# NAT 8252

## Industrial Pressure Transmitter

### Applications

- Machine tools
- Hydraulics
- HVAC
- Refrigeration
- Process technology
- Water treatment

### Features

- Smallest design
- Completely welded steel sensor system without additional seals
- Excellent long-term stability
- Optional: 5-fold overpressure resistance
- Optional: Switching output 1 or 2 PNP

### Product description

The industrial pressure transmitter NAT 8252 features an exceptionally long-term stable thin-film-on-steel sensor cell with triple (optionally 5-fold) overpressure safety. Optionally, the NAT 8252 is available as a pressure switch with 1 or 2 switching outputs. The robust design and the wide temperature range from -40°C to +125°C qualify the NAT 8252 as the ideal solution for a wide range of demanding applications.

CE EMC: 2014/30/EU

UKCA S.I. 2016 No. 1091

RoHS/Reach compliant

UL UL-listed version

### Technical Data

| | |
|---|---|
| Measuring principle | Thin-film-on-steel |
| Measuring range | 0 ... 2.5 to 0 ... 1000 bar<br>0 ... 30 to 0 ... 10000 psi |
| Output signal | 4 ... 20 mA, 0 ... 5 VDC, 1 ... 5 VDC, 1 ... 6 VDC,<br>0 ... 10 VDC and more, 0.5 ... 4.5 VDC ratiometric,<br>Switching output: 1 or 2 PNP |
| Media temperature | –40°C ... +125°C |
| Ambient temperature | max. -40°C ... +125°C<br>(UL-rated ambient temperature: -20°C ... +80°C)<br>Details see section: Electrical Connection |

### Additional information

| | |
|---|---|
| Data sheet | www.trafag.com/H72303 |
| Flyer | www.trafag.com/H70666 |
| Instructions | www.trafag.com/H73303 |
| Accessories | www.trafag.com/H72258 |
| Video | https://youtu.be/GbFBrcBekvk |

# NAT 8252

## Ordering information/Type code

| | | | | | | | | 8252 | 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 ... 700 | 1500 | 2500 | **87** | 0 ... 5000 | 12500 | 21750 | **H4** | | | | | | |
| | 0 ... 1000 | 1500 | 2500 | **88** | 0 ... 7500 | 18750 | 29000 | **H6** | | | | | | |
| | | | | | 0 ... 10000 | 18750 | 29000 | **H7** | | | | | | |
| | Option 5P: | Fivefold overpressure | | | Option: | Maximum Overpressure | | | | | | | | |
| | 0 ... 2.5 | 12.5 | 60 | **55** | 0 ... 30 | 150 | 1450 | **E5** | | | | | | |
| | 0 ... 4 | 20 | 100 | **56** | 0 ... 50 | 180 | 1450 | **E6** | | | | | | |
| | 0 ... 6 | 30 | 200 | **57** | 0 ... 100 | 450 | 3500 | **E7** | | | | | | |
| | 0 ... 10 | 50 | 200 | **58** | 0 ... 150 | 700 | 4250 | **E8** | | | | | | |
| | 0 ... 16 | 80 | 300 | **59** | 0 ... 200 | 700 | 4250 | **EA** | | | | | | |
| | 0 ... 25 | 125 | 300 | **60** | 0 ... 250 | 1150 | 5750 | **E9** | | | | | | |
| | 0 ... 40 | 200 | 400 | **61** | 0 ... 300 | 1150 | 5750 | **FA** | | | | | | |
| | 0 ... 60 | 300 | 500 | **62** | 0 ... 400 | 1800 | 8500 | **F0** | | | | | | |
| | 0 ... 100 | 500 | 750 | **63** | 0 ... 500 | 1800 | 8500 | **F1** | | | | | | |
| | 0 ... 160 | 800 | 1000 | **65** | 0 ... 1000 | 4600 | 19000 | **F2** | | | | | | |
| **Sensor** | Relative pressure, accuracy: 0.5 % | | | | | | | | **25** | | | | | |

# NAT 8252

| | | 8252 | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|---|
| **Pressure connection** | G1/4" male, seal: DIN 3869 | | | | 17 | | | |
| | G1/4" male, with integrated damping Ø 0.5 mm, seal: DIN 3869 [2] | | | | 15 | | | |
| | G1/4" male (Manometer) EN 837 | | | | 53 | | | |
| | G1/8" male DIN3852-E [3] | | | | 54 | | | |
| | 1/4" NPT male | | | | 30 | | | |
| | 1/8" NPT male [4] | | | | 43 | | | |
| | 7/16"-20UNF female, SAE J512 with valve opener [5] | | | | 24 | | | |
| | 7/16"-20UNF female, SAE J512 without valve opener [5] | | | | 44 | | | |
| | 7/16"-20UNF male, DIN3866 [5] | | | | 18 | | | |
| | 7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) [6] | | | | 69 | | | |
| | 9/16"-18UNF-2A male, SAE J1926-2 (Heavy Duty) [6] | | | | 67 | | | |
| | R1/4" male, DIN3858 | | | | 19 | | | |
| | R1/4" male, DIN2999 [7] | | | | 20 | | | |
| | R1/8" male, DIN3858 [3] | | | | 16 | | | |
| | M10x1 male, DIN EN ISO 6149-2 [8] | | | | 32 | | | |
| | M10x1 male, ISO 9974-2 [9] | | | | 70 | | | |
| | M12x1 male, DIN EN ISO 6149-2 [8] [10] | | | | 64 | | | |
| | M12x1.25 male, DIN EN ISO 6149-2 [8] [10] | | | | 65 | | | |
| | M12x1.5 male, DIN EN ISO 9974-2 | | | | 49 | | | |
| | M14x1.5 male DIN EN ISO 6149-2 [7] | | | | 31 | | | |
| **Electrical connection** | Male electrical connector, industrial standard, contact distance 9.4 mm, Mat. PA, EN 175301-803C | | | | | 01 | | |
| | Male electrical connector M12x1, 4-pole, Mat. PA, IEC 61076-2-101 | | | | | 32 | | |
| | Male electrical connector M12x1, 5-pole, Mat. PA, IEC 61076-2-101 | | | | | 35 | | |
| | Male electrical connector MIL-C 26482, 6-pole, metal | | | | | 02 | | |
| | Male electrical connector Deutsch DT04-3P, 3-pole | | | | | D3 | | |
| | Male electrical connector Deutsch DT04-4P, 4-pole | | | | | D4 | | |
| | Cable Mat. PVC, IP67/IP68, 2 x 2 x 0.14 $mm^2$, max. traction on cable: 2 N | | | | | 22 | | |
| | Cable Mat. PUR, IP67/IP68, 4 x 0.25 $mm^2$, shielded [11] | | | | | 24 | | |
| | Cable Mat. EPD Raychem FDR25, IP67, 4 x 0.2 $mm^2$, shielded [11] | | | | | 08 | | |
| | Cable Mat. Radox Tenuis, IP67/IP68, 4 x 0.5 $mm^2$, shielded [11] | | | | | 88 | | |
| | Compact design: Cable Mat. PVC, IP40, 2 x 2 x 0.14 $mm^2$, shielded, max. traction on cable: 2 N [7] [12] | | | | | A1 | | |
| | JST (or compatible) Board to Cable/Wire Disconnectable Crimp style connector, BM04B-SRSS-TB, IP20, 4-pole [7] | | | | | J4 | | |

# NAT 8252

| | | | | | 8252 | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output signal** | **Output signal** | **Load resistance** | **I (supply)** | **U (supply)** | | | | | | | |
| | 4 ... 20 mA | See graphic | (= signal output) | 24 (9 ... 32) VDC | | | | | | | **19** |
| | 0.5 ... 4.5 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **20** |
| | 0 ... 5 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **14** |
| | 0.1 ... 4.1 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **28** |
| | 0.1 ... 5.1 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **29** |
| | 0.5 ... 5 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **22** |
| | 1 ... 5 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **25** |
| | 0.5 ... 5.5 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **24** |
| | 1 ... 6 VDC | ≥ 5.0 kΩ to Us- | ≤ 20 mA | 24 (9 ... 32) VDC | | | | | | | **16** |
| | 0 ... 10 VDC | ≥ 5.0 kΩ to Us- | ≤ 15 mA | 24 (15 ... 32) VDC | | | | | | | **17** |
| | 1 ... 10 VDC | ≥ 5.0 kΩ to Us- | ≤ 15 mA | 24 (15 ... 32) VDC | | | | | | | **26** |
| | 0.1 ... 10.1 VDC | ≥ 5.0 kΩ to Us- | ≤ 15 mA | 24 (15 ... 32) VDC | | | | | | | **13** |
| | 0.5 ... 4.5 VDC ratiometric | ≥ 5.0 kΩ to Us- | ≤ 10 mA | 5 (4.75 ... 5.25) VDC | | | | | | | **23** |
| | 2 PNP transistors [13] | | ≤ 10 mA | 24 (9 ... 32) VDC | | | | | | | **PS** |
| | 1 PNP transistor [14] | | ≤ 10 mA | 24 (9 ... 32) VDC | | | | | | | **T1** |
| **Accessories** | Female electrical plug M12x1, 5-pole [15] | | | | | | | | | | **33** |
| | Female electrical plug industrial standard (for electrical connection 01), EN 175301-803C | | | | | | | | | | **34** |
| | Pressure peak damping element ø 1.0 mm | | | | | | | | | | **40** |
| | Pressure peak damping element ø 0.4 mm | | | | | | | | | | **44** |
| | Seal FKM, -18°C ... +125°C | | | | | | | | | | **61** |
| | Seal EPDM, -40°C ... +125°C | | | | | | | | | | **63** |
| | Seal NBR, -25°C ... +100°C | | | | | | | | | | **83** |
| | Cable length 0.5 m | | | | | | | | | | **EM** |
| | Cable length 1.0 m | | | | | | | | | | **1M** |
| | Cable length 2.0 m | | | | | | | | | | **2M** |
| | Parametrisation according to customer specification for output signal PS, T1 (see table: Parameters) | | | | | | | | | | **ZC** |
| | Parametrisation standard for output signal PS, T1 (see table: Parameters) | | | | | | | | | | **ZS** |
| | Multiple packaging [16] | | | | | | | | | | **VM** |
| | UL-listed, see table: Possible combinations for UL-listed variants | | | | | | | | | | **UL** |
| | Enhanced condensation protection | | | | | | | | | | **CP** |
| | Pin configuration, see table: Electrical connection | | | | | | | | | | |

[01] Customized pressure ranges upon request
[02] For measuring ranges ≥ 2 bar
[03] max. allowable pressure range 160 bar (2320 psi) at 480 bar (6961 psi) overpressure
[04] max. allowable pressure range 400 bar (5800 psi) at 600 bar (8700 psi) overpressure
[05] max. allowable pressure range 60 bar (870 psi) at 180 bar (2610 psi) overpressure
[06] Measuring range max. 630 bar according to SAE J1926-2 (Heavy Duty)
[07] Upon request, whereas minimum order quantities may apply
[08] max. allowable pressure range 250 bar (3626 psi) at 750 bar (10878 psi) overpressure
[09] max. pressure range 0 .. 160 bar, overpressure 480 bar
[10] Without seal, use seal geometry according DIN EN ISO 6149-2
[11] Cable length, see Accessories
[12] Cable length 2m only, with accessory 2M
[13] Only with electrical connections 32, 22, 24, 08, 88
[14] Only with electrical connections 32, 22, 24, 08, 88, D3
[15] For electrical connections 32 and 35
[16] The order quantity must be a multiple of 50, only for electrical connections 01, 32, 35, 02, D3, D4, not for pressure connection 30 with electrical connections 02, D3, D4

## Compatibility matrix pressure connector / damping / sealing

| Code | Pressure connection | Ø 1.0 mm (Code 40) | Ø 0.4 mm (Code 44) | Seal FKM (Code 61) | Seal EPDM (Code 63) | Seal NBR (Code 83) |
|---|---|---|---|---|---|---|
| 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 | | | | | |
| 54 | G1/8" male DIN3852-E | ✓ | ✓ | ✓ | ✓ | |
| 30 | 1/4" NPT male | ✓ | ✓ | | | |
| 43 | 1/8" NPT male | ✓ | ✓ | | | |
| 24 | 7/16"-20UNF female, SAE J512 with valve opener | | | | | |
| 44 | 7/16"-20UNF female, SAE J512 without valve opener | | | | | |
| 18 | 7/16"-20UNF male, DIN3866 | | | | | |
| 69 | 7/16"-20UNF-2A male, SAE J1926-2 (Heavy Duty) | ✓ | ✓ | ✓ | ✓ | |
| 67 | 9/16"-18UNF-2A male, SAE J1926-2 (Heavy Duty) | ✓ | ✓ | ✓ | ✓ | |
| 19 | R1/4" male, DIN3858 | ✓ | ✓ | | | |
| 20 | R1/4" male, DIN2999 | ✓ | ✓ | | | |
| 16 | R1/8" male, DIN3858 | ✓ | ✓ | | | |
| 32 | M10x1 male, DIN EN ISO 6149-2 | ✓ | ✓ | ✓ | | |
| 70 | M10x1 male, ISO 9974-2 | ✓ | ✓ | ✓ | | |
| 64 | M12x1 male, DIN EN ISO 6149-2 | ✓ | ✓ | | | |
| 65 | M12x1.25 male, DIN EN ISO 6149-2 | ✓ | ✓ | | | |
| 49 | M12x1.5 male, DIN EN ISO 9974-2 | ✓ | ✓ | ✓ | | |
| 31 | M14x1.5 male DIN EN ISO 6149-2 | ✓ | ✓ | ✓ | | |

## Ordering information: Possible type code combinations for UL-listed versions

| | Combination with UL |
|---|---|
| Measuring range | All ranges on datasheet |
| Sensor | All codes on datasheet |
| Pressure connection | All codes on datasheet |
| Electrical connection | All codes on datasheet |
| Output signal | All codes except PS and T1 |
| Accessories | All codes except GA, GS and GU |

## Signal processing

| Code | Cut-off frequency $f_G$ | Rise time (10 ... 90 % nominal pressure) | Output signal | | | |
|---|---|---|---|---|---|---|
| | | | 4 ... 20 mA | 0.5 ... 4.5 VDC ratiometric | 0 ... 6 VDC | 0 ... 10 VDC |
| GA [1)] | 11 Hz | 32 ms | x | x | - | - |
| Standard specification | 350 Hz | 1 ms | x | x | x | x |

[1)] Upon request

## Standard configurations

| Product No. | Type Code | Pressure range [bar] | Overpressure max. [bar] | Supply [VDC] | Accuracy @ 25°C typ. [%] |
|---|---|---|---|---|---|
| NAT2.5A | 8252 75 2517 01 0000 0000 19 34 44 61 | 0 ... 2.5 | 7.5 | 9 ... 32 | ±0.5 |
| NAT4.0A | 8252 76 2517 01 0000 0000 19 34 44 61 | 0 ... 4 | 12 | 9 ... 32 | ±0.5 |
| NAT6.0A | 8252 77 2517 01 0000 0000 19 34 44 61 | 0 ... 6 | 18 | 9...32 | ±0.5 |
| NAT10.0A | 8252 78 2517 01 0000 0000 19 34 44 61 | 0 ... 10 | 30 | 9...32 | ±0.5 |
| NAT16.0A | 8252 79 2517 01 0000 0000 19 34 44 61 | 0 ... 16 | 48 | 9 ... 32 | ±0.5 |
| NAT25.0A | 8252 80 2517 01 0000 0000 19 34 44 61 | 0 ... 25 | 75 | 9 ... 32 | ±0.5 |
| NAT40.0A | 8252 81 2517 01 0000 0000 19 34 44 61 | 0 ... 40 | 120 | 9 ... 32 | ±0.5 |
| NAT60.0A | 8252 82 2517 01 0000 0000 19 34 44 61 | 0 ... 60 | 180 | 9 ... 32 | ±0.5 |
| NAT100.0A | 8252 83 2517 01 0000 0000 19 34 44 61 | 0 ... 100 | 300 | 9 ... 32 | ±0.5 |
| NAT250.0A | 8252 74 2517 01 0000 0000 19 34 44 61 | 0 ... 250 | 750 | 9 ... 32 | ±0.5 |
| NAT400.0A | 8252 84 2517 01 0000 0000 19 34 44 61 | 0 ... 400 | 1000 | 9 ... 32 | ±0.5 |
| NAT600.0A | 8252 86 2517 01 0000 0000 19 34 44 61 | 0 ... 600 | 1500 | 9 ... 32 | ±0.5 |
| NAT2.5V | 8252 75 2517 01 0000 0000 17 34 44 61 | 0 ... 2.5 | 7.5 | 15 ... 32 | ±0.5 |
| NAT4.0V | 8252 76 2517 01 0000 0000 17 34 44 61 | 0 ... 4 | 12 | 15 ... 32 | ±0.5 |
| NAT6.0V | 8252 77 2517 01 0000 0000 17 34 44 61 | 0 ... 6 | 18 | 15 ... 32 | ±0.5 |
| NAT10.0V | 8252 78 2517 01 0000 0000 17 34 44 61 | 0 ... 10 | 30 | 15 ... 32 | ±0.5 |
| NAT16.0V | 8252 79 2517 01 0000 0000 17 34 44 61 | 0 ... 16 | 48 | 15 ... 32 | ±0.5 |
| NAT25.0V | 8252 80 2517 01 0000 0000 17 34 44 61 | 0 ... 25 | 75 | 15 ... 32 | ±0.5 |
| NAT40.0V | 8252 81 2517 01 0000 0000 17 34 44 61 | 0 ... 40 | 120 | 15 ... 32 | ±0.5 |
| NAT 60.0A | 8252 82 2517 01 0000 0000 19 34 44 61 | 0 ... 60 | 180 | 9 ... 32 | ±0.5 |
| NAT100.0V | 8252 83 2517 01 0000 0000 17 34 44 61 | 0 ... 100 | 300 | 15 ... 32 | ±0.5 |
| NAT250.0V | 8252 74 2517 01 0000 0000 17 34 44 61 | 0 ... 250 | 750 | 15 ... 32 | ±0.5 |
| NAT400.0V | 8252 84 2517 01 0000 0000 17 34 44 61 | 0 ... 400 | 1000 | 15 ... 32 | ±0.5 |
| NAT600.0V | 8252 86 2517 01 0000 0000 17 34 44 61 | 0 ... 600 | 1500 | 15 ... 32 | ±0.5 |
| NAT2.5AM | 8252 75 2517 32 0000 0000 19 33 44 61 | 0 ... 2.5 | 7.5 | 9 ... 32 | ±0.5 |
| NAT4.0AM | 8252 76 2517 32 0000 0000 19 33 44 61 | 0 ... 4 | 12 | 9 ... 32 | ±0.5 |
| NAT6.0AM | 8252 77 2517 32 0000 0000 19 33 44 61 | 0 ... 6 | 18 | 9 ... 32 | ±0.5 |
| NAT10.0AM | 8252 78 2517 32 0000 0000 19 33 44 61 | 0 ... 10 | 30 | 9 ... 32 | ±0.5 |
| NAT16.0AM | 8252 79 2517 32 0000 0000 19 33 44 61 | 0 ... 16 | 48 | 9 ... 32 | ±0.5 |
| NAT25.0AM | 8252 80 2517 32 0000 0000 19 33 44 61 | 0 ... 25 | 75 | 9 ... 32 | ±0.5 |
| NAT40.0AM | 8252 81 2517 32 0000 0000 19 33 44 61 | 0 ... 40 | 120 | 9 ... 32 | ±0.5 |
| NAT60.0AM | 8252 82 2517 32 0000 0000 19 33 44 61 | 0 ... 60 | 180 | 9 ... 32 | ±0.5 |
| NAT100.0AM | 8252 83 2517 32 0000 0000 19 33 44 61 | 0 ... 100 | 300 | 9 ... 32 | ±0.5 |
| NAT160.0AM | 8252 85 2517 32 0000 0000 19 33 44 61 | 0 ... 160 | 480 | 9 ... 32 | ±0.5 |
| NAT250.0AM | 8252 74 2517 32 0000 0000 19 33 44 61 | 0 ... 250 | 750 | 9 ... 32 | ±0.5 |
| NAT400.0AM | 8252 84 2517 32 0000 0000 19 33 44 61 | 0 ... 400 | 1000 | 9 ... 32 | ±0.5 |
| NAT600.0AM | 8252 86 2517 32 0000 0000 19 33 44 61 | 0 ... 600 | 1500 | 9 ... 32 | ±0.5 |

## Standard configurations

| Product No. | Type Code | Pressure range [bar] | Overpressure max. [bar] | Supply [VDC] | Accuracy @ 25°C typ. [%] |
|---|---|---|---|---|---|
| NAT2.5PS | 8252 75 2517 32 0000 0000 PS 44 61 ZS | 0 ... 2.5 | 7.5 | 9 ... 32 | ±0.5 |
| NAT4.0PS | 8252 76 2517 32 0000 0000 PS 44 61 ZS | 0 ... 4 | 12 | 9 ... 32 | ±0.5 |
| NAT6.0PS | 8252 77 2517 32 0000 0000 PS 44 61 ZS | 0 ... 6 | 18 | 9 ... 32 | ±0.5 |
| NAT10.0PS | 8252 78 2517 32 0000 0000 PS 44 61 ZS | 0 ... 10 | 30 | 9 ... 32 | ±0.5 |
| NAT16.0PS | 8252 79 2517 32 0000 0000 PS 44 61 ZS | 0 ... 16 | 48 | 9 ... 32 | ±0.5 |
| NAT25.0PS | 8252 80 2517 32 0000 0000 PS 44 61 ZS | 0 ... 25 | 75 | 9 ... 32 | ±0.5 |
| NAT40.0PS | 8252 81 2517 32 0000 0000 PS 44 61 ZS | 0 ... 40 | 120 | 9 ... 32 | ±0.5 |
| NAT60.0PS | 8252 82 2517 32 0000 0000 PS 44 61 ZS | 0 ... 60 | 180 | 9 ... 32 | ±0.5 |
| NAT100.0PS | 8252 83 2517 32 0000 0000 PS 44 61 ZS | 0 ... 100 | 300 | 9 ... 32 | ±0.5 |
| NAT160.0PS | 8252 85 2517 32 0000 0000 PS 44 61 ZS | 0 ... 160 | 480 | 9 ... 32 | ±0.5 |
| NAT250.0PS | 8252 74 2517 32 0000 0000 PS 44 61 ZS | 0 ... 250 | 750 | 9 ... 32 | ±0.5 |
| NAT400.0PS | 8252 84 2517 32 0000 0000 PS 44 61 ZS | 0 ... 400 | 1000 | 9 ... 32 | ±0.5 |
| NAT600.0PS | 8252 86 2517 32 0000 0000 PS 44 61 ZS | 0 ... 600 | 1500 | 9 ... 32 | ±0.5 |

## Parameters of switching output

| Name | Standard setting (accessory ZS) | Value range | Short name | Customer adjustment (accessory ZC) |
|---|---|---|---|---|
| Switch point SP1 (hysteresis mode)<br>Upper switch point FH1 (window mode) | 75 % Measuring range | > RP1, FL1 (2 ... 99 %)<br>Hysteresis ≥ 1 % FS | SP1 | |
| Reset point RP1 (hysteresis mode)<br>Lower switch point FL1 (window mode) | 25 % Measuring range | < SP1, FH1 (1 ... 98 %)<br>Hysteresis ≥ 1 % FS | RP1 | |
| Switch point SP2 (hysteresis mode)<br>Upper switch point FH2 (window mode) | 75 % Measuring range | > RP2, FL2 (2 ... 99 %)<br>Hysteresis ≥ 1 % FS | SP2 | |
| Reset point RP2 (hysteresis mode)<br>Lower switch point FL2 (window mode) | 25 % Measuring range | < SP2, FH2 (1 ... 98 %)<br>Hysteresis ≥ 1 % FS | RP2 | |
| Switch point delay time SP1 / RP1 (hysteresis mode)<br>Switch point delay time FH1 / FL1 (window mode) | 0 | 0; approx. $2^x$ [ms],<br>x = 3, 4 ... 16 | dS1 | |
| Switch point delay time SP2 / RP2 (hysteresis mode)<br>Switch point delay time FH2 / FL2 (window mode) | 0 | 0; approx. $2^x$ [ms],<br>x = 3, 4 ... 16 | dS2 | |
| Functions switching output 1 | Hysteresis, closer (Hno) | Hysteresis NO (Hno)<br>Hysteresis NC (Hnc)<br>Window NO (Fno)<br>Window NC (Fnc) | ou1 | |
| Functions switching output 2 | Hysteresis, closer (Hno) | Hysteresis NO (Hno)<br>Hysteresis NC (Hnc)<br>Window NO (Fno)<br>Window NC (Fnc)<br>Device ready | ou2 | |

**Parameterisation of switching points**

The switching points, delay times and output functions can be parameterised quickly and easily with the Sensor Master Communicator (SMC) application, which is available for Windows (PC) and Android smartphone.
The Android app is available in the Google Play Store and the Windows app is available in the Microsoft Store. The apps are free of charge.

- Data sheet SMI Sensor Master Interface: www.trafag.com/H72618
- Instruction for the Sensor Master Communicator App (SMC) and the Sensor Master Interface (SMI): www.trafag.com/H73618

## Specifications

| | | |
|---|---|---|
| **Electrical data** | Output / supply voltage | 4 ... 20 mA: 24 (9 ... 32) VDC<br>0 ... 6 VDC ranges: 24 (9 ... 32) VDC<br>0 ... 10.1 VDC ranges: 24 (15 ... 32) VDC<br>0.5 ... 4.5 VDC ratiometric: 10 ... 90 %<br>$U_s$: 5 ± 0.25 VDC<br>1 or 2 PNP transistors: 24 (9 ... 32) VDC |
| | Rise time of supply voltage | typ. 1 ms / 10 ... 90 % nominal pressure |
| | Power-on delay time pressure transmitters | 100 ms |
| | Power-on delay time pressure switches | 50 ms + switching delay time |
| | Inverse-polarity protection, short-circuit strength @ 25°C during 5 min. | 4 ... 20 mA: to $U_s$ = 32 VDC<br>0 ... 6 VDC ranges, 0 ... 10.1 VDC ranges: to $U_s$ = 28 VDC<br>0.5 ... 4.5 VDC ratiometric: to $U_s$ = 14 VDC<br>1 or 2 PNP transistors: to $U_s$ = 32 VDC |
| | Resistance of insulation | >10 MΩ, 50 VDC |
| | Dielectric strength | 50 VAC, 50 Hz |
| | Current limiting output signal | 4 ... 20 mA: 24 mA (Overload) |
| **Environmental conditions** | Media temperature | -40°C ... +125°C |
| | Ambient temperature | max. -40°C ... +125°C<br>(UL-rated ambient temperature: -20°C ... +80°C)<br>Details see section: Electrical Connection |
| | Storage temperature | -20°C ... +40°C |
| | Protection | IP20, IP40, IP65, IP67, IP68<br>Details see section: Electrical Connection |
| | Humidity | max. 95 % relative |
| | Vibration | 15 g RMS (20 ... 2000 Hz) (EN60068-2-64)<br>25 g sin (80 ... 2000 Hz), 1 oct./min, (1x @ 25°C) (EN60068-2-6) |
| | Shock | 50 g/11 ms<br>100 g/6 ms Male electrical plug M12x1 (EN60068-2-27) [2)] |
| **EMC protection [1)]** | 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, EPDM, NBR |
| | Male electrical connector | See ordering information |
| | Weight | ~ 50 g |
| | Mounting torque | 25 Nm |

[1)] Electrical connection J4 not EMC tested
[2)] For electrical connections 32 and 35

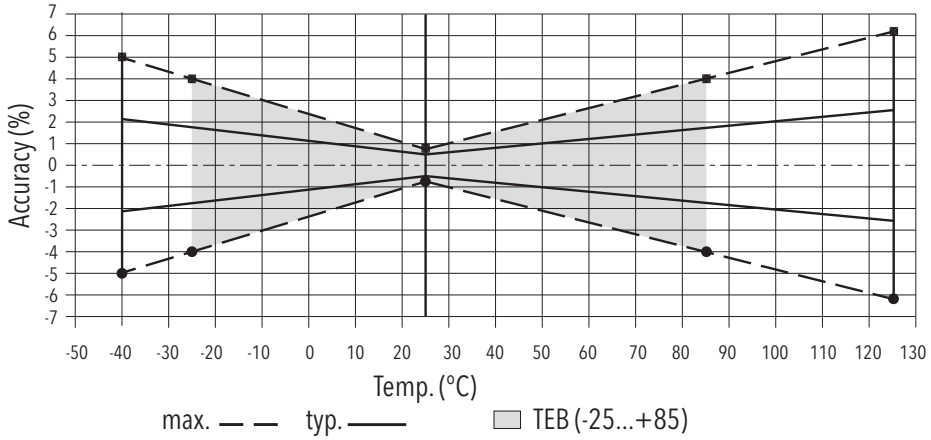
## Analogue output

| | | | |
|---|---|---|---|
| Accuracy | TEB @ -25 ... +85°C | [% FS typ.] | ± 1.75 |
| | Accuracy @ +25°C | [% FS typ.] | ± 0.5 |
| | NLH @ +25°C (BSL) | [% FS typ.] | ± 0.2 |
| | TC zero point and span | [% FS/K typ.] | ± 0.03 |
| | Long term stability 1 year @ +25°C | [% FS typ.] | ± 0.1 |
| Rise time | Typ. 1 ms / 10 ... 90 % nominal pressure | | |

## Switchpoint accuracy

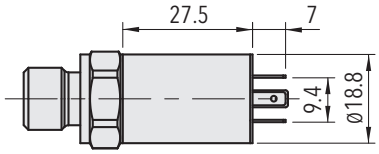
| | | | |
|---|---|---|---|
| Accuracy | TEB @ -25 ... +85°C | [% FS typ.] | ± 1.75 |
| | Accuracy @ +25°C | [% FS typ.] | ± 0.5 |
| | Long term stability 1 year @ +25°C | [% FS typ.] | ± 0.1 |
| Setting range of switchpoints | 1 ... 99 % FS | | |
| Distance switch point<br>Switch point > reset point | ≥ 1.0 % FS<br>Switchpoint > reset point | | |
| Switching resistance | ≤ 3 Ω | | |
| Output function | Hysteresis, Window; normally closed (NO), normally open (NC) | | |
| Switching current | -40°C ... +85°C<br>+85°C ... +125°C | (Ambient and media temperature)<br>(Ambient and media temperature) | ≤ 400 mA, total of both switching outputs<br>≤ 200 mA, total of both switching outputs |
| Current limiting | integrated | | |
| Life time | >100 x $10^6$ cycles | | |
| Delay time | 0; approx. $2^x$ [ms], x = 3, 4 ... 16 | | |
| Switching frequency | max. 60 Hz (at switching delay time = 0) | | |

## Measuring accuracy

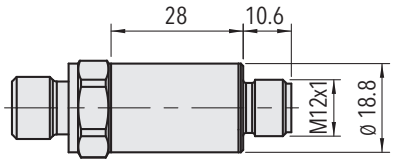


# NAT 8252

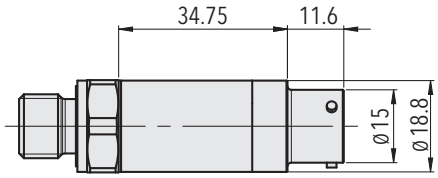
## Dimensions



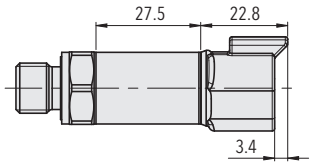

**8252**.XX.XXXX.**01**.XX.XX



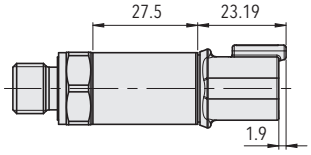

**8252**.XX.XXXX.**32**/**35**.XX.XX



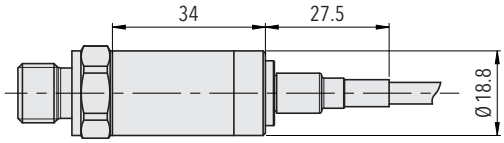

**8252**.XX.XXXX.**02**.XX.XX



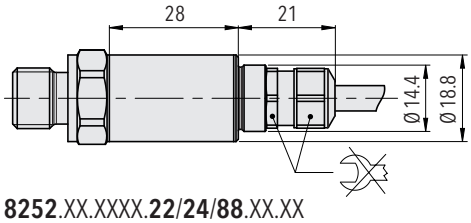

**8252**.XX.XXXX.**D3**.XX.XX



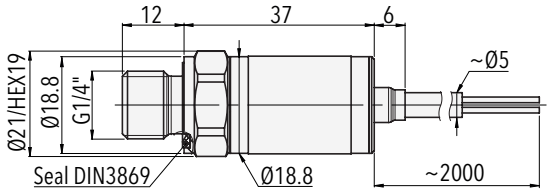

**8252**.XX.XXXX.**D4**.XX.XX



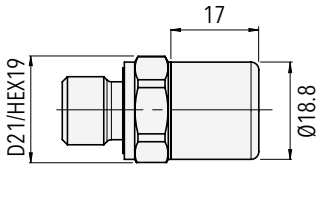

**8252**.XX.XXXX.**08**.XX.XX



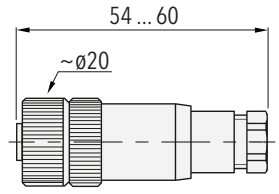

**8252**.XX.XXXX.**22**/**24**/**88**.XX.XX



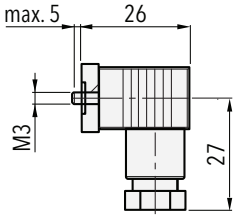

**8252**.XX.XXXX.**A1**.XX.XX




**8252**.XX.XXXX.**J4**.XX.XX



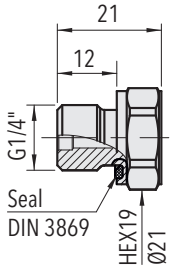

**8252**.XX.XXXX.XX.XX.**33**



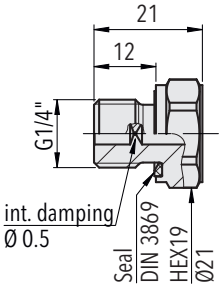

**8252**.XX.XXXX.XX.XX.**34**

# NAT 8252

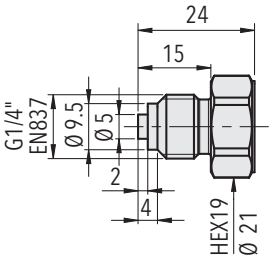
## Dimensions



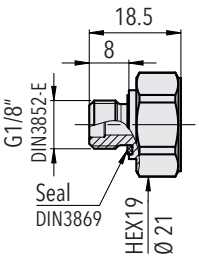

**8252**.XX.XX**17**.XX.XX.XX



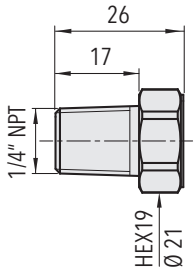

**8252**.XX.XX**15**.XX.XX.XX



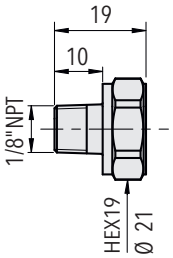

**8252**.XX.XX**53**.XX.XX.XX



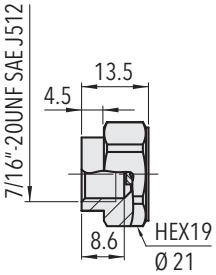

**8252**.XX.XX**54**.XX.XX.XX



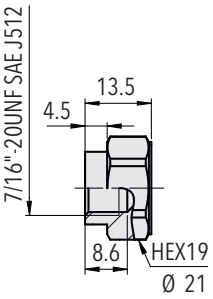

**8252**.XX.XX**30**.XX.XX.XX



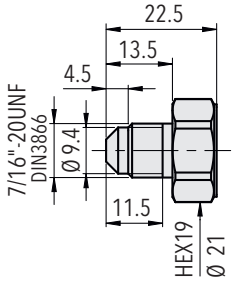

**8252**.XX.XX**43**.XX.XX.XX



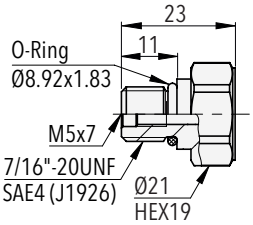

**8252**.XX.XX**24**.XX.XX.XX



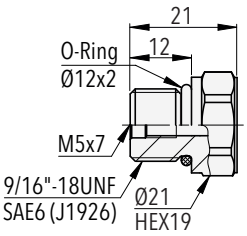

**8252**.XX.XX**44**.XX.XX.XX



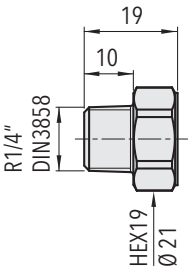

**8252**.XX.XX**18**.XX.XX.XX



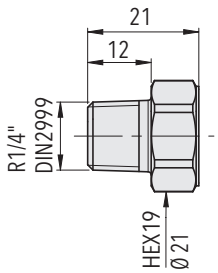

**8252**.XX.XX**69**.XX.XX.XX



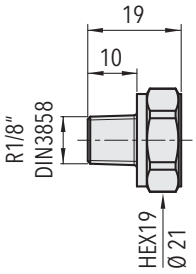

**8252**.XX.XX**67**.XX.XX.XX



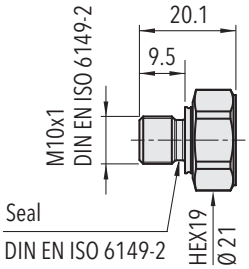

**8252**.XX.XX**19**.XX.XX.XX



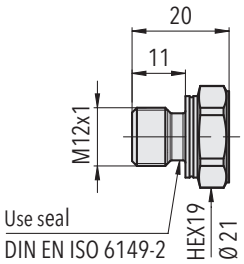

**8252**.XX.XX**20**.XX.XX.XX



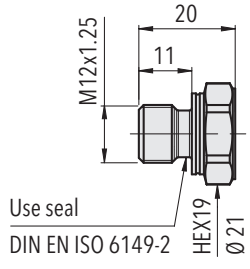

**8252**.XX.XX**16**.XX.XX.XX



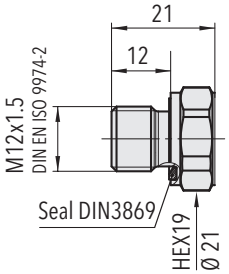

**8252**.XX.XX**32**.XX.XX.XX



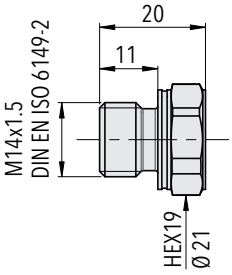

**8252**.XX.XX**64**.XX.XX.XX




**8252**.XX.XX**65**.XX.XX.XX



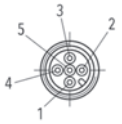
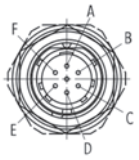

**8252**.XX.XX**49**.XX.XX.XX

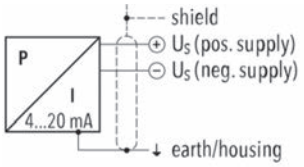


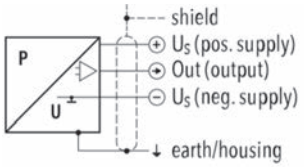

**8252**.XX.XX**31**.XX.XX.XX

# NAT 8252

## Electrical connection

| | Industrial standard, contact distance 9.4 mm | Cable | M12x1, 5-pole | MIL-C 26482 |
|---|---|---|---|---|
| | | |  |  |
| **Electrical connection type code** | 01 | 32 | 35 | 02 |
| **IP protection** | IP65 [1) 2)] | IP67 [1) 2)] | IP67 [1) 2)] | IP67 [1) 2)] |
| **Ambient temperature** | -40°C ... +80°C | -40°C … +125°C | -40°C … +125°C | -40°C … +125°C |
| **UL-rated ambient temperature** | -20°C … +80°C | -20°C … +80°C | -20°C … +80°C | -20°C … +80°C |

| **Pin assignment type code** | | **90** | **92** | | **E1** | **E6** | **F4** | **F5** | **G2** | **G5** | **G8** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output signal 8252.xx.xxxx.xx.19**  | | | | | | | | | | | | | |
| shield | | | | | | | | | | | | | |
| $U_S$ (pos. supply) | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 4 | A |
| $U_S$ (neg. supply) | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 3 | 2/3 | 4 | 2 | 1 | B |
| earth/housing | 4 | 3 | 4 | 4 | 4 | 2 | | | 4 | | 4 | 5 | E |

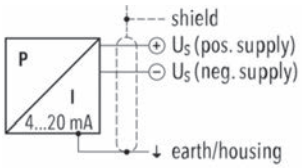
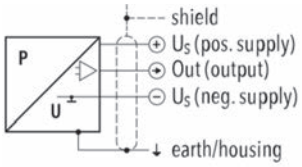
| **Pin assignment type code** | | **91** | **E3** | **E9** | | **95** | **96** | **E2** | **F6** | **F7** | **G1** | | | **F3** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output signal 8252.xx.xxxx.xx.13/14/16/17/20/22/23/24/25/26/28/29**  | | | | | | | | | | | | | | |
| shield | | | | | | | | | | | | | | |
| $U_S$ (pos. supply) | 1 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | A | A |
| Out (output) | 2 | 1 | 1 | 3 | 2 | 3 | 4 | 3 | 2 | 2 | 4 | 4 | B | C |
| $U_S$ (neg. supply) | 3 | 4 | 2 | 2 | 3 | 4 | 3 | 2 | 4 | 3 | 3 | 3 | C/D | B/D |
| earth/housing | 4 | 3 | 4 | 4 | 4 | 2 | 2 | 4 | 3 | | | 5 | E | E |

[1)] Provided female electrical plug is mounted according to instructions
[2)] Ventilation via male electric plug/cable end

Empty 'Pin Assignment Type Code' field: Default pinout

# NAT 8252

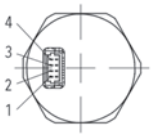
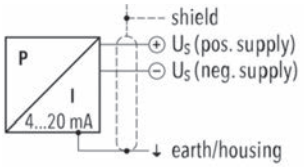
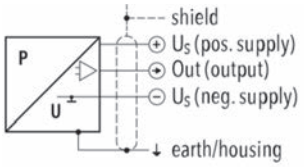
## Electrical connection

| | DT04-3P, 3-pole | DT04-4P, 4-pole | Cable | Cable | Cable |
|---|---|---|---|---|---|
| | | | | | |
| **Electrical connection type code** | D3 | D4 | 22 | 24 | 08 |
| **IP protection** | IP67, IP68 [1) 4)] | IP67, IP68 [1) 4)] | IP67, IP68 [2) 3)] | IP67, IP68 [2) 3)] | IP67 [2)] |
| **Ambient temperature** | -40°C … +125°C | -40°C … +125°C | -30°C ... +80°C | -40°C ... +70°C | -40°C … +125°C |
| **UL-rated ambient temperature** | -20°C … +80°C | -20°C … +80°C | -20°C … +80°C | -20°C ... +70°C | -20°C … +80°C |
| **Pin assignment type code** | **F0** | **G3** | | | |
| **Output signal**<br>**8252.xx.xxxx.xx.19**<br>  <br> | A<br>B | A<br>C | 2<br>3<br><br>3 | 2<br>1<br><br>3 | White<br>Brown<br><br>Yellow | White<br>Brown<br><br>Yellow | Red<br>Black<br><br>Green |
| **Pin assignment type code** | **F1** | **G4** | | | |
| **Output signal**<br>**8252.xx.xxxx.xx.13/14/16/17/20/22/23/24/25/26/28/29**<br>  <br> | A<br>C<br>B | A<br>B<br>C | 2<br>4<br>1<br><br>3 | 2<br>1<br>3 | White<br>Green<br>Brown<br><br>Yellow | White<br>Green<br>Brown<br><br>Yellow | Red<br>White<br>Black<br><br>Green |

[1)] Provided female electrical plug is mounted according to instructions
[2)] Ventilation via male electric plug/cable end
[3)] IP68, 20 bar, 30 min.
[4)] IP68, 100 mbar, 4h

Empty 'Pin Assignment Type Code' field: Default pinout

## Electrical connection

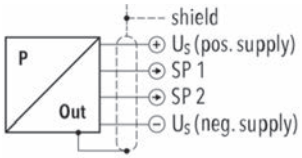
| | Cable | Cable | JST SH Series |
|---|---|---|---|
| | | |  |
| **Electrical connection type code** | 88 | A1 | J4 |
| **IP protection** | IP67, IP68 [2] [3] | IP40 | IP20 |
| **Ambient temperature** | -40°C ... +100°C | -30°C ... +80°C | -40°C … +125°C |
| **UL-rated ambient temperature** | -20°C … +80°C | -20°C … +80°C | -20°C … +80°C |
| **Pin assignment type code** | | | |
| **Output signal**<br>**8252.xx.xxxx.xx.19**<br>  | Brown<br>Black<br><br>Yellow/Green | Brown<br>White<br><br>Yellow | 1<br>2<br><br>4 |
| **Pin assignment type code** | | | |
| **Output signal**<br>**8252.xx.xxxx.xx.13/14/16/17/20/22/23/24/25/26/28/29**<br>  | Brown<br>Blue<br>Black<br><br>Yellow/Green | Brown<br>Green<br>White<br><br>Yellow | 1<br>3<br>2<br><br>4 |

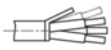
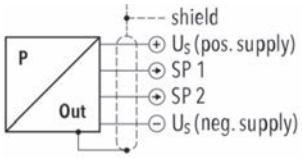
[2] Ventilation via male electric plug/cable end
[3] IP68, 20 bar, 30 min.

Empty 'Pin Assignment Type Code' field: Default pinout

# NAT 8252

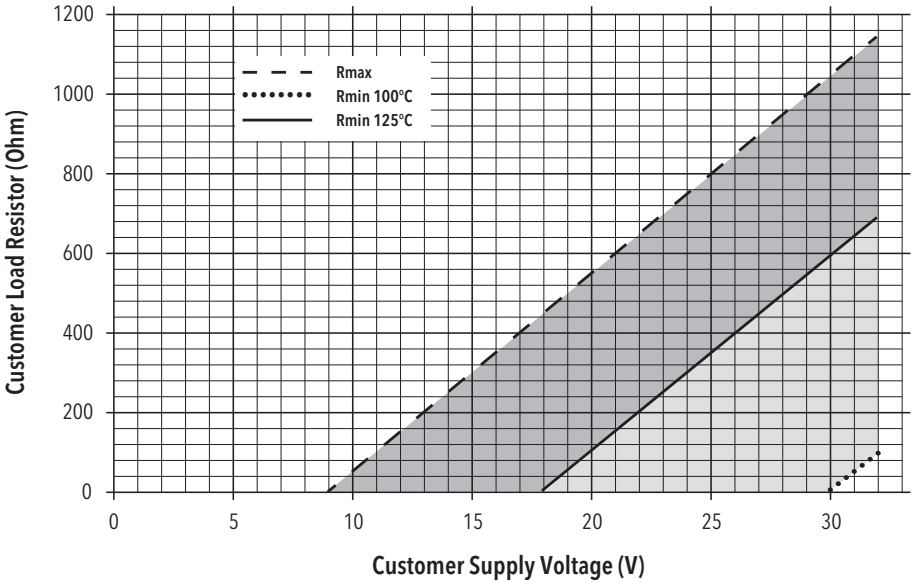
## Electrical connection

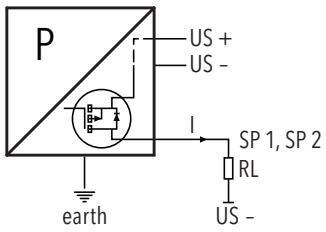
| | M12x1, 4-pole | | Cable | | Cable | |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Electrical connection type code** | 32 | | 22 | | 24 | |
| **IP protection** | IP67 [1) 2)] | | IP67, IP68 [2) 3)] | | IP67, IP68 [2) 3)] | |
| **Ambient temperature** | -40°C … +125°C | | -30°C ... +80°C | | -40°C ... +70°C | |
| **UL-rated ambient temperature** | -20°C … +80°C | | -20°C … +80°C | | -20°C ... +70°C | |
| **Pin assignment type code** | **PS** | **T1** | **PS** | **T1** | **PS** | **T1** |
| **Output signal**<br>**8252.xx.xxxx.xx.PS/T1**<br>  | 1<br>4<br>2<br>3 | 1<br>4<br>–<br>3 | White<br>Green<br>Yellow<br>Brown | White<br>Green<br>–<br>Brown | White<br>Green<br>Yellow<br>Brown | White<br>Green<br>–<br>Brown |

| | Cable | | Cable | | DT04-3P, 3-pole | |
|---|---|---|---|---|---|---|
| |  | | | | | |
| **Electrical connection type code** | 08 | | 88 | | D3 | |
| **IP protection** | IP67 [2)] | | IP67, IP68 [2) 3)] | | IP67, IP68 [1) 4)] | |
| **Ambient temperature** | -40°C … +125°C | | -40°C ... +100°C | | -40°C … +125°C | |
| **UL-rated ambient temperature** | -20°C … +80°C | | -20°C … +80°C | | -20°C … +80°C | |
| **Pin assignment type code** | **PS** | **T1** | **PS** | **T1** | **T1** | |
| **Output signal**<br>**8252.xx.xxxx.xx.PS/T1**<br>  | Red<br>White<br>Green<br>Black | Red<br>White<br>–<br>Black | Brown<br>Blue<br>Yellow/Green<br>Black | Brown<br>Blue<br>–<br>Black | A<br>C<br>–<br>B | |

[1)] Provided female electrical plug is mounted according to instructions
[2)] Ventilation via male electric plug/cable end
[3)] IP68, 20 bar, 30 min.
[4)] IP68, 100 mbar, 4h

### 4...20mA: min./max resistor vs. supply voltage @ Pmax = 100%

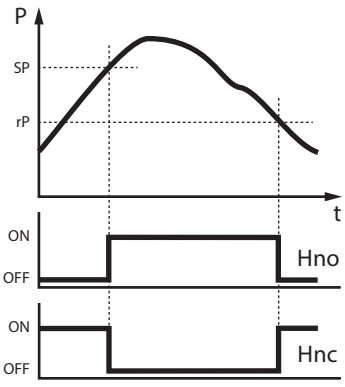


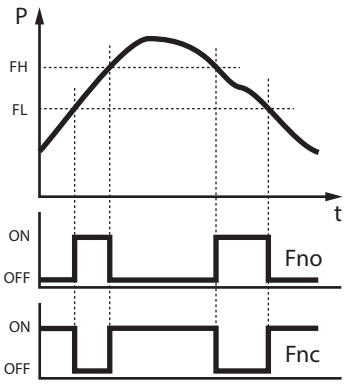

Connection of loads
to switching contacts

## Functions switching output

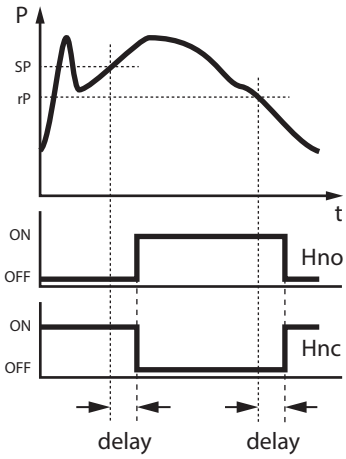
### Hysteresis




### Window



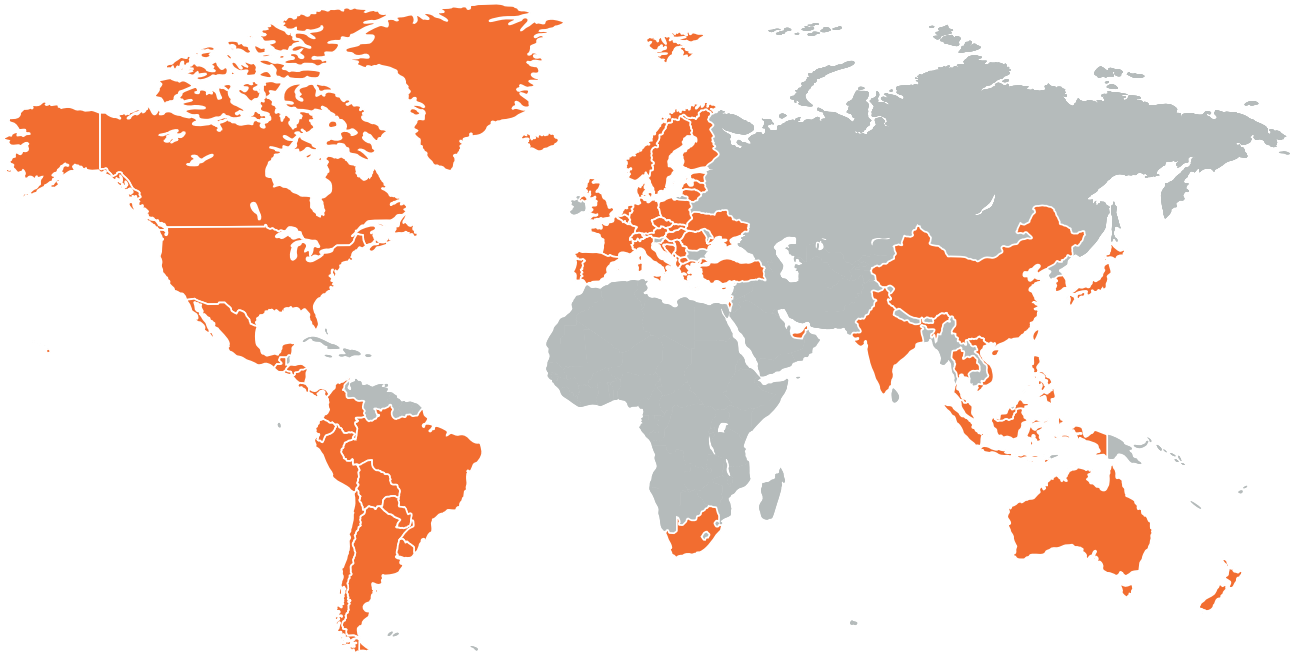

### Delay



# Reliable quality

## Worldwide represented, globally trusted, Swiss based

Trafag develops, produces and distributes robust, reliable and precise instruments for monitoring pressure, temperature and gas density.
The broad portfolio of pressure and temperature measuring instruments is tailored for use in test benches through to applications in harsh environments. The research and development departments in Switzerland and Germany develop all important components from the sensor to the application-specific microchip, which are then manufactured in the production facilities in Switzerland, Germany, the Czech Republic, and India. Strict quality management according to ISO 9001 and ISO 14001 ensures that Trafag products meet the required quality and sustainability standards.
Trafag is headquartered in Switzerland, was founded in 1942 and has an extensive sales and service network in more than 40 countries worldwide.

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