

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

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

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)

04/2023

Data sheet H723191

Subject to change

Ordering information/type code

				8283 . XX			XX	XX	XX	XX	XX
Measuring range ¹⁾	Pressure measurement range [bar]	Over pressure [bar]	Burst pressure [bar]	Pressure measurement range [psi]	Over pressure [psi]	Burst pressure [psi]					
	0 ... 2.5	7.5	50	75	0 ... 30	90	700	G5			
	0 ... 4	12	60	76	0 ... 50	150	850	G6			
	0 ... 6	18	100	77	0 ... 100	300	1450	G7			
	0 ... 10	30	200	78	0 ... 150	450	2500	G8			
	0 ... 16	48	200	79	0 ... 200	600	2500	GA			
	0 ... 25	75	300	80	0 ... 250	750	2500	G9			
	0 ... 40	120	300	81	0 ... 300	900	4000	HA			
	0 ... 60	180	400	82	0 ... 400	1200	4000	H0			
	0 ... 100	300	500	83	0 ... 500	1500	4000	H1			
	0 ... 160	480	750	85	0 ... 1000	3000	5000	H2			
	0 ... 250	750	1000	74	0 ... 1500	4500	7000	H3			
	0 ... 400	1000	2000	84	0 ... 2000	6000	10000	H5			
	0 ... 600	1500	2500	86	0 ... 3000	9000	14500	G4			
					0 ... 5000	12500	21750	H4			
					0 ... 7500	18750	29000	H6			
	Sensor	Relative pressure, accuracy class: 0.5 %; Material pressure connection and housing: 1.4542 (AISI630)						25			
Relative pressure, accuracy class: 0.5 %; Material pressure connection and housing: 1.4404 (AISI316L) ^{2) 3) 12)}						35					
Relative pressure, accuracy class: 0.3 %; Material pressure connection and housing: 1.4542 (AISI630)						23					
Relative pressure, accuracy class: 0.3 %; Material pressure connection and housing: 1.4404 (AISI316L) ^{2) 3) 12)}						33					
Pressure connection	G1/4" female ²⁾		10	1/2" NPT male ²⁾		51					
	G1/4" male, Seal: DIN 3869		17	R1/4" male, DIN3858 ²⁾		19					
	G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869		15	M14x1.5 male, DIN6149-2 ²⁾		31					
	G1/4" male (Manometer) EN 837 ²⁾		53	7/16"-20UNF male, DIN3866 ^{2) 4)}		18					
	G1/2" male (Manometer) EN 837 ^{2) 13)}		11	7/16"-20UNF-2A male, SAE J1926-3 (Light Duty) ^{2) 14)}		42					
	1/4" NPT male		30	7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) ¹⁵⁾		69					
	1/4"- 18 NPT female ²⁾		13	7/16"-20UNF female, SAE J512 with valve opener ⁴⁾		24					
Electrical connection	Male electrical connector EN 175301-803-A (DIN 43650-A), Mat. PA						05				
	Male electrical connector M12x1, 5-pole, Mat. PBT						35				
	Male electrical connector MIL-C 26482, 6-pole ¹¹⁾						02				
	Cable PUR (Screwed cable gland PA 6-3), -20°C ... +70°C ^{6) 7) 9)}						24				
	Cable PVC (Screwed cable gland PA 6-3), -5°C ... +60°C ^{6) 7) 8) 9)}						22				
	Cable Raychem (Screwed cable gland PA 6-3), -20°C ... +100°C ^{6) 7) 8) 9)}						08				
Output signal	Signal output	Load resistance	I (supply)	U (supply)							
	4 ... 20 mA	(U _{supply} -9 V) / 20 mA		9 ... 32 VDC						19	

Accessories	Female electrical plug M12x1, 5-pole	33
	Seal FPM, -18°C ... +125°C	61
	Seal EPDM, -40°C ... +125°C	63
	Seal NBR, -25°C ... +100°C	83
	Pressure peak damping element ø 1.0 mm, material 1.4305 ⁵⁾	40
	Pressure peak damping element ø 0.4 mm, Material 1.4305 ⁵⁾	44
	Female electrical plug EN 175301-803-A (DIN43650-A)/NBR, -40°C ... +90°C, for cable diameter 4 ... 9 mm, flammability standard UL94-V0	46
	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	56
	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 ⁹⁾	58
	Special electrical connection: Pin 1 +, Pin 2 - (only for output signal 4 ... 20 mA and male electrical connector EN175301-803-A/ DIN43650-A)	92
	Housing nut for electrical connection EN175301-803-A (DIN43650-A) secured with Loctite (max. 85°C)	L9
	Enhanced condensation protection	CP
	Multiple packaging ¹⁰⁾	VM

¹⁾ Customized pressure ranges upon request

²⁾ Upon request

³⁾ Only with pressure connection 17 (G1/4") or 11 (G1/2")

⁴⁾ Max. allowable pressure range 60 bar at 180 bar overpressure

⁵⁾ Not for pressure connections 10, 11, 13, 18, 24

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

⁷⁾ IP68, max. 3 m, Media +10°C ... +35°C

⁸⁾ Cable length max. 3 m for pressure ranges ≤ 16 bar

⁹⁾ Not according to standard EN 45545-2

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

¹¹⁾ Only for pressure connections 13, 17, 19

¹²⁾ Only for pressure ranges ≥ 10 bar

¹³⁾ Max. allowable pressure range 160 bar at 480 bar overpressure

¹⁴⁾ Measuring range max. 350 bar according to SAE J1926-3 (Light Duty). Do not use for new designs, will be replaced by design according to SAE J1926-2 (Heavy Duty) in 2023

¹⁵⁾ Measuring range max. 630 bar according to SAE J1926-2 (Heavy Duty)

Code	Pressure connection	Seal FPM (Code 61)	Seal EPDM (Code 63)	Seal NBR (Code 83)
10	G1/4" female			
17	G1/4" male, Seal: DIN 3869	✓	✓	✓
15	G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869	✓	✓	✓
53	G1/4" male (Manometer) EN 837			
11	G1/2" male (Manometer) EN 837			
30	1/4" NPT female			
13	1/4"- 18 NPT female			
51	1/2" NPT male			
19	R1/4" male, DIN3858			
31	M14x1.5 male DIN EN ISO 6149-2	✓		
18	7/16"-20UNF male, DIN3866			
42	7/16"-20UNF male, SAE4 (J1926)	✓		
24	7/16"-20UNF female, SAE J512 with valve opener			

Specifications		
Electrical data	Output / supply voltage	4 ... 20 mA: 24 (9...32) VDC
	Rise time	Typ. 1 ms / 10 ... 90 % nominal pressure
	Power-on delay time	100 ms
	Inverse-polarity protection, short-circuit strength @ 25°C during 5 min.	4 ... 20 mA: bis $U_s = 32$ VDC
Environmental conditions	Media temperature	-40°C ... +125°C
	Ambient temperature	-40°C ... +125°C
	Protection ¹⁾	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
EMC protection	Emission	EN/IEC 61000-6-3 EN50121-3-2
	Immunity	EN/IEC 61000-6-2 EN50121-3-2 ²⁾
Mechanical data	Sensor (wetted parts)	1.4542 (AISI630)
	Pressure connection (wetted parts)	1.4542 (AISI630) or 1.4404 (AISI316L) ³⁾
	Housing	1.4542 (AISI630) or 1.4404 (AISI316L) ³⁾
	Sealing	FPM/EPDM/NBR
	Male electrical connector	See ordering information
	Weight	appr. 80 ... 110 g
	Mounting torque	25 Nm

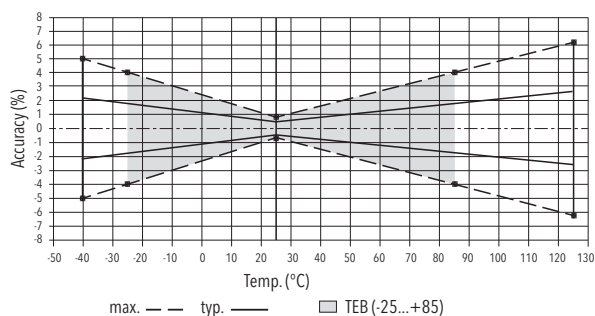
¹⁾ See electrical connection

²⁾ Surge voltage on shield, shield connected on both sides

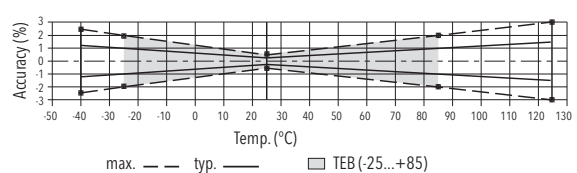
³⁾ See ordering information for sensor

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

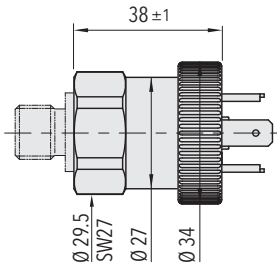
Measuring accuracy 0.5 %



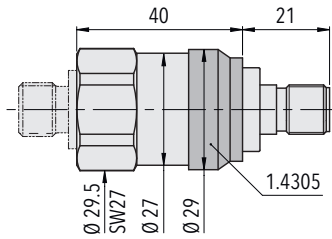
Measuring accuracy 0.3 %



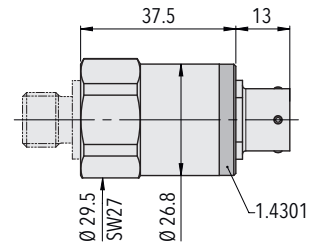
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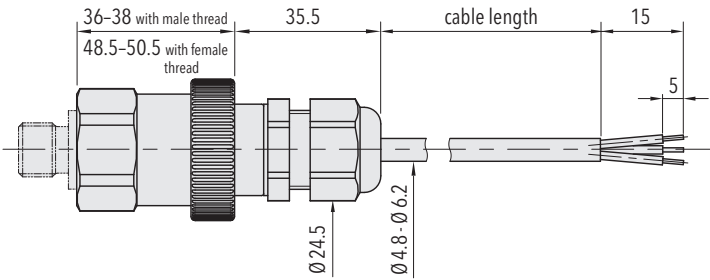
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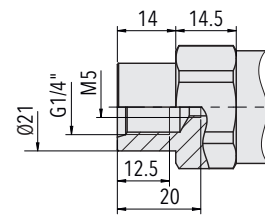
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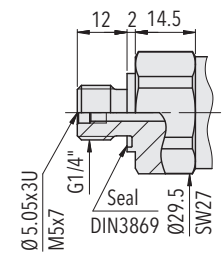
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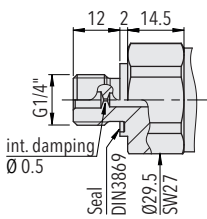
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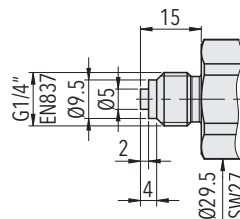
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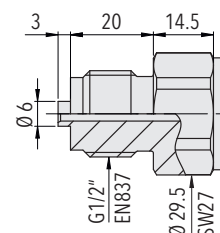
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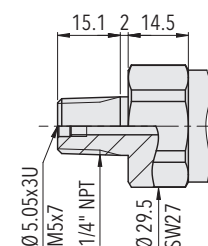
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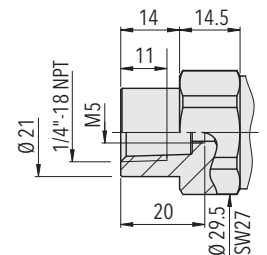
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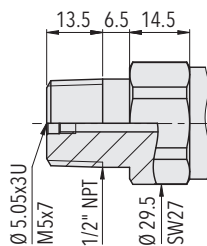
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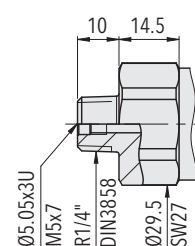
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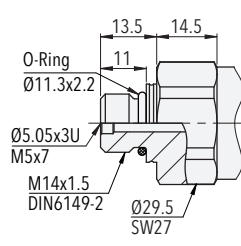
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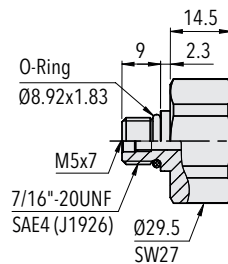
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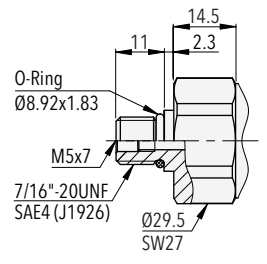
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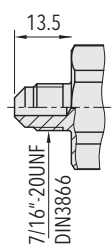
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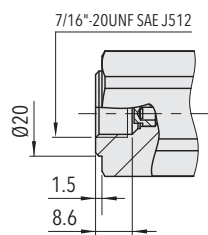
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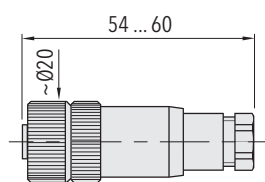
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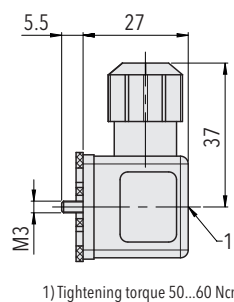
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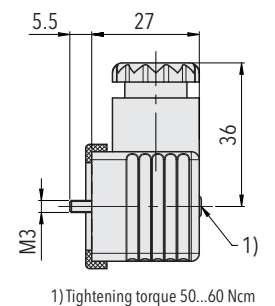
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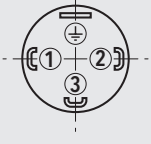
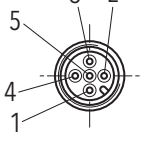
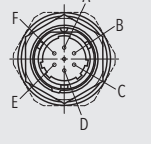


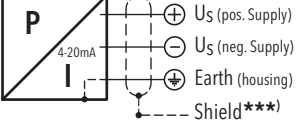


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Electrical connection

		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 **)/****)
		05	35	02	24/22	08
						
Output signal		Standard	92			
		2 1 ⊕	1 2 ⊕	4 1 5	A B E	white brown yellow
8283.XX.XXXX.XX.19						

*) 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 ¹⁾ Shock: category 3 ¹⁾
	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 ²
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

¹⁾ Male electrical connector EN 175301-803-A, cat. 2

Additional information		
Documents	Data sheet	www.trafag.com/H72319
	Instructions	www.trafag.com/H73317
	Flyer	www.trafag.com/H70601