

EVOTROX

SENSE-TM100

Temperature Transmitter

User Manual



Item	Information
Measured Parameter	Temperature
Product Platform	SENSE-TM100
Enclosure Type	WP - Weatherproof stainless-steel enclosure
Document Type	User Manual
Document Revision	Rev. 1.0

Important: Read this complete manual before installation, commissioning, operation, calibration or servicing of the temperature transmitter.

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1. INTRODUCTION

This manual provides installation, operation, wiring, calibration and maintenance information for the Evotrox SENSE-TM100 Temperature Transmitter. It is intended for system integrators, maintenance engineers and industrial automation professionals.

The Evotrox SENSE-TM100 is an industrial-grade Temperature transmitter designed for process and environmental temperature monitoring applications. The device uses a RTD sensing element and provides an accurate, linear 4-20 mA current output over a 2-wire, loop-powered connection suitable for PLC, SCADA, BMS and industrial automation systems.

2. PRODUCT OVERVIEW

The SENSE-TM100 is designed with a weatherproof stainless-steel probe housing and a compact, quick-disconnect DIN-style connector head, suitable for long-term operation in demanding industrial process conditions.



Figure 1: Product Appearance

3. FEATURES

- Single-parameter Temperature monitoring using a RTD sensing element
- 2-wire, loop-powered 4-20 mA analog output
- Wide measurement range: -20.0°C to +80.0°C
- High accuracy: $\pm 0.2\%$ FS
- Reverse polarity and incorrect wiring protection
- Rugged stainless-steel probe with waterproof, dustproof housing
- Standard threaded process connection for quick, secure installation

4. APPLICATIONS

- Process temperature monitoring in tanks, pipelines and vessels
- Compressor rooms, HVAC rooms and utility areas
- Boiler rooms, AHU rooms and industrial plant rooms
- Cold storage plants, cold rooms and refrigeration utility areas
- Warehouses, storage areas and process rooms where temperature monitoring is required
- Food, dairy and beverage processing plants
- Pharmaceutical process and warehouse utilities
- Water and wastewater treatment plants
- Industrial process skids and control panels
- SCADA, BMS, PLC and IoT-based industrial monitoring systems

5. TECHNICAL SPECIFICATIONS

The following technical specifications define the electrical, environmental and operational characteristics of the SENSE-TM100 transmitter.

Parameter	Specification
Power Supply	12-24 VDC (2-wire loop powered)
Power Supply Range	12 VDC to 24 VDC
Power Consumption	Loop powered (no separate supply current draw)
Temperature Range	(V1) -20.0°C to +80.0°C (V2) -100.0°C to +100.0°C
Sensor Input	RTD
Temperature Accuracy	±0.2% FS
Model No.	TZ- -CT (Two-Wire)
Output Type	4-20 mA (2-wire current loop)
Protection Class	IP65*

*Protection class shown is typical for a waterproof/dustproof stainless-steel probe enclosure of this type; confirm the exact IP rating on the product datasheet before specifying for a particular application.

6. MECHANICAL DIMENSIONS

The following dimensional drawing provides the mechanical dimensions required for mounting and installation planning.

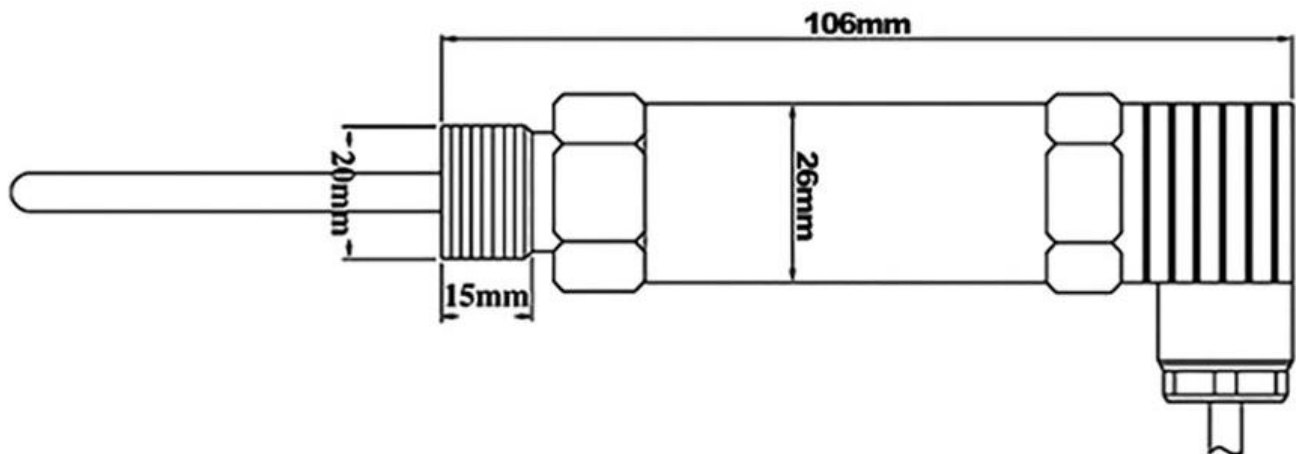


Figure 2: Mechanical Dimension Drawing

7. INSTALLATION GUIDELINES

Proper installation is important for achieving accurate measurement performance and long-term sensor reliability.

- Install using the standard threaded process connection for a quick, secure mount.
- Ensure sufficient probe insertion depth into the process or media for accurate measurement.
- Avoid installing near unrelated heat sources that could influence the reading.
- Use shielded cable in electrically noisy environments.
- Apply thread sealant as required to maintain the enclosure's waterproof rating at the process connection.

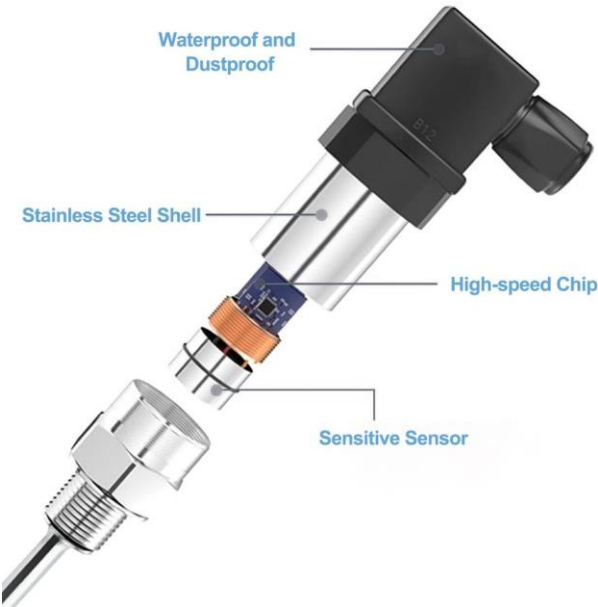


Figure 3: Internal Construction Overview

8. WIRING CONNECTION

All electrical connections should be completed according to the following terminal configuration. Disconnect power before wiring. This is a 2-wire, loop-powered 4-20 mA device — the same two conductors carry both power and signal.

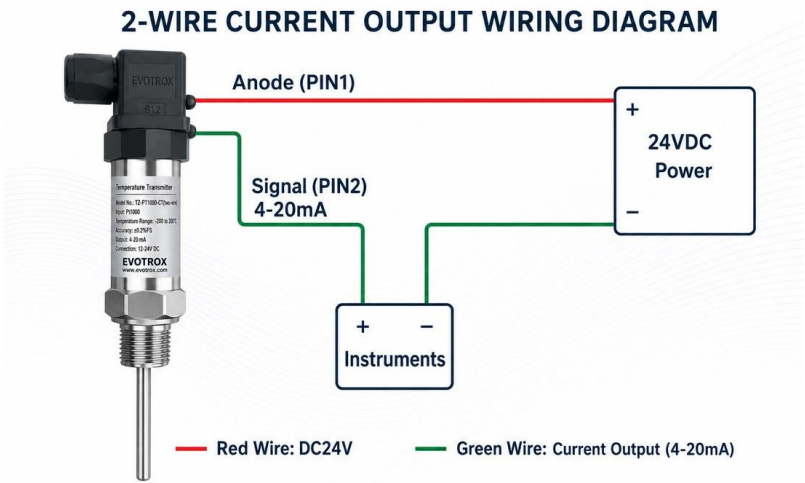


Figure 5: Wiring Diagram (2-Wire Current Loop)

Pin	Signal	Description	Type
1	+24VDC (Anode)	Loop power positive — red wire	Power / Loop+
2	4-20mA Signal	Temperature output — green wire	Analog / Loop-

9. OUTPUT SCALING

The analog output signal is linearly scaled according to the following measurement range.

Output	Low Scale	High Scale
Temperature Output	4 mA = -20.0°C	20 mA = +80.0°C
Temperature Output	4 mA = -100.0°C	20 mA = +100.0°C

10. PROBE LENGTH OPTIONS

Different probe lengths are available depending on the immersion depth and application requirements.

Code	Probe Length	Typical Application	Notes
S1	50 mm	Short immersion / duct & pipe mounting	Standard fast-response tip

Note: Probe length codes above are representative; confirm exact probe length options and ordering codes with Evotrox at the time of ordering.

11. SENSOR PERFORMANCE CHARACTERISTICS

The following section summarizes the typical accuracy behaviour of the sensing element across the specified operating Temperature range. This helps evaluate sensor stability and expected performance under varying process conditions.

The SENSE-TM100 uses a RTD sensing element rated at an accuracy of $\pm 0.2\%$ of full scale (FS). Sensor stability is maintained through standard operating conditions; performance may vary slightly near the extreme ends of the range due to RTD non-linearity, which is compensated internally by the transmitter's signal conditioning circuit.

Note: Detailed tolerance/deviation curves for the SENSE-TM100 were not available at the time of this manual's preparation. Contact Evotrox for full sensor characterization data if required for your application.

12. ORDERING INFORMATION

The following ordering structure should be used while selecting the appropriate product and probe length configuration.

Model	Output	Description
SENSE-TM100	4-20 mA, 2-Wire	-20.0°C TO +80.0°C
SENSE-TM100-UL	4-20 mA, 2-Wire	-100.0°C TO +100.0°C

Note: If no probe length option is specified during ordering, the standard probe length (as shown in this manual) will be supplied by default.

13. SAFETY INSTRUCTIONS

Follow the safety instructions below before installing, wiring, operating or servicing the product.

- Disconnect power before wiring or maintenance.
- Installation should be performed by qualified personnel only.
- Avoid exposure to corrosive gases or chemicals beyond the enclosure's rated protection.
- Avoid touching internal electronic components without ESD protection.
- Ensure correct loop polarity during installation.
- Do not paint, cover or obstruct the probe tip or sensing element.

14. MAINTENANCE

Routine inspection and periodic cleaning are recommended to ensure stable sensing performance and long operational life.

- Clean enclosure using a dry, soft cloth only.
- Do not use chemical solvents.
- Inspect cable glands, connector seals and wiring periodically.
- Ensure the probe tip remains free of buildup or coating that could affect thermal response.

15. TROUBLESHOOTING

The following table provides guidance for identifying and resolving common operational conditions.

Problem	Possible Cause	Solution
No Output	Loop power issue	Check loop supply voltage and wiring polarity
Unstable Reading	Poor probe contact / vibration	Ensure secure mounting and adequate probe insertion depth
Incorrect Reading	Calibration drift	Recalibrate sensor against a reference standard
Output Stuck at ~4 mA / Erratic	Reversed loop polarity or loose connection	Verify wiring polarity (Pin 1 = Loop+, Pin 2 = Signal) and check terminal connections

16. WARRANTY & LEGAL INFORMATION

Specifications are subject to change without prior notice. The user is responsible for ensuring proper installation, commissioning, operation and maintenance according to local industrial safety regulations, electrical codes and site safety procedures.

This product is intended to assist in temperature monitoring and alarm generation. It does not replace statutory process safety systems, validated environmental monitoring procedures, emergency response procedures or operator training where such systems are required by applicable regulation or site policy.

Sensor performance depends on installation location, immersion depth, calibration condition, sensor age, process fouling, dust/chemical exposure and maintenance practices. Periodic functional testing and calibration are essential for reliable operation.

SENSE-TM100 is a weatherproof product. It is not a flameproof, explosion-proof or intrinsically safe product. Any hazardous area or safety-critical usage shall be verified against site classification, product certification and applicable local regulations before installation.

17. CONTACT INFORMATION

Company	Details
Brand	EVOTROX
Location	Ahmedabad, Gujarat, India
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