

# INDUSTRIAL PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The industrial pressure transmitter NAT 8252 features the extremely robust and stable thin-film-on-steel sensor element from its well-proven predecessor NAT 8251. In combination with the new inhouse developed ASIC TX it offers a wide temperature range up to 125°C and triple overpressure safety which makes it the perfect solution for a wide range of demanding applications.



04/2015

## 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
- High resistance to over pressure

Data sheet H72303h

## Technical Data

|                     |                                                                                          |                      |                                                                                 |
|---------------------|------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------|
| Measuring principle | Thin film on steel                                                                       | Accuracy @ 25°C typ. | ± 0.5 % FS typ.                                                                 |
| Measuring range     | 0 ... 2.5 to 0 ... 600 bar                                                               | Media temperature    | -40 ... +125°C                                                                  |
| Output signal       | 4 ... 20 mA<br>0 ... 5 VDC<br>1 ... 6 VDC<br>0 ... 10 VDC<br>0.5 ... 4.5 VDC ratiometric | Ambient temperature  | -40 ... +125°C<br>(Cable PVC 22: -5 ... +60°C)<br>(Cable PUR 24: -40 ... +70°C) |

Subject to change



|                    |                                                                                                                                                                       |    |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Accessories</b> | Female electrical plug M12x1, 5-pole <sup>2)</sup>                                                                                                                    | 33 |
|                    | Female electrical connector industrial standard <sup>3)</sup>                                                                                                         | 34 |
|                    | Pressure peak damping element ø 1.0 mm <sup>4)</sup>                                                                                                                  | 40 |
|                    | Pressure peak damping element ø 0.4 mm <sup>4)</sup>                                                                                                                  | 44 |
|                    | Seal FPM, -18...+125°C <sup>8)</sup>                                                                                                                                  | 61 |
|                    | Seal EPDM, -40...+125°C <sup>8)</sup>                                                                                                                                 | 63 |
|                    | Seal NBR, -25...+100°C <sup>8)</sup>                                                                                                                                  | 83 |
|                    | Special pin configuration: Pin 2: +, Pin 3: Ground, Pin 4: -<br>(Only for output signal 19 and male electrical plug 01, industrial standard)                          | 90 |
|                    | Special pin configuration: Pin 1: Out, Pin 2: +, Pin 3: Ground, Pin 4: -<br>(Only for output signals 14, 16, 17, 23 and male electrical plug 01, industrial standard) | 91 |
|                    | Special pin configuration: Pin 1: +, Pin 2: Ground, Pin 3: -, Pin 4: Out<br>(Only for output signals 14, 16, 17, 23 and male electrical plug 32, M12x1, 4-pole)       | 96 |
|                    | Special pin configuration: Pin 1: +, Pin 2: -, Pin 4: Ground<br>(Only for output signal 19 and male electrical plug 32, M12x1, 4-pole)                                | E1 |
|                    | Special pin configuration: Pin 1: +, Pin 2: -, Pin 3: Out, Pin 4: Ground<br>(Only for output signals 14, 16, 17, 23 and male electrical plug 32, M12x1, 4-pole)       | E2 |
|                    | Cable length 0.5 m                                                                                                                                                    | EM |
|                    | Cable length 1.0 m                                                                                                                                                    | 1M |
|                    | Cable length 2.0 m                                                                                                                                                    | 2M |

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

<sup>2)</sup> For electrical connections 32 and 35

<sup>3)</sup> For electrical connection 01

<sup>4)</sup> Max. allowable overpressure 120 bar

<sup>5)</sup> Max. allowable overpressure 500 bar

<sup>6)</sup> Only for pressure connections 17, 30, 32

<sup>7)</sup> Cable length see accessories

<sup>8)</sup> Only with pressure connection 17 (G1/4" m)

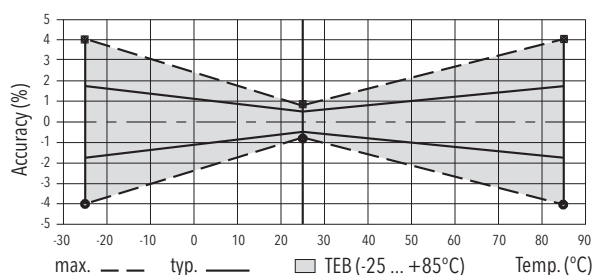
## Standard products (extra short lead time)

| Product No. | Type Code                             | Pressure range<br>[bar] | Over pressure<br>max.<br>[bar] | Supply<br>[VDC] | Accuracy @<br>25°C typ.<br>[%] |
|-------------|---------------------------------------|-------------------------|--------------------------------|-----------------|--------------------------------|
| 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                           |
| 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                           |
| 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                           |

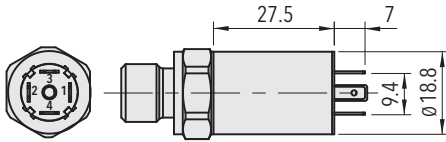
| Specifications           |                                 |                                                                                                                                                                                                             |
|--------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy                 | TEB typ. @ -25 ... +85°C        | ± 1.75 % FS typ.                                                                                                                                                                                            |
|                          | Accuracy @ 25°C typ.            | ± 0.5 % FS typ.                                                                                                                                                                                             |
|                          | NLH @ 25°C (BSL) typ.           | ± 0.2 % FS typ.                                                                                                                                                                                             |
|                          | TC zero point and span typ.     | ± 0.03 % .FS/K typ.                                                                                                                                                                                         |
|                          | Long term stability 1 year typ. | < ± 0.2 % FS typ.                                                                                                                                                                                           |
| Electrical Data          | Output / supply voltage         | 4 ... 20 mA: 24 (9...32) VDC<br>0 ... 5 VDC: 24 (9...32) VDC<br>1 ... 6 VDC: 24 (9...32) VDC<br>0 ... 10 VDC: 24 (15...32) VDC<br>0.5 ... 4.5 VDC ratiom.,<br>10 ... 90% U <sub>supply</sub> : 5 ± 0.25 VDC |
|                          | Rise time                       | typ. 1 ms/10...90 % nominal pressure                                                                                                                                                                        |
|                          | Switch-on-delay                 | 100 ms                                                                                                                                                                                                      |
|                          |                                 |                                                                                                                                                                                                             |
| Environmental conditions | Media temperature               | -40 ... +125°C                                                                                                                                                                                              |
|                          | Ambient temperature             | -40 ... +125°C<br>(Cable PVC 22: -5 ... +60°C)<br>(Cable PUR 24: -40 ... +70°C)                                                                                                                             |
|                          | Protection <sup>1)</sup>        | Min. IP65                                                                                                                                                                                                   |
|                          | Humidity                        | Max. 95 % relative                                                                                                                                                                                          |
|                          | Vibration                       | 15 g RMS (20...2000 Hz)<br>25 g sin (80...2000 Hz), 1 Okt./min, (1x @ 25°C)                                                                                                                                 |
|                          | Shock                           | 50 g / 11 ms                                                                                                                                                                                                |
| EMC Protection           | Emission                        | EN/IEC 61000-6-3                                                                                                                                                                                            |
|                          | Immunity                        | EN/IEC 61000-6-2                                                                                                                                                                                            |
| Mechanical Data          | Sensor                          | 1.4542 (AISI630)                                                                                                                                                                                            |
|                          | Housing / Pressure connection   | 1.4301 (AISI304)                                                                                                                                                                                            |
|                          | Sealing                         | FPM/EPDM/NBR                                                                                                                                                                                                |
|                          | Male electrical plug            | see ordering information                                                                                                                                                                                    |
|                          | Weight                          | appr. 50 g                                                                                                                                                                                                  |
|                          | Mounting torque                 | 25 Nm                                                                                                                                                                                                       |

<sup>1)</sup> Provided female connector is mounted according to instructions

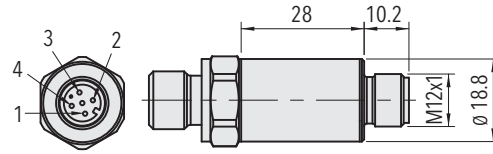
## Measuring accuracy



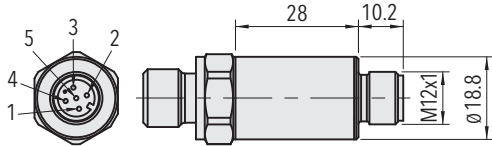
## Dimensions



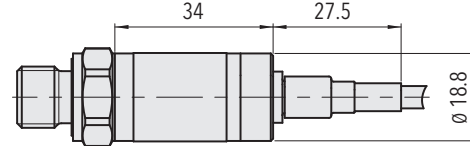
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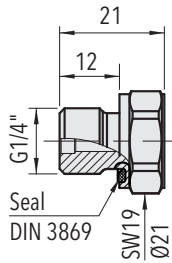
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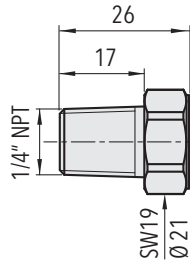
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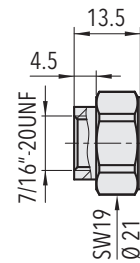
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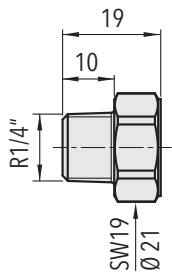
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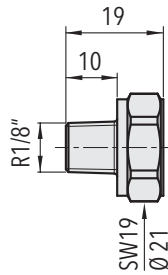
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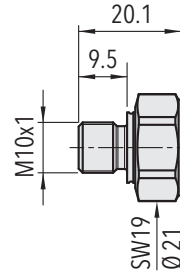
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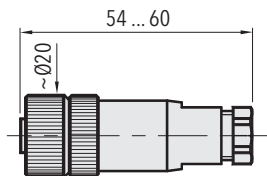
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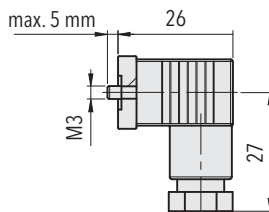
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8252.XX.XX32.XX.XX.XX

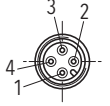
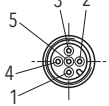
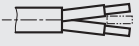
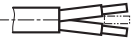
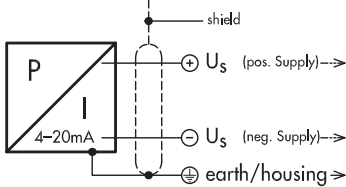
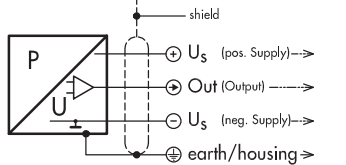


8252.XX.XXXX.XX.XX.33



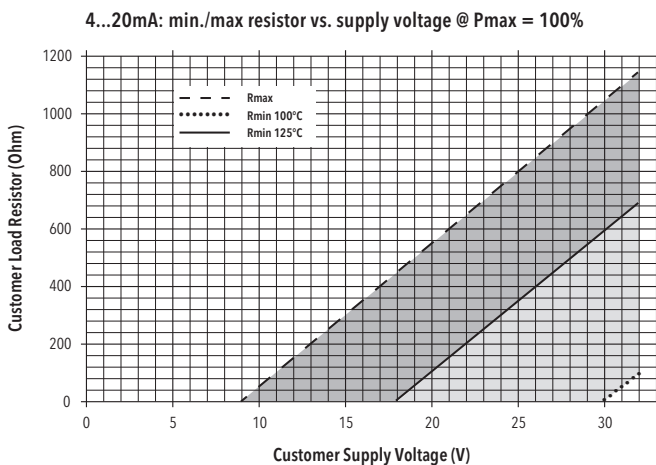
8252.XX.XXXX.XX.XX.34

## Electrical Connection

| Protection / electrical connection                                                |                                                                                   |                                                                                   |   |                                                                                     |   |                                                                                     |                                                                                     |       |  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|--|
| IP65 *)**)                                                                        |                                                                                   | IP67 *)**)                                                                        |   |                                                                                     |   | IP67**)                                                                             | IP67**)                                                                             |       |  |
| Industrial standard<br>Contact distance<br>9.4 mm                                 |                                                                                   | M12x1                                                                             |   |                                                                                     |   | Cable                                                                               | Cable                                                                               |       |  |
| <b>01</b>                                                                         |                                                                                   | 4-pole<br><b>32</b>                                                               |   | 5-pole<br><b>35</b>                                                                 |   | <b>22/24</b>                                                                        | <b>08</b>                                                                           |       |  |
|  |                                                                                   |  |   |  |   |  |  |       |  |
| Output signal                                                                     |  | <b>90</b>                                                                         |   | <b>E1</b>                                                                           |   |                                                                                     |                                                                                     |       |  |
|                                                                                   | <b>8252.XX.XXXX.XX.19</b>                                                         | 2                                                                                 | 2 | 1                                                                                   | 1 | 4                                                                                   | white                                                                               | red   |  |
|                                                                                   |                                                                                   | 1                                                                                 | 4 | 3                                                                                   | 2 | 1                                                                                   | brown                                                                               | black |  |
|                                                                                   |                                                                                   | 4                                                                                 | 3 | 4                                                                                   | 4 | 5                                                                                   | yellow                                                                              | green |  |
|                                                                                   |  | <b>91</b>                                                                         |   | <b>96</b>                                                                           |   | <b>E2</b>                                                                           |                                                                                     |       |  |
|                                                                                   | <b>8252.XX.XXXX.XX.14/16/17/23</b>                                                | 1                                                                                 | 2 | 1                                                                                   | 1 | 2                                                                                   | white                                                                               | red   |  |
|                                                                                   |                                                                                   | 2                                                                                 | 1 | 2                                                                                   | 4 | 3                                                                                   | green                                                                               | white |  |
|                                                                                   |                                                                                   | 3                                                                                 | 4 | 3                                                                                   | 3 | 2                                                                                   | brown                                                                               | black |  |
|                                                                                   |                                                                                   | 4                                                                                 | 3 | 4                                                                                   | 2 | 4                                                                                   | yellow                                                                              | green |  |

\*1) Provided female connector is mounted according to instructions

\*\*1) Ventilation via male electric plug/cable end



### Additional information

#### Documents

|              |                                                                  |
|--------------|------------------------------------------------------------------|
| Data sheet   | <a href="http://www.trafag.com/H72303">www.trafag.com/H72303</a> |
| Instructions | <a href="http://www.trafag.com/H73303">www.trafag.com/H73303</a> |
| Flyer        | <a href="http://www.trafag.com/H70666">www.trafag.com/H70666</a> |