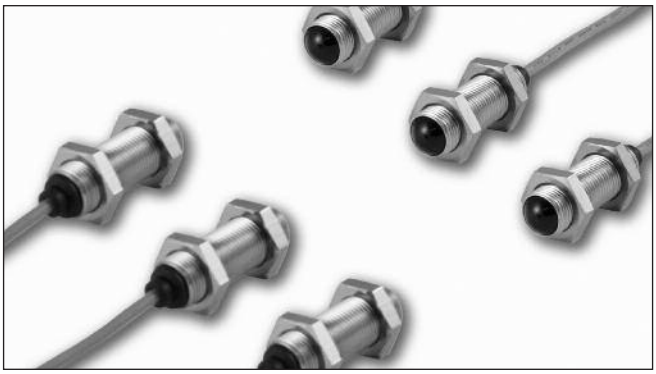
# Photoelectrics
# Through-beam, Transistor Output
# Type PA12B.T20..



- **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**
- **Protection: reverse polarity, short circuit, transients**
- **Cable versions with or without connector**
- **Emitter mute and power adjustment**
- **High neighbour immunity, 3-codes**

## Product Description

The PA12BNT. 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 it's high long term relaibility 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

**PA12B1T20NO-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 $S_n$ | Connector | Ordering no. Receiver NPN, NO | Ordering no. Receiver NPN, NC | Ordering no. Receiver PNP, NO | Ordering no. Receiver PNP, NC | Ordering no. Emitter |
|---|---|---|---|---|---|---|---|
| M12 mm Code 1 | 20 m | NO | **PA12B1T20NO** | **PA12B1T20NC** | **PA12B1T20PO** | **PA12B1T20PC** | **PA12B1T20** |
| M12 mm Code 2 | 20 m | NO | **PA12B2T20NO** | **PA12B2T20NC** | **PA12B2T20PO** | **PA12B2T20PC** | **PA12B2T20** |
| M12 mm Code 3 | 20 m | NO | **PA12B3T20NO** | **PA12B3T20NC** | **PA12B3T20PO** | **PA12B3T20PC** | **PA12B3T20** |
| M12 mm Code 1 | 20 m | YES | **PA12B1T20NO-C2** | **PA12B1T20NC-C2** | **PA12B1T20PO-C2** | **PA12B1T20PC-C2** | **PA12B1T20-C2** |
| M12 mm Code 2 | 20 m | YES | **PA12B2T20NO-C2** | **PA12B2T20NC-C2** | **PA12B2T20PO-C2** | **PA12B2T20PC-C2** | **PA12B2T20-C2** |
| M12 mm Code 3 | 20 m | YES | **PA12B3T20NO-C2** | **PA12B3T20NC-C2** | **PA12B3T20PO-C2** | **PA12B3T20PC-C2** | **PA12B3T20-C2** |

**Note:** Please order emitter and receiver separately

## Specifications Emitter

| | |
|---|---|
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC |
| **Ripple** ($U_{rrp}$) | ≤ 10% |
| **Supply current** | ≤ 20 mA |
| **Protection** | Reverse polarity, transients |
| **Control input** | |
| Normal oper. | > 1.5 VDC |
| Mute | < 1.2 VDC |

| | |
|---|---|
| **Light source** | LED, 880 nm |
| **Light type** | Infrared, modulated |
| **Optical angle** | ± 5° |
| **Power adjustment** | |
| $R_x$ ~ 1.5 kΩ -10 kΩ | 50 - 100%, in 7 steps |



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## Specifications Receiver

| | |
|---|---|
| **Rated operating dist.** ($S_n$) | 20 m |
| **Blind zone** | None |
| **Temperature drift** | ≤ 0.4%/°C |
| **Hysteresis** (H) | 3 - 20% |
| **Rated operational volt.** ($U_B$) | 10 to 30 VDC (ripple included) |
| **Ripple** ($U_{rrp}$) | ≤ 10% |
| **Output current** | |
| Continuous ($I_e$) | ≤ 100 mA |
| Short-time (I) | ≤ 100 mA, (max. load capacity 100 nF) |
| **No load supply current** ($I_o$) | ≤ 13 mA |
| **Minimum operational current** ($I_m$) | 0.5 mA |
| **Ambient light** | >20.000 LUX |

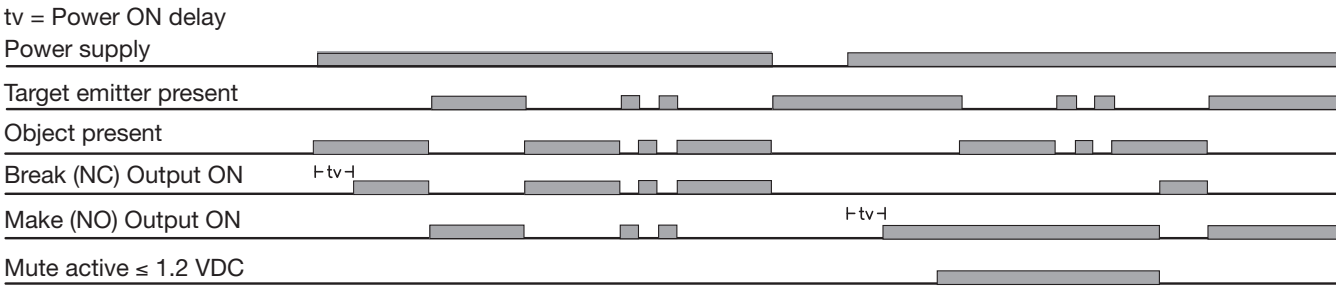
| | |
|---|---|
| **Optical angle** | ± 5° |
| **OFF-state current** ($I_r$) | ≤ 100 µA |
| **Voltage drop** ($U_d$) | ≤ 1.6 VDC @ 100 mA |
| **Protection** | Short-circuit, reverse polarity, transients |
| **Operating frequency** (f) | 30 Hz |
| **Response time** OFF-ON ($t_{ON}$) | ≈ 10 ms |
| ON-OFF ($t_{OFF}$) | ≈ 20 ms |
| **Power ON delay** ($t_v$) | ≤ 300 ms |
| **Output function** | |
| NPN or PNP | Make or break (NO or NC) |

## General Specifications

| | |
|---|---|
| **Environment** | |
| Overvoltage category | II (IEC 60664/60664A, 60947-1) |
| Pollution degree | 3 (IEC 60664/60664A, 60947-1) |
| Degree of protection | IP 67 (IEC 60529, 60947-1) |
| **Temperature** | |
| Operating | -20° to +50°C (-4° to +122°F) |
| Storage | -25° to +80°C (-13° to +176°F) |
| **Vibration** | 10 to 150 Hz, 0.5 mm/7.5 g (IEC 60068-2-6) |
| **Shock** | 2 x 1 m & 100 x 0.5 m (IEC 60068-2-32) |

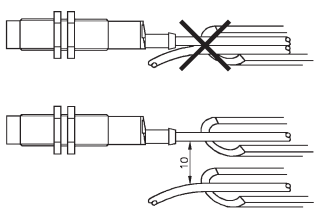
| | |
|---|---|
| **Rated insulation voltage** | 50 VDC |
| **Housing material** | |
| Body | M12-Stainless Steel |
| Front | PC black |
| **Connection** | |
| Cable | PVC, TX: grey / RX: black, 5 m, 3 x 0.14 mm², Ø 2.9 mm |
| **Weight** | |
| Emitter | 90 g |
| Receiver | 90 g |
| **CE-marking** | EN12445, EN12453, EN12978 |
| **Approval** | UL508 and UL325 |

## Operation Diagram

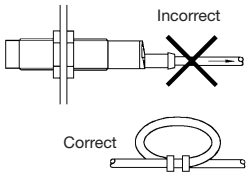



## Installation Hints

*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*

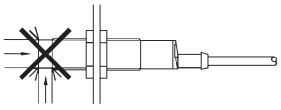



*Relief of cable strain*



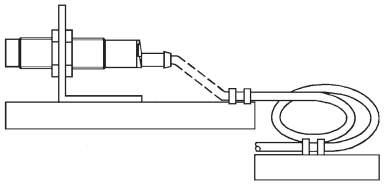

The cable should not be pulled

*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

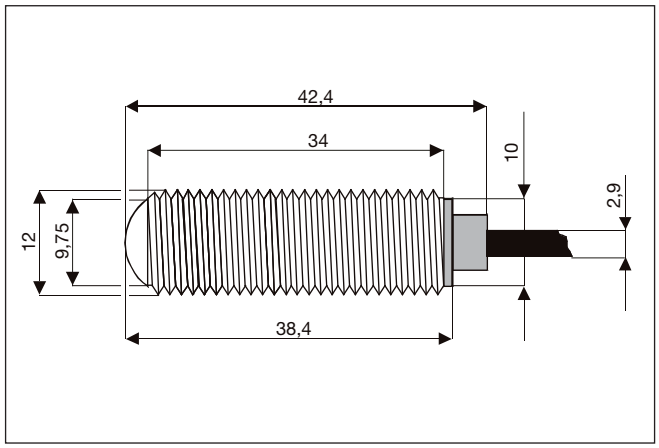


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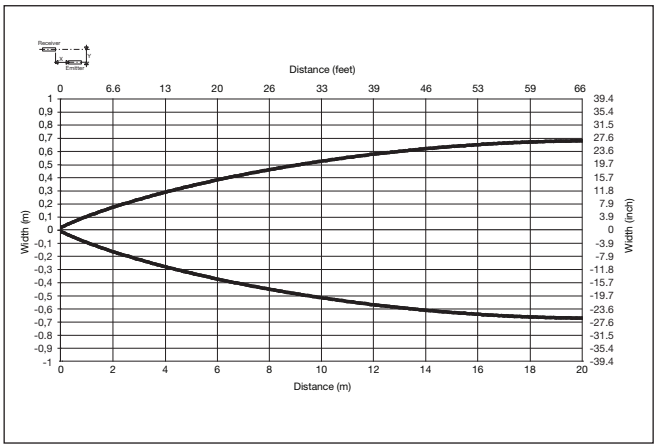
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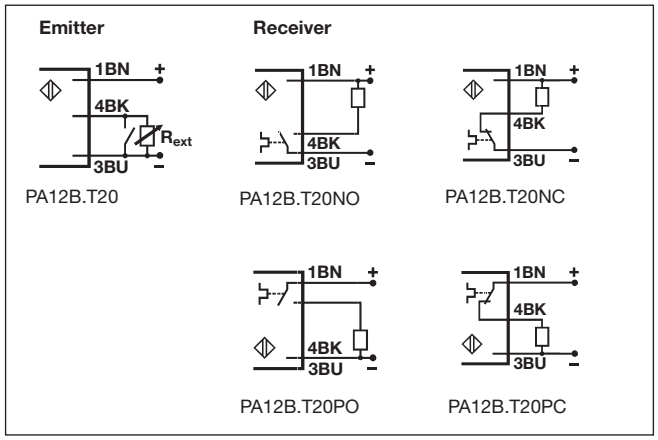
## Dimensions



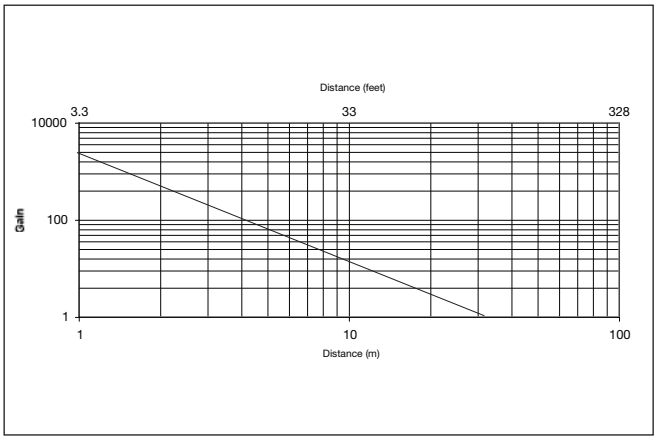

## Detection Diagram



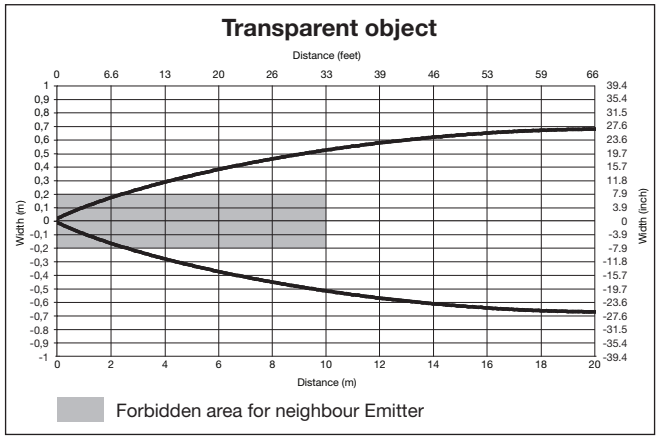

## Wiring Diagram

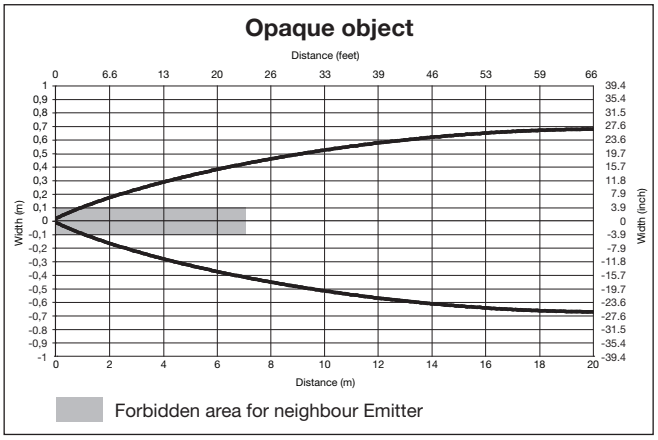



## Excess Gain




## Neighbour Immunity Diagram

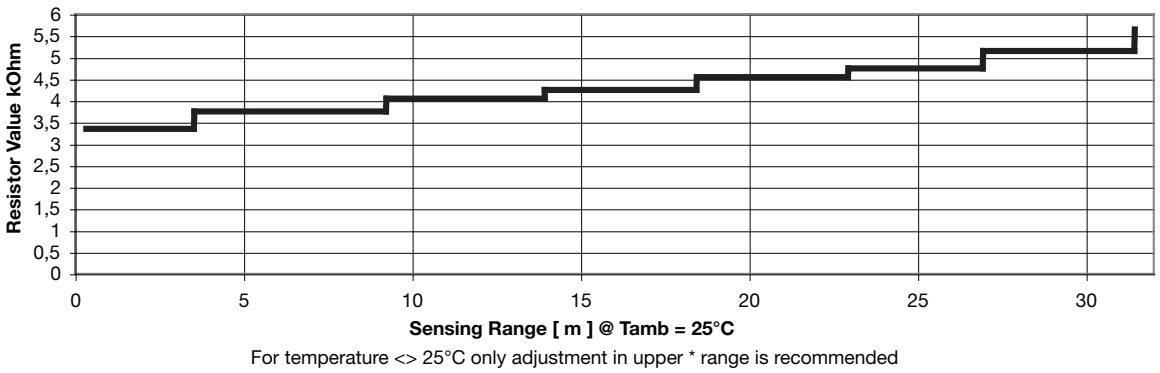





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## Mute Function




For temperature <> 25°C only adjustment in upper * range is recommended

## Delivery Contents

- PA12
- Installation instruction
- **Packaging:** plastic bag



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