Model Number

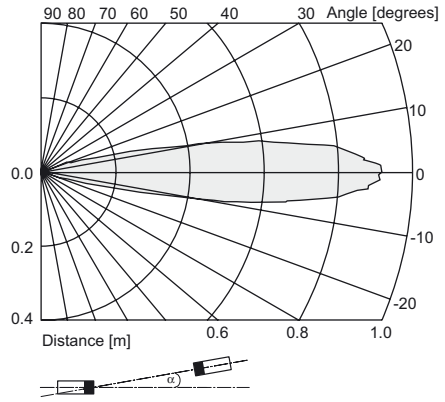
UDB-18GM35-2E2

Features

- **Ultrasonic system for detection of single and pasted double sheet**
- **Very large adjustment range, no TEACH-IN required**
- **Pasted double sheet not detectable.**
- **Weights of paper from 30 g up to cartons weighing over 1200 g can be detected**
- **It is also possible to detect thin metal and plastic films.**
- **Signal output via short-circuit proof PNP switch outputs**
- **Very high processing speeds are possible.**

Diagrams

Characteristic response curves

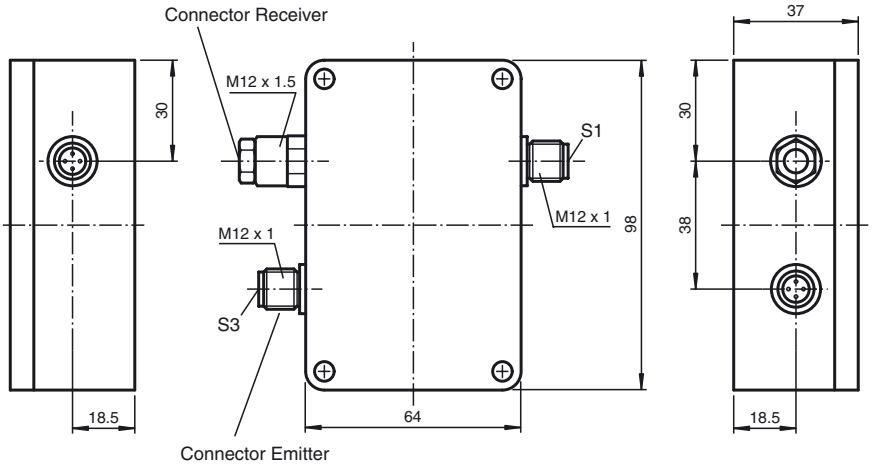


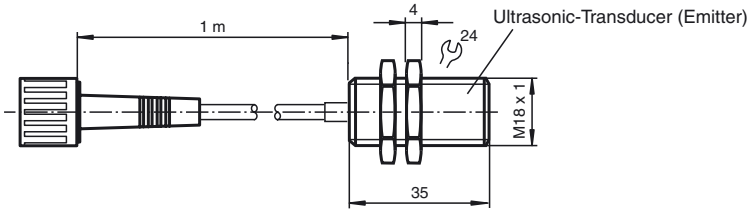
Technical data

General specifications	
Transducer frequency	180 kHz
Indicators/operating means	
LED green	Display: readiness
LED yellow	indication: single sheet detected
LED red	indication: double sheet detected (no pasted double sheet)
Electrical specifications	
Operating voltage U_B	20 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current I_0	< 80 mA
Output	
Output type	2 switch outputs PNP, NO
Rated operating current I_e	2 x 200 mA
Voltage drop U_d	≤ 2 V
Switch-on delay t_{on}	≤ 10 ms
Switch-off delay t_{off}	≤ 10 ms
Ambient conditions	
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Protection degree	IP65
Connection	2 V1 connector (M12x1)
Material	
Housing	Makrolon/nickel-plated brass
Mass	370 g
Compliance with standards and directives	
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates	
UL approval	cULus Listed, General Purpose, Class 2 Power Source
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source

Dimensions





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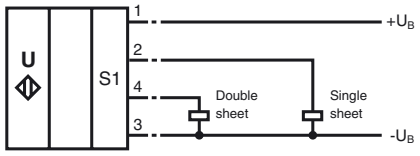
Electrical Connection

Standard symbol/Connection:
Double-sheet-control



Pinout

Connector V1

Accessories

UDB-Cable-2M

UDB-Cable-1M

Notes:

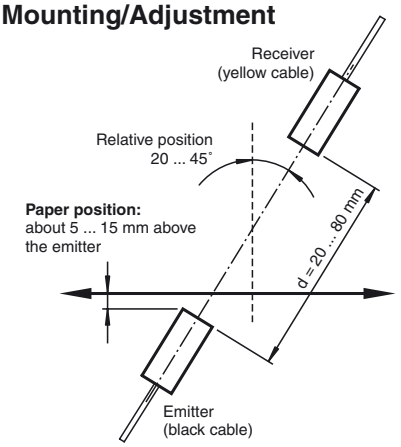
In addition to the printing industry, the ultrasonic double-sheet monitor is deployed in all situations in which the automatic distinction between single and double sheets is required in order to protect machines or avoid waste production.

The double-sheet monitor is based on the ultrasonic through-beam principle. The following can be detected:

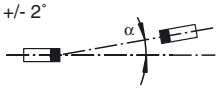
- Individual sheets,
- Double sheets

Additional Information

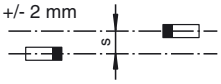
Mounting/Adjustment



Angular alignment
$\alpha < +/- 2^{\circ}$



Sensor offset
$s < +/- 2$ mm



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A microprocessor system evaluates the signals.
The appropriate switch outputs are set as a result of the evaluation.
The evaluation electronics are installed in a cuboid plastic housing separate from the sensor heads.

Measuring system:
A complete system consists of an ultrasonic transmitter, an ultrasonic receiver and an evaluation unit. These units have been optimally tuned to one another at the factory and may not be used separately.

Alignment:
When adjusting the transmitter and receiver, take care to align them as precisely as possible.

Maximum offset: +/- 2 mm
Angular tolerance: < +/- 2 °
Spacing of the sensor heads:20 ... 80 mm

To ensure their correct function, the sensor heads must be aligned at an angle of 20° ... 45° from vertical onto the paper surface.
The paper is guided over the transmitter at a distance of 5 ... 15 mm.
The transmitter is installed below in order to prevent dust deposits. Install the sensor heads using the included plastic nuts.
The sound cone must be fully covered by the sheet. This means, the sensor heads must be installed above/below the sheet at a position, which is at least 10 mm away from the sheets side edge.

Caution!

The paper sheets may not touch the sensor heads during operation.

Physically due to reflexions the sensors double sheet output may switch shortly at the edge of a single sheet. This is not a sensor malfunction and can be blinded out by the host control (PLC).

Sensor systems for ultrasonic double-sheet monitoring can also be delivered with a customised time response for optimal adaptation to specific applications.

Notes:

When installing, care has to be taken that the ultrasonic signal cannot pass around the material that is to be detected, due to multiple reflections. This can happen if large surfaces are present at right angles to the direction of sound propagation. This can be the case if unsuitable mounting brackets are used, or if assemblies with large surface are part of the machine. In the latter case such machine parts should be covered by sound absorbing material or a different location for the installation should be chosen.

In cases where more than one system is needed per machine, acoustic isolation should be provided to avoid cross-talk. This can be provided, for example, by appropriately positioning isolation panels.

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