

## Submersible Level Transmitter

### ATM.1ST/N19 - Miniature Level Transmitter



#### CUSTOMER BENEFITS

- Submersible level transmitter with a diameter of 19 mm
- Any measuring ranges between 0 ... 1 mH<sub>2</sub>O and 0 ... 250 mH<sub>2</sub>O available
- Static accuracies available to 0.05 %FS
- Hysteresis and repeatability better than 0.01 %
- Piezoresistive technology suitable for static and dynamic pressure measurements

# Technical Specifications

## PRESSURE MEASURING RANGE (MH2O)

| Pressure range                                  | 0 ... 1 to 0 ... < 5   | 0 ... 5 to 0 ... < 10  | 0 ... 10 to 0 ... 250             |
|-------------------------------------------------|------------------------|------------------------|-----------------------------------|
| Overpressure (Proof)                            | 3 bar                  | 3 bar                  | 3 x FS                            |
| Burst pressure                                  | > 200 bar              | > 200 bar              | > 200 bar                         |
| Accuracy, (1) ( $\pm$ % FS)                     | $\leq 0.25$            | $\leq 0.2 / \leq 0.1$  | $\leq 0.2 / \leq 0.1 / \leq 0.05$ |
| Total Error, (2)<br>( $\pm$ % FS ; typ. / max.) |                        |                        |                                   |
| -5 ... 50°C compensated                         | $\leq 0.2 / 0.4$       | $\leq 0.2 / 0.4$       | $\leq 0.15 / 0.3$                 |
| -5 ... 80°C compensated                         | $\leq 0.3 / 0.5$       | $\leq 0.3 / 0.5$       | $\leq 0.2 / 0.4$                  |
| Response time, (typ.)                           | < 1ms / 10 ... 90 % FS | < 1ms / 10 ... 90 % FS | < 1ms / 10 ... 90 % FS            |
| Long term stability,<br>(typ./max. per year)    | < 1 mbar / < 2 mbar    | < 1 mbar / < 2 mbar    | < 0.1% FS / < 0.2% FS             |

(1) Zero based accuracy according to EN-61298, incl. hysteresis and repeatability at ambient temperature

(2) Total error including accuracy and temperature influences at maximum signal span (16 mA / 10 V DC)

## TEMPERATURE RANGE

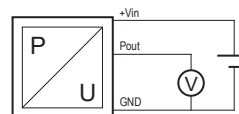
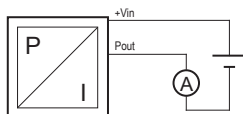
|                       |                  |
|-----------------------|------------------|
| Operating temperature | -5 ... 80°C, (1) |
| Process temperature   | -5 ... 80°C, (1) |
| Storage temperature   | -40 ... 100°C    |

(1) For operating temperature > 50°C, PE or FEP cable must be used

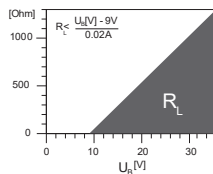
## ELECTRICAL SPECIFICATIONS

|                            |               |                                  |                |
|----------------------------|---------------|----------------------------------|----------------|
| Output signal              | 4 ... 20 mA   | 0.5 ... 4.5 V DC<br>0 ... 5 V DC | 0 ... 10 V DC  |
| Power supply               | 9 ... 33 V DC | 10 ... 30 V DC                   | 12 ... 30 V DC |
| Supply influence           | < 0.05 % FS   | < 0.05 % FS                      | < 0.05 % FS    |
| Current consumption (typ.) | n.a.          | 3 mA                             | 3 mA           |
| Start-up time, (1)         | $\leq 170$ ms | $\leq 170$ ms                    | $\leq 170$ ms  |

Circuit diagram



Load resistance



$$R_L > 10 \text{ kOhm}$$

|                             |             |             |             |
|-----------------------------|-------------|-------------|-------------|
| Load influence              | < 0.05 % FS | < 0.05 % FS | < 0.05 % FS |
| Reverse polarity protection | Yes         | Yes         | Yes         |
| Short-circuit resistance    | n.a.        | Yes         | Yes         |

(1) typical start-up time at 25°C, might vary under different temperatures

## QUALIFICATIONS

|              | Description | Level |
|--------------|-------------|-------|
| EN 61326-2-3 | EMC         |       |
| EN 61000-6-2 | EMC         |       |
| EN 61000-6-3 | EMC         |       |

## PHYSICAL SPECIFICATIONS

|             |                                                  |
|-------------|--------------------------------------------------|
| Oil filling | Standard: Silicone Oil<br>Optional: Anderol Food |
| Transducer  | Stainless steel (316L / 1.4435)                  |
| Housing     | Stainless steel (316L / 1.4435)                  |

## Accessories

### MANUALS

| Article number | Description                       |            |
|----------------|-----------------------------------|------------|
| DMM029         | Operating and safety instructions | 10.88.0092 |

# Ordering information

| Type                                                                                             | x | xxxx | xxxx | xx | xxx |
|--------------------------------------------------------------------------------------------------|---|------|------|----|-----|
| ATM.1ST/N19                                                                                      |   |      |      |    |     |
| <b>Pressure type</b>                                                                             |   |      |      |    |     |
| Gauge                                                                                            | 1 |      |      |    |     |
| Absolute                                                                                         | 2 |      |      |    |     |
| <b>Pressure measuring range</b>                                                                  |   |      |      |    |     |
| Any measuring ranges between 0 ... 1 mH <sub>2</sub> O and 0 ... 250 mH <sub>2</sub> O available |   | xx   |      |    |     |
| <b>Process connection</b>                                                                        |   |      |      |    |     |
| Closed, nose cone POM, (Fig. 1)                                                                  |   | 55   |      |    |     |
| Other process connections on request                                                             |   | 99   |      |    |     |
| <b>Electrical connection</b>                                                                     |   |      |      |    |     |
| PE cable, black, IP 68, (1)                                                                      |   |      | 13   |    |     |
| PUR cable, black, IP 68, (1), (2)                                                                |   |      | 15   |    |     |
| FEP cable, black, IP 68, (1)                                                                     |   |      | 21   |    |     |
| Other electrical connections on request                                                          |   |      | 99   |    |     |
| <b>Output signal</b>                                                                             |   |      |      |    |     |
| 0.5 ... 4.5 VDC                                                                                  |   |      | 41   |    |     |
| 0 ... 5 VDC                                                                                      |   |      | 46   |    |     |
| 0 ... 10 VDC                                                                                     |   |      | 47   |    |     |
| 4 ... 20 mA                                                                                      |   |      | 05   |    |     |
| <b>Accuracy</b>                                                                                  |   |      |      |    |     |
| ≤ ± 0.2 % FS (1 mH <sub>2</sub> O ... 250 mH <sub>2</sub> O)                                     |   |      |      | 4  |     |
| ≤ ± 0.1 % FS (1 mH <sub>2</sub> O ... 250 mH <sub>2</sub> O)                                     |   |      |      | 2  |     |
| ≤ ± 0.05 % FS (10 mH <sub>2</sub> O ... 250 mH <sub>2</sub> O)                                   |   |      |      | 6  |     |
| <b>Temperaturbereich</b>                                                                         |   |      |      |    |     |
| -5 ... 50°C compensated<br>(allowed process temperature: - 5 ... 50°C)                           |   |      |      | 4  |     |
| -5 ... 80°C compensated<br>(allowed process temperature: - 5 ... 80°C), (2)                      |   |      |      | 5  |     |
| <b>Options</b>                                                                                   |   |      |      |    |     |
| Special oil filling: Anderol Food<br>(for food applications)                                     |   |      |      |    | G   |
| Seals: FKM (standard)                                                                            |   |      |      |    | U   |
| Seals: EPDM                                                                                      |   |      |      |    | S   |
| Seals: Kalrez, (3)                                                                               |   |      |      |    | T   |
| Humidity filter element for gauge versions                                                       |   |      |      |    | Z   |

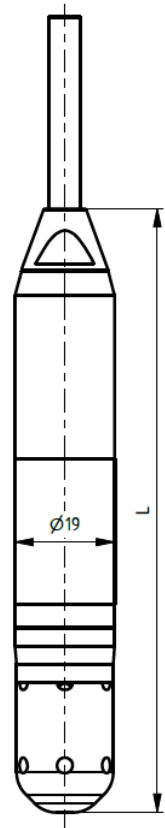
(1) Please specify the required cable length and medium

(2) For operating temperature > 50°C, PE or FEP cable must be used

(3) Only available with FEP cable

Dimensions

Fig. 1  
Closed version



| Version           | L [mm]  | Weight [g]<br>(without cable) | Colour                            | 2-wire                     | 3-wire                        |
|-------------------|---------|-------------------------------|-----------------------------------|----------------------------|-------------------------------|
| Figure 1 - closed | ca. 116 | ca. 120                       | white<br>yellow<br>brown<br>black | +Vin<br>Pout<br><br>Shield | +Vin<br>GND<br>Pout<br>Shield |