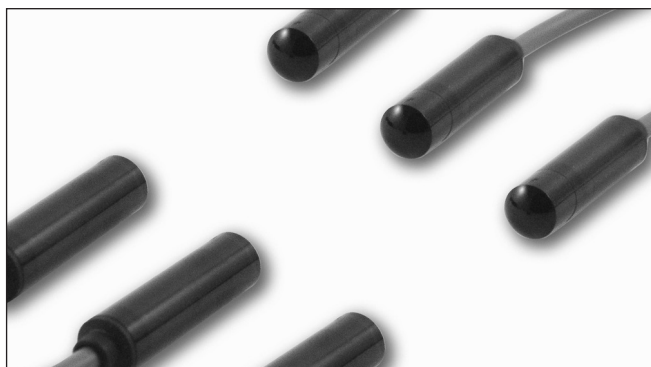


Photoelectrics Through-beam, Transistor Output Type PB10C.T20..

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
- High neighbour immunity, 3-codes
- 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.

The emitter and receivers can be delivered in 3 different codes on order to improve neighbour immunity. Available in 10-30 VDC version.

Ordering Key

PB10C1T20NO-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
Ø10 mm Code 1	20 m	NO	PB10C1T20NO	PB10C1T20NC	PB10C1T20PO	PB10C1T20PC	PB10C1T20
Ø10 mm Code 2	20 m	NO	PB10C2T20NO	PB10C2T20NC	PB10C2T20PO	PB10C2T20PC	PB10C2T20
Ø10 mm Code 3	20 m	NO	PB10C3T20NO	PB10C3T20NC	PB10C3T20PO	PB10C3T20PC	PB10C3T20
Ø10 mm Code 1	20 m	YES	PB10C1T20NO-C2	PB10C1T20NC-C2	PB10C1T20PO-C2	PB10C1T20PC-C2	PB10C1T20-C2
Ø10 mm Code 2	20 m	YES	PB10C2T20NO-C2	PB10C2T20NC-C2	PB10C2T20PO-C2	PB10C2T20PC-C2	PB10C2T20-C2
Ø10 mm Code 3	20 m	YES	PB10C3T20NO-C2	PB10C3T20NC-C2	PB10C3T20PO-C2	PB10C3T20PC-C2	PB10C3T20-C2

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%	Light spot	1580 mm @ 12 m
Supply current	≤ 20 mA	Emitter angle	± 3.8° @ 12 m
Protection	Reverse polarity, transients	Indication function	Power supply ON Mute input ON
Power ON delay (t_v)	≤ 100 ms		LED, green LED, green flashing, 3.5 Hz
Control input		Power adjustment	R _x ~ 3 kΩ -10 kΩ
Normal oper.	> 1.5 VDC		
Mute	< 1.2 VDC		
Light source	LED, 880 nm		4...24 m in 19 steps

Specifications Receiver

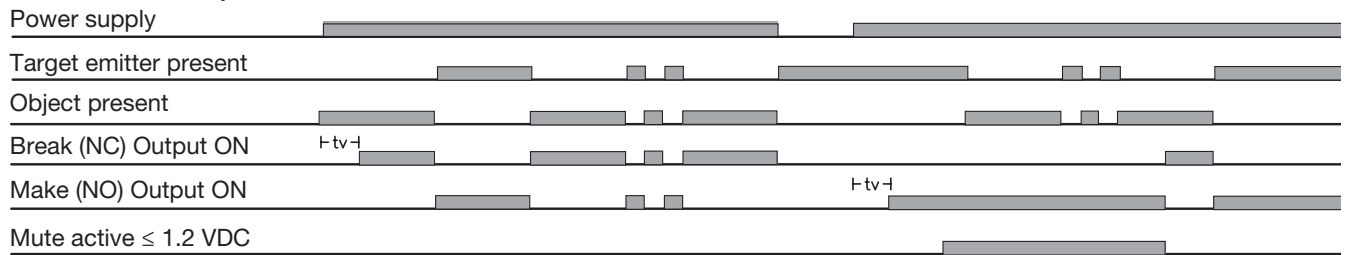
Rated operating dist. (S_n)	20 m	Utility category	DC12	Control of resistive loads and solid state loads with optical insulation
Blind zone	None		DC13	Control of electromagnets
Temperature drift	≤ 0.4%/°C	Ambient light		> 80.000 Lux (EN60947-5-2)
Hysteresis (H)	3 - 20%	Detection angle		± 2.9° @ 12 m
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Operating frequency (f)		30 Hz
Ripple (U_{rrp})	≤ 10%	Response time	OFF-ON (t _{ON})	≈ 10 ms
No load supply current (I_o)	≤ 13 mA		ON-OFF (t _{OFF})	≈ 20 ms
Output current		Power ON delay (t_v)		≤ 300 ms
Continuous (I _a)	≤ 100 mA	Output function		NPN or PNP
Short-time (I)	≤ 100 mA, (max. load capacity 100 nF)			Make or break (NO or NC)
Minimum operational current (I_m)	0.5 mA	Indication function		Output ON
OFF-state current (I_r)	≤ 100 μA			LED, yellow
Voltage drop (U_d)	≤ 1.6 VDC @ 100 mA			
Protection	Short-circuit, reverse polarity, transients			

General Specifications

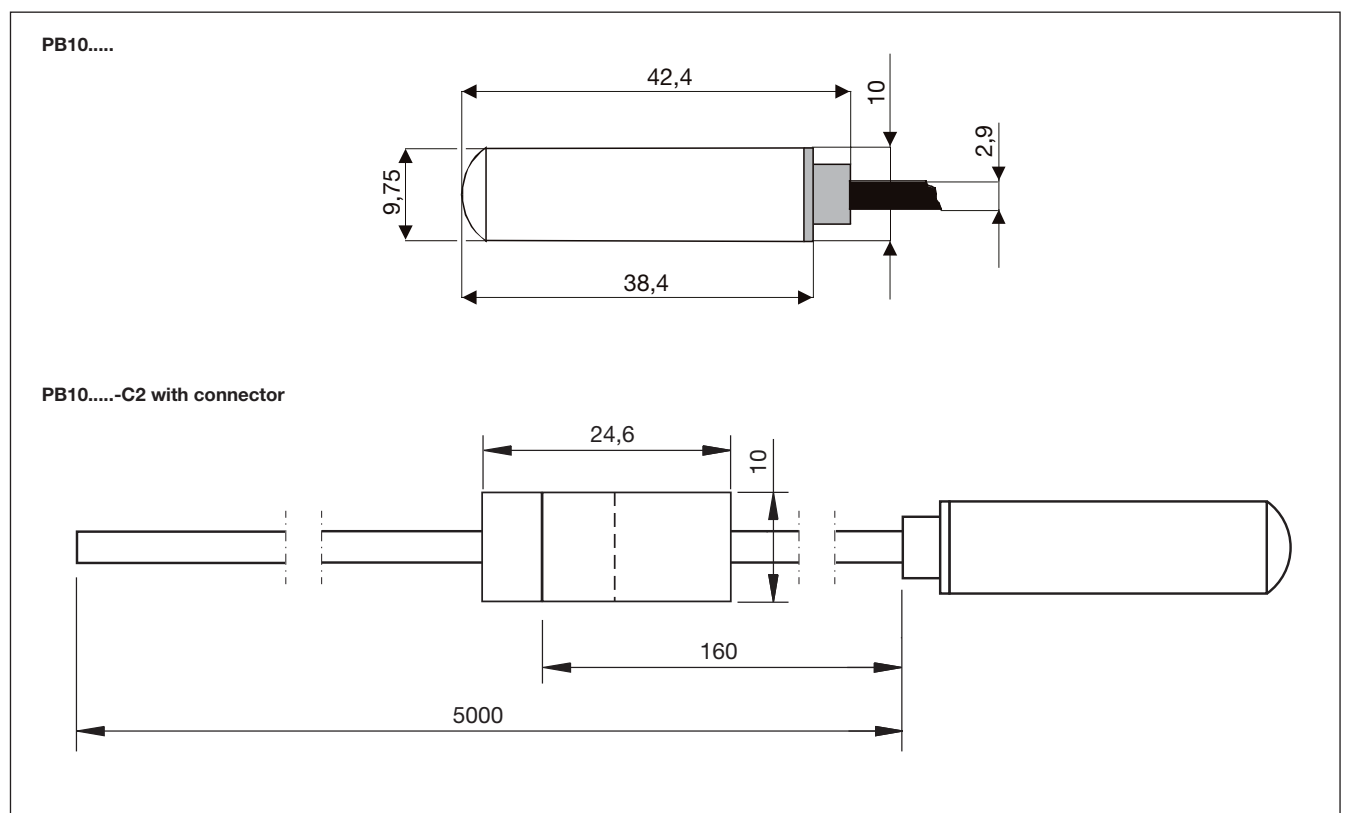
Environment		Surge (EN 61000-4-5)		
Overvoltage category	III (IEC 60664/60664A, 60947-1)	Power-supply	> 1 kV (with 500 Ω)	
Pollution degree	3 (IEC 60664/60664A, 60947-1)	Sensor output	> 1 kV (with 500 Ω)	
Degree of protection	IP67 (IEC 60529; EN60947-1) 1, 2, 3, 4, 6, 12, 13 (NEMA types)	Wire conducted 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	50 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

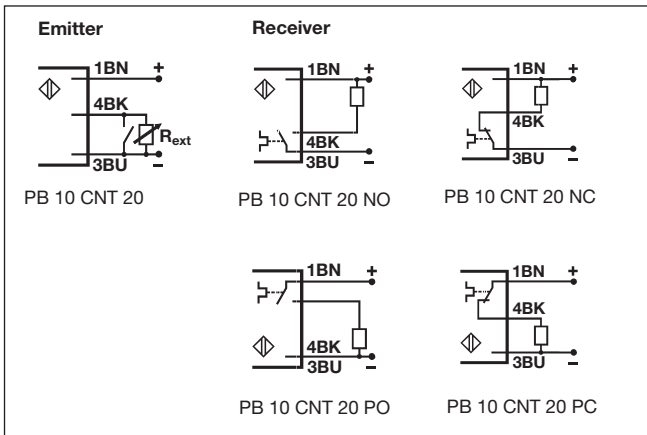


Dimensions

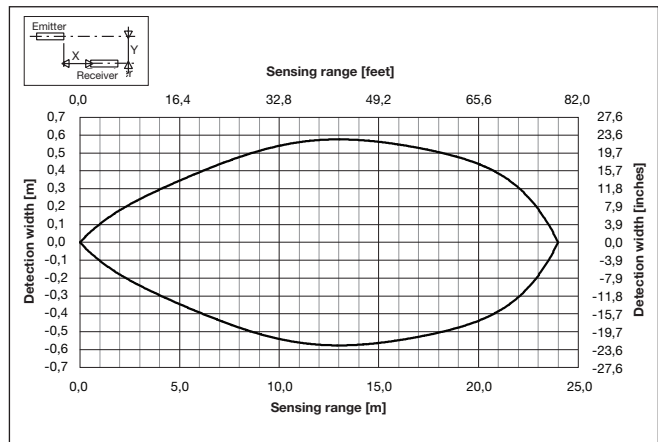




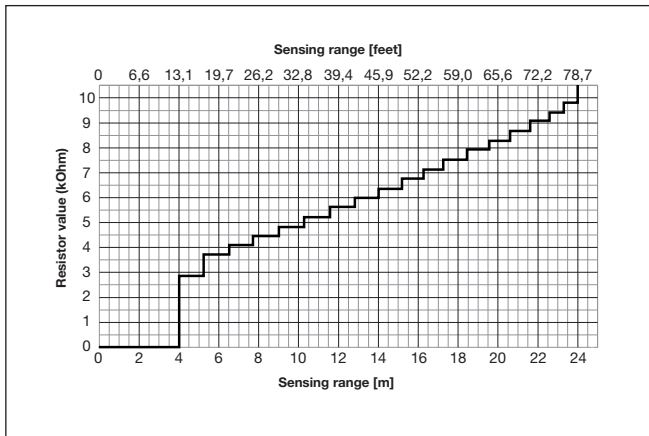
Wiring Diagram



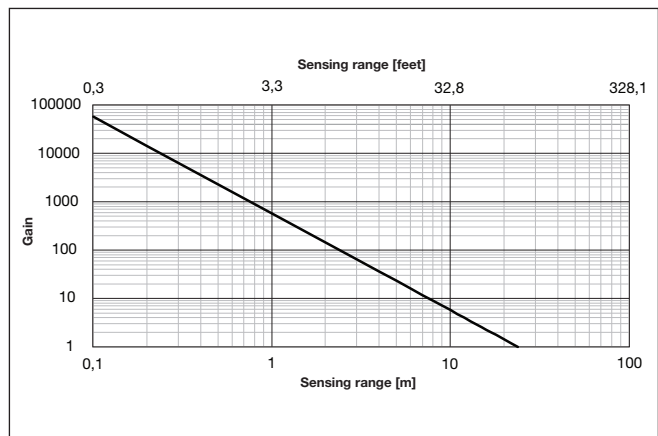
Detection Diagram



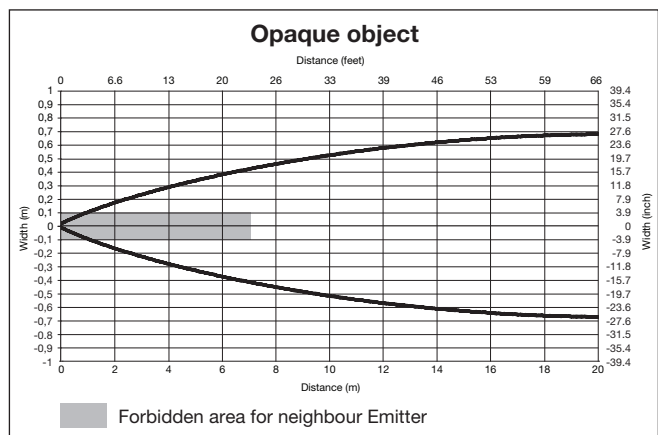
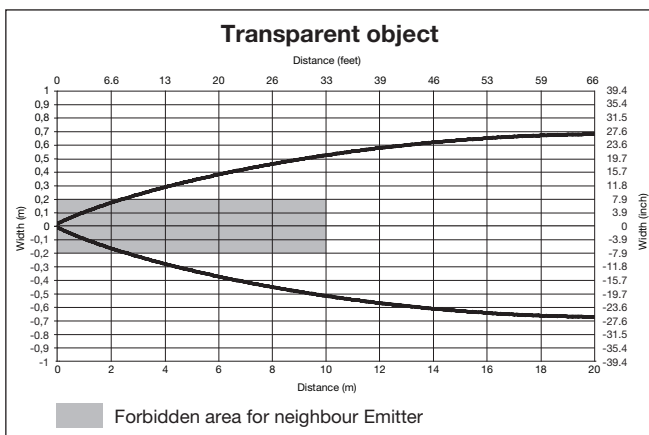
Power adjustment curve



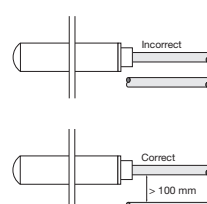
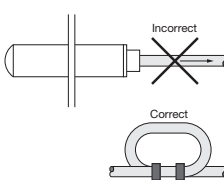
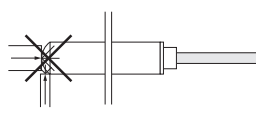
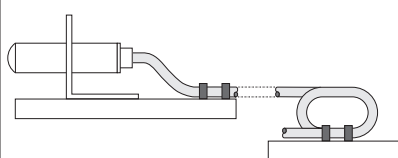
Excess Gain



Neighbour Immunity Diagram



Installation Hints

<p><i>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</i></p> 	<p><i>Relief of cable strain</i></p>  <p>The cable should not be pulled</p>	<p><i>Protection of the sensing face</i></p>  <p>A proximity switch should not serve as mechanical stop</p>	<p><i>Switch mounted on mobile carrier</i></p>  <p>Any repetitive flexing of the cable should be avoided</p>
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Delivery Contents

- PB10
- **Packaging:** plastic bag