

LBFS Hanging

Point level detection, hanging, for solids in silos

LBFS-##52#.0

Overview

- All wetted parts in stainless steel
- IP68 optional
- ATEX approved
- Built with standard LBFS-xx52x.x



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	-25 ... 80 °C
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Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material	AISI 316L (1.4404) PEEK Natura
Surface roughness wetted parts	Ra ≤ 0.8 µm

Ambient conditions

Operating temperature range	-25 ... 80 °C, when cable is unmoved -5 ... 80 °C, when cable is moved
Storage temperature range	-40 ... 85 °C
Degree of protection (EN 60529)	IP 67, standard IP 68 (336 h @ 10 mH ₂ O), optional
Humidity	< 98 % RH, condensing
Cable bending radius	r ≥ 59 mm
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
Switching logic	Normally closed (NC) Normally open (NO)

Output signal

Voltage drop	PNP: (+Vs -1.5 V) ± 0.5 V, Rload = 10 kΩ NPN: (+1.5 V) ± 0.5 V, Rload = 10 kΩ
Current rating	20 mA, max.
Off leak current	< 100 µA, max.
Short circuit protection	Yes

Housing

Style	Hanging version
Overall size	Refer to section "Dimensional drawings"
Material	AISI 316L (1.4404)

Electrical connection

Cable	4-wire, shielded, PUR
Cable gland	M16x1.5, stainless steel

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

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

ATEX II 1D Ex ta IIIC T100 °C Da

Voltage supply range, Un	30 V DC, max.
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ATEX II 1D Ex ta IIIC T100 °C Da

Current rating, I _n	100 mA , max.
Degree of protection for cable accessories	IP 67
Temperature class T100 °C	-25 < Tamb < 70 °C , with cable outlet

ATEX II 1G Ex ia IIC T4/T5

Maximum values for barrier selection, U _i	30 V DC
Maximum values for barrier selection, I _i	100 mA
Maximum values for barrier selection, P _i	750 mW
Internal capacitance, C _i	43 nF Add 0.20 nF/meter for cable lengths above 1.5 meters
Internal inductance, L _i	10 µH Add 1.13 µH/meter for cable lengths above 1.5 meters

ATEX II 1G Ex ia IIC T4/T5

Recommended barrier for output type PNP	PROFSI3-B25100-ALG-LS
Temperature class, T1 ... T5	-25 < Tamb < 70 °C , with cable outlet

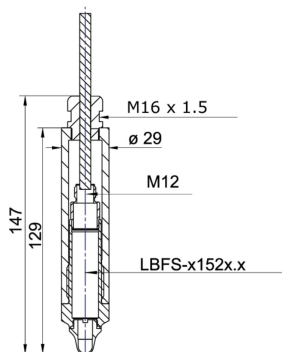
ATEX II 3G Ex ec IIC T4/T5

Voltage supply range, U _n	30 V DC , max.
Current rating, I _n	100 mA , max.
Degree of protection for cable accessories	IP 67
Temperature class, T1 ... T5	-25 < Tamb < 70 °C , with cable outlet

Compliance and approvals

Hygiene	FDA compliant
Safety	WHG (overflow, leakage)
Explosion protection	ATEX II 1D Ex ta IIIC T100 °C Da ATEX II 1G Ex ia IIC T4/T5 Ga ATEX II 3G Ex ec IIC T4/T5 Gc
Pharma	USP Class VI (PEEK material)

Dimensional drawings (mm)

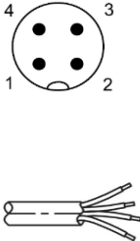
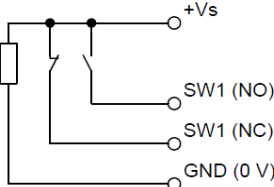
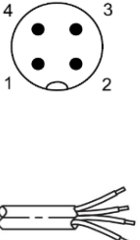
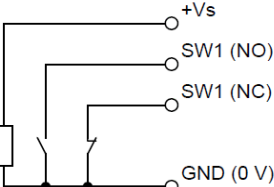


Hanging version

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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

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Ordering information

Ordering key - Configuration possibilities see website

	LBFS	-	#	####	.	5	2	#	#
Product	LBFS								
Compliance and approvals									
Standard				0					
ATEX II 1G Ex ia IIC T5 Ga				1					
ATEX II 1D Ex ta IIIC T100 °C				2					
ATEX II 3G Ex ec IIC T5				3					
ATEX II 1G Ex ia IIC T5/T4 Ga/ATEX II 1D Ex ta IIIC T100°C Da				4					
EAC (TR CU 020/2011)				B					
Electrical Connection									
Hanging version with 1.5 m cable				A					
Hanging version with 5 m cable				B					
Hanging version with 10 m cable				C					
Hanging version with 25 m cable				D					
Hanging version with 1.5 m cable, IP68				E					
Hanging version with 5 m cable, IP68				F					
Hanging version with 10 m cable, IP68				G					
Process Connection									
G 1/2 A ISO 228-1 for reverse assembly (in-shell thread) (T10)						5			
Process connection material									
Stainless Steel 1.4404 - AISI 316L							2		
Output Configuration									
PNP output								1	
NPN output								2	
Configuration									
Factory settings									0
Customer-specific									C