-4-2)		Weight	
Contact discharge	> 12 kV	Emitter	80 g
Air discharge	> 8 kV	Receiver	80 g
Radiated RF electromagnetic fields (EN 61000-4-3)		CE-marking	EN12445, EN12453, EN12978, EN 60947-5-2
Electrical fast transients/burst (EN 61000-4-4)	> 10 V/m ± 4 kV	UL-Approval	UL325 UL508, CSA-C22.2 No.247

Operation Diagram

tv = Power ON delay

Power supply

Target emitter present

Object present

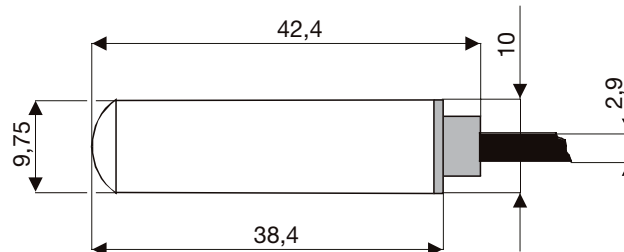
Break (NC) Output ON

Make (NO) Output ON

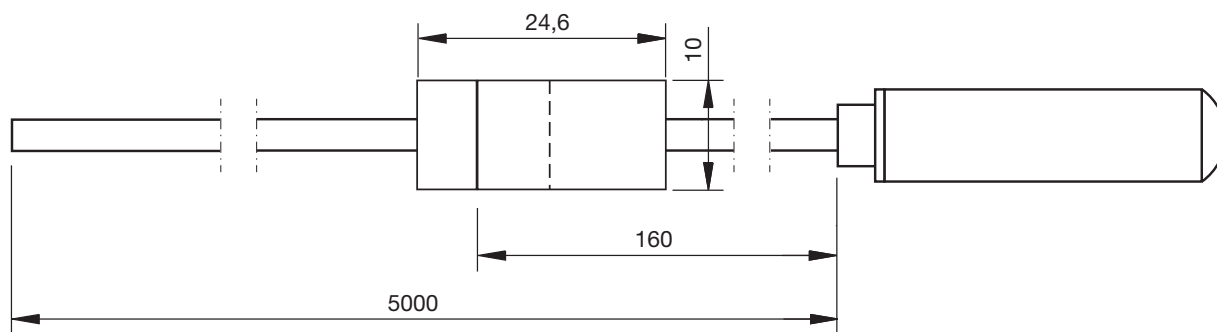
Mute active ≤ 1.2 VDC

Dimensions

PB10.....

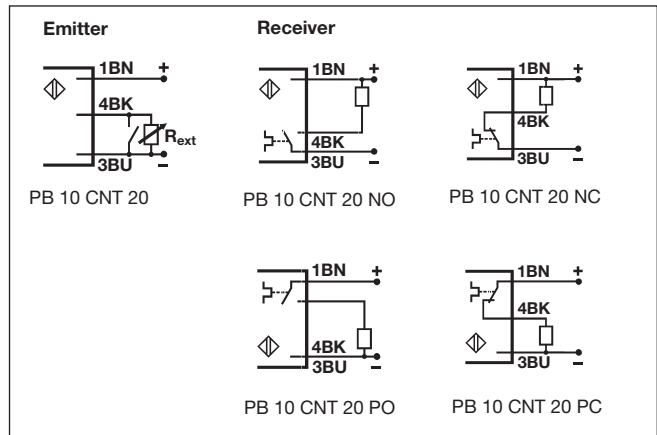


PB10.....-C2 with connector

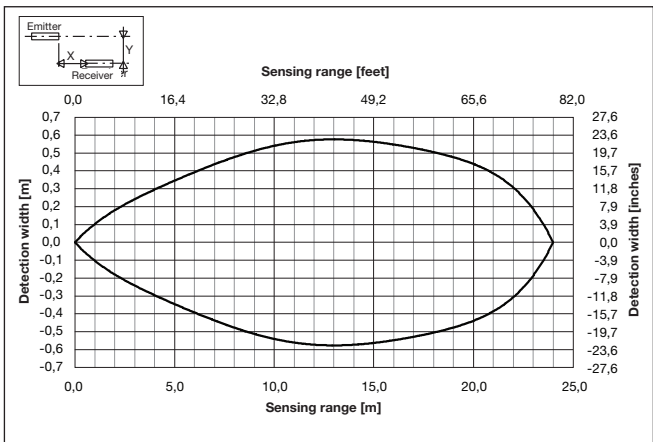




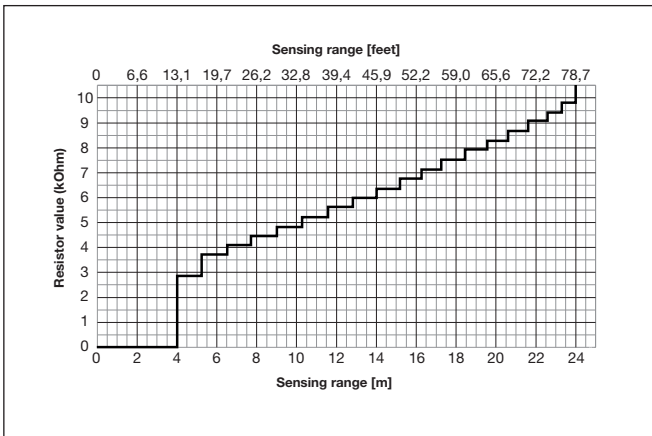
Wiring Diagram



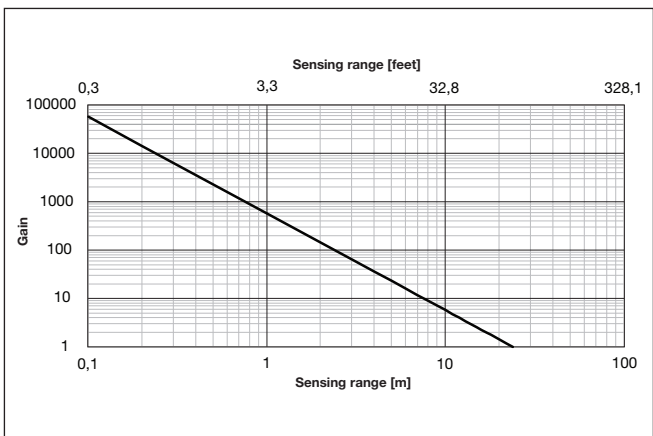
Detection Diagram



Power adjustment curve



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

- PB10
- Packaging: plastic bag