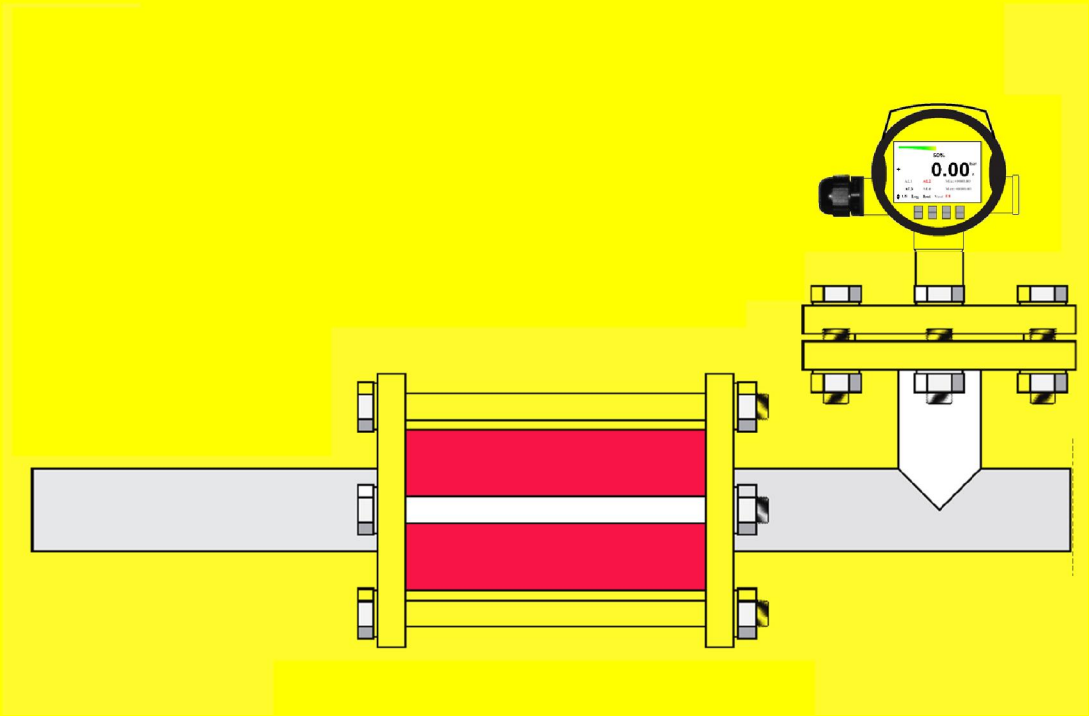
Smart Temperature Transmitter
MODEL: SB-TT

SMART BIENE.



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Measuring principle

SB-TT Smart Temperature transmitter measures high precision process temperature using thermocouples or RTD sensors in 2, 3 or 4 wire configuration:

- **SB-TT** measures microvolt changes by thermocouples and as result calculates temperature using **ITS-90** standard Equations.
- **SB-TT** measures resistance changes in RTD and as a result calculates temperature using **ITS-90** standard Equations.

SB-TT uses High Precision 24 Bit A/D converters to measure microvolt signals from the sensor. It's Heart of the outstanding Performance.

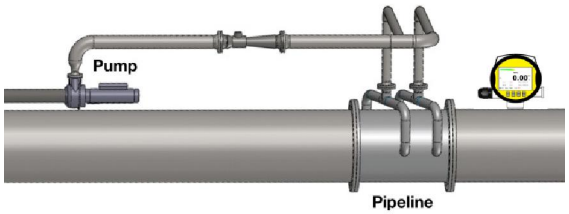


Figure 2. SB-TT as a pipeline temperature measurement

Sensor Type	Measuring Range ˚C	Precision ˚C
B	250 to 1820	±0.6
E	-200 to 1000	±0.4
J	-210 to 1200	±0.4
K	-200 to 1372	±0.4
N	-200 to 1300	±0.4
R	-50 to 1768	±0.4
S	-50 to 1768	±0.4
T	-200 to 400	±0.4

Sensor Type	Measuring Range ˚C	Precision ˚C
PT-50	-200 to 850	±0.1
PT-100 (α=0.00385)	-200 to 850	±0.1
PT-200	-200 to 500	±0.1
PT-500	-100 to 455	±0.1
PT-1000	-100 to 200	±0.1
CU-10	-100 to 150	±0.1
Ni-120	-80 to 260	±0.1

Figure 1. SB-TT Smart Temperature transmitter

All Sensor Types

- **SB-TT** smart temperature transmitter measures temperature by 8 types of thermocouples **(B, E, J, K, N, R, S, T)** selectable by user. **SB-TT** uses a high precision sensor (±0.4 ˚C) for Cold Junction temperature measurement.
- you can measure any millivolt source (any type of sensor transducer with volt output) by **SB-TT** and Define a Linear equation between measured signal and display or output values.
- **SB-TT** smart temperature transmitter measures temperature by 7 types of RTD (PT50, PT100, PT200, PT500, PT1000, CU10, NI 120) selectable by user.
- You can also measure any resistor (any type of sensor transducer with resistance output like potentiometer) by **SB-TT** and Define a Linear equation between measured signal and display or output values.

Sensor Type	Measuring Range Ω	Precision Ω
Resistor (Potentiometer)	0 to 5000	±0.0005

Sensor Type	Measuring Range mv	Precision µv
Millivolt Input	-170 to 170	±1

MEASURING SPECIFICATIONS

Reference Condition: 25 ˚C (77 ˚F):

- Stability: < ±0.2% of span for 12 months.
- Response Time: 2 sample / sec.
- Output Resolution: 0.05% FS (URL)
- LCD Accuracy:±0.05% FS (URL) + last digit

*URL: Accuracy includes the effects of linearity, Hysteresis, and repeatability.

ELECTRICAL SPECIFICATIONS

- Display: 2.8 inch full-color TFT LCD with LED Backlight.
- Power Supply: 24VDC.
- Voltage Output: 0-10 , 0-5 V, MIN Load: 10KΩ
- Current Output: 0-10 , 0-20 , 4-20 mA , MAX Load: 500Ω
- Relay Output: 2 or 4 Relays, 0.5A-220VAC or 4A-30VDC.
- 2 Wire Modbus-RTU communication protocol.
- Insulation Resistance: 50Vdc (>100MΩ).
- All In/Out Ports: 30VDC Circuit Protected.
- CE Compliance: EMC Directive 2004/108/EC IEC/EN 61326-1: 2006 (EMI Class A/ EMS Table 2).

MECHANICAL SPECIFICATIONS

- Robust NEMA 4X (IP66) aluminum Die cast housing for panel.
- Mounting torque: 15...20 nm.
- Mounting Accessories: U-Bolt
- Weight: ~ 1900 g.

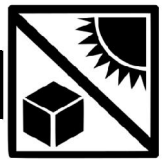
ENVIRONMENTAL CONDITIONS

- Operating temperature: -25 ...+85°c
- Humidity: max. 95%
- Relative vibration: 2g (10...2000 Hz)
- Shock: 5g/ 8 ms.

ESD CAUTION

ESD (electrostatic discharge) sensitive device: Electrostatic charges as high as 4000 V readily accumulate on the human body and test equipment and can discharge without detection. Although this product features proprietary ESD protection circuitry, permanent damage may occur on devices subjected to high energy electrostatic discharges. Therefore, proper ESD precautions are recommended to avoid performance degradation or loss of functionality.

CAUTION



- **Some liquid mixtures are dangerous. This includes mixtures that occur because of contamination. Make sure that the device is safe to use with the necessary media.**
- **It is dangerous to ignore the specified limits for the device or to use the device when it is not in its normal condition. Use the applicable protection and obey all safety precautions.**
- **Keep LCD away from direct sunlight.**
- **Before you start an operation or procedure, make sure that you have the necessary skills (if necessary, with qualifications from an approved training establishment).**

MODEL SELECTION

S	B	-	T	T	-	-	-	-	-	1	0	4	0	-	G	-	-	-	-	-	-	-	-	-	U	L	-	-

Device Type:

TT: Smart Temperature transmitter.

Output:

1: Current Output (0-20/4-20 mA)	**0:** NO Current Output
1: Voltage Output (0-5/0-10 V)	**0:** NO Voltage Output
2: Two-Relay Output	**4:** Four-Relay Output
1: Modbus-RTU Output	**0:** NO Modbus-RTU Output

Connection Type:

G: G 1/2" -female

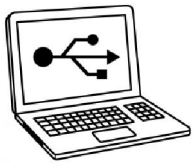
Options:

UL: USB Connection & Data Logger.

T: External Trimming Potentiometer.

Adjustment via PC-USB

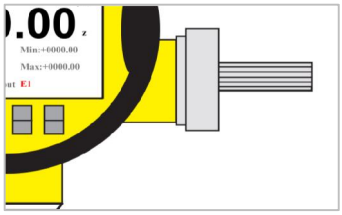
- You can also adjust device via USB connecting to pc and using device Software, refer to page 15.



EXTERNAL TRIMPOT

External trimming Potentiometer can be used for External Configuration of ALARM Value:

- No need to Enter in Menu
- You can see alarm value in main page 1.
- User friendly for machine operators.



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