

MTM4832

Integrated Temperature Transmitter



Applications

- Engines
- Fuel tanks
- Propulsion systems (gearbox)
- Wave pressure power units
- SCR systems
- Refrigerated containers
- Battery compartments

Features

- Measuring range: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- Compact design with a modular, replaceable sensing insert for easy temperature sensor replacement
- Electrical connection via DIN EN 175301-803 Form A Hirschmann connector
- Two-wire $4\text{mA} \sim 20\text{mA}$ DC output, compliant with NAMUR NE 43
- Response time $\tau_{90} < 5\text{s}$



Introduction

MTM4832 Temperature Transmitter is designed to measure the temperature of various liquids, gases, and solid surfaces within the range of -30°C to $+200^{\circ}\text{C}$, and to convert the measured temperature into a standard two-wire current output signal ($4\text{mA} \sim 20\text{mA}$ DC). The transmitter features a compact mechanical design with a $\phi 4$ mm wetted stem, providing fast thermal response and high vibration resistance, making it suitable for demanding industrial environments.

Specifications

- Measuring element: Pt100/Pt1000
- Measuring range: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$
- Power supply: $10\text{V} \sim 35\text{V}$ DC
- Output signal: $4\text{mA} \sim 20\text{mA}$ DC
- Ambient temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Response time $\tau_{90} < 5\text{s}$
- Accuracy: Refer to Accuracy Specifications
- Electrical connection: DIN EN 175301-803, Form A (Hirschmann type)
- Process connection: Fixed threaded; thread specifications refer to the Order Guide
- IP rating: IP65

Accuracy Specifications

Tolerance of sensing element (IEC 60751)	Class AA / Class A / Class B
Total measurement error (IEC 62828)	±0.05%FS
Total measurement error (IEC 62828)	Sensing element tolerance+ transmitter error
Ambient temperature effect	±0.05%FS (+25°C)
	±0.1%FS (-40°C~ +85°C)
Output error	±0.05%FS

Calculation Example: Total Measurement Error

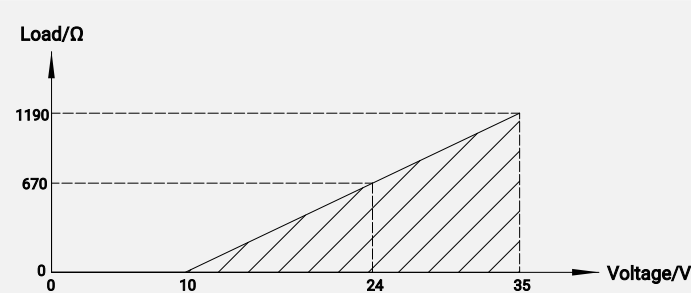
(Measuring range: 0°C~ 100°C ; Supply voltage: 24V DC; Ambient temperature: 40°C ; Process temperature: 50°C)

Sensor element (Class A, IEC 60751): ±(0.15+(0.0020 t)):	±0.25°C
Transmitter error ±0.05%FS:	±0.05°C
Output error ±0.05%FS:	±0.05°C
Ambient temperature effect:	±0.1°C

Total measurement error (typ.)
 $\text{sqrt}(0.25^2 + 0.05^2 + 0.05^2 + 0.1^2) = \text{sqrt}(0.0775) = 0.28\text{ }^{\circ}\text{C}$

Total measurement error (max.)
 $0.25+0.05+0.05+0.1=0.45^{\circ}\text{C}$

Output Signal

Analog output	4mA ~ 20 mA DC
Load resistance	$RL \leq (UB-10V)/21\text{mA}$
	RL: Max. load resistance; UB: Power supply
Load curve	

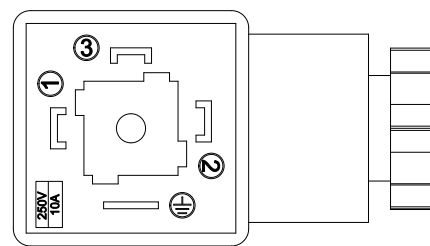
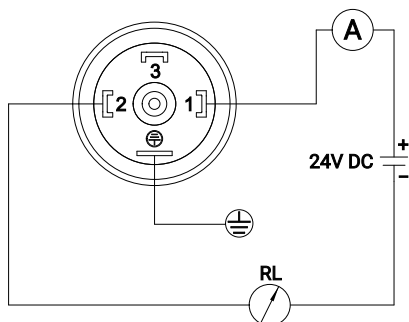
Operating Conditions

Ambient temperature	-40°C ~ +85°C
Maximum operating pressure	80bar
Salt spray resistance	IEC 60068-2-52
Vibration resistance (IEC 60751)	10Hz ~ 2000Hz, 8g
Shock resistance (IEC 60068-2-27)	50g, 6ms, 3 axes, 3 directions, 3 shocks per direction
IP rating	IP65, per IEC/EN 60529

Factory Configuration

Measuring range	As specified by customer selection
Failure signal current	Configurable, per NAMUR NE 043 Upper alarm: $\geq 21\text{mA}$ (factory default) Lower alarm: $\leq 3.6\text{mA}$
Response time	Power-on delay: $\leq 1.5\text{s}$ (Time before the first measured value) Warm-up time: Approx. 4 min to reach full specified accuracy

Electrical Connection



- Connection type: DIN EN 175301-803, Form A (Hirschmann), suitable for cables with a diameter of 6mm ~ 8mm [0.24in ~ 0.31in], maximum conductor cross-section 1.5mm².
- Materials: Connector housing: PA; Flat gasket: VMQ
- Pins: 1:V+ 2:OUT 3:n.c. :Earth

EMC

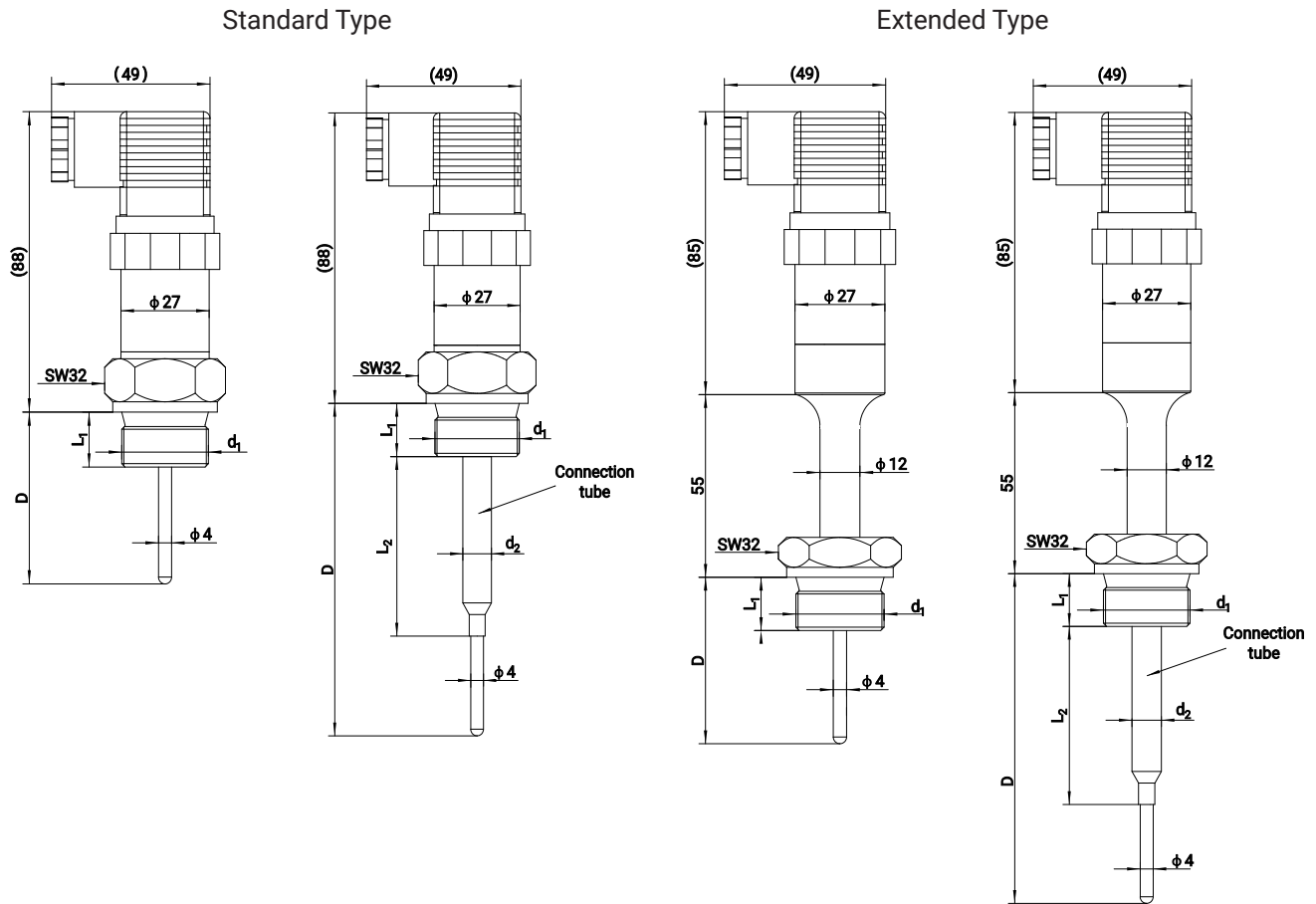
SN	Test item	Standard	Test conditions	Performance level
1	Conducted emissions (CE) test	GD019-2024 3.2 CISPR 16-2-1	Frequency range: 10kHz ~ 30MHz	Pass
2	Radiated emissions (enclosure port)	GD019-2024 3.3 CISPR 16-2-3	Frequency range: 150kHz ~ 6GHz	Pass
3	Electrostatic discharge immunity test	GD019-2024 3.4 GB/T 17626.2/IEC 61000-4-2	4kV(contact), 8kV(air)	A
4	Radiated, radio-frequency, electromagnetic field immunity test	GD019-2024 3.5 GB/T 17626.3/IEC 61000-4-3	80MHz ~ 6GHz, 10V/m	A
5	Electrical fast transient/burst immunity test	GD019-2024 3.6 GB/T 17626.4/IEC 61000-4-4	2kV, 2.5kHz, 5/50ns	A
6	Surge immunity test	GD019-2024 3.7 GB/T 17626.5/IEC 61000-4-5	Line-to-line: 1kV, Line-to-earth: 2kV	B
7	Low-frequency conducted immunity test	GD019-2024 3.8 GB/T 17626.6/IEC 61000-4-6	Frequency range: 50Hz ~ 10kHz	A
8	Immunity to conducted disturbances, induced by radio-frequency fields	GD019-2024 3.9 GB/T 17626.6/IEC 61000-4-6	150kHz ~ 80MHz	A
9	Power frequency magnetic field immunity test	GB/T 17626.8/IEC 61000-4-8	50Hz, 60Hz, 30A/m	A
Performance level A: Normal operation within specified limits.				
Note:	Performance level B: Temporary loss of function or degradation is allowed during the test, without affecting the operating state or stored data; full performance is restored after the test.			

Certification Details

Mark	Description	Region
	EU Declaration of Conformity EMC Directive (electromagnetic emission and immunity)	European Union
	RoHS	European Union
	CCS Technical compliance certification (e.g. electrical safety, environmental requirements)	China & International

Outline Construction

Unit: mm



Insertion length D	Standard type		Extended type	
	Connection tube length L_2	Connection tube diameter d_2	Connection tube length L_2	Connection tube diameter d_2
50	/	/	/	/
100	54	$\phi 9$	54	$\phi 9$
150	104	$\phi 9$	104	$\phi 9$
200	154	$\phi 12$	154	$\phi 12$

Note: Use the extended type if the measured medium temperature exceeds +120°C .

Process Connection

Thread length L_1	Thread spec. d_1	Standard
12	G1/4	ISO 1179-2-2022
14	G1/2	
16	G3/4	

Order Guide

MTM4832	Integrated Temperature Transmitter																
	Code		Measuring range														
	[X°C ~ Y°C]		X and Y represent the lower and upper temperature limits, respectively (°C)														
			Code	Output signal													
			E	4mA ~ 20mA DC													
			Code	Accuracy													
			A1	±1%FS or ±1°C (max.)													
			A2	±0.5%FS or ±0.5°C (max.)													
			A3	Other accuracy													
			Code	Electrical connection													
			H	Hirschmann connector													
			Code	Stem diameter (mm)													
			04	φ4													
			Code	Wetted material													
			L	316L													
			T	316Ti													
			Code	Extension Length (mm)													
			N	None (max. medium temperature +120°C)													
			L	55													
			Code	Insertion length (mm)													
			050	50													
			100	100													
			150	150													
			200	200													
			Code	Process connection													
			I	Fixed thread, G1/4 , thread length 12mm													
			II	Fixed thread, G1/2 , thread length 14mm													
			III	Fixed thread, G3/4 , thread length 16mm													
MTM4832	[-30°C ~+200°C]	- E	-	A1	-	H	-	04	-	L	-	L	-	050	-	I	The complete spec.

Notes

1. Transmitter electronics temperature: -40°C to +85°C .
2. For standard type, the maximum process temperature is 120°C .
3. The electronics temperature depends on process temperature, extension length, ambient temperature, and air flow velocity.
4. Selection example

Example: MTM4832[-30°C ~ +200°C]-E-A1-H-04-L-L-050-I

Description: MTM4832 Integrated Temperature Transmitter; Measuring range [-30°C ~ +200°C]; Output signal: 4mA~20mA DC; Accuracy ±1%FS or ±1°C (max.); Electrical connection: Hirschmann connector; Stem diameter φ4; Wetted material: 316L; Extension length: 55mm; Insertion length 50mm; Fixed thread, G1/4, thread length 12mm.

Insertion Depth

1. Insertion depth should be selected based on pipe diameter and installation configuration. For optimal accuracy, the probe tip should generally be positioned [at the center of the medium](#).
2. If installation conditions on site do not allow the required insertion depth, thermal insulation shall be applied to the pipe surface to improve measurement accuracy.