

Non-display Solid-state Temperature Transmitter

Catalog Numbers 837T-N1x, 837T-N2x

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Safety Considerations

- Read this document for information on installation, handling, mounting, general product specifications, and operation of this product. These installation instructions contain important information on handling the instrument.
- Working safety requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the range of use of the instrument.
- The installation instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.
- Skilled personnel must have carefully read and understood the installation instructions, before any work begins.
- The Bulletin 837T-N is a resistant thermometer, which is used as a general-purpose thermometer for the measurement of temperature. The device has been safely built with state-of-the-art technology and meets the applicable requirements and EC directives. It can, however, be a source of danger if used incorrectly or for anything other than the designated use.
- Qualified individuals are required for installation and commissioning. Failure to comply results in personal injury or equipment damage.
- During mounting, make sure that the sealing faces at the instrument and the measuring point are clean and undamaged.
- **Safety Installation Considerations:** Before installation, commissioning, and operation, be sure that the appropriate temperature transmitter has been selected in terms of range of measurement, design, and specific measurement conditions.

Qualified Personnel

Qualified personnel are required to conduct the work that is described and recognize potential hazards.

Specifications

Output Signals

Signal	Load
4...20 mA	≤ power supply -10V/23 mA

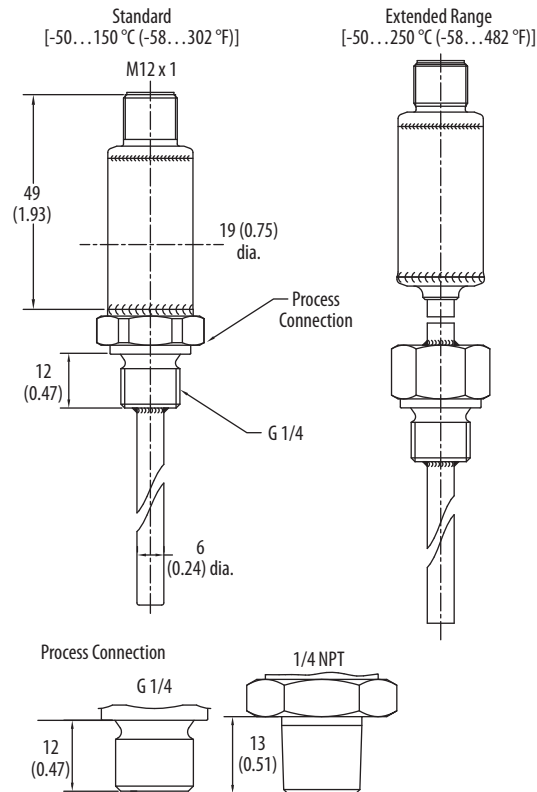
Performance Characteristics	
Load	≤ (power supply -10V)/23 mA
Switch on Time	< 4 s
Accuracy Data	
Measure Deviation of the transmitter per IEC 60770	± 0.25K
Total deviation of measurement according to IEC 60770	Measurement deviation of the measuring element plus the transmitter
Sensor Current	< 0.3 mA (self-heating can be ignored)
Temperature Error at -30...+85 °C (-22...+185 °F) in rate temperature range	0.1% of span/10 K Ta Note: span range is 20...300 K
Long Term Drift	≤ ± 0.1% of span
Non-linearity	≤ ± 0.1% of span ± 0.2% for measure range, 0 °C (32 °F)

Reference Operation Conditions (per IEC 61298-1)	
Temperature Range	-50...250 °C (-58...482 °F) -50...150 °C (-58...302 °F)
Operating Pressure	270 bar with 6 mm (0.24 in.) sensor diameter
Humidity	5...95% (according to IEC 60654-1)
Mounting Position	As required
Power supply	10...30V DC
Measure Range	
Temperature Range	Standard: -50...150 °C (-50...302 °F) Extended range: -50...250 °C (-58...482 °F)

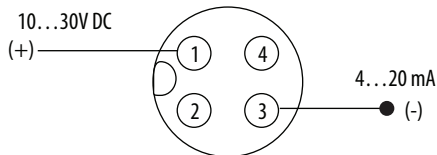
Operating Conditions: Environment	
Certifications	c-UL-us and CE Marked for all applicable directives
Ambient temperature range	-40...+85 °C (-40...+185 °F)
Storage temperature	-40...+85 °C (-40...+185 °F)
Humidity	100% r. h., condensation allowed (IEC 60008-2-30 var 2)
Shock resistance	50 g (1.76 oz) 6 ms, 3 axis, 3 faces, 3 times for each face (IEC 60068-2-27, mechanical)
Reverse polarity protection	Analog + vs. Analog -
Vibration resistance ¹	10...2,000 Hz, 20 g (0.70 oz) (per IEC 60751-2-6, under resonance)
Ingress protection (per IEC 60529)	IP67 – M12x1 4 pin
Response Time	T05 < 5 s (per DIN EN 60751) T09 < 10 s (per DIN EN 60751)

¹ Depends on instrument version.

Dimensions [mm (in.)]



Wiring Diagrams



Connection Cables

889D-F4AC-2 (M12x1 straight connector)

889D-R4AC-2 (M12x1 right angle connector)

Process Connection

Attribute	Value
Measure Element	Pt1000/Class A
Process Connection	Thread – 1/4 NPT male – 1/2 NPT male – G1/4 B male – G1/2 BSPP

Commissioning



ATTENTION: Before commissioning, the temperature transmitter must be subjected to a visual inspection.

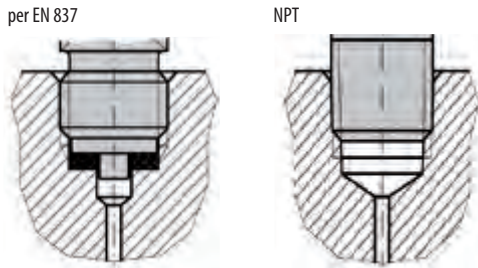
- Leakage of fluid is indicative of damage.
- Only use the temperature transmitter if it is in perfect condition concerning safety.

Making the Mechanical Connection

- While mounting, make sure that the sealing faces at the instrument and the measuring point are clean and undamaged.
- Only screw or unscrew the instrument via the spanner flats and to the prescribed torque with an appropriate tool. The correct torque depends on the dimensions of the process connection and the gasket used (form/material). When screwing or unscrewing the temperature transmitter, do not use the housing as contact surface.
- Be careful not to cross-thread.
- Maximum torque is 40 N•m (354.03 lb•in) ±5% (G 1/4 B)
1/4 NPT is conical sealing.

Types of Sealing

Figure 1 - Parallel Thread —Tapered Thread (NPT)



Correct sealing of the process connections with parallel threads at the sealing face must be made using suitable flat gaskets and ring seals.

The sealing of the tapered threads (for example, NPT thread) is made by providing the thread with additional material for sealing such as, PTFE tape (EN 837-2).

Dismantle and Disposal

Let the instrument cool down sufficiently before you dismantle it.



BURN HAZARD: Residual media in the dismantled temperature transmitter can result in a risk to persons, the environment, and the equipment. Take sufficient precautionary measures.

Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment can be collected separately from any unsorted municipal waste.

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

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