Analog Signal Two-Port 10KV Isolation Transmitter

10KVAC High Isolation DC (Voltage/Current) Signal Two-Port Isolation Amplifier: ISOH Series

Features:

- Low cost, small size SIP 16 Pin anti-fire UL94V-0 package.
- No external components required, no zero and gain adjustment required.
- 10KVAC isolation between signal input and output, signal input and power supply (Non-isolation between power supply and output signal)
- Power supply: 12V,15V,24VDC
- 0-2.5V/0-5V/0-10V//0-10mA/0-20mA/4-20mA signal isolation, amplification, conversion, and transmission.
- Accuracy, linearity grade: 0.1, 0.2; temperature range:-20~+50℃
- In EMC (electromagnetic interference) circumstance, need to take shielding measures.

Typical Application:

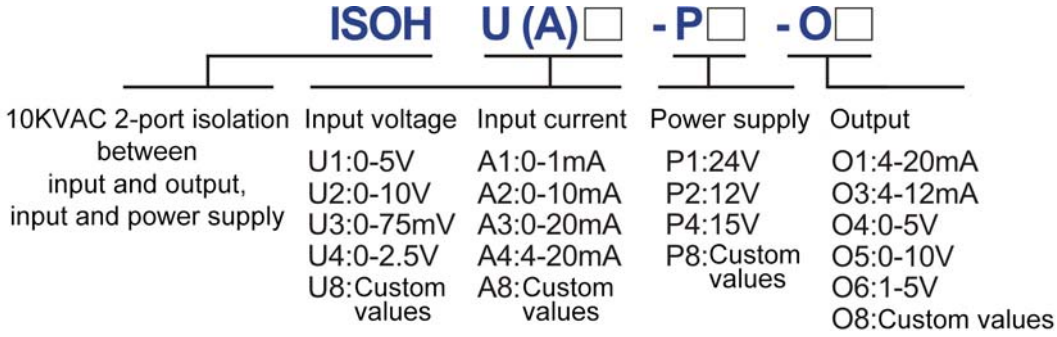
- High-speed rail, subway 750V / 1500V rail voltage isolation sampling.
- Signal detection, isolation and long-distance transmission of power grid equipment.
- Monitoring and monitoring of high voltage safe operation of power grid transformers
- Send and receive and monitor signals between power instruments and sensors
- Interference suppression of high-voltage inverters and high-power electrical equipment
- Isolation safety barrier for power monitoring instruments and medical equipment
- Ground signal interference suppression and high-isolation acquisition of analog signals
- High isolation detection of PLC, DCS field analog signals
- Industrial high voltage equipment operation measurement, monitoring and long-distance control.

Introduction:

SunYuan ISOH series is a kind of DC (voltage/current) analog signal isolation amplifier with low cost, small size (Sip 16Pin) and 10KVAC high voltage isolation. Which is the highest voltage isolation amplifier IC on the market and developed by Sunyuan Technology. This isolation amplifier is a magneto-electric isolated analog hybrid integrated circuit, inside the IC, there is a 10KV isolated DC / DC conversion power and a set of magneto-electric coupled analog signal isolation amplifier. The isolation amplifier using low cost magneto-electric coupled solution, it is mainly used in places with no special requirements for EMC (Electromagnetic Space Interference). Wide creepage distance and internal isolation measures on the signal input and output sides make the amplifier module reach 10KVAC isolation. In addition to powering the internal amplifier circuit, the isolated power inside the module can also provide a set of 5V (maximum 3mA) DC distribution power for external circuits to expand at the input side, such as bridge circuits, small signal amplifier circuits, and reference circuits, etc. **ISOH** series products are very convenient to use, it can realize the isolation, amplification, conversion and transmission of industrial field signals without zero & gain adjustment and any other components.

ISOH can realize high-precision, high-linearity and 10KV anti-EMC high isolation transmission, conversion and amplification of signals between industrial field sensors and instruments, PLC, DCS. Products include IC PCB package and DIN35 Rail-mounted packaging, It is widely used in rail traffic voltage monitoring, power generator or electric motor safety operation monitoring, electric power transmission and distribution long distance monitoring, signal transmission and reception between instrument and meter, medical equipment isolation safety barrier, industrial intelligent control, nuclear power, etc. field.

Model and definition:



Product selection example： **(Note: 10000VAC isolation means 14140VDC isolation)**

Eg1: signal input: 0-5V; signal output: 0-5V; power supply: 24V; 10KVAC isolation

Model number: ISOH U1-P1-O4

Eg2: signal input: 0-10V; signal output: 4-20mA; power supply: 24V; 10KVAC isolation

Model number: ISOH U2-P1-O1

The Maximum product rating:(long term operation in the maximum rated environment affects the service life of the product, and irreparable damage may occur beyond the maximum value.)

Continuous Isolation Voltage	10KVAC
Power supply voltage input range	±25%Vin
Lead Temperature <10S	+300℃
Output Voltage Load (Min)	2KΩ

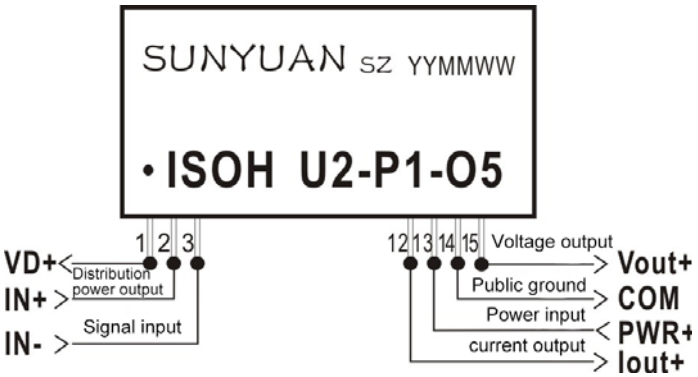
General parameters:

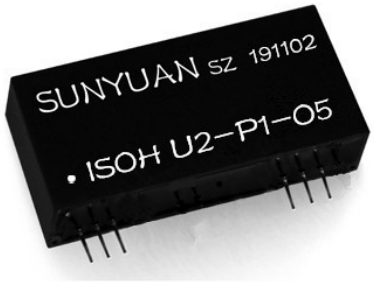
Parameters		Test Conditions	Min.	Typical value	Max.	unit
Isolation voltage		AC,50Hz,1min		10000		V(rms)
Gain				1		V/V
Gain temperature drift				100		ppm/℃
Non-linearity				0.1	0.2	%FSR
Signal input	voltage		0		100	V
	current		0		50	mA
Input offset voltage				5	20	mV
Input resistance	voltage	Vin=0-10V		125		KΩ
	current	Iin=0-20mA		250	1000	Ω
Signal output	voltage	RL=2KΩ	0		15	V
	current	RL=250Ω	2		24	mA
Load capacity	voltage	Vout=10V		2		kΩ
	current	Iout=20mA	0	350	650	Ω
Frequency response		-3DB		100		Hz
Signal output ripple		No filtering		10	20	mV_{RMS}
Auxiliary power	voltage	Custom	12	24	30	VDC
	Power consumption		0.3	0.5	1	W
Working temperature			-20		50	℃
Storage temperature			-55		105	℃

Note: if you have special requirement to the load capacity of the voltage signal and current signal, please let us know before place the order.

Output	Load capacity of output	Response time
4-20mA	≤350Ω (please let us know if you have other special requirement to the load capacity)	<25mS
4-12mA		
4-8mA		
0-5V	> 2KΩ	
0-10V		
1-5V		

Pin definition and function description:



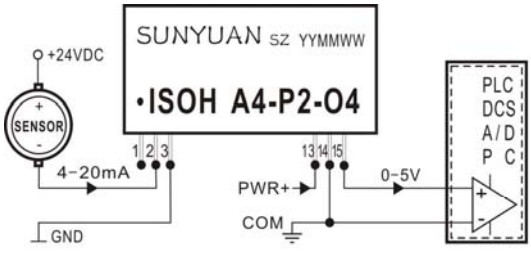


Note: Pin 12 will have no connection when the output is voltage signal

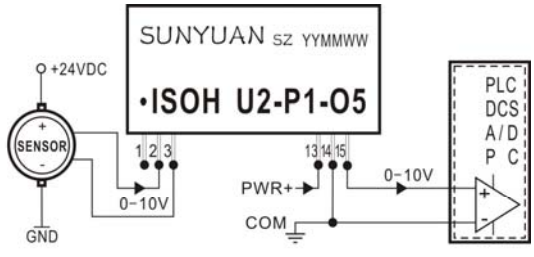
SIP 16Pin package, no zero and gain adjustment required

Distribution power output Positive	Signal input Positive	Signal input Ground	NC	NC	Current output Positive	Auxiliary power Positive	Public ground	Voltage output Positive	NC
VD+	IN+	GND	NC	NC	Iout+	PWR+	COM	Vout+	NC
1	2	3	4~7	8~11	12	13	14	15	16

Typical Application:



Typical Application 1 (current input / voltage output)



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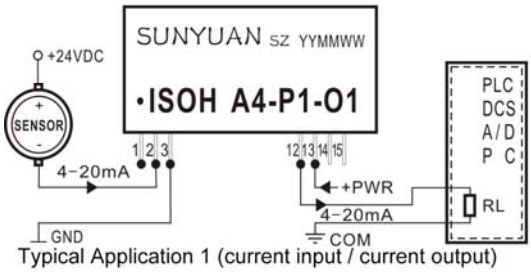

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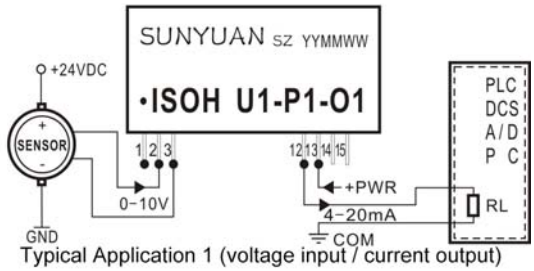
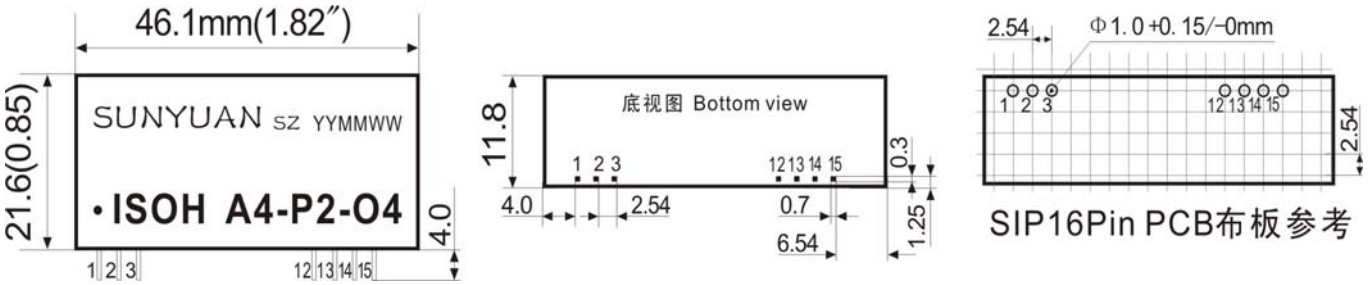
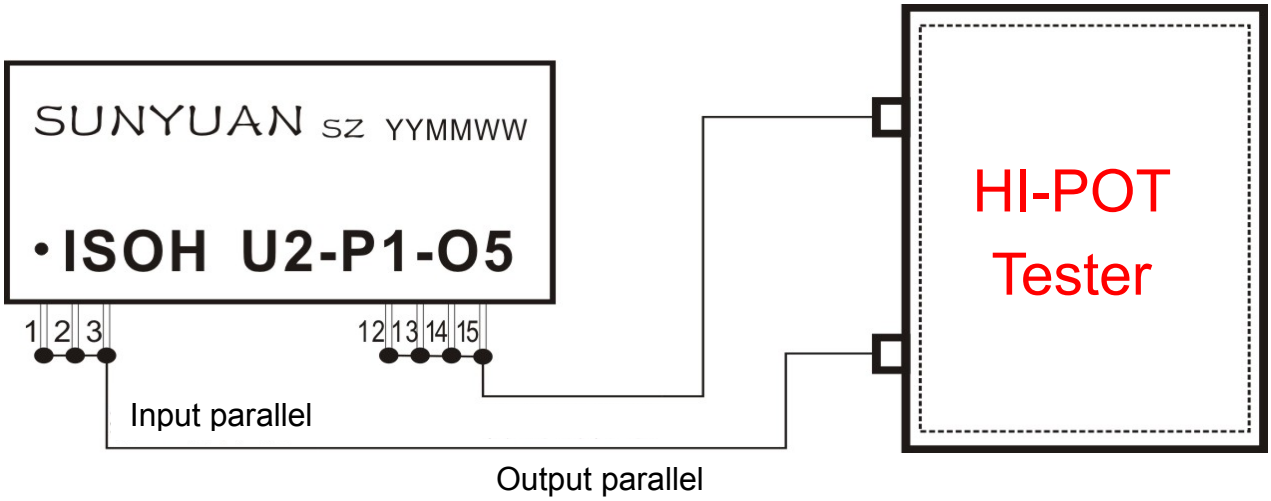


Typical Application 1 (voltage input / current output)

Dimensions and PCB layout:



High-voltage isolation safety detection method:



High-voltage isolation safety test method and precautions

1. According to the wiring shown in the above figure, set the rated high voltage value of the high voltage tester according to the product isolation voltage parameter specification. Please pay attention to personal safety when testing, beware of electric shock!

Test environment: room temperature TA = 25 ° C, air humidity < 75%

2. The high-voltage test operator must wear rubber-insulated gloves with rubber insulation pads on the ground to prevent high-voltage electric shock.

3. The instrument case of the high voltage tester must be grounded reliably and should not be detected in a high temperature, humid and dusty environment.

4. When connecting the measured object, the high voltage tester must ensure that the high voltage output value is “0” and the detection function key is “reset” to prevent contact with other objects.

5. When the instrument is in the high voltage test state and the high voltage discharge is over, it is strictly forbidden to contact the measured object, test line or high voltage output.

6. Product isolation voltage test method As shown in the above figure, short the input terminal and output terminal pin respectively, and load the rated voltage value for 1 minute.

7. According to the rated isolation voltage value of the product, use the manual gear to adjust the output voltage of the tester from 0 to the rated value and keep it for a minute.

8. The insulation voltage test itself is a destructive test of the insulator. For the same product, the high voltage test should be minimized. If there are multiple tests between different customers, the general requirements are as follows: the batch product is tested according to the rated voltage value of the specification for the first time, and the test voltage value should be reduced by 0.7 times of the rated value each time. The number of high-voltage tests, otherwise the product will be irreparable damage during multiple high-voltage tests.