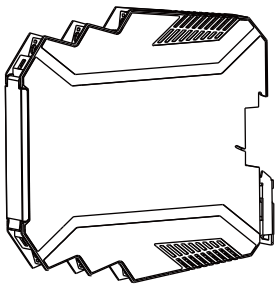
User Manual of

Temperature Input

Digital signal isolator



www.supmea.com
info@supmea.com
Supmea Automation Co.,Ltd.
Add：5th floor,Building 4,Singapore Hangzhou Science Technology Park,No. 6 street, Hangzhou Economic Development Area,Hangzhou 310018,China

Version

U-SUP-1003S-EN5

1. Product Overview

The Temperature isolators can convert signals such as thermal resistances or thermocouples into standard current or voltage signals for other instruments. It achieves three-terminal isolation between input, output, and power, thereby improving the industrial process control system's anti-interference capability, ensuring system stability, and reliability. The isolator can be used in conjunction with various instruments, DCS, PLC, and other equipment, and has wide applications in major projects in industries such as petroleum, petrochemical, manufacturing, power, and metallurgy.

Note: This product is not allowed for use in explosion-proof environments.

2. Product Features

- Low power consumption with efficient heat dissipation design
- The input signal and measuring range can be configured on the host computer.
- Distributive output with current-limiting protection for increased reliability and safety.
- Supports a maximum load of 550Ω for current output.
- Ultra-thin design with a 13mm slim casing, saving installation space.
- Flame-retardant casing for enhanced safety.

3. Technical Parameter

Input signal : thermal resistance	Conventional：Pt100、Cu50、Cu100 Customized：Pt50、Pt200、Pt500、Pt1000
Input signal : thermocouple	K、E、S、B、J、T、R、N、WRe3-WRe25、WRe5-WRe26
Input signal : mV signal	(-120~120)mV
Output signal	(0~20)mA、(4~20)mA、(0~5)V、(1~5)V、(0~10)V、(2~10)V
Output load resistance	(4~20)mA、(0~20)mA：R_L≤550Ω；(0~5)V、(1~5)V、(0~10)V、(2~10)V：R_L≥1MΩ
Transmission accuracy	See attached table
Isolation strength (between input/ output/power)	1500Vrms (1 min，no spark)
Response time	≤500ms (Single-channel)
Temperature drift	≤40ppm
EMC	EMC conforms to GB/T18268 (IEC 61326-1) requirements for industrial equipment application
Power supply	(20~35)VDC
Power consumption	Single-channel output：≤1.0W Double-channel output：≤1.4W
Operating temperature	(-20~60)℃
Storage temperature	(-20~60)℃
Relative humidity	25%～85%
Installation method	35mm DIN rail mounting

Attached table: Transmission accuracy

Input signal type		Range	Accuracy
TC	K/E/J/N/T	<300℃	±0.3℃
		⩾300℃	±0.1% F.S
	S/B/R/WRe-series	<500℃	±0.5℃
		⩾500℃	±0.1% F.S
RTD	Pt100/Cu100/Cu50	<100℃	±0.1℃
		⩾100℃	±0.1% F.S

(25℃±2℃, excluding cold junction compensation)

4. Dimension

Dimensions: 117.5mm*110mm*13mm.

Weight: 130g.

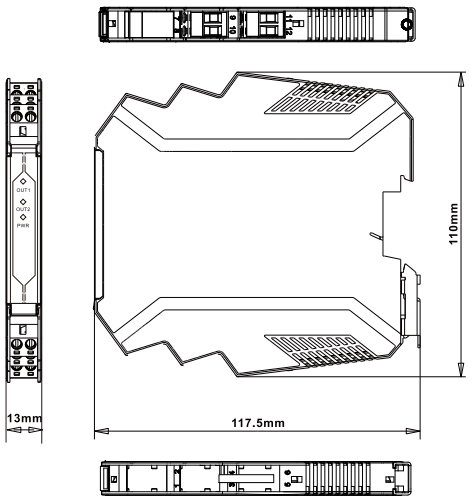


Fig.1 Dimension

Note: The number of terminal connectors in the figure may vary depending on the product specifications; please refer to the actual product.

5. Installation and Disassembly

The isolator is for indoor use only. Please install it in a safe location and meet the environmental conditions required by the isolator's technical specifications.

The isolator can be mounted on a standard 35mm DIN rail, complying with the TH35-7.5 type rail size specifications in national standard GB/T19334-2003.

When installing or disassembling instruments, please turn off the power and disconnect the signal input to ensure safety. Do not apply loads exceeding the design capacity to the instrument.

Mounting Method on the DIN rail (see Fig.2):

(1) Hook the upper end of the instrument's mounting bracket onto the standard DIN rail.

(2) Push the instrument towards the DIN rail to fully fit the mounting bracket onto the DIN rail.

(3) Press the installation locking clip to secure it to the DIN rail.

Disassembly method from the DIN rail (see Fig.3):

(1) Insert a flat-head screwdriver (blade width ≤3mm) into the instrument's installation locking clip.

(2) Pry open the installation locking clip slightly to release the instrument from the DIN rail.

(3) Remove the instrument from the DIN rail.

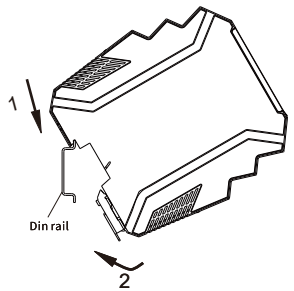


Fig.2: Mounting method

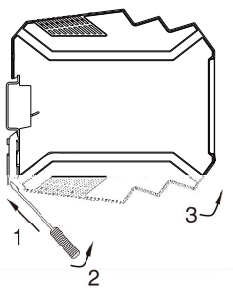


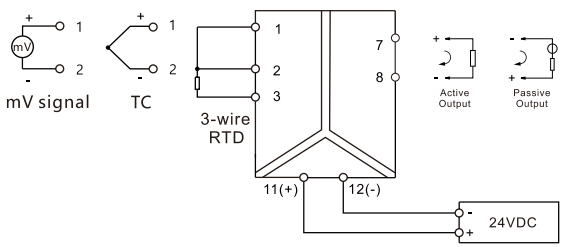
Fig.3 Disassembly method

6. Electrical Connection

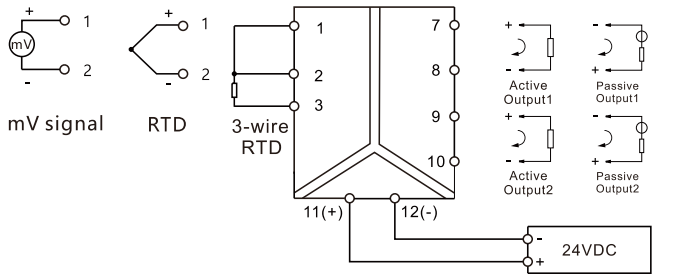
Wiring Requirements:

The wiring cable of the instrument should be far away from electromagnetic interference sources (such as relay drive cables, high-frequency wires, etc.). The wiring cable should be a single-core or multi-core cable with a cross-section of 0.5mm^2 to 2.5mm^2.

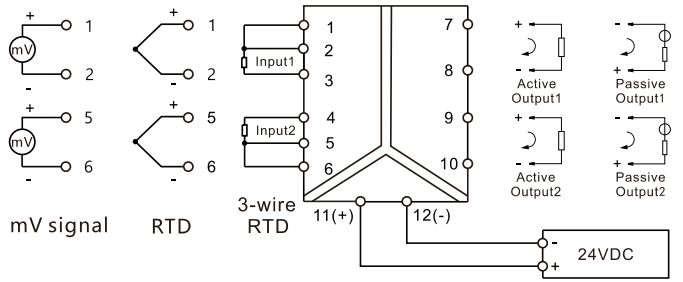
Wiring diagram of Single-channel input and Single-channel output:



Wiring diagram of Single-channel input and Double-channel output:



Wiring diagram of Double-channel input and Double-channel output:



7. Panel Indicator

- **PWR(green):** Steady on: power supply is normal
- **OUT1、OUT2(Red):**
  - Off: corresponding channel is in operation.
  - Fast flashing: corresponding channel is over range
  - Slow flashing: corresponding channel is below range.
  - Steady on: corresponding channel has a wiring fault (Open circuit).