



TT7S10

TT7S11S



TT7S10-H

TT7S

Isolated & Programmable Temperature Transmitters

TT7S10-H: Loop Powered Head Mount
TT7S10: Loop Powered DIN Rail Mount
TT7S11S: Aux Powered DIN Rail Mount

Isolated. Universal. Accurate



TT7S series transmitters are designed for isolated and accurate temperature measurements and signal conditioning applications. TT7S10 is 2-wire loop powered model and TT7S11S is 4-wire auxiliary powered model. TT7S10 and TT7S11S are available in DIN rail version and TT7S10-H is available in head mount version. All the models are programmable for thermocouples, Pt-100 RTD, mV and resistance/potentiometer. Output signal is standard 4-20mA in 2-wire and mA or volts in 4-wire models. Programming of the transmitters is easy by means of user friendly mTRAN windows based configuration software.

TT7S series transmitters are built using the latest technology to deliver high performance in accuracy, resolution, stability and isolation. Zero/Span adjustments, sensor break detection/protection, reverse output and reverse polarity protection are standard features across all models.

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.

mTRAN a windows based software is used for configuring, calibration and monitoring the TT7S transmitters.

Features

- Universal input (RTD, Thermocouple, Ohm, mV)
- Full three port isolation
- Linearized output
- Highly accurate
- Fully programmable for input type & range
- Fast response time: <500 ms
- Digital filter
- Available with EMI-EMC compliance (Applicable for TT7S11S only and optional)
- Windows based mTRAN software for configuration, calibration & monitoring
- Reverse polarity protection
- Direct/reverse output
- Sensor break detection
- Loop/aux powered models

Applications

- Power plants
- Metal industry
- Oil & Gas
- Chemical
- Glass industry
- Cement
- Fertilizer

TECHNICAL SPECIFICATIONS

Input		Supply	
Input Type		TT7S10	10-36 V DC, 2-Wire
RTD	Pt-100 3-Wire (3/4-Wire in TT7S11S)	TT7S10-H	8.5-36 V DC, 2-Wire
Resistance/Potentiometer	0-2500Ω	TT7S11S	
Sensor Current	0.2 mA	Supply	20-265 V DC/AC (50-60Hz)
Thermocouple	E, J, K,T,B,R,S,N (ANSI standard)	Power Consumption	<3W
mV	0-75mV/ 0-500mV DC	Isolation	
Input Impedance	> 1MΩ	TT7S10 & TT7S10-H	
Sensor Break Current	< 1 uA	Galvanic isolation of 1.5KVAC for 1 minute between input and output	
Input Range	Refer table -1	TT7S11S	
Zero/Span Adjust	Through mTRAN software	Between Power to Input and Output	
Accuracy		• Reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 3KVAC (For CE marked model)	
E, J, K, T, N, Pt-100	0.1% of FS, ± 1 degree	• Galvanic isolation of 3KVAC for 1 minute (For CE marked and non-CE model)	
B, R, S	0.25% of FS, ± 1 degree	Between Input to Output	
mV, Ω	0.1% of FS, ± 1 unit	• Functional insulation according to IEC/EN 61010-1, rated insulation voltage 1.5KVAC (For CE marked model)	
CJC Error		• Galvanic Isolation of 1.5KVAC for 1 minute (For CE marked and non-CE model)	
E, J, K, T, N	±2 °C		
R, S	±3 °C		
Stability	±0.1% per year		
Response Time	< 500 msec		
Digital Filter	0-20 settable through software (2 default)		
CMRR	>120 dB		
NMRR	≈ 40 dB		
Temp-co	<150 ppm		
Output		Physical	
TT7S10 & TT7S10-H		Mounting	
Output	4-20mA or 20-4mA (User set)	TT7S10 & TT7S11S	35 mm DIN Rail
Resolution	1 uA	TT7S10-H	Sensor head
Sensor Break Output	Lo < 3.4 mA or Hi >20.8mA (User set)	Dimensions	
Output Load	R load=(Voltage supply-10)/0.021 Ω (TT7S10)	TT7S10 & TT7S11S	12.5(W) x 100.2(H) x 115.2(D) mm
	R load=(Voltage supply-8.5)/0.021 Ω (TT7S10-H)	TT7S10-H	
TT7S11S		Diameter	46mm
Output (Direct/Reverse)	0/4-20mA, 0/1-5V, 0/2-10V (User selectable)	Height	28mm
Resolution:		Enclosure Material	
Current	1 uA	TT7S10-H	Polycarbonate
Voltage	0-25mV (0/1-5V), 0-50mV(0/2-10V)	TT7S10 & TT7S11S	PA66
Sensor break Output	Lo < 1.9mA or Hi >20.8mA (User set)		
Output Load:			
Current	< 750Ω		
Voltage	> 4KΩ		
Directive Conformity		Environmental	
Electromagnetic Compatibility Directive 2014/30/EU	#IEC 61326-1 :2012	Operating Temperature	
Low Voltage Directive 2014/35/EU	#IEC 61010-1 :2010	TT7S10-H	0 to 85 °C
#Applicable only for CE marked TT7S11S model		TT7S10 & TT7S11S	0 to 55 °C
		Storage Temperature	-20 to +85 °C
		Humidity	30 to 95% (Non-condensing)
Table-1: Input Range			
	Input Type	Ranges	
	E	-200 to 1000 °C	
	J	-200 to 1200 °C	
	K	-200 to 1370 °C	
	T	-200 to 400 °C	
Thermocouple	B	450 to 1800 °C	
	R	0 to 1750 °C	
	S	0 to 1750 °C	
	N	-200 to 1300 °C	
RTD	Pt-100	-200 to 850.0 °C	
	0 - 75mV		
Linear	0 - 500mV	-1999 to 9999	
Potentiometer	0-2500Ω	-1999 to 9999	

Ordering Code

Model	Transmitter Type		Input Type	Output	CE Compliance	
TT7S	X		X	X	X	
	10	Loop-Powered Din Rail Mount	1	4-20mA	N	NO
	11S	Aux-Powered Din Rail Mount	2	0-20mA	Y*	YES
	10-H	Loop-Powered Head Mount	3	1-5V		
			4	0-10V		
			5	0-5V		
			6	2-10V		
			7			
			8			
			9			
			U			
			H			
			I			

Option: TT7SCC - Configuration cable@ extra cost

mTRAN Software: Website download

* Available in aux powered model TT7S11S only