

# 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 ... 1 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 ... 5 VDC, 1 ... 6 VDC, 0 ... 10 VDC	Ambient temperature	-40°C ... +85°C (Cable PVC 22: -5°C ... +60°C)
NLH @ 25°C (BSL) typ.	± 0.1 % FS typ.		

## Ordering information/type code

				8235 . XX				XX	XX	XX	XX	XX	
<b>Measuring range <sup>1)</sup></b>	<b>Pressure measurement range [bar]</b>	<b>Over pressure [bar]</b>	<b>Burst pressure [bar]</b>		<b>Pressure measurement range [psi]</b>	<b>Over pressure [psi]</b>	<b>Burst pressure [psi]</b>						
	0 ... 1	6	12	<b>71</b>	0 ... 15	85	170	<b>G1</b>					
	0 ... 2.5	6	12	<b>75</b>	0 ... 30	85	170	<b>G5</b>					
	0 ... 4	8	12	<b>76</b>	0 ... 50	115	170	<b>G6</b>					
	0 ... 6	12	18	<b>77</b>	0 ... 100	170	260	<b>G7</b>					
	0 ... 10	20	30	<b>78</b>	0 ... 150	290	430	<b>G8</b>					
	0 ... 16	32	48	<b>79</b>	0 ... 250	450	690	<b>G9</b>					
	0 ... 25	50	75	<b>80</b>	0 ... 400	725	1080	<b>H0</b>					
	0 ... 40	80	120	<b>81</b>	0 ... 500	1100	1740	<b>H1</b>					
	0 ... 100	200	300	<b>83</b>	0 ... 1450	2900	4350	<b>H3</b>					
<b>Sensor</b>	Relative pressure							<b>23</b>					
<b>Pressure connection</b>	G1/2" male, flush membrane								<b>91</b>				
<b>Electrical connection</b>	Male electrical connector EN 175301-803-A (DIN 43650-A), Mat. PA									<b>05</b>			
	Male electrical connector M12x1, 5-pol., Mat. PA									<b>35</b>			
	Male electrical connector Packard Metri Pack									<b>51</b>			
	Cable IP67 (cable length see "Accessories") Mat. PVC (cable gland PC), -5°C ... +60°C <sup>2)</sup>									<b>22</b>			
	Cable IP68 max. 3m, medium +10°C...+35°C, max. 1 bar relative									<b>68</b>			
<b>Output signal</b>	<b>Signal output</b>	<b>Load resistance</b>	<b>I (supply)</b>	<b>U (supply)</b>									
	4 ... 20 mA	(U <sub>supply</sub> -9 V) / 20 mA		9 ... 30 VDC							<b>19</b>		
	0 ... 5 VDC	> 2.5 kΩ	< 10 mA	10 ... 30 VDC							<b>14</b>		
	1 ... 5 VDC	> 5.0 kΩ	< 10 mA	10 ... 30 VDC							<b>25</b>		
	1 ... 6 VDC	> 5.0 kΩ	< 10 mA	10 ... 30 VDC							<b>16</b>		
	0 ... 10 VDC	> 5.0 kΩ	< 10 mA	15 ... 30 VDC							<b>17</b>		
<b>Accessories</b>	Sealing Ring DIN 3869, Mat. FPM (FKM) -15°C ... +125°C											<b>61</b>	
	Sealing Ring DIN 3869, Mat. NBR, -25°C ... +100°C											<b>69</b>	
	Female electrical plug EN 175301-803-A (DIN43650-A)/NBR, -40°C ... +90°C, for cable diameter 4 ... 9 mm, flammability standard UL94-V0											<b>46</b>	
	Female electrical plug EN 175301-803-A (DIN 43650-A)/silicone, -40°C ... +125°C, for cable diameter 4 ... 9 mm, flammability standard UL94-V0											<b>56</b>	
	Female electrical plug EN 175301-803-A (DIN43650-A)/NBR, -40°C ... +90°C, for cable diameter 4 ... 9.5 mm, flammability standard UL94-V2											<b>58</b>	
	Female electrical plug M12x1, 5-pole											<b>33</b>	
	Special electrical connection: Pin 1 +, Pin 2 - (only for output signal 4 ... 20 mA and male electrical connector EN175301-803-A / DIN43650-A) <sup>2)</sup>											<b>92</b>	
	Special electrical connection: Pin 1 Out, Pin 2 -, Pin 3 + (only for output 14, 16, 17 and male electrical connector EN175301-803-A / DIN43650-A) <sup>2)</sup>											<b>98</b>	
	Special electrical connection: Pin 1 +, Pin 2 -, Pin 3 Out (only for output 14, 16, 17 and male electrical connector EN175301-803-A / DIN43650-A) <sup>2)</sup>											<b>97</b>	
	Special electrical connection: Pin 1 +, Pin 3 -, Pin 5 GR (only for output 4...20mA and male electrical connector M12x1, 5-pol.) <sup>2)</sup>											<b>94</b>	
	Special electrical connection: Pin 1 +, Pin 3 - (only for male electrical connector Packard Metri Pack 3-poles) <sup>2)</sup>											<b>99</b>	
	Cable length 1.5 m											<b>1M</b>	
	Cable length 3.0 m											<b>3M</b>	
	Cable length 5.0 m											<b>5M</b>	

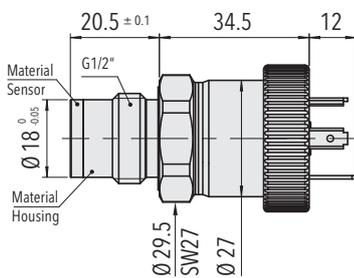
<sup>1)</sup> Extended overpressure as well as customized pressure ranges upon request

<sup>2)</sup> Details see electrical connection

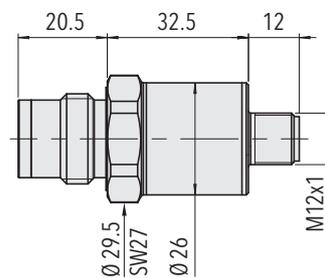
## Standard products (extra short lead time)

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	6	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	8	4 ... 20 mA	± 0.4
FPT6.0A	8235 77 2391 05 0000 0000 19 58 61	0 ... 6	12	4 ... 20 mA	± 0.4
FPT10.0A	8235 78 2391 05 0000 0000 19 58 61	0 ... 10	20	4 ... 20 mA	± 0.4
FPT16.0A	8235 79 2391 05 0000 0000 19 58 61	0 ... 16	32	4 ... 20 mA	± 0.4
FPT25.0A	8235 80 2391 05 0000 0000 19 58 61	0 ... 25	50	4 ... 20 mA	± 0.4
FPT40.0A	8235 81 2391 05 0000 0000 19 58 61	0 ... 40	80	4 ... 20 mA	± 0.4
FPT100.0A	8235 83 2391 05 0000 0000 19 58 61	0 ... 100	200	4 ... 20 mA	± 0.4

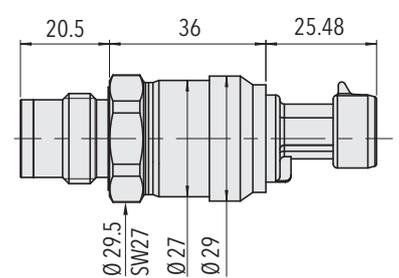
## Dimensions



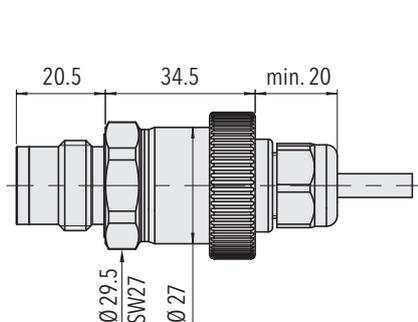
8235.XX.XX91.05.XX.XX



8235.XX.XX91.35.XX.XX

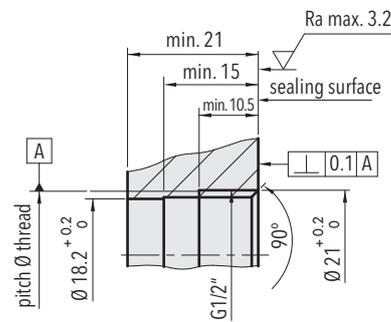


8235.XX.XX91.51.XX.XX

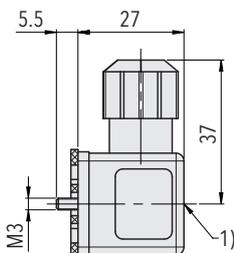


8235.XX.XX91.22.XX.XX

8235.XX.XX91.68.XX.XX

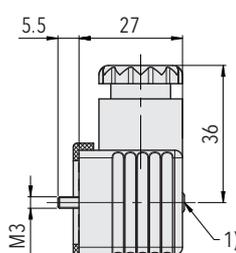


Mounting thread G1/2" DIN EN ISO 1179-1



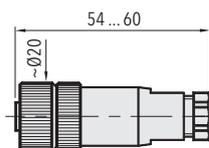
1) Tightening torque 50...60 Ncm

8235.XX.XXXX.XX.XX.46/56

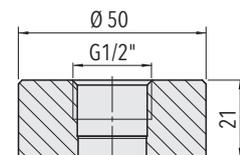


1) Tightening torque 50...60 Ncm

8235.XX.XXXX.XX.XX.58



8235.XX.XXXX.XX.XX.33

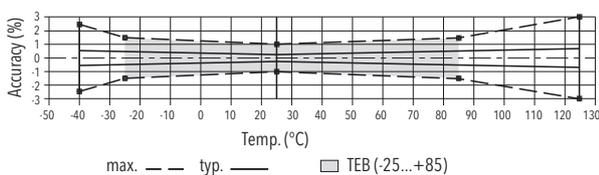


Welding flange for G1/2" (1.4301)  
Ordering No. C27804

Specifications		
<b>Accuracy</b>	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.
<b>Electrical Data</b>	Output / supply voltage	4 ... 20 mA: 24 (9 ... 30) VDC 0 ... 5 VDC: 24 (10 ... 30) VDC 1 ... 5 VDC: 24 (10 ... 30) VDC 1 ... 6 VDC: 24 (10 ... 30) VDC 0 ... 10 VDC: 24 (15 ... 30) VDC
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Power-on delay time	max. 1.5 s
<b>Environmental conditions</b>	Media temperature	-40°C ... +125°C
	Ambient temperature	-40°C ... +85°C (Cable PVC 22: -5°C ... +60°C)
	Protection <sup>1)</sup>	IP65, IP67, IP68
	Humidity	Max. 95 % relative
	Vibration	15 g (50...2000 Hz)
	Shock	50 g / 3 ms
<b>EMC Protection</b>	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
<b>Mechanical Data</b>	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

<sup>1)</sup> See electrical connection

## Measuring accuracy



## Electrical connection

		Protection / electrical connection							
		IP65*)		IP67/IP68 max. 3m		IP67*)		IP67*)	
		Industrial standard EN175301-803A <b>05</b> 		Cable **) <b>22/68</b> 		M12x1 5-pole <b>35</b> 		Packard Metri Pack 3-pole <b>51</b> 	
Output signal	 <b>8235.XX.XXXX.XX.19</b>	Standard	<b>92</b>		Standard	<b>94</b>		<b>99</b>	
		2	1	white	4	1	1	1	
		1	2	brown	1	3	2	3	
		⊕	⊖	⊖	5	5			
	 <b>8235.XX.XXXX.XX.14/16/17/25</b>	Standard	<b>98</b>	<b>97</b>				<b>99</b>	
		2	3	1	white	2	1	1	
		3	1	3	green	4	3	2	
		1	2	2	brown	3	2	3	
		⊖	⊕	⊖	⊖	5			

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

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

### Additional information

#### Documents

Data sheet	<a href="http://www.trafag.com/H72316">www.trafag.com/H72316</a>
Instructions	<a href="http://www.trafag.com/H73316">www.trafag.com/H73316</a>
Flyer	<a href="http://www.trafag.com/H70648">www.trafag.com/H70648</a>