

Active Intelligent Isolation Transmitter

Single channel analog signal isolated controlling transmitter DIN 1X1 ISOEM (LED1)

Features	Applications
<ul style="list-style-type: none"> ● Directly display input or output signal, easy to operate. ● High accuracy 4-digit LED display, accuracy ± 2 digits ● Programmable 2-channel upper and lower limit isolated switching quantity alarm signal output. ● Accuracy grade: 0.1, 0.2, 0.5, full range non-linearity < 0.2%. ● Multiple type of protection circuit embedded, external components, zero and gain adjustment are not required. ● 3000VDC isolation among input, output, power supply. ● Auxiliary power supply: 5V, 12V, 24VDC, 220VAC single power supply. ● 0-75mV, 0-5V, 0-10V, 0-1mA, 0-20mA, 4-20mA signal isolation, amplification, display and controlling. ● Industrial grade temperature range: $-25 \sim +70$ °C. ● Low cost, small size standard 35mm DIN Rail-mounted. ● Electromagnetic interference suppression circuit and shielding measurement are required in strong EMC field. 	<ul style="list-style-type: none"> ● DC Current voltage signal isolated conversion, amplification and controlling. ● Industrial site analog signal inspection, isolation and long-distance transmission. ● Analog signal ground wire interference suppression and isolated data acquisition. ● Meters and sensors signal transmission and controlling. ● PLC, DCS industrial site analog signal isolated testing. ● Frequency signal long-distance transmission without distortion. ● Electric power controlling, medical equipment isolated safety barrier. ● 4-20mA (0-20mA)/0-5V signal isolated conversion. ● Industrial equipment operation measurement, monitoring and remote control. ● Chemical, environment, mineral system control. ● Temperature, pressure, flow, level sensor signal monitoring and control.

Introduction

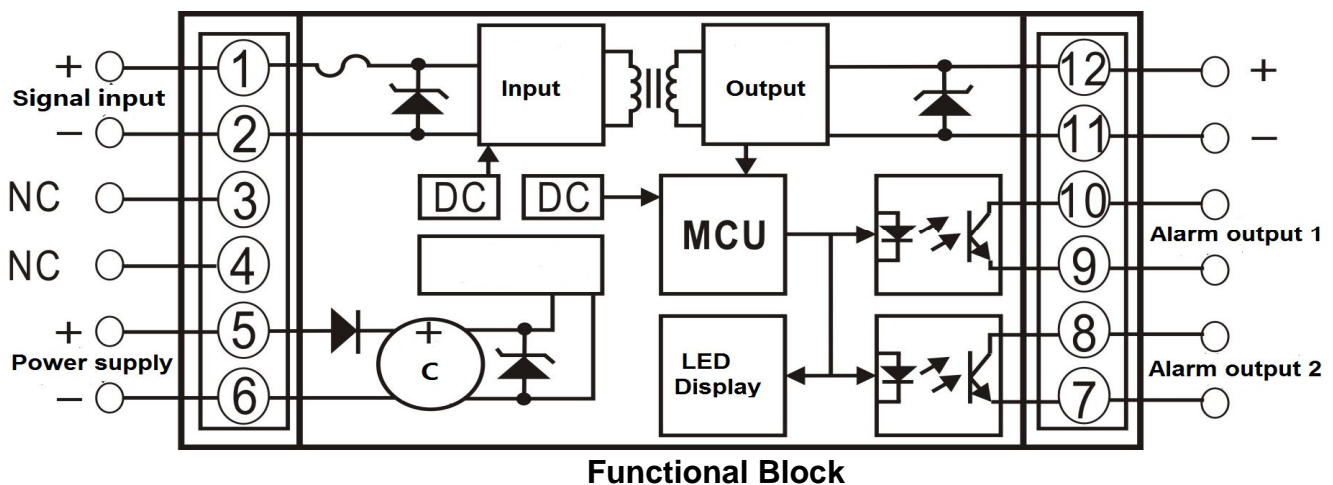
SunYuan DIN 1X1 ISOEM(LED1) Series Intelligent isolation transmitter can amplify and convert analog current or voltage signal into high linear high accuracy signal and display the output signal in LED meter. That isolation transmitter has isolation, display, and alarm control functions all in one. Inside the isolation transmitter, there are high efficiency dc dc power conversion circuit, signal modulation and demodulation circuit, signal coupling isolated conversion circuit, display and alarm control circuits, etc. It is specially applied in 0-75mV, 0-5V, 0-10V, 0-1mA, 0-20mA, 4-20mA analog signal isolated transmission, display and controlling. That intelligent transmitter is designed by using electro-magnetic isolation solution; it is mainly used in the fields without any special requirements on EMC (magnet-electric interference). The internal technique structures and new isolation measure used make the isolation transmitter can withstand 3Kvdc isolation among input, output, power supply and meet the industrial grade wide range temperature, humidity, vibration requirements in industrial site. It has reverse polarity connection protection, overload, anti-surge and other multiple protection circuits, and works without any external components to do zero or gain adjustment. Standard 35mm DIN Rail-mounted case makes it easy to install.

DIN 1x1 ISOEM(LED1) Series isolation transmitter has many functions specially designed which are different from other isolation transmitters. It can convert and transmit analog signal with isolation, and display the output signal in decimal digits in linearity. The traditional analog panel meter is adjusted by potentiometer, the parameters are not easy to be adjusted and are easily affected by temperature. Compared with traditional analog display meter, that intelligent isolation transmitter has two adjusting buttons and controlled by CPU, and its zero, span, decimal, alarm, time delay and other parameters are programmable, it is much more

flexible and practicable. The LED display meter embedded has reverse polarity, over current protection functions. It is widely used in industrial control, petrochemical industry, environment protection, intelligent smart home, and mine industry field to do temperature, level, displacement, flow, pressure signal controlling and monitoring.

DIN1x1 ISOEM (LED1) Series Active Intelligent Isolation Transmitter can directly amplify and convert analog dc current voltage signal and display the signal with alarm output function at the same time. The figure displayed is not the current value exactly measured, but the current or voltage signal pre-configured value in zero and gain status which display in linearity accordingly. For example: 4mA is set to 0, 20mA is set to 8000, when the input is 8mA, the meter displays 2000, input is 12mA, the meter displays 4000; and if 4mA is set to 1000, 20mA is set to -1000, when the input 12mA, it displays 0, input 16mA, the meter displays -500. The maximum display range is 9999, that is 3½ bit; the minimum is -1999. The digital meter also has alarm signal output function and two-channel switch signal output which can display, control signals and alarm simultaneously. The digital meter has two alarm points, and there is positive and negative alarm setting. Alarm point is for the figure displayed in the meter, when there is alarm, the last decimal point in LED panel meter will flash, and alarm information is transferred into alarm signal through digital optical coupling isolation. For the digital meters with alarm function, the alarm upper limit and lower limit, alarming methods can be set through programmer, please refer to Calibration Instructions for meters below.

Note: Alarm signal is OC (Open collector) output; please refer to the *LED Meter Setting Manual*.



Model Selection and Definition

DIN 1X1 ISOEM U(A)□ - P□ - O□ (LED1)

Input voltage U or Current A	Power supply P	Output O	Display
U1: 0-5V	P1: DC24V	O1: 4-20mA	LED
U2: 0-10V	P2: DC12V	O2: 0-20mA	
U3: 0-75mV	P3: DC5V	O4: 0-5V	
U4: 0-2.5V	P4: DC15V	O5: 0-10V	
U5: 0-±5V	P5: AC220V	O6: 1-5V	
U6: 0-±10V	P8: User-defined	O7: 0-±5V	
U7: 0-±100mV		O8: User-defined	
U: User-defined		O9: -20-+20mA	
A1: 0-1mA		O10: 0-±10V	
A2: 0-10mA			
A3: 0-20mA			
A4: 4-20mA			
A5: 0- ±1mA			
A6: 0- ±10mA			
A7: 0- ±20mA			
A8: User-defined			

Model selection examples:

E.g. 1: Input: 0-5V; power supply: 24VDC; output: 4-20mA; LED display
 Model No.: DIN 1X1 ISOEM U1-P1-O1 (LED1)

E.g. 2: Input: 4-20mA, power supply: user-defined 9V, output: 4-20mA; LED display.
 Model No.: DIN 1X1 ISOEM A4-P8-O1 (LED1)

E.g. 3: Input: user-defined 0-3.3V, power supply: 5VDC, output: 0-5V; LED display.
 Model No.: DIN 1X1 ISOEM U8-P3-O4 (LED1)

General Technical Parameters

Accuracy----- 0.1% ,0.2%, 0.5%	Isolation-----among input, output, power supply.
Power supply----- DC5V,12V,24V, ±10%	Insulation resistance----- ≥20MΩ
Operating temperature range----- -25 ~ +70℃	Withstanding voltage----- among input, output, power supply
Operating humidity-----10~ 90% (no-condensation)	2500VDC/50Hz/1 min, leakage current 1mA
Storage temperature range----- -55 ~ +108℃	Isolation voltage----- 3KV, 1.2/50us(peak value)
Storage humidity----- 10 ~ 95% (no-condensation)	Gain temperature drift ----- 35PPM/℃
Nonlinearity----- 0.1, 0.2% FSR	Frequency response----- TYP: -3DB 1KHZ

Input Specifications

Input value	Resistance	Power	Input overload
0-5V	≥300KΩ	Volt. output < 1W	2.0 times of the rated value:
0-10V			1.5 times of the rated value:
0-1mA	TYP:250Ω User-defined	Current output <1.5W	continuous
0-10mA			3.0 times of the rated
0-20mA			
4-20mA			

Output Specifications

Output value	Overload capacity	Response time
4-20mA	Load resistance ≤350Ω	≤1mS
0-20mA		
0-5V	≥2KΩ	
0-10V		
1-5V		

Note: For current output type, if the load resistance required is higher than 650Ω, please do notify us when placing orders.

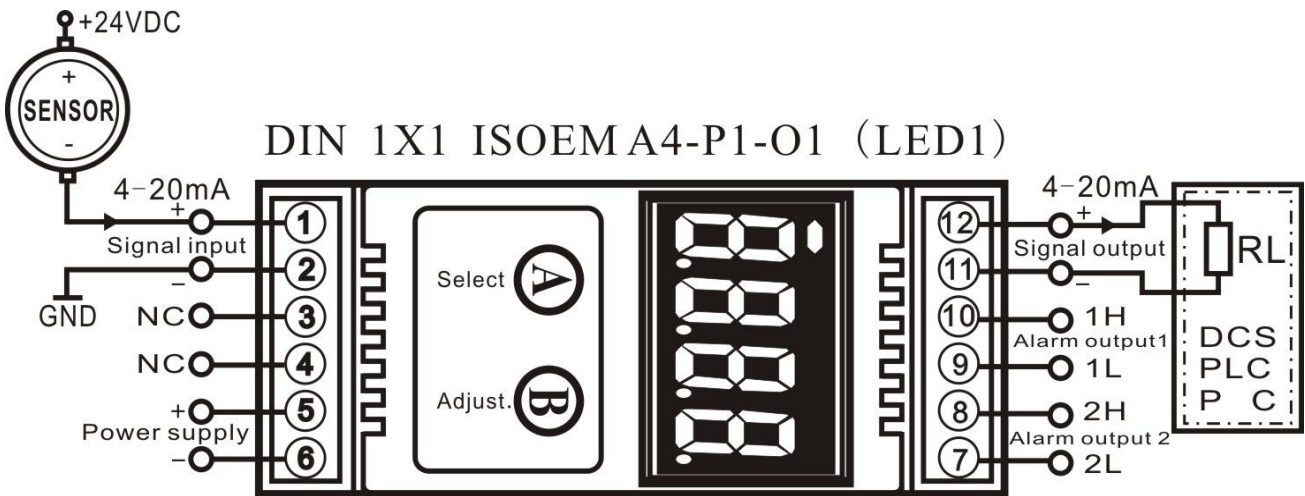


Isolation Amplifier IC + Intelligent Meter = Intelligent Isolation Transmitter

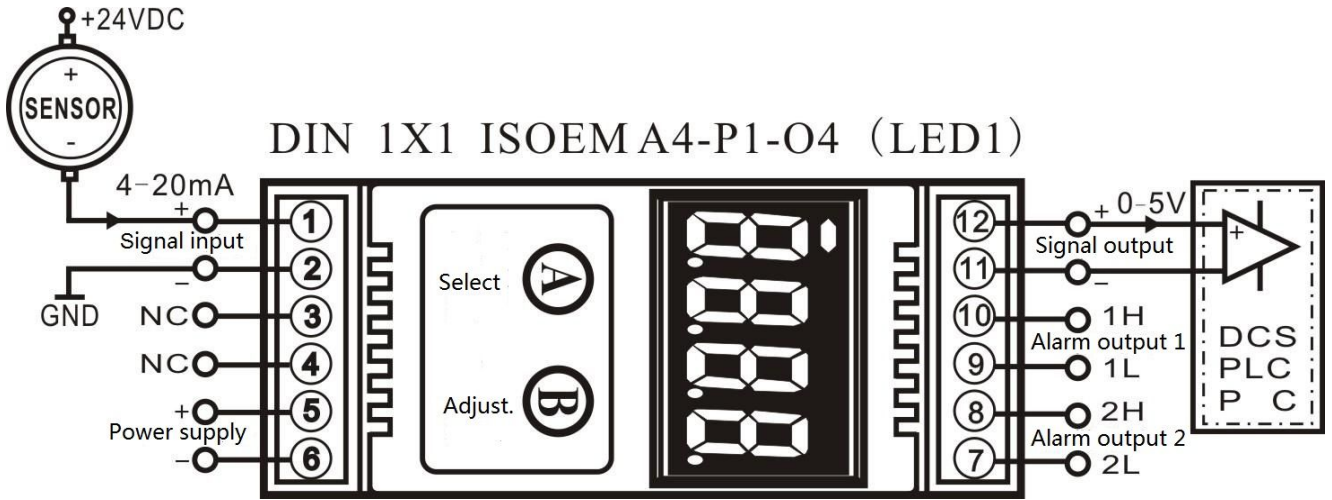
0-5V/0-10V/4-20mA
Intelligent Active Isolation Transmitter



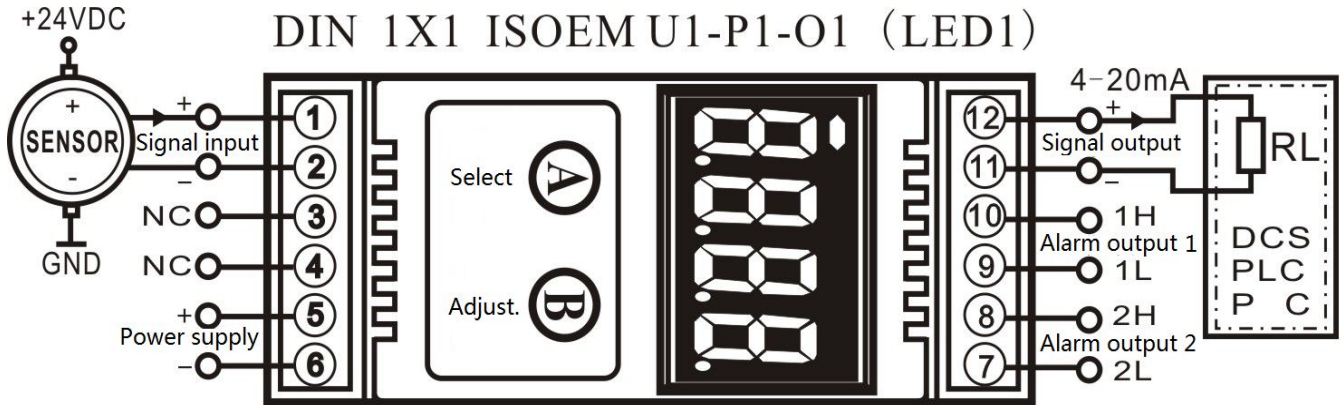
Typical Application Wiring Diagram



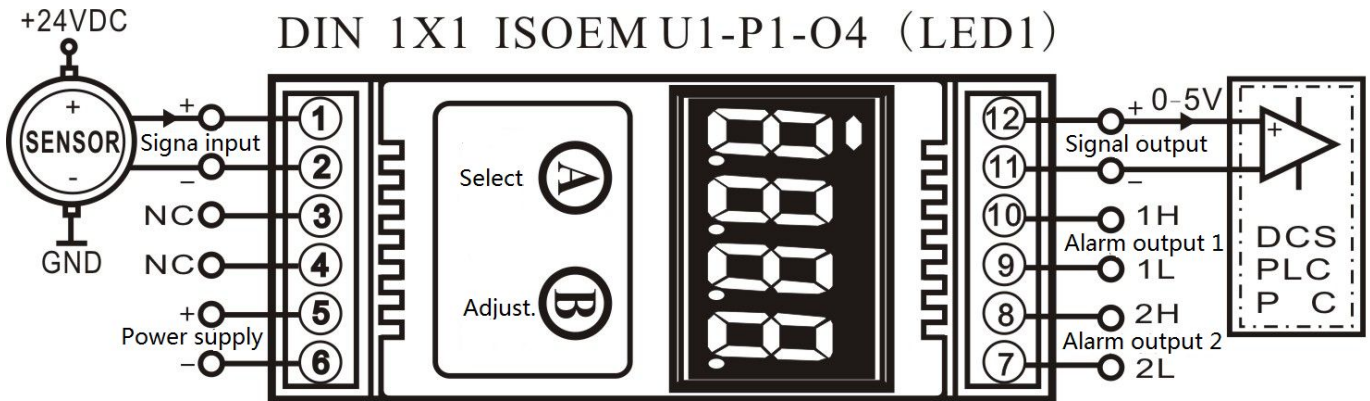
Typical Application 1: Current input current output (I/I) isolated display controlling



Typical Application 2: Current input voltage output (I/V) isolated display controlling



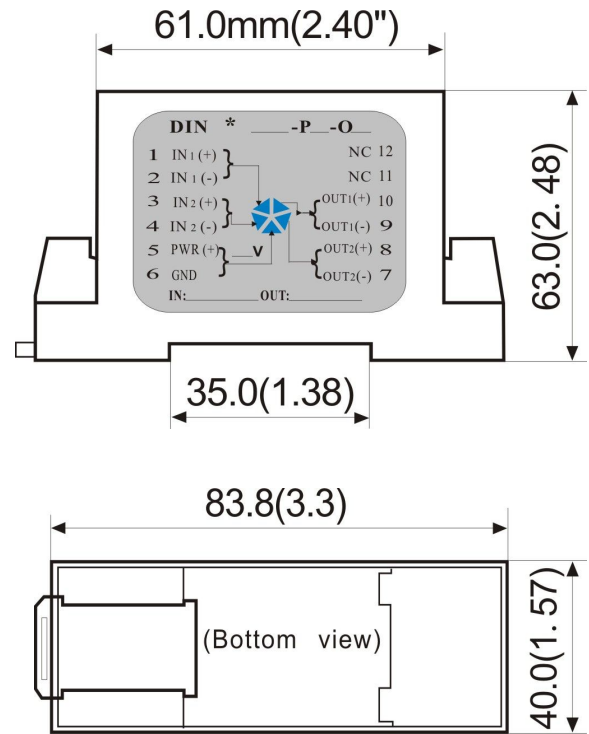
Typical Application 3: Voltage input voltage output (V/I) isolated display controlling



Typical Application 4: Voltage input voltage output (V/V) isolated display controlling

Dimension & Pin Definition

Pin	Pin functions	
1	Signal IN+	Signal input +
2	Signal IN-	Signal input -
3	NC	No connection
4	NC	No connection
5	Power in+	Power supply +
6	Power GND	Power supply -
7	Alarm2	Alarm output 2 (low level)
8	Alarm2	Alarm output 2 (high level)
9	Alarm1	Alarm output 1 (low level)
10	Alarm1	Alarm output 1 (high level)
11	Out-	Signal output -
12	Out+	Signal output +



About Order Notes

Please read the data sheet carefully when placing orders to ensure that the model you selected of this isolation transmitter is in compliance with applications in industrial site.

1. **The default display value: 4mA display "0.0", 20mA displays "200.0".**
2. Please notify us the display value you need, we will calibrate it well before ex-factory.
3. Please notify us the input, output, power supply value when placing orders.
4. The specifications are subject to changes without notification.