

## Reliability, durability, quality – a new class in hygienic temperature measurement

# TSM – One Temperature sensor for All

### Flex-Hybrid Technology: IO-Link and 4...20 mA

The Flex Hybrid Technology with IO-Link and 4...20 mA combines the best of two worlds: Data can be transmitted from the sensor in **digital, analog, or parallel mode**.

- Thanks to its flexible plug & play communication, **installation and commissioning are time- and cost-saving.**
- **Simple individual programming** with IO-Link Master, e.g., for changing the measuring range or for two-point calibration using offset and span
- Sensor replacement is **easier than ever before**, thanks to the "Smart Replace Design" with automatic sensor identification, configuration, and parameter setting.

### The new standard for temperature

The Anderson-Negele temperature sensors are already **synonymous with quality, reliability, and durability**. The new TSM series can outperform even this:

- **Extended process temperature range: -50...350 °F**
- Considerably **improved measuring accuracy:  $\pm 0.1$  K**
- Higher **ambient temperature resistance: 185 °F**
- **Robust One-piece design** entirely in stainless steel: Long-term stability and application reliability

### Consistently configurable and compatible

Thanks to the **completely configurable concept**, you can design **your individual sensor** in just a few steps. Nearly all combinations are possible.

- For **new equipment**, Flex-Hybrid technology offers maximum flexibility and sustainability.
- For **retrofitting**, TSM can replace any TSMU mini-sensor in existing installations - with all additional benefits
- For the **replacement of third-party devices**, a suitable model is always possible due to the large selection of process adaptations and maximum flexibility in the configuration

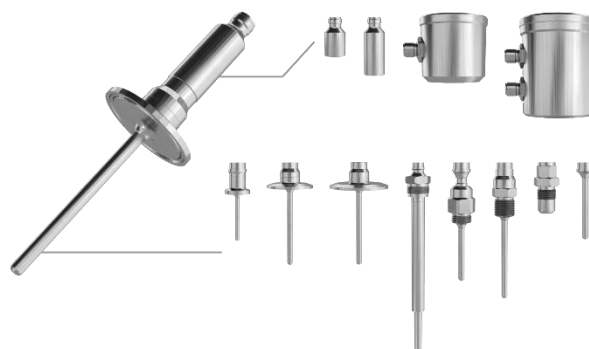
### Alternative Version: TSB (Ø 2.1") with extended functions



### Technical specification at a glance

- **One Temperature sensor for all applications**
- Extremely **compact Mini version** (Head Ø 0.7")
- **Flex-Hybrid Technology** with digital + analog interface (**IO-Link + 4...20 mA**)
- **Configurable Design: step-by-step selection** from the economic basic version to the high-end model
- Insertion length **0...43 " (0" ...15/16")**
- **Version for flush installation available**
- Installation with thermowell possible, thus **sensor removal without process opening**
- **Protection class IP 69K** for max. application safety
- **Two-point calibration** possible using offset and slope

### Configurable design: Maximum flexibility for simplified individualization



Order code

**TSMA** Temperatur Sensor Mini for Food Applications, material wetted parts 1.4404 (AISI 316L)

Process connection (Ⓐ: 3-A conform)

- |     |                     |     |                                      |
|-----|---------------------|-----|--------------------------------------|
| 001 | Tri-Clamp 1/2"      | 074 | E1 Style - 1/4" Dia. Ⓐ               |
| 002 | Tri-Clamp 3/4" Ⓐ    | 075 | E1 Style - 3/8" Dia. Ⓐ               |
| 004 | Tri-Clamp 1½" Ⓐ     | 079 | E3 Style - 1/4" Dia. (w/ adj. union) |
| 005 | Tri-Clamp 2" Ⓐ      | 080 | E3 Style - 3/8" Dia. (w/ adj. union) |
| 062 | Thermo Well 41247 Ⓐ | 084 | 1/2" NPT Ⓐ                           |
|     |                     | 174 | 1/2" NPT Spring Loaded Ⓐ             |

**X** Fixed character

RTD type

- 0** 1x Pt100 A, 3-wire

Insertion length [inches]

- 01...43** In steps of 1 inch

Insertion length [sixteenth]

- |           |       |           |        |
|-----------|-------|-----------|--------|
| <b>00</b> | 0"    | <b>08</b> | 1/2"   |
| <b>01</b> | 1/16" | <b>09</b> | 9/16"  |
| <b>02</b> | 1/8"  | <b>10</b> | 5/8"   |
| <b>03</b> | 3/16" | <b>11</b> | 11/16" |
| <b>04</b> | 1/4"  | <b>12</b> | 3/4"   |
| <b>05</b> | 5/16" | <b>13</b> | 13/16" |
| <b>06</b> | 3/8"  | <b>14</b> | 7/8"   |
| <b>07</b> | 7/16" | <b>15</b> | 15/16" |

Rod diameter (process connection specific)

- |           |                                     |
|-----------|-------------------------------------|
| <b>20</b> | 5/32" (001, 002)                    |
| <b>21</b> | 1/4" (004, 005, 074, 079, 084, 174) |
| <b>22</b> | 3/8" (075, 080)                     |
| <b>23</b> | 3/4" (004, 005)                     |
| <b>24</b> | 41247 Well (062)                    |

**XX** Fixed character

Surface finish

- 1**  $R_a \leq 25 \mu\text{in}$

Transmitter

- |          |                                    |
|----------|------------------------------------|
| <b>0</b> | Without transmitter                |
| <b>I</b> | TTM.I (IO-Link only)               |
| <b>H</b> | TTM.H (hybrid: analog and IO-Link) |

Measurement range

- |            |                          |            |             |
|------------|--------------------------|------------|-------------|
| <b>000</b> | Without transmitter      | <b>04C</b> | -10...40 °C |
| <b>00C</b> | Unit °C (only for TTM.I) | <b>05C</b> | 0...50 °C   |
| <b>00F</b> | Unit °F (only for TTM.I) | <b>10C</b> | 0...100 °C  |
| <b>00K</b> | Unit K (only for TTM.I)  | <b>15C</b> | 0...150 °C  |
| <b>M00</b> | TTM custom configuration | <b>20C</b> | 0...200 °C  |
|            |                          | <b>25C</b> | 0...250 °C  |
|            |                          | <b>10F</b> | 0...100 °F  |
|            |                          | <b>15F</b> | 0...150 °F  |
|            |                          | <b>20F</b> | 0...200 °F  |
|            |                          | <b>23F</b> | 30...230 °F |
|            |                          | <b>25F</b> | 0...250 °F  |

Electrical connection with transmitter

- 4** M12 plug (4 pin,  $\leq 90 \text{ °C} / 197 \text{ °F}$ )

**XX** Fixed character

TSMA / 001 / X / 0 / 0100 / 20 / XX / 1 / 0 / 000 / 4 / XX