Zero and Gain Adjustable Isolation Transmitter IC

Analog Adjustable Isolation Transmitter with Distribution Power in Input

to Supply Power to Passive Sensors ISO EM-SD Series

Features	Applications
●Zero, Gain, Full scale calibration are available through external multi-turn potentiometer. ●Power distribution in input end for function expansion: 5V,12V,15VDC, etc. ●Isolated amplification and conversion on analog signals: 0-75mV/0-10V/0-1mA/4-20mA ●Precision grade: 0.1, 0.2; non-linearity grade (in full measuring range) <0.2%. ●Isolation power among auxiliary power, analog input, output: 3KVDC ● Auxiliary power: 5V,12V,15V,24VDC,etc single power. ●Electro-magnetic anti-interference circuits/shielding measures are required in the field with special EMC. ●Low cost, compact DIP 24Pin, UL94V-0 standard flame retardant package. ● Industrial temperature range: -20 ~ +70 ℃.	● Isolated power distribution for passive sensors and signals acquisition and transmission. ● Distribute power for pre-amplification, electric bridge and other circuits to collect signals. ● Isolated data acquisition of analog signals from PLC, DCS. ● Analog signal GND wire anti-interference and data isolated acquisition. ● DC current/voltage signal isolation, conversion and amplification. ● Long-distance isolated transmission of industrial site signals. ● Meters, instruments and sensors signal acquisition and transmission. ●Power monitoring control, medical equipment isolated safety bar.

Introduction:

SunYuan DIP24PIN ISO EM-1001 Series Analog Active Signal Isolation Transmitter is a kind of modules with hybrid integrated circuit inside which generates the signals with according match-able 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-SD 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.

SunYuan ISO EM-SD Series Isolation Transmitter usually applied in the fields or equipment where there requires the adjustment on Full Scale and Zero, the calibration on Zero and Gain and high precision and reference comparison. The isolated power supplied by isolation transmitter in analog input end can distribute power to displacement resistance, angular transducer, speed sensor and other two-wire or four-wire passive sensors, it also can be used as the reference power supply for bridge circuits, differential amplification circuits, pre-amplification of input end.

Max. Rated Value:

(If the product operates in the max. rated values in the long-term, may affect the durability, if exceed the max. values, may cause un-repairable damage.)

Continuous Isolation Voltage	3KVDC/rms
Power supply Volt. Input Range:	±25%Vdd
Operating Temperature	- 45℃ ~ + 85℃
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	Isolation-------Among Signal Input/Output/Auxiliary Power supply
Operating Temp. ---------- -20 ~ +70℃	Insulation Resistance ---------- ≥20MΩ
Operating Humidity-------10~90%(No condensation)	Withstand Volt.-------3KV(60HZ/S), leakage current: 1mA
Storage Temp. ---------- -45~ +85℃	Impulse Volt. Test---------- 3KV, 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 Adj. Potentiometer (Adj.)				**50K**		Ω
Zero Adj. Potentiometer（ZA）				**10K**		Ω
Signal Input	**Volt.**		0		15	V
	Current		0		30	mA
Input Offset Volt.				2	5	mV
Input Impedance	**Volt.**			1		MΩ
	Current		50	250	1K	Ω
Distribution Power Supply Output	**Volt.**		5		15	V
	Current			20		mA
	Ripple Wave			100		mV
	Precision			2		%
Signal Output	**Volt.**		0		15	V
	Current		0		20	mA
Load Capacity	**Volt.**	Vout=10V		2		kΩ
	Current		0	350	750	Ω
Frequency Response				1	20	KHz
Signal Output Ripple Wave		No filtering		10	20	mV_{RMS}
Signal Volt. Temp. Drift					1	mV/℃
Auxiliary	**Volt.**	Customized	3.3	12	24	VDC
	Consumption			0.5	1	W
Operating Temp.			-40		85	℃
Storage Temp.			-55		105	℃

Note: For the special requirements on the load capacity of voltage signal and current signal, please do notify us when placing orders.

Output	Output Load Capacity	Response
4-20mA	≤350Ω, Max. 750Ω	≤1mS
0-20mA		
	(If the 350Ω load is required, please notify us.)	
0-5V	≥ 2KΩ	
0-10V		
1-5V		

Product Model Selection:

ISO EM U(A)□- P□- O□- SD□

Input Voltage /Current

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

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

S—Distribution Power Volt. Value

D: DIP24 Package, Zero & Full Scale adjustable

SD1: 9V SD2: 15V
SD3: 24V SD4: 5V
SD8: Customized

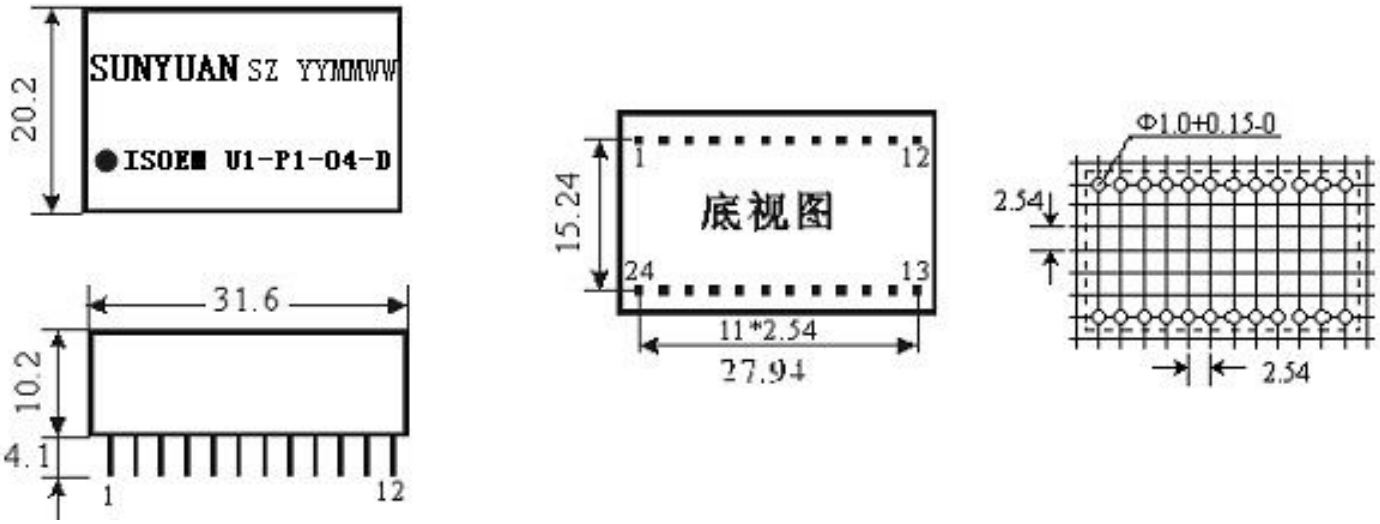
Note: If SD does not required, that is distribution power is not required in use, user can omit that functions 5VDC distribution or does not connect the pins for distribution power when using it.

Model Selection Examples:

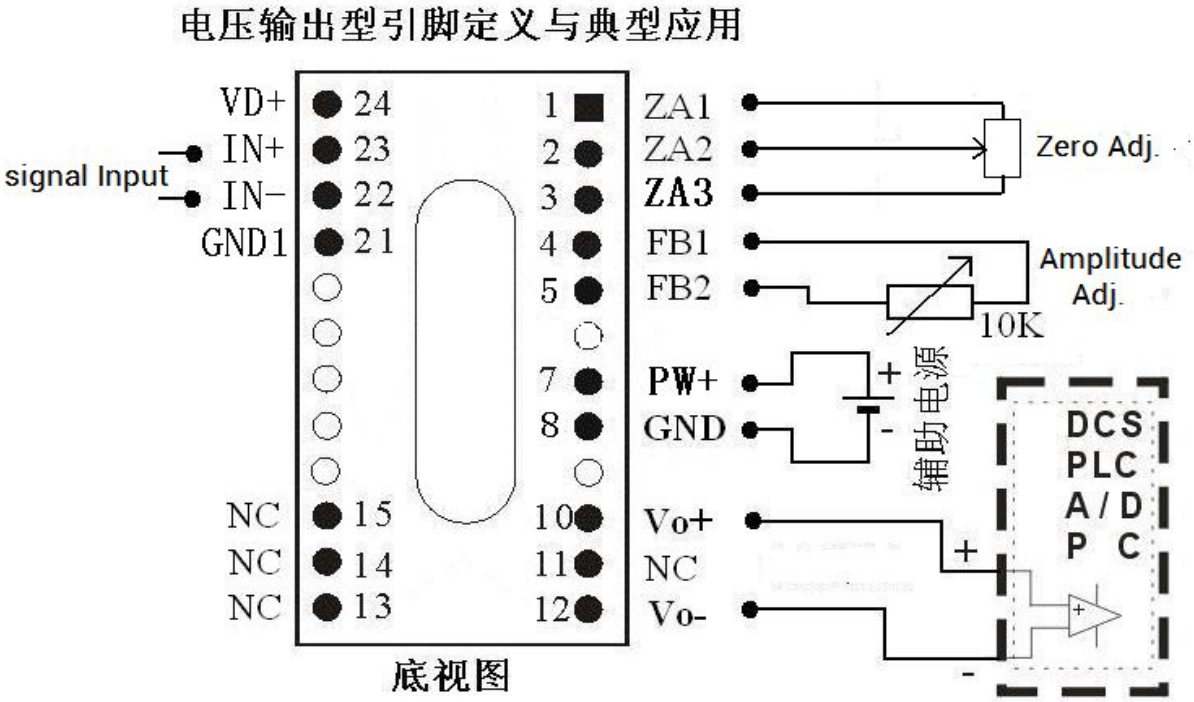
E.g.:1: Input signal: 0-5V, Output Signal：0-5V, Auxiliary Power：24VDC, Power Distribution: 15V / DIP24Package Zero and Full Scale adjustable.
Product Model NO: ISO EM-U1-P1-O1-SD4

E.g.:2: Input signal: 4-20 mA, Output Signal:4-20mA, Auxiliary Power:24V; Power Distribution:12V / DIP24Package Zero and Full Scale adjustable.
Product Model NO: ISO EM-A4-P1-O1-SD2

PCB Board Dimension and Installation: DIP 24 pin Unit:mm



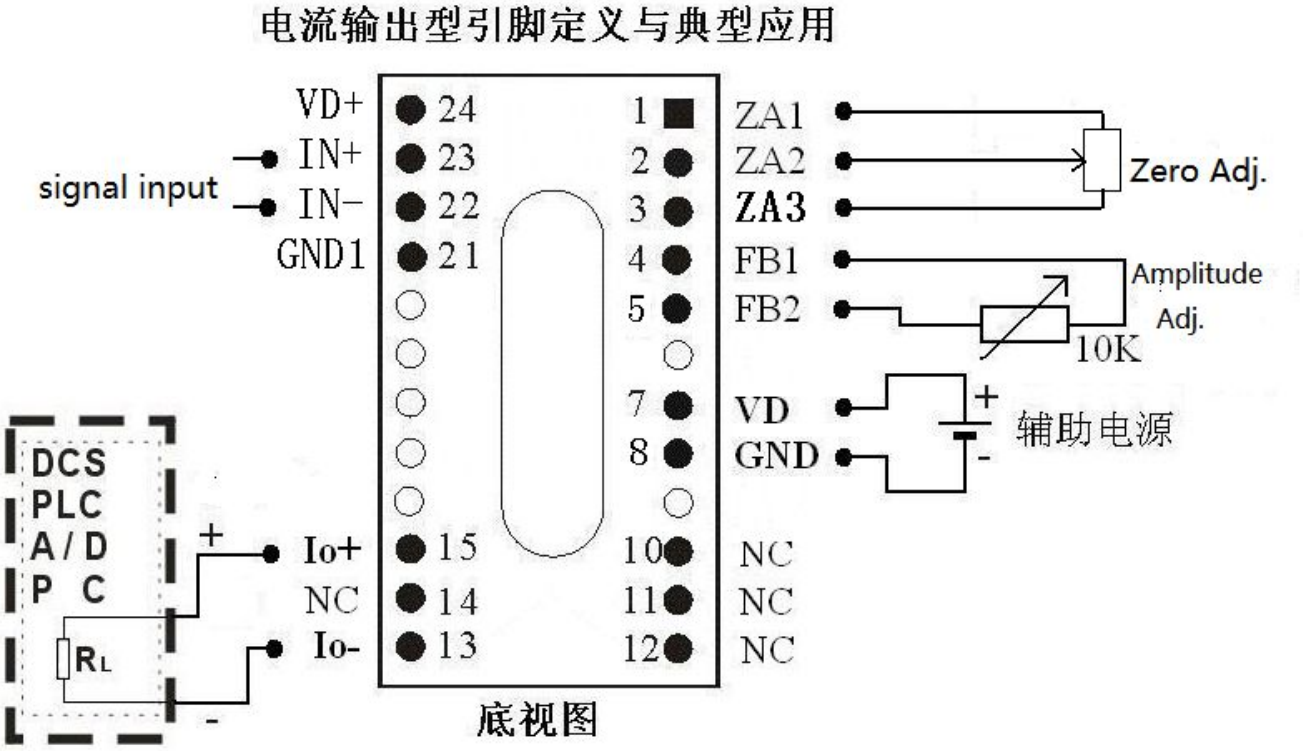
PIN Definition and Typical Application Diagram:



Voltage Signal Output Transmitter PIN Description: DIP 24 Pin Package with Gain/Zero Adjustment

Zero Adj.1	Zero Adj.2	Zero Adj. 3	Gain Adj. 1	Gain Adj. 2	Null	Aux. Power	Aux. Power GND	Null	Volt. Signal Output +	Null	Volt. Signal Output -	Null	Power Distribution Output GND	Signal Input -	Signal Input +	Power Distribution Output +
ZA1	ZA2	ZA3	FB1	FB2	NC	PW+	GND	NC	Vo+	NC	Vo-	NC	GND1	IN-	IN+	VD+
1	2	3	4	5	6	7	8	9	10	11	12	13/14/ 15/16	21	22	23	24

Note: If SD does not required, that is distribution power is not required in us, user can omit that functions 5VDC distribution or does not connect the pins for distribution power when using it.



Current Signal Output Transmitter PIN Description: DIP 24 Pin Package with Gain/Zero Adjustment

Zero Adj. 1	Zero Adj. 2	Zero Adj. 3	Gain Adj. 1	Gain Adj. 2	Null	Aux. Power +	Aux. Power GND	Null	Current Signal Output -	Null	Current Signal Output +	Null	Power Distribution Output GND	Signal Input _	Signal Input +	Power Distribution Output +
ZA1	ZA2	ZA3	FB1	FB2	NC	PW+	GND	NC	Io-	NC	Io+	NC	GND1	IN-	IN+	VD+
1	2	3	4	5	6	7	8	9/10 11/12	13	14	15	16/17/ 18	21	22	23	24

Note: If SD does not required, that is distribution power is not required in us, user can omit that functions 5VDC distribution or does not connect the pins for distribution power when using it.