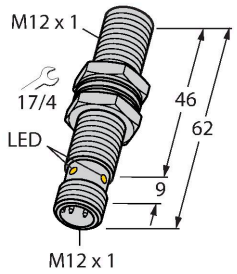
BI4-EM12E-AP45XLD-H1141
Inductive Sensor – For Use in Vehicle Board Nets



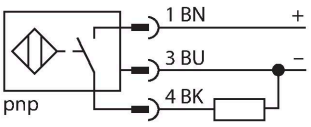
Technical data

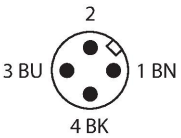
Type	BI4-EM12E-AP45XLD-H1141
Ident. no.	1584000
Rated switching distance	4 mm
Mounting conditions	Flush
Secured operating distance	≤ (0.81 × Sn) mm
Correction factors	St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4
Repeat accuracy	≤ 2 % of full scale
Temperature drift	≤ ± 10 %
	≤ ± 15 %, ≤ -25 °C v ≥ +70 °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	≤ 10 % U_{ss}
DC rated operational current	≤ 200 mA
No-load current	≤ 15 mA
Residual current	≤ 0.1 mA
Isolation test voltage	≤ 0.5 kV
Short-circuit protection	yes / Cyclic
Voltage drop at I_e	≤ 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

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
- M12 x 1 male connector
- E1 type approval from German federal office for motor vehicles

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.

BI4-EM12E-AP45XLD-H1141| 09/09/2020 15-00 | technical changes reserved

Technical data

Design	Threaded barrel, M12 × 1
Dimensions	62 mm
Housing material	Stainless steel, 1.4301 (AISI 304)
Active area material	Plastic, PA12-GF30
Max. tightening torque housing nut	10 Nm
Electrical connection	Connector, M12 × 1
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

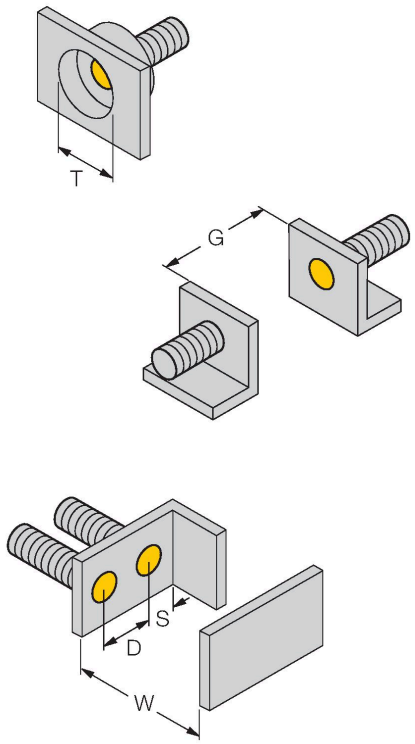
12 V Bordnet						
Impulse	1	2	3a	3b	4	5
Severity level	IV	IV	IV	IV	IV	IV
Failure criterion	C	C	A	A	C	C

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-H1141| 09/09/2020 15-00 | technical changes reserved

Mounting instructions

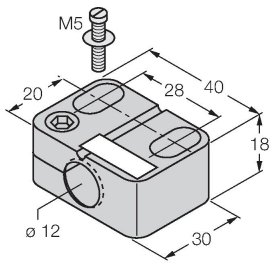
Mounting instructions/Description



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

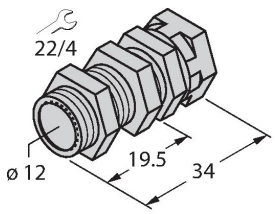
Accessories

BST-12B 6947212



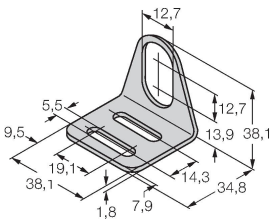
Mounting clamp for threaded barrel sensors, with dead-stop; material: PA6

QM-12 6945101



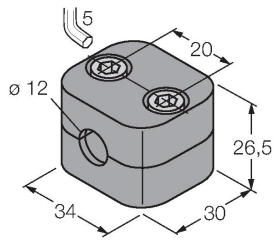
Quick-mount bracket with dead-stop; material: Chrome-plated brass. Male thread M16 × 1. Note: The switching distance of the proximity switches may change when using quick-mount brackets.

MW-12 6945003



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

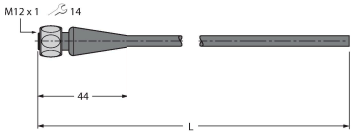
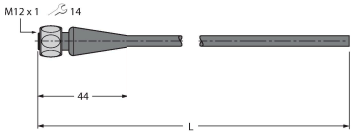
BSS-12 6901321



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

BI4-EM12E-AP45XLD-H1141| 09/09/2020 15-00 | technical changes reserved

Wiring accessories

Dimension drawing	Type	Ident. no.	
	RKH4-2/TFE	6935482	Connection cable, M12 female, straight, 3-pin, stainless steel coupling nut, cable length: 2 m, jacket material: PVC, gray temperature range -25…+80 °C; other cable lengths and designs available, see www.turck.com
	RKH4-2/TFG	6934384	Connection cable, M12 female, straight, 3-pin, stainless steel coupling nut, cable length: 2 m, jacket material: TPE, gray temperature range -40…+105 °C; other cable lengths and designs available, see www.turck.com

BI4-EM12E-AP45XLD-H1141| 09/09/2020 15-00 | technical changes reserved