

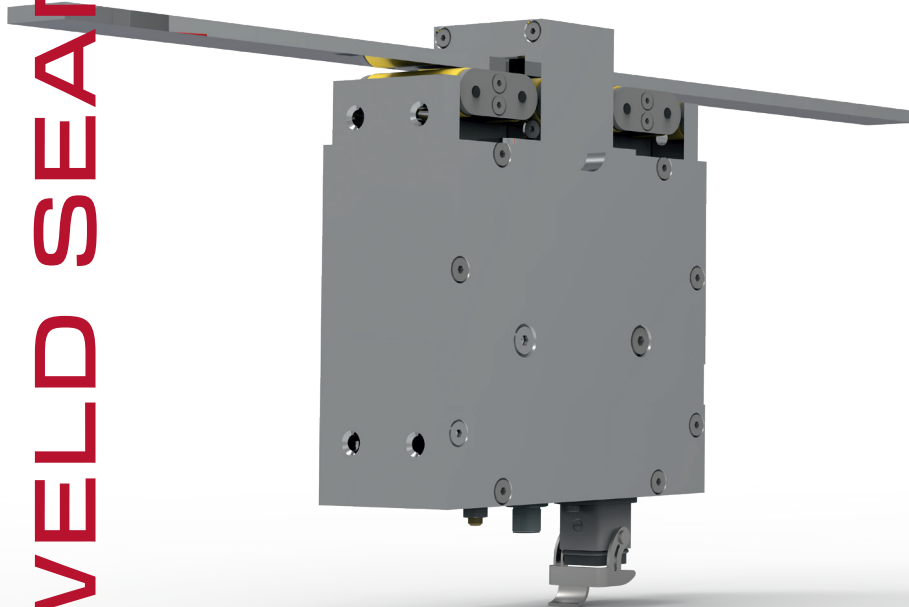
WELD SEAM DETECTION



NS9N-AAD-SC

WELD SEAM DETECTION IN NARROW STEEL STRIPS

- For magnetizable steels as well as for austenitic stainless steel
- Suitable for narrow steel strips
- Independent of optical surface discolorations
- Also suitable for start and stop processes
- Analog outputs 4 to 20 mA or 2 to 10 V for the connection to the PLC
- Cost-efficient control unit XA100-S
- Two different operating frequencies are selectable



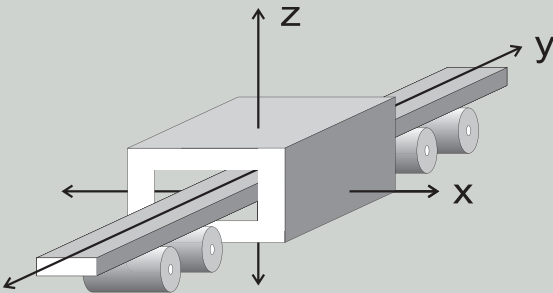
NS9N-AAD-SC

- Detects invisible weld seams, very high detection reliability
- Weld seam sensor based on eddy current
- The system consisting of magnetization unit and eddy current coil can be connected directly to a PLC
- With ferromagnetic materials, pre-magnetization increases the process reliability of the system

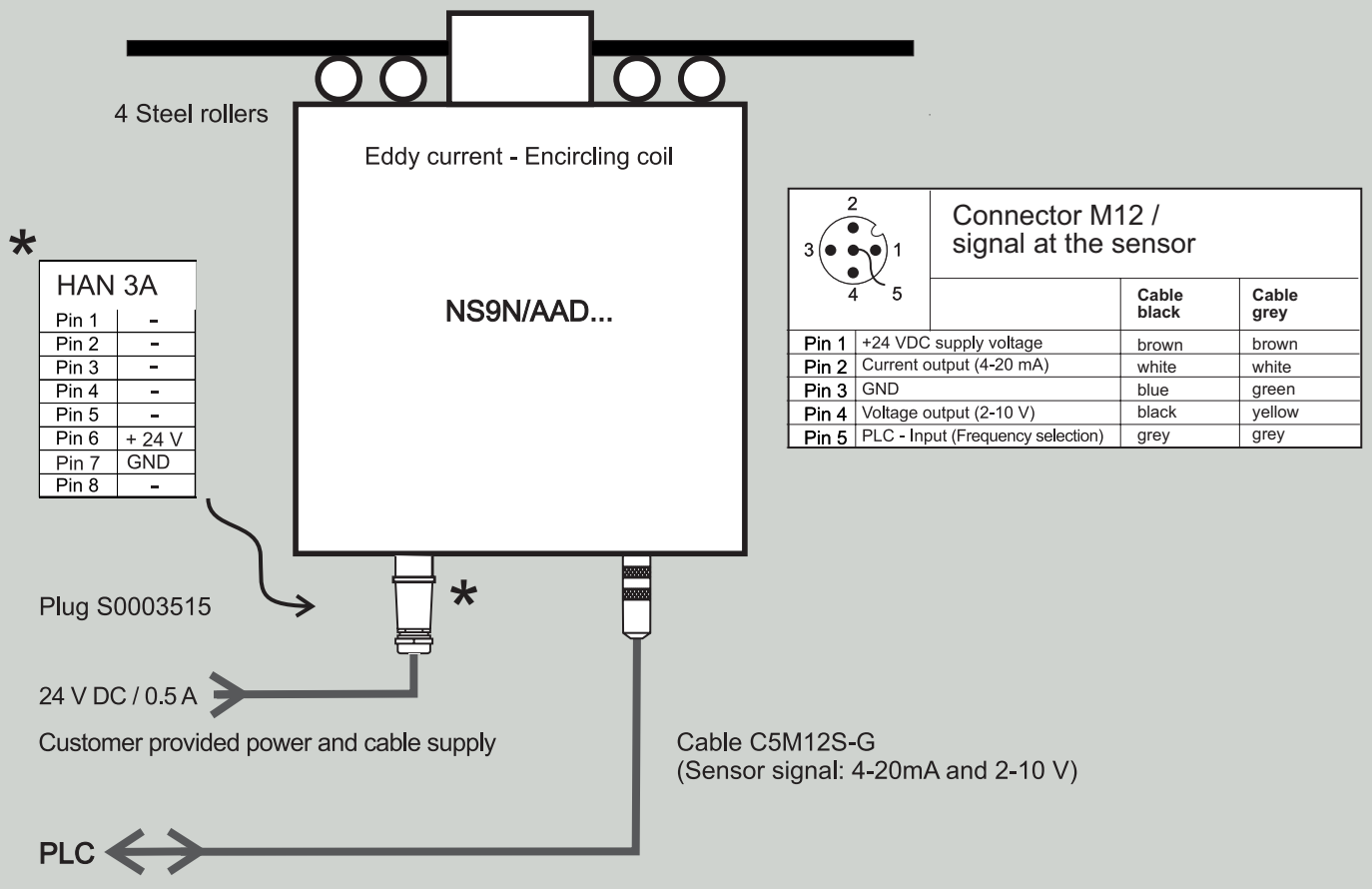
During the continuous processing of narrow gauge steel strips and other long products (such as cable, wires), it is necessary to detect the joints between individual segments (e.g. strip coils with transverse welds, cable coils with connectors).

Function

Materials, such as narrow gauge steel strips, cables and wires are fed through the eddy current encircling coil and transported continuously during the measurement process. The sensor detects the weld seam at stand-still as well as during continuous transportation. The steel rollers ensure a centered position of the material in the Z-axis (see illustration below). The lateral guide rollers must be provided by the customer.

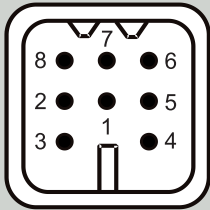


Wiring connections without control unit



WELD SEAM DETECTION IN NARROW STEEL STRIPS

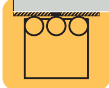
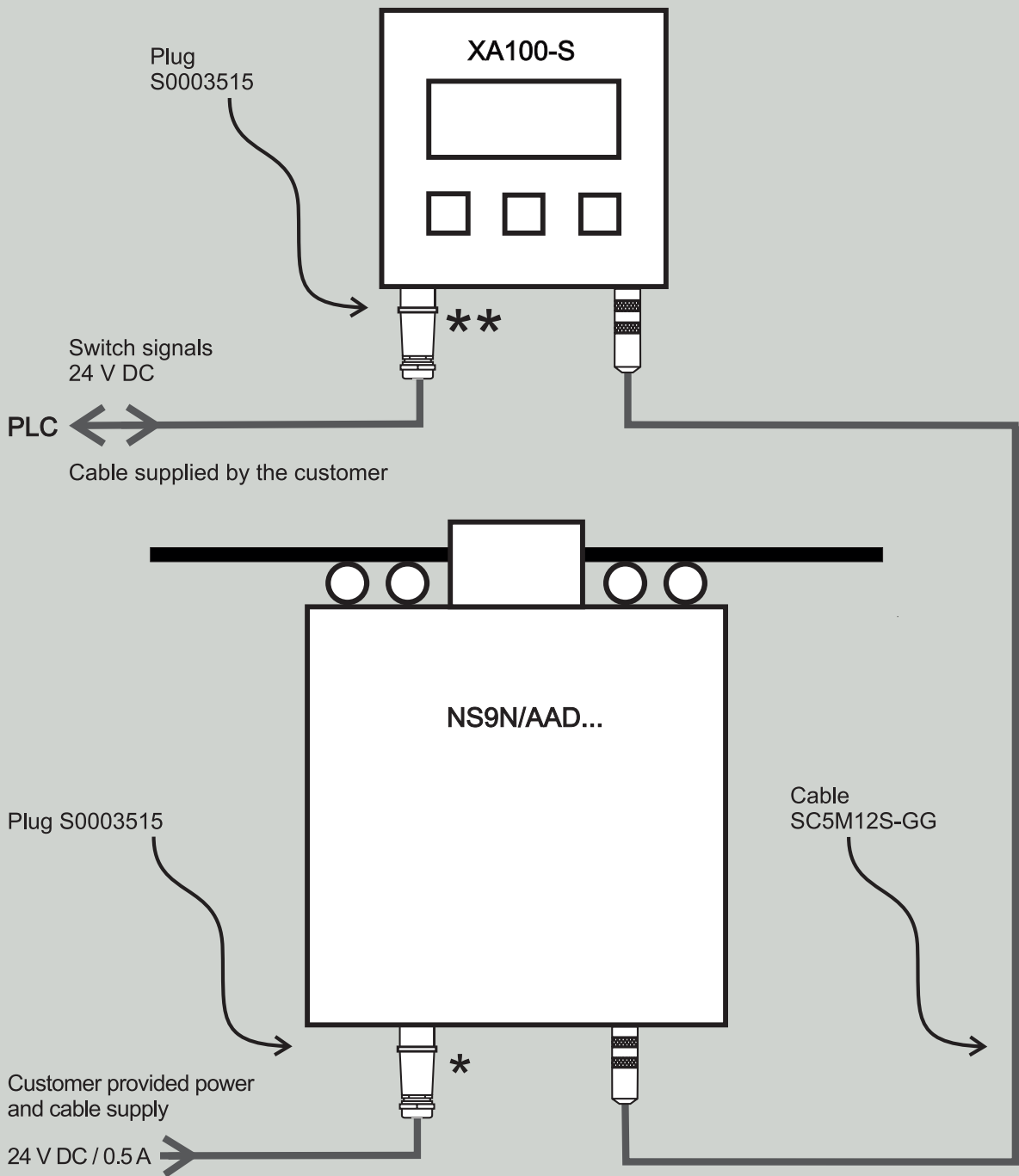
XA100 Supply connection



Enclosure HAN 3A, EMI-type metrical 7-pin insert and PE

Pin 1	+ 24 VDC	Pin 5	1-Sheet
Pin 2	GND	Pin 6	0-Sheet / Weld Seam detected (Threshold lower limit)
Pin 3	Teach-In	Pin 7	+ 24 VDC for I/O
Pin 4	2-Sheet / Weld Seam detected (Threshold upper limit)	Pin 8	PE

Supply Connection

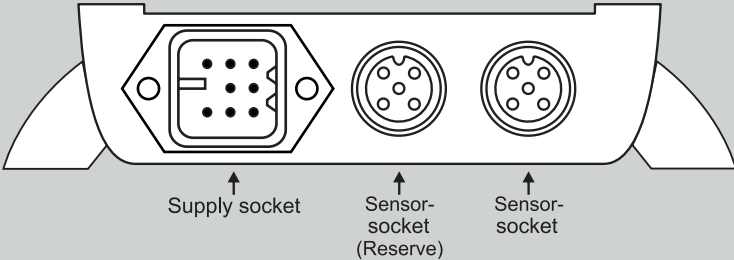


Technical Data

NS9N-AAD-SC		
Material thickness:	Carbon Steel	0.2 mm ... 4 mm (0.008 in ... 0.157 in)
	Non-magnetic stainless steel	0.5 mm ... 4 mm (0.019 in ... 0.157 in)
	Aluminum	0.5 mm ... 4 mm (0.019 in ... 0.157 in)
Eddy current encircling coil:	40 mm x 8 mm (1.575 in x 0.315 in)	
Weight complete:	7 kg (15 lbs)	
Protection class:	IP 53	
Ambient temperature:	+10°C ... +40°C (+50°F ... +104°F)	
Strip width:	5 mm ... 30 mm (0.197 in ... 1.181 in)	

The transportation velocity of the strip should not exceed 16.40 ft/s. This implies that the PLC can capture and process the signals at a rate of 5 kHz. If this is not possible, then the control unit XA100 from Roland is available to generate the required output switch signal.

XA100-S Connections Control Unit



Supply socket Sensor-socket (Reserve) Sensor-socket

Connector M12 Supply voltage / signal at the control unit						
	Pin 1	→	+24 VDC supply voltage	→	Cable black	Cable grey
	Pin 2	→	Current input (4 - 20 mA)	→	brown	brown
	Pin 3	→	GND	→	white	white
	Pin 4	→	Voltage input (2- 10 V)	→	blue	green
	Pin 5	→	PLC - Output	→	black	yellow
View at the M12 unit side					grey	grey

Order Information

Control unit	
Part no.	Description
XA100-S	Control unit in aluminum enclosure, operating voltage 20 ... 28 VDC
XA100-S	Control unit in aluminum enclosure, operating voltage 20 ... 28 VDC
Sensors	
Part no.	Description
NS9N-AAD40X8-SC	Weld Seam Sensor
Sensor cables	
Part no.	Description
C5M12S-G	Sensor cable, for connecting the sensor to the PLC
SC5M12S-GG	Sensor cable, for connecting the sensor to the XA100-S
Accessory	
Part no.	Description
S0003515	Harting connector, complete

ROLAND ELECTRONIC GmbH

Otto-Maurer-Straße 17
tel.: +49 7236 9392-0
info@roland-electronic.com

75210 Keltern / Deutschland
fax: +49 7236 9392-33
www.roland-electronic.com

