

# LBFH

LBFH-21.###.A03020.#.#003.0

## Overview

- 3-A- and FDA-compliant, EHEDG-certified
- Foam detection or suppression
- Problem solver for adhesions
- Two adjustable switching outputs
- 360° visible multicolor LED
- IO-Link interface



## Technical data

### Performance characteristics

Measuring principle	CleverLevel level switches (Frequency Sweep)
Hysteresis	± 1 mm
Media characteristics	DC > 1.5
Response time	0.04 s , typ.
Damping	0... 10 s , adjustable
Repeatability	± 1 mm

### Process conditions

Process temperature	-40 ... 115 °C , continuous @ Tamb < 50 °C -40 ... 135 °C , < 1 h @ Tamb < 50 °C
Process pressure	-1 ... 10 bar -1 ... 5 bar , T = 135 °C

### Process connection

Connection variants	Refer to section "Dimensional drawings"
Mounting position	Any, top, bottom, side
Wetted parts material	PEEK Natura AISI 316L (1.4404)
Surface roughness wetted parts	Ra ≤ 0.8 µm

### Ambient conditions

Operating temperature range	-40 ... 85 °C
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67 IP 69K , with appropriate cable
Humidity	< 98 % RH , condensing
Vibration (sinusoidal) (EN 60068-2-6)	1.6 mm p-p (2 ... 25 Hz), 4 g (25 ... 100 Hz), 1 octave / min.

### Output signal

Output type	PNP NPN Digital (push-pull)
Switching logic	Normally open (NO) Normally closed (NC) Active high Active low
Voltage drop	PNP: (+Vs - 0.5 V) ± 0.2 V, Rload ≥ 10 kΩ NPN: (+0.4 V) ± 0.2 V, Rload ≥ 10 kΩ
Current rating	100 mA , max.
Off leak current	< 100 µA , max.
Short circuit protection	Yes
Interface	IO-Link 1.1

### Housing

Style	Compact transmitter
Overall size	Refer to section "Dimensional drawings"
Material	Stainless steel

### Electrical connection

Connector	M12-A, 4-pin, polycarbonate M12-A, 4-pin, stainless steel
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### Power supply

Voltage supply range	8 ... 36 V DC
Current consumption (no load)	25 mA , typ. 40 mA , max.
Power-up time	< 3 s
Reverse polarity protection	Yes

### Factory settings

qTeach	activated
Switching logic SW1	Normally open (NO)
Switching logic SW2	Normally closed (NC)
Switching range (dielectric constant DC)	< 75 % , DC > 2

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## Technical data

### Factory settings

Range hysteresis	2.4 %
Damping	0.1 s

### IECEX / ATEX II 1D Ex - ta IIIC T100 °C Da

Voltage supply range, Un	30 V DC , max.
Current rating, In	100 mA
Degree of protection for cable accessories	IP 67
Temperature class T100 °C	-40 < Tamb < 85 °C

### IECEX / ATEX II 1G - Ex ia IIC T4 Ga

Maximum values for barrier selection, Ui	30 V DC , max.
Maximum values for barrier selection, Ii	100 mA
Maximum values for barrier selection, Pi	750 mW
Internal capacitance, Ci	63 nF
Internal inductance, Li	617 µH
Temperature class, T1 ... T4	-40 < Tamb < 85 °C

### IECEX / ATEX II 3G - Ex nA IIC T4 Gc

Voltage supply range, Un	30 V DC , max.
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### IECEX / ATEX II 3G - Ex nA IIC T4 Gc

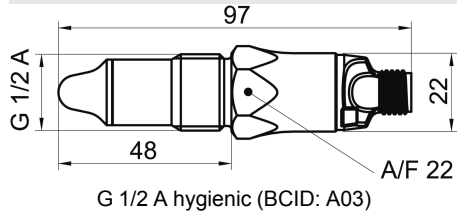
Current rating, In	100 mA
Degree of protection for cable accessories	IP 67
Temperature class, T1 ... T4	-40 < Tamb < 85 °C

### Compliance and approvals

EMC Emission	EN 61326, installed in a closed metal tank
EMC Immunity	EN 61326, installed in a closed metal tank
Hygiene	3-A (74-07) EHEDG EL Class I FDA (21 CFR 177.2415)
Safety	cULus listed, E365692 WHG (overflow, leakage)
Explosion protection	ATEX II 1G Ex ia IIC T4 Ga ATEX II 1D Ex ta IIIC T100 °C Da ATEX II 3G Ex nA IIC T4 Gc IECEX Ex ia IIC T4 Ga IECEX Ex ta IIIC T100 °C Da IECEX Ex nA IIC T4 Gc
Pharma	USP Class VI (PEEK material)

## Dimensional drawings

### Selectable display views



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## Electrical connection

### Process connection

Output type	Electrical connection	Equivalent circuit	Function	Pin assignment
Programmable output IO-Link PNP			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Programmable output IO-Link NPN			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Programmable output IO-Link Digital (push-pull)			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Programmable output IO-Link PNP			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Frame Ground	Plug thread			
Programmable output IO-Link NPN			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Frame Ground	Plug thread			
Programmable output IO-Link Digital (push-pull)			+Vs	1
			SW1 (IO-Link)	4
			SW2	2
GND (0 V)	3			
Frame Ground	Plug thread			

## Ordering information

Ordering key - Configuration possibilities see website

<b>Product</b>	LBFH - 2 1 . ### . A030 2 0 . # . # 00 3 . #
<b>Version</b>	LBFH
Programmable output, IO-Link	2
<b>Housing</b>	
AISI 316L (1.4404)	1
<b>Electrical connection</b>	
M12-A, 4-pin, polycarbonate (with LED)	010
M12-A, 4-pin, stainless steel (without LED)	020
<b>Process connection</b>	
G 1/2 A hygienic (A03)	A030
<b>Wetted parts material</b>	
AISI 316L (1.4404)	2
<b>Gasket</b>	
Without	0

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## Ordering information

Ordering key - Configuration possibilities see website

LBFH - 2 1 . ### . A030 2 0 . # . # 00 3 . #

### Output type

PNP	1
NPN	2
Digital (push-pull)	3

### Explosion protection

Without	0
IECEX / ATEX nA	3
IECEX / ATEX ia + ta	4

### Industrial approvals

Standard	00
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### Special approvals

3-A / EHEDG	3
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### Configuration

Factory settings	0
Customer-specific	1