

The bks+ sensors are IO-Link-capable in accordance with IO-Link specification V1.1 and compatible to V1.0.

Note

- In IO-Link mode Teach-in and Link-Control are not available.

Process data

The bks+ cyclically transmits the value corresponding to the measured coverage degree with a resolution of 0.003 mm.

Service data

The following sensor parameters may be set via IO-Link.

Teach-in via push-button

The push-button can be activated/deactivated for sensor settings with Teach-in.

Linearisation of the output characteristic

To increase the absolute accuracy in the edge areas, the linearisation of the output characteristic can be disabled.

Temperature compensation

The temperature compensation is used for measurement value correction for varying ambient temperatures and can be disabled.

Analogue output mode

For the analogue output either the function output voltage or current output can be selected.

Rising / falling analogue characteristic

The analogue characteristic can be set on rising (0 V / 4 mA at full coverage) or falling characteristic.

Set NOC/NCC

The NCC or NOC output function can be present for the switched output.

Switching off the LEDs

When activated, the LEDs are switched off 30 seconds after a key press. After a new key press they will run for 30 seconds. This automatic shutdown can be deactivated.

Measurement filter

bks+ ultrasonic sensors provide for a choice of 3 filter settings:

- F00 (no filter)
 - Each ultrasonic measurement acts on the output in an unfiltered manner.
- F01 (average value filter)
 - Forms approximately the arithmetic mean of several measurements. According to the mean value the output is set. The number of measurements, from which the mean is formed is dependent on the chosen filter strength.
- F02 (median filter)
 - Finds the median of several measurements. According to the median the output is set. The number of measurements, for which the median is determined is dependent on the selected filter strength.

System commands

With 5 system commands the following settings may be carried out:

- restore IO-Link parameter
- sensor adjustment: fork cleared.
- sensor adjustment: fork 50 % covered
- sensor adjustment: fork 100 % covered
- Reset to factory settings.

Events

The bks+ sensor sends the following events:

- parameter was changed
- sensor adjustment successful
- sensor adjustment failed

IODD file

The latest IODD file you will find on the internet under www.microsonic.de/en/IODD.

For further informations on IO-Link see www.io-link.com.

IO-Link Data				
physical layer				
IO-Link revision	V1.1			
compatibility	V1.0			
block parameter	yes			
data storage	yes			
SIO mode support	yes			
min cycle time	4 ms			
baud rate	COM 2			
format of process data	16 Bit, R, UNI16			
content of process data	Bit 0-15: degree of coverage with 0.003 mm resolution			
service data IO-Link specific				
index		access	value	
vendor name	0x10	R	microsonic GmbH	
vendor text	0x11	R	www.microsonic.de	
product name	0x12	R	bks+	
product ID	0x13	R	bks+3/FIU	
product text	0x14	R	Ultraschall-Sensor	
service data sensor specific				
index	format	access	range	default
Teach-in via push-button	0x40	UINT8	R/W 0: activated; 1: deactivated	0
linearisation of the output characteristic	0x41	UINT8	R/W 0: deactivated; 1: activated	1
temperature compensation	0x42	UINT8	R/W 0: deactivated; 1: activated	1
analogue output mode	0x44	UINT8	R/W 2: current output, 3: voltage output	3
rising/falling output characteristic curve	0x45	UINT8	R/W 0: rising characteristic curve; 1: falling characteristic curve	1
NCC/NOC	0x46	UINT8	R/W 0: NOC; 1: NCC	1
automatic turning-off LEDs	0x48	UINT8	R/W 0: deactivated; 1: activated	1
measurement filter	0x4D	UINT8	R/W 0-2: F00-F02	0
filter strength	0x4E	UINT8	R/W 0-9: P00-P09	0
centre of switching window	0x4F	UINT16	R/W 0-4095 ¹⁾	2047
width of switching window	0x50	UINT16	R/W 0-4095 ¹⁾	1023
system commands				
index		access	value	
restore IO-Link parameter	0x02	W	130	
sensor adjustment: fork cleared	0x02	W	161	
sensor adjustment: fork 50 % covered	0x02	W	162	
sensor adjustment: fork 100 % covered	0x02	W	163	
reset to factory setting	0x02	W	164	
events				
code	type	name		
0x8ca0	Notification	parameter was changed		
0x8ca1	Notification	sensor adjustment successful		
0x8ca2	Notification	sensor adjustment failed		
observe measurement value				
index	format	access	range	
0x54	UINT16	R	0-4095	

¹⁾ Measurement values are expressed as multiples of the internal resolution of about 0.003 mm.