

## **NS9N-AAD-SC - Highly reliable Weld Seam Detection at multi-coils**



Multi-coils are used today in various industries, especially in the stamping manufacturing as cost-effective semi-finished products.

Multi-coils consist of several coils welded together and thus contain typically 5 to 6 seams. These weld seams cannot be processed but must be cut out. This is necessary for tool protection but also for mechanical and optical reasons.

A reliable detection of the weld seam in automated processes is therefore absolutely necessary.

Existing seam detection solutions based on optical or inductive sensors can however be irritated by unintended gap changes between sensor and metal surface or by varying surface discolorations.

Roland Electronic – the specialist in weld seam detection since decades, has now developed a new Weld Seam Detector especially designed for these types of semi-finished steel strips. It's eddy-current technology avoids the mentioned drawbacks and improves the process reliability greatly. The sensor consists of a magnetizing unit and an eddy current encircling coil that can be directly connected to the PLC. The orifice of the encircling coil is suitable for material with the dimensions up to 40 mm x 8 mm.

### **The key data of the new system:**

<b>Material thickness</b>	
Carbon steel	0.2 to 4 mm
Non-magnetic stainless steel	0.5 to 4 mm
Aluminum	0.5 to 4 mm
<b>Strip width</b>	5 to 30 mm
<b>Transportation velocity</b>	Up to 5 m/s

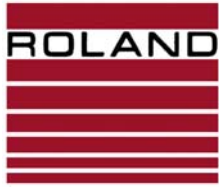
For slow PLCs or PLCs without analog input the control XA100 from Roland is available to generate the required output switch signal.

The most important advantages of the new weld seam detection systems are:

- Suitability for multi-coils or welded standard coils
- Suitability for start and stop processes
- Analog outputs 4 to 20mA for the connection to the PLC
- Cost-efficient control unit XA100

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Compared to optical systems the following advantages must be mentioned:

- Immunity to ambient light
- Resistant to oil and dirt
- Independence from color markings of the coil manufacturer

Important factors for the success of reliable detection of weld seams are according to Roland the following points:

- Cost-efficient control unit
- Custom-made sensors for the application under consideration with "robust" electronic circuitry which is hardened against the EMC impacts of industrial environments.
- A sophisticated highly dynamic signal processing with application-specific signal filters.
- A complete stand-alone solution consisting of sensors, special cable and sophisticated digital signal analysis at an attractive price.
- Close cooperation with the OEM machine builder to find the optimum solution for each application.

For more information please contact us.

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