

Weld Seam Detection System SND8 - NS11

For Tin Plate Containers
One-sided non-contact weld seam and lock seam detection
with wallthicknesses of up to 1.0 mm in ferrous materials



- Detection of weld seams in cans, pails, containers and drums
- Magnetic principle, therefore completely independent of lithographic decorations
- Applications in machines for:
 - expansion of bodies
 - welding of ears
 - screen printing
 - punching rivet holes
- Very compact sensor design



Description:

During the production of various types of tin plate containers it can be necessary to detect and position the weld or lock seam. The Weld Seam Detector SND8 - NS11 was specifically developed for this purpose. It reacts to the magnetic properties of the weld seam and functions therefore completely independent of the lithographic decorations on the metal surface.

Functions:

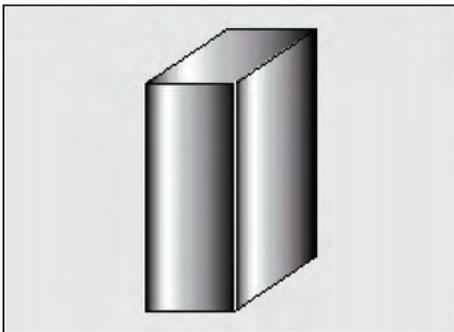
Weld seams result in characteristic deformations of the magnetic field. These changes are captured by the NS11 sensor, analyzed in the control unit, and processed resulting in a switch signal available for the machine controls. The sensor functions in a dynamic mode. To function reliably the peripheral speed of the container should exceed 0.1 m/sec. There is no practical upper limit to the speed.

However, in cases of very high speeds of the container the weld seam recognition cycle can be lower than 10 msec. The relay version may therefore react to slowly for these speeds.

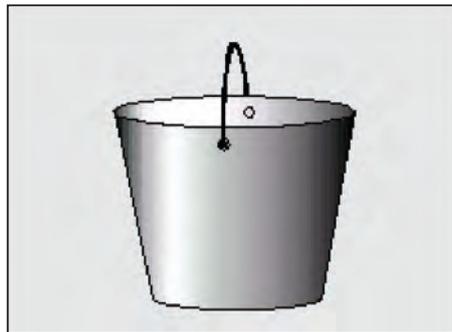
Sensor NS11:

The sensor is contained in a robust aluminium housing. It has no movable parts or adjustment potentiometers. Because the sensor element contains a strong permanent magnet, it is necessary to provide a suitable fixture in order to ensure a constant distance between sensor and container.

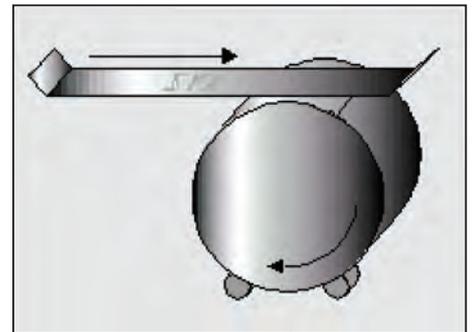
Application examples:



*Expanding machines
for the production of square cans*



*Welding of ears
to containers to fix handles*

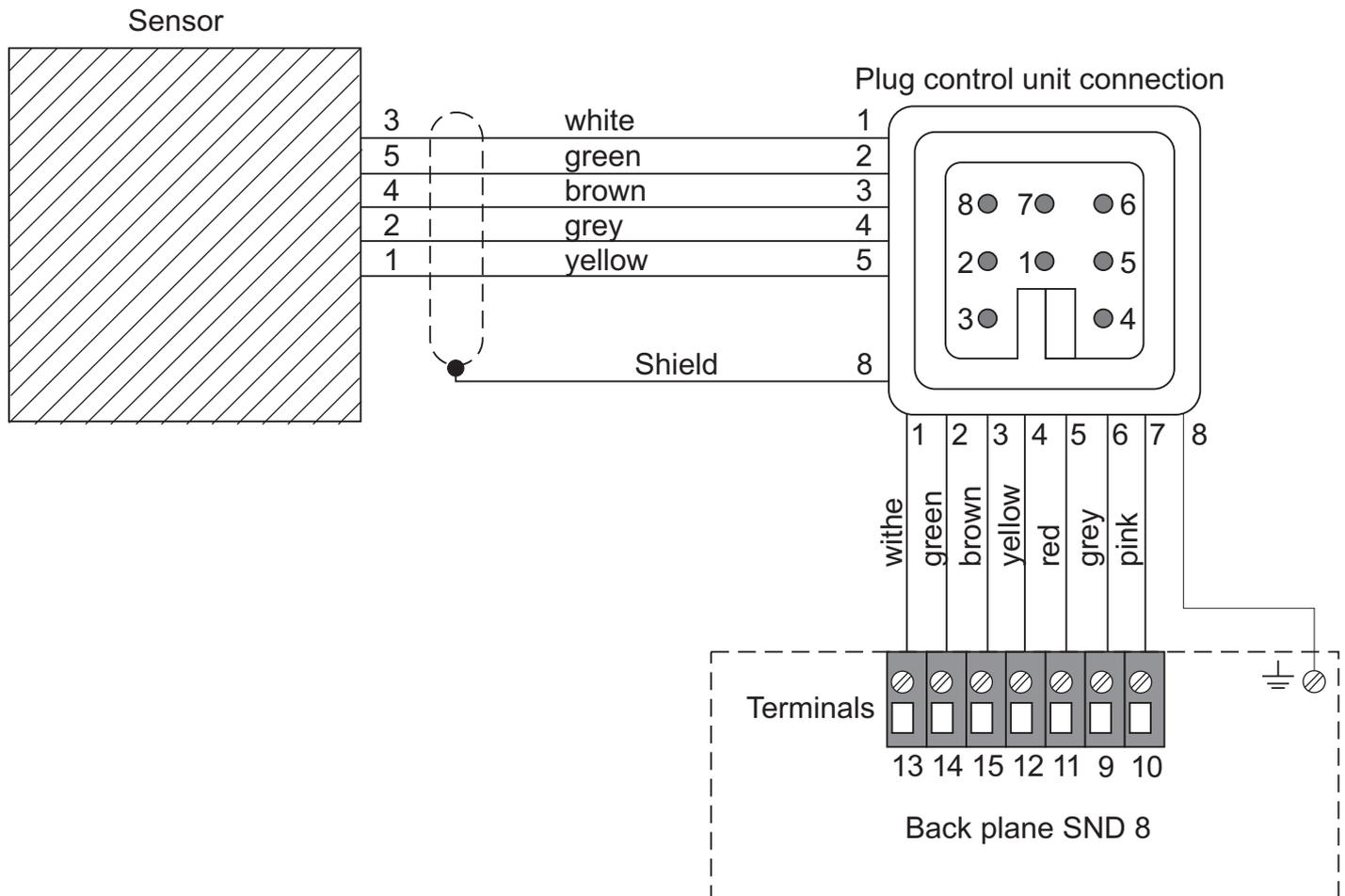


Screen printing on drums

Technical Data Control Unit:

Operating voltage $\pm 10\%$	230 / 115 V AC, 50-60 Hz
Fuse (5 X 20)	0.5 A slow blow
Power consumption	approx. 25 VA
Ambient temperature	5 - 45°C (40 - 115° F)
Output for Weld Seam and Fault	dry two way relay contacts, minimum contact current 10 mA with 24 V DC
Switching voltage	250 V max.
Switching current	8 A max.
Switching power	200W / 2000 VA max
Relay on delay time	110 ms, $\pm 20\%$
Relative motion sensor/part	The minimum surface velocity should be 0.1m/s The maximum velocity has no upper limits.

Unit connections:



Installation:

Connect the control unit to the operating voltage shown on the front cover. The power can be changed from 230 V AC to 115 V AC via a switch on the PCB. Connect sensor with plug to control unit. One LED indicates the weld seam has been located.

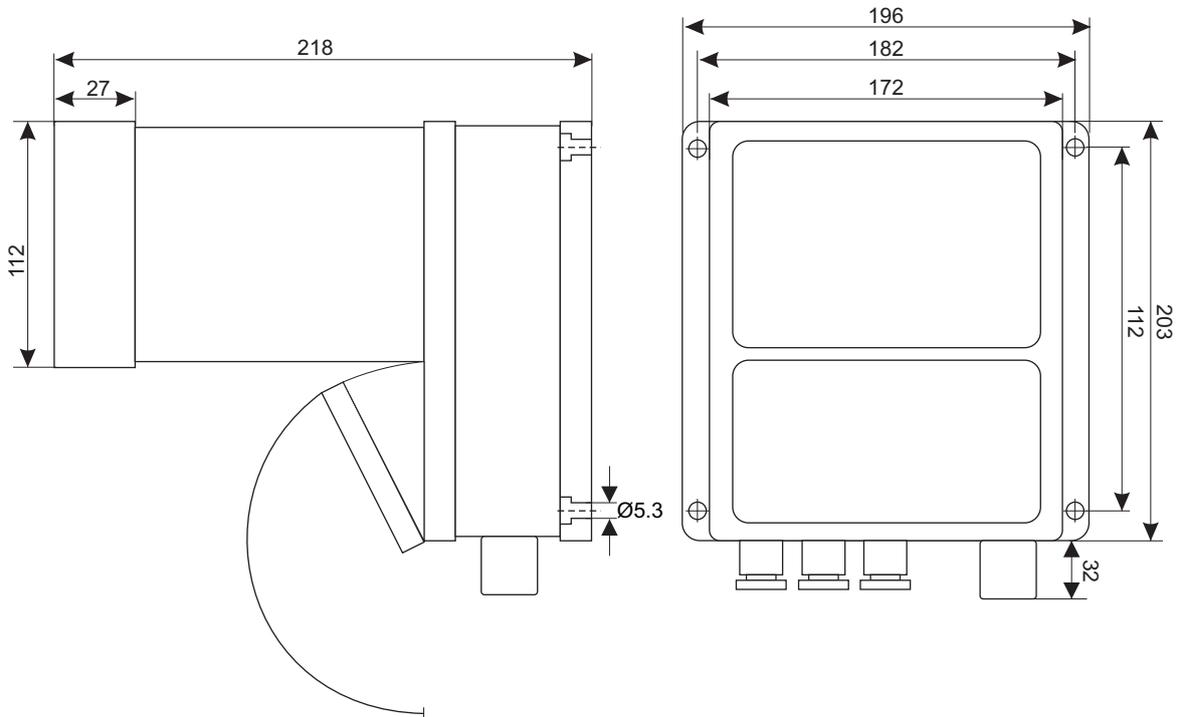
Adjustment of switching threshold:

1. Install the sensor in a application specific fixture to maintain a gap of approx. 1 to 5 mm (depending on sheet thickness) between sensor and container. Because the sensor contains a strong permanent magnet, there can be substantial forces between container and sensor.
2. Apply power to the control unit with the connected sensor.
The unit functions in the dynamic mode only.
The adjustment of the switching threshold is therefore possible only when rotating the container.
3. Rotate the container and turn the potentiometer „SENSITIVITY“ clockwise or counter-clockwise until the LED „SIGNAL“ lights up periodically and the relay switches.
In case of eccentric rotation of the container it is necessary to check that variations in distance between container and sensor do not generate false switching signals.

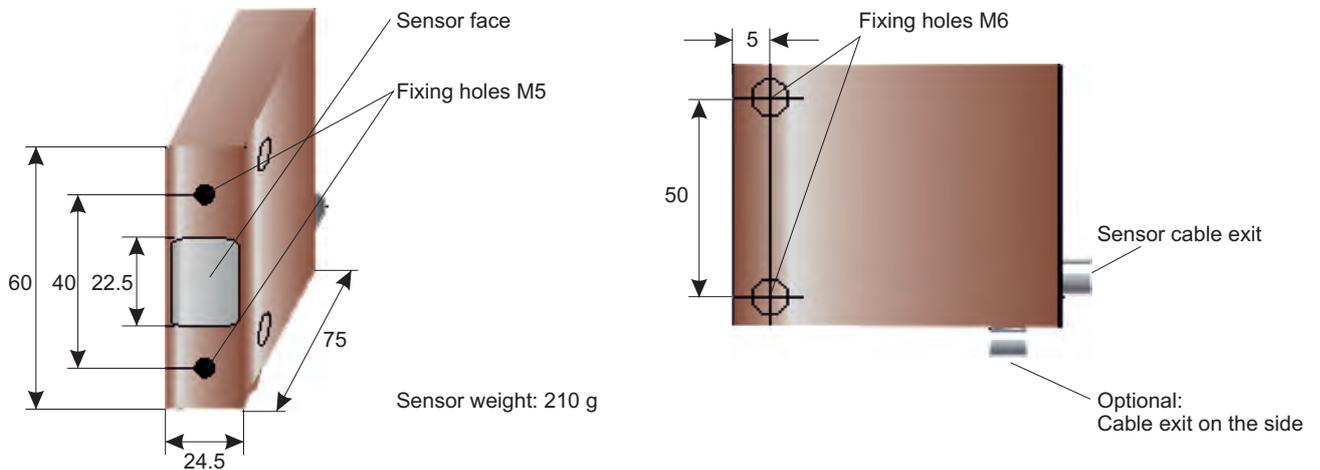
Switching output:

The Weld Seam Detector SND8 - NS11 has a relay output as a standard.

Dimensions: Weld Seam Detection System SND8 - NS11



Sensor NS11



Order Data:

- SND8 - NS11: Weld Seam Detection System
- NS11: Weld Seam Sensor
- SKNS11: Cable (Standard length 5 meters) with plug for connection to control unit

ROLAND ELECTRONIC GMBH

Otto-Maurer-Strasse 17 75210 Keltern / Germany
 Phone: +49(0)7236-9392-0 Fax: +49(0)7236-9392-33
 info@roland-electronic.com www.roland-electronic.com

