

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

CARLO GAVAZZI



- Elevators, Escalators and Entrance control
- Range 20 m
- 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 mute. 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
Ø 10 mm Code 1	20 m	NO	PB10C1T20NO	PB10C1T20NC	PB10C1T20PO	PB10C1T20PC	PB10C1T20
Ø 10 mm Code 2	20 m	NO	PB10C2T20NO	PB10C2T20NC	PB10C2T20PO	PB10C2T20PC	PB10C2T20
Ø 10 mm Code 3	20 m	NO	PB10C3T20NO	PB10C3T20NC	PB10C3T20PO	PB10C3T20PC	PB10C3T20
Ø 10 mm Code 1	20 m	YES	PB10C1T20NO-C2	PB10C1T20NC-C2	PB10C1T20PO-C2	PB10C1T20NC-C2	PB10C1T20-C2
Ø 10 mm Code 2	20 m	YES	PB10C2T20NO-C2	PB10C2T20NC-C2	PB10C2T20PO-C2	PB10C2T20NC-C2	PB10C2T20-C2
Ø 10 mm Code 3	20 m	YES	PB10C3T20NO-C2	PB10C3T20NC-C2	PB10C3T20PO-C2	PB10C3T20NC-C2	PB10C3T20-C2

Note: Please order emitter and receiver separately

Specifications Emitter

Rated operational volt. (U _B)	10 to 30 VDC	Light source	LED, 880 nm
Ripple (U _{rrp})	≤ 10%	Light type	Infrared, modulated
Supply current	≤ 20 mA	Optical angle	± 5°
Protection	Reverse polarity, transients	Indication function	Power supply ON Mute input ON
Control input		Power adjustment	R _x ~ 1.5 kΩ -10 kΩ
Normal oper.	> 1.5 VDC		50 - 100%, in 7 steps
Mute	< 1.2 VDC		



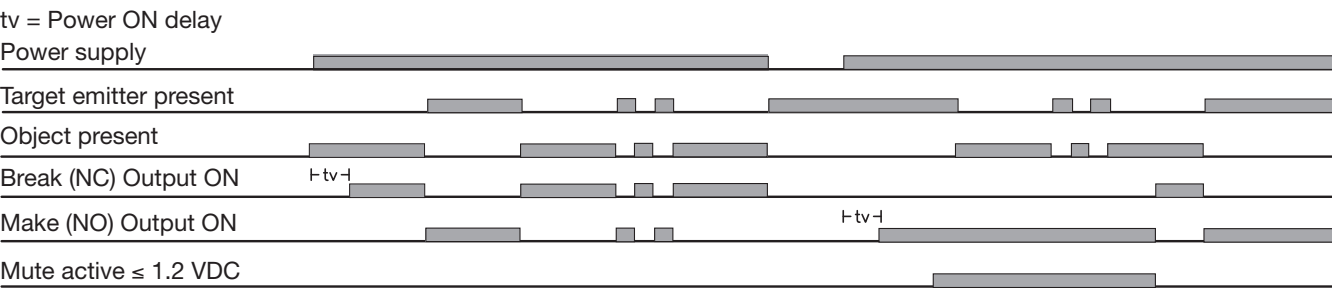
Specifications Receiver

Rated operating dist. (S _n)	20 m	Optical angle	± 5°
Blind zone	None	OFF-state current (I _r)	≤ 100 µA
Temperature drift	≤ 0.4%/°C	Voltage drop (U _d)	≤ 1.6 VDC @ 100 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)	30 Hz
Ripple (U _{rrp})	≤ 10%	Response time	OFF-ON (t _{ON}) ≈ 10 ms 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)	Indication function	Output ON
No load supply current (I _o)	≤ 13 mA		LED, yellow
Minimum operational current (I _m)	0.5 mA		
Ambient light	>20.000 LUX		

General Specifications

Environment		Rated insulation voltage	50 VDC
Overvoltage category	II (IEC 60664/60664A, 60947-1)	Housing material	PC black
Pollution degree	3 (IEC 60664/60664A, 60947-1)	Connection	
Degree of protection	IP 67 (IEC 60529, 60947-1)	Cable	PVC, TX: grey / RX: black, 5 m, 3 x 0.14 mm ² , Ø 2.9 mm
Temperature		Weight	
Operating	-20° to +50°C (-4° to +122°F)	Emitter	80 g
Storage	-25° to +80°C (-13° to +176°F)	Receiver	
Vibration	10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)	CE-marking	EN12445, EN12453, EN12978
Shock	2 x 1 m & 100 x 0.5 m (IEC 60068-2-32)	UL-Approval	cULus UL325, CSA-C22.2 No.247 cULus UL508

Operation Diagram



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

Incorrect

Correct

The cable should not be pulled

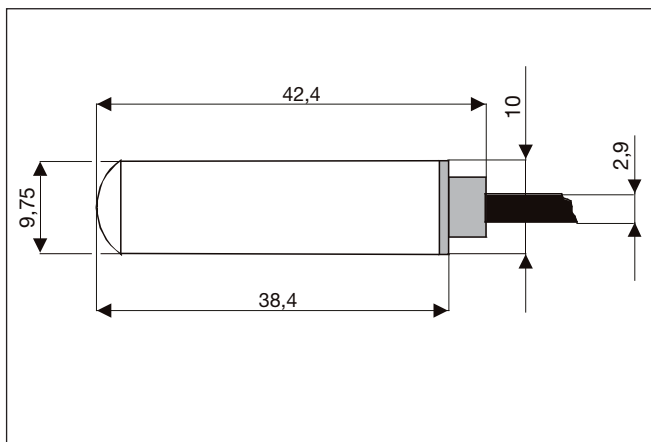
Protection of the sensing face

A proximity switch should not serve as mechanical stop

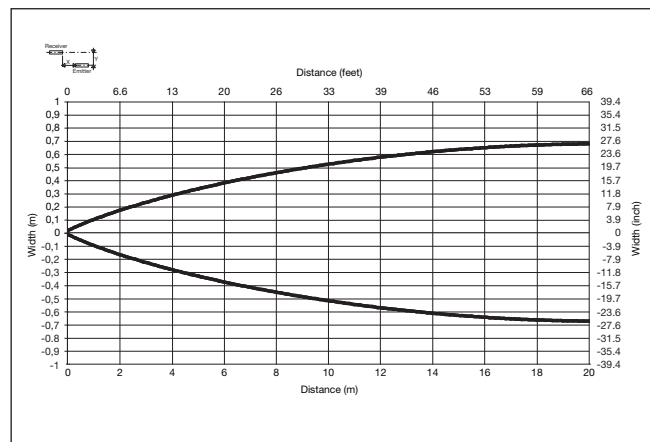
Switch mounted on mobile carrier

Any repetitive flexing of the cable should be avoided

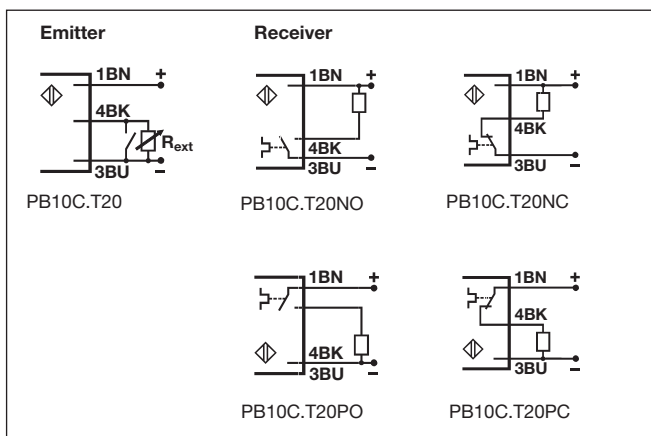
Dimensions



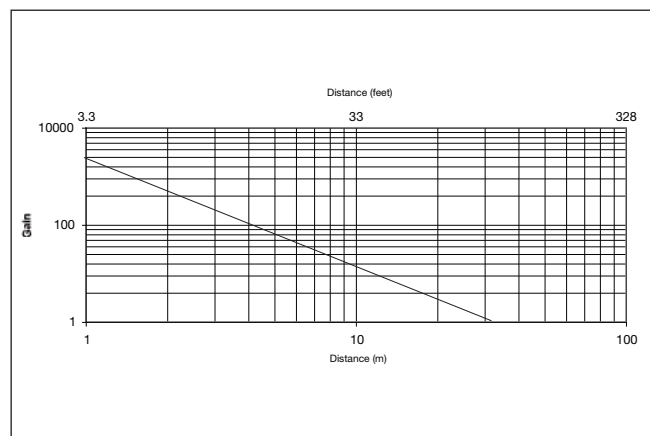
Detection Diagram



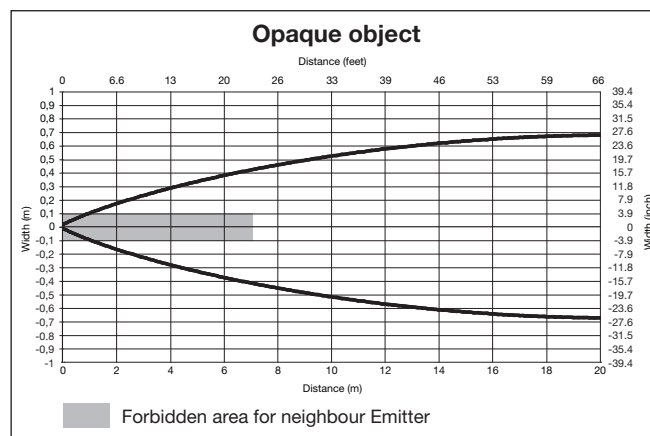
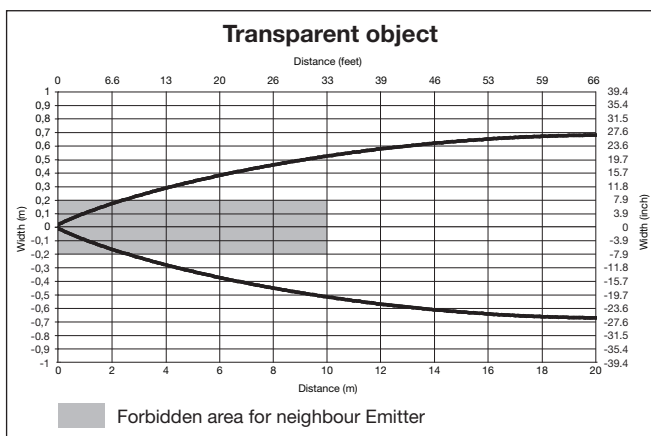
Wiring Diagram



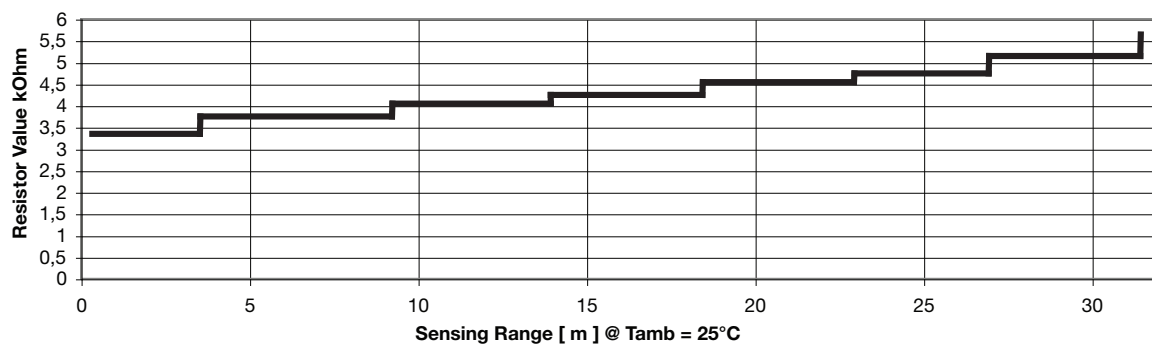
Excess Gain



Neighbour Immunity Diagram



Mute Function



For temperature $\leq 25^{\circ}\text{C}$ only adjustment in upper * range is recommended

Delivery Contents

- PB10
- Installation instruction
- **Packaging:** plastic bag