Micro-size Low Cost 4-20mA Current Loop Isolated Distributor IC

2-wire Passive Loop Powered 4-20mA Signal Isolated Distributor
2WISO-ICS7A4P0O1F Series

Feature	Applications
● Extra small size 19.5X12.5X9.8mm, zero and gain adjustment are not required. ● Unique high efficient signal loop power extraction technique, external power supply is not required. ● Two-wire 4-20mA signal loop powered output. ● Two-wire 4-20mA(0-20mA) distribution power active output. ● Provide power supply for sensor:16V ~ 21.5VDC. ●High accuracy and linearity in full measuring range,non-linearity error <0.2% ●Error grade: 0.1, 0.2，low loss of signal (voltage drop 3V, type@20mA). ● Industrial operating temperature range: -40 ~ +85 ℃ ●SIP7 Pin PCB-mounted type, UL94V-0 flame retardant package.	● 2-wire passive type power supply for sensor and signal transmission. ● 4-20mA current signal isolated loop powered output. ●Industrial site 4-20mA signal isolation and long-line transmission. ●PLC, DCS analog signal isolation and data acquisition. ●Ground wire current loop isolation and interference inhibition. ●Reliable signal transmission between sensor and meters/ instruments. ●Analog signal data acquisition and long-distance transmission without distortion. ●Electric meters, medical equipment monitoring. ● Isolated safety bar for mining or explosion-proof equipment.

Introduction

IBANGSZ 2WISO-ICS7A4P0O1F micro-size, low cost high precision SIP 7pin two-wire passive loop powered isolated distributor IC isa kind of signal magneto-electric hybrid integrated circuits. The signal distributor can supply power to the 2-wire passive sensor or PLC, DCS equipment in loop powered method, and it can receive the 4-20mA signal from 2-wire sensor or other meters and instruments at the same time, then outputs the 4-20mA in the same linearity and ratio.

Inside the **2WISO-ICS7A4P0O1F** module, there are signal interference suppression circuit, signal modulation circuit, signal isolation circuit and output demodulation filtering circuit. DC-DC step-up circuit provides 16V-21.5VDC distribution power supply to the 2-wire sensors or PLC, DCS, that function simplify the procedures in signal measuring, transmission and isolation of 2-wire sensors and meets the customer requirements in long-distance transmission without distortion. The isolated distributor is designed on the basis of two-wire loop powered (explosion-proof) circuit which has serial connection on 24VDC and sample resistance (load resistance). It can be well matched with analog input interface board (host machine), PLC, DCS and other metersand instruments with analog input interfaces. Internal isolation technique, integration technique are used to realize that the isolated voltage is up to 3000VDC, and the distributor can meet the industrial operating temperature range, humidity, vibration and other harsh environment requirements.

2WISO-ICS7A4P0O1F Two-wire 4-20mA loop powered distributor is easy to achieve two-wire sensor signal isolation, transmission and power distribution without external components and auxiliary power supply. The unique magneto-electric isolation mode and high efficiency loop powered technique used provides solution of the power supply in sensor or transmitter 4-20mA signal isolation and transmission in high accuracy. The signal conditioner has two types of package, small size PCB-mounted package, 35mm DIN rail-mounted package. The 35mm DIN rail-mounted products can be 1-input 1-output, 2-input 2-output, 3-input 3-output and 16-channel isolation, etc.

Max. Rated Value

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

Continuous Isolation Voltage	3000Vrms
Vin Input max. voltage	32VDC
Junction Temperature	- 40 ~ +85 ℃
Storage Temperature	+150℃
Lead Temperature	+300℃
Output Short to Common	Continuous

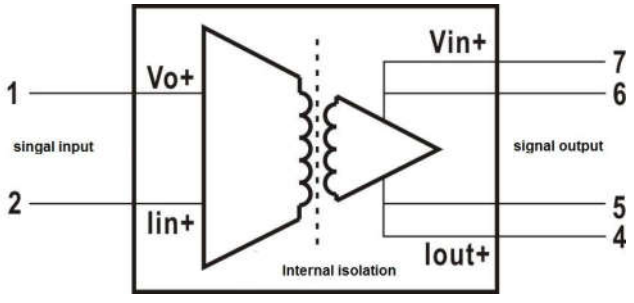
General parameters

Precision, linearity error grade--------- - 0.1,0.2	Backlash---------- < 0.5% meas.val./100Ω
Auxiliary power ----------No	Isolation---------- Signal I/O
Operating temp----------40 ~ +85℃	Package ----------SIP 7pin
Operating humidity --------10 ~ 90% (no condensation)	Withstanding volt. ---------- 3KVDC(60HZ/S), leakage current ＜ 1mA.
Storage Temp----------45~ +105℃	Anti-impulse voltage---------- 3KVDC, 1.2/50us (peak value)
Storage humidity----------10 ~ 95% (no condensation)	Temperature drift ---------- 0.0050%F.S./℃ (-40℃～ +85℃ operating voltage range)

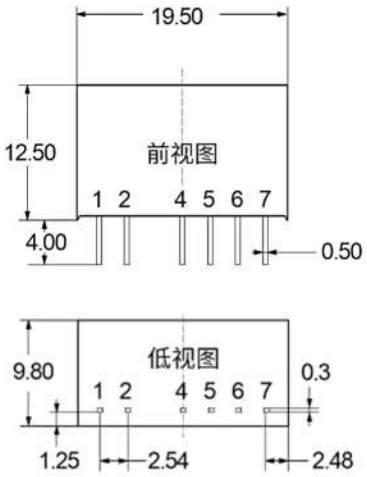
Technical parameters

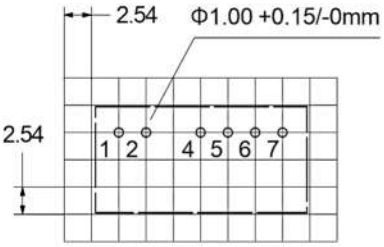
Parameters	Testing Conditions	Min.	Typical Value	Max.	Unit
Isolated volt. AC, 60Hz	10S	2000	3000	4000	VDC
Insulation resistance	500VDC		100		Ω
Leakage current	240Vrms，60Hz		0.5		uA
Temp. drift	-40℃～ +85℃ operating		±50	±100	PPm/℃
Non-linearity	voltage range		±0.1	±0.2	%FSK
Output linearity range		0	4	24	mA
Output current Io		1.2		40	mA
Voltage drop Voh	Io=4-20mA		3		V
Output signal voltage range		10	24	32	VDC
Frequency response (small signal bandwidth)	Io=20mA		100		Hz

Functional block



Dimension&Pin function description(SIP 7pin)

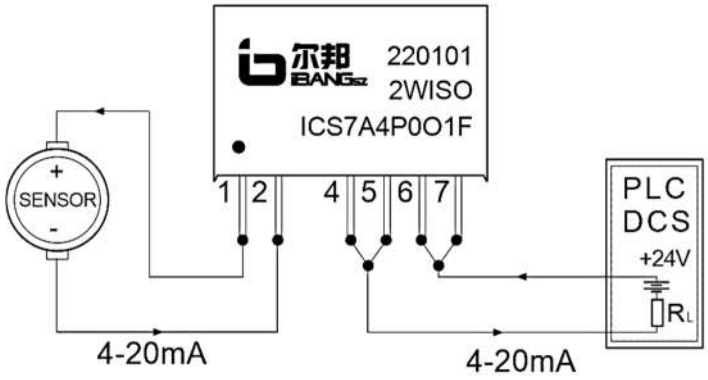




Pin Function description: SIP 7Pin

Distribution power output +	Signal input +	No connection	Signal output +	Signal output +	Voltage input +	Voltage input +
Vo+	Iin+	NC	Iout+	Iout+	Vin+	Vin+
1	2	3	4	5	6	7

Typical Application Circuits



Notifications

1. Please read the specification before using it; any doubt, contact our technical support personnel.
2. Do not use it in hazardous area.
3. Do not dismantle the product privately to avoid operation failure or damage.

After-sale Service

1. The products have passed quality inspection before ex-factory, if there are abnormal operation or failure, please contact our technical support personnel.
2. Quality warranty: 2 years. During valid quality warranty period, any quality problems, we will provide free replacement or maintenance free service.

Note:

1. All the parameters are tested @ Ta=25℃, humidity <75%, nominal input and rated output load.
2. The testing methods are done based on our internal quality inspection standards.
3. The the special requirements or parameters (not presented), please contact the technicians for details.
4. Customized products are available.
5. The specification is subject to change without notice.