

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 _{rip})	≤ 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		
Mute	< 1.2 VDC		
			50 - 100%, in 7 steps

Specifications Receiver

Rated operating dist. (S_n)	20 m	Optical angle	$\pm 5^\circ$
Blind zone	None	OFF-state current (I_r)	$\leq 100 \mu\text{A}$
Temperature drift	$\leq 0.4\%/^\circ\text{C}$	Voltage drop (U_d)	$\leq 1.6 \text{ VDC @ } 100 \text{ mA}$
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_{rp})	$\leq 10\%$	Response time	OFF-ON (t_{ON}) $\approx 10 \text{ ms}$ ON-OFF (t_{OFF}) $\approx 20 \text{ ms}$
Output current		Power ON delay (t_v)	$\leq 300 \text{ ms}$
Continuous (I_o)	$\leq 100 \text{ mA}$	Output function	NPN or PNP
Short-time (I)	$\leq 100 \text{ mA}$, (max. load capacity 100 nF)		Make or break (NO or NC)
No load supply current (I_o)	$\leq 13 \text{ mA}$	Indication function	Output ON
Minimum operational current (I_m)	0.5 mA		LED, yellow
Ambient light	$>20.000 \text{ LUX}$		

General Specifications

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

Operation Diagram

t_v = Power ON delay

Power supply

Target emitter present

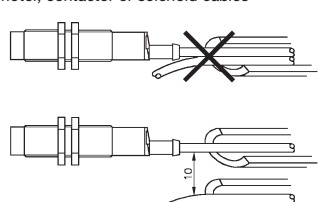
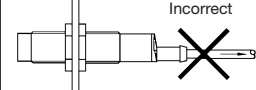
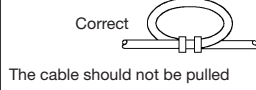
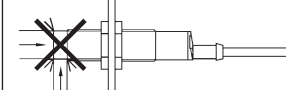
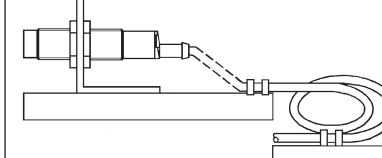
Object present

Break (NC) Output ON

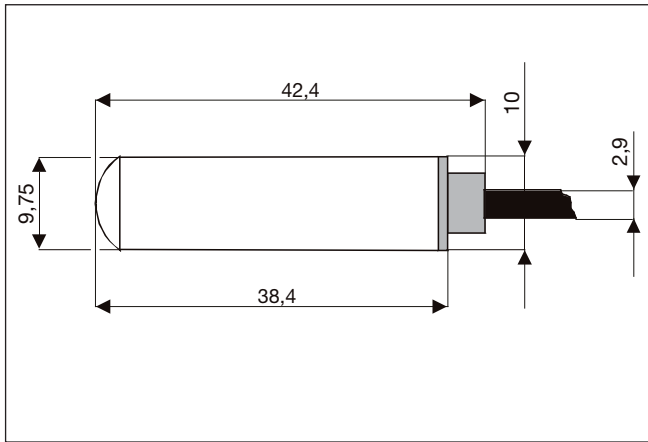
Make (NO) Output ON

Mute active $\leq 1.2 \text{ VDC}$

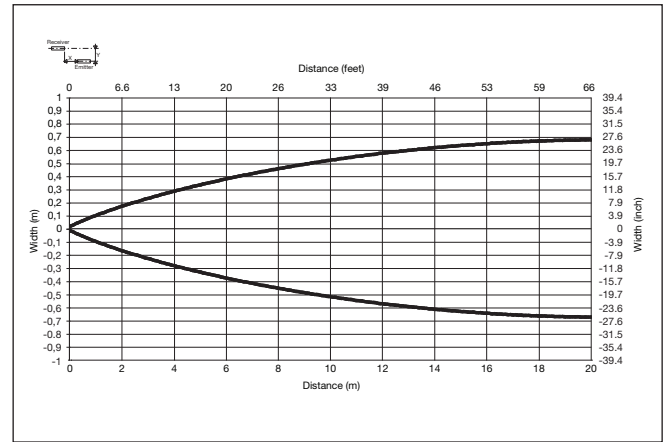
Installation Hints

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

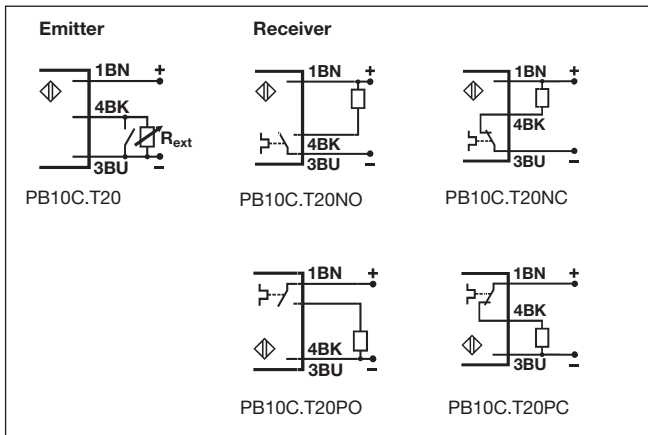
Dimensions



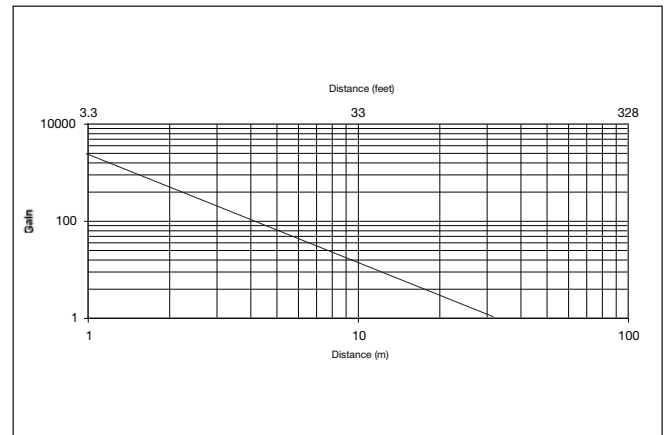
Detection Diagram



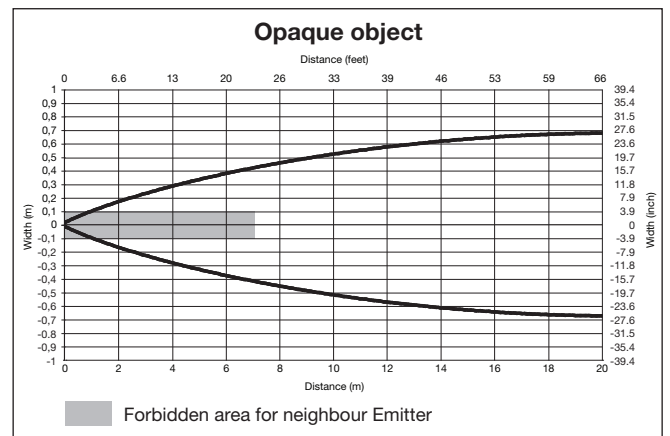
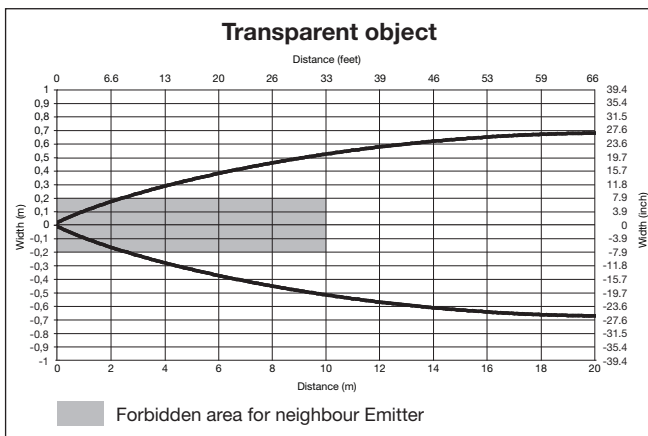
Wiring Diagram



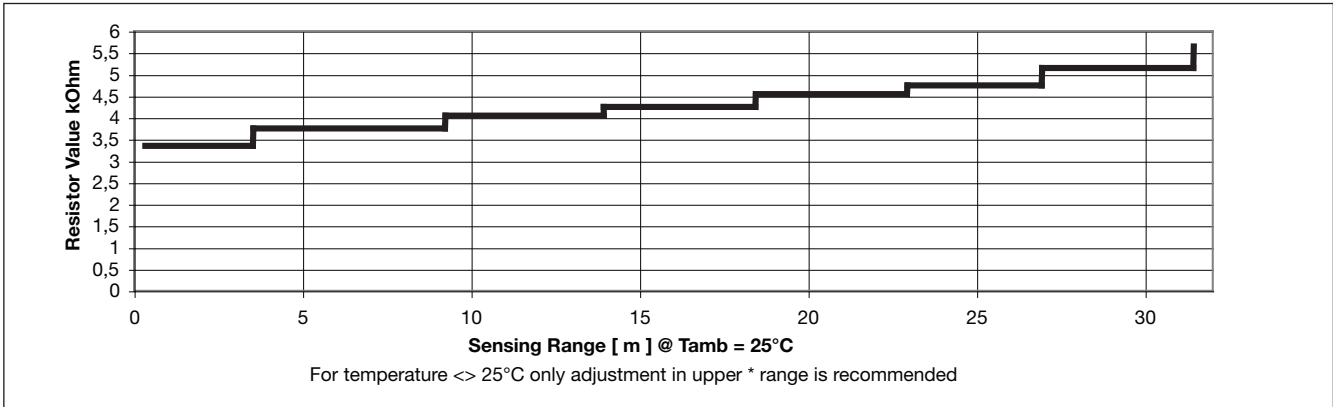
Excess Gain



Neighbour Immunity Diagram



Mute Function



Delivery Contents

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