

Indicating Temperature Transmitter/Controller

SERIES: TST300

- > 4-20 mA OUTPUT
- > 4-DIGIT DISPLAY
- > TWO ON/OFF OUTPUTS
- > SIMPLE CONFIGURATION
- > GALVANIC ISOLATION (T/C INPUT)
- > DRIFT-FREE LINEARISATION
- > SEALED TO IP-65



INTRODUCTION

The Indumart Loop-powered Indicating Temperature Transmitter/Controller (TST300) is a compact system which has incorporated the latest digital technology to provide accurate and reproducible conversion of 2 or 3-wire RTD or thermocouple signals to industry standard 4-20 mA output and to indicate the process temperature on its large 4-digit display. Moreover, the TST300 with its 2 alarm outputs can be used as an ON/OFF controller to trigger external relays. The setpoint, hysteresis, direction of the alarms and their time delay can be programmed by the user.

High accuracy and drift-free linearization coupled with digital filters are designed to produce stable readings with good accuracy.

Configuration of the TST300 is easy. The temperature transmitter is configured with the aid of either a calibrator or an RTD/Thermocouple simulator. The display and contact parameters such as, setpoints, hysteresis, direction and delay time, and setting the span of the indicator to indicate the desired engineering unit are programmed via a two-key hidden keyboard.

The TST300 is waterproof (IP65), and when coupled with thermocouple sensors, it galvanically isolates the input signal from the output. The unit can be mounted straight to the RTD or thermocouple sensor, or be wall mounted and connected to the temperature probe via a wire. Optionally, the instrument can be ordered with DIN rail mounting clamp.

SPECIFICATIONS

RTD Input

Sensor 3-wire Pt-100 RTD Sensor Range -200...850°C

Transmitter Accuracy ±0.1 °C ±0.1% rdg (100...500 °C)

 $\pm 0.2^{\circ}C \pm 0.2\% \text{ rdg} \text{ (-200...800°C)}$

Minimum Span 20°C

Excitation Current 1 mA maximum

Lead Resistance 10 Ω per leg maximum Sensor Lead Length <3m to maintain CE compliance

Voltage Effect 0.4 µA/Volt Transmitter Accuracy ±5 µA

Thermal Drift ±0.01°C/°C for zero 50 ppm for span

Thermocouple Input

Sensor Type K-J-T, R-S-B, J-F-E, K-N-R

-200 to 1820°C **Sensor Range**

depending on T/C

Transmitter Accuracy ±0.04%FS ±0.04%rdg or 0.5°C

Minimum Span 10°C

Linearisation BS4937/ IEC 584-1

Cold Junction Tracking 0.02°C/°C Cold Junction Range -20...70°C

Sensor Lead Length <3m to maintain CE compliance Input/Output Isolation 50 VDC (tested to 200 V)

Outputs

Analogue Output 4-20 mA

Alarm Output Transistor gate

(open collector NPN)

Switching Current 100 mA maximum **Switching Voltage** 40 VDC maximum Adjustable Parameters Setpoint, Hysteresis,

direction and delay time

Indication

Display 4-digit LCD, 14mm high

Display Range -1999 to 999

Decimal Position User programmable

Burn-out Upscale (Downscale option)

Sample Rate 500 ms

0.05% of span ± 1 digit Accuracy 0.005% of span for 1°C **Temperature Drift**

10.5 to 30 VDC **Supply Voltage**

General

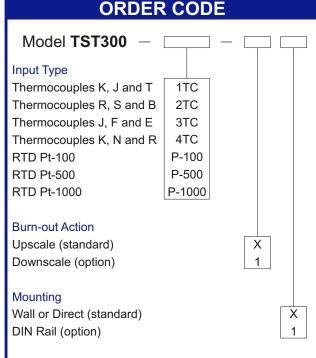
Case Material ABS Environ. Protection IP65

Ambient Condition -10...+65°C; 0 to 95% RH Mounting Wall, Probe, DIN rail (option) **Dimensions** 80x80x60 mm (WxHxD)

Weight Approximately 250 q

The following shows the operating temperature limitation of TST300 for various Thermocouple and RTD sensors. For the case temperature see the Specifications section.

Thermocouple Type	Temperature Range
K	-200 to 1370°C
J	-200 to 1200°C
T	-200 to 400°C
R	0 to 1760°C
S	0 to 1760°C
В	0 to 1820°C
F	-200 to 1200°C
Е	-200 to 1000°C
N	0 to 1300°C
RTD Type	Temperature Range
Pt-100	-200 to 850°C
Pt-500	-200 to 850°C
Pt-1000	-200 to 850°C



Example: TST300-1TC-XX

Indicating Temperature Transmitter TST300 which accepts signal from thermocouple K, J or R. The transmitter output and displayed temperature will be equal to the maximum, for a faulty temperature sensor. The unit can be mounted on the wall or directly to the sensor assembly.

