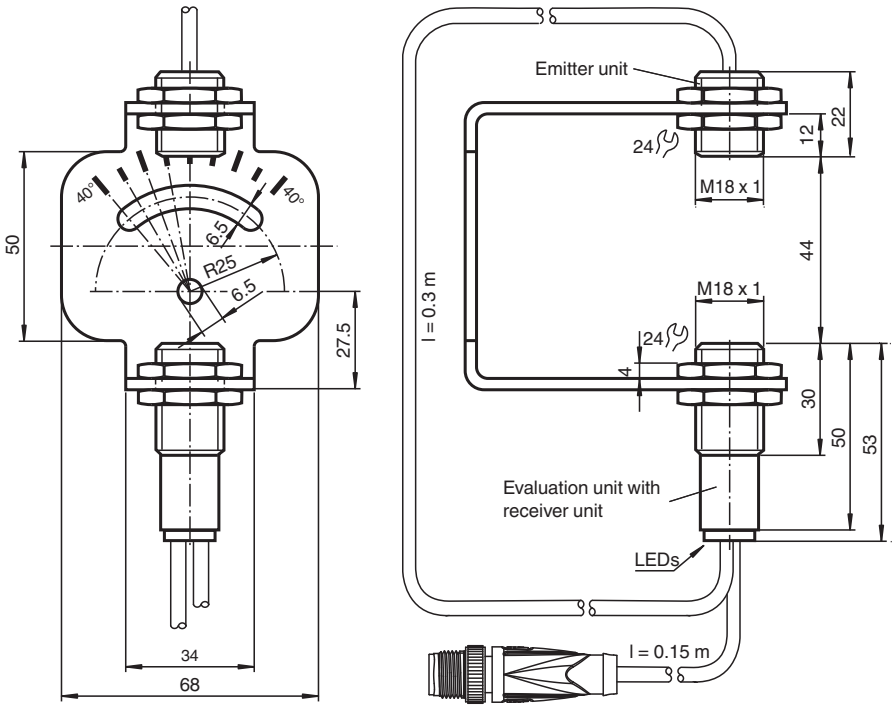
Splice sensor

UGB-18GM50-255-2E3-150MM-V15-Y

- Ultrasonic system for splice detection
- Sensor with mounting bracket, preassembled
- Insensitive to printing, colors, and shining surfaces
- Very high processing speeds are possible.

Dimensions



Technical Data

General specifications		
Sensing range		20 ... 60 mm , optimal distance: 45 mm
Transducer frequency		255 kHz
Indicators/operating means		
LED green		Display: readiness
LED yellow		Display: splice detected
LED red		Indication: No sheet detected (Air)
Electrical specifications		
Operating voltage	U_B	18 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current	I_0	< 60 mA

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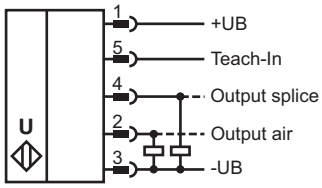
Technical Data

Time delay before availability	t_v	< 500 ms
Input		
Input type		Teach-In input 0-level: $-U_B$ ... $-U_B$ + 1V 1-level: $+U_B$ - 1 V ... $+U_B$
Pulse length		≥ 500 ms
Impedance		≥ 10 kΩ
Output		
Output type		2 switch outputs PNP, NC
Rated operating current	I_e	2 x 100 mA , short-circuit/overload protected
Voltage drop	U_d	≤ 3 V
Switch-on delay	t_{on}	≤ 600 µs
Switch-off delay	t_{off}	≤ 600 µs
Pulse extension		≥ 120 ms programmable
Compliance with standards and directives		
Standard conformity		
Standards		EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012
Approvals and certificates		
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		0 ... 60 °C (32 ... 140 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Connection type		Cable connector M12 x 1 , 5-pin with PVC Cable, 150 mm
Degree of protection		IP67
Material		
Housing		nickel plated brass; plastic components: PBT
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass		150 g

Connection



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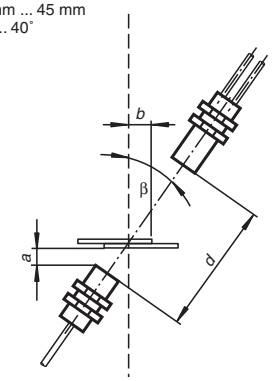
Characteristic Curve

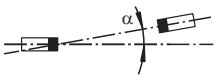
Mounting/Adjustment

Suggestions:
a = 5 mm ... 15 mm
b ≥ 10 mm
d = 40 mm ... 45 mm
β = 20° ... 40°



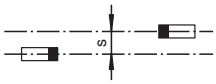
Angular misalignment

α < +/- 1°



Sensor offset

s < +/- 1 mm



Accessories

	**MH-UDB01**	Mounting bracket for double sheet monitor
	**UVW90-K18**	Ultrasonic -deflector
	**M18K-VE**	Plastic nuts with centering ring for the vibration-free mounting of cylindrical sensors

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Additional Information

Description of sensor functions

The ultrasonic double sheet monitor for splice detection can be used in all applications, where an automatic detection of glue dots, splices, bondings or the absence of base material is required, to protect machines or to evade waste production. The double-sheet monitor is based on the ultrasonic through-beam principle. The following can be detected:

- No base material, i.e. air,
- glue dots, splices, bondings

A microprocessor system evaluates the signals. The appropriate switch outputs are set as a result of the evaluation. Changes in ambient conditions such as temperature and humidity are compensated for automatically. The interface electronics is integrated into a compact M18 metal housing together with a sensor head.

Electrical connection

The sensor is equipped with with a 5 pin connector. The functionality of the connections is described in the following table. The teach input (pin 5) is used to teach the sensor.

Pin	Switching on	Comments
1	$+U_B$	
4	Switch output for splices	Pulse width corresponds to the event
2	Switch output for air	Pulse width corresponds to the event
5	$-U_B$ / n.c. / $+U_B$	Normal operation / output pulse prolongation / TEACH-IN
3	-UB	

Normal mode

The sensor is working in normal mode if the function input (pin 5) is applied to $-U_B$ or not connected.
Displays:
LED yellow: Detection of splices
LED green: Power on
LED red: Detection of air (no base material)
Switch outputs:
The switch outputs are only active in normal operation!
pin 4: Splice output
pin 2: Air output

Output pulse extension

If the teach input (pin 5) is not connected, when switching on the power supply, the sensor operates with output pulse prolongation. Events, shorter than 120 ms cause an output pulse duration of 120 ms at the Splice output. For sensor operation without pulse prolongation, the teach input (pin 5) has to be connected with $-U_B$ while power supply is switched on.
Please note:
This can result in a condition in which more than one switch output is switched through!

TEACH-IN mode

Connecting the teach input (pin 5) with $+U_B$ for at least 500 ms causes the sensor to change into TEACH-IN mode. The TEACH-IN procedure has to be carried out with base material. In case of inhomogeneous base materials we suggest to teach the sensor with activated material feeding and a corresponding prolongation of the TEACH-IN procedure.
During the TEACH-IN procedure flashes the yellow LED; the green LED is off.
After returning to the normal operation mode (teach input (pin 5) detached from $+U_B$) the sensor indicates whether the TEACH-IN procedure was successful or not.
TEACH-IN procedure successful: green LED flashes 3 times
TEACH-IN procedure not successful: red LED flashes 3 times

Notes:

If two or more double sheet controls are used in the immediate vicinity of each other, there may be mutual interference between them, which can result in improper functionality of the devices. Mutual interference can be prevented by introducing suitable countermeasures when planning systems. Suitable measures can be:

- Mounting of sound absorbers (foam material)
- mounting of sound separators (sheet metal)
- insallation of the sensors with different directions of sound transmission.

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