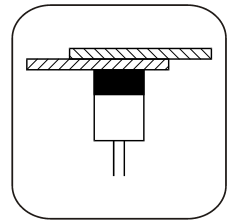


Double Sheet Detector I100-S-WI R100-Series



Single Probe Double Sheet Detection System

- ▶ Sensor WI42GS, inductive
- ▶ Single probe measurement
 - Tinplate 0.15 – 0.50 mm single sheet metal thickness
 - Aluminum 0.05 – 0.40 mm single sheet metal thickness
 - Non-magnetic Stainless Steel 0.5 – 3.0 mm single sheet metal thickness
- ▶ Easy set-up by key operation or via control input
- ▶ LCD display for visualisation of nominal / current values, operational / error message, key allocation
- ▶ Compact aluminum enclosure for machine frame mounting, protection class IP54



WI42GS



I100-S-WI

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Otto-Maurer-Str. 17
DE 75210 Keltern / Germany

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Single Probe Double Sheet Detection System

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Double Sheet Detector R100-series I100-S-WI
Single Probe Double Sheet Detection System

Declaration of conformity according to EC directives

Manufacturer: Roland Electronic GmbH
Otto-Maurer-Str. 17
DE 75210 Keltern
Product name: I100-S-WI
Product type: Double Sheet Detector R100-series

Roland Electronic GmbH declares that the product listed above complies with the requirements of the EMC directives listed below.

Applied Directives:

2004/108/EG: EMC Directive
EN61000-6-2: 2005-08 EN61000-6-4: 2007-01

Date of mark's apposition: **26.06.2013**

Keltern, **26.06.2013**

Managing Director

Place, Date

Signature

Function of the signer

The declaration confirms the compliance with the cited directives. However, it is not any implied warranty of fitness for a particular purpose especially as it may relate to product liability.

The safety instructions and warnings must be observed.



ISO 9001 : 2008
Reg.-no. 5152 QM08





Manual

Double Sheet Detector R100-series I100-S-WI Single Probe Double Sheet Detection System

Safety advice

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1 Safety advice

1.1 General

This document was created with utmost care. Anyhow, faults and cases of misunderstanding cannot be totally excluded. Please contact us in case of differences or weak understanding. We will be pleased to assist you.

We reserve the right to improve this document at any time without announcement. No exchange of delivered documents.

1.2 Safety instructions and warnings for user

This manual contains all information required for the correct operation of the Roland equipment. It has been written for technically qualified personnel.

Unauthorized tampering with the unit, especially ignoring the warnings in the manual can cause malfunction and damage to the unit. Only authorized personnel should be allowed to make changes to the unit and perform cable connections especially the power supply.

Should it be necessary, e.g. in case of service or repair, to make measurements within the unit, then all customary accidents prevention procedures should be observed. Only professional electrical tools should be used.



Note The factory pre-settings – especially the upper / lower limit values – have been chosen such that an optimal machine protection is ensured.

Diverging settings can impair the machine protection.



Safety advice for persons with cardiac pacemakers!

Persons with cardiac pacemakers are to stay away from the sensors!

The strong magnetic / electromagnetic fields of the sensors can cause malfunction of cardiac pacemakers and other such apparatus!

2 System description

2.1 Introduction

When automatically feeding sheets from a stack to a processing machine, it can unintentionally happen that more than one sheet is picked up and transported. This can result in damage to the machine, tool damage, expensive repairs and production loss. The I100-S-WI double sheet detector can reliably prevent from such incidents by measuring the thickness of every sheet with a single probe sensor.

2.2 Structure and measuring principle

A system consists of the control unit, the sensor and the sensor cable.

For measurement purposes the sensor is placed on the sheet or the sheet is placed over the sensor. Noncontact measurement is also possible if the gap between sensor and sheet does not exceed 2 mm (.08 in.) and remains constant. The sensor can also be mounted into a spring-loaded vacuum suction cup bracket.

Because of the ability to measure tinplate, thin aluminum as well as nonmagnetic stainless steel, this system has a wide range of applications.

During the production of three piece tinplate cans practically every production step has to be monitored for double blank starting with cutting the sheets in scroll shears all the way down to the filling machine monitoring for double lids. Typically applications are found in:

- Destackers in front of sheet decorators
- Simplex and duplex shears
- Body welding machines
- Lid presses
- Filling machines monitoring for double lids
- Running can lines monitoring for the presence of easy open tabs

The electromagnetic sensors detect the change of alternating fields caused by the sheet. This change will be processed by the control unit and sent to the machine controls as switching signals.

The measuring principle is based on electromagnetic principles. The main influencing factors for the measured value are the magnetic properties of sheets and environment. Especially disturbing is the influence of air gaps or other substances between the sensor and sheet metal because their bad magnetic conductivity.

In order to protect the material surface, it is possible to prevent the sheet from direct contact (e.g. with plastic coating or the like). However, this will reduce the performance of the sensor and is thus not recommended.



Caution! The system is not suited for applications of personal protection!

2.3 Functional sequence

The transport facility places the sheet onto the sensor or the sensor is placed onto the sheet. Now the sensor will measure the sheet and process the sensor signal. According to the preset limits, the respective signal output (0-sheet, 1-sheet, 2-sheet) will be activated.

If the output signal for 2-sheet is active, the PLC stops the material transport for removal of the double sheet.

**Note!**

“Active“ means, that the signal output will switch. In case the supply voltage fails, all signal outputs (0-, 1-, 2-sheet) will become inactive.

The PLC must then stop the material transport.

**Caution!**

Usually, the signal outputs of the control unit will be used for stopping the material transport facilities and / or machines in case of double sheet.

As soon as the double sheet is removed from the sensor(s), the signal outputs revert instantly to normal conditions (0-sheet / 1-sheet).

Suitable control measures must ensure that the previously stopped material transport facilities and / or machines cannot automatically restart and thus create hazardous situations.

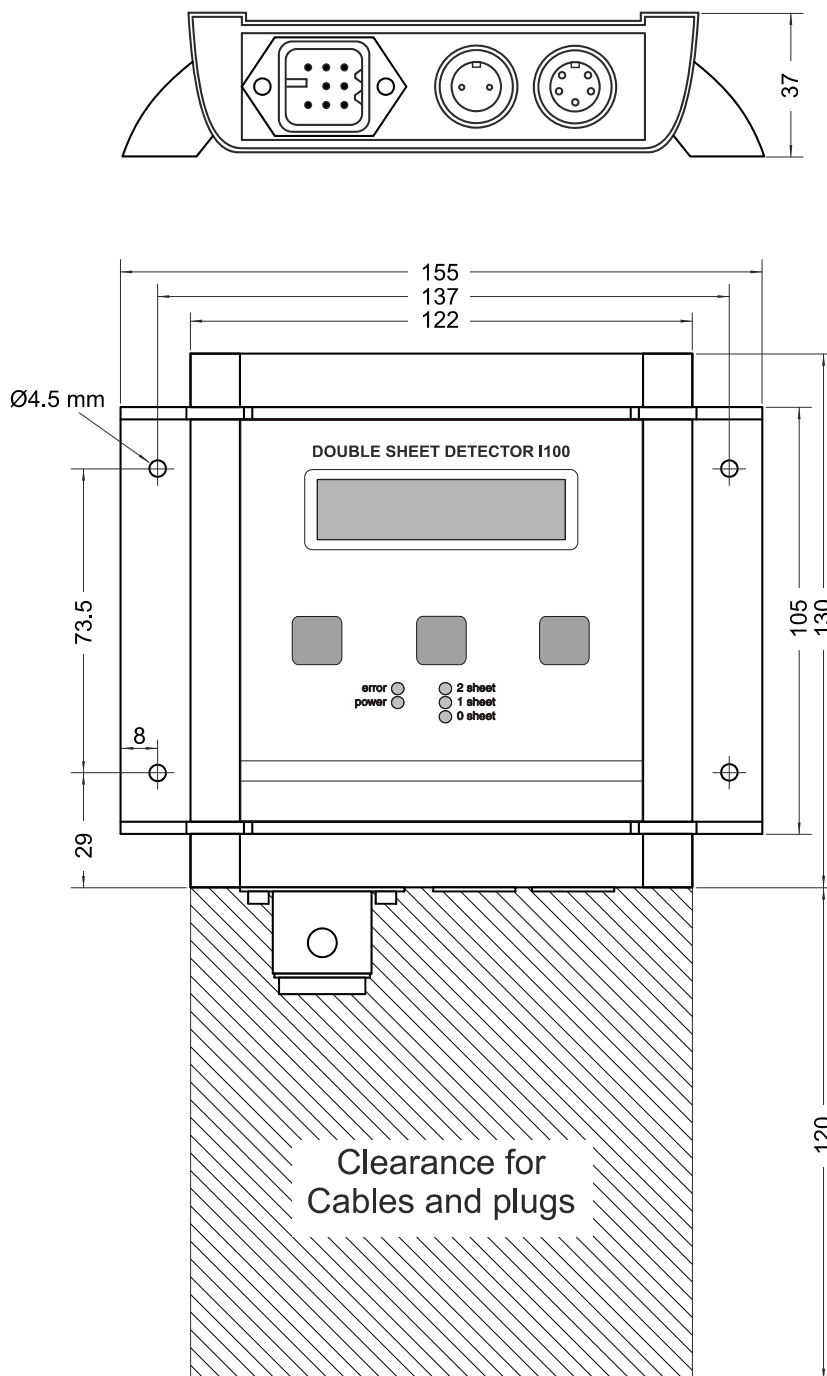


3 Technical data

3.1 Control unit I100-S-WI

Supply voltage	24 V DC / 110 mA
Power consumption	approx. 2.5 VA
Fuse	375 mA slow-blow, size 5 x 20 mm
Power / switching indication	5 LEDs
Display	LCD display, 2 lines, 16 chars each
Ambient temperature	0° - 50°C (32° - 122°F) during operation
Switching outputs 0-1-2 - Sheet	Open Emitter (PNP) of opto coupler outputs
Temperature drift of switching point	± 0.02 % / °C
Switching capacity	max. 50 V, max. 50 mA
Sensor distance	Air gap < 2 mm
Measurement period	The min. dwell time of sheet in the sensor gap is 30 ms
Material requirements	Constant conductivity, flat and even surface
Measurement target size	Ø 40 mm (0.6 in)
Enclosure	Aluminum enclosure for screw-on mounting
Class of protection	IP54
Weight	0.6 kg (1.32 lbs)
Connections	Plug connection
Dimensions	130 x 155 x 37 mm (5.1 x 6.1 x 1.5 in) (H x W x D)

Double Sheet Detector R100-series I100-S-WI
Single Probe Double Sheet Detection System



Description
To connect the connection cables a clearance of 120 mm is required.

Fig. 1: Dimensions of I100-S-WI

Double Sheet Detector R100-series I100-S-WI Single Probe Double Sheet Detection System

3.2 Sensor

The sensor designation is encoded as follows:

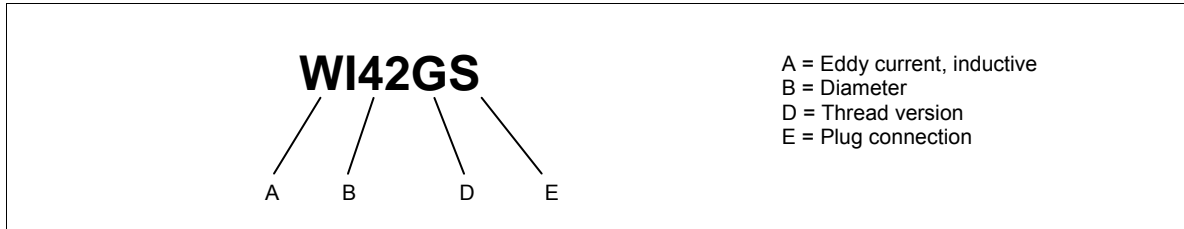
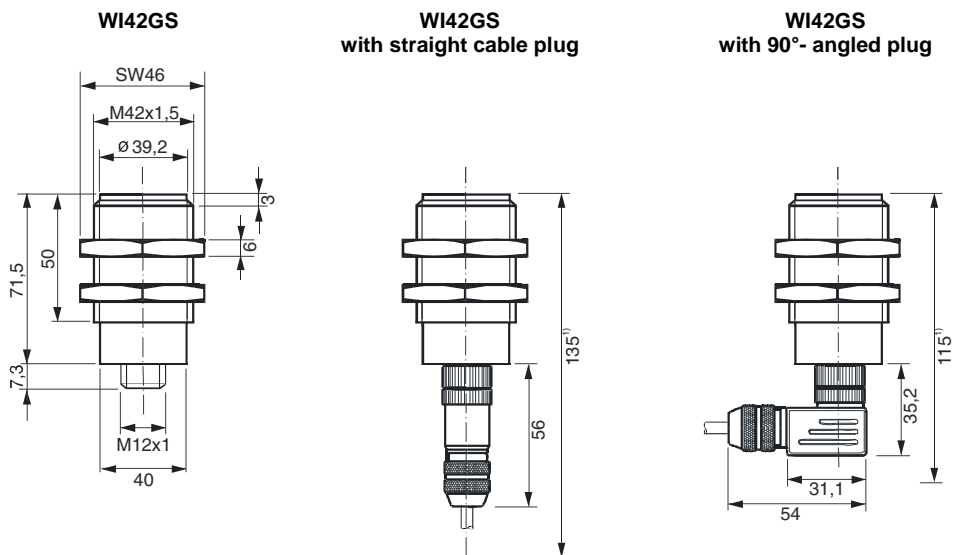


Fig. 2: Sensor designation

3.2.1 Sensor WI42GS



All dimensions are in mm. Overall length tolerance ± 0.8 mm, all other dimensions ± 0.2 mm.

Fig. 3: Sensor WI42GS

Measurement range ²⁾:

Material	Thickness	Material selection contact
Tinplate	0.15 ... 0.50 mm	opened
Aluminum	0.05 ... 0.40 mm	closed
Non-magnetic Stainless Steel	0.50 ... 3.0 mm*	opened

*A sample examination in the Roland Application laboratory is advisable, since not all stainless steel alloys up to 3.0 mm can be measured.

For applications with thicker materials and different alloys we recommend the use of the tried and proven R1000 series of Double Sheet Detectors with inductive or electromagnetic sensors.

- Ambient temperature: 0° - 50°C (32° - 122°F)
- Sensor weight: 0.30 kg (0.66 lbs)
- Class of protection: IP65
- Air gap: < 2 mm

¹⁾Dimension with clearance for cables and plug connection

²⁾ based on the single sheet thickness

3.3 Spring loaded sensor bracket with flat suction cup

Destacking of blanks is mostly done with by using vacuum suction cups. For the measurement of the sheet thickness the sensors should rest vertically and flat on the sheet. The best contact to the sheet surface is made by mounting the sensor into a vacuum suction cup.

That suction cups present the sensor vertically to the sheet surface and function fast because of the low volume of air required. Deviations from the right angle have to be compensated by the spring-loaded Sensor brackets, otherwise no vacuum can be generated. Bellow style vacuum suction cups can themselves compensate deviations from the right angle but they can also pull an inclined sensor to the sheet surface or in inclined sheet to the sensor leading to instability of measurement. The forces acting in this process can lead to wear and tear to the bracket and lips of the suction cups. Generating and releasing vacuum requires considerably longer time.

The suction cups are not designed to lift and carry the sheet. In order to prevent inadvertently the sensor losing touch to the sheet it is necessary to maintain a certain degree of spring load between sensor and sheet. Sensor cable and vacuum hoses should be mounted in such a fashion that low angular forces act on the sensor bracket. If necessary the sensor thread can be sealed with a permanently elastic sealant (Hylomar, Loctite) or a narrow Teflon web.

The spring-loaded sensor bracket contains fixing holes to attach the bracket to the carrying tooling. In special cases (on request) is an operation without the vacuum cup or the lifting/carrying of the sheet with the sensor bracket possible.

3.3.1 Spring travel of SHS42GS

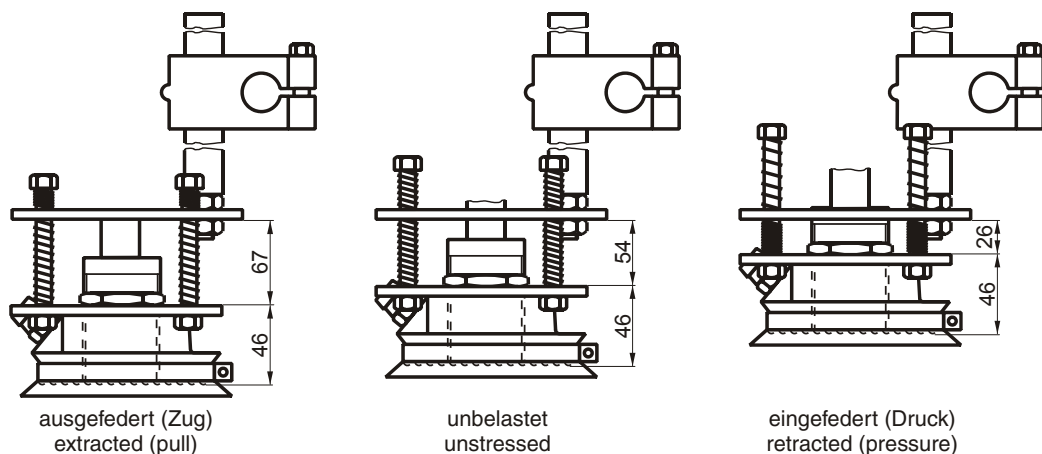
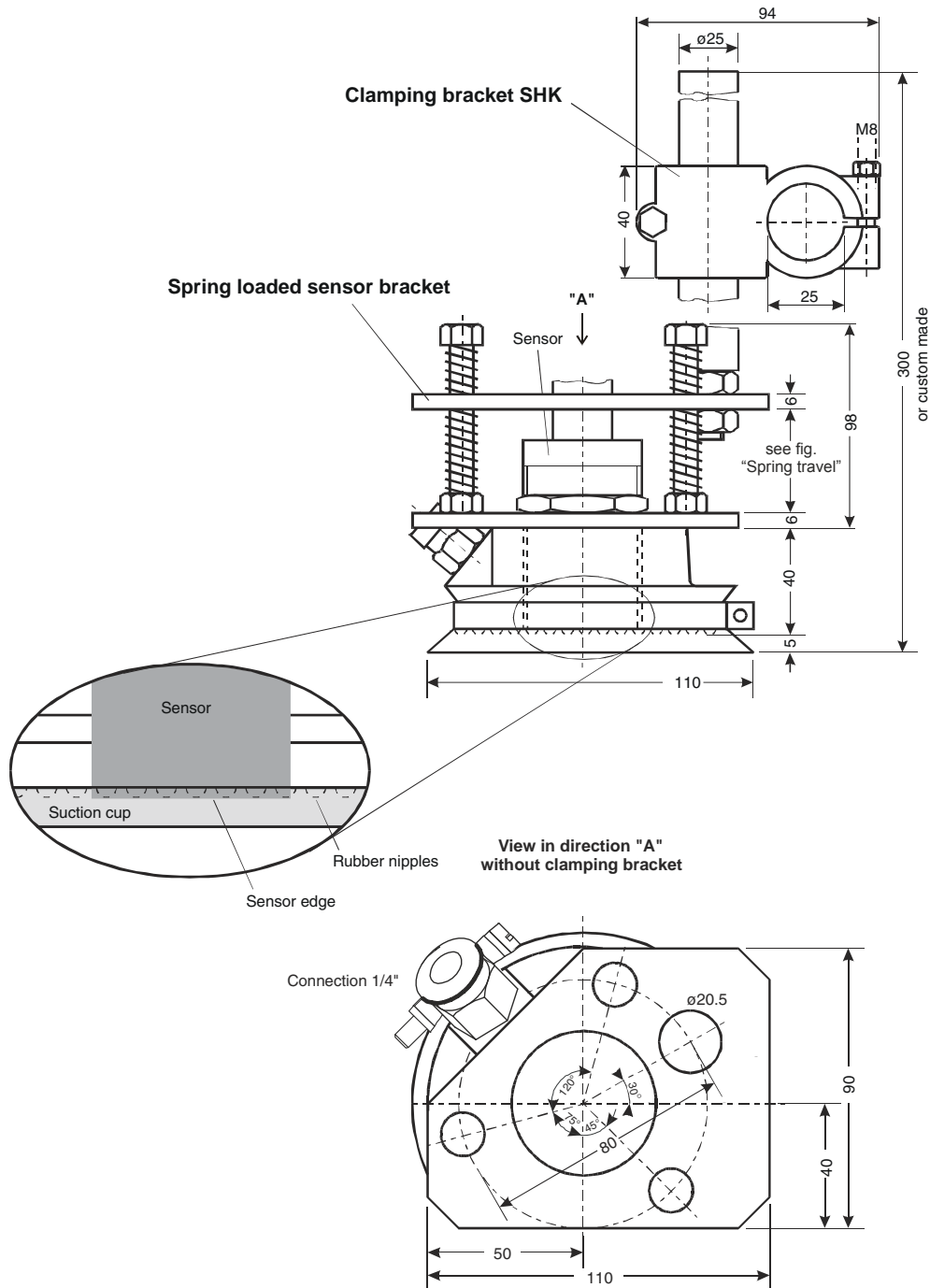


Fig. 4: Spring travel for SHS42GS

3.3.2 Spring loaded sensor bracket SHS42GS with flat suction cup

The spring loaded sensor bracket SHS42GS with flat suction cup is intended for accommodating the sensors. It is well suitable for use in feeder destacking applications (only vertical motions, no turning motions). For usage with robotic destackers the sensor bracket SHX42 or the sensor bracket SHS42G-FB (with bellow suction cup) is to be preferred.



All Dimensions are in mm. Tolerance: ± 0.4 mm.

Fig. 5: Spring loaded sensor bracket SHS42GS with flat suction cup

3.3.3 Allocation of sensor cable SCWIS-GG

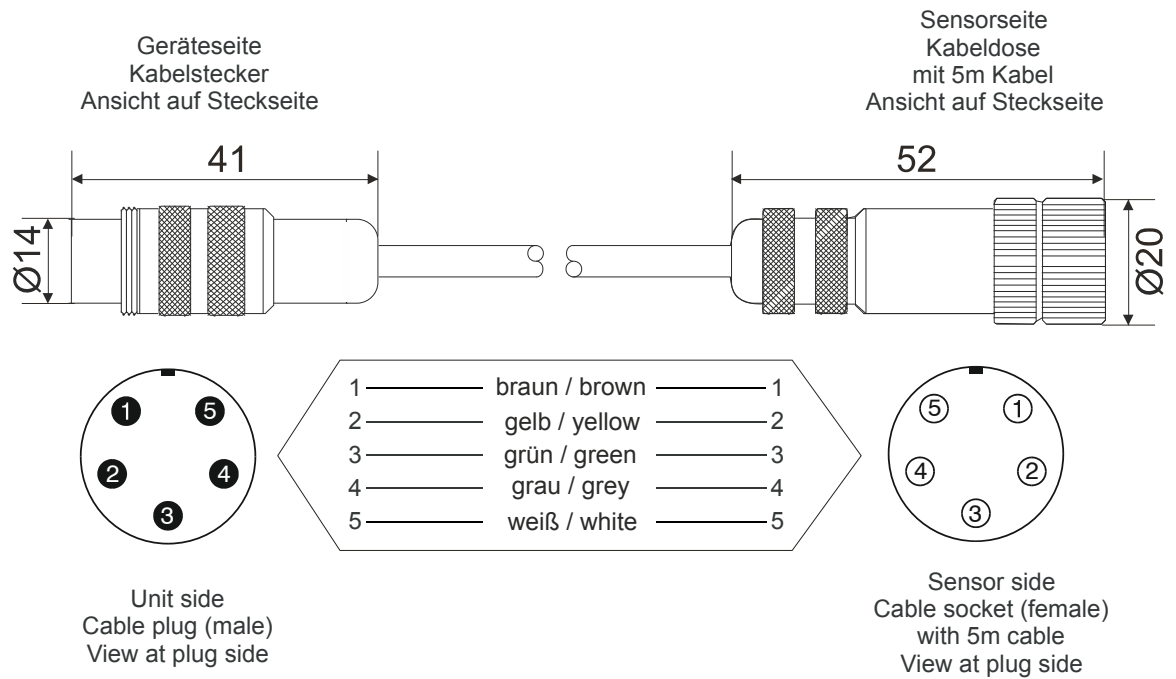


Fig. 6: Allocation of sensor cable SCWIS-GG



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Double Sheet Detector R100-series I100-S-WI Single Probe Double Sheet Detection System

Technical data

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4 Mounting

4.1 Mounting of the control unit

The system is available for machine mounting, cables pluggable, in metal enclosure, protection class IP54.

The control unit should be mounted in such a way that the indicators and operating keys in the front of the unit are always well visible. The place should be safely accessible and free from obstruction.

The system must not be exposed to extreme temperature, irradiation or mechanical load.

4.2 Mounting of the sensors



Caution! Sensors of the WI series generate alternating electromagnetic fields. The sensors must be kept away from magnet sensitive media (cheque cards, hard disks, diskettes...) and systems (cardiac pacemakers, solenoid switches...).



Note! An air gap reduces the measurement capacity.

Mounting:

The place of mounting depends on the destacking and feeding equipment. In principle a distance of more than 0.2 m must be kept from magnetic / electromagnetic interference sources like e.g. valve coils, transportation magnets, inductive proximity switches or the like.

The sensor can be mounted in any direction, either over or under the sheet metal.

Opposite of the sensor face there must be no other ferromagnetic material within the distance of 1.5 x of the sensor diameter, because this will severely affect the measurement.

Recommendable are:

- Flush mounting into the material slide either tight fit or interference fit.
Advantage: no wear and no deposit of chips and particles.
Recessed installation is possible; however, care should be taken that no chips and particles collect in the recess (possibly fill up recess with non-ferrous-magnetic material).
- Spring suspended sensor bracket for use with thick sheet metals, e.g. SHS42GS.
Advantage: the sensor can adapt to bowed sheet metal, thus avoiding unintended air gaps.

The minimum dwell time of the sheet metal on the sensor is 30 ms.

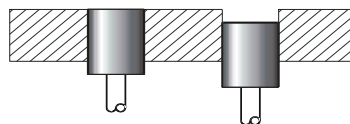


Fig. 7: Flush and recessed mounting of sensors



Note! If the sensor is used for double sheet detection of preformed sheet metals, an air gap between first and second sheet can develop; thus the double sheet condition might not be detected. This must be considered when selecting the place for mounting the sensor. The diameter of the sensor corresponds to the minimum measuring area of the sheet.

4.3 Cables

All cables must be professionally installed. Bending radiuses (see data sheets of manufacturer) must be adhered. The cables must be protected from chafing and buckling by suitable installation.

Damaged cables must not be used and need to be replaced immediately.

If the recommended cables cannot be used (e.g. due to missing UL/CSA approval), substitutes should be cleared with Roland Electronic.



Note: Keep the sensor cables as well as the power supply / control cable away from unshielded cables with strong electromagnetically interference potential (e.g. servo motor and power cables).

4.3.1 Sensor cables

For connecting, only the supplied shielded sensor cables may be used. In the standard version those cables are not suitable for robot or drag-chain operation.

The cable shield is connected at both sides.

4.3.2 Power supply / Control cables

Suitable power supply / control cables:

- Type H05VV5-F (Lapp Ölflex® 140) with leads 0.5 mm²
- Type H05VVC4V5-K (Lapp Ölflex® 140CY), shielded, with leads 0.5 mm².

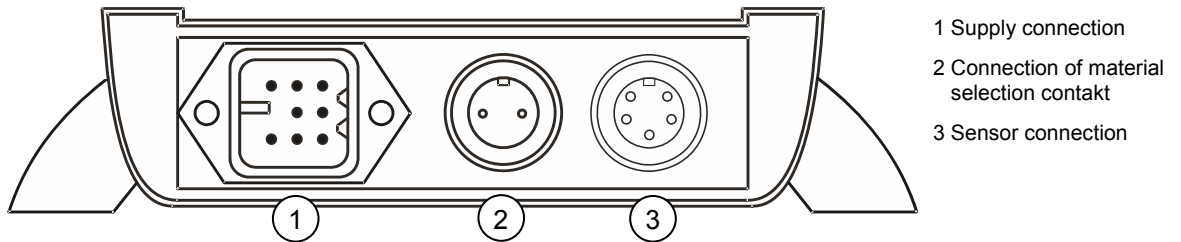
A shielded cable must be used if the environment has high electromagnetically interference signals. This cable shield must be grounded at the machine side, not at the control unit side.

5 Electrical installation

The system should be installed only by professional electricians. The cables must correspond with the specifications stated in chapter „Cables“.

The required supply voltage is 24 VDC and should be supplied from the associated machine controls.

5.1 Connections at I100-S-WI



- 1 Supply connection
- 2 Connection of material selection kontakt
- 3 Sensor connection

Fig. 8: Connections at I100-S-WI

Supply connection (Position 1)

Allocation of supply socket			
Connection at unit			Suppliers / types / notes
Enclosure HAN 3A, EMI-type, metrical 7-pin insert and PE, Pin contacts at control unit			Harting and others
<p>view onto contacts</p>	Pin1	+24 V DC	Internal Pin 2
	Pin 2	Earth / GND	Internal Pin 3
	Pin 3	Teach-In	Internal Pin 4
	Pin 4	2-Sheet	Internal Pin 5
	Pin 5	1-Sheet	Internal Pin 6
	Pin 6	0-Sheet	Internal Pin 7
	Pin 7	+24V DC f. I/O	Internal Pin 8
	Pin 8	PE	Internal Pin 1

Fig. 9: Supply socket at I100-S-WI

Please order the proper cable socket separately!

Material selection contact (Position 2)

Allocation of material selection contact		
<p>view onto contacts</p>	Female contacts	Signal
	Pin 1	External closing contact 1
	Pin 2	External closing contact 1

Fig. 10: Socket for material selection contact at I100-S-WI

Please order the proper cable connector separately!

Sensor connection (Position 3)

Allocation of sensor socket			
Connection at unit		Suppliers / types / notes	
	M16, 5-pin Female contacts at unit (flange socket)		
	Pin 1	+24 V DC	Binder Type 681
	Pin 2	Signal 1	
	Pin 3	Signal 2	
	Pin 4	Material switching	
	Pin 5	Earth / GND	

Fig. 11: Socket for sensor connection at I100-S-WI

5.2 Connecting diagram for PLC

PLC

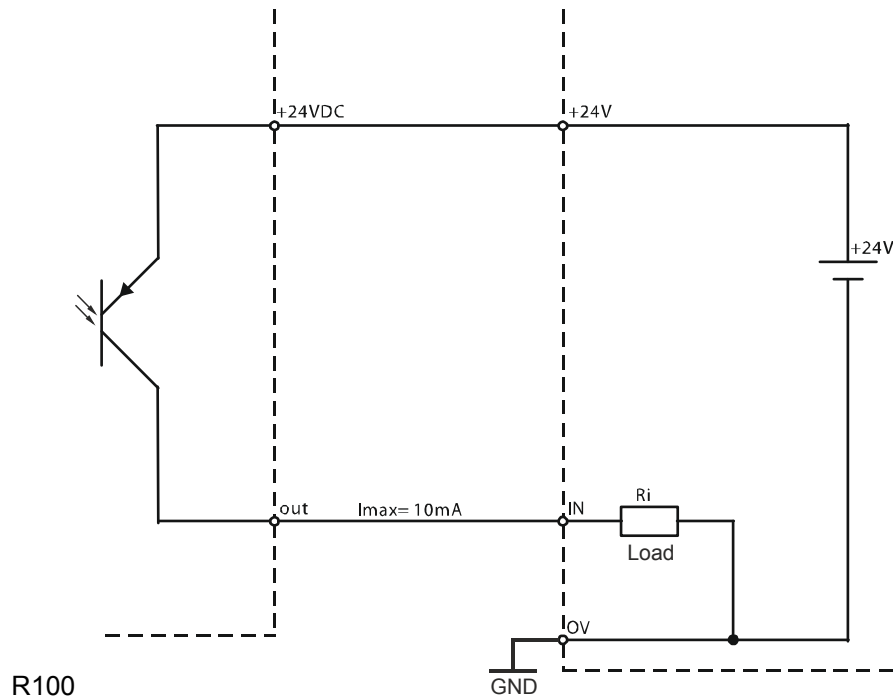


Fig. 12: Connecting diagram for PLC standard type

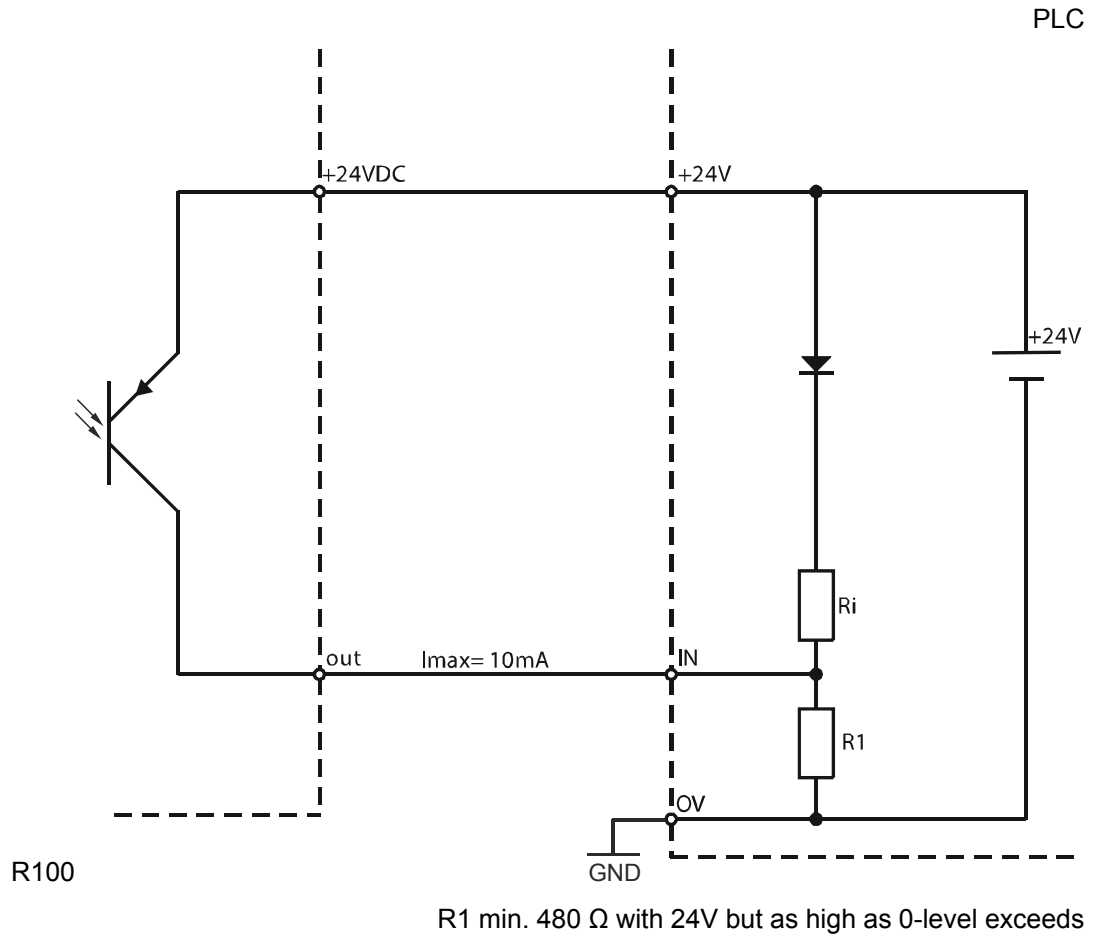


Fig. 13: Connecting diagram PLC with NPN-Input



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6 Start-up

6.1 Keys and indicators

The control unit has three operating keys, which provide for easy adjustment.
Adjustment is required upon commissioning and change of material.

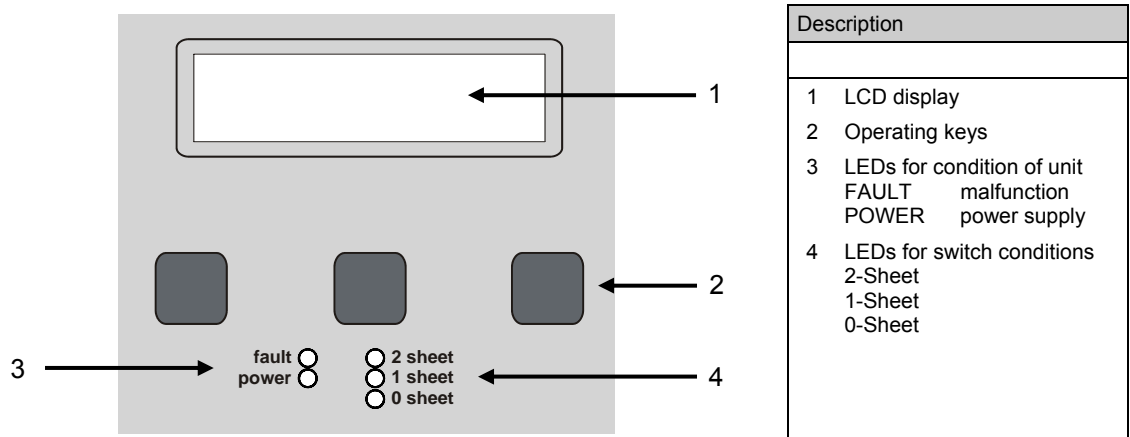
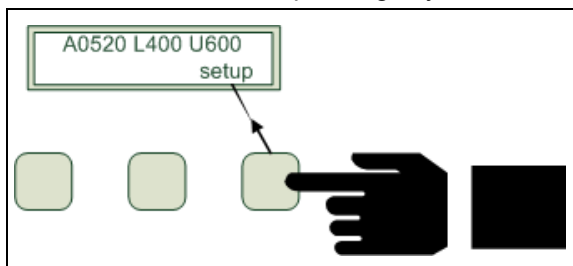


Fig. 14: Controls and indications

6.2 Allocation and function of keys

The functions of the 3 operating keys are variable, as will be shown in the lower line of the display.



For example, the operator can change from the measuring mode into the setup mode with the key "setup".

Fig. 15: Indication of key allocation



Note!

If a function causes a fault, a fault number is indicated and the yellow LED "FAULT" lights.

The error condition can be confirmed with the right "ENTER" key. Otherwise the system changes to the measuring mode after approx 5 seconds. The "FAULT" LED will, however, go off only if upon a new attempt the requested function is fault free.

If a function consists of several steps, which are not completely executed, the system automatically changes back to the original measuring mode after approx. 5 seconds.

6.3 Switching on and Powering up

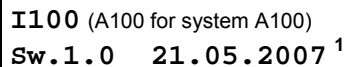
Applying the supply voltage (24 V DC) to the unit will switch the unit on, as soon as power is supplied the POWER LED lights.

When the operation system is loaded, the manufacturer and system information will be shown for a short period.:



Roland
Electronic GmbH

and then



I100 (A100 for system A100)
Sw.1.0 21.05.2007¹

Fig. 16: Indication of manufacturer and system information

The unit changes automatically to the measuring mode and will work with the last taught values.

6.4 Operational conditions

6.4.1 Undisturbed operation

As long as no fault is detected in the measuring mode, no operator actions are required.

The unit measures continuously and sets the signal output according to the measurement result.

6.4.2 Detection of 0-sheet, 1-sheet or 2-sheet

As long as the measured value is within the range of 85% to 115% of the nominal value, the system will detect 1-sheet.

If the measured value is outside the range, the system will then detect 0-sheet (no sheet) or 2-sheet (double sheet).

- The associated LED (0-SHEET, 1-SHEET, 2-SHEET) will light up accordingly.
- The associated signal output will be set to low resistance (active).
- The signal outputs 0-SHEET, 1-SHEET, 2-SHEET will deliver a switch voltage only if an external positive voltage (max. +24V, min. 50mA) is applied to the COMMON input (terminal 8).

¹ Depending on software version

6.4.3 Operational disturbances

If situations arise during operation, which the system recognizes as "operational faults", the system reacts with the "FAULT" LED lighting and issues the assigned fault message (if any).

- If the fault condition was caused by the machine PLC, the signal outputs for 1-sheet **and** 2-sheet are set at the same time. The illogical constellation of 1-sheet **and** 2-sheet will indicate the fault condition to the machine PLC. Depending upon the PLC programming an appropriate reaction can then be initiated. Recognizable faults are to be eliminated and the function should be performed again.
- If the fault condition was caused by the operator or by the system, the operator must react according to the measures explained in the fault table.
- If the fault cannot be assigned, restarting the system by recycling power may eliminate the fault.

6.4.4 Functional check

If the system does not detect double sheet conditions though a Teach-In was freshly performed, the sensorics might (according to material properties) work at the detecting limit.

First, the mechanical sensor settings should be checked, as well as the working range (according to sensor data).

If the mechanical circumstances are correct and the sensor is operated within the permissible range, the upper limit might be improved by changing the upper threshold. For doing so, refer to section "changing the thresholds".

6.5 Measurement mode

After having applied power, the following will be displayed on the LCD display:

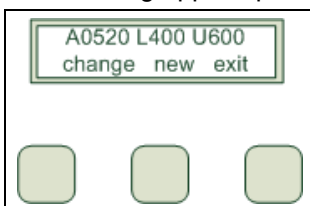


Fig. 17: Indication in the measurement mode

In the measurement mode the current measurement value and the switching thresholds will be shown.

Axxxx	The input signal of the sensor is represented as digital value between 0000 and 1024 this value is equivalent to the relative thickness of the material. A possible result may look like this: 0.5 mm steel A=0300; 1.0 steel A=0590
Lxxx	Lower absolute threshold (0-999)
Uxxx	Upper absolute threshold (0-999)

The relation between material thickness and digital value depends on the sensor selected and is not exactly linear. The nonlinearity is influenced by the type of material. During “teach-in” the input amplifier can adopt its amplification factor and this results in a different digital value. Example for this influence: Material A with thickness 1 mm may show 0400 after “teach-in”. Material B with thickness 1.5 mm may show 0300 as digital value after “teach-in”.

Since the display shows the actual measurement value as well as the set switching thresholds, it can easily be checked whether the thresholds are correctly set.

2-sheet threshold:

The threshold for 2-sheet should be selected such that it is located slightly **above** the normal variation range for 1-sheet, but will be significantly exceeded in case of 2-sheet so that 2-sheet will be securely detected.

0-sheet threshold:

The threshold for 0-sheet should be selected such that it is located slightly **below** the normal variation range for 1-sheet, but will be significantly exceeded in case of 0-sheet so that 0-sheet will be securely detected.

6.6 Teach-In

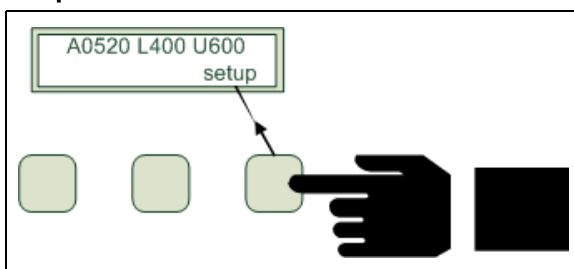
This function is useful in case of changing material or upon initial commissioning. The system is in the measurement mode.



Attention! The function must not be used, if threshold values other than the standard values (85% / 115%) are used. This function deletes the modified values and uses the standard values instead.

Preparation: A100 / I100-S-WI: Place the sensor on the sheet.
I100: Place the sheet between the sensors.

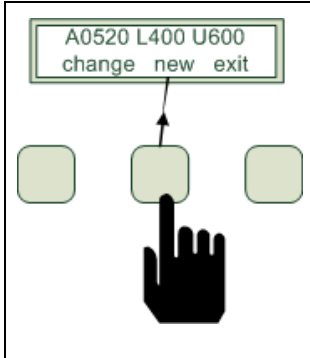
Step 1



Push the key “setup”.

Fig. 18: Calling up the setup mode

Step 2



Push the key "new".

The current measurement value will now be stored as reference value. From this value the absolute thresholds L (lower limit) and U (upper limit) will be calculated with the factors 85% und 115% and then be stored also.

If the function is performed, the system automatically changes back to measuring mode and shows the new switching thresholds.

If the function could not be performed, a fault message will be shown in the LCD display.

Fig. 19: Storing the current measurement value as reference value



Note!

If the Teach-In fails, the previous thresholds stay active. The yellow "FAULT" LED lights until the next Teach-In is successfully performed.

Step 3 Final inspection, it must be performed after every Teach-In !

- Apply a double sheet repeatedly and check if the double sheet will be detected in any case.
- If the double sheet will not be safely detected, restrict the switching thresholds (see section „Changing the switching thresholds“).

6.7 Changing the switching thresholds

This function should only be performed, if the factory-set values for the thresholds (85% and 115%) cannot be used.

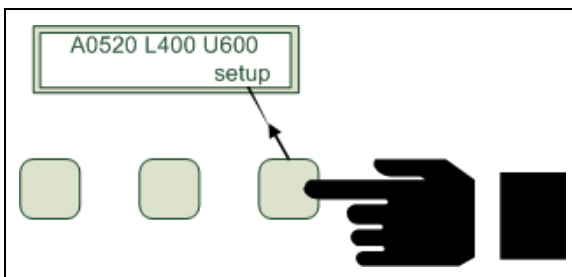


Note!

If this function is executed, the external Teach-In will also work with the changed values.

Preparation: A100 / I100-S-WI: Place the sensor on the sheet.
I100: Place the sheet between the sensors.

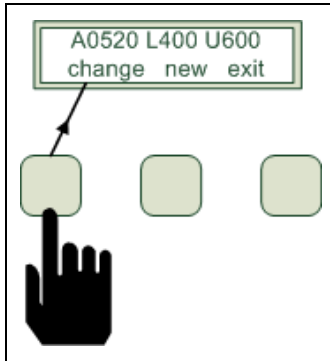
Step 1



Press the key "setup".

Fig. 20: Calling up the setup mode

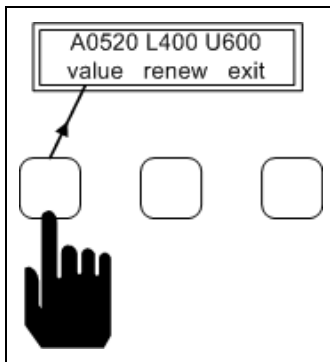
Step 2



Press the key "change".

Fig. 21: Calling up a change

Step 3

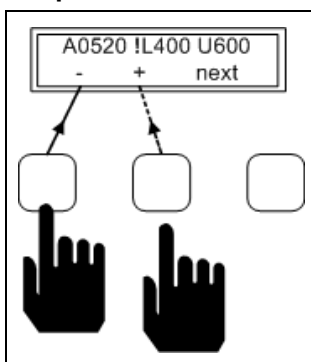


Press the key "value".

Pressing the key "value" enables editing of the thresholds for L and U. Editing is done with the absolute values, based on the current measurement value.

Fig. 22: Enabling editing

Step 4

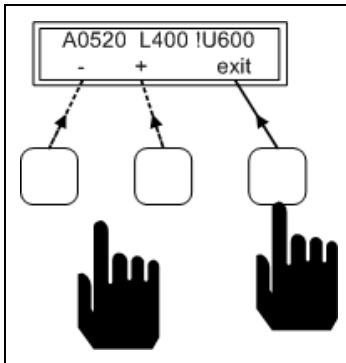


The sign "!" before "L" indicates that the value L can be changed.

The key "-" decreases the L value, the key "+" increases the value.

Fig. 23: Changing the lower threshold value L

Step 5



Select the parameter U with the key “next”.
The sign “!” closes up to the “U”.
The key “-“ decreases the L value,
the key “+“ increases the value.

Fig. 24: Selecting the upper threshold value U and changing the value

Step 6

Closing the setting:

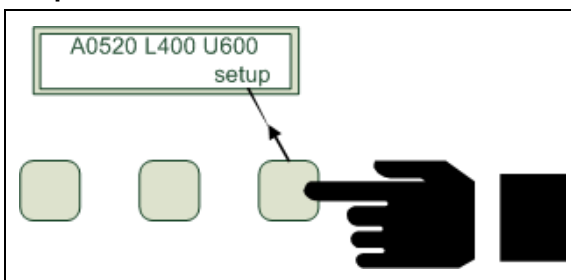
With the key „exit“ the values are stored. The system changes over to the measurement mode. The changed thresholds will be used from now on.

6.8 Teach-In with changed threshold values

This function should only be performed if different threshold settings are to be used.

Preparation: A100 / I100-S-WI: Place the sensor on the sheet.
I100: Place the sheet between the sensors.

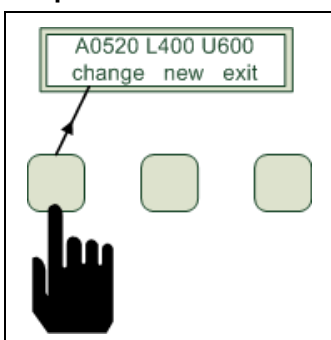
Step 1



Press the key “setup”.

Fig. 25: Calling up the setup mode

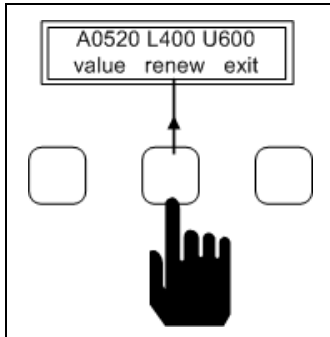
Step 2



Press the key “change”.

Fig. 26: Calling up a change

Step 3



Press the key "renew".

By pressing the key "renew" the Teach-in will be performed with the modified settings.

The current measurement value is stored as reference value. Based on the reference value the absolute values for the thresholds L and U are calculated with the modified relative factors and be stored also.

Fig. 27: Performing the Teach-In with modified values

Has the function been executed, the system automatically changes to the measurement mode and shows the new thresholds.

If the function could not be executed, a fault message appears in the LCD display.

6.9 External Teach-In

External Teach-In is useful, if the control unit is not mounted at the place of measurement but inside the control cabinet, and the material will be frequently changed.

The external Teach-In can be triggered via the machine PLC or with a simple pushbutton.

**Note!**

Before the external Teach-In can be performed, a Teach-In must once have been performed at the control unit via operating keys.

Preparation: A100 / I100-S-WI: Place the sensor onto the sheet.
I100: place the sheet between the sensors.

Step 1

Switch the input "Teach-In" (terminal 4) to GND for a short time (see section "connections" in chapter 5).

After that the signal outputs "1-sheet" AND "2-sheet" activated as feedback.

Step 2

Again switch the input "Teach-In" (terminal 4) to GND for a short time. The teach-In will then be performed.

If the Teach-In was successful, the system releases the measurement result "1-sheet" and automatically switches over to the measurement mode.

**Note!**

If the second step is not performed, the system reverts back to the measurement mode after approx. 5 seconds without any changes.

If the Teach-In was not successful, the signal outputs "1-sheet" and "2-sheet" will stay active for the present. Furthermore, an error message will be shown on the LCD indication and the yellow "FAULT" LED will be actuated.

The error message will disappear after approx. 5 seconds, and the outputs "1-sheet" and "2-sheet" will be de-activated. The system then automatically reverts back to the measurement mode.

Measurements are performed with the currently existing Teach-In value.

The "FAULT" LED will go off only if a new Teach-In has been successful or if the system is re-started by recycling power.

**Note!**

The external Teach-In will always be performed with the last valid thresholds.



Double Sheet Detector R100-series I100-S-WI
Single Probe Double Sheet Detection System

7 Fault messages, causes and remedies

Message	Meaning	Cause / Remedy
Error 1	Value for Teach-In is not plausible (measurement value is smaller than 25 or larger than 960)	Sensor has no contact with the sheet Sensor cable is cut off Sensor type is not suitable System might be defective
Error 2	Value for external Teach-In is not plausible (measurement value is smaller than 25 or larger than 960)	Sensor has no contact with the sheet Sensor cable is cut off Sensor type is not suitable System might be defective
Error 3	External Teach-In is not permitted (system is still in factory-set condition)	Factory settings have not been overwritten – perform Teach-In via operating keys once.



8 Maintenance

During operation, chips and metal particles can accumulate at the sensors. Thus the sensors must be cleaned from time to time.

During operation, the sensors operate with some air gap (e.g. 0.5 mm) to the sheets, so normally there will be no wearing to the sensors. If, however, the sensors are exposed to mechanical strain for any reason (abrasion, damage of sensor face), they must be replaced if the sensor faces begin to show small punctures.

A sensor and a sensor cable should be kept on stock as spare parts.

When ordering spare parts, always state the serial number, the order information and the part number (if available).



Double Sheet Detector R100-series I100-S-WI
Single Probe Double Sheet Detection System

9 Order data

Control unit, for sensor (WI42GS)

Order information	Comment
I100-S-WI	Control unit, for pluggable sensor supply voltage is 24 V DC, enclosure with protection class IP54.

Please order cables and plugs separately!

Sensor and Accessories

Order information	Comment
WI42GS	Sensor with plug connector for connecting the sensor cable (order cable separately).
SHS42GS	Spring loaded sensor bracket for direct sensor mounting with external thread M42 x 1.5 with flat vacuum suction cup without clamping device
SHK	Clamping bracket, for SHS42GS, SH42GS, SHS75GS, SH75GS, for mounting the sensor brackets to the customer specific destacking systems
2395110	Spare part rubber lips for sensor bracket SHS42GS or suction plate SP42GS
2395109	Spare part rubber pressure pad for suction plate SP42GS or sensor bracket SHS42GS

Cable and plugs

Order information	Comment
SCWIS-GG	Sensor cable, for connection of the sensor WI42GS to the control unit I100-S-WI Standard length of the cable is 5m, other lengths upon request
S0003515	Harting connector, complete
2277706	Cable plug for material selection, M16, 2 pins

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