microsonic
Ultrasonic Sensors

Operating Instructions

bks-3/CIU
bks-6/12/CIU

Ultrasonic edge sensor with one analogue output

Product Description

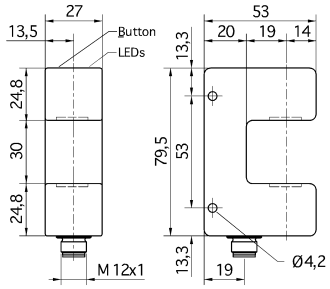
The bks ultrasonic edge sensor is a fork sensor for scanning the edges of sound-impermeable materials such as foil or paper.

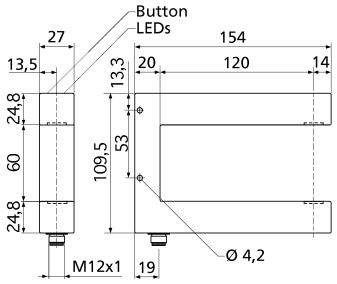
The fork's lower leg is equipped with an ultrasonic sensor which cyclically emits short sound impulses, which are detected by the ultrasonic receiver accommodated in the upper fork leg. Material immersing into the fork covers this sound path and thus attenuates the receive signal in dependence of the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

An analogue signal is output in dependence of the coverage degree.

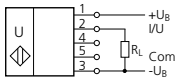
Fig.1: Functional principle

Technical data

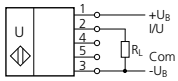




Fork width	30 mm	60 mm
Fork depth	33 mm	134 mm
Operating range	6 mm (±3 mm)	6 mm (±3 mm)
Angle of beam spread	-	-
Transducer frequency	200 kHz	200 kHz
Resolution	0,025 mm	0,025 mm
Reproducibility	± 0,1 mm	± 0,1 mm
Accuracy	± 0,1 mm at constant ambient conditions	± 0,1 mm at constant ambient conditions
Operating voltage U_B	20 to 30 V DC, reverse polarity protection	20 to 30 V DC, reverse polarity protection
Voltage ripple	± 10 %	± 10 %
No-load current consuption	≤50 mA	≤50 mA
Housing	Aluminium anodized, plastic parts: PBT Ultrasonic transducer : polyurethane foam, epoxy resin with glass contents	Aluminium anodized, plastic parts: PBT Ultrasonic transducer : polyurethane foam, epoxy resin with glass contents
Class of protection to EN 60 529	IP 65	IP 65
Type of connection	5-pin M12 initiator plug, Brass, nickel-plated	5-pin M12 initiator plug, Brass, nickel-plated
Controls	Teach-in-button	Teach-in-button
Indicators	1 x LED green: center position; 2 x LED yellow: deviation from center position	1 x LED green: center position; 2 x LED yellow: deviation from center position
Programmble	No	No
Synchronization	No	No
Operating temperature	+5°C to +60°C	+5°C to +60°C
Storage temperature	-40°C to +85°C	-40°C to +85°C
Weight	140 g	290 g
Response time	2,5 ms	2,5 ms
Repetition rate	2 ms	2 ms
Time delay before availability	< 300 ms	< 300 ms
Order No.	**bks-3/CIU**	**bks-6/12/CIU**
Analogue output	current output 4-20 mA, voltage output 0-10 V short-circuit-proof, rising/falling characteristic	current output 4-20 mA, voltage output 0-10 V short-circuit-proof, rising/falling characteristic



1 Analogue output



1 Analogue output

- Via the teach-in button on the edge sensor's top, the zero position of the edge to be controlled is set.
- Choosing between rising and falling output characteristic is possible.
- 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 the sensor at the installation site.
- Connect a connection cable to the M12 device plug.

Factory setting

- Analogue output on votage output

Start-Up

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

Maintenance

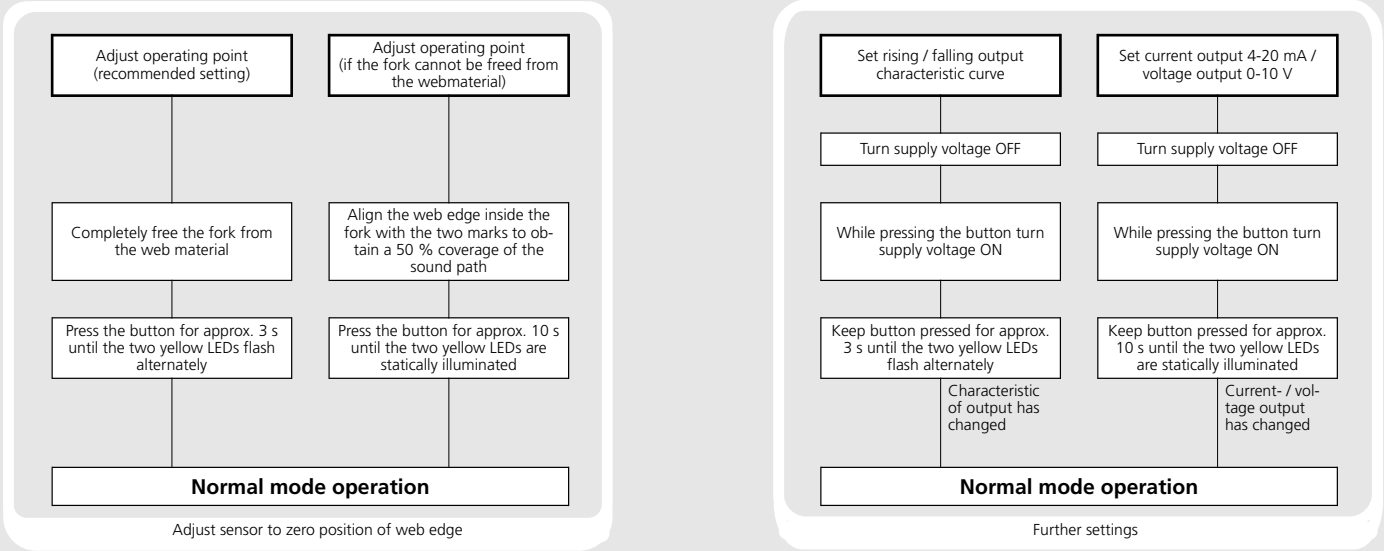
microsonic sensors are maintenance-free. With heavy dirt deposits, we recommend a cleaning of the white sensor surface.

Note

- The web material should be in the area of ± 5 mm around the center between the ultrasonic transmitter and receiver.

CE 2004/108/EWG

Sensor adjustment with Teach-in procedure



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