

LBFH

Explosion-proof point level detection in the hygiene sector

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

Overview

- Optionally with adaptive trigger
- Optionally available with Ex certification
- 3-A- and FDA-compliant, EHEDG-certified
- Problem solver for adhesions
- Two adjustable switching outputs
- 360° visible multicolor LED
- IO-Link interface



Picture similar



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

IO-Link interface

IO-Link version	1.1
IO-Link port type	Class A
Baud rate	38,4 kbaud (COM2)
Cycle time	≥ 6.4 ms
SIO-mode	Yes

Housing

Style	Compact transmitter
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Technical data

Housing

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
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

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

Temperature class T100 °C	-40 < Tamb < 85 °C
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IECEX / ATEX II 1G - Ex ia IIC T4 Ga

Maximum values for barrier selection, Ui	30 V DC , max.
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Maximum values for barrier selection, Ii	100 mA
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Maximum values for barrier selection, Pi	750 mW
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Internal capacitance, Ci	63 nF
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Internal inductance, Li	617 µH
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Temperature class, T1 ... T4	-40 < Tamb < 85 °C
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ATEX II 3G - Ex ec IIC T4 Gc

Voltage supply range, Un	30 V DC , max.
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Current rating, In	100 mA
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Degree of protection for cable accessories	IP 67
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Temperature class T1 ... T4	-40 < Tamb < 85 °C
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Compliance and approvals

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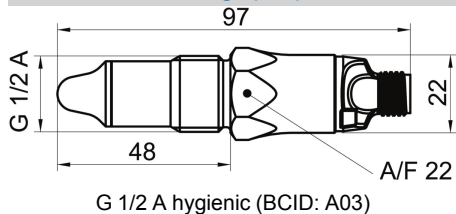
Hygiene	3-A (74-07) EHEDG EL Class I FDA (21 CFR 177.2415)
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Safety	cULus listed, E365692 WHG (overfill, leakage)
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Explosion protection	IECEX / ATEX II 1D Ex - ta IIIC T100 °C Da IECEX / ATEX II 1G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



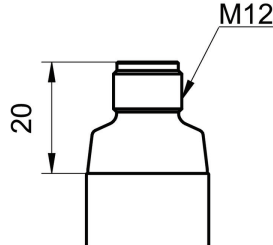
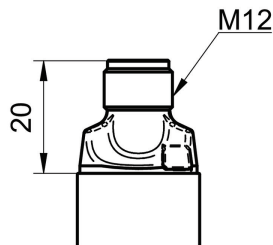
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Dimensional drawings (mm)

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			+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

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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	
ATEX ec																	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