



Order Code

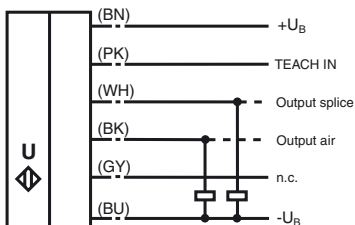
UGB-18GM-200-2E3

Features

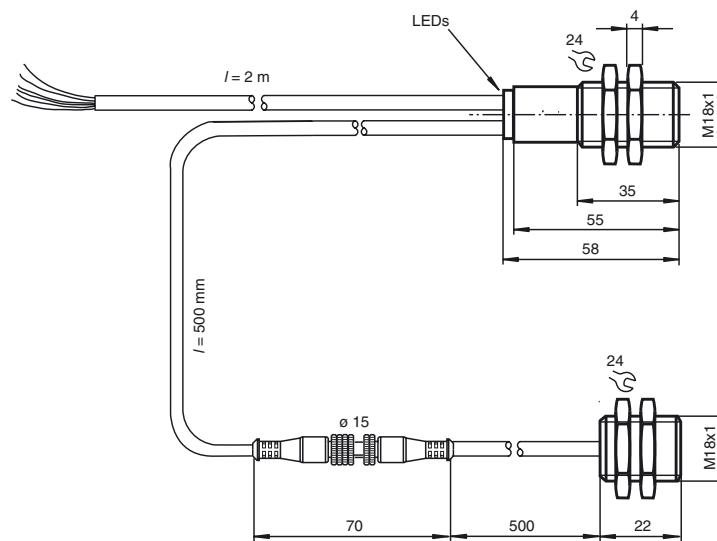
- Ultrasonic system for splice detection
- Short version
- Insensitive to printing, colours and shining surfaces
- Very high processing speeds are possible.

Electrical Connection

Standard symbol/Connection:
Splice control



Dimensions



Technical Data

General specifications

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	205 kHz

Indicators/operating means

LED green	Display: readiness
LED yellow	Anzeige: Klebestelle detektiert
LED red	Display: No sheet detected (Air)

Electrical specifications

Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current I_0	< 60 mA

Input

Input type	Teach-In input
	0-level: $-U_B$... $-U_B + 1V$
	1-level: $+U_B - 1V$... $+U_B$

Pulse length	≥ 500 ms
Impedance	≥ 10 k Ω

Output

Output type	2 switch outputs pnp, NC
Rated operational current I_e	2 x 100 mA , short-circuit/overload protected
Voltage drop U_d	≤ 2 V
Switch-on delay t_{on}	≤ 600 μ s
Switch-off delay t_{off}	≤ 600 μ s

Standard conformity

Standards	IEC / EN 60947-5-2:2004 C-UL listed: 57M3, IND CONT. EQ., "Powered by Class 2 Power Source"
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Ambient conditions

Ambient temperature	0 ... 60 °C (273 ... 333 K)
Storage temperature	-40 ... 70 °C (233 ... 343 K)

Mechanical specifications

Protection degree	IP67
Connection	2 m, PVC cable 0.14 mm ²
Material	
Housing	brass, nickel-plated, plastic components PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass	150 g

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 6 connecting wires. The functionality of the connections is described in the following table. The teach input (PK) is used to teach the sensor.

Colour	Switching on	Comments
BN	+U _B	
WH	Switch output for splices	Pulse width corresponds to the event
BK	Switch output for air	Pulse width corresponds to the event
GY	not connected	
PK	-U _B / n.c. / +U _B	Normal operation / output pulse prolongation / TEACH-IN
BU	-UB	

Normal mode

The sensor is working in normal mode if the function input (PK) 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!

- White: WH Splice output
- Black: BK Air output

Output pulse extension

If the teach input (PK) 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 (PK) 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 (PK) 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 (PK) 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

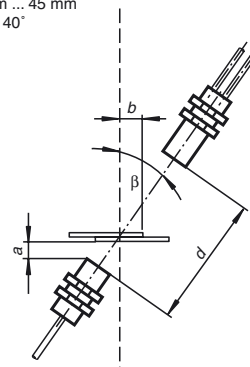
Notes:

A complete device consists of an ultrasonic emitter and an evaluation unit with an ultrasonic emitter. The sensor heads are optimally adjusted to each other when they leave the factory. Therefore, they must not be used separately or exchanged with other devices of the same type. The plug connector on the emitter/receiver connection cable is only intended to be used for easier mounting, not to replace units.

Characteristic Curves/Additional Information

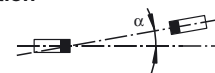
Mounting/Adjustment

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

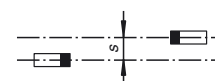


Thin foil detection

$\alpha < +/- 1^\circ$



s < +/- 1 mm



Accessories

MH-UDB01
 Mounting aid

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)
- installation of the sensors with different directions of sound transmission.