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TURCK

The Full Range for Weld Nut Sensors

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Turck's sensors, connectivity, and fieldbus technology products are built to be the best. As one of the most **prominent** sensor manufacturers **in the world**, we even back our sensors with a **lifetime warranty**. Turck works by bringing **rugged engineering** solutions to your industrial automation applications.

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Weld Nut Sensors

In the automotive industry, spacer sleeves – or reinforcing sleeves – and weld nuts are often used to assemble sheet metal elements. In order to guarantee a smooth production process that is free from rejects, the availability of these parts must be repeatedly detected.
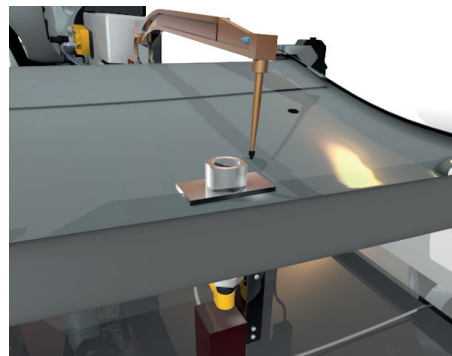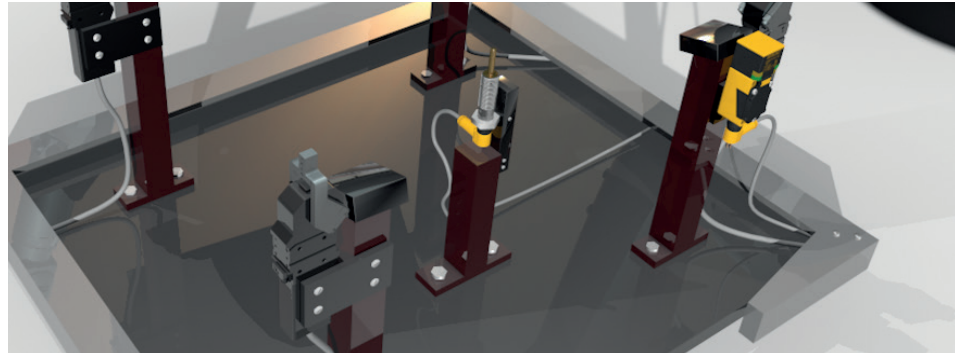
Spacer sleeves and weld nuts are used to ensure that vehicle elements, such as the frame, U-beams, car seats or tanks, are assembled to meet design requirements. If individual nuts or sleeves are not present in the required locations, the production process stops and the workpiece is a reject. If these errors are not detected and the unsuitable parts are passed down the line for further processing, the manufacturer incurs considerable costs. Even complete car body shells may be rendered unsuitable for further processing if the stabilizing elements are not welded in position.

In order to avoid these issues, it is essential that the presence of weld nuts or spacer sleeves is continually monitored during the assembly process.

Reduce your production costs significantly and increase process reliability with Turck weld nut sensors

Reliable detection

The Turck weld nut sensor is designed to detect ferromagnetic components such as sleeves, nuts, and washers through non ferromagnetic material. This repeatable technology is not susceptible to the same contaminations as an optical sensing solution. Each sensor carries a protection class of IP67, and contains four LEDs to provide a visual indicator of the switching status.

Robust sensor solution

Turck weld nut sensors are produced from high-quality materials made to withstand harsh welding environments. The sensors also include an internal temperature compensation system that balances out the extreme fluctuations that occur during a welding operation.

Cost-effective detection method
Camera systems and other optical sensing solutions can be easily replaced by Turck weld nut sensors. Benefit from significant cost savings thanks to low investment costs and simple calibration. No additional software or electronics required to use.

Optimal integration
The sensors are tailored for the detection of weld nuts in harsh production environments. They can be integrated into the existing application seamlessly, and weld-resistant materials protect the sensor and guarantee a long service life in robotic welding applications.

Comprehensive portfolio

Turck provides an established series of sensors for the detection of weld nuts. The devices made of brass or stainless steel are available with different tip diameters from 4 to 6.2 mm, and are optimized for the dimensions of commonly used weld nuts.

The sensors are designed for detecting weld nut sizes from M5 to M20.

For extreme conditions, Turck offers sensing probe tips with an optional titanium nitride (TiN) coating. 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.

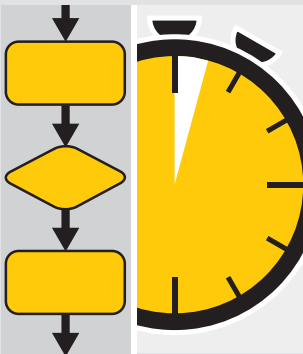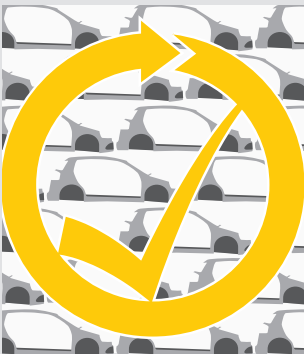| Optimized for:	M5–M10	M5–M10	M6–M12	M6–M12	M10–M20
Probe Diameter	4.0 mm	4.0 mm	4.6 mm	4.9 mm	6.2 mm

How to teach the sensors

To ensure that the Turck sensor only detects the nut and not the metal sheet, the sensor parameters can be taught via pin 2 of the M12x1 male connector, or by using an optional teach adapter (VB2-SP1).

At the push of a button the sensor "learns" to differentiate between the metal sheet and the metal sheet plus welding nut. This way, the presence/absenc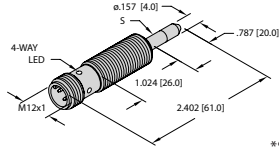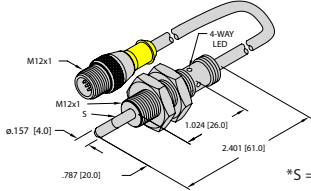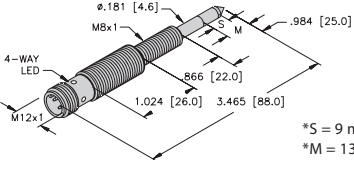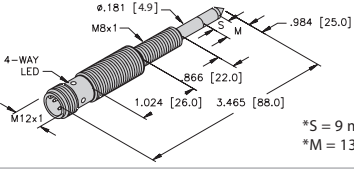e of the welding nut is safely detected and the sheet is ignored. Once the sensor parameters have been set, the sensor keeps them memorized until another teach-in process is performed.

Simple teach-in process on site
The sensors are user configurable by following the included teach instructions, which apply to the entire Turck weld nut sensor offering. The teach-in process takes mere seconds, ensuring that the sensors are programmed for the specific application in no time.

High levels of reliability
Technology based on many years of experience, paired with optimum materials and sensor designs tailored to the application, guarantee a reliable detection system for weld nuts. The robust sensors offer a high level of security.

Housing	Part Number / ID Number	ID Number	Nut Diameter	Output	Product Features
ø.157 [4.0] S .787 [20.0] 4-WAY LED 1.024 [26.0] M12x1 2.402 [61.0] *S = 0.5 mm	NIMFE-EM12/4.0L61-UP6X-H1141/S1182	M1600621	5-10 mm	DC 3-Wire PNP	Titanium Nitrade Coated Probe
	NIMFE-EM12/4.0L61-UN6X-H1141/S1182	M1600622	5-10 mm	DC 3-Wire NPN	
4-WAY LED M12x1 M12x1 S ø.157 [4.0] 1.024 [26.0] .787 [20.0] 2.401 [61.0] *S = 0.5 mm	NIMFE-EM12/4.0L61-UP6X-0.3XYE-RS 4/S1182	M1600623	5-10 mm	DC 3-Wire PNP	Titanium Nitrade Coated Probe
	NIMFE-EM12/4.0L61-UN6X-0.3XYE-RS 4/S1182	M1600624	5-10 mm	DC 3-Wire NPN	
ø.181 [4.6] M8x1 S M .984 [25.0] 4–WAY LED .866 [22.0] M12x1 1.024 [26.0] 3.465 [88.0] *S = 9 mm *M = 13 mm	NIMFE-M12/4.6L88-UP6X-H1141	M1600608	6-12 mm	DC 3-Wire PNP	
	NIMFE-EMT12/4.6L88-UP6X-H1141	M1600619	6-12 mm	DC 3-Wire PNP	PTFE Coated
	NIMFE-EM12/4.6L88-UP6X-H1141/S1182	M1600620	6-12 mm	DC 3-Wire PNP	Titanium Nitrade Coated Probe
	NIMFE-M12/4.6L88-UN6X-H1141	M1600610	6-12 mm	DC 3-Wire NPN	
	NIMFE-EMT12/4.6L88-UN6X-H1141	M1600618	6-12 mm	DC 3-Wire NPN	PTFE Coated
	NIMFE-EM12/4.6L88-UN6X-H1141/S1182	M1600617	6-12 mm	DC 3-Wire NPN	Titanium Nitrade Coated Probe
ø.181 [4.9] M8x1 S M .984 [25.0] 4–WAY LED .866 [22.0] M12x1 1.024 [26.0] 3.465 [88.0] *S = 9 mm *M = 13 mm	NIMFE-EM12/4.9L88-UP6X-H1141/S1182	M1600616	6-12 mm	DC 3-Wire PNP	Titanium Nitrade Coated Probe
ø.244 [6.2] M8x1 S M 1.496 [38.0] 4–WAY LED .866 [22.0] M12x1 1.024 [26.0] 3.976 [101.0] *S = 11 mm *M = 14 mm	NIMFE-M12/6.2L101-UP6X-H1141	M1600609	10-20 mm	DC 3-Wire PNP	
	NIMFE-EMT12/6.2L101-UP6X-H1141	M1600613	10-20 mm	DC 3-Wire PNP	PTFE Coated
	NIMFE-EM12/6.2L101-UP6X-H1141/S1182	M1600612	10-20 mm	DC 3-Wire PNP	Titanium Nitrade Coated Probe
	NIMFE-M12/6.2L101-UN6X-H1141	M1600611	10-20 mm	DC 3-Wire NPN	
	NIMFE-EMT12/6.2L101-UN6X-H1141	M1600615	10-20 mm	DC 3-Wire NPN	PTFE Coated

Optional teach adapter available, part number: VB2-SP1
* Sensitive area: Within this area the sensor signal changes when assembly parts are changed.
** Maximum area: The maximum signal intensity is reached if the sensitive area is completely covered.

TURCK

28 subsidiaries and over
60 representations worldwide!

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