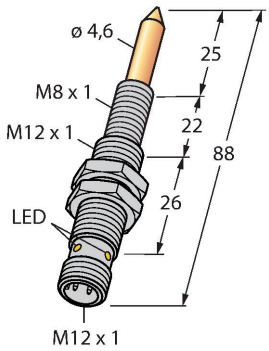
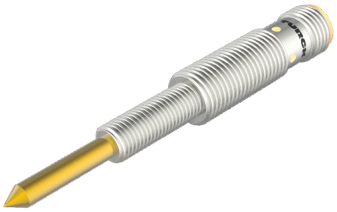
NIMFE-EM12/4.6L88-UN6X-H1141/S1182
Magnetic Field Sensor – With TIN Coating For Detection of Ferromagnetic Parts





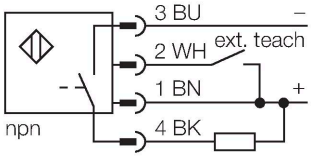
Technical data

Type	NIMFE-EM12/4.6L88-UN6X-H1141/ S1182
ID	1600617
Special version	S1182 Corresponds to:TIN coating
General data	
Electrical data	
Operating voltage U_B	10…30 VDC
Ripple U_{ss}	≤ 10 % U_{Bmax}
DC rated operating current I_e	≤ 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 break/reverse polarity protection	yes/Complete
Output function	3-wire, Connection programmable, NPN
Mechanical data	
Design	Threaded barrel, M12 x 1
Dimensions	88 mm
Housing material	Stainless steel, 1.4301 (AISI 304)
Active area material	Stainless steel, 1.4301 (AISI 304), TIN coating
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

- DC 3-wire, 10…30 VDC
- NC/NO parametrizable with teach adapter VB2-SP1
- M12 x 1 male connector

Wiring diagram



Functional principle

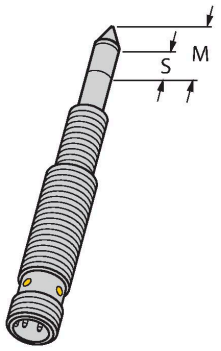
The weld sensors are available in different versions, with different signal intensities and diameters. Ferromagnetic parts which differ strongly in their material properties and diameters can thus be detected. A target part has to be located within the so called sensitive area in order to be detected. 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.

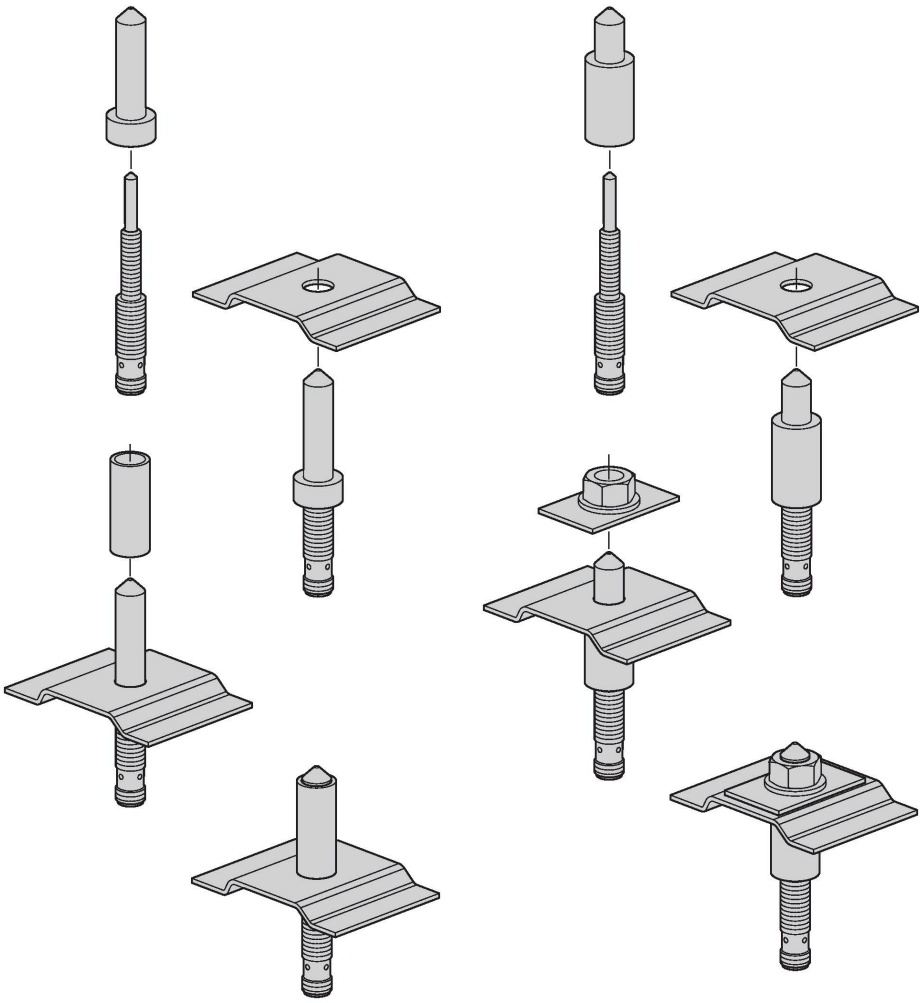
Technical data

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



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.

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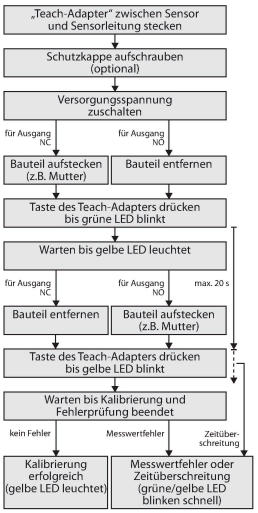
Parameterization via teach adapter



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, to ensure the correct switching behavior, each sensor must be conditioned to the operating environment, i.e. to the centering sleeve or closure cap used and the component to be detected (nut, sleeve, etc.). To configure a sensor, the teach adapter 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 whether the state of short circuit still remains and, 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 internal sensor signals and hardware components. This includes the following fault sources that lead to the shutdown of the output:
- Failure of the sensor signal (e.g. due to external magnetic fields)
- Overtemperature (device internal temperature > 100 °C)
- Defective hardware

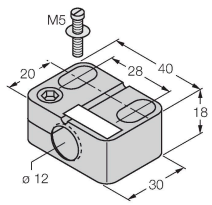
Sensor faults are indicated by the green and yellow LEDs flashing alternately. The sensor faults are usually self-resetting, i.e. the sensor reverts automatically to the normal operating state once the fault is corrected.
After the operating voltage of the sensor is switched on, the sensor checks its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

Optimized for:	M5–M10	M6–M12	M6–M12	M6–M12	M10–M20	M10–M20
Diameter	4.0 mm	4.6 mm	4.6 mm	4.9 mm	6.2 mm	6.2 mm

Comprehensive portfolio
With the NIMFE product series, Turck provides an established series of sensors for the reliable detection of weld nuts. The devices made of brass or stainless steel are available with different tip diameters from 4.0 mm to 6.2 mm and are optimized for the dimensions of the weld nuts used. The sensors are suitable for detecting weld nuts in sizes M5 to M20.
The tips of the stainless steel sensors have a coating of titanium nitride (TiN). The ceramic material, which has exceptional hardness and corrosion resistance, makes the devices more resistant to scratches and provides additional protection against wear. It also protects the sensors from weld splatter. The chemically resistant tips of the TiN-coated sensors can withstand high temperatures and feature good non-stick properties.

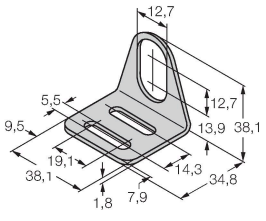
Accessories

BST-12B 6947212



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

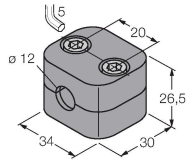
MW12 6945003



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



VB2-SP1	A3501-29

Teach adapter