

Operation & Maintenance Manual



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LevelPro® – TPP Series

Plastic Temperature Probe

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of the TPP Temperature Sensor. Please read this manual carefully before use.

2. Safety Instructions

- ✓ Disconnect power before installation or maintenance.
- ✓ Use only within the rated 11–36VDC supply range.
- ✓ Confirm process compatibility with PTFE housing material.
- ✓ Avoid installing in explosive environments unless certified.
- ✓ Ensure proper grounding and wiring to prevent signal issues.

3. Product Overview

The TPP Temperature Sensor is a high-performance, field-mounted temperature transmitter designed for accurate temperature measurement in industrial environments. It uses a PT100 resistance temperature detector and provides a linear 4–20mA output signal.

Constructed with PTFE Teflon, the sensor offers excellent corrosion and temperature resistance, making it ideal for demanding applications across industries such as chemical processing, power generation, food, pharmaceuticals, and textiles.

4. Specifications

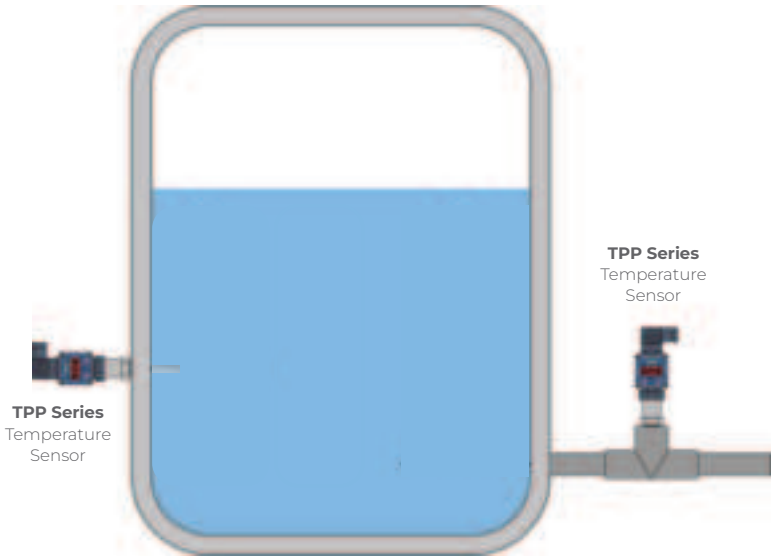
Operating Voltage	11-36VDC
Output	4-20mA Loop Powered
Accuracy	± 0.5% F.S.
Operating Temperature	-25.6 ~ 212°F -32 ~ 100°C
Relative Humidity	5 - 95%
Connection	1/2" NPT
Wetted Part	PTFE Teflon®
Vibration Amplitude	f ≤ 55 Hz, amplitude < 0.15 mm
Temperature Resistance	PT100



5. Working Principle

The TPP Temperature Sensor uses a PT100 element to convert temperature into an electrical signal. This signal is processed by internal circuitry for amplification and compensation. The result is a 4–20 mA output corresponding to the measured temperature. In models with displays, the signal is also converted to a digital format for real-time visualization.

6. Application Diagram

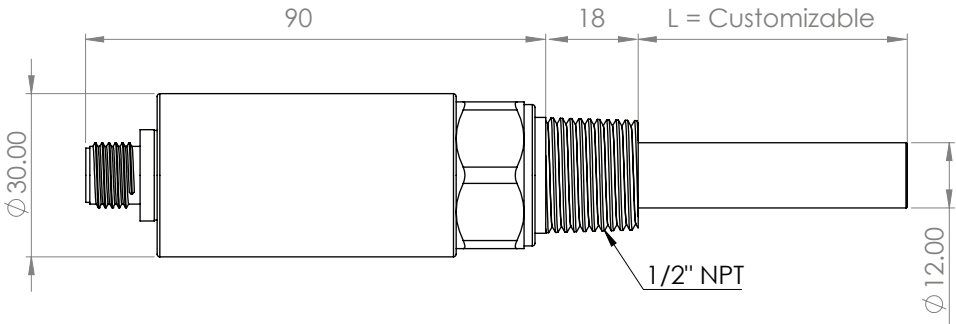


7. Polytetrafluoroethylene (PTFE) Thread Pressure Bearing Capacity

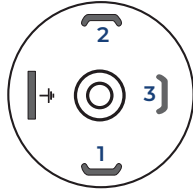
Temperature Range °F °C	Pressure Resistance psi	Description
68°F 20°C	≤100	Designed with a safety factor of 4 to 6
212°F 100°C	≤50	Strength decreases significantly; risk of creep increases
302°F 150°C	≤25	Sealing performance must be strictly monitored
392°F 200°C	<20	Not recommended for long-term use

Note: PTFE threads are suitable for low-pressure, corrosive environments and should be used with caution at high temperatures.

8. Dimensions (mm)



9. Wiring Diagram



DIN Connection	
Terminal	Description
Terminal 1	+VDC
Terminal 2	4-20mA -VDC



M12 Connection		
Pin	Wire Color	Description
Pin 1	Brown	+VDC
Pin 4	Black	4-20mA -VDC

10. Wiring Instructions – DIN Connection

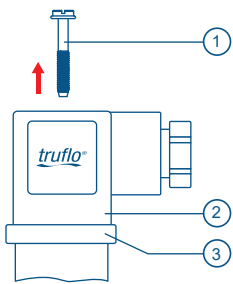


Fig.1

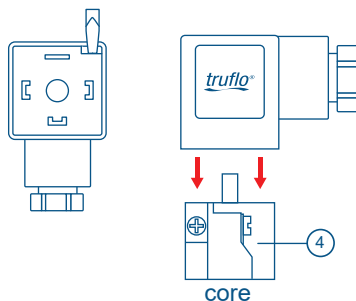


Fig.2

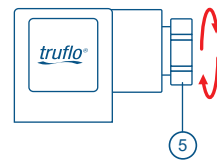


Fig.3

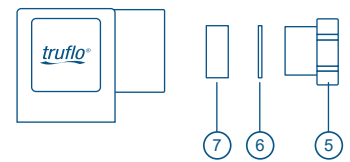


Fig.4

1. Loosen the central screw (part 1) and detach the junction box (part 2) from the connector (part 3), as shown in Fig. 1.
2. Use a screwdriver or similar tool to push out the core (part 4) from the junction box (Fig. 2).
3. Loosen the cable gland screw (part 5) as shown in Fig. 3.
4. Insert the connecting cable through the screw connection (part 5), clamping ring (part 6), and rubber insert (part 7).
5. Connect the wires according to the wiring diagram (see Fig. 4).
6. Push the core (part 4) back into the junction box (part 2) until it locks in place.
7. Tighten the cable gland (part 5).
8. Reattach the junction box (part 2) to the connector (part 3) and tighten the central screw (part 1).
9. Make sure all seals (part 2, 3, and 7) are properly positioned.

11. Installation Instructions

1. Ensure the power is turned off before installation.
2. Mount the sensor to the process pipe or vessel using the appropriate fitting.
3. Connect wiring as per section 9 based on the sensor's output type.
4. Power on and verify the output signal.
5. For adjustable models, calibrate zero and span if necessary.

12. Maintenance

1. Periodically inspect wiring and terminals for corrosion or damage.
2. Clean the PTFE body with a soft, non-abrasive cloth if exposed to chemical residues.
3. Check for proper signal output using a multimeter or loop calibrator.
4. For display versions, ensure the screen is readable and not fogged.
5. Recalibration is not required unless there is a significant change in process accuracy requirements.

13. Troubleshooting

Issue	Possible Cause	Solution
No output	Power supply disconnected	Check wiring and supply voltage
Output stuck at 4 or 20mA	Sensor failure or wiring issue	Verify sensor element and connections
Fluctuating signal	Electromagnetic interference	Check grounding and use shielded cables
Display not working	Internal failure or loose connector	Inspect display connection and power

14. Warranty, Returns and Limitations

Warranty

Icon Process Controls Ltd warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by Icon Process Controls Ltd for a period of one year from the date of sale of such products. Icon Process Controls Ltd obligation under this warranty is solely and exclusively limited to the repair or replacement, at Icon Process Controls Ltd option, of the products or components, which Icon Process Controls Ltd examination determines to its satisfaction to be defective in material or workmanship within the warranty period. Icon Process Controls Ltd must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the one year from the date of replacement.

Returns

Products cannot be returned to Icon Process Controls Ltd without prior authorization. To return a product that is thought to be defective, go to www.iconprocon.com, and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to Icon Process Controls Ltd must be shipped prepaid and insured. Icon Process Controls Ltd will not be responsible for any products lost or damaged in shipment.

Limitations

This warranty does not apply to products which:

1. are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above;
2. have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use;
3. have been modified or altered;
4. anyone other than service personnel authorized by Icon Process Controls Ltd have attempted to repair;
5. have been involved in accidents or natural disasters; or
6. are damaged during return shipment to Icon Process Controls Ltd

Icon Process Controls Ltd reserves the right to unilaterally waive this warranty and dispose of any product returned to Icon Process Controls Ltd where:

1. there is evidence of a potentially hazardous material present with the product;
2. or the product has remained unclaimed at Icon Process Controls Ltd for more than 30 days after Icon Process Controls Ltd has dutifully requested disposition.

This warranty contains the sole express warranty made by Icon Process Controls Ltd in connection with its products. ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED. The remedies of repair or replacement as stated above are the exclusive remedies for the breach of this warranty. IN NO EVENT SHALL Icon Process Controls Ltd BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON. THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF Icon Process Controls Ltd. This warranty will be interpreted pursuant to the laws of the province of Ontario, Canada.

If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision of this warranty.

For additional product documentation and technical support visit:

www.iconprocon.com | e-mail: sales@iconprocon.com or support@iconprocon.com | Ph: 905.469.9283