Adjustable Analog Magneto-electric Isolation Transmitter/Amplifier IC

Zero, Gain and Full Scale Adjustable Magneto-electric Isolation Transmitter

ISO EM-T Series

Features:	**Applications:**
● Precision grade: 0.1, 0.2, 0.5, nonlinearity grade (in full measuring range) <0.2%. ● Zero, Gain, Full scale calibration are available through external multi-turn potentiometer. ● Isolation power among auxiliary power, analog input, output: 3000VDC ● Auxiliary power: 5V,12V,15V,24VDC, etc. ●Isolation, amplification and conversion among 0-75mV/ 0-5V/ 0-10V/ 0-1mA/ 0-20mA/ 4-20mA analog signal. ● Industrial temperature range: -20 ~ +70 ℃ ● Electro-magnetic anti-interference circuits /shielding measures are required in the field with special EMC. ● Low cost, compact SIP 12Pin, UL94V-0 standard flame retardant package.	● DC current/voltage signal isolation, conversion and amplification. ● Long-distance isolated transmission of industrial site signals. ● Analog signal GND wire anti-interference and data isolated acquisition. ● Meters, instruments and sensors signal acquisition and transmission. ● Isolated data acquisition of analog signals from PLC, DCS. ● VFD/transducer signal long-distance transmission without distortion. ● Power monitoring control, medical equipments isolated safety bar. ● 4-20mA sensor analog signal 1x2, 2x2, 1x4 isolated amplification and transmission.

Generalization

SUNYUAN ISO EM-T Series Analog Magneto-electric Isolated Amplifier/Transmitter is a kind of modules with hybrid integrated circuit inside which generates the signals with according matchable precision and linearity after the isolation, amplification, distribution, conversion process to the analog signals between sensors and PLC, instruments. In the IC, there are one multi-isolation DC/DC transforming power and a set of electric-coupling analog signal isolated transmitter. ISO EM-T Series Magneto-electric Transmitter is mainly applied in the field where there is no special requirements on EMC (electro-magnetic interference). And by employing internal isolation technique, proper I/O side cree-page distance, the isolated voltage of signal transmitter is up to 3000VDC.

By adopting internal electric-magneto isolation technique, ISO EM-T Series Analog Magneto-electric Isolation Amplifier/ Transmitter has better performance in linearity and temperature drift than the transmitter with photo-electric isolation. The Zero, Gain adjustment are available through external multi-turn potentiometer to make it easy to do calibration and adjustment based on the operating states of the equipments in the industrial sites. The transmitter is widely applied in electric monitoring control, PLC, DCS, FCS, frequency converter, meters and instruments, medical equipments, industrial automatic equipments and other equipments or fields where electric measuring, isolated acquisition and control are required.

Max. Rated Value:

(If the product operates in the max. rated value for a long time, may affect the durability, if exceed the max. values, may cause unrepairable damage.)

Max. Continuous Isolation Voltage	3KVDC/rms
Power Supply Volt. Input Range:	±25%Vdd
Operating Temperature	- 45℃ ~ + 85℃
Max. Wielding Temperature （<10S）	+300℃
Voltage Signal Output Min. Load	2KΩ

General Parameters:

Precision, Linearity Error Grade--------- 0.1 , 0.2	Backlash ---------- < 0.5%
Auxiliary Power Supply-------- 5V,12V,15V,24VDC,etc	Isolation--------Among signal Input/Output/Auxiliary Power Supply
Operating Temp.---------- -20 ~ +70℃	Insulation Resistance---------- ≥20MΩ
Operating Humidity---------- 10 ~ 90% (No condensation)	Withstand Volt.-------3KVDC(60HZ/S) leakage current: 1mA
Storage Temp.---------- -45~ +85℃	Impulse Volt. Test--------3KVDC， 1.2/50us (peak value)
Storage Humidity---------- 10 ~ 95% (No condensation)	

Technical Parameters:

Items		Testing Conditions	Min.	Typical Value	Max.	Unit
Isolated Voltage		1min		3000		VDC
Gain				1		V/V
Gain Temp. Drift				50		ppm/℃
Non-linearity				0.1	0.2	%FSR
Gain, Full Scale Adj.（ADJ）		Multi-turn Potentiometer		**10K**		Ω
Zero Adj.（ZA）*1		Multi-turn Potentiometer		**2K**		Ω
Signal Input	Volt.		0		50	V
	Current		0		30	mA
Input Offset Volt.				2	5	mV
Input Impedance	Volt.		0.3	1		M
	Current			250		Ω
Signal Output	Volt.		0		12	V
	Current		0		30	mA
Load Capacity	Volt.	Vout=10V		2	*	kΩ
	Current		0	350	*	Ω
Frequency Response		-3DB		1		KHz
Signal Output Ripple Wave		No filtering		10	20	mVRMS
Signal Volt. Temp. Drift					0.2	mV/℃
Auxiliary Power	Volt.	Customized	3.3	12	24	VDC
	Consumption			0.5	1	W
Operating Temp.			-40		85	℃
Storage Temp.			-55		105	℃

***1 Note:** If the output is 0-xV Volt. signal, the output is 4-20mA current signal, the multi-turn potentiometer should be connected externally to do gain and zero adjustment. If the input and output signals of ISO U(A)-P-O-T module are the same values, that is 0-xV/0-xmA（zero to zero.), it is not necessary to do externally zero adjustment.

Input	Input Impedance	Input Over-load
0-1mA	1KΩ	1.5 times of the Rated：Continuous 3.0 times of the Rated: 1S
0-10 mA	250Ω (For the load, if 100Ω or other values are required, please notify us when placing orders)	
0-20mA		
4-20mA		
Volt.	≥10KΩ	2.0 times of the Rated: Continuous

Output	Output Load Capacity	Response Time
4-20mA	≤350Ω (For the impedance, if 650 Ω or other values are required, please notify us when placing orders) *2	≤1mS
0-20mA		
4-12-20mA		
0-5V	> 2KΩ	
0-10V		
1-5V		

***2 Note:** Customized product is available for the product which has special requirements on load capacity of analog signal output. User can also order 0-1V (max 1A), 0-5V(max 500mA) high current output ISO Series Linearity Adjusting/Controlling Isolated Amplifier/Transmitter: (Product model: DIN 1X1 ISO L-A-P-O).

Product Model Selection:

ISO EM U(A)□-P□- O□- T

Input Current/Voltage

U1：0-5V A1：0-1mA
U2：0-10V A2：0-10mA
U3：0-75mV A3：0-20mA
U4：0-2.5V A4：4-20mA
U8: Customized A8: Customized

Auxiliary Power

P1：DC24V P2：DC12V
P3：DC5V P4：DC15V
P8：Customized

Output Signal

O1: 4-20mA O2: 0-20mA O3: 4-12-20mA
O4: 0-5V O5: 0-10V O6: 1-5V
O8: Customized

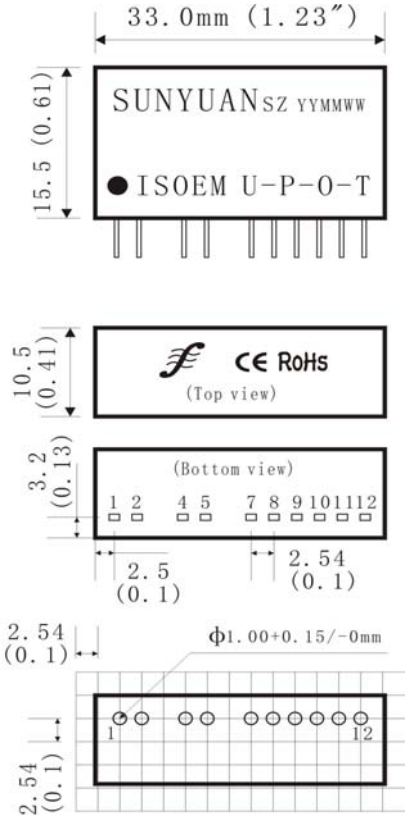
Means that Zero, Full Scale/Gain can be adjusted /Calibrated separately

Model Selection Examples:

E.g.1: Input Signal: 0-5V; Auxiliary Power:24VDC ; Output Signal: 4-20mA;
Zero, Full Scale/Gain can be adjusted /Calibrated separately.
Product Model: **ISO EM U1-P1-O1-T**

E.g. 2: Input Signal: 4-20mA ; Auxiliary Power:24VDC ; Output Signal:4-20mA;
Full Scale/Gain can be adjusted /Calibrated separately.
Product Model: **ISO EM A4-P1-O1-T**

Dimension:



Typical Applications:

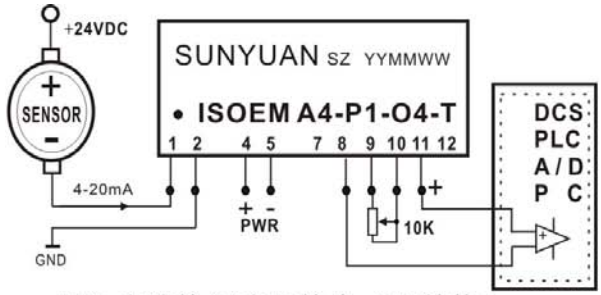


图1 电流输入/电压输出（I/V转换）

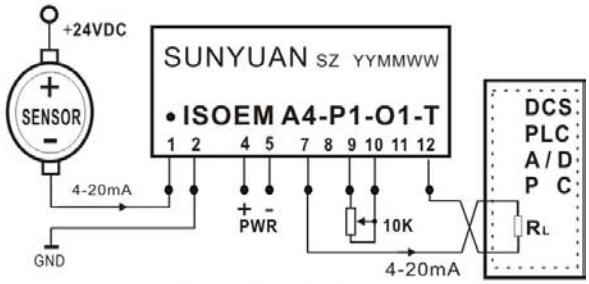


图2 电流输入/电流输出（I/I隔离）

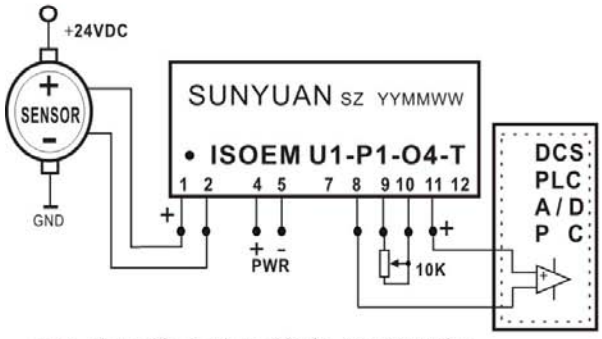


图3 电压输入/电压输出（V/V隔离）

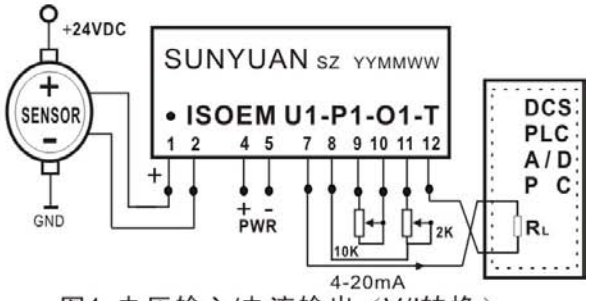
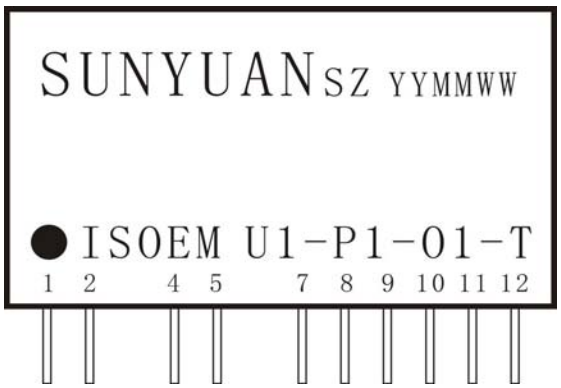


图4 电压输入/电流输出（V/I转换）

Note *3：The product with current output, which has no zero adjustment terminals (no 8th PIN, 11th PIN) in output end can be up to the required precision without doing zero adjustment. If user requires to do zero adjustment, please order ISO mV Series Small Signal Isolated Amplifier/Transmitter.

Note *4: For the high input impedance in voltage input product (ISO EM U-P-O-T), its output generates the max. value when its input terminal is the open circuit. In order to avoid damage, user should parallelly connect a 1MΩ resistance and one 0.1UF capacitor between 1st PIN and 2nd PIN in input end to achieve the min. value 0 output when its input is the open circuit.

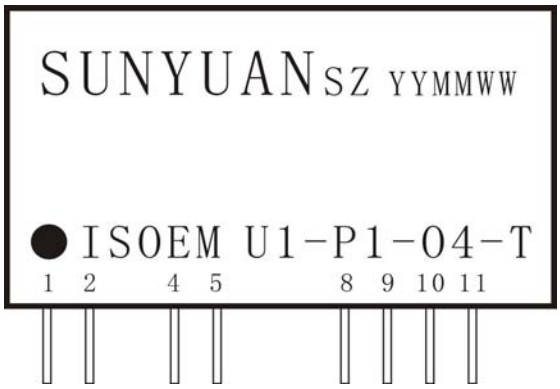
PIN Definition:



Current Signal Output Product PIN Diagram (4-20mA/0-10mA/0-20mA)

Current Signal Output Product (Optional Zero and Gain Adjustment), PIN Definition: SIP 12Pin Package

1	2	3	4	5	6	7	8	9	10	11	12
Signal Input Sin+	Signal Input GND	Null	Auxiliary Power PW+	Auxiliary Power PW-	Null	Signal Output Io+	Zero Adj. Terminal or （Null）	Gain Adj. Adj.	Gain Adj. Adj.	Zero Adj. Terminal or （Null）	Signal Output Io-



Voltage Signal Output Product PIN Diagram (0-2.5V/0-5V/0-10V)

Voltage Signal Output Product (Only has Gain Adjustment), PIN Definition: SIP 12Pin Package

1	2	3	4	5	6	7	8	9	10	11	12
Signal Input Sin+	Signal Input GND	Null	Auxiliary Power PW+	Auxiliary Power PW-	Null	Null	Signal Output GND1	Gain Adj. Adj.	Gain Adj. Adj.	Signal Output Vo+	Null

External View & Optional Package: