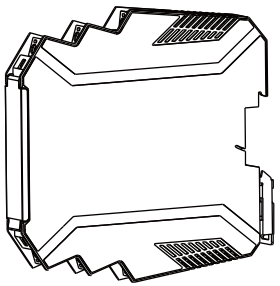
User Manual of

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-1001S-EN2

1. Product Overview

The isolator provides isolated working power to 2-wire and 3-wire transmitters, isolating and converting the current /voltage signal generated by the transmitter into signals required by 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

- The input-output adopts photoelectric isolation technology, which has stronger anti-interference ability compared to magnetic isolation.
- Low power consumption with efficient heat dissipation design.
- 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	(4~20)mA、(0~20)mA、(1~5)V、(0~5)V、(2~10)V、(0~10)V
Input impedance	≤100Ω
Input current	≤30mA
Distribution voltage/max current	≥20V，20mA
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 (20℃)	0.1%FS
Isolation strength (between input/ output/power)	1500Vrms (1 min，no spark)
Response time	≤400ms
Temperature drift	≤50ppm
EMC	EMC conforms to GB/T18268 (IEC 61326-1) requirements for industrial equipment application
Power supply	(20~35)VDC
Power consumption	Single-channel output：≤0.8W Double-channel output：≤1.4W
Operating temperature	(-20~60)℃
Storage temperature	(-20~60)℃
Relative humidity	25%～85%
Installation method	35mm DIN rail mounting
Applicable field devices	2-wire, 3-wire transmitters, DC current /voltage sources

4. Dimension

Dimensions: 117.5mm*110mm*13mm.

Weight: 130g.

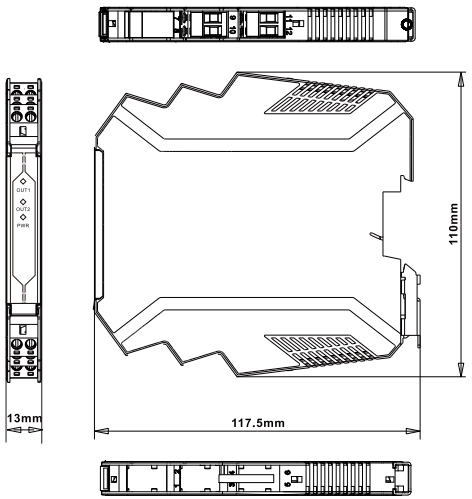


Fig.1 Dimension

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.

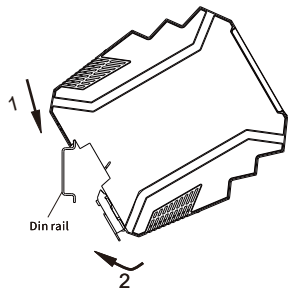


Fig.2: Mounting method

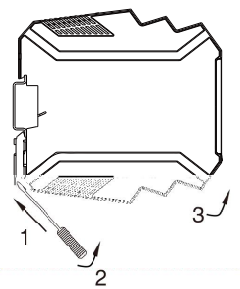


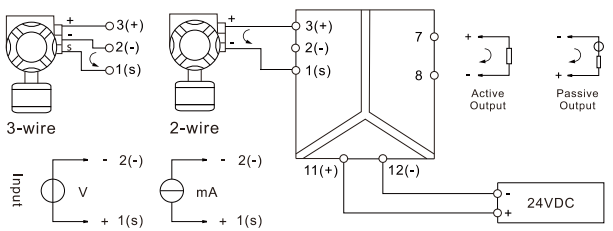
Fig.3 Disassembly method

6. Electrical Connection

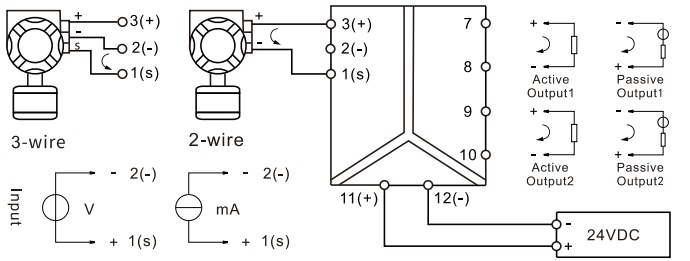
Wiring Requirements:

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.

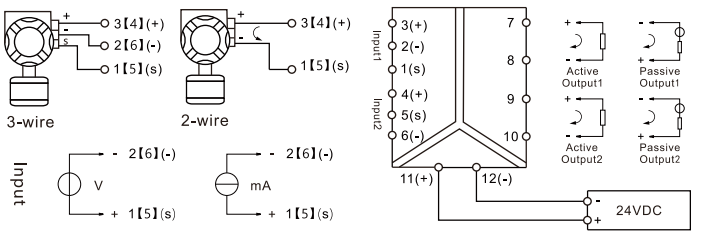
Wiring diagram of Single-channel input and Single-channel output:



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



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



7. Panel Indicator

- **PWR:** Power indicator,green. When The instrument is powered, it lights up all the time.
- **OUT1、OUT2:** Channel input signal status indicator, red, corresponding to channel 1 and channel 2 respectively. The indicator does not light up during normal operation; the indicator flashes when the input signal of corresponding channel is out of range.