

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

TSB – One Temperature sensor for All

The new temperature class

With its flexibility, performance and unparalleled reliability and durability, the TSB sets new standards in temperature measurement.

- **Process temperature range: -50...350 °F (-45...176 °C)**
- **Improved measuring accuracy: < ±0.1 K**
- **Higher ambient temperature resistance: 185 °F (85°C)**
- **One-piece design completely in stainless steel: lasting stability and application reliability**

IO-Link & 4...20 mA with Flex-Hybrid

The **Flex-Hybrid technology** with IO-Link and 4...20 mA combines the **best of both worlds**: Data can be transmitted in **digital or analog** mode.

- **Flexible plug & play communication: installation and commissioning save both time and costs**
- **Simple individual programming** with IO-Link master, e.g. changing the measuring range or two-point adjustment using offset and span
- **Sensor replacement is easier than ever before** thanks to the "Smart Replace Design" with automatic sensor identification, configuration, and parameterization through IO-Link

Fully modular and TFP compatible

Thanks to the **completely modular concept**, you can configure **your individual sensor** in just a few steps.

- For **new equipment**, Flex-Hybrid technology offers maximum flexibility and sustainability.
- For **retrofitting**, TSB can replace any TS 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

Also available as mini version TSM



Technical specification at a glance

- **One Temperature sensor for all applications**
- **Flex-Hybrid Technology** with digital + analog interface (IO-Link + 4...20 mA)
- **Modular Design: step-by-step configuration** from the economic basic version to the high-end model
- Available with up to two **integrated transmitters**
- **Head orientation** vertical or horizontal,
- Optional **LCD Display** with programming function
- Insertion length **1...43 inch**
- Slim sensor tip for **reduced response time**
- **Protection class IP 69K** for max. application safety
- **Two-point calibration** possible using offset and span

Configurable design for Maximum flexibility



Order code

TSBA Temperature Sensor Big

Process connection (Ⓐ: 3-A compliant, Ⓢ: 3-A compliant when used with 3-A compliant well.)

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
2 2x Pt100 A, 3-wire

Insertion length [inches] **Insertion length [sixteenth]**

01...43 in steps of 1 inch	00 0"	08 1/2"
	01 1/16"	09 9/16"
	02 1/8"	10 5/8"
	03 3/16"	11 11/16"
	04 1/4"	12 3/4"
	05 5/16"	13 13/16"
	06 3/8"	14 7/8"
	07 7/16"	15 15/16"

Rod diameter (process connection specific)

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

XX Fixed character

Surface finish

1 R _a ≤ 25 µin

Transmitter

0 without transmitter
H TTB.H (Hybrid: analog and IO Link)
D TTB.D (Hybrid: analog and IO-Link with optional display connector)
Z TTB.Z: 1st transmitter TTB.D, 2nd transmitter TTB.H
Y TTB.Y: 1st transmitter TTB.H, 2nd transmitter TTB.H

Measurement range (Ⓢ-full range value)

000 without transmitter	04C -10...40 °C
00C Unit °C Ⓢ	05C 0...50 °C
00F Unit °F *	10C 0...100 °C
00K Unit K Ⓢ	15C 0...150 °C
M00 TTB custom configuration	20C 0...200 °C
	25C 0...250 °C
	10F 0...100 °F
	15F 0...150 °F
	20F 0...200 °F
	23F 30...230 °F
	25F 0...250 °F
	30F 0...300 °F

Electrical connection with transmitter

1 1x cable gland
2 2x cable gland
4 1x M12 plug (4 pin)
5 2x M12 plug (4 pin)

Enclosure

X opaque plastic cap
P clear plastic cap
M stainless steel cap without control window
W stainless steel cap with control window

Head orientation

without display
0 vertical
with display
1 vertical
2 horizontal

TSBA / 001 / X / 0 / 0100 / 20 / XX / 1 / H / 000 / 4 / X / 0

60041 / 1.1 / 2024-12-10 / en-na / MH

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