

LBFH

Explosion-proof point level detection in the hygiene sector

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

Overview

- Optionally with adaptive trigger
- ATEX and IECEx 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
Degree of protection (EN 60529)	IP 67 , with appropriate cable 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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Factory settings

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

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, li	100 mA
Maximum values for barrier selection, Pi	750 mW

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

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.
Current rating, In	100 mA

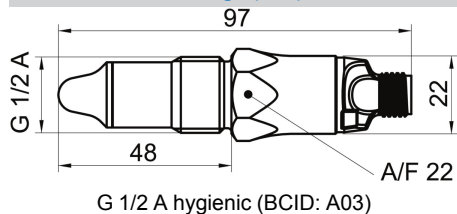
Degree of protection for cable accessories IP 67

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 (mm)



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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	.	#	
Product	LBFH																		
Version																			
Programmable output, IO-Link				2															
Housing																			
AISI 316L (1.4404)				1															
Electrical connection																			
M12-A, 4-pin, polycarbonate (with LED)								010											
M12-A, 4-pin, stainless steel (without LED)								020											
Process connection																			
G 1/2 A hygienic (A03)								A030											
Process connection material																			
AISI 316L (1.4404)									2										
Gasket																			
Without										0									
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
WHG																			11
Special approvals																			
3-A / EHEDG																			3
Configuration																			
Factory settings																			0
Customer-specific																			1

Remarks orderkey /9271: Upgrade to adaptive trigger