



EN 50155

Product highlights

- Save detection of liquids, bulk-solids and powders
- Short immersion length
- Excellent cleanability
- Ability for differentiation between foam and liquid
- Not sensitive to adherent or sticky media
- Status signaling by bright, blue LED
- Compact stainless steel housing, sealed up to IP69K
- Measures media with DC-values >1.5 (Dielectric Constant)

User benefits

- One sensor for all applications
- Less disturbance of process
- Safe process with less downtime
- Visual observation of process
- Long life time even in wash-down areas

Technical data

Housing

- Style ■ Compact design
- Dimension ■ Refer to dimensional drawings (page 4 f.)
- Material ■ Stainless steel

Electrical connection

- Connector variants ■ M12, 4 pin, polycarbonate
■ M12, 4 pin, stainless steel
- Cable outlet ■ 5 m, 4-wire, PVC

Ambient conditions

- Operating temperature range ■ -40 ... 85 °C
- Storage temperature range ■ -40 ... 85 °C
- Humidity (IEC 68-2-38) ■ < 98 % RH, condensing
- Protection class (IEC 60529) ■ IP67
■ IP69K (with appropriate cable)
- Vibration ■ IEC 60068-2-6
■ GL Test 2

Process connection

- Connection variants ■ Refer to dimensional drawings (page 4 f.)
- Mounting position ■ Any (top, bottom, side)
- Wetted parts material ■ PEEK Natura
■ AISI 316L (1.4404)
■ AISI 304 (1.4301) (optional)
- Surface roughness wetted parts ■ Ra < 0.8 µm

Process conditions

- Process temperature ■ Refer to table (page 2 f.)
- Process pressure ■ Refer to table (page 2 f.)

Power supply

- Voltage supply range ■ 12 ... 30 V DC
- Current consumption (no load) ■ 25 mA typ., 50 mA max.

- Reverse polarity protection ■ Yes

- Power-up time ■ < 2 s

Output signalization

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

Sensor performance

- Repeatability ■ ± 1 mm
- Hysteresis ■ ± 1 mm
- Response time ■ 0.1 s typ. (0.15 ± 0.05 s)
- Damping ■ 0.0 ... 10.0 s (adjustable)

Factory settings

- Switching range (dielectric constant DC) ■ < 75 % (DC > 2)
- Damping ■ 0.1 s

Compliance and approvals

- EMC Immunity ■ EN 61326
- EMC Emission ■ EN 61326 (installed on a metal tank)
- Explosion protection ■ ATEX II 1 G Ex ia IIC T4/T5
■ ATEX II 1 D Ex ta IIIC T100 °C Da
■ ATEX II 3 G Ex nA II T4/T5
- Safety ■ cULus Listed, Class 2, E365692
- Hygiene ■ Refer to table (page 3)
- Railway ■ EN 50155
- Marine ■ Refer to table (page 3)

Note: Information on product characteristics may relate to defined product options



Accessories

Spare parts

	Description	Ordering code
	G 1/2 A gland nut for LBFS-xxL2x.x with sliding connection (BCID: A03)	ZPX1-008
	Compression ring kit for LBFS-xxL2x.x with sliding connection (BCID: A03)	ZPX1-006
	Gasket for LBFS-xx5xx.x for reverse assembly (BCID: T10)	ZPX3-14B0

Interfaces

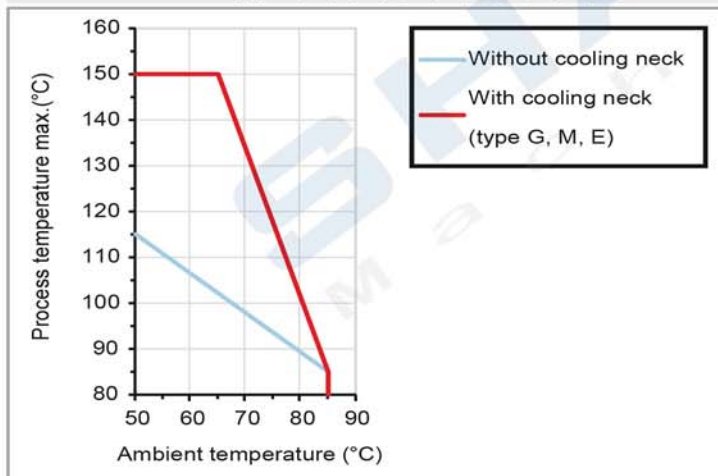
	Description	Ordering code
	FlexProgrammer 9701 Programming kit for sensor parameterization. The set contains a FlexProgrammer, all cables needed, carrying strap and the FlexProgrammer software on a CD.	9701-0001
	ATEX isolating barrier for LBFS-xxxx1.x, LBFS-xxxx4.x with PNP switching polarity for Ex ia IIC	PROFSI3-B25100-ALG-LS

For more detailed information please refer to the applicable product data sheet.

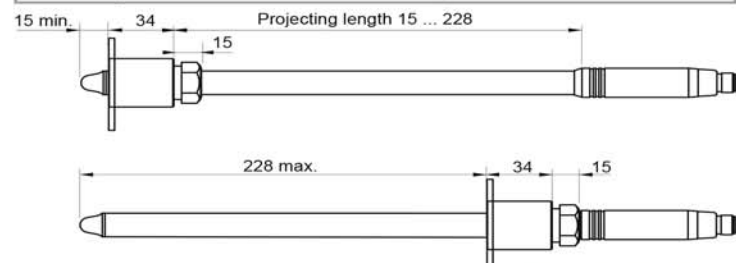


Process conditions

Type	Process connection	BCID	Process temperature continuous Tamb < 50 °C °C	Process pressure bar	Process temperature max. temporary t < 1 h Tamb < 50 °C °C	Process pressure @ Process temperature max. temporary bar
LBFS-xx1xx.x	G 1/2 A ISO 228-1	G07	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xxGxx.x	G 1/2 A ISO 228-1 with cooling neck, not applicable for mounting with ZPW1-7x1	G07	-40 ... 150	-1 ... 100	N/A	N/A
LBFS-xxAxx.x	G 1/2 A DIN 3852-E, NBR gasket	G51	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xxBxx.x	G 1/2 A DIN 3852-E, FKM (Viton®) gasket	G51	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xx4xx.x	G 1/2 A hygienic	A03	-40 ... 115	-1 ... 10	135	-1 ... 5
LBFS-xxKxx.x	G 1/2 A hygienic, length 82 mm	A03	-40 ... 115	-1 ... 100	135	-1 ... 5
LBFS-xxLxx.x	G 1/2 A hygienic, sliding connection, length 250 mm	A03	-40 ... 200	-1 ... 5	N/A	N/A
LBFS-xx5xx.x	G 1/2 A ISO 228-1 for reverse assembly (in-shell thread)	T10	-40 ... 85	-1 ... 100	135	-1 ... 100
LBFS-xx2xx.x	G 3/4 A ISO 228-1	G10	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xx3xx.x	G 1 A ISO 228-1	G11	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xxNxx.x	1/2-14 NPT	N02	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xxMxx.x	1/2-14 NPT with cooling neck	N02	-40 ... 150	-1 ... 100	N/A	N/A
LBFS-xx6xx.x	3/4-14 NPT	N03	-40 ... 115	-1 ... 100	135	-1 ... 100
LBFS-xx7xx.x	M18x1	M11	-40 ... 115	N/A	N/A	N/A
LBFS-xxExx.x	G 1/2 A DIN 3852-E, FKM (Viton®) gasket with cooling neck	G51	-40 ... 150	-1 ... 100	N/A	N/A

Process connection type 1, 2, 3, 4, 6, 7, A, B, G, K, M, N, E

Process connection type L (sliding connection)

		Projecting length min. (mm)						
Process temperature (°C)	200	25	35	50	65	90	145	
	190	20	35	45	65	90	140	
	180	20	30	45	60	85	140	
	170	20	25	40	55	85	135	
	160		25	35	55	80	130	
	150		20	25	50	75	130	
	140		20	30	45	75	125	
	130			25	45	70	120	
	120			20	40	65	115	
	110			20	25	60	110	
	100	No limitation			30	55	105	
	90				25	50	100	
	80				20	45	95	
	70					35	85	
	60					35	65	
		35	40	45	50	55	60	65
		Ambient temperature (°C)						



Compliance and approvals

Type	Process connection	BCID	EN 1935/2004 EN 10/2011 EN 2023/2006	FDA	3-A	EHEDG EL-Class I	DNV	GL	Lloyd's Register	CCS	WHG (overfill, leakage)
LBFS-xx1xx.x	G 1/2 A ISO 228-1	G07					■	■	■	■	■
LBFS-xxGxx.x	G 1/2 A ISO 228-1 with cooling neck	G07									
LBFS-xxAxx.x	G 1/2 A DIN 3852-E, NBR gasket	G51					■	■			
LBFS-xxBxx.x	G 1/2 A DIN 3852-E, FKM (Viton®) gasket	G51					■	■			
LBFS-xx4xx.x	G 1/2 A hygienic	A03	■	■	■	■	■	■	■	■	■
LBFS-xxKxx.x	G 1/2 A hygienic, length 82 mm	A03	■	■							
LBFS-xxLxx.x	G 1/2 A hygienic, sliding connection, length 250 mm	A03	■	■							
LBFS-xx5xx.x	G 1/2 A ISO 228-1 for reverse assembly (in-shell thread)	T10					■	■	■	■	■
LBFS-xx2xx.x	G 3/4 A ISO 228-1	G10					■	■	■	■	■
LBFS-xx3xx.x	G 1 A ISO 228-1	G11					■	■	■	■	■
LBFS-xxNxx.x	1/2-14 NPT	N02									
LBFS-xxMxx.x	1/2-14 NPT with cooling neck	N02									
LBFS-xx6xx.x	3/4-14 NPT	N03					■	■		■	■
LBFS-xx7xx.x	M18x1	M11					■	■	■	■	■
LBFS-xxExx.x	G 1/2 A DIN 3852-E, FKM (Viton®) gasket with cooling neck	G51									

Note: 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

ATEX II 1 G Ex ia IIC T4/T5

Maximum values (for barrier selection) (1)	- Ui: 30 V DC - Ii: 100 mA - Pi: 0.75 W
Internal capacitance	■ Ci: 43 nF
Internal inductance	■ Li: 10 µH
Temperature class	- T1...T4: -40 < Tamb < 85 °C - T1...T5: -40 < Tamb < 74 °C

ATEX II 1 D Ex ta IIIC T100 °C Da

Voltage supply range	■ 30 V DC max.
Temperature class	■ T100 °C: -40 < Tamb < 85 °C
Protection class of cable accessory	■ IP67

ATEX II 3 G Ex nA II T4/T5

Voltage supply range	■ 30 V DC max.
Temperature class	- T1...T4: -40 < Tamb < 85 °C - T1...T5: -40 < Tamb < 74 °C

(1) Recommended barrier: PROFSI3-B25100-ALG-LS (please refer to accessories, page 10)



Field of application

CleverLevel® LBFS is designed for level detection in tanks and dry-run protection of pumps by empty pipe monitoring. It detects liquid, pasty or oily media, but also solid-bulk materials like flour or plastic granulate. The LBFS is capable of media differentiation by distinguishing the specific properties, such as oil, water, foam and liquid. Reliable performance is assured in any mounting position (from top, bottom or side). Depending on the desired process connection, different mounting options are available. Corresponding mounting aids and adaptors for conventional process connections are available as an accessory.

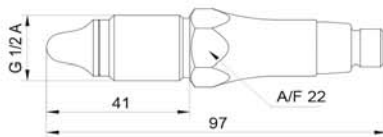
Two parallel switching outputs are available as Normally Open (NO) and Normally Closed (NC) which is defined by PN or NPN polarity when placing the order.

CleverLevel® LBFS in its default configuration covers a major part of potential applications. Where customer-specific configuration is required because of difficult media (e. g. foamy or adhering), the interface programming tool FlexProgrammer 9701 allows for easy parameterization of the optimum switching points by convenient teach-in functionality. The measured data can be visualized on a PC for further parameter adjustment, for example time constant of a damping function and inverted switching output logic.

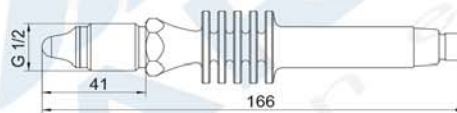
Measuring principle

An electrode inside the sensor tip builds a capacitor together with the surroundings. The medium with its dielectric constant (DC value) is defining the capacitance value. A resonance circuit is created in combination with a coil in the sensor head. Switching signal tripping is according to the measured resonance frequency and the programmed trigger thresholds.

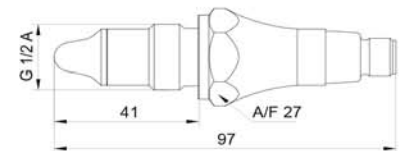
Dimensional drawings


LBFS-xx1xx.x

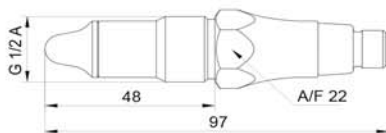
G 1/2 A
ISO 228-1


LBFS-xxGxx.x

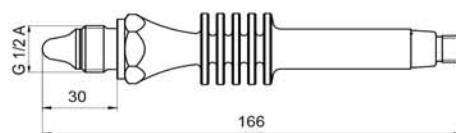
G 1/2 A
ISO 228-1
with cooling neck


LBFS-xxAxx.x
LBFS-xxBxx.x

G 1/2 A DIN 3852-E,
NBR / FKM (Viton®) gasket


LBFS-xx4xx.x

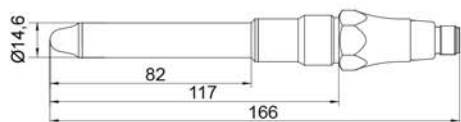
G 1/2 A hygienic


LBFS-xxExx.x

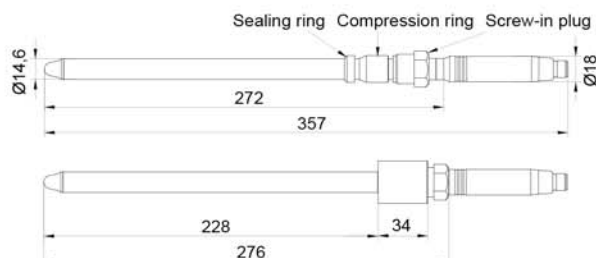
G 1/2 A DIN 3852-E,
FKM (Viton®) gasket,
with cooling neck

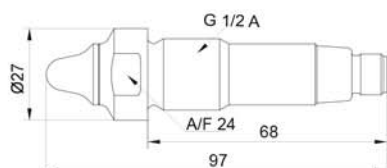


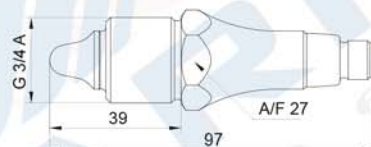
Dimensional drawings

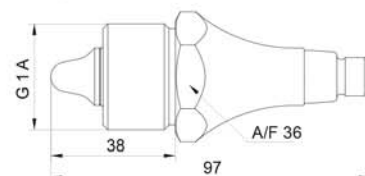

LBFS-xxKxx.x

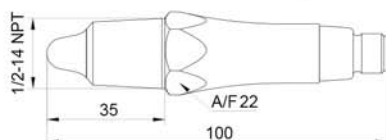
G 1/2 A hygienic, length 82 mm


LBFS-xxLxx.x

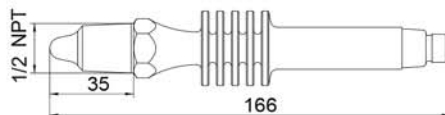
G 1/2 A hygienic,
sliding connection, length 250 mm

LBFS-xx5xx.x

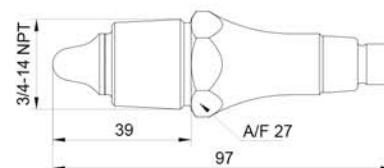
G 1/2 A
ISO 228-1
for reverse assembly
(in-shell thread)

LBFS-xx2xx.x

G 3/4 A
ISO 228-1

LBFS-xx3xx.x

G 1 A
ISO 228-1

LBFS-xxNxx.x

1/2-14 NPT

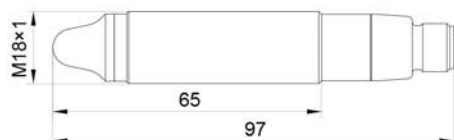

LBFS-xxMxx.x

1/2-14 NPT
with cooling neck

LBFS-xx6xx.x

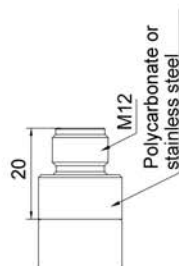
3/4-14 NPT



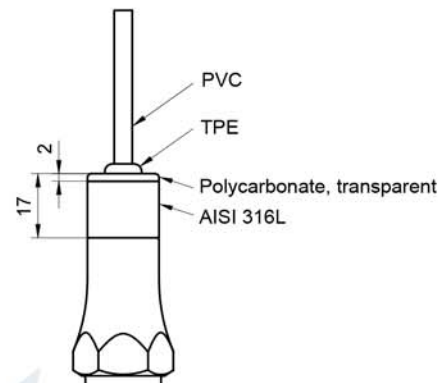
Dimensional drawings


LBFS-xx7xx.x

M18x1


LBFS-x1xxx.x
LBFS-x3xxx.x

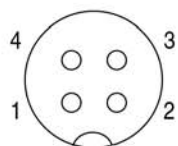
Connector M12


LBFS-x2xxx.x

Cable outlet

Electrical connection

Terminal assignment



Connector M12

- 1
- 2
- 3
- 4

Cable outlet

- Brown
- White
- Blue
- Black

Function

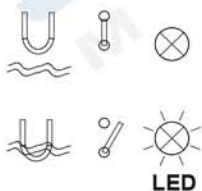
- + Vs
- Normally closed (NC)
- 0 V
- Normally open (NO)

Switching characteristic

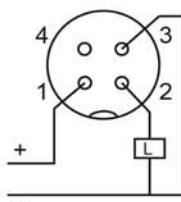
Switching logic

Switching polarity

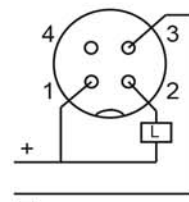
Normally closed (NC)



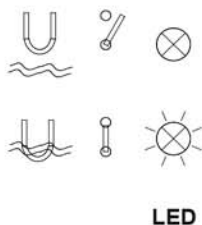
PNP



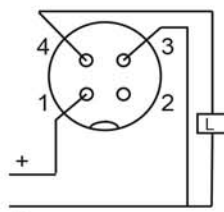
NPN



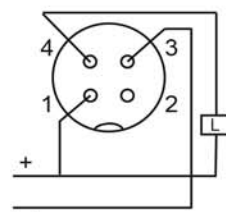
Normally open (NO)



PNP



NPN



Ordering code

										LBFS	-	x	x	x	x	x	.	x	
Type																			
Level switch										LBFS									
Compliance and approvals																			
Standard																		0	
ATEX II 1 G Ex ia IIC T4/T5 (2)																		1	
ATEX II 1 D Ex ta IIIC T100 °C Da																		2	
ATEX II 3 G Ex na II T4/T5																		3	
ATEX II 1 G Ex ia IIC T4/T5 and ATEX II 1 D Ex ta IIIC T100 °C Da (2)																		4	
cULus Listed, Class 2, E365692																		A	
EAC (TR CU 020/2011)																		B	
Electrical connection																			
Connector M12, 4 pin, polycarbonate (with LED)																		1	
Cable outlet 5 m, 4-wire, PVC (3)																		2	
Connector M12, 4 pin, stainless steel (without LED)																		3	
Process connection																			
G 1/2 A ISO 228-1										(BCID)								1	
G 1/2 A ISO 228-1 with cooling neck										(G07)								G	
G 1/2 A DIN 3852 form E, NBR gasket										(G51)								A	
G 1/2 A DIN 3852 form E, FKM (Viton®) gasket										(G51)								B	
G 1/2 A DIN 3852 form E, FKM (Viton®) gasket, with cooling neck										(G51)								E	
G 1/2 A hygienic										(A03)								4	
G 1/2 A hygienic, length 82 mm										(A03)								K	
G 1/2 A hygienic, sliding connection, length 250 mm										(A03)								L	
G 1/2 A ISO 228-1 for reverse assembly (in-shell thread) (4)										(T10)								5	
G 3/4 A ISO 228-1										(G10)								2	
G 1 A ISO 228-1										(G11)								3	
1/2-14 NPT										(N02)								N	
1/2-14 NPT with cooling neck										(N02)								M	
3/4-14 NPT										(N03)								6	
M18x1										(M11)								7	
Wetted parts material																			
AISI 304 (1.4301) (available for „Process connection“ 1, 2, 3, 5, 6, 7)																		1	
AISI 316L (1.4404)																		2	
Switching polarity																			
PNP																		1	
NPN																		2	
Configuration																			
Factory setting																		0	
Customer-specific																			

Accessories
Industrial weld-in sleeves for LBFS-xx1xx.x, (BCID: G07)

Description	Ordering code
Thick wall tank - AISI 304 (1.4301)	ZPW1-711



Thick wall tank - AISI 316L (1.4404)	ZPW1-721
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Hygienic adapters for LBFS-xx4xx.x, LBFS-xxKxx.x, LBFS-xxLxx.x (BCID: A03)

Description	Ordering code
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Clamp, DIN 32676 DN 25, DN 40 ISO 2852 DN 25, DN 38	ZPH3-3213
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DIN 32676 DN 50 ISO 2852 DN 51	ZPH3-3216
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DIN 11851 DN 25 DN 40 DN 50	ZPH3-3221 ZPH3-3224 ZPH3-3225
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SMS 1145 DN 51	ZPH1-3236
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Varivent® Type N Varivent® Type F	ZPH3-324E ZPH3-344F
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DIN 11864-1-A DN 40 DN 50	ZPH3-3254 ZPH3-3255
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Accessories

Hygienic weld-in sleeves for LBFS-xx4xx.x, LBFS-xxKxx.x, LBFS-xxLxx.x (BCID: A03)

Description		Ordering code
 	Tanks, with leak detection port	ZPW3-321
	Thin wall tanks	ZPW3-322
 	Tanks, pipes	ZPW2-324
	Pipe with collar DN 25 ... DN 50 DN 65 ... DN 150	ZPW2-326 ZPW2-327

Threaded adapters for LBFS-xx4xx.x, LBFS-xxKxx.x, LBFS-xxLxx.x (BCID: A03)

Description		Ordering code
	Vibronic level switch replacement EH FTL G 3/4 A VS G 3/4 A EH FTL G 1 A VS G 1 A	ZPH1-32BA ZPH1-32BC ZPH1-32CB ZPH1-32CD
	Industrial G 1 A G 1 1/2 A G 2 A	ZPI1-32B ZPI1-32D ZPI1-32E





Special Features

- Wetted parts in acid-proof, stainless steel and PEEK
- Compact, food compatible, hygienic design
- Hygienic connections conform to 3-A standards, FDA demands and EHEDG guidelines
- Precise switching point without calibration
- Process temperature -40...200 °C
- Measures media with DC-values >1.5 (DC = Dielectric Constant)
- Not influenced by foam
- LED switch indicator
- Maintenance free
- Suitable for media separation measurement
- Configurable by FlexProgrammer 9701
- ATEX approval for gas and dust
- WHG approval (leakage and overflow)



Technical Data

Sensor

Radiated signal	100...180 MHz
Process connection	Hygienic: G1/2, 3-A/DN38 or sliding connection
Adapters	Refer to page 5
Insulating material	PEEK Natura

Mechanical data

Housing	Stainless Steel, W1.4301/AISI 304
Process connection	Stainless Steel, W1.4404/AISI 316 L
Surface roughness wetted parts	Ra < 0.8 µm
Amb. temperature	-40...85 °C
Process temperature	
Std. & 3-A/DN38	-40...115 °C (See curve 1)
Sliding connection	-40...200 °C (See curve 1)
< 1 hour, Tamb < 60 °C	-40...140 °C
Protection class	IP67 (IEC 529)
Media pressure (tested with water at 20°C)	Standard G½ hygienic < 10 bar 3-A DN38 < 40 bar Sliding connection < 16 bar
Vibrations	IEC 60068-2-6, GL test2
Installation	Any position

Electrical connection

Cable gland M16	Plastic, nickel-plated brass or stainless steel
Plug M12	Nickel-plated brass or stainless steel

Other electrical data

Power supply	12,5...36 VDC, 35 mA max.
Damping	0...10 sec.
Power-up time	<2 sec.
Hysteresis	± 1 mm
Repeatability	± 1 mm
Reaction time	0.1 sec. (100 ms)

Approvals/conformities

Approvals/conformities	EN 1935/2004, EN 10/2011, EN 2023/2006, EN 50155 Railway, 3-A, EHEDG, FDA, WHG (leakage and overflow) cULus, Class 2, E365692
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Disposal of product and packing

According to national laws or by returning to Baumer.

EMC data

Immunity	EN 61326
Emission	EN 61326

Ex data (ia)

Internal inductivity	$L_i \leq 10 \mu H$
Internal capacity	$C_i \leq 33 nF$
Barrier data	$U \leq 30 VDC$; $I \leq 0.1 A$; $P \leq 0.75 W$

Approval Ex ia IIC T5, ATEX II 1G (See table 1)

Supply range	24...30 VDC
Temperature class	T1...T5: -40 < T _{amb} < 85 °C

Approval Ex tD A20 IP67 T100 °C, ATEX II 1D (See table 1)

Supply range	12,5...30 VDC
Temperature class	T100 °C: -40 < T _{amb} < 85 °C

Approval Ex nA II T5, ATEX II 3G (See table 1)

Supply range	12,5...30 VDC
Temperature class	T1...T5: -40 < T _{amb} < 85 °C

Output

Output (active)	Max. 50 mA, short-circuit and high-temperature protected
Output type	PNP, NPN or Digital output (Push-pull)
Output polarity	See drawing
Active "Low"	NPN and Digital output (-VDC +2.5V) ± 0.5V ; Rload 1 kOhm
Active "High"	PNP and Digital output (VDC -2.5V) ± 0.5V ; Rload 1 kOhm
Off leak current	± 100 µA Max.

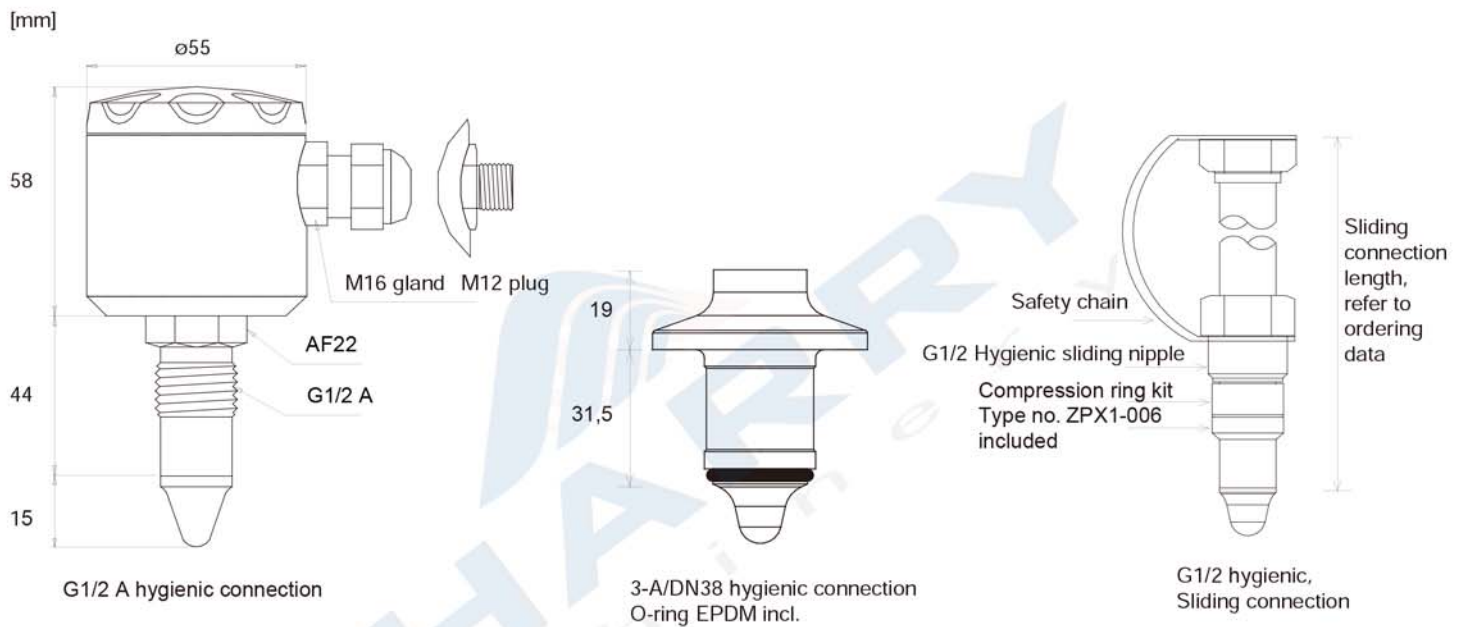


Technical Data

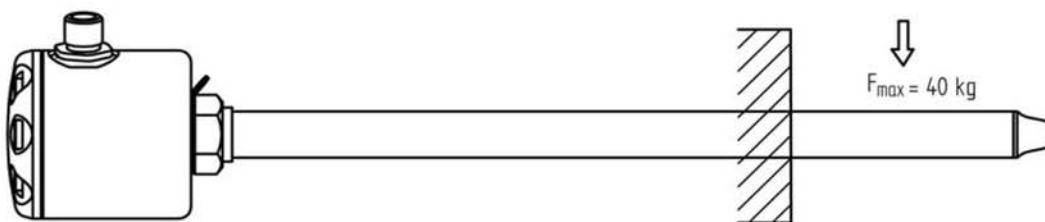
Factory Settings

Output	PNP
Measure	DC value >1.5
Damping	0.1 sec.

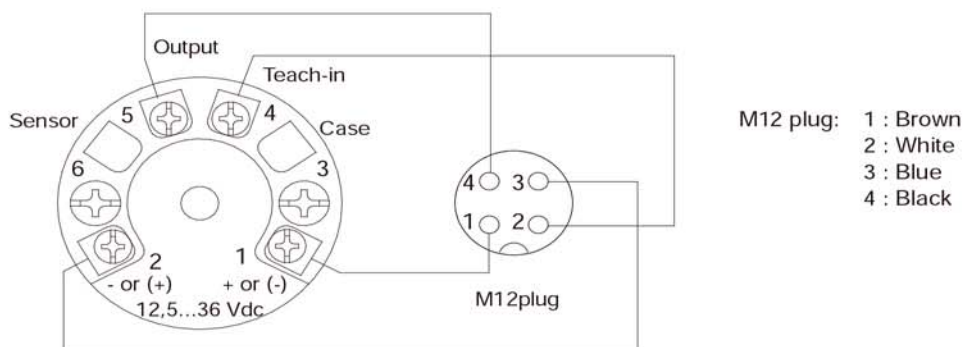
Dimensional Drawings



Sliding connection load

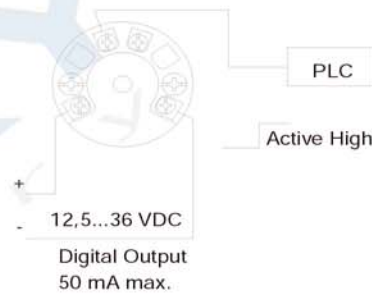
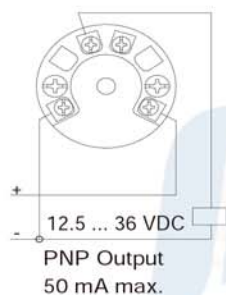
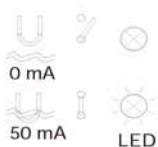


Electrical Connection

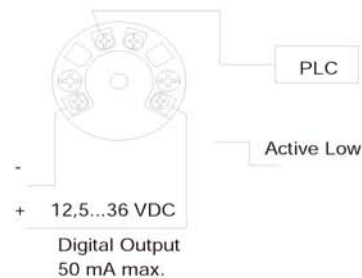
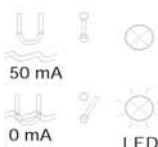


Electrical Installation

Normally Open



Normally Closed



Configuration

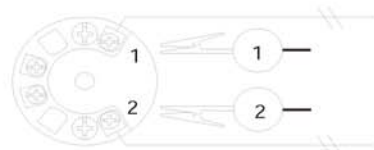
FlexProgrammer 9701

Red clip



Black clip

Note: Ambient temperature range 0...50°C



Disconnect the power supply before connecting the FlexProgrammer 9701 to the Level Switch LFFS

Accessories

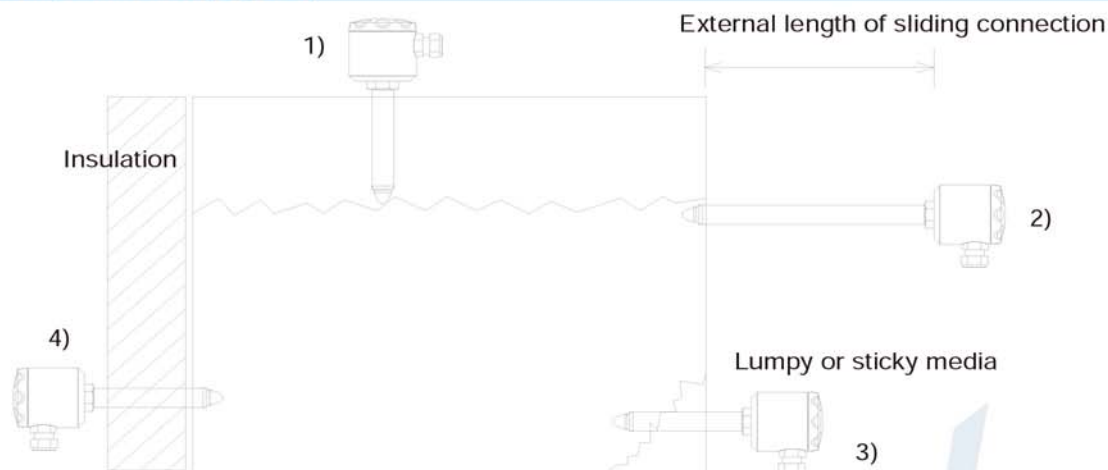


The FlexProgrammer 9701 is a dedicated tool to configure all Baumer configurable Flex-products.

Type No. 9701-0001 comprises:
FlexProgrammer
Cables
CD with the FlexProgram software



The Sliding Connection (Figure 1)



The drawing shows how the sliding connection can be used for at least 4 applications:

- 1) Mounted at the top of a tank to adjust to a maximum level.
- 2) Serving as a cooling neck in high media temperature applications.
- 3) Adjusted to place the sensor tip deeper inside the tank.
- 4) To reach in through insulation material.

It is essential that the max. ambience temperature for the electronics is never exceeded. For ATEX approved products please refer to table 1.

The working conditions for the sliding connection in different media temperatures and specified ambient temperatures can be found in curve 1.

Example, how to read Curve 1:

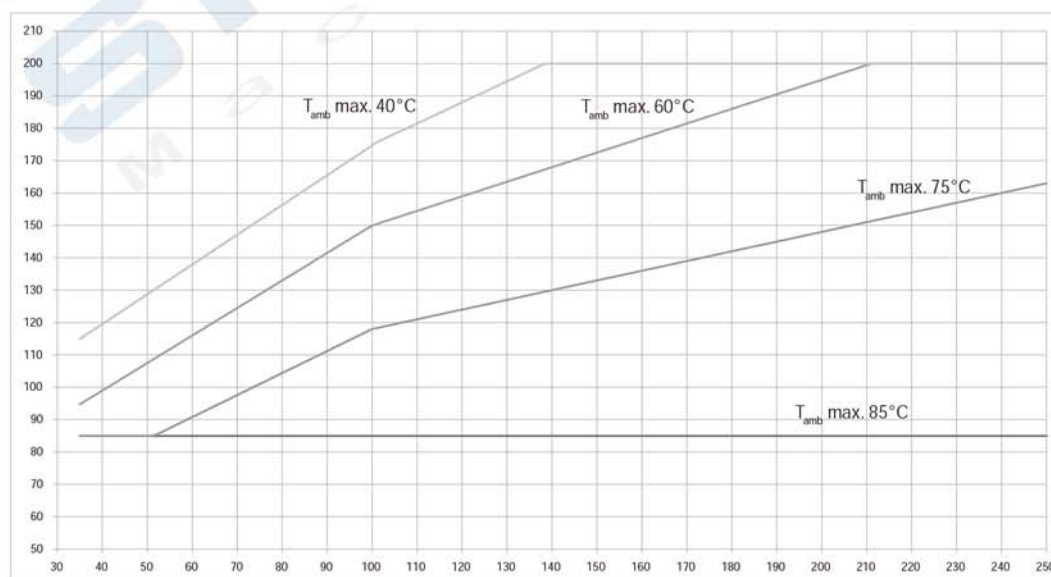
A 250 mm sliding connection is mounted in a tank with a total insert length of 150 mm. Hence the external length of the sliding connection will be $250 - 150 = 100$ mm.

The media temperature will be max. 160°C .

Read the x-axis at 100 mm on the y-axis at 160°C and find that the ambient temperature must be kept below 50°C . In case the radiated heat from the tank will cause a higher ambient temperature at the housing efficient insulation of the tank must be established

Media Temperature versus External Length of Sliding Connection (Curve 1)

Media Temperature
 $^{\circ}\text{C}$



External length of sliding connection (mm) See figure 1

NB: Std. + 3A/DN38 = 35 mm external length

SHARRY Machinery (Shanghai) Co., Ltd.
13761943624

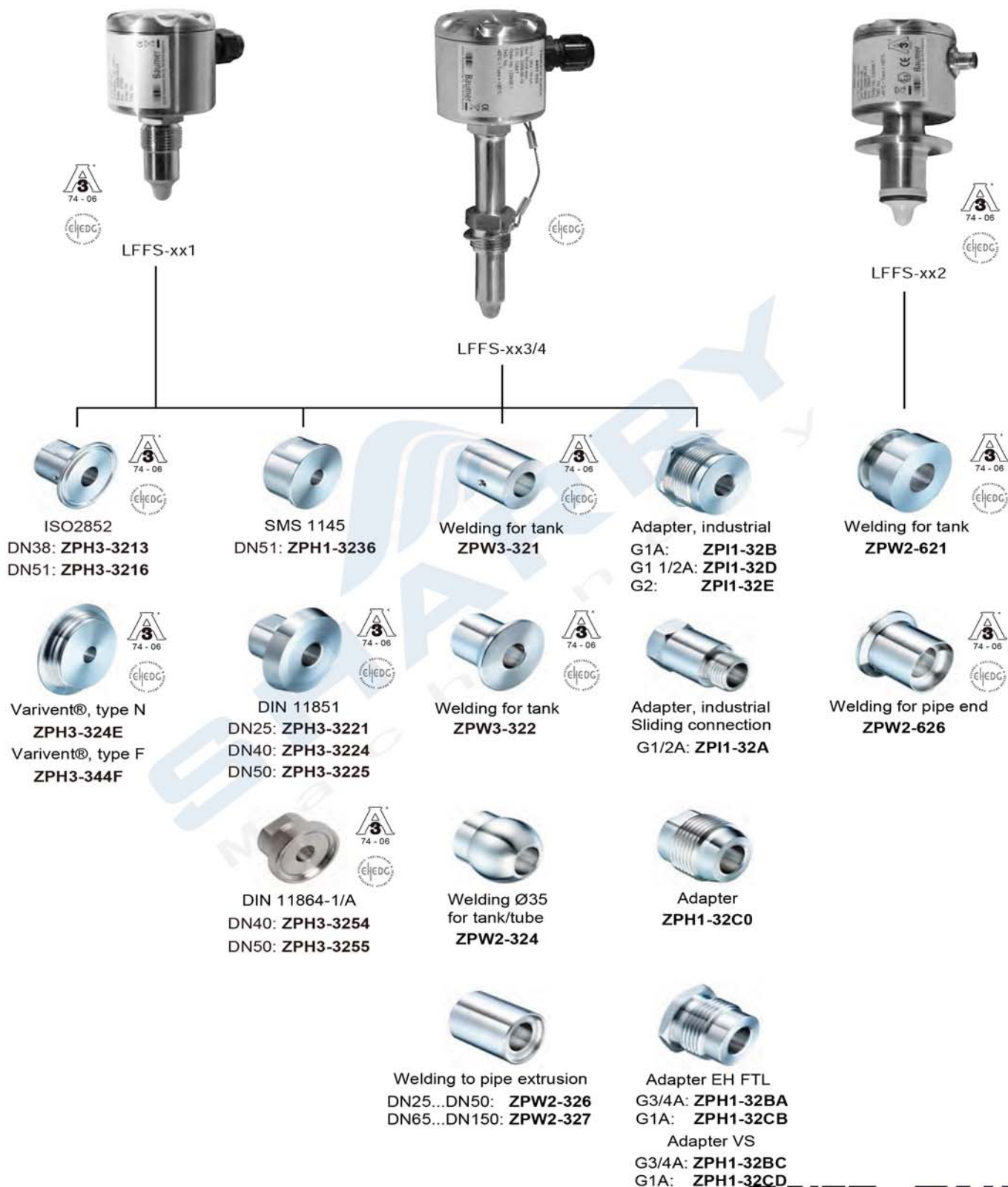
Web: www.sharry-sh.com

Tel: +86-21-64881886
www.xierui-sh.com



扫一扫，进入手机旺铺

Accessories - Overview



Ex ia G - Installation

A Level Switch LFFS-1xx is Ex ia IIC T5, ATEX II 1G approved for application in hasardous areas in accordance with the current EUdirectives. The product must be installed in accordance with prevailing guidelines for zone 0 with a barrier.

Ex tD - Installation

A Level Switch LFFS-2xx is Ex tD A20 IP67 T100°C, ATEX II 1D approved for application in hasardous areas in accordance with the current EU-directives. The product must be installed in accordance with prevailing guidelines for zone 20 without a barrier.

Ex ia G, Ex nA G - Installation

A Level Switch LFFS-3xx is Ex nA II T5, ATEX II 3G approved for application in hasardous areas in accordance with the current EU-directives. The product must be installed in accordance with prevailing guidelines for zone 2 without a barrier.

Conditions for Ex-Certification (Table 1)

Connection Type	Tamb °C	Media Temp. max. °C	Note
Std. & 3-A/DN38	-40...85	85	
	-40...60	95	{2}
	-40...40	115	{2}
Sliding 100 mm	-40...85	85	
	-40...60	150	{2}
	-40...40	175	{2}
Sliding 250 mm	-40...85	85	
	-40...60	195	{2}
	-40...40	200	{2} {3}

Note {2}: Provided that the sensor tip at the instrument is the only part in contact with the media.

Note {3}: Max. allowed media temperature.

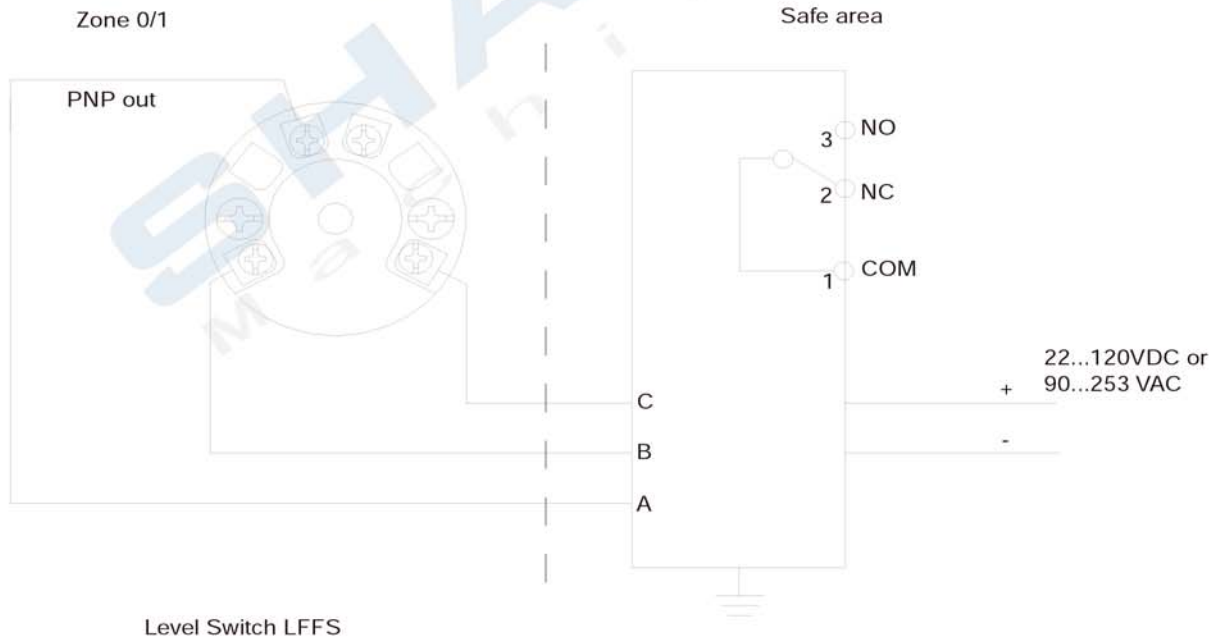
Ex ia IIC T5, ATEX II 1G - Installation

A Level Switch LFFS-1xx is Ex ia IIC T5, ATEX II 1G approved for application in hasardous areas in accordance with the current EUdirectives. The product must be installed in accordance with prevailing guidelines for zone 0 with a barrier.

A certified Ex ia or isolation barrier with the maximum values $U_{max} = 30 \text{ VDC}$; $I_{max} = 0.1 \text{ A}$; $P_{max} = 0.75 \text{ W}$ must be used.

Ex-data

Supply range	24...30 VDC
Temperature class	T1...T5: See table 1
Internal inductivity	$L_i < 10 \mu\text{H}$
Internal capacity	$C_i < 33 \text{ nF}$
Barrier data	$U < 30 \text{ VDC}$; $I < 0.1 \text{ A}$; $P < 0.75 \text{ W}$



NB: For PNP output the PROFSI3-B25100-ALG-LS barrier must be used.

**Isolating Module
PROFSI3-B25100-ALG-LS**



Ex tD A20 IP67 T100, ATEX II 1D - Installation

A Level Switch LFFS-2xx is Ex tD A20 IP67 T100°C, ATEX II 1D approved for application in hasardous areas in accordance with the current EU-directives. The product must be installed in accordance with prevailing guidelines for zone 20 without a barrier.

Ex-data

Supply range	12,5...30 VDC, max 100 mA
Temperature class	T100: See table 1



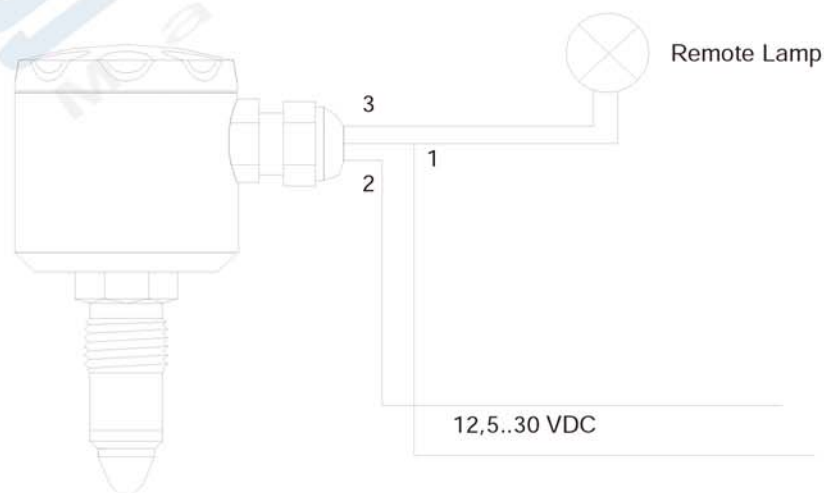
Ex nA II T5, ATEX II 3G - Installation

A Level Switch LFFS-3xx is Ex nA II T5, ATEX II 3G approved for application in hasardous areas in accordance with the current EU-directives.

The product must be installed in accordance with prevailing guidelines for zone 2 without a barrier.

Ex-data

Supply range	12,5...30 VDC, Max. 0.1A
Temperature class	T1...T5: See table 1



Level Switch LFFS



Ordering details

		- .			
Model		LFFS			
Level Switch					
Safety					
Standard		5' digit	0		
Ex ia IIC T5, ATEX II 1G (Gas) *			1		
Ex tD A20 IP67 T100 °C, ATEX II 1D (Dust)			2		
Ex nA II T5, ATEX II 3G			3		
cULus, Class 2, E365692			A		
EAC (TR CU 020/2011)			B		
Electrical Connection		6' digit			
M12, 4 pins, nickel-plated brass			1		
M16 cable gland, nickel-plated brass			2		
M16 cable gland, polyamide			3		
M12, 4 pins, stainless steel			4		
M16 cable gland, stainless steel			5		
Process connection		7' digit			
G1/2 A, PEEK tip ⁽¹⁾			1		
3-A/DN38 Hygienic connection ⁽¹⁾			2		
G1/2, PEEK tip, sliding connection, 100 mm adjustable, incl. compression ring kit ZPX1-006 ⁽²⁾			3		
G1/2, PEEK tip, sliding connection, 250 mm adjustable, incl. compression ring kit ZPX1-006 ⁽²⁾			4		
Configuration		8' digit			
No configuration			0		
Configuring according to customer specification			C		

* For PNP output the barrier module PROFSI3-B25100-ALG-LS is required for functional purposes.

The compression ring kit for sliding connection, type no. ZPX1-006 can be ordered separately.
Baumer recommended to replace this kit if deformed.

3-A certificate / EHEDG certificate

⁽¹⁾ The 3-A mark and the EHEDG certificate is valid only when the product is mounted in a 3-A marked or EHEDG certified counter part and installed according to the installation manual. Use also a 3-A marked O-ring or gasket if relevant. The 3-A marked products conforms to the 3-A Sanitary Standard criteria. Materials and surfaces fulfill the FDA demands and are certified by EHEDG.

⁽²⁾ Certified by EHEDG. Fulfills the FDA demand.
EPDM O-rings supplied with 3-A marked products are conform to Sanitary Standard Class II (8% milk fat max.)
EPDM gaskets supplied with 3-A marked products are conform to Sanitary Standard Class I (8% milk fat max.)
Refer to the 3-A marked counter parts in the data sheet "Process connections & accessories".

Level Switch LFFS, example

