

# RAILWAY PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The EPR pressure transmitter was specifically designed for the high demand of the railway industry and offers reliable and accurate pressure measurement over a wide temperature range. Its excellent long-term stability is based on the leading thin-film-on-steel sensor technology from Trafag.



## Applications

- Railways



## Features

- Dielectrical strength: 710 VDC, meets EN 50155 (Railways)
- Compact design
- Good temperature resistance
- Different accuracy classes
- Completely welded steel sensor system without additional seals

Technical Data			
Measuring principle	Thin-film-on-steel	Accuracy @ 25°C typ.	± 0.5 % FS typ. ± 0.3 % FS typ.
Measuring range	0 ... 2.5 to 0 ... 600 bar 0 ... 30 to 0 ... 7500 psi	Media temperature	-40°C ... +125°C
Output signal	4 ... 20 mA	Ambient temperature	-40°C ... +125°C
NLH @ 25°C (BSL) typ.	± 0.2 % FS typ.	Approval / conformity	EN 50155 (Railway) EN 45545-2 (Fire protection)

04/2020

Data sheet H72319d

Subject to change

## Ordering information/type code

							8283	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 ... 2.5	7.5	50	<b>75</b>	0 ... 30	90	700	<b>G5</b>				
	0 ... 4	12	60	<b>76</b>	0 ... 50	150	850	<b>G6</b>				
	0 ... 6	18	100	<b>77</b>	0 ... 100	300	1450	<b>G7</b>				
	0 ... 10	30	200	<b>78</b>	0 ... 150	450	2500	<b>G8</b>				
	0 ... 16	48	200	<b>79</b>	0 ... 200	600	2500	<b>GA</b>				
	0 ... 25	75	300	<b>80</b>	0 ... 250	750	2500	<b>G9</b>				
	0 ... 40	120	300	<b>81</b>	0 ... 300	900	4000	<b>HA</b>				
	0 ... 60	180	400	<b>82</b>	0 ... 400	1200	4000	<b>H0</b>				
	0 ... 100	300	500	<b>83</b>	0 ... 500	1500	4000	<b>H1</b>				
	0 ... 160	480	750	<b>85</b>	0 ... 1000	3000	5000	<b>H2</b>				
	0 ... 250	750	1000	<b>74</b>	0 ... 1500	4500	7000	<b>H3</b>				
	0 ... 400	1000	2000	<b>84</b>	0 ... 2000	6000	10000	<b>H5</b>				
	0 ... 600	1500	2500	<b>86</b>	0 ... 3000	9000	14500	<b>G4</b>				
					0 ... 5000	12500	21750	<b>H4</b>				
					0 ... 7500	18750	29000	<b>H6</b>				
	<b>Sensor</b>	Relative pressure, accuracy: 0.5 %; Material pressure connection and housing: 1.4542 (AISI630)							<b>25</b>			
Relative pressure, accuracy: 0.3 %; Material pressure connection and housing: 1.4542 (AISI630)							<b>23</b>					
<b>Pressure connection</b>	G1/4" female <sup>2)</sup>	<b>10</b>	1/4" - 18 NPT female <sup>2)</sup>		<b>13</b>							
	G1/4" male, Seal: DIN 3869 (accessories 61/63/83)	<b>17</b>	1/2" NPT male <sup>2)</sup>		<b>51</b>							
	G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869 (accessories 61/63/83)	<b>15</b>	R1/4" male, DIN3858 <sup>2)</sup>		<b>19</b>							
	G1/4" male (Manometer) EN 837 <sup>2)</sup>	<b>53</b>	M14x1.5 male, DIN6149-2 <sup>2)</sup>		<b>31</b>							
	G1/2" male (Manometer) EN 837 <sup>2)</sup>	<b>11</b>	7/16"-20UNF male, DIN3866 <sup>2) 4)</sup>		<b>18</b>							
	1/4" NPT male	<b>30</b>	7/16"-20UNF male SAE (J1926-3) <sup>2)</sup>		<b>42</b>							
			7/16"-20UNF female, SAE J512 with valve opener <sup>4)</sup>		<b>24</b>							
<b>Electrical connection</b>	Male electrical connector EN 175301-803-A (DIN43650-A), Mat. PA							<b>05</b>				
	Male electrical connector M12x1, 5-pole, Mat. PBT							<b>35</b>				
	Male electrical connector MIL-C 26482, 6-pole <sup>11)</sup>							<b>02</b>				
	Cable PUR (Screwed cable gland PA 6-3), -20°C ... +70°C <sup>6) 7) 8) 9)</sup>							<b>24</b>				
	Cable PVC (Screwed cable gland PA 6-3), -5°C ... +60°C <sup>6) 7) 8) 9)</sup>							<b>22</b>				
	Cable Raychem (Screwed cable gland PA 6-3), -20°C ... +100°C <sup>6) 7) 8) 9)</sup>							<b>08</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 ... 32 VDC						<b>19</b>	
<b>Accessories</b>	Seal FPM, -18°C ... +125°C <sup>3)</sup>							<b>61</b>				
	Seal EPDM, -40°C ... +125°C <sup>3)</sup>							<b>63</b>				
	Seal NBR, -25°C ... +100°C <sup>3)</sup>							<b>83</b>				
	Pressure peak damping element Ø 1.0 mm, material 1.4305 <sup>5)</sup>							<b>40</b>				
	Pressure peak damping element Ø 0.4 mm, Material 1.4305 <sup>5)</sup>							<b>44</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 (DIN43650-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>				
	Special electrical connection: Pin 1 +, Pin 2 - (only for output signal 4 ... 20 mA and male electrical connector EN175301-803-A / DIN43650-A)							<b>92</b>				
	Housing nut for electrical connection EN175301-803-A (DIN43650-A) secured with Loctite (max. 85°C)							<b>L9</b>				
	Multiple packaging <sup>10)</sup>							<b>VM</b>				

<sup>1)</sup> Customized pressure ranges upon request

<sup>2)</sup> Upon request

<sup>3)</sup> Only with pressure connection 17 (G1/4")

<sup>4)</sup> Max. allowable pressure range 60 bar at 180 bar overpressure

<sup>5)</sup> Not for pressure connections 10, 11, 13, 18, 24

<sup>6)</sup> Cable length see accessories (max. length 50 m, in 5-meter sections)

<sup>7)</sup> IP68, max. 3 m, Media +10°C ... +35°C

<sup>8)</sup> Cable length max. 3 m, for pressure ranges ≤ 16 bar

<sup>9)</sup> Not according to standard EN 45545-2

<sup>10)</sup> The order quantity must be a multiple of 50, only for electrical connections 05 and 35

<sup>11)</sup> Only for pressure connections 13, 17, 19

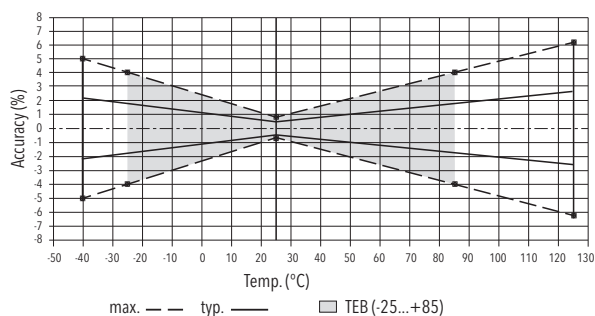
Specifications		
<b>Electrical Data</b>	Output / supply voltage	4 ... 20 mA: 24 (9...32) VDC
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Switch-on-delay	100 ms
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4 ... 20 mA: bis $U_s = 32$ VDC
<b>Environmental conditions</b>	Media temperature	-40°C ... +125°C
	Ambient temperature	-40°C ... +125°C
	Protection <sup>1)</sup>	IP65, IP67, IP68
	Humidity	Max. 95 % relative
	Vibration	15 g RMS (20...2000 Hz) acc.to EN 60068-2-64 25 g sin (80...2000 Hz), 1 oct./min, (1x @ 25°C) acc.to EN 60068-2-6
	Shock	500 g / 1 ms acc.to EN 60068-2-27
<b>EMC Protection</b>	Emission	EN/IEC 61000-6-3 EN50121-3-2
	Immunity	EN/IEC 61000-6-2 EN50121-3-2 <sup>2)</sup>
<b>Mechanical Data</b>	Sensor (wetted parts)	1.4542 (AISI630)
	Pressure connection (wetted parts)	1.4542 (AISI630)
	Housing	1.4542 (AISI630)
	Sealing	FPM/EPDM/NBR
	Male electrical connector	See ordering information
	Weight	appr. 80 ... 110 g
	Mounting torque	25 Nm

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

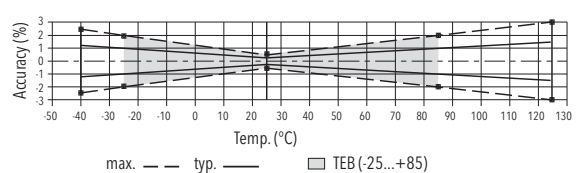
<sup>2)</sup> Surge voltage on shield, shield connected on both sides

Accuracy			
		Measuring accuracy 0.5 % Ordering No. 25	Measuring accuracy 0.3 % Ordering No. 23
TEB @ -25 ... +85°C	[% FS typ.]	± 1.75	± 1.0
Accuracy @ +25°C	[% FS typ.]	± 0.5	± 0.3
NLH @ +25°C (BSL)	[% FS typ.]	± 0.2	± 0.2
TC zero point and span	[% FS/K typ.]	± 0.03	± 0.01
Long term stability 1 year @ +25°C	[% FS typ.]	± 0.1	± 0.1

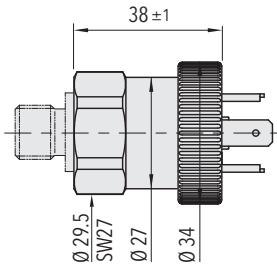
## Measuring accuracy 0.5 %



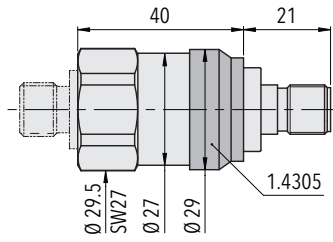
## Measuring accuracy 0.3 %



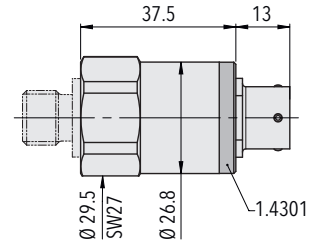
## Dimensions



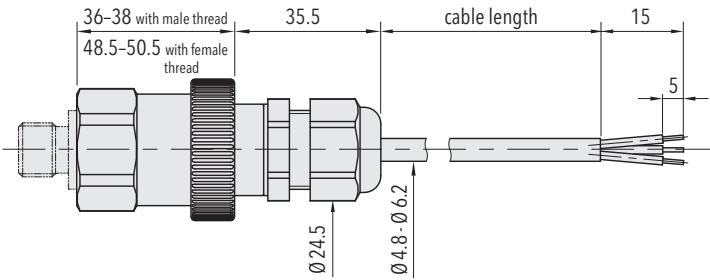
8283.XX.XXXX.05.XX.XX



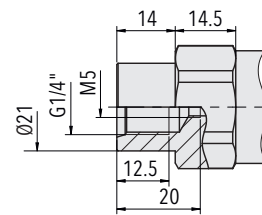
8283.XX.XXXX.35.XX.XX



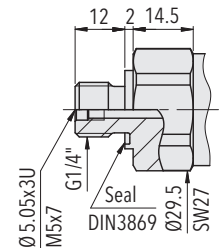
8283.XX.XXXX.02.XX.XX



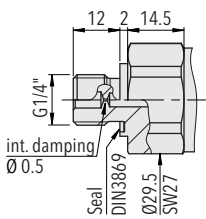
8283.XX.XXXX.24/22/08.XX.XX



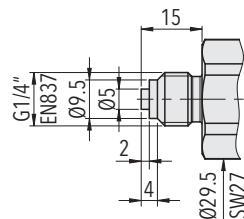
8283.XX.XX10.XX.XX.XX



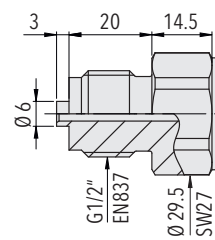
8283.XX.XX17.XX.XX.XX



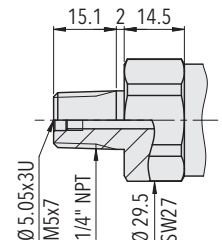
8283.XX.XX15.XX.XX.XX



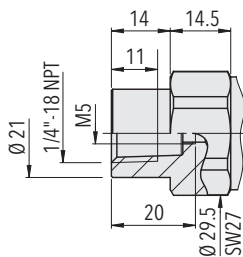
8283.XX.XX53.XX.XX.XX



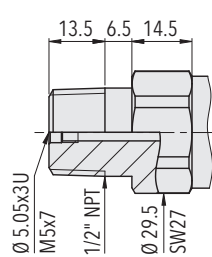
8283.XX.XX11.XX.XX.XX



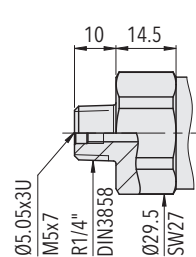
8283.XX.XX30.XX.XX.XX



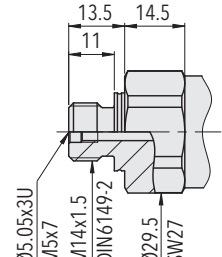
8283.XX.XX13.XX.XX.XX



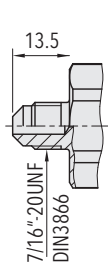
8283.XX.XX51.XX.XX.XX



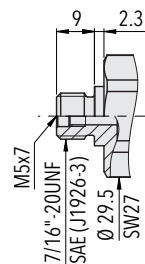
8283.XX.XX19.XX.XX.XX



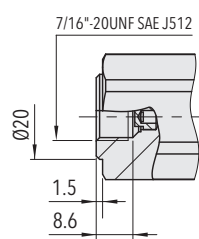
8283.XX.XX31.XX.XX.XX



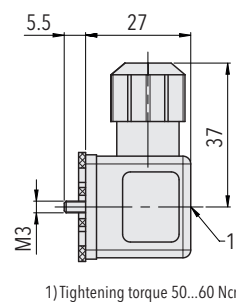
8283.XX.XX18.XX.XX.XX



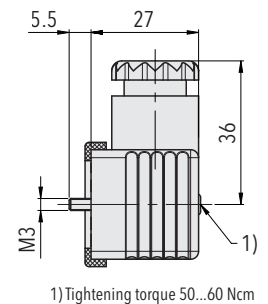
8283.XX.XX42.XX.XX.XX



8283.XX.XX24.XX.XX.XX

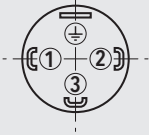
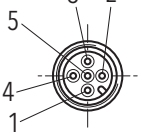
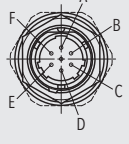


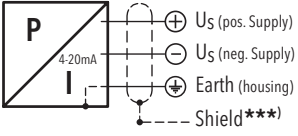


8283.XX.XXXX.XX.XX.46/56



8283.XX.XXXX.XX.XX.58

## Electrical connection

		Protection / electrical connection				
		IP65*) **)	IP67*) **)	IP67*) **)	IP68 max. 3 m	IP68 max. 3 m
		Industrial standard EN175301-803A	M12x1 5-pole	MIL-C 26482	Cable**)/****)	Cable **)/****)
		<b>05</b>	<b>35</b>	<b>02</b>	<b>24/22</b>	<b>08</b>
						
Output signal		Standard	<b>92</b>			
		2 1 ⊕	1 2 ⊕	4 1 5	A B E	white brown yellow red black green
<b>8283.XX.XXXX.XX.19</b>						

\*) Provided female electrical plug is mounted according to instructions

\*\*) Ventilation via male electric plug/cable end

\*\*\*) Only cable versions or female electrical plug with shield connection

\*\*\*\*) Not according to standard EN 45545-2

Additional specifications railways			
Environmental conditions	Cold	EN 60068-2-1	Ab: -40°C, 2 h (not in operation) Ae: -40°C, 1 h (in operation)
	Dry heat	EN 60068-2-2	Be: 85°C, 6 h (in operation)
	Damp heat, cyclic	EN 60068-2-30	Db: 55°C, variant 1, 2 cycles (2 x 24 h)
	Vibration and shock	EN 61373	Vibration: category 3 <sup>1)</sup> Shock: category 3 <sup>1)</sup>
	Dielectrical strength	EN 50155	710 VDC
	Resistance of insulation	EN 50155	>100 MΩ, 500 VDC
	Behavior in case of fire (only electrical connections 05, 35)	EN 45545-2	Weight: < 10 g Surface: < 0.2 m <sup>2</sup>
Supply	Nominal voltage	EN 50155	24 V
	Interruptions of the voltage supply	EN 50155	Class S1
	Switching between two supply voltages	EN 50155	Class C1

<sup>1)</sup> Male electrical connector EN 175301-803-A, cat. 2

Additional information		
Documents	Data sheet	<a href="http://www.trafag.com/H72319">www.trafag.com/H72319</a>
	Instructions	<a href="http://www.trafag.com/H73317">www.trafag.com/H73317</a>
	Flyer	<a href="http://www.trafag.com/H70601">www.trafag.com/H70601</a>