

LBFS-01K21.0

Point level detection based on frequency sweep technology

Article number: 11154491

Overview

- Reliable in diverse media
- Wide variety of process connections
- For hygienic and industrial applications
- With marine, WHG and cULus approval
- Process temperatures up to 150 °C



Picture similar

EN 50155

Technical data

Performance characteristics

Measuring principle	CleverLevel level switches (Frequency Sweep)
Hysteresis	± 1 mm
Media characteristics	DC > 1.5
Step response time	0.1 s , typ. 0.2 s , max.
Damping	0 ... 10 s , adjustable
Repeatability	± 1 mm

Process conditions

Process temperature	- 40 ... 115 °C , continuous @ Tamb < 50 °C 135 °C , < 1 h @ Tamb < 50 °C
Process pressure	- 1 ... 100 bar

Process connection

Connection variants	G 1/2 A hygienic
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)	IP67 , 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. GL, test 2

Output signal

Output type	PNP
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Output signal

Switching logic	Normally closed (NC) Normally open (NO)
Voltage drop	PNP: (+Vs -1.5 V) ± 0.5 V, Rload = 10 kΩ
Current rating	20 mA , max.
Off leak current	< 100 µA , max.
Status indication	Status indication by bright, blue LED
Short circuit protection	Yes

Housing

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

Electrical connection

Connector	M12-A, 4-pin, polycarbonate
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Power supply

Voltage supply range	12 ... 30 V DC
Current consumption (no load)	25 mA , typ. 50 mA , max.
Power-up time	< 2 s
Reverse polarity protection	Yes

Factory settings

Switching range (dielectric constant DC)	< 75.3 % , DC > 2
Range hysteresis	2.4 %
Damping	0.1 s

ATEX II 1D Ex ta IIIC T100 °C Da

Temperature class T100 °C	-40 < Tamb < 85 °C
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ATEX II 1G Ex ia IIC T4/T5 Ga

Internal capacitance, Ci	43 nF
Temperature class, T1 ... T5	-40 < Tamb < 74 °C

ATEX II 1G Ex ia IIC T4/T5 Ga

Temperature class, T1 ... T5	-40 < Tamb < 74 °C
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Compliance and approvals

EMC Emission	EN 61326, installed in a closed metal tank
EMC Immunity	EN 61326, installed in a closed metal tank
Hygiene	(EC) No 1935/2004 (EC) No 2023/2006 (EU) No 10/2011 FDA (21 CFR 177.2415)

Compliance and approvals

Railway applications	EN 50155
Safety	WHG (overflow, leakage)
Marine	CCS

Operating conditions

Ordering key	Process connection	BCID	Continuous		Temporary (t < 1 h)	
			Process temperature @ Tamb < 50 °C	Process pressure	Process temperature max. @ Tamb < 50 °C	Process pressure @ Process temperature max.
			(° C)	(bar)	(° C)	(bar)
LBFS-##1##.#	G 1/2 A ISO 228-1 BSC	G07	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##2##.#	G 3/4 A ISO 228-1	G10	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##3##.#	G 1 A ISO 228-1	G11	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##4##.#	G 1/2 A hygienic	A03	-40 ... 115	-1 ... 10	135	-1 ... 5
LBFS-##5##.#	G 1/2 A ISO 228-1 for reverse assembly (in-shell thread)	T10	-40 ... 85	-1 ... 100	N/A	N/A
LBFS-##6##.#	3/4-14 NPT	N03	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##7##.#	M18 × 1 ISO 261 / ISO 965	M11	-40 ... 115	N/A	N/A	N/A
LBFS-##A##.#	G 1/2 A DIN 3852-E, NBR gasket	G51	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##B##.#	G 1/2 A DIN 3852-E, FKM gasket	G51	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##E##.#	G 1/2 A DIN 3852-E, FKM gasket, with cooling neck	G51	-40 ... 150	-1 ... 100	N/A	N/A
LBFS-##G##.#	G 1/2 A ISO 228-1 BSC, with cooling neck, not applicable for mounting with ZPW1-7x1	G07	-40 ... 150	-1 ... 100	N/A	N/A
LBFS-##J##.#	G 1/2 a hygienic gasket, with cooling neck	A03	0 ... 150	-1 ... 10	N/A	N/A
LBFS-##K##.#	G 1/2 A hygienic, length 82 mm	A03	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##L##.#	G 1/2 A hygienic, sliding connection, length 250 mm	A03	-40 ... 150	-1 ... 5	N/A	N/A
LBFS-##M##.#	1/2-14 NPT, with cooling neck	N02	-40 ... 150	-1 ... 100	N/A	N/A
LBFS-##N##.#	1/2-14 NPT	N02	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-##S##.#	G 1/2 A hygienic gasket, VMQ70, with cooling neck	A03	-10 ... 150	-1 ... 10	N/A	N/A

For further information on permissible process and ambient temperatures, please refer to the operating instructions.

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Compliance and approvals

Ordering key	Process connection	BCID	EN 1935/2004 EN 10/2011 EN 2023/2006	FDA	3-A	EHEDG EL-Class I	USP Class VI	DNV GL	Lloyd's Register	CCS	WHG (overfill, leakage)
LBFS-##1##.#	G 1/2 A ISO 228-1 BSC	G07					■	■	■	■	■
LBFS-##2##.#	G 3/4 A ISO 228-1	G10					■	■	■	■	■
LBFS-##3##.#	G 1 A ISO 228-1	G11					■	■	■	■	■
LBFS-##4##.#	G 1/2 A hygienic	A03	■	■	■	■	■	■	■	■	■
LBFS-##5##.#	G 1/2 A ISO 228-1 for reverse assembly (in-shell thread)	T10					■	■	■	■	■
LBFS-##6##.#	3/4-14 NPT	N03					■	■	■	■	■
LBFS-##7##.#	M18 × 1 ISO 261 / ISO 965	M11					■	■	■	■	■
LBFS-##A##.#	G 1/2 A DIN 3852-E, NBR gasket	G51					■	■	■	■	■
LBFS-##B##.#	G 1/2 A DIN 3852-E, FKM gasket	G51					■	■	■	■	■
LBFS-##E##.#	G 1/2 A DIN 3852-E, FKM gasket, with cooling neck	G51					■			■	■
LBFS-##G##.#	G 1/2 A ISO 228-1 BSC, with cooling neck	G07					■			■	■
LBFS-##J##.#	G 1/2 A hygienic gasket, with cooling neck	A03	■	■	■					■	
LBFS-##K##.#	G 1/2 A hygienic, length 82 mm	A03	■	■						■	■
LBFS-##L##.#	G 1/2 A hygienic, sliding connection, length 250 mm	A03	■	■		■				■	■
LBFS-##M##.#	1/2-14 NPT, with cooling neck	N02								■	■
LBFS-##N##.#	1/2-14 NPT	N02						■	■	■	■
LBFS-##S##.#	G 1/2 A hygienic gasket, VMQ70, with cooling neck	A03	■	■	■	■				■	

Information on product characteristics may relate to defined product options.

The requirements of the respective 3-A Sanitary Standard will be only fulfilled in combination with appropriate mounting accessories. Those are marked with the 3-A logo.

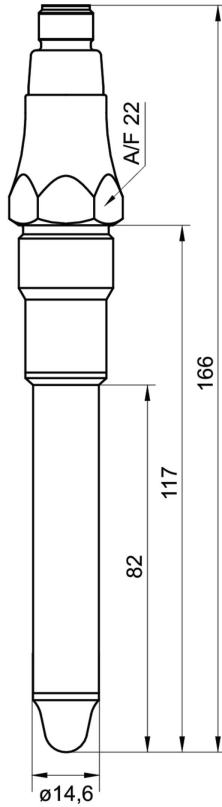
The EHEDG certification is only valid in combination with appropriate mounting accessories. Those are marked with the "EHEDG Certified" logo.

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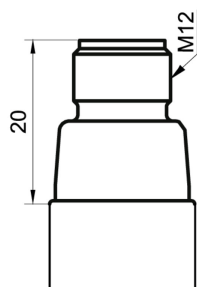
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Dimensional drawings (mm)



G 1/2 A hygienic, 82 mm length (BCID: A03)

Housing

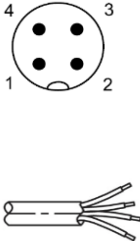
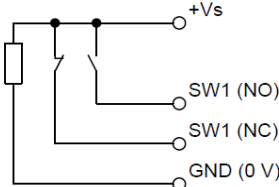
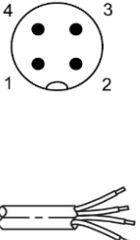
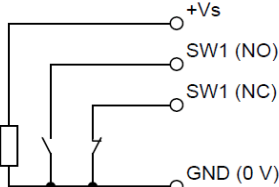


Connector M12-A, 4-pin, polycarbonate (with LED)

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Electrical connection

Output type	Electrical connection	Equivalent circuit	Function	Pin assignment
PNP			+Vs	1
			SW1, Normally open (NO)	4
			SW1, Normally closed (NC)	2
			GND (0 V)	3
			+Vs	BN
			SW1, Normally open (NO)	BK
NPN			+Vs	1
			SW1, Normally open (NO)	4
			SW1, Normally closed (NC)	2
			GND (0 V)	3
			+Vs	BN
			SW1, Normally open (NO)	BK
			SW1, Normally closed (NC)	WH
			GND (0 V)	BU