

Photoelectrics Through-beam, Transistor Output Type PE12CNT15..

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
- CE, UL325 and UL508 approved



Product Description

The PE12CNT. 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. Available in 10-30 VDC version.

Ordering Key

PE12CNT15NOC2

| | |
|----------------------|---------------|
| Type | PE12CNT15NOC2 |
| Housing style | PE12CNT15NOC2 |
| Housing size | PE12CNT15NOC2 |
| Housing material | PE12CNT15NOC2 |
| Sensor code | PE12CNT15NOC2 |
| Detection principle | PE12CNT15NOC2 |
| Sensing distance | PE12CNT15NOC2 |
| Output type | PE12CNT15NOC2 |
| Output configuration | PE12CNT15NOC2 |
| Connection type | PE12CNT15NOC2 |

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 | 15 m | NO | PE12CNT15NO | PE12CNT15NC | PE12CNT15PO | PE12CNT15PC | PE12CNT15 |
| Ø 12 mm | 15 m | YES | PE12CNT15NOC2 | PE12CNT15NCC2 | PE12CNT15POC2 | PE12CNT15PCC2 | PE12CNT15C2 |

Note: Please order emitter and receiver separately

Specifications Emitter

| | | | |
|---|------------------------------|---------------------|----------------------------------|
| Rated operational volt. (U _B) | 10 to 30 VDC | Light type | Infrared, modulated |
| Ripple (U _{rip}) | ≤ 10% | Light spot | 940 mm @ 9 m |
| Supply current | ≤ 20 mA | Emitter angle | ± 3° @ 9 m |
| Protection | Reverse polarity, transients | Indication function | Power supply ON Mute input ON |
| Power ON delay (t _v) | ≤ 100 ms | Power adjustment | R _x ~ 3 kΩ -10 kΩ |
| Control input | | | |
| Normal oper. | > 1.5 VDC | | |
| Mute | < 1.2 VDC | | |
| Light source | LED, 890 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 | > 80,000 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_{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, 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 | 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 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

t_v = Power ON delay

Power supply

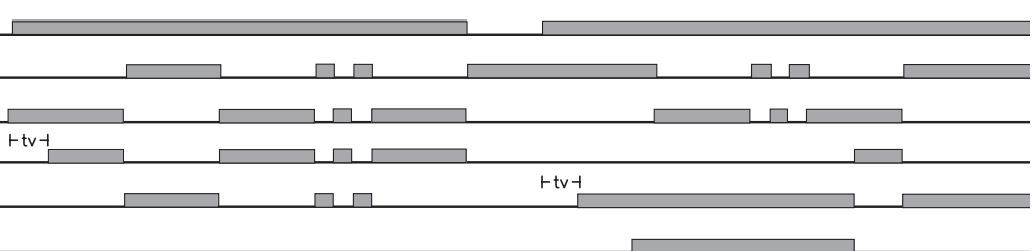
Target emitter present

Object present

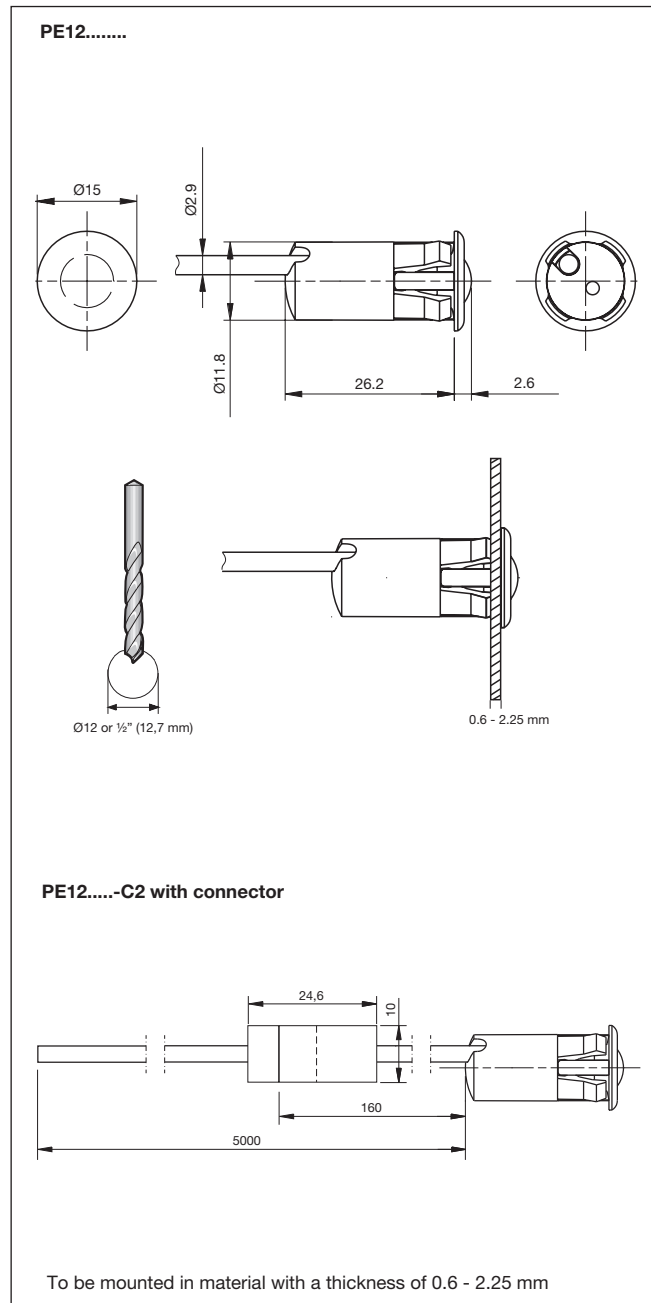
Break (NC) Output ON

Make (NO) Output ON

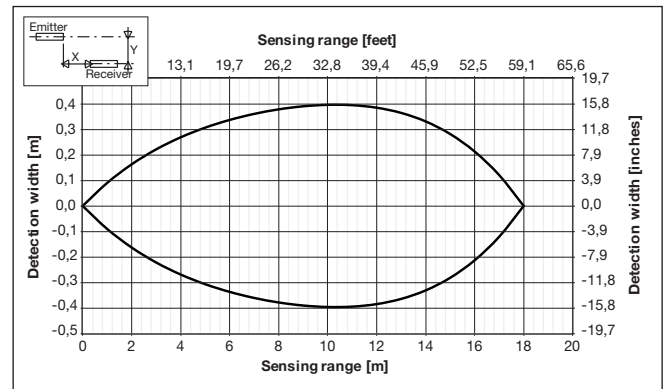
Mute active ≤ 1.2 VDC



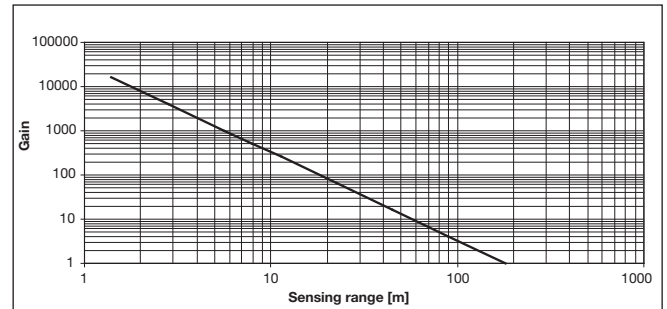
Dimensions (mm)



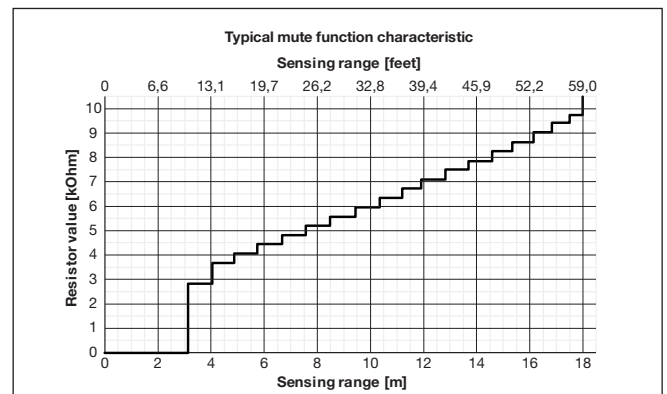
Detection Diagram



Excess Gain



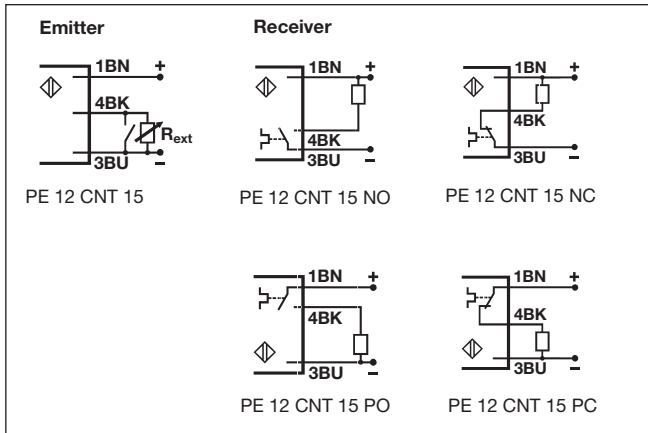
Power adjustment curve



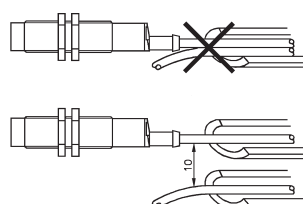
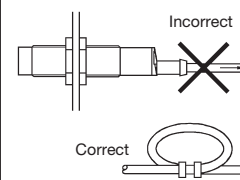
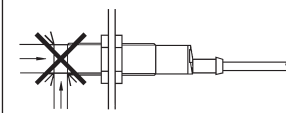
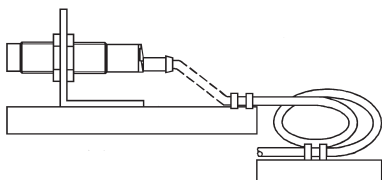
Wiring Diagram

Delivery Contents

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



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>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> |
|---|--|--|---|