

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) |

06/2024

Data sheet H72319m

Subject to change

Ordering information/type code

| | | | | 8283 . | | | 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 | HO | | | |
| | 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 | 1/4" - 18 NPT female ²⁾ | 13 | | | | | | | |
| | G1/4" male, Seal: DIN 3869 | 17 | 1/2" NPT male ²⁾ | 51 | | | | | | | |
| | G1/4" male, with integrated damping Ø 0.5 mm, Seal: DIN 3869 | 15 | R1/4" male, DIN3858 ²⁾ | 19 | | | | | | | |
| | G1/4" male (Manometer) EN 837 ²⁾ | 53 | M14x1.5 male, DIN6149-2 ²⁾ | 31 | | | | | | | |
| | G1/2" male (Manometer) EN 837 ²⁾ | 11 | 7/16"-20UNF male, DIN3866 ^{2) 4)} | 18 | | | | | | | |
| | 1/4" NPT male | 30 | 7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) ¹⁵⁾ | 69 | | | | | | | |
| | | | 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 | (Usupply-9 V) / 20 mA | | 9 ... 32 VDC | | | | | | 19 | |

| | | |
|--------------------|--|----|
| Accessories | Female electrical plug M12x1, 5-pole | 33 |
| | Seal FKM, -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 |
| | Special electrical connection: Pin 1 +, Pin 3 -, Pin 4 Ground (only for output signals 19 and male electrical connector 35, M12x1, 5-pole) | G9 |
| | Special electrical connection: Pin 1 +, Pin 2 -, Pin 5 Ground (only for output signals 19 and male electrical connector 35, M12x1, 5-pole) | H1 |
| | 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⁾ Measuring range max. 630 bar according to SAE J1926-2 (Heavy Duty)

| Code | Pressure connection | Seal FKM (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 | FKM/EPDM/NBR |
| | Male electrical connector | See ordering information |
| | Weight | appr. 80 ... 110 g |
| | Mounting torque | 25 Nm |

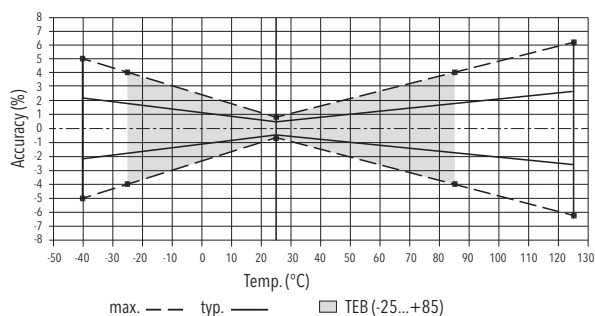
¹⁾ See electrical connection

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

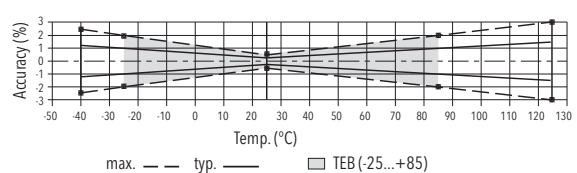
³⁾ See ordering information for sensor

| 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 |

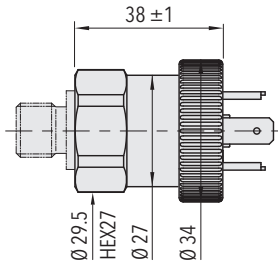
Measuring accuracy 0.5 %



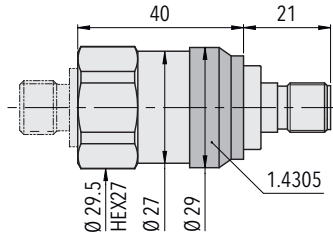
Measuring accuracy 0.3 %



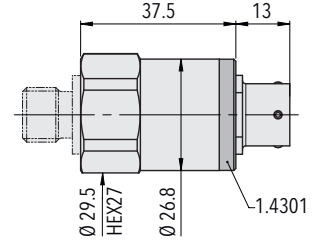
Dimensions



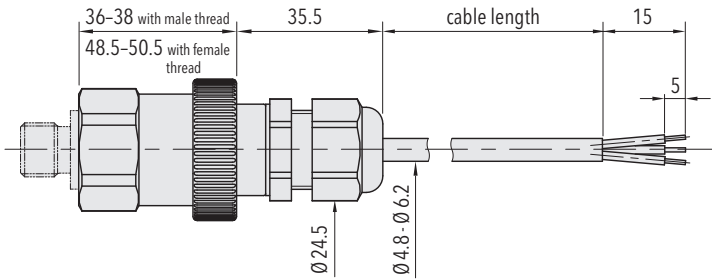
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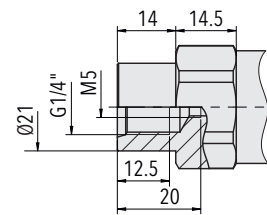
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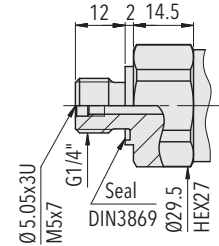
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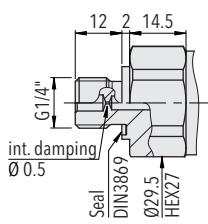
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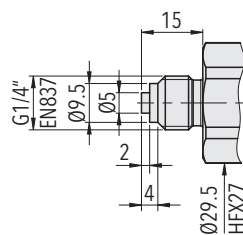
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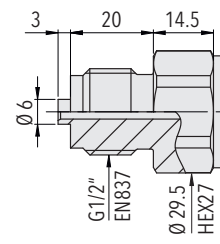
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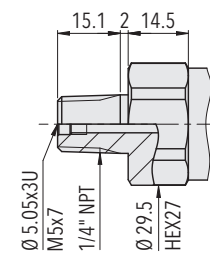
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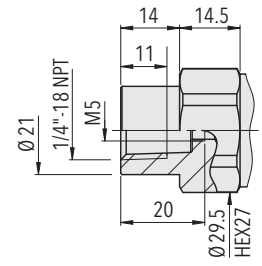
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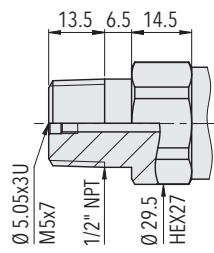
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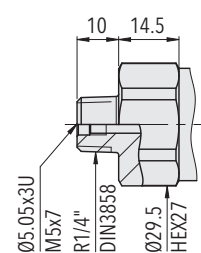
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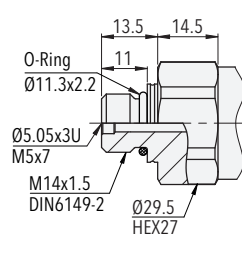
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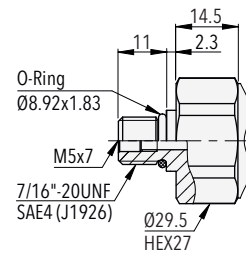
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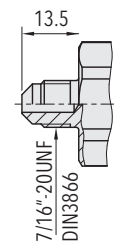
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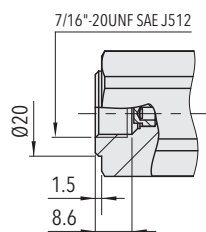
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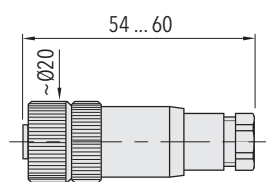
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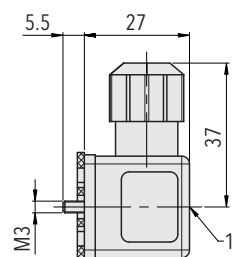
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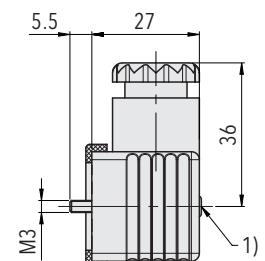
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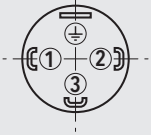
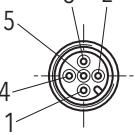



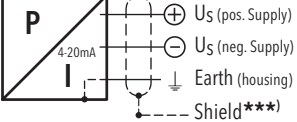


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1) Tightening torque 50...60 Ncm

1) Tightening torque 50...60 Ncm

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 | G9 | H1 | |
| | | 2 1 ↓ | 1 2 ↓ | 4 1 5 | 1 3 5 | A B E |
| 8283.xx.xxxx.xx.19 | | | | | | red black green |

*) 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) |
| | Class of altitude | EN 50125-1 | AX (max. 2000 m ASL) |
| | Class of air temperature | EN 50125-1 | refer to the specified ambient temperature in table "Specification" |
| | Vibration and shock | EN 61373 | Vibration: category 3 ¹⁾ Shock: category 3 ¹⁾ |
| | Dielectric strength | EN 50155 | 750 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 |