Part-Present Verification in Power Clamp Grippers

The Miniature F79M Confirms Part-in-Place in Welding Processes

At a Glance

- Reliable detection of clamped metal parts
- Designed for installation in grippers and end-of-arm tooling
- Slag-resistant sensor coating repels weld beads
- Tough POC cable jacket prevents damage from heat and spatter
- 100 °C temperature rating



The Application

In automated welding and assembly systems, robots use grippers and power clamps to secure workpieces during weld operations. Sensors embedded within the tooling must verify parts are properly secured throughout the welding process.

The Goal

Welding heat, spatter, and mechanical stress can damage conventional sensors and lead to downtime. Customers challenged Pepperl+Fuchs to develop a durable, compact inductive that could withstand these conditions and fit directly into grippers and end-of-arm tooling.

The Solution

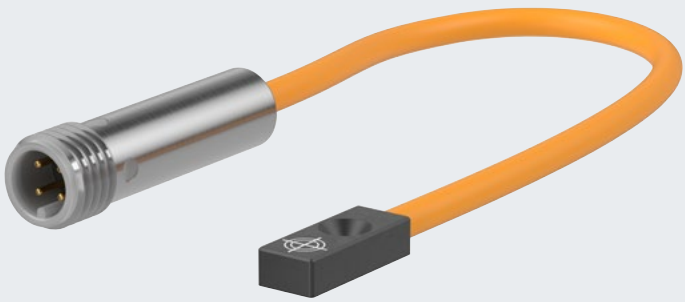
The weld-resistant F79M sensor detects gripped and clamped components without contact. Its compact housing can be recessed into gripper tooling, while the Xylan coating helps prevent weld slag and spatter from building up on the sensor surface. The sensing element is withstands ambient temperatures up to 100 °C, and the heavy-gauge cable with a POC jacket resists welding heat, slag, spatter, and pull stresses, helping extend the service life of the complete sensor system.

The Advantages

The F79M monitors the presence and position of components in automated welding grippers. Its compact design fits directly into grippers and end-of-arm tooling, while its durable sensing surface, coating, and POC cable help protect it from welding heat, spatter, and mechanical stress. This reduces sensor-related stoppages, increase machine uptime, and improve production efficiency.

Technical Features

- Inductive sensor with a durable stainless-steel sensing element
- POC cable survives extreme heat and spatter exposure
- Weld slag-resistant Xylan coating
- Operating temperature: up to +100 °C
- Miniature housing fits inside space-restrictive fixtures and tooling
- M12 and M8 pigtailed quick disconnect options



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