

Photoelectrics Through-beam, Transistor Output Type PE12C.T15..

CARLO GAVAZZI



- Elevators, Escalators and Entrance control
- Range 15 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 PE12C.T15.. is a family of general purpose Photoelectric sensors.

They are specially designed for Elevators, Escalators, Entrance control to meet the requirements in the door market. The "snap-on" housing can be mounted with a wall thickness from 0.6 mm

to 2.25 mm. 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

PE12C1T15NO-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 12 mm Code 1	15 m	NO	PE12C1T15NO	PE12C1T15NC	PE12C1T15PO	PE12C1T15PC	PE12C1T15
Ø 12 mm Code 2	15 m	NO	PE12C2T15NO	PE12C2T15NC	PE12C2T15PO	PE12C2T15PC	PE12C2T15
Ø 12 mm Code 3	15 m	NO	PE12C3T15NO	PE12C3T15NC	PE12C3T15PO	PE12C3T15PC	PE12C3T15
Ø 12 mm Code 1	15 m	YES	PE12C1T15NO-C2	PE12C1T15NC-C2	PE12C1T15PO-C2	PE12C1T15NC-C2	PE12C1T15-C2
Ø 12 mm Code 2	15 m	YES	PE12C2T15NO-C2	PE12C2T15NC-C2	PE12C2T15PO-C2	PE12C2T15NC-C2	PE12C2T15-C2
Ø 12 mm Code 3	15 m	YES	PE12C3T15NO-C2	PE12C3T15NC-C2	PE12C3T15PO-C2	PE12C3T15NC-C2	PE12C3T15-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	940 mm @ 9 m
Supply current	≤ 20 mA	Emitter angle	± 3° @ 9 m
Protection	Reverse polarity, transients	Indication function	
Power ON delay (t _v)	≤ 100 ms	Power supply ON	LED, green
Control input		Mute input ON	LED, green flashing 3.5 Hz
Normal oper.	> 1.5 VDC	Power adjustment	
Mute	< 1.2 VDC	R _x ~ 3 kΩ -10 kΩ	3 ... 18 m in 19 step
Light source	LED, 880 nm		

Specifications Receiver

Rated operating dist. (S_n)	15 m	Utility category	DC12	Control of resistive loads and solid state loads with optical isolation
Blind zone	None		DC13	Control of electromagnets
Temperature drift	≤ 0.4 %/°C	Ambient light	3,000 ... 3,200 K	> 20,000 LUX (EN60947-5-2)
Hysteresis (H)	3 - 20 %	Detection angle		± 2.5° @ 9 m
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)	Operating frequency (f)		100 Hz
Ripple (U_{rp})	≤ 10 %	Response time	OFF-ON (t _{ON})	≈ 3.5 ms
No load supply current (I_o)	≤ 16 mA		ON-OFF (t _{OFF})	≈ 6.5 ms
Output current		Power ON delay (t_v)		≤ 300 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, 12 (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 PE12	PC black
Performance level	C (EN13849-1: 2008)	Front glass	PC black
MTTF_d (worst case full sensor)	298 Years (worst case full receiver) EN ISO 13849-1, SN 29500 368 Years (worst case full emitter) EN ISO 13849-1, SN 29500	Connection	
Electrostatic discharge (EN61000-4-2)		Cable	PVC, Emitter: grey / Receiver: black, 5 m, 3 x 0.14 mm ² , Ø 2.9 mm
Contact discharge	> 12 kV	Weight	
Air discharge	> 8 kV	Emitter	80 g
Radiated RF electromagnetic fields (EN 61000-4-3)	> 10 V/m	Receiver	80 g
Electrical fast transients/burst (EN 61000-4-4)	± 4 kV	CE-marking	EN12445, EN12453, EN12978, EN 60947-5-2
		UL-Approval	UL325 UL508, CSA-C22.2 No.247

Operation Diagram

tv = Power ON delay

Power supply

Target emitter present

Object present

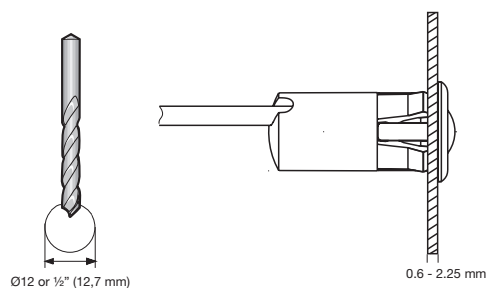
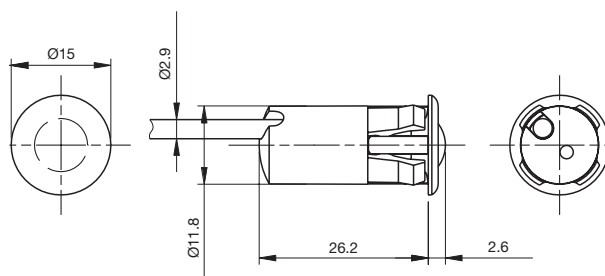
Break (NC) Output ON

Make (NO) Output ON

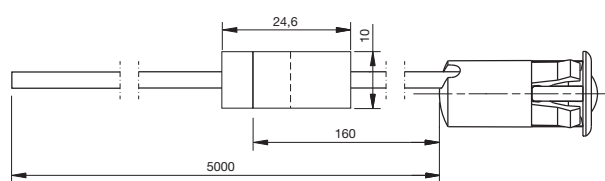
Mute active ≤ 1.2 VDC

Dimensions (mm)

PE12.....

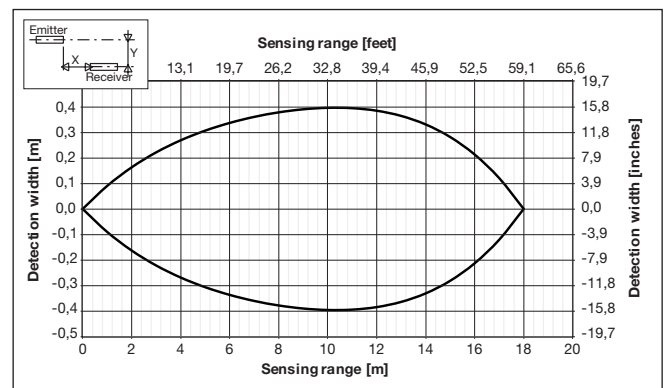


PE12.....-C2 with connector

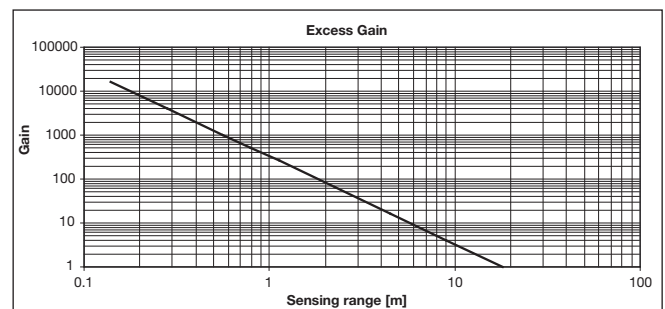


To be mounted in material with a thickness of 0.6 - 2.25 mm

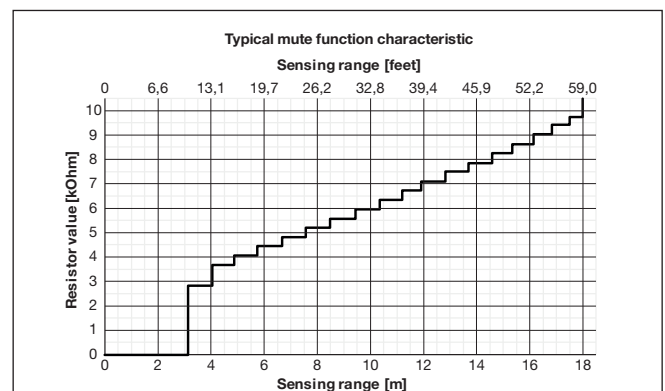
Detection Diagram



Excess Gain

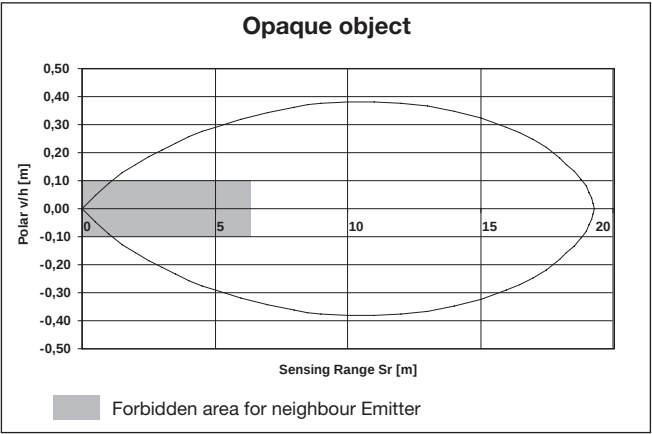
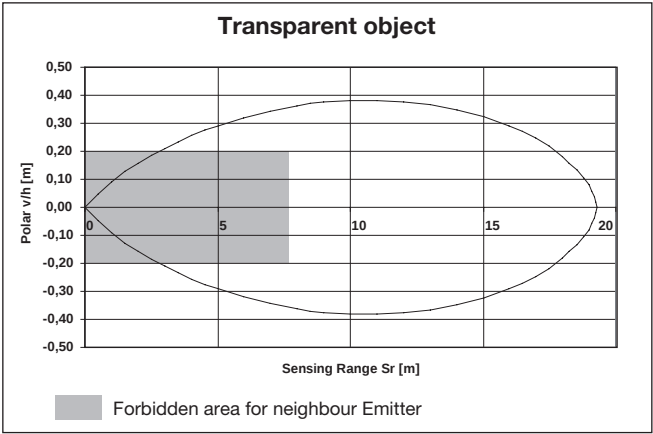


Power adjustment curve

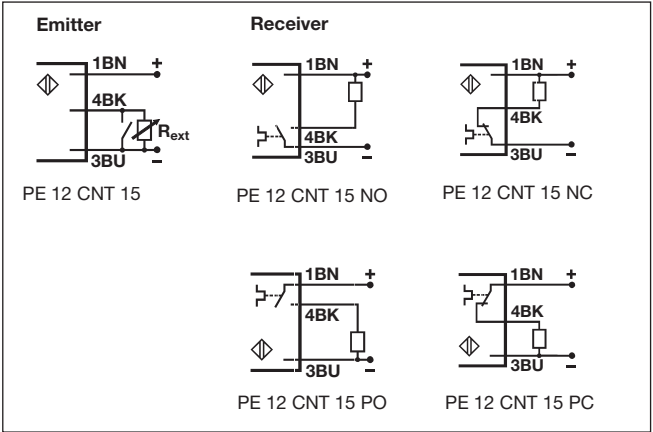




Neighbour Immunity Diagram



Wiring Diagram



Delivery Contents

- PE12...
- **Packaging:** plastic bag

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
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