



Order Code

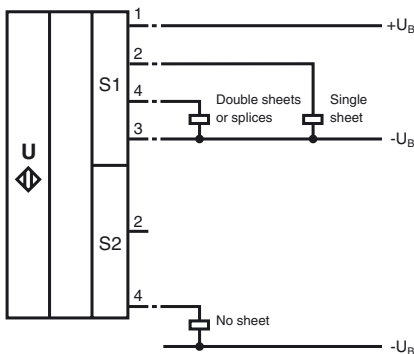
UDBK-18GM35-3E2-Y129902

Features

- Ultrasonic system for detection of single sheets and contact spots on transparent films.
- Detection of thin plastic or metal films.
- Signal output via short-circuit proof PNP switch outputs.
- Very high processing speeds are possible.
- No TEACH-IN.

Electrical Connection

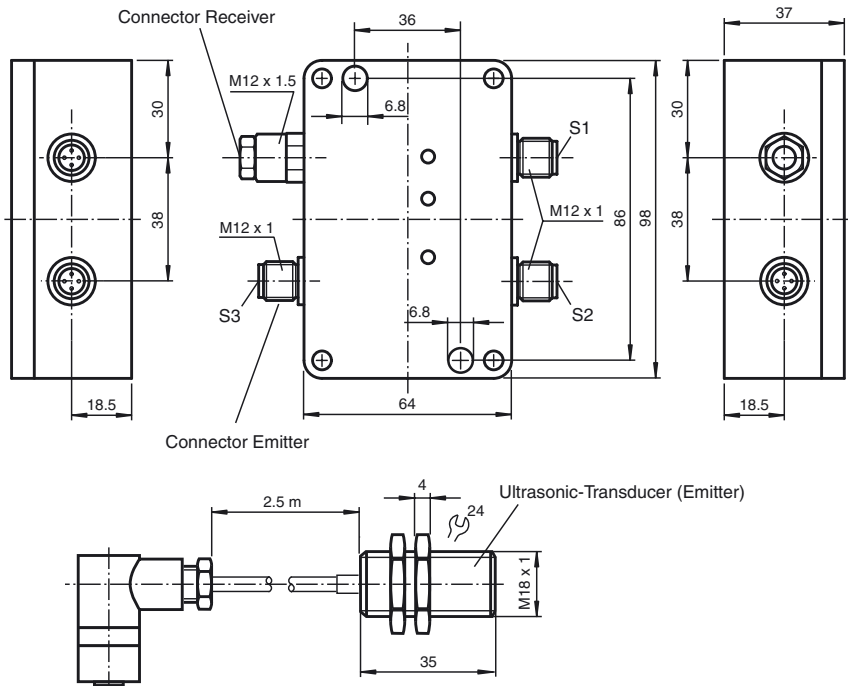
Standard symbol/Connection:
Double-sheet-control



Connector V1



Dimensions



Technical Data

General specifications	
Transducer frequency	180 kHz
Indicators/operating means	
LED green	indication: single sheet detected
LED yellow	indication: no sheet detected
LED red	indication: double sheet or contact spot detected
Electrical specifications	
Operating voltage	20 ... 30 V DC , ripple 10 % _{SS}
No-load supply current I ₀	< 80 mA
Output	
Output type	3 switch outputs pnp, NO
Rated operational current I _e	3 x 200 mA
Voltage drop U _d	≤ 2 V
Switch-on delay t _{on}	≤ 1 ms
Switch-off delay t _{off}	≤ 5 ms
Standard conformity	
Standards	EN 60947-5-2
Ambient conditions	
Ambient temperature	0 ... 60 °C (273 ... 333 K)
Storage temperature	-40 ... 70 °C (233 ... 343 K)
Mechanical specifications	
Protection degree	IP65
Connection	emitter: V1-W connector with 2.5 m cable receiver: 2.5 m fixed cable (not disconnectable) S1,S2: 2 connectors V1-W, M12x1 (included with delivery)
Material	
Housing	Makrolon/nickel-plated brass
Mass	370 g

Description of the sensor functions

Ultrasonic double-sheet monitoring to detect splice points is used in all situations in which an automatic distinction must be made between splice points and double sheets in order to protect machines or avoid waste production. Double-sheet monitoring for splice point detection is based on the ultrasonic through-beam principle. The following can be detected:

- No sheet
- Individual sheet
- Splice point or double sheet

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 emitter, 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 emitter and receiver, take care to align them as precisely as possible.

Distance of the sensor heads:	$d = 20 \text{ mm} \dots 80 \text{ mm}$
Angular tolerance:	$\alpha < \pm 2^\circ$
Maximum offset:	$s < \pm 2 \text{ mm}$

To ensure their correct function, the sensor heads must be aligned at an angle of $25^\circ \pm 5^\circ$ from vertical onto the paper surface. The paper is guided over the emitter at a distance of 5 mm ... 15 mm. The emitter is installed below in order to prevent dust deposits. Install the sensor heads using the included plastic nuts. The sound cone must be completely covered by the paper. This means that the sensor heads must be installed above the sheet of paper and at least 10 mm away from the side edge of the paper.

Feed speed of the sheet (approximate value)

$$v_{\min} = 0.035 \text{ m/s}$$

$$v_{\max} [\text{m/s}] = \text{overlapping of sheets} [\text{mm}] / 1 \text{ ms} \quad (\text{approx. value, overlapping} > 20 \text{ mm})$$

Caution!

The paper sheets may not touch the sensor heads during operation. Depending on physical conditions, reflections on the edge of a single sheet may result in double-sheet output. This is not an error, and can be masked out in the higher-level control system.

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

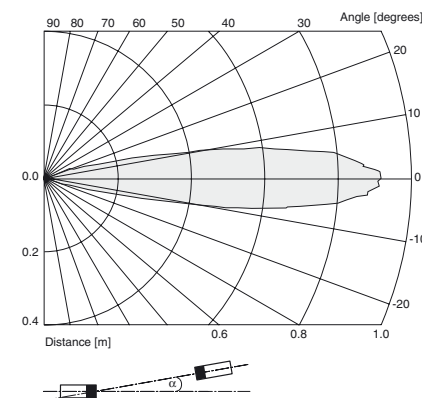
Notes:

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.

Characteristic Curves/Additional Information

Characteristic response curves



Mounting/Adjustment

