microsonic
Ultrasonic Sensors

Operating Instructions

bks-3/CDD

Ultrasonic edge sensor with two switched outputs

Product Description

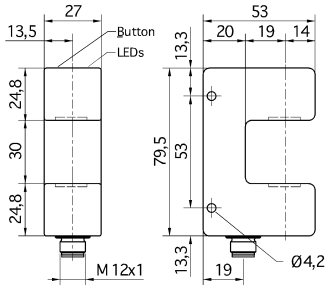
The bks ultrasonic edge sensor is a fork sensor for scanning the edges of sound-impermeable materials such as foil or paper.

The fork's lower leg is equipped with an ultrasonic sensor which cyclically emits short sound impulses, which are detected by the ultrasonic receiver accommodated in the upper fork leg. Material immersing into the fork covers this sound path and thus attenuates the receive signal in dependence of the coverage, which is evaluated by the internal electronics.

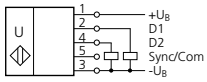
The switched outputs are set in dependence of the coverage degree.

Fig.1: Functional principle

Technical data



Fork width	30 mm
Fork depth	33 mm
Operating range	6 mm (± 3 mm)
Angle of beam spread	-
Transducer frequency	200 kHz
Resolution	0,025 mm
Reproducibility	± 0,1 mm
Accuracy	± 0,1 mm at constant ambient conditions
Operating voltage U_B	20 to 30 V DC, reverse polarity protection
Voltage ripple	± 10 %
No-load current consuption	≤ 50 mA
Housing	Aluminium anodized, plastic parts: PBT
	Ultrasonic transducer : polyutrethane foam,
	epoxy resin with glass contents
Class of protection to EN 60 529	IP 65
Type of connection	5-pin M12 initiator plug,
	Brass, nickel-plated
Controls	Teach-in-button
Indicators	1 x LED green: center position;
	2 x LED yellow: deviation from center position
Programmble	Yes, with LinkControl
Synchronization	No
Operating temperature	+5°C to +60°C
Storage temperature	-40°C to +85°C
Weight	140 g
Response time[1)]	2,5 ms
Time delay before availability	< 300 ms
Order No.	**bks-3/CDD**
Switched output	2 x pnp, U_B - 2 V, I_{max} = 2 x 500 mA
	switchable NCC/NOC, short-circuit-proof



2 pnp-Schaltausgänge

- Via the teach-in button on the edge sensor's top, the zero position of the edge to be controlled is set.
- Three LEDs indicate the position of the web material inside the fork.

Safety Notes

- Read the operating instructions prior to start-up.
- Connection, installation and adjustment works may only be carried out by expert personnel.
- No safety component in accordance with the EU Machine Directive.

Installation

- Mount sensor at the installation site.
- Connect a connection cable to the M12 device plug.

Start-Up

- Connect the power supply.
- Carry out the adjustment in accordance with the diagram.

Maintenance

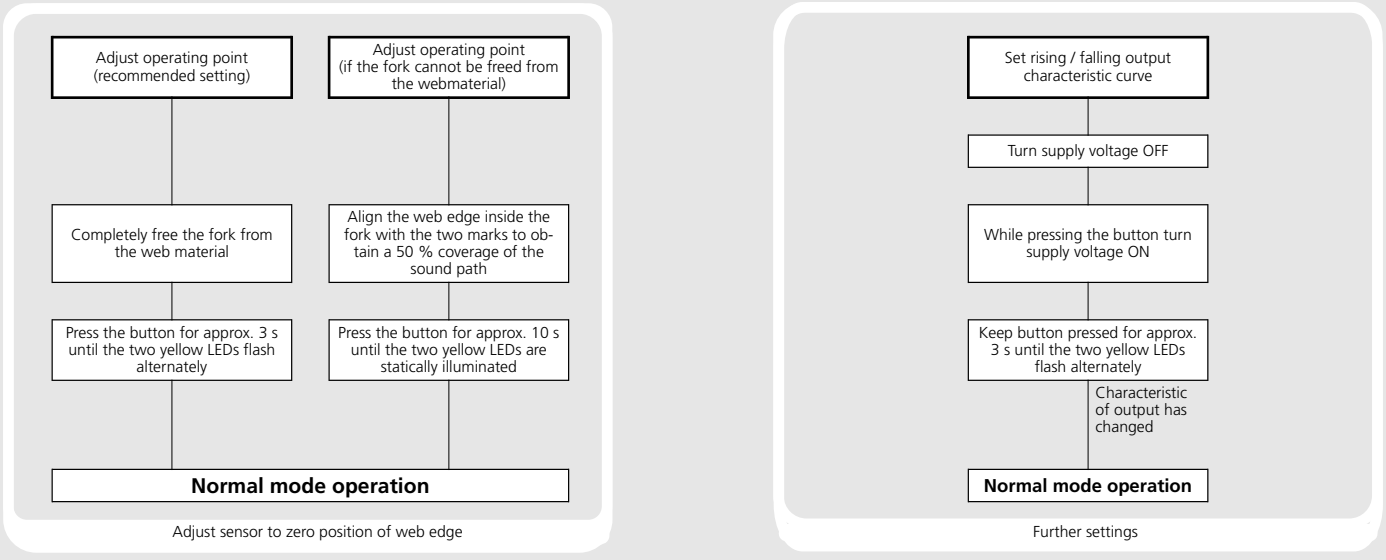
microsonic sensors are maintenance-free. With heavy dirt deposits, we recommend a cleaning of the white sensor surface.

Note

- Both switched outputs are set if the edge of the web material is in the zero position. If the coverage is less than 50 % D1 is reset, if the coverage is more than 50 % output D2 is reset.
- The web material should be in the area of ± 5 mm around the center between the 7ultrasonic transmitter and receiver.

CE 2004/108/EWG

Sensor adjustment with Teach-in procedure



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