



MTM4836

Integrated Temperature Transmitter



Applications

- Machinery manufacturing
- Hydraulic and pneumatic control systems
- Oil and gas
- Petrochemical
- Municipal and environmental protection

Features

- CNEX-certified
- Equipped with local display
- Standard 4-20mA DC output, HART protocol, galvanic isolation optional
- Essential diagnostics capability
- High-accuracy measurement over compensated temperature range optional

Introduction

MTM4836 Integrated Temperature Transmitter is designed to directly measure the temperature of various liquids, gases, and solid surfaces within the range of -200°C to $+1000^{\circ}\text{C}$. It incorporates a dedicated temperature module for linearization of the sensing element and provides standard analog and digital output signals. The transmitter is stable and reliable, features essential diagnostics, and is suitable for temperature measurement in various field conditions including petroleum, chemical processing, metallurgy, power plants, and light industry.

Specifications

- Measuring range:
 - $-200^{\circ}\text{C} \sim +500^{\circ}\text{C}$ (Pt100/Pt1000 RTD)
 - $-40^{\circ}\text{C} \sim +1000^{\circ}\text{C}$ (Type K thermocouple)
- Power supply: 12V $\sim$ 30V DC (Typ. 24V DC)
- Output signal:
 - 4mA $\sim$ 20mA DC
 - 4mA $\sim$ 20mA DC (Galvanic isolation)
 - 4mA $\sim$ 20mA DC+HART (Galvanic isolation)
- Accuracy: See Accuracy Specifications
- Display type: LCD display
- Long-term stability: $\pm 0.05\%$ FS/year
- Insulation resistance: $\geq 50\text{M}\Omega @ 500\text{V DC}$
- Ambient temperature: $-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- Storage temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Relative humidity: $< 95\%$
- IP rating: IP65 or IP67
- Flameproof mark: Ex db IIC T6 Gb

Construction Materials

- Housing: Die-cast aluminum alloy
- Sensing element: Pt100, Pt1000, Type K thermocouple
- Wetted parts: Stainless steel 304 / 316L or others
- Display window: Flameproof glass

Accuracy Specifications

Tolerance of Pt100/Pt1000 sensing elements (IEC 60751)	Class AA / Class A / Class B
Tolerance of Type K thermocouple (IEC 60584)	Class 1
Transmitter error (IEC 62828)	±0.04%FS
Total measurement error (IEC 62828)	Sensing element tolerance+ transmitter error
Ambient temperature effect	±0.01%FS (+25°C)
	±0.08%FS/10°C
Output error	±0.03%FS
Cold junction compensation error (thermocouple)	±1°C

Note: Cold junction compensation error shall be considered when using thermocouples

Calculation Example: Total Measurement Error

(Measuring range: 0°C ~100°C ; Supply voltage: 24V DC; Ambient temperature: 35°C ; Process temperature: 50°C)

Sensor element (Class A, IEC 60751): ±(0.15+(0.0020|t|)):

±0.25°C

Transmitter error ±0.04%FS:

±0.04°C

Output error ±0.03%FS:

±0.03°C

Ambient temperature effect:

±0.09°C

Total measurement error (typ.)

$\text{sqrt}(0.25^2 + 0.04^2 + 0.03^2 + 0.09^2) = \text{sqrt}(0.0731) = 0.27^{\circ}\text{C}$

Total measurement error (max.)

0.25+0.04+0.03+0.09=0.41°C

EMC

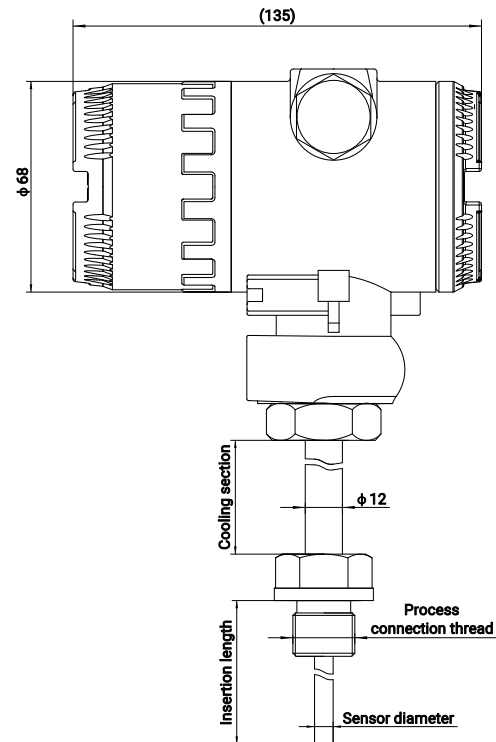
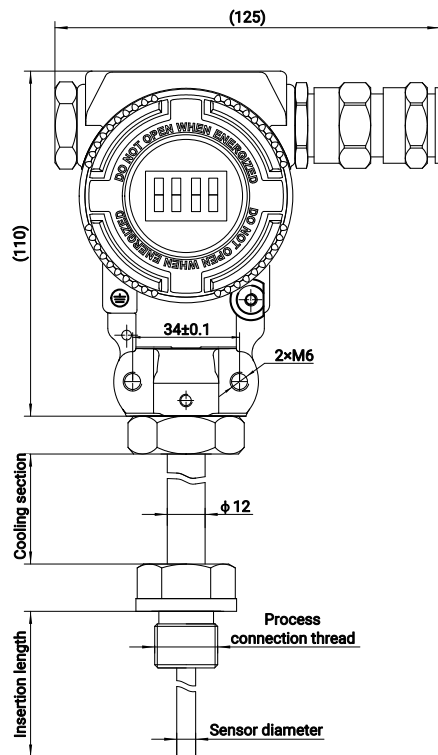
SN	Test item	Standard	Test conditions	Performance level
1	Conducted emissions (CE) test	GD019-2024 3.2 CISPR 16-2-1	Frequency range: 10kHz ~ 30MHz	Pass
2	Radiated emissions (enclosure port)	GD019-2024 3.3 CISPR 16-2-3	Frequency range: 150kHz ~ 6GHz	Pass
3	Electrostatic discharge immunity test	GD019-2024 3.4 GB/T 17626.2/IEC 61000-4-2	6kV(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	2 kV, 2.5 kHz, 5/50ns	A
6	Surge immunity test	GD019-2024 3.7 GB/T 17626.5/IEC 61000-4-5	Line-to-line: 1 kV, Line-to-earth: 2 kV	A
7	Low-frequency conducted immunity test	GD019-2024 3.8 GB/T 17626.6/IEC 61000-4-6	50Hz ~ 10kHz (15th~100th order @ line frequency)	B
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

Performance level A: The transmitter operates as intended during and after the test, with no degradation of performance.

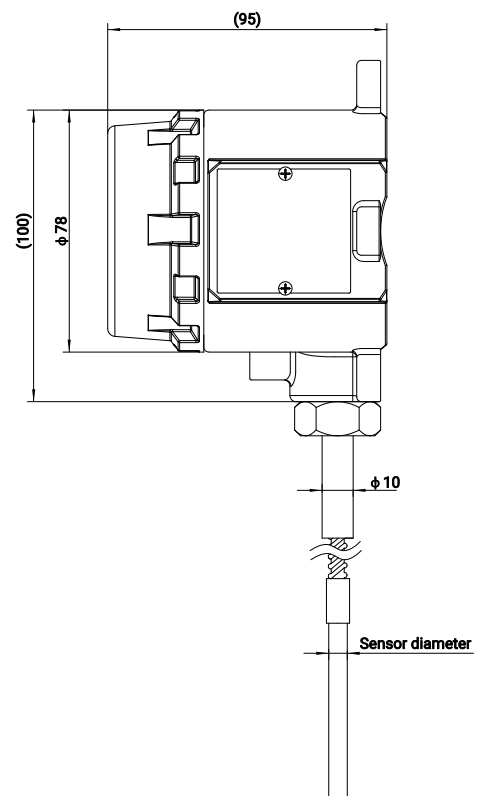
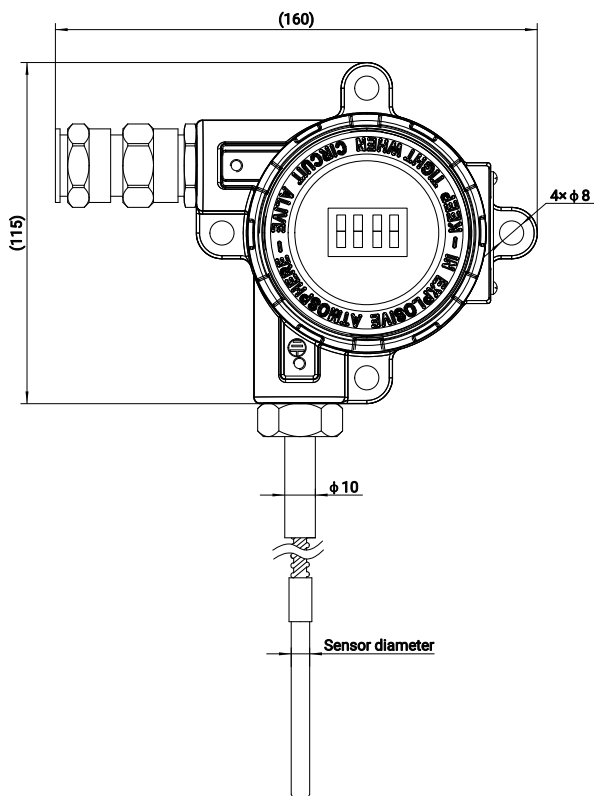
Performance level B: Temporary loss of function or degradation is allowed during the test, without affecting the operating state or stored data; full performance is restored after the test.

Outline Construction

Unit: mm

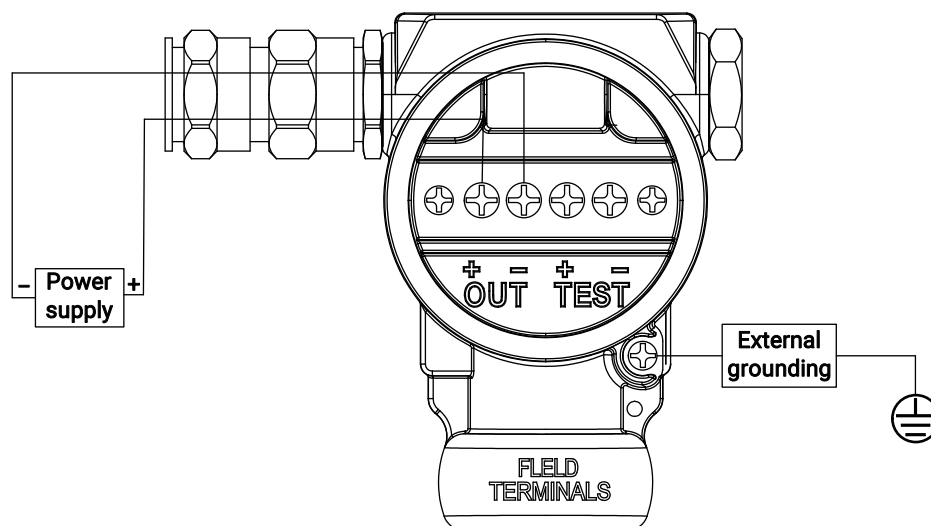


Integral Type (Field-mounted)

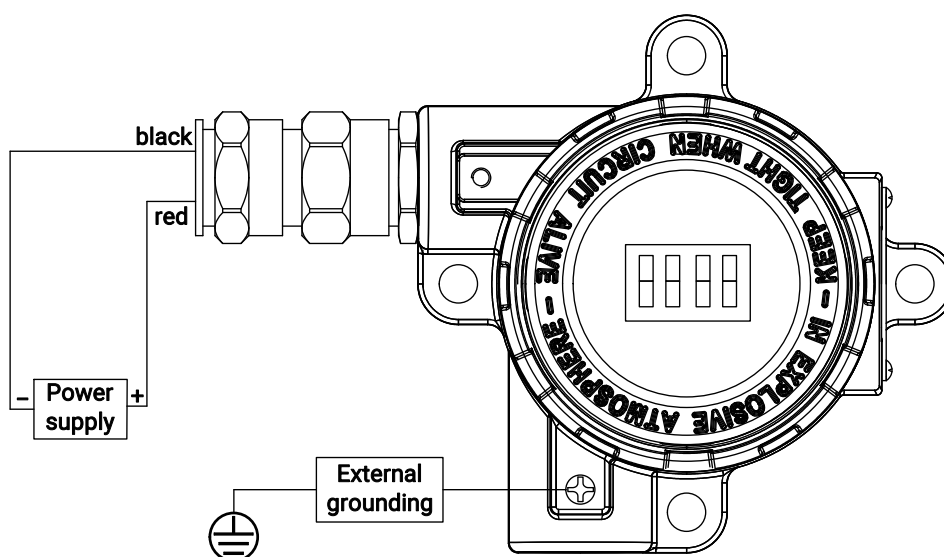


Remote Type (Surface-mounted)

Electrical Connection



Field-mounted LCD Display



Surface-mounted LCD Display

Certification Details

Mark	Description	Region
	RoHS	European Union
	CNEX-certified	China

Order Guide

MTM4836	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								
	EP	4mA ~ 20mA DC (Galvanic isolation)								
	EH	4mA ~ 20mA DC+HART (Galvanic isolation)								
	Y	Other output signals (specify)								
	Code	Accuracy								
	A1	±1%FS or ±1°C (max.)								
	A2	±0.5%FS or ±0.5°C (max.)								
	A3	Other accuracy								
	Code	Display type								
	A	Field-mounted LCD display								
	Code	Electrical connection								
	M	M20×1.5								
	N	NPT1/2								
	G	G1/2								
	Code	Sensor diameter (mm)								
	03	φ3								
	05	φ5								
	06	φ6								
	08	φ8								
	Y	Other diameters (specify)								
	Code	Sensor material (including process connection)								
	A	304								
	L	316L								
	Y	Other materials (specify)								
	Code	Mounting type								
	I	Fixed thread								
	II	Fixed flange								
	III	Fixed clamp								
	IV	Adjustable threaded compression fitting								
	V	Adjustable flanged compression fitting								
	Y	Other mounting types (specify)								

MTM4836 [0°C ~ +300°C] - E - A1 - A - M - 06 - A - I

The complete spec.

Code	Process connection		
C24	Thread M10 × 1, length: 8mm		Fixed thread, adjustable threaded compression fitting
C23	Thread M12 × 1.5, length: 12mm		
C18	Thread M14 × 1.5, length: 12mm		
C40	Thread M16 × 1.5, length: 12mm		
C1	Thread M20 × 1.5, length: 14mm		
H1	Thread M27 × 2, length: 16mm		
C3	Thread G1/ 2, length: 14mm		
C30	Thread G1/ 4, length: 12mm		
C16	Thread G3/ 8, length: 12mm		
C6	Thread NPT1/ 4, length: 10mm		
C10	Thread NPT1/ 2, length: 14mm		
F1	DN10	Flanged connection: specify flange standard, PN (nominal pressure), and RF (sealing face)	Fixed flange, adjustable flanged compression fitting
F2	DN20		
F3	DN25		
F4	DN32		
F5	DN40		
F6	DN50		
G1	Fixed clamp φ25.4		Fixed clamp
G2	Fixed clamp φ50.5		
Y	Other process connections (specify)		
	Number	Insertion length (mm) (including thread length)	
		Code	Cooling section length (mm)
		N	0[-50°C~ +100°C]
		S	50[-50°C~ +100°C]
		M	100[-200°C~ +150°C]
		L	150[-200°C~ +1000°C]
		Code	Certification requirement
		d	※ Flameproof Ex db IIC T6 Gb
		N	None
		Code	Accessories (multi-option)
		HT	Welded thermowell
		LT	Threaded thermowell
		FT	Flanged thermowell
		HJ	Welded base
		KT	Clamp-type thermowell
		N	None
		ZJ	Mounting bracket
		WP	304 stainless steel tag plate

MTM4836	Integrated Temperature Transmitter									
F	Remote type									
	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							
		EP	4mA ~ 20mA DC (Galvanic isolation)							
		EH	4mA ~ 20mA DC+HART (Galvanic isolation)							
		Y	Other output signals (specify)							
			Code	Accuracy						
			A1	±1%FS or ±1°C (max.)						
			A2	±0.5%FS or ±0.5°C (max.)						
			A3	Other accuracy						
			Code	Display type						
			A	Field-mounted LCD display						
			B	Surface-mounted LCD display						
				Code	Electrical connection					
				M	M20×1.5					
				N	NPT1/2					
				G	G1/2					
				Number	Cable length (m)					
					Code	Cable material				
					S	Shielded PTFE (corrosion resistant, flame retardant, -60°C ~+250°C)				
					Y	Other materials (specify)				
						Code	Cable sheath			
						TH	Spring			
						BW	Bellows			
						Y	Other sheaths (specify)			
							Code	Sensor diameter (mm)		
							03	φ3		
							05	φ5		
							06	φ6		
							08	φ8		
							Y	Other diameters (specify)		

MTM4836 F [0°C ~+300°C] - E - A1 - A - M - 3 - S - BW - 06 The complete spec.

Code	Sensor material (including process connection)		
A	304		
L	316L		
Y	Other materials (specify)		
	Code	Mounting type	
	I	Fixed thread	
	II	Fixed flange	
	III	Fixed clamp	
	IV	Adjustable threaded compression fitting	
	V	Adjustable flanged compression fitting	
	Y	Other mounting types (specify)	
	Code	Process connection	
	C24	Thread M10 × 1, length: 8mm	
	C23	Thread M12 × 1.5, length: 12mm	
	C18	Thread M14 × 1.5, length: 12mm	
	C40	Thread M16 × 1.5, length: 12mm	
	C1	Thread M20 × 1.5, length: 14mm	
	H1	Thread M27 × 2, length: 16mm	
	C3	Thread G1/ 2, length: 14mm	
	C30	Thread G1/ 4, length: 12mm	
	C16	Thread G3/ 8, length: 12mm	
	C6	Thread NPT1/ 4, length: 10mm	
	C10	Thread NPT1/ 2, length: 14mm	
	F1	DN10	Flanged connection: specify flange standard, PN (nominal pressure), and RF (sealing face)
	F2	DN20	
	F3	DN25	
	F4	DN32	
	F5	DN40	
	F6	DN50	
	G1	Fixed clamp φ25.4	
	G2	Fixed clamp φ50.5	
	Y	Other process connections (specify)	
Number	Insertion length (mm) (including thread length)		
	Code	Cooling section length (mm)	
	N	0[-50℃～ +100℃]	
	S	50[-50℃～ +100℃]	
	M	100[-200℃～ +150℃]	
	L	150[-200℃～ +1000℃]	
	Code	Certification requirement	
	d	※ Flameproof Ex db IIC T6 Gb	
	N	None	
	Code	Accessories (multi-option)	
	HT	Welded thermowell	
	LT	Threaded thermowell	
	FT	Flanged thermowell	
	HJ	Welded base	
	KT	Clamp-type thermowell	
	N	None	
	ZJ	Mounting bracket	
	WP	304 stainless steel tag plate	

- A - I - C1 - 100 - L - d - HJ

The complete spec.

Notes

1. Unless otherwise specified, all materials are stainless steel 304, except for the probe and explosion-proof housing.
2. For configurations not covered in this selection, please contact the MICROSENSOR for customization.
3. ※ For flameproof products, certified cable glands compatible with the product's explosion protection rating shall be used during installation. Ensure that the flameproof threaded joints comply with GB/T 3836.2-2021, and strictly follow the instructions in the operation manual.

4. Selection example

Example 1: MTM4836[0°C ~+300°C]-E-A1-A-M-06-A-I-C1-100-L-d-HJ

Description: MTM4836 Integrated Temperature Transmitter; Measuring range: [0°C ~+300°C]; Output signal: 4mA ~ 20mA DC; Accuracy: $\pm 1\%$ FS or $\pm 1^\circ\text{C}$ (max.); Field-mounted LCD display; Electrical connection: M20×1.5; Sensor diameter $\phi 6$; Sensor material (including process connection): 304; Fixed thread; Thread M20 × 1.5, length: 14mm; Insertion length (including thread length): 100mm; Cooling section length: 150mm [-200°C ~+1000°C]; Flameproof Ex db IIC T6 Gb; Welded base.

Example 2: MTM4836F[0°C ~+300°C]-E-A1-A-M-3-S-BW-06-A-I-C1-100-L-d-HJ

Description: MTM4836 Integrated Temperature Transmitter; Remote type; Measuring range: [0°C ~+300°C]; Output signal: 4mA ~ 20mA DC; Accuracy: $\pm 1\%$ FS or $\pm 1^\circ\text{C}$ (max.); Field-mounted LCD display; Electrical connection: M20×1.5; Cable length 3m; Cable material: Shielded PTFE (corrosion resistant, flame retardant, -60°C ~+250°C); Cable sheath: Bellows; Sensor diameter $\phi 6$; Sensor material (including process connection): 304; Fixed thread; Thread M20 × 1.5, length: 14mm; Insertion length (including thread length): 100mm; Cooling section length: 150mm [-200°C ~+1000°C]; Flameproof Ex db IIC T6 Gb; Welded base.

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.