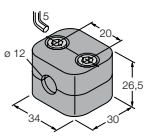
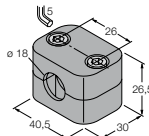
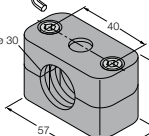
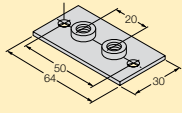
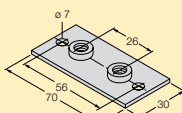
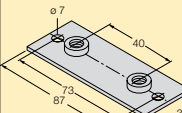
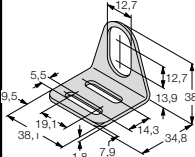
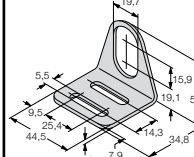
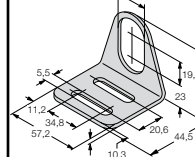
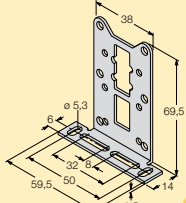


MOUNTING ACCESSORIES

Dimensions/Types/Ident no./Short description		
 BSS-12 6901321 Mounting accessories for sensor types M12 x 1 Material Polypropylene	 BSS-18 6901320 Mounting accessories for sensor types M18 x 1 Material Polypropylene	 BSS-30 6901319 Mounting accessories for sensor types M30 x 1,5 Material Polypropylene
 BSS-SPV1 6901317 weld-on base plate for BSS-12 Metal St37	 BSS-SPV2 6901316 weld-on base plate for BSS-18 Metal St37	 BSS-SPV4 6901347 weld-on base plate for BSS-30 Metal St37
 MW-12 6945003 Mounting bracket for sensor types M12 x 1 Stainless steel A2 4.4301 (AISI 304)	 MW-18 6945004 Mounting bracket for sensor types M18 x 1 Stainless steel A2 4.4301 (AISI 304)	 MW-30 6945005 Mounting bracket for sensor types M30 x 1,5 Stainless steel A2 4.4301 (AISI 304)
 MW-Q14/Q20 6945005 Mounting bracket for sensor types Q14 and Q20 Stainless steel A2 4.4301 (AISI 304)	 MH-Q14 6950011 Mounting aid for sensor types Q14 for mounting with active face downwards	 MH-Q20 6950010 Mounting aid for sensor types Q20 for mounting with active face downwards

Optional accessories
The choice of sensors for utility vehicles is rounded off with a wide range of accessories. These include fixing clamps as frequently used for hydraulic tubes in vehicles, as well as rugged stainless steel mounting brackets that allow three-dimensional adjustment.



Sense it! Connect it! Bus it! Solve it!

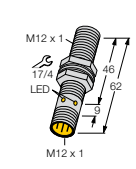
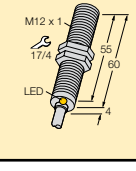
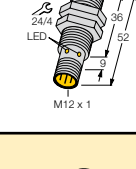
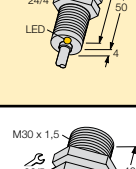
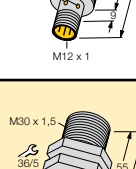
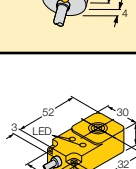
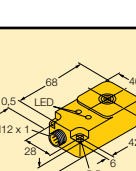
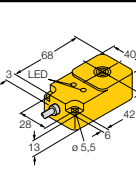
TURCK

Industrial
Automation

INDUCTIVE SENSORS
FOR UTILITY
VEHICLES



INDUCTIVE SENSORS FOR
UTILITY VEHICLES

Dimensions	Type designation Ident no.	Mounting conditions Switching distance Sn	Housing	Connection
 M12 x 1 LED 17/4 M12 x 1	Bi4-EM12E-AP45X-H1141 1585000	4 mm	M12 x 1	male M12
 M12 x 1 LED 17/4 M12 x 1	Bi4-EM12E-AP45X 1584001	4 mm	M12 x 1	2 m cable
 M18 x 1 LED 24/4 M12 x 1	Bi8-EM18-AP45X-H1141 1584010	8 mm	M18 x 1	male M12
 M18 x 1 LED 24/4 M12 x 1	Bi8-EM18-AP45X 1584011	8 mm	M18 x 1	2 m cable
 M30 x 1,5 LED 36/5 M12 x 1	Bi15-EM30-AP45X-H1141 1584020	15 mm	M30 x 1	male M12
 M30 x 1,5 LED 36/5 M12 x 1	Bi15-EM30-AP45X 1584021	15 mm	M30 x 1	2 m cable
 LED 52 30 20 14 5 4,5	Bi10-Q14-AP45X 1584031	10 mm	Rectangular, Q14	2 m cable
 LED 68 40 20 12 5,5 15	Bi20-Q20-AP45X-H1141 1584040	20 mm	Rectangular, Q20	male M12
 LED 68 40 20 12 5,5 15	Bi20-Q20-AP45X 1584041	20 mm	Rectangular, Q20	2 m cable

Industrial
Automation

- Technical data:**
- DC 3-wire, 8...65 VDC, 200 mA
 - Normally open, pnp output
 - Ambient temperature -40...+85 °C
 - Degree of protection IP68/IP69K
 - Protection class II
 - Threaded barrel types in stainless steel V4A (1.4404) with permanently legible type label by laser engraving
 - PBT-GF30-V0 rectangular housings
 - Reverse-polarity and short-circuit protected
 - e1 type approval from the German Federal Motor Transport Authority
 - Load dump protection
 - Protection from salt mist and rapid temperature changes
 - Vibration and shock proof
 - Cable types with TPE Thermoflex cable, 2 m

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INDUCTIVE SENSORS FOR UTILITY VEHICLES



On municipal vehicles, construction or forestry machinery alike: Mobile sensors for binary position detection are used wherever mobile machines have to be operated safely and efficiently.

The TURCK "Inductive Sensors for Utility Vehicles" series offers a solution that is optimally tailored to even the harshest requirements of mobile applications. High switching distances and rugged housings, together with application optimized electronics unit and state-of-the-art production technologies, ensure an outstandingly high level of long-term stability.

And that's not all: As utility vehicles are normally used in applications on construction sites where time and costs are critical factors, TURCK sensors help to reduce the downtimes of the vehicles and machines and thus keep costs down.

You too can benefit from this unique range of TURCK sensors for utility vehicles to achieve greater cost efficiency in your application!

Excellent EMC immunity

From an EMC perspective, the onboard power supplies of vehicles are "noisy". This is on the one hand due to the frequent lack of earthing and the large number of potential interference sources (starters, hydraulic pumps etc.); on the other hand, closely bundled connection cables in the cable harnesses also generate interference signals. This places extremely high demands on the electronic components that can be used. High immunity to radiated interference up to 100 V/m as well as line-conducted interference (BCI) up to 100 mA are therefore an absolute necessity.

TURCK sensors for utility vehicles are suitable for mobile use in every respect and fully meet the particularly stringent EMC requirements stipulated for utility vehicles. This is certified by the e1 type approval issued by the German Federal Transport Authority. Devices with this type approval can be installed in vehicles without affecting their license.

The standard load dump protection feature provided also offers reliable protection from voltage peaks in the onboard power supply.

High degree of protection

IP68 including IP67, i. e.:

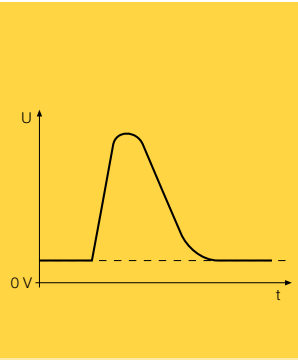
- 24 hrs. continuous storage at +70 °C
- 24 hrs. continuous storage at -25 °C
- 7 days submersion, depth 1 m
- 10 temperature changes from +70 °C to -25 °C, each temperature for 1 hour

IP69K:

- Suitable for high pressure steam-jet cleaning to DIN 40050-9, following EN 60529

Load dump protection

Test pulse 5 to DIN ISO 7637-2 emulates the disconnection pulse of the battery charging current. This pulse occurs if a battery is disconnected while the generator is supplying charging current. This may occur if a battery is disconnected while the motor is running due to corrosion, a poor connection or intentionally.



Resistance to vibration and mechanical shock

TURCK e1 series is ideally equipped to withstand continuous vibrations and shocks. The sensors are vibration proof up to 3000 Hz, 20 g, and can withstand continuous shocks of 100 g in 3 axes.



Constant in power

Voltage deviations on onboard power supplies can be particularly high. Also here, TURCK sensors offer maximum operating safety for all supply conditions: From voltage sags caused by discharging batteries to increased voltages during charging, to voltage peaks caused by load switching, such as with hydraulic pumps and starters.

The best by far

The e1 series inductive sensors have high switching distances throughout. This allows larger distances to the moving target and reduces the risk of damage. All sensors can be flush mounted and have optimum protection.

Fast becoming standard

Thanks to the high switching frequencies (up to 2 kHz) of the sensors, even fast (rotating) movements can be detected reliably with the standard versions. This reduces the range of types required: Where previously special devices were required, it is now possible to use standard sensors

Freedom in planning

A broad product range offers maximum planning freedom for these TURCK sensors so that devices can be integrated perfectly in the design: As V4A threaded barrel devices in M12, M18 and M30 or in compact rectangular versions made of robust PBT, with the M12 connector types or Thermoflex cable

Plug & play with standard automotive connectors

On request, TURCK can also supply the sensors with short cables and connectors, as commonly used with standard makes in the automotive sector: Deutsch, Packard and Molex are just some examples. This makes connection on the prefabricated cable harness a simple plug & play operation with a proven connection technology.



connectors on request

Your benefits at a glance

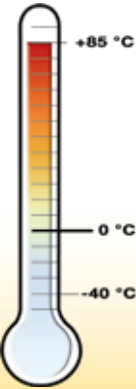
- The e1 type approval ensures use far beyond EU borders.
- Use on vans and trucks by suitability for 12V and 24V onboard power supplies.
- Reduced vehicle downtimes thanks to robust materials and high degree of protection
- Considerably less damage thanks to increased switching distances and flush mounting
- Extensive freedom in design thanks to the wide range of sensors with compact rectangular housing styles and short threaded barrel versions
- Optional: Accessories for quick mounting and perfect adjustment
- Optional: Pigtail versions with standard automotive connectors.

Standards

- EN 60068-2-6 (vibration resistance): 20 g; 10... 3000 Hz; 50 cycles; 3 axes
- EN 60068-2-14 (temperature change): -40...+85 °C; 20 cycles
- EN 60068-2-27 (shock resistance): 40 g; 6 ms; 4000 x each; 3 axes
- EN 60068-2-30 (continuous shock resistance) 100 g; 11 ms, 1/2 sinusoidal; 3 x each; 3 axes
- EN 60068-2-52 (salt mist test)
- Degree of severity 5 (4 test cycles)
- DIN ISO 7637-2 /SAE J 1113-11 (load dump) degree of severity IV
- DIN EN ISO 14982 EMC (forestry machinery)
- DIN ISO 7637-2 (conducted and emitted electrical interference - Part 2: Vehicles with 12 V or 24 V systems)

Excellent EMC immunity

The e1 sensor series for utility vehicles meets more requirements than stipulated by DIN ISO 7637-2 and DIN EN ISO 14982 for the severe radiated and line-conducted interference usually present in vehicles.



Extended temperature range

From -40 °C to + 85 °C or from the polar region to the Sahara: The extended temperature range of the sensors allows worldwide use! Even the radiant heat up to +85 °C emitted from motors, gears or exhaust systems cannot damage these sensors. Even extreme temperature changes as defined by DIN 60068-2-14 are not a problem.



e1 type approval

The e1 type approval of the German Federal Motor Transport Authority is required for EMC components on vehicles that travel on public highways. The sensors are tested for interference emission and immunity.

