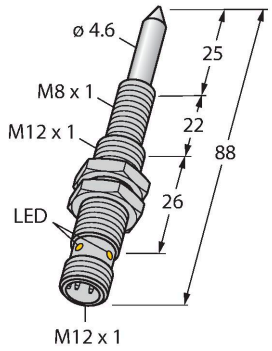
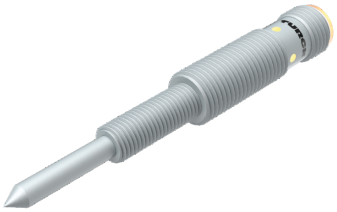
NIMFE-EMT12/4.6L88-UP6X-H1141
Magnetic Field Sensor
For Detection of Ferromagnetic Parts





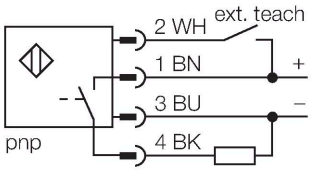
Technical data

Type	NIMFE-EMT12/4.6L88-UP6X-H1141
ID	1600619
General data	
Electrical data	
Operating voltage	10…30 VDC
Residual ripple	≤ 10 % U_{ss}
DC rated operational current	≤ 100 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 V
Wire breakage/Reverse polarity protection	yes / Complete
Output function	3-wire, Connection programmable, PNP
Mechanical data	
Design	Threaded barrel, EMT12/4,6L88
Dimensions	88 mm
Housing material	Stainless steel, 1.4301 (AISI 304), PTFE-coated
Active area material	Stainless steel, 1.4301 (AISI 304), PTFE-coated
Max. tightening torque of housing nut	10 Nm
Electrical connection	Connector, M12 × 1
Environmental conditions	
Ambient temperature	-25…+70 °C
Vibration resistance	55 Hz (1 mm)

Features

- Threaded barrel, M12 x 1
- Stainless steel, 1.4301, PTFE-coated
- DC 3-wire, 10…30 VDC
- NC/NO parametrizable with teach adapter VB2-SP1
- M12 x 1 male connector

Wiring diagram



Functional principle

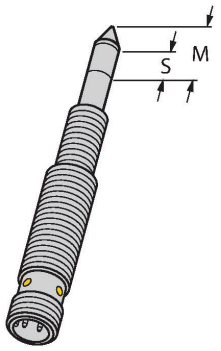
The weld sensors are available in different versions, with different signal intensities and diameters. Ferromagnetic parts which differ strongly in their material properties and diameters can thus be detected. A target part has to be located within the so called sensitive area in order to be detected. The internal sensor signal reaches the maximum intensity if the sensitive area is completely covered by the target. Partial coverage is also possible.

Sensitive area S = 9 mm
Within this area the sensor signal changes when components are connected.

Maximum range M = 13 mm
In case of complete coverage of the sensitive area the maximum signal intensity is achieved.

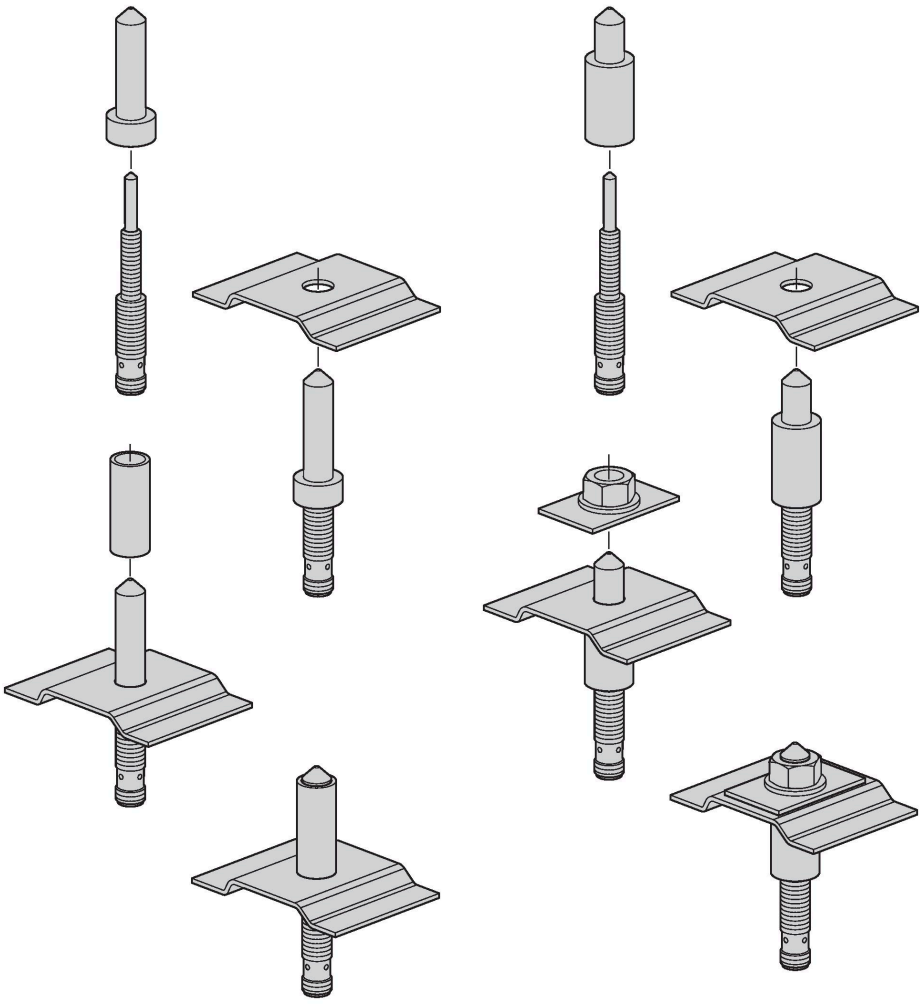
Technical data

Shock resistance	30 g (11 ms)
Protection class	IP67
MTTF	874 years acc. to SN 29500 (Ed. 99) 40 °C
Power-on indication	LED, Green
Switching state	LED, Yellow



Mounting instructions

Mounting instructions/Description

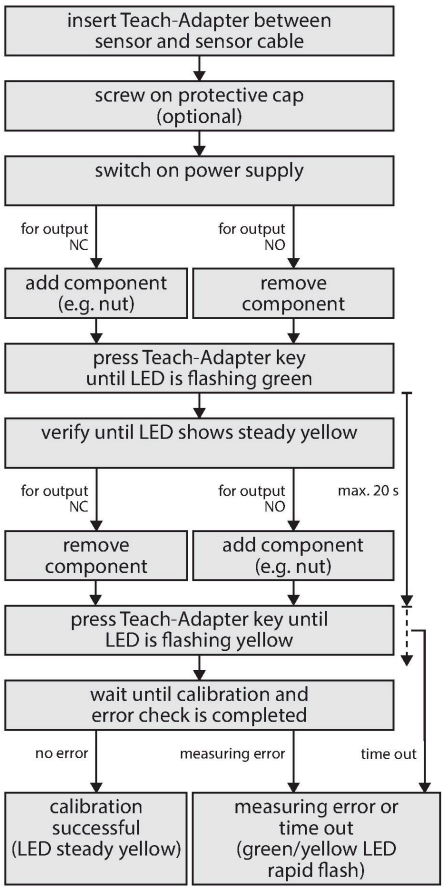


Distance D	3 × B
Distance W	3 x Sn
Distance T	3 x B
Distance S	1.5 x B
Distance G	6 x Sn
Diameter active area B	Ø 12 mm

The magnetic field sensor is especially suited for the detection of welding nuts as well as spacer or reinforcing sleeves. The parts to be detected must always consist of ferromagnetic material, so that a proper function can be guaranteed. Most applications need center bolts to tack the welding nuts and reinforcing sleeves in place and thus provide mechanical protection of the sensors. Theses bolts have to be made of non-ferromagnetic material, like stainless steel for example. Center bolts are not available at Turck, as these have to be individually produced for and adjusted to the correspondent application.

The welding nut sensor detects ferritic targets with diameters between 6 mm and 12 mm.

Parameterization via teach adapter



The measured signal in the sensor is influenced by the diameter and the material characteristics of the center bolt, but also by the cover of the sensitive area. Therefore each sensor has to be conditioned to the operating environment, i.e. to the applied sleeves or closure caps and the target (nut, sleeve etc.) To configure a sensor, the teach adaptor VB2-SP1 available from Turck is required.

Fault indication

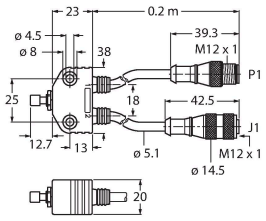
If an overcurrent or short circuit fault occurs when the output is switched on, the output is toggled immediately. Within one second the sensor checks if the state of short circuit still remains, if not, the output is switched on again. During an overcurrent or short circuit, the yellow LED flashes at a frequency of 1 Hz. Each sensor monitors the internal signals and hardware components. This includes the following sources of error that lead to the shutdown of the output:
- Failure of the sensor signal (e.g. due to external magnetic fields)
- Overtemperature (device temperature > 100 °C)
- Defective hardware

Sensor faults are indicated by alternate flashing green and yellow LEDs. The sensor faults are usually self-resetting, i.e. the sensor changes automatically to the normal operating state once the error is corrected.
After switching on the operating voltage the sensor checks its operating parameters. If these parameters are incorrectly configured, the sensor remains in an error state (green LED flashes). The output cannot be switched in this state. The device parameters must be reconfigured using the teach adaptor.

Accessories

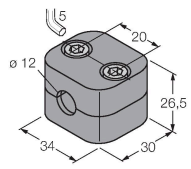
VB2-SP1	A3501-29

Teach adapter



BSS-12	6901321

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



MW-12	6945003

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