

Reduce Sensor Failure in Welding Applications

Protecting sensors during welding applications can be challenging. Inductive sensors used for detection and error-proofing during welding need to be able stand up to extremely harsh environments or have to be continually replaced, which adds maintenance time and cost. Inductive proximity sensors are designed specifically to sense metal – they use electricity to sense the eddy currents on the metal target and when detected, the sensor triggers an output. From body and assembly applications in the automotive industry to automated robot part welding at Tier 1 suppliers, reducing sensor failure in weld cell applications is a must.



The Challenge – Rigorous Welding Environments

Proximity sensors in welding environments are damaged and destroyed for a variety of reasons, including molten metal slag from MIG/TIG welding and weld spatter from resistance (spot) welding. A typical weld cell experiences high temperatures, contamination, molten metal, and weld slag or splatter on a daily basis. To make matters more challenging, impact during part removal or insertion can damage sensors.

Is there a sensor designed to withstand this brutal environment? Choosing the correct solution is key to eliminating frequent, costly replacements due to premature failure. Standard sensors will not be able to meet weld cell production demands. Therefore, users should take the following questions into account:

- Does the sensor have an industrial-grade coating for protection?
- Will the sensor be exposed to weld splatter?
- Is the sensing solution impact resistant?
- Is the sensor designed to detect metal, so reflections and sparks do not cause false trips?
- Is the sensor rated to high temperatures?
- Is sensor shielding or high temperature cable needed?
- Is your process clean or dirty?

Be sure to determine the answers to these important questions or consult a sensing professional before you choose your sensing components.

The Solution

Inductive sensors with a protective coating like Turck's Weldguard®, a proprietary material on the sensing face, are ideal. You'll find Weldguard on Turck's family of Uprox® inductive sensors as well as other sensors. Clear silicone coatings and other solutions like shielding can be useful but are not as effective as Weldguard material, which resists high heat and weld slag buildup. Turck developed this front face material, which has been proven through independent lab tests to last as much as 13 or more times longer than standard sensor face material sensors. The Turck sensors performed better than all others tested by at least a factor of 10. No competitive sensor tested has a front face material that lasts as long as Weldguard. This includes thermoset, thermoplastic and stainless steel.



- Independently tested to over 25,000 operations without failure
- Impervious to weld spatter that creates pitting, chipping and cracking caused by resistance welding
- A superior replacement for any type of material used on a sensing face
- Able to withstand high heat
- Resistance to pitting chipping and crackling caused by molten metal traveling at high velocity

Contact Turck for more information about automation solutions for weld cells, including connectivity products for harsh environments.

More Information

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