HART Transmissive 4-20mA Two-wire Passive Isolation Distributor

2-Wire Passive 4-20mA Loop Isolation HART Transmission Transmitter：ISO 4-20mA-FHT

Product Features

●Unique signal circuit feeder invention patent technology, no need for external power supply
●4-20mA loop signal input and output 3000VDC voltage isolation
●With HART transmitting function, supports bidirectional transmission of HART signals.
●Isolates 4-20mA inputs and outputs while allowing bi-directional communication for HART protocol signaling and manual operator measurement and control.
●Two-wire 4-20mA distribution circuit active output method
●Power distribution to the sensor: 16V ~ 21VDC
●Extremely high accuracy and linearity over the full range, non-linearity error < 0.2%
● Low signal dropout loss (3.5V typ @20mA)
● Industrial temperature range: -40 ~ +85 ℃
●Small size standard SIP 12Pin UL94V-0 compliant flame retardant package

Typical application

●Two-wire passive sensor power supply and signal transmission
●Industrial field 4-20mA signal isolation and long line transmission
●PLC, DCS input channel signal acquisition isolation between the anti-tampering
●Ground loop loop current interference isolation and suppression
●Bi-directional transmission of HART signals supports communication between intelligent sensors and instrumentation in the field and DCS centralized systems in the control room.
●Provides a channel for HART signal transmission, able to fully utilize the dual advantages of digital + analog signals
●Power instrumentation, medical equipment monitoring isolation barrier
●4-20mA current signal isolation and transmission of 1-input&1-output, 2-input&2-output and the realization of multi-channel transmission and transmission function

Summarize

SunYuan ISO 4-20mA-FHT's HART Transmissive 4-20mA 2-wire Passive Isolated Distributor is a smart sensor module specially designed for industrial instrumentation with HART protocol transmission and control. The working principle is to supply power to the front stage two-wire intelligent devices through the back stage feeder, and at the same time receive the two-wire 4~20mA current signals from the intelligent devices, and output the 4~20mA standard signals through the isolation and filtering. Module internal integration of HART digital signal isolation transmission circuit and analog 4-20mA current loop isolation distribution circuit, HART signal bi-directional transmission to support the field of intelligent sensors and instrumentation equipment and control room DCS centralized system of communication between the full play of digital and analog signals of the dual advantages. This signal isolation distributor with HART transmission function is a kind of high-performance signal processing equipment, which combines the advantages of signal isolation distribution and HART communication technology, and can realize the isolation and distribution of two-wire sensors, transmitters, instruments, etc. in the industrial field, as well as the reliable transmission of signals and accurate measurement and control.

ISO 4-20mA-FHT module is mainly used for industrial field intelligent sensor 4-20mA signal isolation power distribution and HART signal transmission, the work can be for the front end of the two-wire device power distribution 16V ~ 21VDC, which facilitates the signal measurement of some two-wire sensors and remote transmission function. The output of the module is designed for a two-wire power supply loop (field explosion-proof function) with 24VDC and sampling resistor (load resistor) in series, which matches the analog input port of the analog input interface boards (host computer), PLCs, DCSs, or other instrumentation equipment commonly used in the industrial field at the present time. The internal integration process and new technology isolation measures enable the module to achieve 3KVDC insulation

voltage and industrial grade wide temperature, humidity, vibration of the harsh environment requirements of the field, in the field of intelligent transmitters, industrial control intelligence, mining and medical equipment safety barrier, industrial robots, chemical and nuclear power safety equipment has a wide range of applications.

ISO 4-20mA-FHT products are very easy to use, without external devices to achieve two-wire 4-20mA analog signal isolation transmission and HART digital signal bi-directional isolation through the transmission function. The module adopts unique electromagnetic isolation mode and high-efficiency back-end feeder technology, which effectively solves the problem of current signal isolation's dependence on the power supply, and realizes the precise isolation and transmission of the standard signal 4~20mA. The products have IC package PCB board welding module mode and DIN35 standard rail mounting mode, rail mounting mode can realize the signal one in one out, two in two out and multi-channel transmission transformation function, the user can configure the products according to the needs of the site.

Maximum product rating

（Prolonged operation in a maximum rated environment affects product life and irreparable damage occurs beyond the maximum value.）

Continuous Isolation Voltage	3000Vrms
Vin (Maximum input voltage)	32VDC
Junction Temperature(working temperature)	-40 ~ +85℃
Storage Temperature	+120℃
Lead Temperature (welding temperature)	+300℃

Common parameter

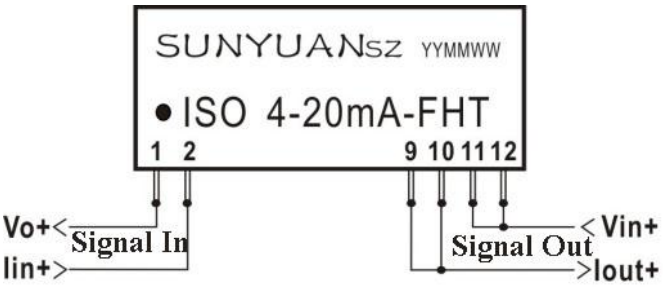
Accuracy, Linearity Error Grade ---------- 0.2 ，0.5grade	Load regulation rate ------ ＜0.05% meas.val./100Ω
Auxiliary power supply ---------- None	Isolation --------- Signal Input / Signal Output, Dual Isolation
Working temperature---------- -40 ~ +85℃	Response time ---------- ≤100mS
Operating humidity----------10 ~ 90% (condensationless)	pressure resistance --------- 3KV(60HZ / S)， leakage current ＜1mA
Storage temperature---------- -45~ +105℃	Impulse voltage ------- 3KV， 1.2/50us(peak value)
Storage humidity---------- 10 ~ 95% (condensationless)	temperature drift --------- 0.0050%F.S./℃ (-40℃～ +85℃COperating temperature range)

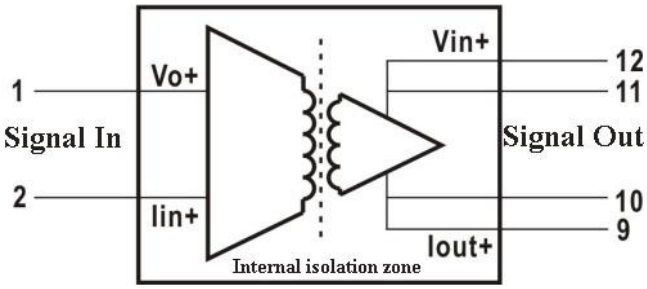
Technical Parameters

Parameters	Conditional	Min	Typical value	Max	Unit
Isolated Voltage AC，60Hz	10S	2000	3000	4000	Vrms
Insulation impedance	500VDC		100		MΩ
leakage current	240Vrms，60Hz		0.5		uA
running the temperature	-40~+85℃		±50	±100	PPm/℃
nonlinearity	Full range		±0.2	±0.5	%FSK
Output Linear Range		0	4	24	mA
Output Current Io		1.2		40	mA
Output Voltage Drop Voh	Io=20mA		12		V
Output signal voltage range		12	24	30	V
Output Carrying Capacity	24VDC		500		Ω

newsletter	test signalVpp≤500mV	Supports bi-directional transmission of HART signal frequencies

IC Module Package Function Block Diagram and Pin Definition（SIP12 Pin）

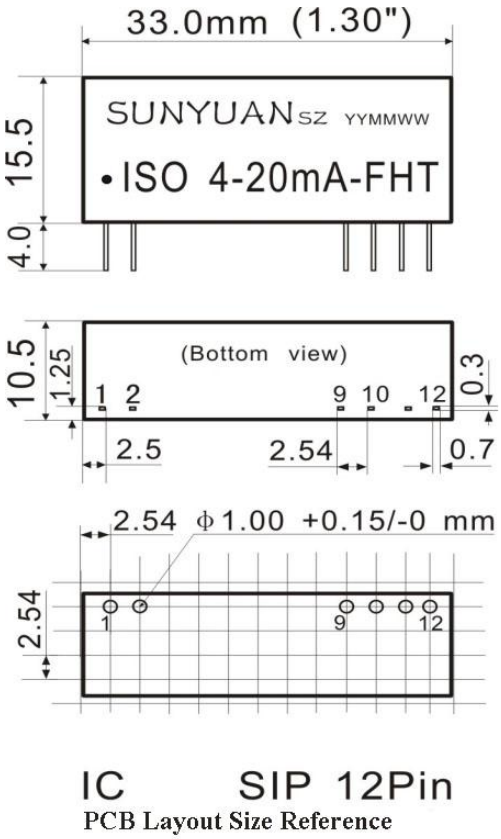




Pin Function Description (Single In-line: SIP12 Pin)

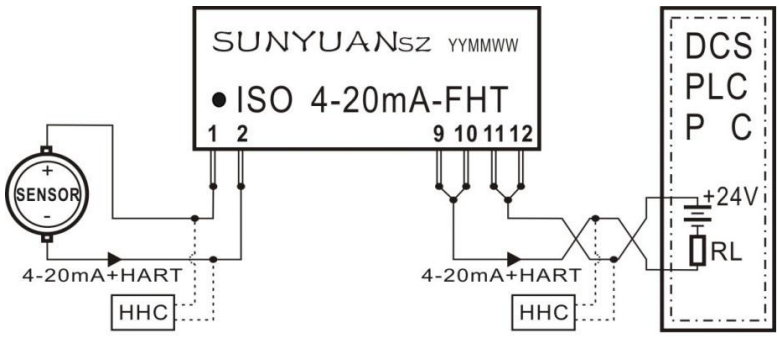
Positive Distribution Output	Signal Input Positive	empty-handed	Positive signal output	Positive signal output	Voltage Input Positive	Voltage Input Positive
Vo+	**Iin+**	**NC**	**Iout+**	**Iout+**	**Vin+**	**Vin+**
1	**2**	**3~8**	**9**	**10**	**11**	**12**

IC Module Package Form Factor and Typical Application Diagram



IC SIP 12Pin
PCB Layout Size Reference

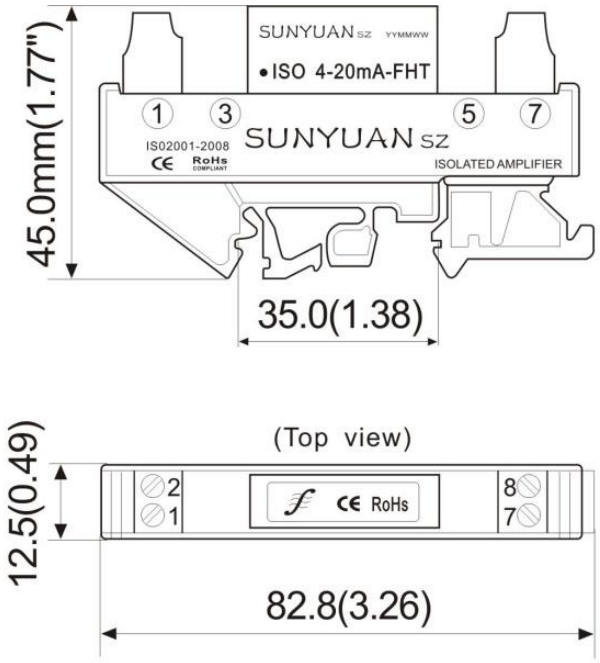




Typical Application Diagram of ISO 4-20mA-FHT Isolated Distribution ICs

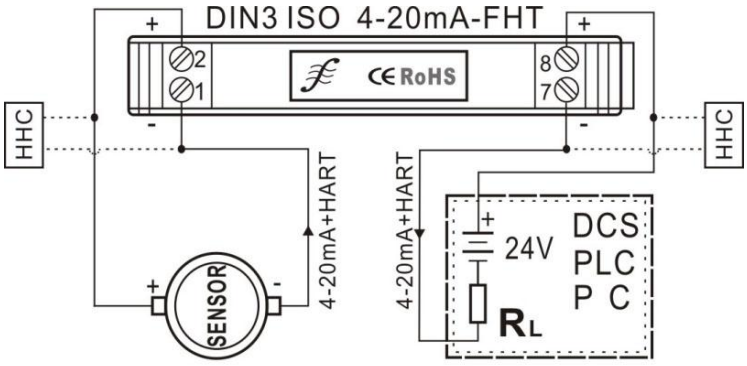
DIN3 small size, low cost DIN Rail-mounted type external dimensions and typical application diagrams

SunYuan DIN3 ISO 4-20mA-FHT small volume, low-cost DIN rail-mounted HART transmissive 4-20mA two-wire passive isolation distributor products, thin and compact, no external devices, the international common industrial standard 35mm DIN rail slot mounting, both sides of the terminals can be connected to the line to achieve the isolation of a single two-wire 4-20mA signal at the same time, the distribution of power and HART transmissive function.



DIN3 Small Hart Transmissive Isolated Distributor External Dimensions

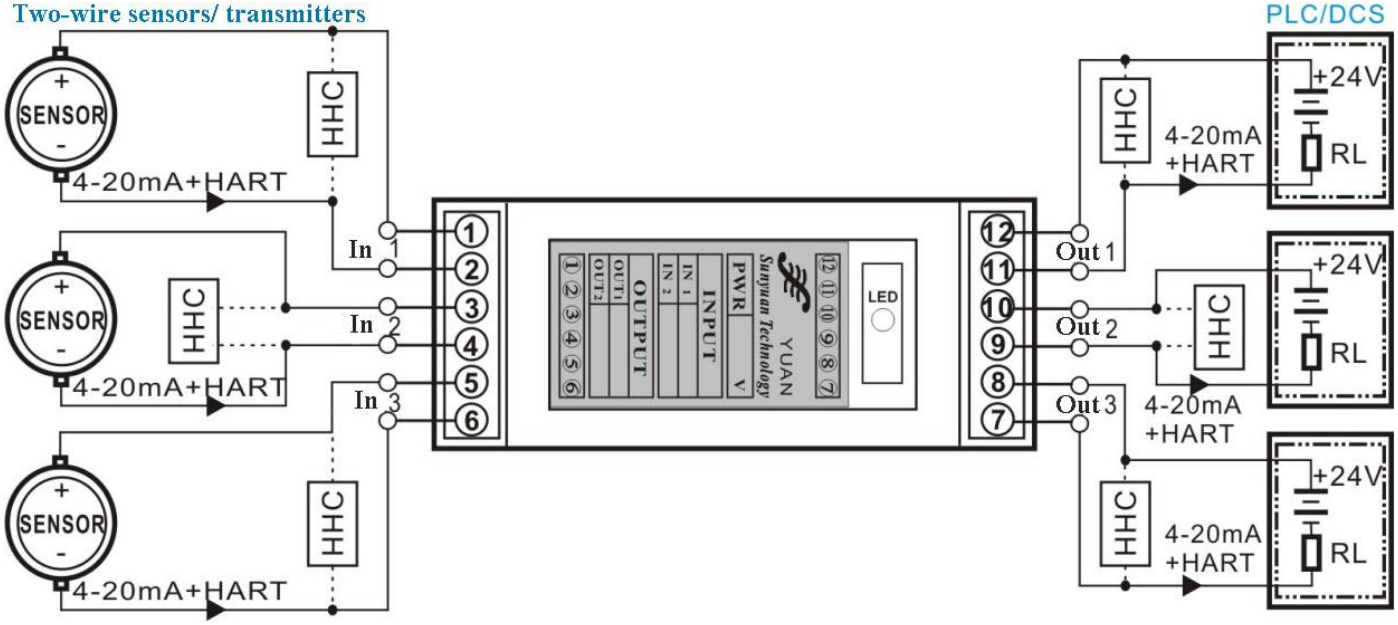




DIN3 ISO 4-20mA-FHT Wiring Diagram for Typical Applications

DIN35 Multi-signal rail-mounted type External Dimensions and Typical Applications

SunYuan DIN 1X1 ISO 4-20mA-FHT (one in one out), DIN 2X2 ISO 4-20mA-FHT (two in two out), DIN 3X3 ISO 4-20mA-FHT (three in three out) series HART transmissive 4-20mA two-wire passive isolation distributor, the use of the use of no external devices, the international common industrial standards 35mm DIN rail slot Installation, can realize single or multi-channel two-wire 4-20mA signal isolation distribution and HART digital signal transmission function.



External Dimensions and Pin Function Description for DIN35 Rail-mounted Type（* The product's logo model number is printed on the housing）

Pin	Pin Function	
1	Vo1+	First channel Positive Distribution Output
2	Iin1+	First channel Current Input Positive
3	Vo2+	Second channels Positive Distribution Output
4	Iin2+	Second channels Current Input Positive
5	Vo3+	Third channels Positive Distribution Output
6	Iin3+	Third channels Current Input Positive
7	Io3+	Third channels Current Output Positive
8	Vin3+	Third channels Voltage Input Positive
9	Io2+	Second channels Current Output Positive
10	Vin2+	Second channels Voltage Input Positive
11	Io1+	First channel Current Output Positive
12	Vin1+	First channel Voltage Input Positive

