TURCK works

Industrial Automation

EASY-TO-USE PROGRAMMABLE WELD NUT SENSORS

Robust, Reliable Detection of Weld Nuts in Harsh Automotive Environments

TURCK's magnetic-inductive weld nut sensors provide efficient and economical detection of weld nuts in automotive applications. The sensors detect ferromagnetic components, such as nuts, bushings and spacer sleeves, to ensure these components are present before robotic welding occurs. These sensors are less complex than existing devices that require additional software or electronics to detect the target.

Weld nut sensors are programmed to differentiate between the nut and the sheet metal on which it is located, delivering accurate component detection. At the push of a button, the sensor "learns" the status of the weld nut/sheet metal combination (along with the status of the sheet metal alone). The TURCK weld nut sensor may be mechanically protected with a stainless steel sleeve (not included), which also acts as a guide to keep the weld nut in place.

Weld nut sensors are available in two versions offering different signal intensities and diameters to adapt to a wide variety of operating environments and material characteristics. The sensors also feature a rugged IP 67 rated housing that protects internal components from harsh welding zone conditions. Plus, the sensors offer temperature compensation to withstand the thermal changes common in welding environments.

- **Rejection-free process for detecting weld nuts**
- **An economical alternative to more expensive optical or vision-based systems that often malfunction due to:**
  - **Dirt and weld-splatter residue**
  - **Frequently changing lighting conditions in welding zones**
- **Rugged construction delivers dependable performance**
- **Simple programming**
- **Bright LEDs indicate the output status**

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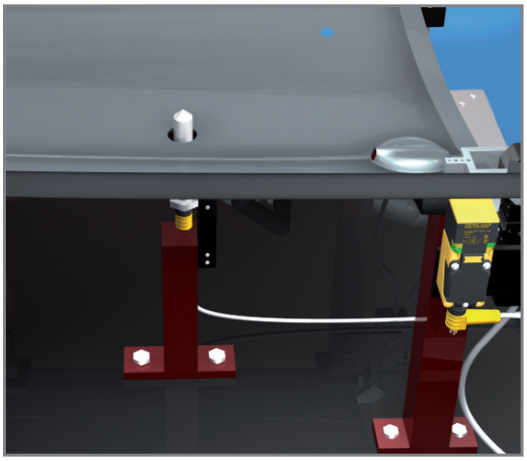
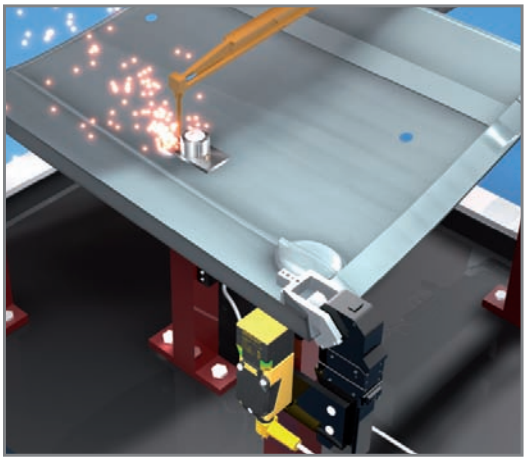
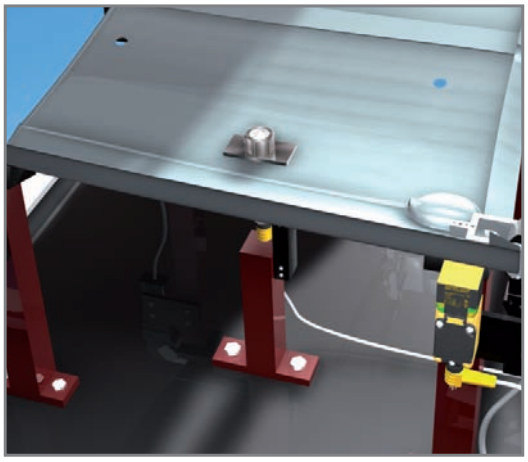
How TURCK Weld Nut Sensors Work



1. Once the TURCK weld nut sensor has been programmed, it is mounted in sheet metal. When a nut is not present, there is no output. At this time, the green LED is illuminated.



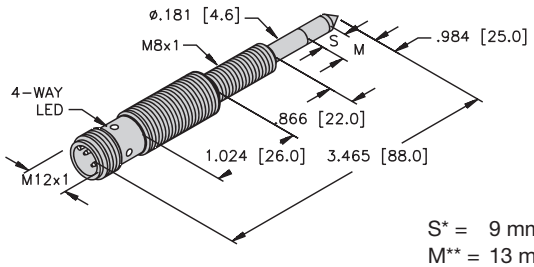
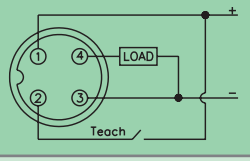
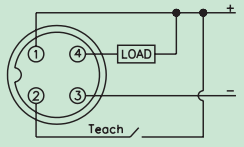
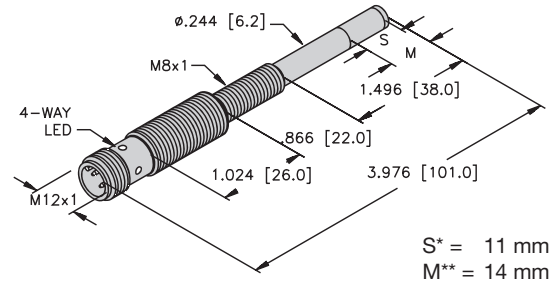
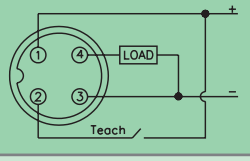
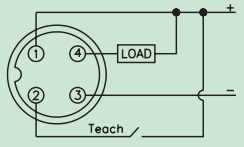


2. When a weld nut is present, it is detected by the sensor. The sensor produces an output reflected by the LED turning yellow. At this time, the welding process initiates.

3. Welding begins. The sensor's yellow LED remains illuminated until the weld nut is no longer present.

Optional Teach Adaptor (VB2-SP1)

Weld Nut Sensor

Dimensional Drawing	Part Number	ID Number	Connection
M12 *eurofast*® Connection **6-12 mm Diameter Nut** **10-30 VDC 200 mA**  S* = 9 mm M** = 13 mm	NIMFE-M12/4.6L88-UP6X-H1141	M1600608	PNP Output 
	NIMFE-M12/4.6L88-UN6X-H1141	M1600610	NPN Output 
M12 *eurofast* Connection **10-20 mm Diameter Nut** **10-30 VDC 200 mA**  S* = 11 mm M** = 14 mm	NIMFE-M12/6.2L101-UP6X-H1141	M1600609	PNP Output 
	NIMFE-M12/6.2L101-UN6X-H1141	M16006122	NPN Output 

Note: Temperature Rating = -25 to 70°C (-13 to 158°F).
* 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.