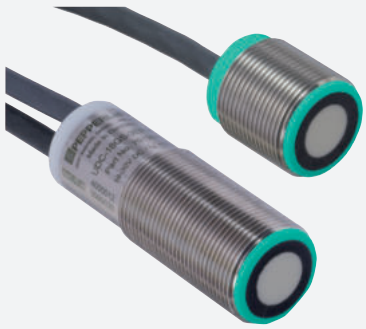


Double sheet sensor

UDB-18GS-2E1-0,2M-V15

- Ultrasonic system for reliable detection of no, one, or two overlapping sheet materials
- Insensitive to printing, colors, and shining surfaces
- Perpendicular or inclined sensor mounting relative to the sheet plane possible
- Simplified commissioning
- Integrated alignment aid
- No TEACH-IN required
- Short version

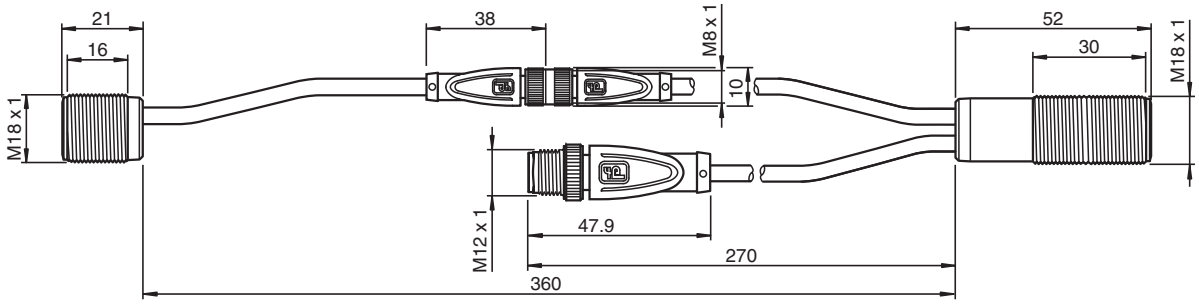
Function

The ultrasonic double-sheet detector is used wherever automatic differentiation between single and double sheets is necessary to protect machines or prevent rejects. The double sheet detection is based on the ultrasonic thru-beam principle.
The following situations can be detected:

- No sheet, i. e. air
- Single sheet
- Double sheet or multiple sheets (a statement on the number of sheets is not possible here)

The signals are evaluated by a microprocessor system. As a result of the evaluation, corresponding switching outputs are set.

Dimensions



Technical Data

General specifications		
Sensing range		20 ... 60 mm , optimal distance: 45 mm
Transducer frequency		approx. 255 kHz
Memory		
Non-volatile memory		EEPROM
Write cycles		300000
Indicators/operating means		
LED green		indication: single sheet detected
LED yellow		indication: no sheet detected (Air)

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Technical Data

LED red		indication: double sheet detected flashing: device error
Electrical specifications		
Operating voltage	U_B	18 ... 30 V DC , ripple 10 %$_{SS}$
No-load supply current	I_0	≤ 40 mA
Power consumption	P_0	≤ 550 mW
Time delay before availability	t_v	≤ 300 ms
Input		
Input type		Function input 0-level: -U_B ... -U_B + 1V 1-level: +U_B - 1 V ... +U_B
Pulse length		≥ 100 ms
Impedance		≥ 60 kΩ
Output		
Designation		OUT 1, 2
Number		2
Output function		OUT 1: single sheet detected OUT 2: double sheet detected
Output type		switching output: NPN , NC contact
Rated operating current	I_e	100 mA per output
Voltage drop	U_d	≤ 3 V
Switch-on delay	t_{on}	15 ms
Switch-off delay	t_{off}	15 ms
Fusing		reverse polarity protected , overload and short-circuit resistant
Compliance with standards and directives		
Standard conformity		
Standards		EN IEC 60947-5-2:2020 IEC 60947-5-2:2019
Approvals and certificates		
UL approval		cULus Listed, General Purpose, Class 2 Power Source
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		0 ... 60 °C (32 ... 140 °F)
Storage temperature		-25 ... 70 °C (-13 ... 158 °F)
Mechanical specifications		
Connection type		fixed cable with plug
Housing length		
Ultrasonic transmitter		21 mm
Ultrasonic receiver		52 mm
Housing diameter		
Ultrasonic transmitter		18 mm
Ultrasonic receiver		18 mm
Degree of protection		IP54
Material		
Housing		Stainless steel 1.4305/AISI 303, polyamide plastic parts
Transducer		epoxy resin/hollow glass sphere mixture; polyurethane foam
Connector		
Threading		M12 x 1
Number of pins		5
Cable		
Cable diameter		4.3 mm
Bending radius		5 x diameter , fixed
Material		PUR
Color		black

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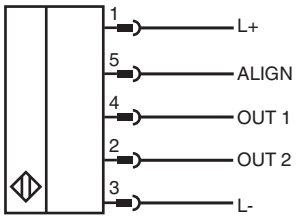
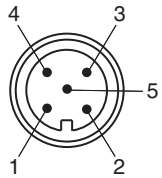
Technical Data

Length	L	approx. 200 mm
Mass		75 g
Tightening torque, fastening screws		max. 20 Nm

Connection



Connection Assignment



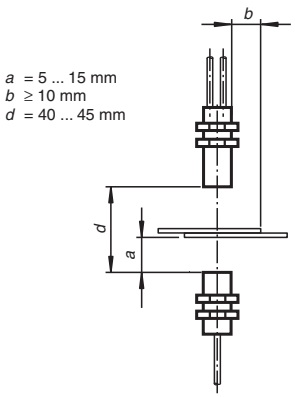
Installation

Hinweis
Only use the cables specified by Pepperl+Fuchs for this purpose to extend the connecting cable between the transmitter and receiver of the ultrasonic double sheet detectors. The use of other cables will result in impairment of the sensor function or even loss of function.

Mounting

Mounting/Adjustment

Recommended distances



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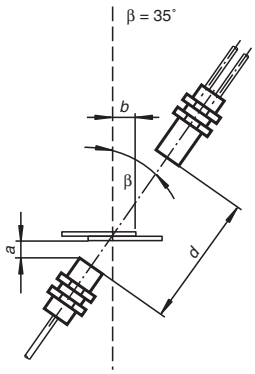
Mounting

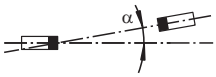
Mounting/Adjustment

(for very thick papers)



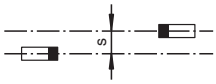
Angular misalignment

α < +/- 1°



Sensor offset

s < +/- 1 mm



Commissioning

Operating Modes

The sensor has fixed thresholds that ensure the detection of double sheet events over a very wide range of materials. Feedback on the detected state (= "air", "single sheet", or "double sheet") is provided via the two switching outputs of the sensor. Please refer to the technical data to find out which output reports which state. The third state is present if neither of the other two states is reported.

Further Documentation

For detailed information on mounting, alignment and commissioning you may refer to the commissioning instruction of the sensor.

Accessories

	**V15-G-BK2M-PUR-U**	Female cordset single-ended M12 straight A-coded, 5-pin, PUR cable black, UL approved, drag chain suitable, torsion resistant
	**MH-UDB01**	Mounting bracket for double sheet monitor
	**AA-UDB-18GM-01**	alignment aid for double sheet sensor
	**V31-GM-1M-PUR-V31-GM-UDB/UDC**	1 m cable for extension between emitter and receiver for UDB-18GS-..., UDC-18GS-... und UDC(M)-30GS-...
	**V31-GM-2M-PUR-V31-GM-UDB/UDC**	2 m cable for extensionn between emitter and receiver for UDB-18GS-..., UDC-18GS-... and UDC(M)-30GS-...

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