

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) EPDM (internal gasket)
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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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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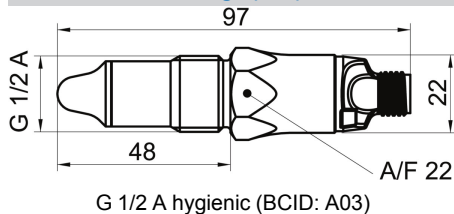
Hygiene	3-A (74-07) EHEDG EL Class I FDA (21 CFR 177.2415)
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Safety	cULus listed, E365692 WHG (overfill, leakage)
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Explosion protection	IECEX / ATEX II 1D Ex - ta IIIC T100 °C Da IECEX / ATEX II 1G - 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)



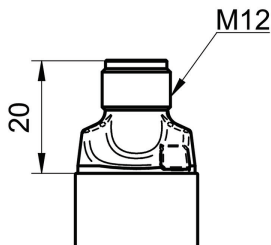
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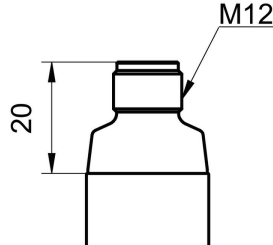
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Dimensional drawings (mm)

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><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	
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