



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.

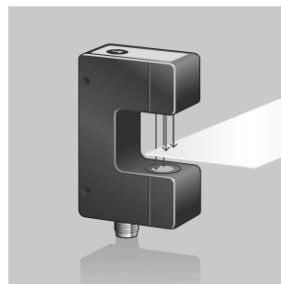


Fig.1: Functional principle

Technical data

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

- 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 voltage output

Start-Up

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

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.



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Sensor adjustment with Teach-in procedure

