

# LBFH

Explosion-proof point level detection in the hygiene sector

LBFH-21.###.A03020.#.###3.0

## Overview

- Optionally with adaptive trigger
- ATEX, IECEx and CCC certified for dust and gas
- 3-A- and FDA-compliant, EHEDG-certified
- 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
Step response time	0.04 s , typ.
Trigger modes	Window trigger Adaptive trigger
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

### Ambient conditions

Degree of protection (EN 60529)	M12-A connector, polycarbonate and stainless steel: IP67 , with appropriate cable IP69K , with appropriate cable  KingCrown M12-A connector (proTect+): IP68 , with appropriate cable IP69K , 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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## Technical data

### 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
Range hysteresis	2.4 %
Damping	0.1 s

### Factory settings – Adaptive trigger

Switching logic	Normally open (NO)
Advanced setup	Disabled
Set point high	100 %
Damping	0 ms
Trigger distance	3.0 %
Startup Level	0.0 %
Steady detection	Active

### IECEX / ATEX II 1D Ex - ta IIIC T100 °C Da / CCC - Ex tD A20 IP67 T100°

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 / CCC - 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

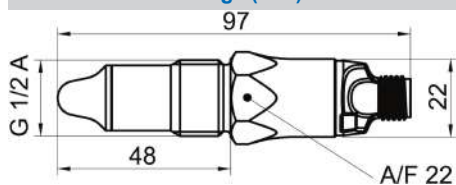
### IECEX / ATEX II 3G / CCC - Ex nA IIC T4 Gc

Voltage supply range, Un	30 V DC , max.
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 (overfill, leakage)
Explosion protection	IECEX / ATEX II 1D Ex - ta IIIC T100 °C Da / CCC - Ex tD A20 IP67 T100°C IECEX / ATEX II 1G / CCC - Ex ia IIC T4 Ga IECEX / ATEX II 3G / CCC - Ex nA IIC T4 Gc
Pharma	USP Class VI (PEEK material)

## Dimensional drawings (mm)



G 1/2 A hygienic (BCID: A03)

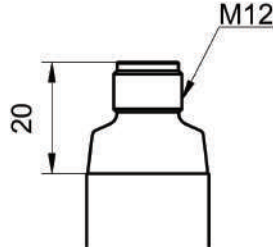
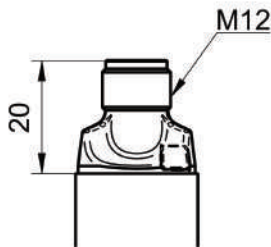
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## Dimensional drawings (mm)

### Housing



Connector M12-A, 4-pin, polycarbonate (with LED)

Connector M12-A, 4-pin, stainless steel (without LED)

## Electrical connection

Output type	Electrical connection	Equivalent circuit	Function	Pin assignment									
Programmable output IO-Link PNP			<table border="1"> <tr><td>+Vs</td><td>1</td></tr> <tr><td>SW1 (IO-Link)</td><td>4</td></tr> <tr><td>SW2</td><td>2</td></tr> <tr><td>GND (0 V)</td><td>3</td></tr> </table>	+Vs	1	SW1 (IO-Link)	4	SW2	2	GND (0 V)	3		
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## Ordering information

Ordering key - Configuration possibilities see website

	LBFH	-	2	1	.	###	.	A030	2	0	.	#	.	#	##	3	.	#	
<b>Product</b>	LBFH																		
<b>Version</b>																			
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>Process connection material</b>																			
AISI 316L (1.4404)									2										
<b>Gasket</b>																			
Without										0									
<b>Output type</b>																			
PNP																			1
NPN																			2
Digital (push-pull)																			3
<b>Explosion protection</b>																			
Without																			0
IECEX / ATEX nA																			3
IECEX / ATEX ia + ta																			4
<b>Industrial approvals</b>																			
Standard																			00
WHG																			11
<b>Special approvals</b>																			
3-A / EHEDG																			3
<b>Configuration</b>																			
Factory settings																			0
Customer-specific																			1

Remarks orderkey /9271: Upgrade to adaptive trigger  
 /9306: CCC ia + tD  
 /9309: CCC nA