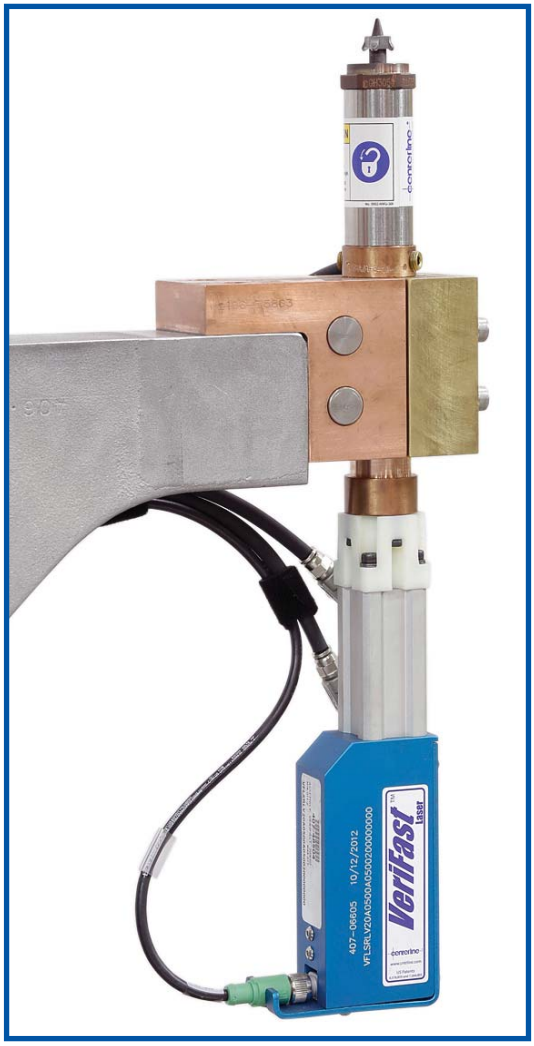
VeriFast™ Laser

Fastener Detection System

The VeriFast™ Laser fastener detection system represents the combination of CenterLine's nut and stud welding electrode expertise with industry proven sensing technology. The VeriFast system is a linear measurement device capable of detecting a number of critical assembly process variables such as fastener presence, orientation and position. This in-process monitoring capability allows you to track the quality and repeatability of your projection welding process to avoid incurring the costs of manufacturing parts that are out of specification.



Main Features

- Position data is directly communicated from the Laser to the weld monitoring system by analog voltage signal.
- Able to sense the presence of a single fastener at the point-of-weld.
- Capable of sensing piloted and non-piloted nuts.
- Capable of sensing proper stud length.
- Able to detect when the weld pin has returned to home position.
- Incorporates standard components for quick turnaround time.
- Provides actual linear signal which can be calibrated to indicate measurement.
- Can be adapted to long stroke applications (up to 500 mm).

Integration and Set-Up

The VeriFast system can be integrated into a variety of weld control systems. It is compact, easy to install, and a detailed installation manual is available to facilitate integration with your process. Set-up and calibration are maintained electronically – no mechanical adjustments are necessary.

Control Connection Requirements

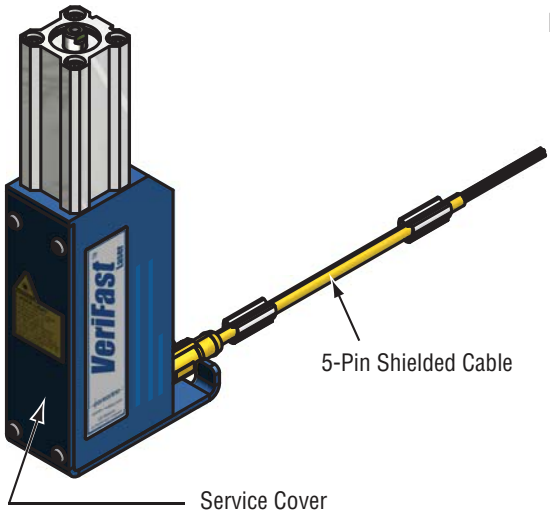
Minimum recommended control connection requirements are as follows:

Analog Input Interface: May include a PLC with a built-in Analog Input, Analog PLC Input card, Robot Analog Input, or Analog Field Input block (for network connection).

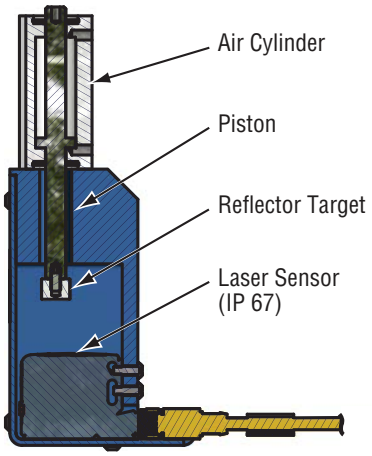
Required Input type: 0 to 10 VDC

Minimum sampling resolution: 12 bit

Note: For enhanced accuracy and application efficiency, an input capable of 14-16 bit resolution is preferred.



Side View
(Side Plate Removed
For Illustration Purposes)



Protected by U.S. patents # 6,576,859; 6,750,419; 6,906,279; 7,282,664; 7,564,005, with other U.S. and foreign patents pending.

How It Works

The VeriFast™ system is controlled by the automation control equipment. Within specification limits, the VeriFast verifies the presence and orientation of fasteners and/or parts.

The VeriFast Laser sensor signal is calibrated to indicate the position achieved by the fastener (nut or stud) weld pin in various stages of travel. The values of this signal are then compared to programmed set point values (with tolerances). Results that do not match the set point values can trigger either an interruption in the cycle, or a warning message indicating that the process has fallen outside the set value. These occurrences can indicate a potential part quality issue.

The set point values consist of:

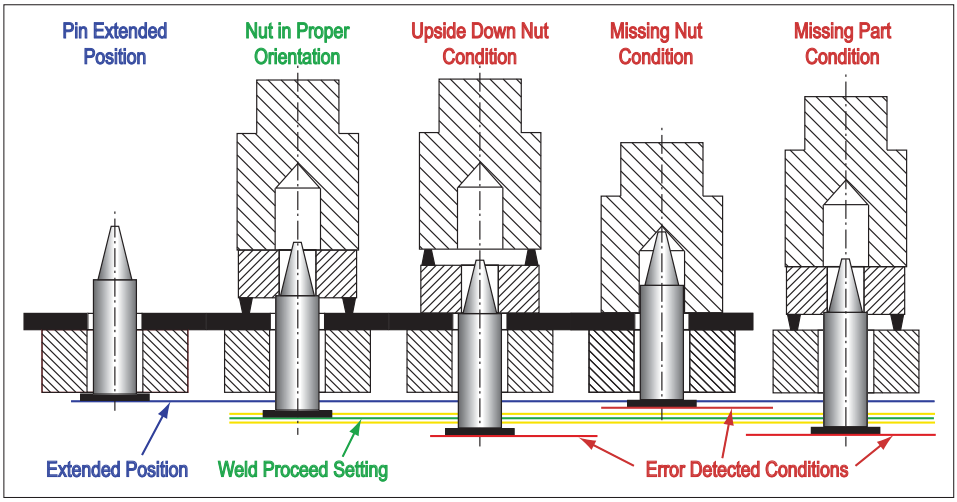
- Weld Pin Extended Position (System ready to load part and fastener)
- Weld Proceed (Presence and correct fastener orientation)

And may also include:

- Nut is Upside Down
- Stud is the Wrong Length (Not shown)
- No Fastener Detected
- No Part Detected

The VeriFast Laser system has the ability to detect differences as small as 0.008” (0.2 mm).

This example shows a nut application. It demonstrates the difference between correct fastener orientation and other error conditions.



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