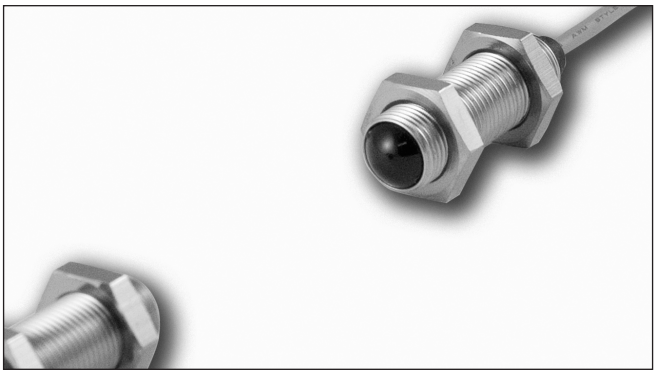
Photoelectrics
Through-beam, Transistor Output
Type PA12BNT20..



- **Elevators, Escalators and Entrance control**
- **Range 20 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**
- **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 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 its high long-term reliability. The emitter has a mute input to turn it off for evaluation of the sensor function.
Available in 10-30 VDC version.

Ordering Key

PA12BNT20NO-C2

- **Type**
- **Housing style**
- **Housing size**
- **Housing material**
- **Neutral**
- **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	20 m	NO	**PA12BNT20NO**	**PA12BNT20NC**	**PA12BNT20PO**	**PA12BNT20PC**	**PA12BNT20**
M12	20 m	YES	**PA12BNT20NO-C2**	**PA12BNT20NC-C2**	**PA12BNT20PO-C2**	**PA12BNT20PC-C2**	**PA12BNT20-C2**

Note: Please order emitter and receiver separately

Specifications Emitter

Rated operational volt. (U_B)	10 to 30 VDC	**Light source**	LED, 860 nm
Ripple (U_{rrp})	≤ 10%	**Light type**	Infrared, modulated
Supply current	≤ 20 mA	**Light spot**	1580 mm @ 12 m
Protection	Reverse polarity, transients	**Emitter angle**	± 3.8° @ 12 m
Power ON delay (t_v)	≤ 100 ms	**Power adjustment** R_x ~ 3 kΩ -10 kΩ	4...24 m in 19 steps
Control input			
Normal oper.	> 1.5 VDC		
Mute	< 1.2 VDC		

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CARLO GAVAZZI

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%
No load supply current (I_o)	≤ 16 mA
Output current Continuous (I_e) Short-time (I)	 ≤ 100 mA ≤ 100 mA, (max. load capacity 100 nF)
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
Utility category	DC12	Control of resistive loads and solid state loads with optical insulation
	DC13	Control of electromagnets
Ambient light		> 20.000 Lux (EN60947-5-2)
Detection angle		± 2.9° @ 12 m
Operating frequency (f)		100 Hz
Response time	OFF-ON (t_{ON}) ON-OFF (t_{OFF})	≈ 6.5 ms ≈ 3.5 ms
Power ON delay (t_v)		≤ 100 ms
Output function NPN or PNP		Make or break (NO or NC)

General Specifications

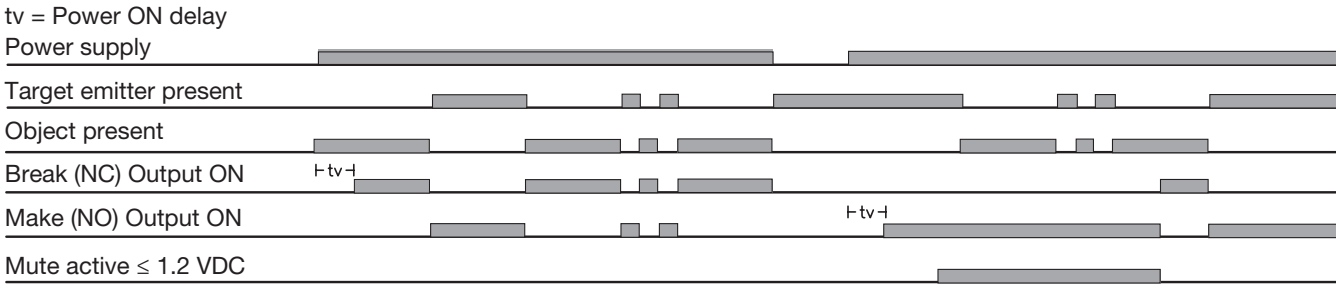
Environment Overvoltage category Pollution degree Degree of protection	 III (IEC 60664/60664A, 60947-1) 3 (IEC 60664/60664A, 60947-1) IP67 (IEC 60529; EN60947-1) 1, 2, 3, 4, 6, 12, 13 (NEMA types)
Temperature Operating Storage	 -20° to +50°C (-4° to +122°F) -25° to +80°C (-13° to +176°F)
Rated insulation voltage	75 VDC
Dielectric test voltage	500 Vac rms (EN60947-1)
Rated impulse withstand test	800 V (1.2 / 50 µs) (EN60947-1)
ESPE	Type 2
PFH_d	6 x 10^{-8} failure per hour (worst case SRP for CS)
Diagnostic coverage	99 % (EN13849-1: 2008)
Performance level	C (EN13849-1: 2008)
$MTTF_d$ (worst case full sensor)	345 Years (worst case full receiver) EN ISO 13849-1, SN 29500 412 Years (worst case full emitter) EN ISO 13849-1, SN 29500
Electrostatic discharge (EN61000-4-2) Contact discharge Air discharge	 > 12 kV > 8 kV
Radiated RF electromagnetic fields (EN 61000-4-3)	> 10 V/m

Electrical fast transients/burst (EN 61000-4-4)	± 4 kV
Surge (EN 61000-4-5) Power-supply Sensor output	 > 1 kV (with 500 Ω) > 1 kV (with 500 Ω)
Wire conducted disturbances (EN 61000-4-6)	> 10 Vrms
Power-frequency magnetic fields (EN 61000-4-8) Continous Short-time	 > 30 A/m, 38 µ tesla > 300 A/m, 380 µ tesla
Vibration (IEC 60068-2-6)	10 to 150 Hz, 1 mm / 15 g
Shock (IEC 60068-2-27)	30 G / 11 ms, 6 pos, 6 neg per axis
Free fall (IEC 60068-2-31)	2 times from 1 m 100 times from 0.5 m
Pig-tail connector (-C2)	3-pol micro MATE-N-LOK Series, AMP/TE
Housing material Body Front	 M12-Stainless Steel PC black
Connection Cable	 PVC, Emitter: grey / Receiver: black, 5 m, 3 x 0.14 mm^2, Ø 2.9 mm
Weight Emitter Receiver	 80 g 80 g
CE-marking	EN12445, EN12453, EN12978, EN 60947-5-2
UL-Approval	UL325 UL508, CSA-C22.2 No.247

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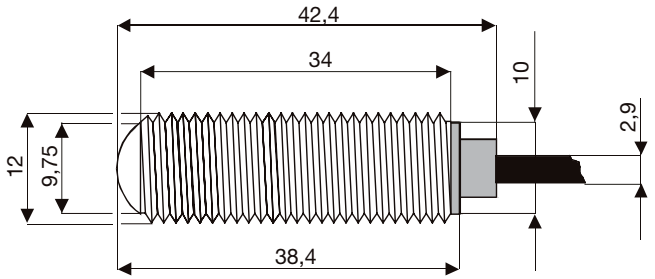
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Operation Diagram

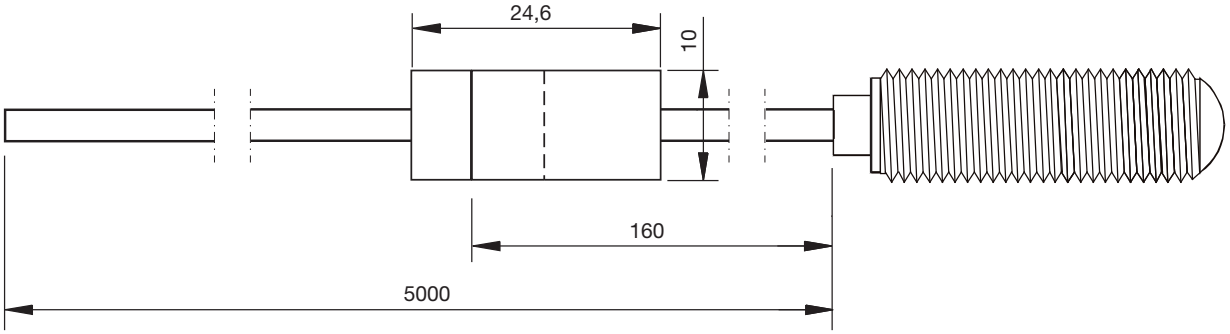


Dimensions

PA12.....

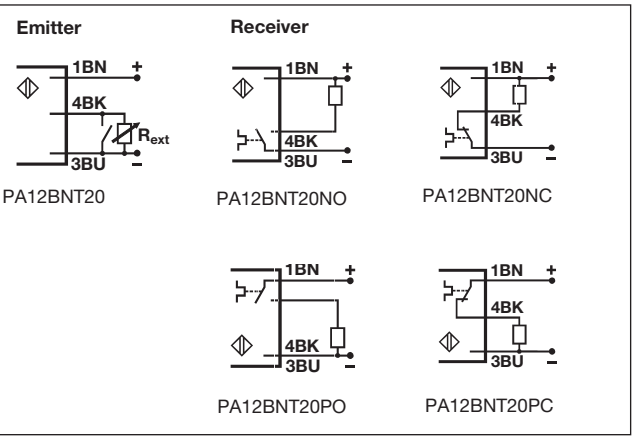


PA12.....-C2 with connector

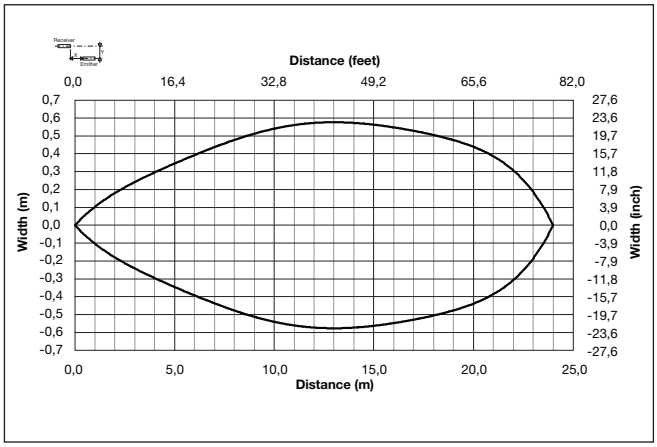


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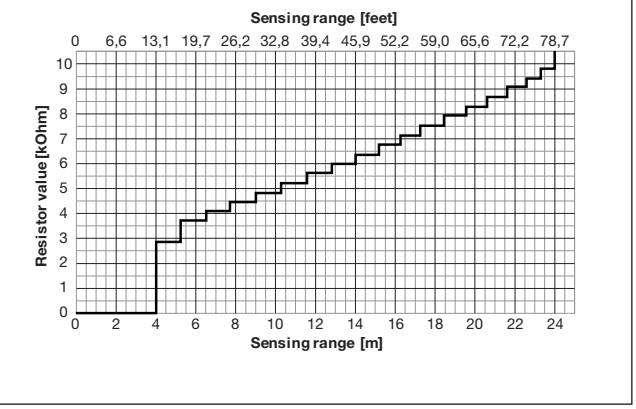
Wiring Diagram



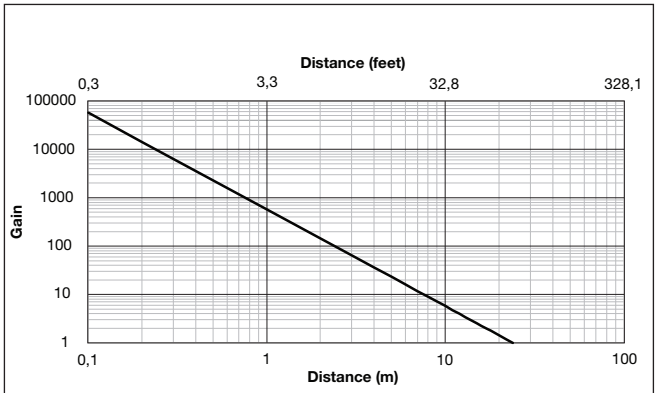
Detection Diagram



Power adjustment curve

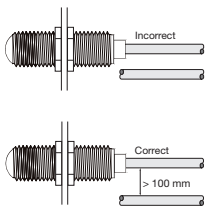


Excess Gain

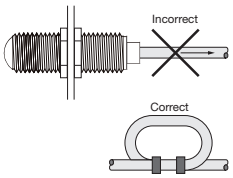


Installation Hints

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

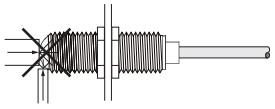


Relief of cable strain



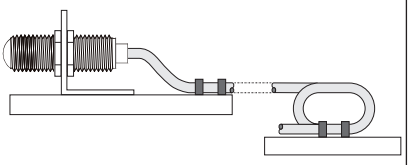
The cable should not be pulled

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

Delivery Contents

- PA12
- **Packaging:** plastic bag

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