# WD01 Series

## Temperature Transmitter



## Product introduction

WD01 series temperature transmitters use semiconductor temperature sensors, platinum resistances, etc. as temperature sensitive components, and output standard industrial signals after temperature compensation, digital circuit correction and signal conditioning.

Each type of product has undergone careful design, component screening, process verification and curing, environmental simulation testing and other processes to ensure that each product is stable and reliable.

## Applications

- Railway locomotives
- Chemical industry
- Coal mines
- Oil field
- Civil explosions

## Features

Range (℃): -60~450 (optional range)

Electrical connection: Hirschmann socket, Direct cable outlet, Aviation socket, Industrial terminal

Accuracy: ±0.25℃ (customized), ±0.5℃, ±1.0℃

Output signal: 4mA~20mA, 0V~10VDC, $I^2C$,RS485

Response time: 20s (typical value, 10%~90%)

Measuring medium: fluid compatible with 304 and 316L

## Output signal and supply voltage

| Form | Output signal | Supply voltage |
|---|---|---|
| Current (2 wire) | 4mA~20mA | 12V~30V DC |
| Voltage (3 wire) | 0V~5V DC | 6V~24V DC |
| | 0V~10V DC | 12V~30V DC |
| I²C (4 wire) | I²C | 3.3V~5V DC |
| RS485 (4 wire) | RS485 | 5V~30V DC |

**Load resistance (Ω)**

Current (2wire): R ≤(U-10)/0.02-RD (U: power supply voltage, RD: internal resistance of the cable)

**Total current consumption**

Current (2 wire): The maximum signal current is approximately 23mA

Voltage (3 wire):＜5mA

I²C (4 wire):＜0.3mA

RS485 (4 wire): ＜5mA (low power＜1.1mA)

## Product accuracy and performance index

| Items | Parameter or index | | |
|---|---|---|---|
| Accuracy (℃) | 0.25 | 0.5 | 1.0 |
| Long-term stability (%FS) | ≤0.25 | ≤0.5 | ≤1.0 |

## Environmental conditions

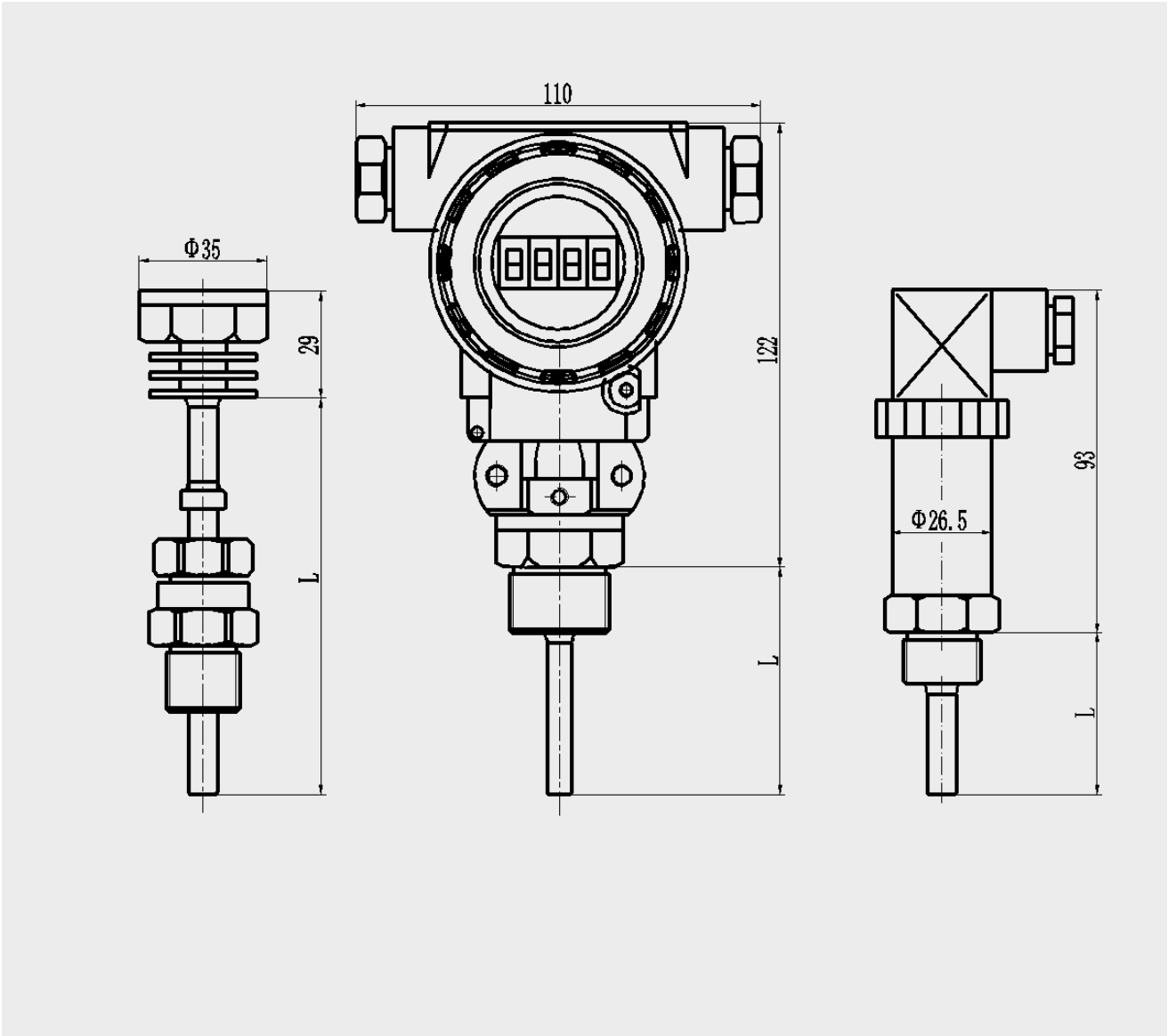
| Items | Temperature range |
|---|---|
| Operating temperature | -60℃~450℃ (probe), -30℃~+60℃ (with header) |
| Environmental temperature | -40℃~+80℃ |
| Storage temperature | -40℃~+125℃ / -20℃~+80℃ (cable type) |

## Operating conditions

| Items | Parameter range |
|---|---|
| Protection level | IP65 |
| Atmospheric pressure | 86kPa~106kPa |
| Vibration environment | 10g (@10Hz~2000Hz) |
| Shock resistance | 100g/11ms |

# Typical appearance structure drawing (unit: mm)

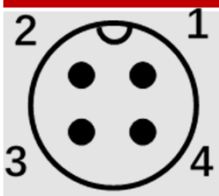
- The following figure shows the typical product shape structure. Other shape structure please contact sibox for consultation and customization.

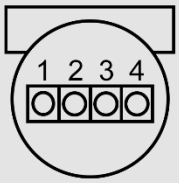


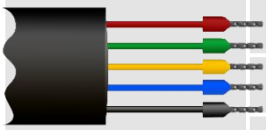

- Please contact the sales staff for details of the product heat sink.

# Electrical connection diagram

| Hirschmann socket | | | | | |
|---|---|---|---|---|---|
| Structure diagram | Binding post | Current (2 wire) | Voltage (3 wire) | IIC (4 wire) | RS485 (4 wire) |
|  | 1 | Vcc | Vcc | Vcc | Vcc |
| | 2 | Iout | GND | GND | GND |
| | 3 | / | Vout | SCL | RS485A |
| | ⏚ | PE | PE | SDA | RS485B |

| Round aviation socket | | | | | |
|---|---|---|---|---|---|
| Structure diagram | Binding post | Current (2 wire) | Voltage (3 wire) | IIC (4 wire) | RS485 (4 wire) |
|  | 1 | Vcc | Vcc | Vcc | Vcc |
| | 2 | Iout | GND | GND | GND |
| | 3 | PE | Vout | SCL | RS485A |
| | 4 | / | PE | SDA | RS485B |

| Industrial terminal | | | | | |
|---|---|---|---|---|---|
| Structure diagram | Binding post | Current (2 wire) | Voltage (3 wire) | IIC (4 wire) | RS485 (4 wire) |
|  | 1 | PE | PE | SDA | RS485B |
| | 2 | / | Vout | SCL | RS485A |
| | 3 | Iout | GND | GND | GND |
| | 4 | Vcc | Vcc | Vcc | Vcc |

| Direct cable outlet | | | | | |
|---|---|---|---|---|---|
| Structure diagram | Cable color | Current (2 wire) | Voltage (3 wire) | IIC (4 wire) | RS485 (4 wire) |
|  | red | Vcc | Vcc | Vcc | Vcc |
| | green | Iout | GND | GND | GND |
| | yellow | / | Vout | SCL | RS485A |
| | blue | / | / | SDA | RS485B |
| | black | PE | PE | PE | PE |

# Selection guide

| WD01 | Series temperature transmitter |
|---|---|
| Range | -60℃~450℃ (optional range) |

| Code name | Supply voltage |
|---|---|
| $U_1$ | 24VDC |
| $U_2$ | 12VDC |
| $U_3$ | 5VDC |
| $U_4$ | 3VDC (3.3VDC) |
| $U_5$ | Other power supply methods |

| Code name | Output signal |
|---|---|
| $E_1$ | 4mA~20mADC |
| $V_3$ | 0VDC~10VDC |
| $V_5$ | Other power supply methods |
| $R_4$ | RS485 communication interface |
| H | HART® protocol communication |
| II | $I^2C$ protocol communication |

| Code name | Shape interface | |
|---|---|---|
| | Electrical interface | Mechanical |
| | Hirschmann socket ($LJ_1$) | G¼ |
| | Aviation socket ($LJ_2$) | G½ |
| | Others ($LJ_5$) | Other (direct label) |

| Code name | Additional functions |
|---|---|
| $M_1$ | 4-digit LCD digital display header |
| $M_2$ | 4-digit LED digital display header |
| I | Intrinsically safe explosion-proof type ExiaIICT6 |
| QT | Other functions |

| | | | | | |
|---|---|---|---|---|---|
| **WD01** | **（-50~200）** | **$U_1$** | **$V_3$** | **$LJ_1G½$** | Complete model specification |

➢ Order model WD01 (-50~200) U1 V3 LJ1G½ indicates the product model WD01, measuring range (-50℃~200℃), 24V power supply, 0~10V output, Hirschmann connector, G1/2 threaded connector

## Precautions

- Please pay attention to the compatibility of the tested medium and the shell when selecting the model. If you are not sure, media compatibility can be consulted with our company.
- When selecting digital display products, the working environment temperature range of the display head is -30℃~60℃, the product power supply should not be less than 15VDC.
- Sealing measures are taken at the interface connection to prevent leakage of pressurized liquid and cause pollution or accidents.
- When using in a dangerous environment such as flammable and explosive, please install a safety isolation barrier as required, and the cable connection must be sealed and reliable.
- Tighten the junction box cover before energizing work to ensure that the inner cavity of the junction box is isolated from the environment.
- When cleaning and repairing products, users need to power off, remove the transmitter, live operation on site is strictly prohibited.