masibus
A Sonepar Company

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

sales@masibus.com

TECHNICAL SPECIFICATIONS

Input

Input Type	
RTD	Pt-100 3-Wire (3/4-Wire in TT7S11S)
Resistance/Potentiometer	0-2500Ω
Sensor Current	0.2 mA
Thermocouple	E, J, K,T,B,R,S,N (ANSI standard)
mV	0-75mV/ 0-500mV DC
Input Impedance	> 1MΩ
Sensor Break Current	< 1 uA
Input Range	Refer table -1
Zero/Span Adjust	Through mTRAN software
Accuracy	
E, J, K, T, N, Pt-100	0.1% of FS, ± 1 Degree
B, R, S	0.25% of FS, ± 1 Degree
mV, Ω	0.1% of FS, ± 1 Unit
CJC Error	
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

TT7S10 & TT7S10-H	
Output	4-20mA or 20-4mA (User set)
Resolution	1 uA
Sensor Break Output	Lo < 3.4 mA or Hi >20.8mA (User set)
Output Load	R load= (Voltage supply - 8.5)/0.021 Ω
TT7S11S	
Output (Direct/Reverse)	0/4-20mA, 0/1-5V, 0/2-10V (User selectable)
Resolution:	
Current	1 uA
Voltage	0-25mV (0/1-5V), 0-50mV(0/2-10V)
Sensor break Output	Lo < 1.9mA or Hi >20.8mA (User set)
Output Load:	
Current	< 750Ω
Voltage	> 4KΩ

Directive Conformity

Electromagnetic Compatibility Directive 2014/30/EU	#IEC 61326-1 :2012
Low Voltage Directive 2014/35/EU	#IEC 61010-1 :2010

#Applicable only for CE marked TT7S11S model

Supply

TT7S10 & TT7S10-H	8.5-36 V DC, 2-Wire
TT7S11S	
Supply	20-265 V DC/AC (50-60Hz)
Power Consumption	<3W

Isolation

TT7S10 & TT7S10-H

Galvanic Isolation of 1.5KVAC for 1 minute between Input and Output

TT7S11S

Between Power to Input and Output

- Reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 3KVAC (For CE marked model)
- Galvanic Isolation of 3KVAC for 1 minute (For CE marked and Non-CE model)

Between Input to Output

- Functional insulation according to IEC/EN 61010-1, rated insulation voltage 1.5KVAC (For CE marked model)
- Galvanic Isolation of 1.5KVAC for 1 minute (For CE marked and Non-CE model)

Physical

Mounting	
TT7S10 & TT7S11S	35 mm DIN Rail
TT7S10-H	Sensor head
Dimensions	
TT7S10 & TT7S11S	12.5(W) x 100.2(H) x 115.2(D) mm
TT7S10-H	
Diameter	46mm
Height	28mm
Enclosure Material	
TT7S10-H	Polycarbonate
TT7S10 & TT7S11S	PA66

Environmental

Operating Temperature	
TT7S10-H	0 to 85 °C
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
Thermocouple	E	-200 to 1000 °C
	J	-200 to 1200 °C
	K	-200 to 1370 °C
	T	-200 to 400 °C
	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
Linear	0 - 75mV	-1999 to 9999
	0 - 500mV	
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	E	1	4-20mA	N	NO
	11S	Aux-Powered Din Rail Mount	2	J	2*	0-20mA	Y*	YES
	10-H	Loop-Powered Head Mount	3	K	3*	1-5V		
			4	T	4*	0-10V		
			5	B	5*	0-5V		
			6	R	6*	2-10V		
			7	S				
			8	N				
			9	Pt-100				
			U	0-75mV				
			H	0-500mV				
			I	0-2500Ω				

Option:TT7SCC - Configuration cable@ extra cost

mTRAN Software: Website download

* Available in Aux Powered model TT7S11S only

Head Office: Masibus Automation And Instrumentation Pvt. Ltd.
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382044, Gujarat, India.
Tel: +91 79 23287275-77, Fax: +91 79 23287281.
E-mail: sales@masibus.com, Website: www.masibus.com

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