MUESEN
PRODUCT

High accurate temperature head transmitter
MST 3 Series – MST323

Application

- Linearised temperature measurement with Pt100...Pt1000, Cu50...Cu100, Ni100...Ni1000 or TC sensor (Type B, E, J, K, N, R, S, T)
- Conversion of linear resistance variation to a standard analogue current signal.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.

Your benefits

- ❑ Universal Input (RTD/TC/mV/Ω)
- ❑ Free programmable via PC–Software
- ❑ Operation, visualisation and maintenance via PC, e. g. configurationsoftware "HHTemp_V2.06E"
- ❑ 2 wire technology, 4...20mA analog output
- ❑ Galvanic isolation (2000V AC)
- ❑ High accuraty in totol ambient temperature range: 0.02% of span for Pt100 sensor
  0.1% of span for TC sensor
- ❑ Fault signal on sensor break or short circuit, presettable to NAMUR NE 43
- ❑ Internal temperature sensor for active temperature compensation (for TC sensor)

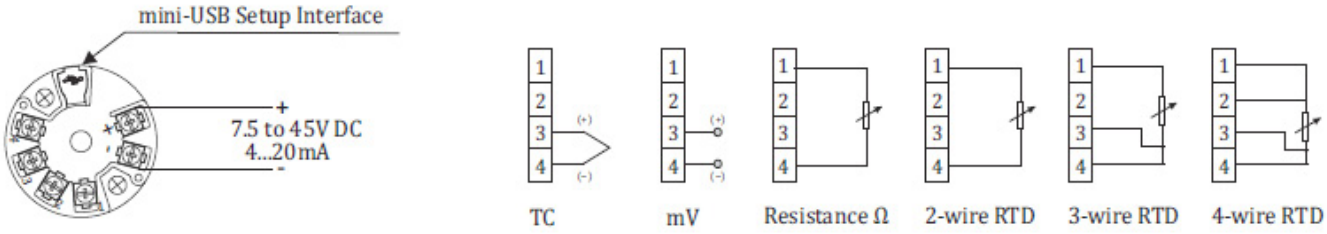
Technical data

Input			
Input	Type	Measurement ranges	Min. meas. ranges
Resistances thermometer (RTD)	Pt100 Pt500 Pt1000 acc. to IEC 60751 (a = 0.00385)	–200 to 850 ℃ (–328 to 1562℉) –200 to 250 ℃ (–328 to 482℉) –200 to 250 ℃ (–328 to 482℉)	10 ℃ 10 ℃ 10 ℃
	Cu50 Cu100	–50 to 150 ℃ (–58 to 302℉) –50 to 150 ℃ (–58 to 302℉)	10 ℃ 10 ℃
	Ni100 Ni500 Ni1000 acc. to DIN 43760 (a =0.006180)	–60 to 180 ℃ (–76 to 356℉) –60 to 180 ℃ (–76 to 356℉) –60 to 150 ℃ (–76 to 302℉)	10 ℃ 10 ℃ 10 ℃
Resistancetransmitter	Widerstand Ω	0 to 400Ω 0 to 2000Ω	10 Ω 10 Ω
Connection type: 2–, 3– or 4–wire connection, Sensor current: 〈 0.5 mA			

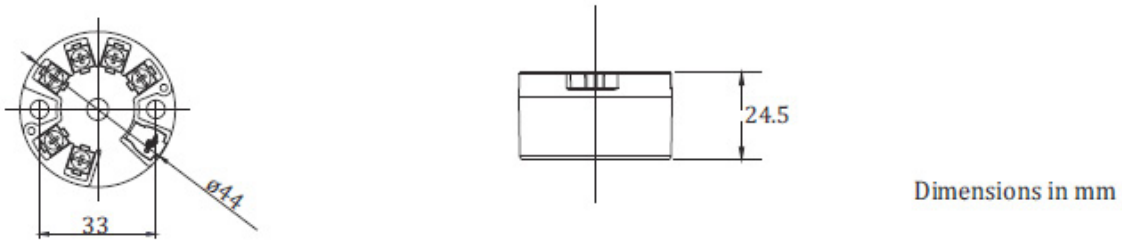
Input			
Thermocouples(TC)	B (PtRh30–PtRh6) E (NiCr–CuNi) J (Fe–CuNi) K (NiCr–Ni) N (NiCrSi–NiSi) R (PtRh13–Pt) S (PtRh10–Pt) T (Cu–CuNi)	0 to +1820 ℃ (32 to 3308 ℉) –270 to +1000 ℃ (–454 to 1832 ℉) –210 to +1200 ℃ (–346 to 2192 ℉) –270 to +1372 ℃ (–454 to 2501 ℉) –270 to +1300 ℃ (–454 to 2372 ℉) –50 to +1768 ℃ (–58 to 3214 ℉) –50 to +1768 ℃ (–58 to 3214 ℉) –270 to +400 ℃ (–454 to 752 ℉)	500 ℃ 50 ℃ 50 ℃ 50 ℃ 50 ℃ 500 ℃ 500 ℃ 50 ℃
Voltage transmitters(mV)	(mV)	–10 to 75mV –100 to 100mV –500 to 500mV –1000 to 1000mV	5mV 5mV 10mV 20mV
Connection type: 2–wire connection, Sensor current: 〈 0.5 mA			
Power supply			
Supply voltage		7.5 to 45V DC	
Output			
Output signal		4 ... 20 mA	
Load		$R_{max} = [(U_{supply} - 7,5) / 0,022]$ Ω	
Signal on alarm		Underranging: Linear drop to 3.8 mA	
		Overranging: linear rise to 20.5 mA	
		Sensor break; sensor open–circuit: 3.6 mA or 22.0 mA	
Linearisation/transmission behaviour		Temperature linear, resistance linear, voltage linear	
Galvanic isolation		U=2000V AC (input/output)	
Performance characteristics			
Response time		0,25 s	
Reference conditions		Calibration temperature: +23 ° C (73.4K) ± 5 K	
Accuracy	Input	Type	Accuracy
	RTD	Pt100, Ni100 Pt500, Ni500 Pt1000, Ni1000 Cu50 Cu100	0.02% 0.05% 0.3% 0.2% 0.3%
	TC	K, J , T, E N S, B, R	typ. 0.1% typ. 0.1% typ. 0.1%
	Ω	10 to 400 Ω 10 to 2000 Ω	± 0.1 Ω or 0.02% ± 1.5 Ω or 0.03%
	mV	–10 to 75mV –100 to 100mV –100 to 500mV –100 to 2000mV	± 4 µV or 0.02% ± 4 µV or 0.02% ± 7.5 µV or 0.02% ± 7.5 µV or 0.02%
Switch on delay		≤ 2 s	
Influence of supply voltage		≤ ± 0.01%/V deviation from 24V	
Influence of ambient temperature (Totol temperature drift)		Input temperature drift + Output temperature drift Input 0 to 2000 Ω, typ. 0,0015% of measured value Output 4 to 20mA, typ. 0,005% of measured value	
Influence of load		± 0,02%/100Ω, Values refer to the full scale value	
Influence of cold junction (for TC)		Pt100 DIN IEC 60751 Cl. B	
Long–term stability		≤ 0,1 K/year oder ≤ 0,05%/year The % refer to the set span.	
Self stability configuration		0 to 2%	
Filter configurating		0 to 160µA	
Resolution		0,3µA	
Environment conditions			
Installation instructions		Installation angle: no limit	
		Installation area: Connection head accord. To DIN 43729 From B; TAF 10 field housing	

Storage temperature	
Ambient temperature limits	−40 to +85℃ (−40 to 185℉)
Storage temperature	−40 to +100℃ (−40 to 212℉)
Condensation	Allowable
Degree of protection	IP00 / IP66 installed
Shock and vibration resistance	4g / 2 to 150Hz as per IEC 60068−26
Electromagnetic compatibility (EMC)	Interference immunity and interference emission according to IEC 61326−1 : 2006
Others	
Dimensions	44 x 24.5 mm
Weight	Approx. 38 g
Materials	Housing: PC Potting: Silicon
Certificate and approvals	
CE−Mark	The device meets the legal requirements of the CE directives. Muesen Technik confirms that the devices has been successfully tested by applying the CE mark.
Other standards and guidelines	IEC 60529: Degree of protection provided by housing (IP−Code) IEC 61010: Safety requirements for electrical measurement, control and laboratory use. IEC 61326: Electromagnetic compatibility (EMC requirements) NAMUR: Standard working group for measurement and control technology in the chemical industry.

Electrical Connection

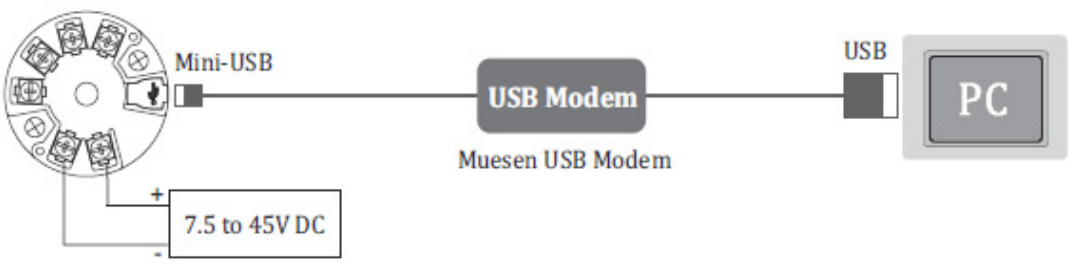


Dimensions



Programming

Transmitter with USB-Interface:



Odering code

MST 3 Series

Type							
Programmable Temperature head transmitter	MST320						
Programmable Temperature head transmitter galvanic isolated	MST323						
HART® Programmable Temperature head transmitter galvanic isolated, with HART®–Protocol	MST325						
Input(configurable)							
Factory preset (Pt100, 3–wire, 0...100℃)		1	0	0			
Configuration according to customer specification		9	9	9			
Output							
4...20mA, 2–wire					0	0	
Additives							
None						0	0
According to customer specification						9	9

Inventory

Type	Interface
MST320–100–00–00	USB
MST323–100–00–00	USB
MST325–100–00–00	HART®