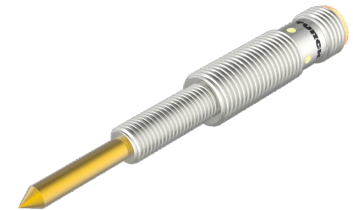
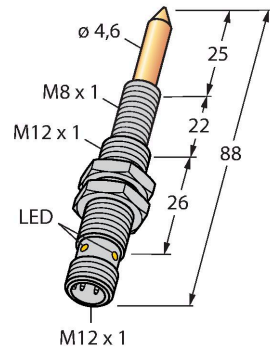


NIMFE-EM12/4.6L88-UP6X-H1141/S1182

Magnetic Field Sensor – With TIN Coating

For Detection of Ferromagnetic Parts



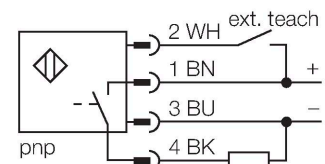
Technical data

Type	NIMFE-EM12/4.6L88-UP6X-H1141/S1182
ID	1600620
Special version	S1182 Corresponds to: TIN coating
General data	
Electrical data	
Operating voltage U_B	10...30 VDC
Ripple U_{ss}	$\leq 10 \% U_{Bmax}$
DC rated operating current I_o	$\leq 100 \text{ mA}$
No-load current	$\leq 15 \text{ mA}$
Residual current	$\leq 0.1 \text{ mA}$
Isolation test voltage	0.5 kV
Short-circuit protection	yes/Cyclic
Voltage drop at I_o	$\leq 1 \text{ V}$
Wire break/reverse polarity protection	yes/Complete
Output function	3-wire, Connection programmable, PNP
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 x 1
Environmental conditions	
Ambient temperature	-25...+70 °C
Vibration resistance	55 Hz (1 mm)

Features

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

Wiring diagram



Functional principle

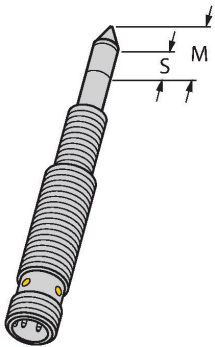
The weld sensors are available in different versions, with different signal intensities and diameters. Ferromagnetic parts which differ strongly in their material properties and diameters can thus be detected. A target part has to be located within the so called sensitive area in order to be detected. 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 $S = 9 \text{ mm}$
Within this area the sensor signal changes when components are connected.

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

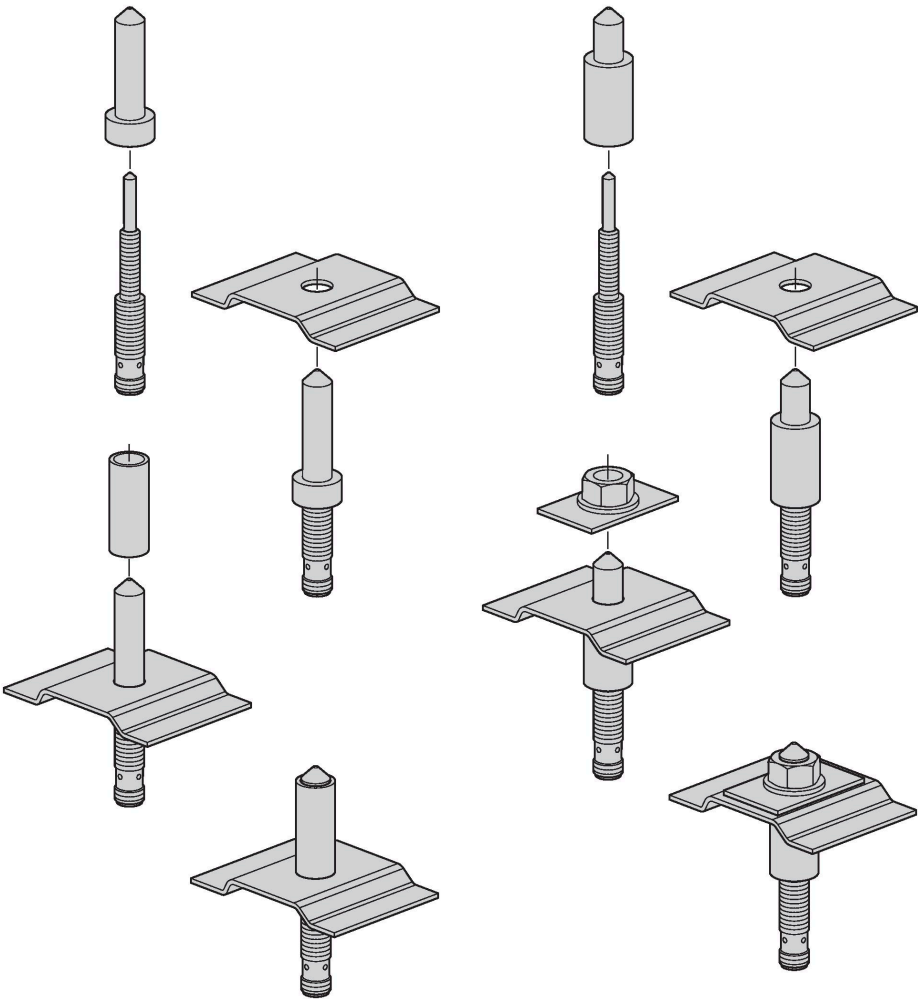
Technical data

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. These 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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graph TD; A[insert Teach-Adapter between sensor and sensor cable] --> B[screw on protective cap (optional)]; B --> C[switch on power supply]; C -- "for output NC" --> D[add component (e.g. nut)]; C -- "for output NO" --> E[remove component]; D --> F[press Teach-Adapter key until LED is flashing green]; E --> F; F --> G[verify until LED shows steady yellow]; G -- "for output NC" --> H[remove component]; G -- "for output NO" --> I[add component (e.g. nut)]; G -- "max. 20 s" --> J[press Teach-Adapter key until LED is flashing yellow]; H --> J; I --> J; J --> K[wait until calibration and error check is completed]; K -- "no error" --> L[calibration successful (LED steady yellow)]; K -- "measuring error" --> M[measuring error or time out (green/yellow LED rapid flash)]; K -- "time out" --> M;
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The flowchart illustrates the calibration procedure for the sensor cable. It begins with inserting the Teach-Adapter between the sensor and the sensor cable, followed by screwing on the protective cap (optional). The power supply is then switched on. Depending on the output type (NC or NO), a component (e.g., nut) is added or removed. The Teach-Adapter key is pressed until the LED is flashing green. The user then verifies until the LED shows steady yellow. If the output is NC, the component is removed; if NO, the component is added. A maximum time of 20 seconds is allowed for this step. The Teach-Adapter key is pressed again until the LED is flashing yellow. Finally, the user waits until the calibration and error check is completed. If there is no error, the calibration is successful (LED steady yellow). If there is a measuring error or time out, the LED shows a rapid flash (green/yellow).

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.

[illegible]