LFFS-041.0

Point level detection based on frequency deviation technology for high-temperature hygienic applications

Article number: 11101289

Overview

- Process temperatures up to 200 °C
- Housing design with 360° status indicator
- For hygienic and industrial applications
- 3-A- and FDA-compliant, EHEDG-certified
- With WHG and cULus approval

Picture similar

3-A 74-07

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 < 60 °C 140 °C , < 1 h @ Tamb < 60 °C
Process pressure	- 1 … 10 bar , continuous @ Tamb < 60 °C - 1 … 5 bar , T = 140 °C
Process connection	
Connection variants	G 1/2 A hygienic
Mounting position	Any, top, bottom, side
Wetted parts material	PEEK Natura AISI 316L (1.4404) EPDM, optional
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
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 -2.5 V) ± 0.5 V, Rload = 1 kΩ NPN: (+2.5 V) ± 0.5 V, Rload = 1 kΩ Digital (push-pull): (+Vs -2.5 V) ± 0.5 V, Rload = 1 kΩ Digital (push-pull): (+2.5 V) ± 0.5 V, Rload = 1 kΩ
Current rating	50 mA , max.
Off leak current	< 100 µA , max.
Short circuit protection	Yes
Housing	
Style	Field housing, Ø55 mm
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)
Electrical connection	
Connector	M12-A, 4-pin, stainless steel
Power supply	
Voltage supply range	12.5 … 36 V DC
Current consumption (no load)	35 mA , max.
Power-up time	< 2 s
Reverse polarity protection	Yes
Factory settings	
Output polarity	AUTO
Switching logic SW1	PNP

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Factory settings	
Switching range (dielectric constant DC)	< 75.3 % , DC > 2
Trigger level	80.4 %
Range hysteresis	2.4 %
Damping	0.1 s
Compliance and approvals	
EMC Emission	EN 61326, installed in a closed metal tank
EMC Immunity	EN 61326, installed in a closed metal tank

Compliance and approvals	
Hygiene	(EC) No 1935/2004 (EC) No 2023/2006 (EU) No 10/2011 3-A (74-07) EHEDG EL Class I FDA (21 CFR 177.2415)
Safety	WHG (overfill, leakage)
Pharma	USP Class VI (PEEK material)

Operating conditions

Ordering key	Process connection	BCID	Continuous		Temporary (t < 1 h)	
			Process temperature @ Tamb < 60 °C	Process pressure	Process temperature max. @ Tamb < 60 °C	Process pressure @ Process temperature max.
			(° C)	(bar)	(° C)	(bar)
LFFS-##1.#	G 1/2 A hygienic	A03	-40 … 115	-1 … 10	140	-1 … 5
LFFS-##2.#	BHC 3A DN 38	B01	-40 … 115	-1 … 40	140	-1 … 40
LFFS-##3.#	G 1/2 A hygienic, sliding connection, length 100 mm	A03	-40 … 150	-1 … 16	N/A	N/A
LFFS-##4.#	G 1/2 A hygienic, sliding connection, length 250 mm	A03	-40 … 200	-1 … 16	N/A	N/A

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

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	WHG (overfill, leakage)
LFFS-##1.#	G 1/2 A hygienic	A03	■	■	■	■	■	■
LFFS-##2.#	BHC 3A DN 38	B01	■	■	■	■		■
LFFS-##3.#	G 1/2 A hygienic, sliding connection, length 100 mm	A03	■	■		■		■
LFFS-##4.#	G 1/2 A hygienic, sliding connection, length 250 mm	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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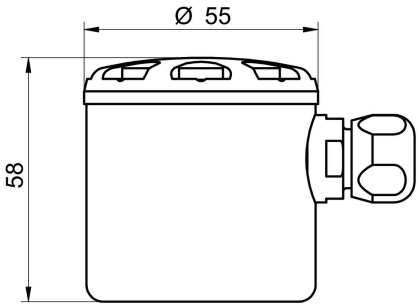
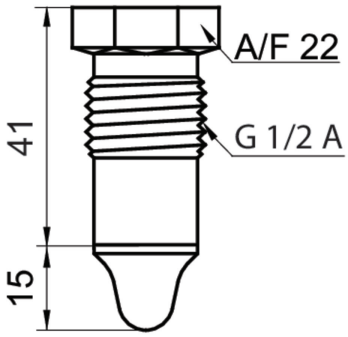
Dimensional drawings (mm)

Housing



Housing with cable gland M16x1.5

Process connection



G 1/2 A hygienic (BCID: A03)

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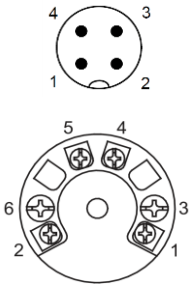
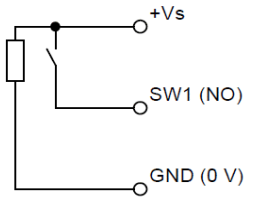
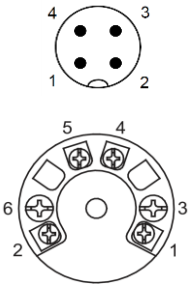
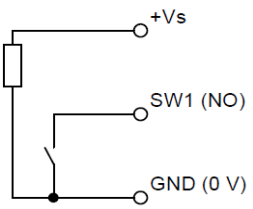
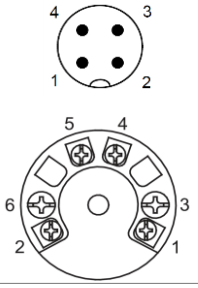
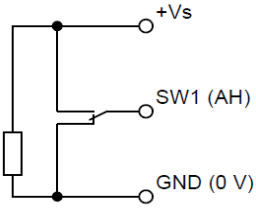
Electrical connection

Output type	Electrical connection	Equivalent circuit	Function	Pin assignment
PNP Normally open (NO)			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	1 4 2 3 1 5 4 2
NPN Normally open (NO)			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	1 4 2 3 1 5 4 2
Digital (push-pull) Active high			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	3 4 2 1 2 5 4 1

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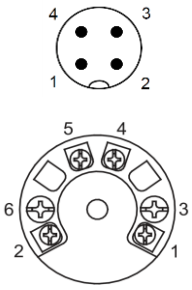
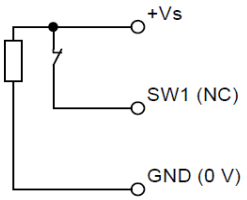
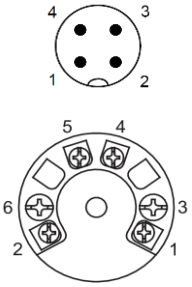
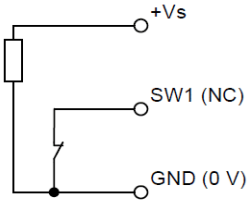
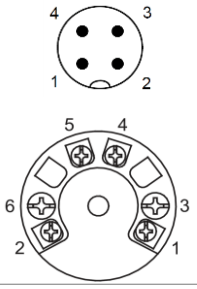
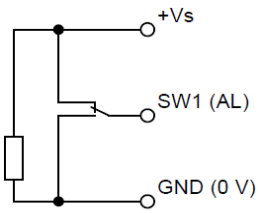
Electrical connection

Output type	Electrical connection	Equivalent circuit	Function	Pin assignment
PNP Normally closed (NC)			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	3 4 2 1 2 5 4 1
NPN Normally closed (NC)			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	3 4 2 1 2 5 4 1
Digital (push-pull) Active low			+Vs SW1 Teach-in GND (0 V) +Vs SW1 Teach-in GND (0 V)	1 4 2 3 1 5 4 2