

FLUSH MEMBRANE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The Flush Membrane Transmitter FPT is based on Trafag's own thin-film-on-steel technology and the in-house developed high performance ASIC chip electronics. It therefore ensures a high level of accuracy over a wide temperature range and excellent long-term stability in combination with an extraordinary smooth diaphragm surface.



Applications

- Engine manufacturing
- Machine tools
- Hydraulics
- Process technology
- Water treatment
- Food Industry
- Chemical and pharmaceutical industry

Features

- Flush membrane with smooth and plain surface
- Completely welded sensor system
- Very compact design
- Accuracy NLH 0.1% FS typ.
- Excellent long-term stability

Technical Data

Measuring principle	Thin film on steel	Accuracy @ 25°C typ.	± 0.4 % FS
Measuring range	0 ... 0.3 to 0 ... 100 bar 0 ... 15 to 0 ... 1500 psi	Media temperature	-40°C ... +125°C
Output signal	4 ... 20 mA, 0 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC, 0.5 ... 4.5 VDC ratiom.	Ambient temperature	-40°C ... +85°C (Cable PVC 22: -5°C ... +60°C)

08/2017

Data sheet H72316h

Subject to change

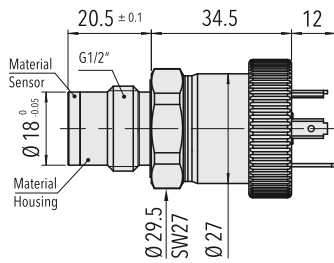
Ordering information/type code

				8235 .	XX	XX	XX	XX	XX
Measuring range ¹⁾	Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]						
	0 ... 0.3	3	6	65	0 ... 15	85	170	G1	
	0 ... 0.4	3	6	69	0 ... 30	85	170	G5	
	0 ... 0.6	3	6	70	0 ... 50	115	170	G6	
	0 ... 1	6	12	71	0 ... 100	170	260	G7	
	0 ... 2.5	6	12	75	0 ... 150	290	430	G8	
	0 ... 4	8	12	76	0 ... 250	450	690	G9	
	0 ... 6	12	18	77	0 ... 400	725	1080	H0	
	0 ... 10	20	30	78	0 ... 500	1100	1740	H1	
	0 ... 16	32	48	79	0 ... 1450	2900	4350	H3	
	0 ... 25	50	75	80					
	0 ... 40	80	120	81					
	0 ... 100	200	300	83					
Sensor	Relative pressure								23
Pressure connection	G1/2" male, flush membrane								91
Electrical connection	Male electrical plug EN 175301-803-A (DIN 43650-A) Mat. PA								05
	Male electrical plug M12x1, 5-pol., Mat. PA								35
	Male electrical plug, Industrial standard (contact distance 9.4 mm) Mat. PBT								01
	Male electrical plug Packard Metri Pack								51
	Cable IP67 (cable length see "Accessories") Mat. PVC (cable gland PA6-3), -5°C ... +60°C ²⁾								22
	Cable IP68 max. 3m, medium +10°C...+35°C, max. 1 bar relative								68
Output signal	Signal output	Load resistance	I (supply)		U (supply)				
	4 ... 20mA	(U _{supply} -9 V) / 20 mA			9 ... 30 VDC				19
	0 ... 5 VDC	> 2.5 kΩ	< 10 mA		10 ... 30 VDC				14
	1 ... 6 VDC	> 5.0 kΩ	< 10 mA		10 ... 30 VDC				16
	0 ... 10 VDC	> 5.0 kΩ	< 10 mA		15 ... 30 VDC				17
	0.5 ... 4.5 VDC	> 5.0 kΩ	< 10 mA		5 VDC ± 0.25 VDC ratiom.				23
Accessories	Sealing Ring DIN 3869, Mat. FPM (FKM) -15°C ... +125°C								61
	Sealing Ring DIN 3869, Mat. NBR, -25°C ... +100°C								69
	Female electrical connector EN 175301-803-A (DIN43650-A)/NBR, -40°C ... +90°C								58
	Female electrical plug M12x1, 5-pole								33
	Female electrical connector industrial standard								34
	Special electrical connection: Pin 1 + , Pin 2 - (only for output signal 4 ... 20 mA and male electrical plug EN175301-803-A / DIN43650-A) ²⁾								92
	Special electrical connection: Pin 1 Out , Pin 2 -, Pin 3 + (only for output 14, 16, 17, 23 and male electrical plug EN175301-803-A / DIN43650-A) ²⁾								98
	Special electrical connection: Pin 1 + , Pin 2 -, Pin 3 out (Only for output 0...5VDC, 1...6VDC, 0...10VDC, 0.5...4.5VDC and male electrical plug EN175301-803-A / DIN43650-A) ²⁾								97
	Special electrical connection: Pin 1 + , Pin 2 -, Pin 3 GR (Only for output 4...20mA and male electrical plug M12x1, 5-pol.) ²⁾								94
	Special electrical connection: Pin 1 + , Pin 2 - (Only for male electrical plug Packard Metri Pack 3-pol.) ²⁾								99
	Membrane electropolished Ra=0.4µm								EP
	Cable length 1.5 m								1M
	Cable length 3.0 m								3M
	Cable length 5.0 m								5M

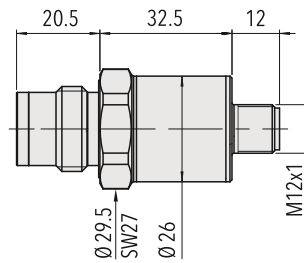
Standard products (extra short lead time)

Product No.	Type Code	Pressure range [bar]	Over pressure max. [bar]	Signal output	Accuracy @ 25°C typ. [%]
FPT1.0A	8235 71 2391 05 0000 0000 19 58 61	0...1.0	2	4...20 mA	±0.4
FPT2.5A	8235 75 2391 05 0000 0000 19 58 61	0...2.5	5	4...20 mA	±0.4
FPT4.0A	8235 76 2391 05 0000 0000 19 58 61	0...4.0	8	4...20 mA	±0.4
FPT6.0A	8235 77 2391 05 0000 0000 19 58 61	0...6.0	12	4...20 mA	±0.4
FPT10.0A	8235 78 2391 05 0000 0000 19 58 61	0...10.0	20	4...20 mA	±0.4
FPT16.0A	8235 79 2391 05 0000 0000 19 58 61	0...16.0	32	4...20 mA	±0.4
FPT25.0A	8235 80 2391 05 0000 0000 19 58 61	0...25.0	50	4...20 mA	±0.4
FPT40.0A	8235 81 2391 05 0000 0000 19 58 61	0...40.0	80	4...20 mA	±0.4
FPT100.0A	8235 83 2391 05 0000 0000 19 58 61	0...100.0	200	4...20 mA	±0.4

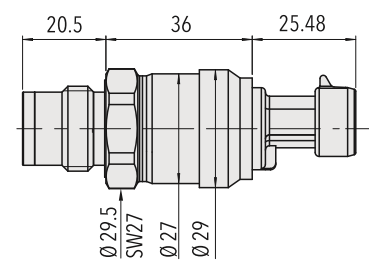
Dimensions



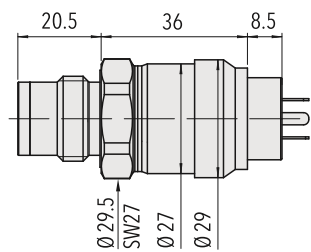
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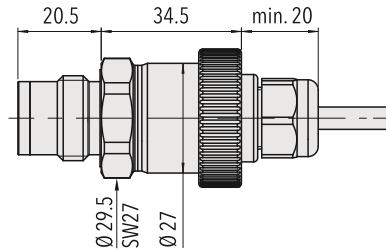
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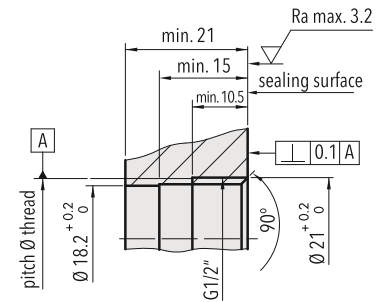
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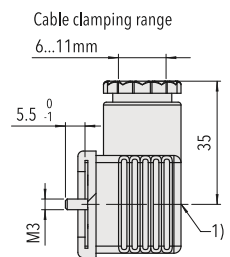
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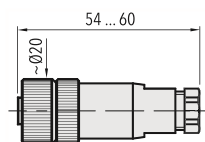
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8235.XX.XX91.68.XX.XX



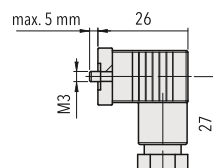
Mounting thread G1/2"
DIN EN ISO 1179-1



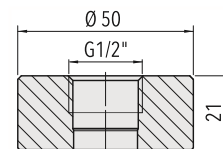
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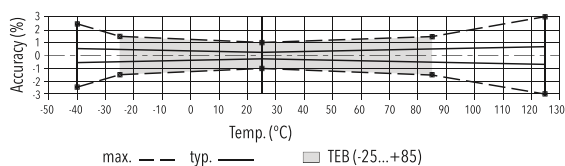


Welding flange for G1/2"
(1.4301)
Ordering No. C27804

Specifications		
Accuracy	TEB typ. @ -25 ... +85°C	± 0.5 % FS typ.
	Accuracy @ 25°C typ.	± 0.4 % FS
	NLH @ 25°C (BSL) typ.	± 0.1 % FS typ.
	TC zero point and span typ.	± 0.005 % FS/K typ.
	Long term stability 1 year typ.	± 0.2 % FS typ.
Electrical Data	Output / supply voltage	4 ... 20 mA: 24 (9 ... 30) VDC 0 ... 5 VDC: 24 (10 ... 30) VDC 1 ... 6 VDC: 24 (10 ... 30) VDC 0 ... 10 VDC: 24 (15 ... 30) VDC 0.5 ... 4.5 VDC: 5 VDC ratiom.
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Switch-on-delay	max. 1.5 s
Environmental conditions	Media temperature	-40°C ... +125°C
	Ambient temperature	-40°C ... +85°C (Cable PVC 22: -5°C ... +60°C)
	Protection ¹⁾	IP65, IP67, IP68
	Humidity	Max. 95 % relative
	Vibration	15 g (50...2000 Hz)
	Shock	50 g / 3 ms
EMC Protection	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
Mechanical Data	Sensor (wetted parts)	1.4542 (AISI630)
	Pressure connection (wetted parts)	1.4542 (AISI630)
	Housing	1.4301 (AISI304)
	Sealing	FPM (FKM) NBR
	Weight	~ 80 ... 110 g (without cable)
	Mounting torque	20 ... 25 Nm not lubricated 15 ... 20 Nm lubricated

¹⁾ See electrical connection

Measuring accuracy



Electrical connection

		Protection / electrical connection							
		IP65*)	IP67/IP68 max. 3m		IP67*)	IP67*)		IP65	
		Industrial standard EN175301-803A 05	Cable **) 22/68		M12x1 5- pole 35	Packet Metri Pak 3- pole 51		Industrial standard EN175301-803A 01	
Output signal	<p>shield</p> <p>U_S (pos. Supply)</p> <p>U_S (neg. Supply)</p> <p>earth/housing</p> <p>8235.XX.XXXX.XX.19</p>	Standard	92		Standard	94		99	
	<p>shield for DC</p> <p>supply</p> <p>output</p> <p>common</p> <p>8235.XX.XXXX.XX.14/16/17/23</p>	Standard	98	97				99	
		2	1	white	4	1	1	1	2
		1	2	brown	1	3	2	3	1
		⊖	⊖	⊖	5	5			⊖
		2	3	1	2	1	1	1	1
		3	1	3	4	3	2	2	2
		1	2	2	3	2	3	3	3
		⊖	⊖	⊖	5				⊖

*) Electrical connections 05/35/51: provided female connector is mounted according to instructions

**) Ventilation via cable end; shield in the device is not connected

Additional information

Documents

Data sheet	www.trafag.com/H72316
Instructions	www.trafag.com/H73316
Flyer	www.trafag.com/H70648

Additional specifications		
Accuracy	TEB max. @ -25 ... +85°C	± 1.5 % FS max.
	Accuracy @ 25°C max.	± 1 % FS max.
	NLH @ 25°C (BSL) max.	± 0.25 % FS max.
	NLH @ 25°C (BSL through 0) typ.	± 0.1 % FS typ.
	NLH @ 25°C (BSL through 0) max.	± 0.25 % FS max.
	Repeatability	± 0.05 % FS typ.
	TC zero point and span max.	± 0.010 % FS./K max.
	Long term stability 1000h @ 85°C	± 0.1 % FS typ.
	Temperature hysteresis	± 0.2 % FS typ. ± 0.35 % FS max.
	Deviation of zero signal and final value typ.	± 0.2 % FS typ. @ constant +25°C
	Deviation of zero signal and final value max.	± 1.0 % FS max. @ constant +25°C (when uninstalled)
Electrical Data	Resistance of insulation	Type 14/16/17/23: >10 MΩ, 100 VDC Type 19: >10 MΩ, 250 VDC
	Dielectric strength	Type 14/16/17/23: 100 VAC, 50 Hz Type 19: 250 VAC, 50 Hz
	Current limiting output signal	Ca. 25 mA max. (Output signal 4 ... 20 mA)
Environmental conditions	Storage temperature	-40°C ... +85°C
EMC Protection	ESD	EN/IEC 61000-4-2 4 kV contact/ 8 kV air: no malfunction
	RFI	EN/IEC 61000-4-3 10V/m: 0.01...2700 MHz (Output 4...20 mA, at 600...900 MHz, increased error < 3 %)
	Burst	EN/IEC 61000-4-4 Burst ±2 kV: no interference
	Surge	EN/IEC 61000-4-5 Surge 1.2/50μ ±1 kV: no interference
	Conducted Immunity	EN/IEC 61000-4-6 Radio-frequency: no interference

