

# SUBMERSIBLE PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The new Submersible Pressure Transmitter ECL is based on Trafag's own thick-film-on-ceramic technology. Together with the inhouse developed high performance ASIC chip electronics it ensures a high level of accuracy over a wide temperature range.



## Applications

- Process technology
- Water treatment



## Features

- Good media compatibility
- Economical
- PUR/PE or FEP cable
- EMC protection, IEC 61000
- For OEM use

07/2014

Data sheet H72328e

## Technical Data

|                     |                           |                      |   |
|---------------------|---------------------------|----------------------|---|
| Measuring principle | Thick film on ceramic     | Accuracy @ 25°C typ. | ± 0.3 % FS typ.<br>Range 0...0.1 to 0...0.4 bar:<br>± 0.5 % FS typ. |
| Measuring range     | 0 ... 0.1 to 0 ... 25 bar | Media temperature    | -25°C ... 80°C (70°C)   |
| Output signal       | 4...20 mA                 | Approval             | GL, KRS   |

Subject to change

## Ordering information/type code

| 8438 . XX . XX . XX . XX . XX |  |                                  |                      |              |
|-------------------------------|--|----------------------------------|----------------------|--------------|
| Measuring range <sup>1)</sup> | Pressure measurement range [bar]             | Over pressure [bar]              | Burst pressure [bar] |              |
|                               | 0 ... 0.1                                    | 2                                | 3                    | 66           |
|                               | 0 ... 0.16                                   | 2                                | 3                    | 67           |
|                               | 0 ... 0.2                                    | 2                                | 3                    | 68           |
|                               | 0 ... 0.4                                    | 2                                | 3                    | 69           |
|                               | 0 ... 0.6                                    | 2                                | 3                    | 70           |
|                               | 0 ... 1.0                                    | 3.2                              | 4.8                  | 71           |
|                               | 0 ... 1.6                                    | 3.2                              | 4.8                  | 73           |
|                               | 0 ... 2.5                                    | 5                                | 7.5                  | 75           |
|                               | 0 ... 4                                      | 8                                | 12                   | 76           |
|                               | 0 ... 6                                      | 12                               | 15                   | 77           |
|                               | 0 ... 10                                     | 20                               | 25                   | 78           |
|                               | 0 ... 16                                     | 32                               | 40                   | 79           |
|                               | 0 ... 25                                     | 50                               | 75                   | 80           |
| Sensor                        | Relative pressure > 400 mbar, accuracy 0.3%  |                                  |                      | 23           |
|                               | Relative pressure ≤ 400 mbar, accuracy: 0.5% |                                  |                      | 26           |
| Pressure connection           | Type 1, female, M 10x1, 1.4404/1.4435        |                                  |                      | 46           |
|                               | Type 2, male, M 22x1, 1.4404/1.4435          |                                  |                      | 48           |
| Electrical connection         | Cable: PUR ø 6 mm <sup>2) 3)</sup>           |                                  |                      | 22           |
|                               | Cable: FEP ø 6 mm <sup>2) 3)</sup>           |                                  |                      | 32           |
|                               | Cable: PE ø 6 mm <sup>2) 3)</sup>            |                                  |                      | 42           |
| Output                        | Output                                       | Load resistance                  | I (supply)           | U (supply)   |
|                               | 4 ... 20mA                                   | (U <sub>supply</sub> -9V) / 20mA |                      | 9 ... 30 VDC |
| Accessories                   | O-Ring FKM                                   |                                  |                      | 19           |
|                               | O-Ring CR                                    |                                  |                      | 61           |
|                               | O-Ring EPDM                                  |                                  |                      | 62           |
|                               |  |                                  |                      | 63           |

<sup>1)</sup> Extended overpressure as well as customized pressure ranges upon request

<sup>2)</sup> Please specify cable length when ordering (cable lengths >50m upon request)

<sup>3)</sup> For level measurement applications on ships under certification GL (German Lloyd), the cable of such transmitters must be installed inside the tank only

## Standard products (extra short lead time)

| Product No. | Type Code                             | Pressure range [bar] | Over pressure max. [bar] | Supply [VDC] | Cable length |
|-------------|---------------------------------------|----------------------|--------------------------|--------------|--------------|
| ECL0.2A     | 8438 68 2646 22 0000 0000 19 61 5M    | 0...0.2              | 2                        | 9...30       | 5m           |
| ECL0.5A     | 8438 21 2346 22 0000 0000 19 61 8M 01 | 0...0.5              | 2                        | 9...30       | 10m          |

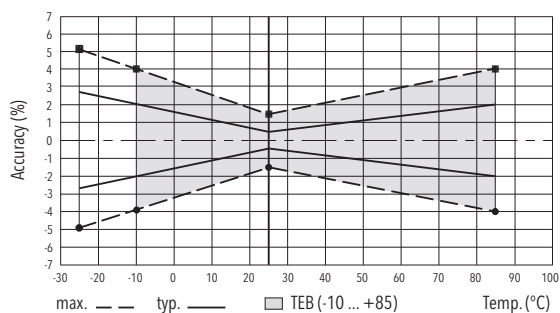
## Specifications

|                                 |                               |   |
|---------------------------------|-------------------------------|---|
| <b>Electrical Data</b>          | Output / supply voltage       | 4...20 mA: 24 (9...32) VDC                    |
|                                 | Rise time                     | typ. 1 ms/10...90% nominal pressure           |
|                                 | Switch-on-delay               | Max. 1.5 s                                    |
| <b>Environmental Conditions</b> | Media temperature             | -25°C ... 80°C (70°C)                         |
|                                 | Ambient temperature           | -25°C ... 80°C (70°C)                         |
|                                 | Protection                    | IP68 (25 bar; 250m)                           |
|                                 | Vibration                     | 6g (25...2000 Hz)                             |
|                                 | Shock                         | 50g/ 8 ms                                     |
| <b>EMC Protection</b>           | Emission                      | EN/IEC 61000-6-3                              |
|                                 | Immunity                      | EN/IEC 61000-6-2                              |
| <b>Mechanical Data</b>          | Sensor                        | Ceramic, Al <sub>2</sub> O <sub>3</sub> (96%) |
|                                 | Housing / Pressure connection | 1.4404/1.4435 (AISI316L)                      |
|                                 | Sealing                       | FKM 70 Sh<br>CR, EPDM                         |
|                                 | Weight                        | ~ 200 g                                       |

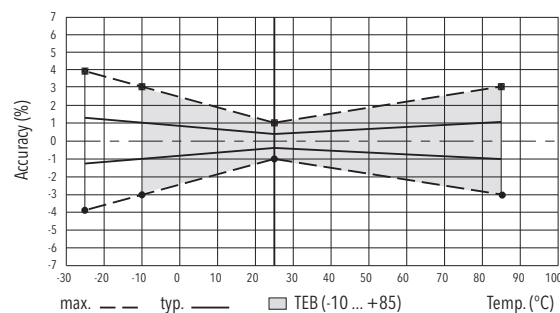
## Accuracy

|                                    |               | Measuring accuracy 0.3%<br>Ordering No. 23 | Measuring accuracy 0.5%<br>Ordering No. 26 |
|------------------------------------|---------------|--|--|
| TEB @ -10...+80°C                  | [% FS typ.]   | ± 1.0                                      | ± 2.0                                      |
| Accuracy @ +25°C                   | [% FS typ.]   | ± 0.3                                      | ± 0.5                                      |
| NLH @ +25°C (BSL)                  | [% FS typ.]   | ± 0.2                                      | ± 0.3                                      |
| TC zero point and span             | [% FS/K typ.] | ± 0.02                                     | ± 0.02                                     |
| Long term stability 1 year @ +25°C | [% FS typ.]   | ± 0.2                                      | ± 0.2                                      |

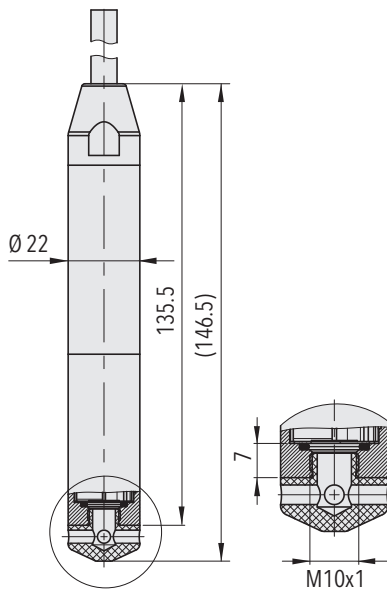
## Measuring accuracy 0.5%



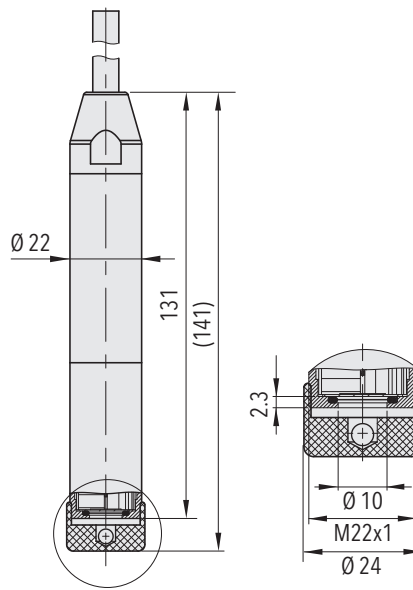
## Measuring accuracy 0.3%



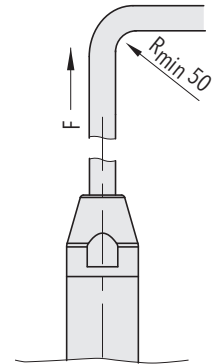
## Dimensions



8438.XX.XX46.XX.XX.XX



8438.XX.XX48.XX.XX.XX



F = max. 12 kg (120 N)

## Electrical Connection

| Protection / electrical connection |  |  |  |
|------------------------------------|--|--|--|
| Output signal                      | IP68 (25 bar; 250m)  | IP68 (25 bar; 250m)  | IP68 (25 bar; 250m)  |
|                                    | Cable PUR<br>Ø 6 mm (5x0.22mm²)<br><b>22</b>                                     | Cable FEP<br>Ø 6 mm (5x0.22mm²)<br><b>32</b>                                     | Cable PE<br>Ø 6 mm (5x0.22mm²)<br><b>42</b>                                      |
|                                    | Shield   | Shield   | Shield   |
|                                    | Venting  | Venting  | Venting  |
|                                    |  |  |  |
| <p><b>8438.XX.XXXX.XX.19</b></p>   | white<br>brown<br>yellow<br><br>(green = not connected)<br>(red = not connected) | white<br>brown<br>yellow<br><br>(green = not connected)<br>(red = not connected) | white<br>brown<br>yellow<br><br>(green = not connected)<br>(red = not connected) |
| Temperature range                  | -25 ... +70°C  | -25 ... +80°C  | -25 ... +70°C  |

Any manipulation on the ventilation tube will result in warranty loss

\*\*\*) For all cable versions

## Additional information

### Documents

|              |  |
|--------------|--|
| Data sheet   | <a href="http://www.trafag.com/H72328">www.trafag.com/H72328</a> |
| Instructions | <a href="http://www.trafag.com/H73328">www.trafag.com/H73328</a> |
| Flyer        | <a href="http://www.trafag.com/H70641">www.trafag.com/H70641</a> |