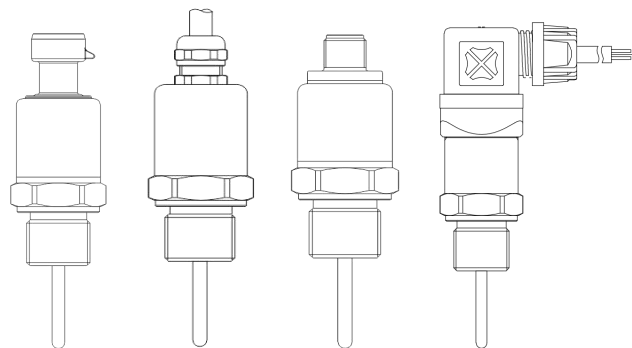


Compact Temperature Transmitter



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Preface

Thank you for purchasing temperature transmitter. Please read this manual carefully before operating and using it correctly to avoid unnecessary losses caused by false operation.

Note

- Modification of this manual's contents will not be notified as a result of some factors, such as function upgrading.
- We try our best to guarantee that the manual content is accurate, if you find something wrong or incorrect, please contact us.
- This product is forbidden to use in explosion-proof occasions.

Version

U-SUP-TBY100-EN1

Disclaimer

- The company does not make any guarantees for the terms outside the scope of this product warranty.
- This company is not responsible for damage to the instrument or loss of parts or unpredictable damage caused directly or indirectly by improper operation of the user.

Package contents

After opening the box, please confirm the package contents before starting the operation. If you find that the model and quantity are incorrect or there is physical damage in appearance, please contact us.

Package contents

No.	Name	Quantity	Remarks
1	Temperature transmitter	1	
2	User Manual	1	
3	Certificate	1	

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1 Introduction

1.1 Overview

With a Pt100 resistance temperature detector (RTD) as the sensing element, the temperature transmitter integrated with a signal conditioning and amplification module. It is designed to measure the liquid temperature in various industrial process. Besides, the transmitter adopts a highly stable signal-processing circuit to ensure continuous temperature measurement and signal output. A 24-bit ADC is used for digital signal conversion, enabling functions such as local display and remote transmission. It is widely used for temperature measurement of water, oil, and other liquids in industries such as petroleum, chemical processing, power generation, light industry, textile manufacturing, and environmental protection.

1.2 Measuring Principle

The measurement principle is based on the property that the resistance of a platinum resistance element varies with temperature according to a defined functional relationship.

When the temperature changes, the resistance value of the sensing element changes accordingly. This variation affects the current in the measurement circuit and generates a corresponding electrical signal. The signal is then processed and converted into a temperature value.

The temperature transmitter converts the temperature change into an electrical signal, which can be used for monitoring, control, or transmission to other systems.

1.3 Features

- Compact structure and easy installation.
- High stability and high reliability.
- Anti-vibration, anti-radio frequency interference.
- High precision, all stainless steel structure.
- Strong anti-interference, good long-term stability.
- Wide range.

1.4 Parameters

Table 1 Technical parameters

Input	
Measured variables	Temperature
Temperature sensor	Pt100
Measuring range	(0~100)°C ; (-50~100)°C
Output	
Current output	(4~20)mA, load capacity $R_L=(U-10V)/0.02A$ U: supply voltage, unit: V
Power supply	
Power supply	(10~32)VDC
Power consumption	0.7W@24VDC
Electrical interface	Aviation, Hirschmann, Packard, direct leads
Performance parameters	
Accuracy	±0.5%FS
Response time	$T_{90} \leq 60s$

Insulation resistance	20MΩ, 500 VDC
Insulation strength	500VAC
Protection level	IP65
Process conditions	
Media type	Media that do not corrode silicon and stainless steel (or aluminum alloys)
Medium temperature	(-50~100)°C
Process pressure	4MPa
Environmental conditions	
Ambient temperature	(-20~70)°C
Storage temperature	(-20~70)°C

2 Structure and Dimensions

2.1 Hirschmann Connector

Unit: mm

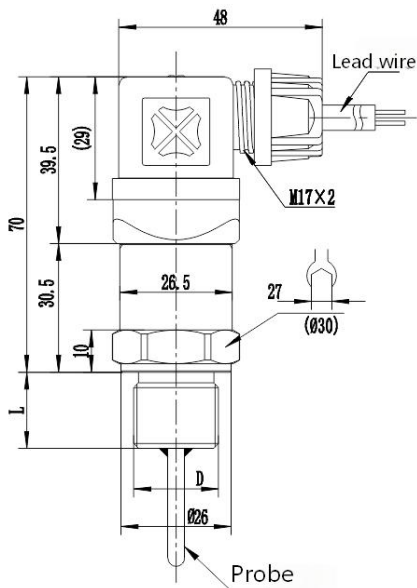


Fig.1 Dimensions of the type with Hirschmann connector (unit: mm)

Note: The probe length L and diameter Φ D are customized according to the order.

2.2 Aviation Connector

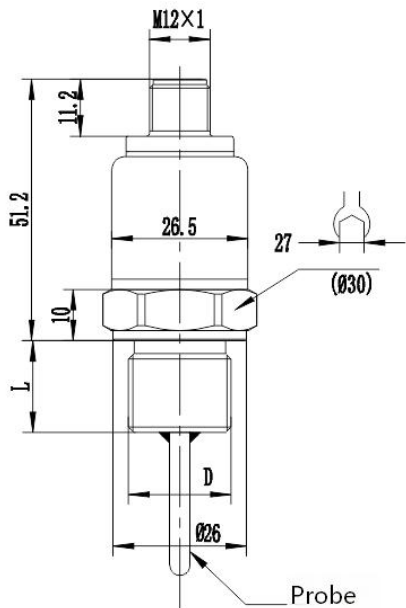


Fig.2 Dimensions of the type with aviation connector (unit: mm)

Note: The probe length L and diameter ΦD are customized according to the order.

2.3 Direct Lead Wire

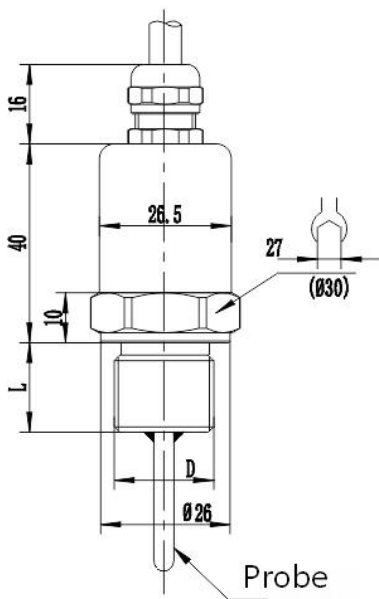


Fig.3 Dimensions of the type with lead wire (unit: mm)

Note: The probe length L and diameter ΦD are customized according to the order.

2.4 Packard Connector

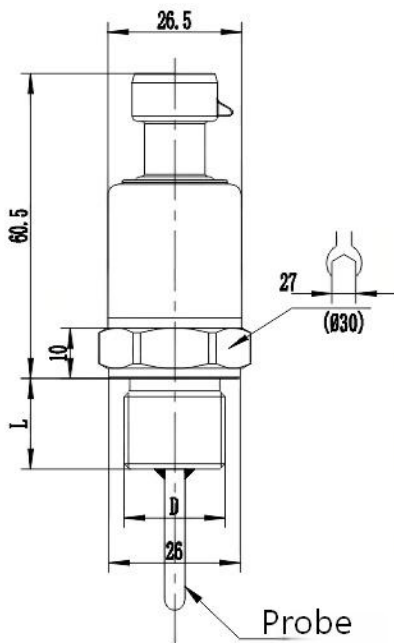


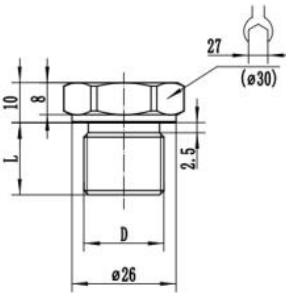
Fig.4 Dimensions of the type with packard connector (unit: mm)

Note: The probe length L and diameter ΦD are customized according to the order.

2.5 Process connection

Process connections: standard M27×2 thread, M20×1.5 thread, M14×1.5 thread, G1/8 thread, G1/4 thread, G1/2 thread, NPT 1/4 thread, NPT 1/2 thread, etc. Special threads require customization.

Table 2 Thread size

	Thread type D	Thread length L (mm)
	M27×2	20
	M20×1.5	18
	M14×1.5	15
	G1/8	15
	G1/4	15
	G1/2	18
	NPT 1/4	15
	NPT 1/2	18

2.6 Material

Housing material: 304SS or 316LSS

Process connection material: 304SS or 316LSS

3 Electrical Connection

3.1 Aviation Connector



Fig.5

Table 3

No.	1	2	3	4
Description	$V_{\text{supply}+}$	-	I_{out}	-

3.2 Hirschmann Connector



Fig.6

Table 4

No.	1	2	3	⚡
Description	$V_{\text{supply}+}$	I_{out}	-	-

3.3 Direct Lead Wire

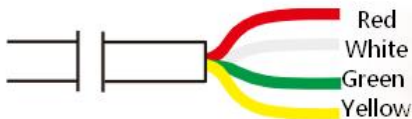


Fig.7

Table 5

No.	Red	Yellow	Green	White
Description	$V_{\text{supply}+}$	-	I_{out}	-

3.4 Packard Connector

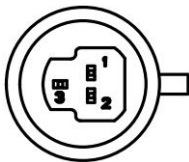


Fig.8

Table 6 Packard connector diagram

No.	1	2	3
Description	I_{out}	$V_{\text{supply}+}$	-

4 Precaution for Use

- (1) Ensure all sealing joints are properly tightened to maintain effective sealing.
- (2) Use the transmitter strictly according to the specified requirements. Different models must not be interchanged.
- (3) Handle the transmitter carefully during installation. Avoid impact or mechanical shock.
- (4) If any abnormal condition occurs during installation or operation, contact the manufacturer immediately. Do not disassemble the product without authorization.
- (5) This product is not suitable for applications in hazardous areas.

5 Warranty and After-Sales Service

Our company guarantees that any product quality issues arising during the warranty period will be covered under our unconditional warranty policy, which includes free repair, replacement, or return. All non-customized products are eligible for return or exchange within 7 days (excluding products damaged due to misuse). For customized products, the warranty terms specified in the contract shall apply.

Disclaimer

The following situations are not covered under the warranty policy, even during the warranty period:

- (1) Product malfunctions caused by improper use by the customer.
- (2) Product malfunctions resulting from unauthorized disassembly, repair, or modification by the customer.