



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) ±0.2°C ±0.2% rdg (-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
Sensor Range	-200 to 1820°C 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
Accuracy	0.05% of span ± 1 digit
Temperature Drift	0.005% of span for 1°C
Supply Voltage	10.5 to 30 VDC

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 g

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
B	0 to 1820°C
F	-200 to 1200°C
E	-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

ORDER CODE

Model TST300

Input Type

Thermocouples K, J and T
 Thermocouples R, S and B
 Thermocouples J, F and E
 Thermocouples K, N and R
 RTD Pt-100
 RTD Pt-500
 RTD Pt-1000

1TC
 2TC
 3TC
 4TC
 P-100
 P-500
 P-1000

Burn-out Action

Upscale (standard)
 Downscale (option)

X
 1

Mounting

Wall or Direct (standard)
 DIN Rail (option)

X
 1

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.



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