



TT7S10-XP
(Single Compartment)

TT7S10-XP
(Dual Compartment)

TT7S10-XP

Loop Powered Temperature Transmitter with Display



User Programmable
Ranges, Units & Input Types



Touch Key Pad



Password Protected
Configuration

TT7S10-XP is a 2-Wire Loop Powered & fully programmable Universal Temperature Transmitter with Display, designed for Isolated and accurate temperature measurements and signal conditioning applications.

TT7S10-XP is Ex-proof transmitter available in Single or Dual compartment enclosure having Wall or 2" Pipe mount option. It is programmable for Thermocouples, Pt-100 RTD, mV and Resistance/Potentiometer. Output signal is standard 4-20mA in 2-wire mode. A built-in 4 digit LED display facilitates the user to monitor process value and helps in instantaneous configuration and calibration. Transmitters have Process Temperature value display setting for °C, °F & K. Programming of the Transmitter is done either by keyboard or user friendly mTRAN windows based configuration software.

It is built using the latest technology to deliver high performance in accuracy, resolution, stability and isolation. Transmitter is equipped with Zero/Span adjustments, sensor break detection, Downscale/Upscale output and Reverse Loop Polarity protection.

Software techniques like polynomial linearization and digital filtering gives linearized and stable output in harsh industrial conditions, high level of isolation between input and output prevents ground loop errors and protects costly measurement and control systems under fault conditions.

Configuration access of device is protected by assigning a Password in order to ensure a high degree of protection against unauthorized modification to configuration and calibration.

Features

- Universal input (RTD, Thermocouple, Ohm, mV)
- Available in Wall or 2" Pipe mount Ex-proof Transmitter with Touchsense keys.
 - 0.56", 4 digit LED display in Single Compartment
 - 0.39", 4 digit LED display in Dual Compartment
- 1.5 KV RMS Isolation between Input & Output
- Linearized Output
- Highly Accurate
- Fully Programmable for Input type & Range
- Digital Filter
- Easy configuration using keys and display
- Windows mTRAN software for Configuration, Calibration & Monitoring
- Reverse Loop polarity protection
- Direct / Reverse output
- Sensor break detection

Applications

- Power Plants
- Metal Industry
- Oil & Gas
- Chemical
- Glass Industry
- Cement
- Fertilizer
- Paper/Pulp

TECHNICAL SPECIFICATIONS

Input		Communication		
Input Type		Interface	TTL (3wire), Protocol-Modbus RTU	
RTD	Pt100, 3/4-Wire	Baud Rate	9600 bps	
Resistance/Potentiometer	0-2500Ω	Power Supply		
Sensor Current	0.2 mA	Power Supply	13.5-36 V DC, 2 Wire	
Thermocouple	E,J,K,T,B,R,S,N with Internal CJC (ANSI Standard)	Isolation		
Linear	0-75 mV/0-500 mV DC/ 4-20mA/0-20mA	Galvanic Isolation	1500V AC for 1 minute between input & output	
Input Impedance for V Input	> 1MΩ	Physical		
Input Burden for mA Input	≤ 1V		Single Compartment	
Sensor Break current	< 1 uA		Dual Compartment	
Input Range	Refer Table -1	Mounting	Wall (Std) or 2" Pipe mount (optional)	
Zero / Span Adjust	Adjustable either from Keyboard or from mTRAN Software	Dimensions in mm	140(H) x 145(W) x 80(D)	
Accuracy		Weight (without mounting clamps)	1 Kg	
E,J,K,T,N,Pt100	0.1% of FS, ±1 °C	Enclosure Material	Aluminum Alloy LM-6	
B,R,S	0.25% of FS, ±1 °C	Ingress Protection	IP65	
Linear, Potentiometer	0.1% of FS, ±1 Unit	Area Classification	Zone 1 & 2, Gas Group: IIA & IIB	
CJC Error		Cable entry size	2 nos of M20 double compression cable glands	
E,J,K,T,N	±2 °C	Environmental		
B,R,S	±3 °C	Operating temperature	0 to 80°C	
ADC Resolution	16 bits	Storage temperature	-20 to 85°C	
Stability	± 0.1% per year	Humidity	30% to 95% RH(Non-condensing)	
Response time	< 1 sec approx., if filter is set to 0	Table-1: Display Range		
Digital Filter	0-20 settable through software (2 default)	Input Type		
Sensor open Detection	Available (Except 0-20mA I/P)	Ranges		
Allowable wiring resistance for RTD	Maximum 15 ohms/wire (Resistance between all wires should be equal)	Thermocouple	E	-200 to 1000°C
CMRR	>120 dB		J	-200 to 1200°C
NMRR	~40 dB		K	-200 to 1370°C
Temp-co	<150 ppm		T	-200 to 400°C
			B	450 to 1800°C
			R	0 to 1750°C
Display & Keys			S	0 to 1750°C
Single Compartment			N	-200 to 1300°C
Display size	0.56"	RTD	Pt100 3/4 wire	-200 to 850.0°C
Display type	7 segment, Red LED, 4 digits	Linear	0-75mV DC	
Keys	3 keys (ENT, ESC, INC) for configuration, calibration and operation		0-500mV DC	-1999 to 9999
			4-20 mA	
Output		Resistance/ Potentiometer	0-20 mA	
Current Output (2 wire)	4-20mA or 20-4mA (User programmable, Scaled by OPLO and OPHI)		0-2500Ω	-1999 to 9999
Output accuracy	±0.25% of FS			
Sensor break Output	<3.8 or >20.8mA programmable			
Output load	R load = (V supply-13.5)/0.021Ω			

ORDERING CODE

Model	Input type	Mounting & Compartment type
TT7S10-XP	X	X
	1 E	SW Wall mount Single Compartment
	2 J	SP Pipe mount Single Compartment
	3 K	DW Wall mount Dual Compartment
	4 T	DP Pipe mount Dual Compartment
	5 B	
	6 R	
	7 S	
	8 N	
	9 Pt100	
	C 4-20mA	
	D 0-20mA	
	U 0-75mV	
	H 0-500mV	
	I 0-2500Ω	

Option: TT7SCC - Configuration cable@ extra cost
mTRAN Software: Website download