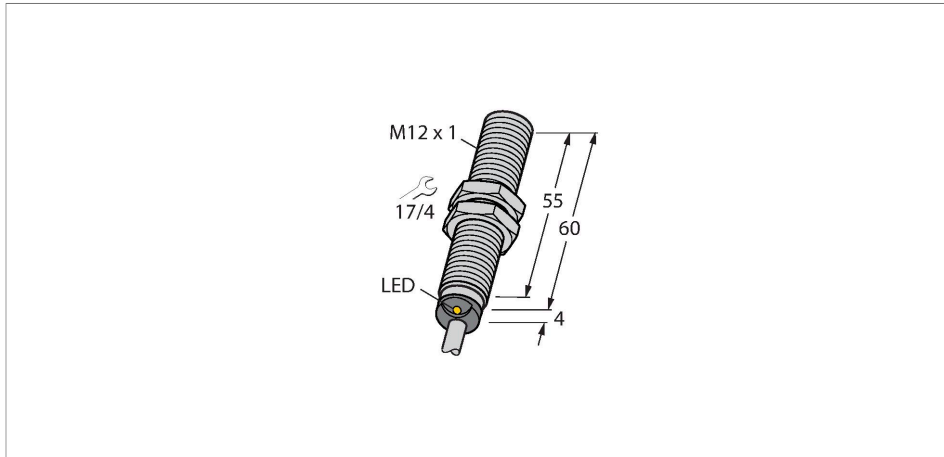


# BI4-EM12E-AP45XLD

## Inductive Sensor – For Use in Vehicle Board Nets



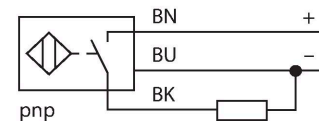
### Features

- Threaded barrel, M12 x 1
- Stainless steel, 1.4301
- For vehicle board nets, 12 V and 24 V
- Increased interference immunity 100 V/m radiated acc. ISO 11452-4 and 100 mA BCI acc. to ISO 11452-2
- Load-dump protection acc. to DIN ISO 7637-2 (SAE J 113-11)
- Extended temperature range
- High protection class IP68/IP69K
- Protection against salt spray and rapid temperature change
- Laser engraved label, permanently legible
- DC 3-wire, 8.4...65 VDC
- NO contact, PNP output
- Cable connection
- E1 type approval from German federal office for motor vehicles

### Technical data

Type	BI4-EM12E-AP45XLD
Ident. no.	1584001
Rated switching distance	4 mm
Mounting conditions	Flush
Secured operating distance	$\leq (0.81 \times S_n)$ mm
Correction factors	St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4
Repeat accuracy	$\leq 2\%$ of full scale
Temperature drift	$\leq \pm 10\%$ $\leq \pm 15\%$ , $\leq -25\text{ °C}$ v $\geq +70\text{ °C}$
Hysteresis	3...15 %
Ambient temperature	-40...+85 °C
Temperature changes (EN60068-2-14)	-40... +85 °C; 20 cycles
Operating voltage	8.6...65 VDC
Residual ripple	$\leq 10\%$ $U_{ss}$
DC rated operational current	$\leq 200$ mA
No-load current	$\leq 15$ mA
Residual current	$\leq 0.1$ mA
Isolation test voltage	$\leq 0.5$ kV
Short-circuit protection	yes / Cyclic
Voltage drop at $I_e$	$\leq 1.8$ V
Wire breakage/Reverse polarity protection	yes / Complete
Output function	3-wire, NO contact, PNP
Load-dump protection (DIN ISO 7637-2)	Severity degree IV / Level 4
Switching frequency	2 kHz

### Wiring diagram



### Functional principle

Maximum reliability even under the most extreme environmental conditions is guaranteed by our sensors for mobile applications. TURCK's inductive sensors for extremely hostile industrial environments not only meet, but even exceed the requirements of the protection classes IP68 and IP69.

Applied in vehicles for road construction or in agricultural machines, these sensors excel in high vibration and shock resistance and they withstand fast temperature cycles.

12 V Bordnet						
Impulse	1	2	3a	3b	4	5
Severity level	IV	IV	IV	IV	IV	IV
Failure criterion	C	C	A	A	C	C

24 V Bordnet						
Impulse	1	2	3a	3b	4	5
Severity level	III	IV	IV	IV	III	IV
Failure criterion	C	C	A	A	A	C

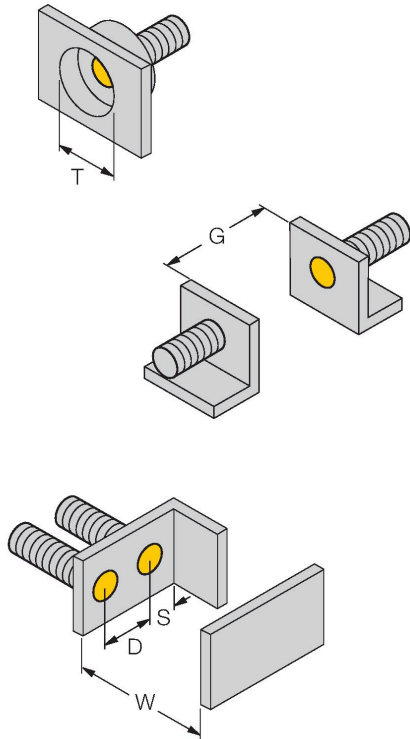
BI4-EM12E-AP45XLD|05/27/2020 11-22 | technical changes reserved

## Technical data

Design	Threaded barrel, M12 × 1
Dimensions	64 mm
Housing material	Stainless steel, V2A (1.4301)
Active area material	Plastic, PA12-GF30
End cap	Plastic, EPTR
Max. tightening torque housing nut	10 Nm
Electrical connection	Cable
Cable quality	Ø 5.2 mm, Lif32Y32Y, TPE, 2 m
Core cross-section	3 x 0.5 mm <sup>2</sup>
Vibration resistance	55 Hz (1 mm)
Vibration resistance (EN 60068-2-6)	20 g; 10...3000 Hz; 50 cycles; 3 axes
Shock resistance	30 g (11 ms)
Shock resistance (EN 60068-2-27)	150 g (6 ms) ½ sine; 3 x each; 3 axes
Continuous shock resistance (EN 60068-2-29)	100 g (11 ms) ½ sine; 3 x each; 3 axes
Salt spray test (EN 60068-2-52)	severity degree 5 (4 test cycles)
Protection class	IP68 / IP69K
MTTF	2283 years acc. to SN 29500 (Ed. 99) 40 °C
Switching state	LED, Yellow

## Mounting instructions

### Mounting instructions/Description

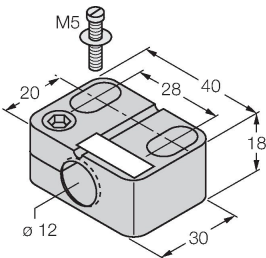


Distance D	2 x B
Distance W	3 x Sn
Distance T	3 x B
Distance S	1.5 x B
Distance G	6 x Sn
Diameter active area B	Ø 12 mm

## Accessories

### BST-12B

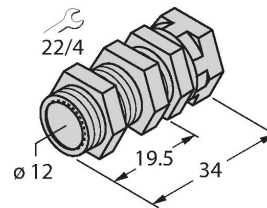
6947212



Mounting clamp for threaded barrel sensors, with dead-stop; material: PA6

### QM-12

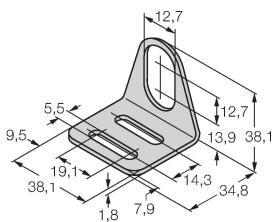
6945101



Quick-mount bracket with dead-stop; material: Chrome-plated brass. Male thread M16 x 1. Note: The switching distance of the proximity switches may change when using quick-mount brackets.

### MW12

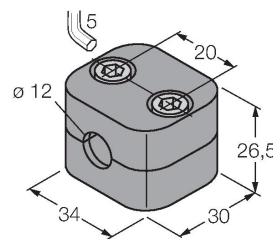
6945003



Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

### BSS-12

6901321



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene