

Data Sheet

Isolating Amplifier



RISH CON- SI-101
SR NO : 11/12/2023
[Icons: Triangle, Square, Circle with 0.2, Star, Star]
[Icons: Square with E, Circle with AUX: 05...230V AC/DC]
[Icons: Square with 1+, Square with 2-, Circle with IP: 4...20mA]
[Icons: Square with 1+, Square with 2-, Circle with OP: 0...12V]

Application :

The purpose of the RISH CON SI-101 is to electrically isolate input, output and power supply.

The isolator fulfills all requirements and regulation concerning electromagnetic compatibility EMC and safely acc to IEC 61010 . It was developed and is manufactured and tested in strict accordance with quality assurance standard ISO 9001.

The device has single channels and provides single independent isolating amplifiers in an extremely small space.

Product Features

Electric Isolation

- Electrically isolated analog output prevents interference voltage and current. Solves grounding problem in meshed signal networks.
- High electric isolation between input and output 2.3 kV, and power supply versus all other circuits 3.7 kV.

Function

Simple dc isolator serves to electrically isolate input dc signal in the range 0 – 20 mA or 4-20 mA or 0-10V or 2-10V is then converted to signal 0 – 20 mA or 4-20 mA or 0-10V or 2-10V finds its application for isolate input and output.

Technical Specifications

Measuring inputs :

DC current standard ranges	1) 0...20mA 2) 4...20mA 3) 1...5mA
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DC voltage standard ranges	1) 0...10V 2) 2...10V 3) 1...5V
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Measuring outputs :

DC current standard ranges	1) 0...20mA 2) 4...20mA
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Burden voltage	12V
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External Resistance	$R_{ext\ max.} [k\ \Omega] = 12V / I_{AN} [mA]$ I_{AN} = Output circuit full scale value
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DC voltage standard ranges	1) 0...10V 2) 2...10V
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Burden	$R_{ext\ min.} [k\ \Omega] = U_{AN} [V] / 5\ mA$ U_{AN} = Output circuit full scale value
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Current limiter at $R_{ext} = 0$	Approx. 30mA for voltage output
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Voltage limiter at $R_{ext} = \infty$.	Approx. 15V for current output
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Residual ripple in Output current	< 0.5% p.p.
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Response time	< 50 ms
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Power supply :

Rated operating voltage	60 to 300 V AC / DC 24 to 60 V AC / DC
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Rated operating frequency	45 to 400 Hz
Power input	$\leq 1.6\ W$ resp. $\leq 3.4\ VA$

Accuracy data (Acc to IEC 60770)

Basic Accuracy	Limit error < $\pm 0.2\ %$ including linearity and reproducibility errors.
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Reference conditions

Ambient temperature	$23^{\circ}C \pm 2^{\circ}C$
Output burden	Current: $0.5 * R_{ext\ max.}$ Voltage: $2 * R_{ext\ min.}$

Influence factors

Temperature	$\pm 0.15\ %$ per $10^{\circ}C$
Burden influence	< $\pm 0.1\ %$ for current output < $\pm 0.1\ %$ for voltage output
Switch-on drift	< $\pm 0.2\ %$
Longtime drift	< $\pm 0.3\ % / 12\ months$

Regulations

Electromagnetic Compatibility Protection	Acc. to IEC 61326 - 1 For Housing : IP40 Terminals : IP20
Electrical standards	Acc. to IEC 61010 -1 / EN 61 010 -1
Supply voltage	60 to 300 V AC / DC 24 to 60 V AC / DC
Contamination level	2
Over voltage category	III for power supply. II for measuring input and measuring output.
Double Insulation	- Power supply versus all other circuit. - Measuring input versus measuring output.
Test Voltage	Power supply versus : -All 3.7 kV, 50 Hz 1 min Measuring inputs versus : -Measuring output 2.3 kV ,50 Hz 1min

Ambient Temperature

Climatic rating	Climate case 3Z acc. to VDI / VDE 3540
Commissioning Temperature	-10 $^{\circ}C$ to 55 $^{\circ}C$
Operating Temperature	-20 $^{\circ}C$ to 55 $^{\circ}C$
Storage temperature	-40 $^{\circ}C$ to 70 $^{\circ}C$
Annual mean relative humidity	< 75% standard Climatic rating.

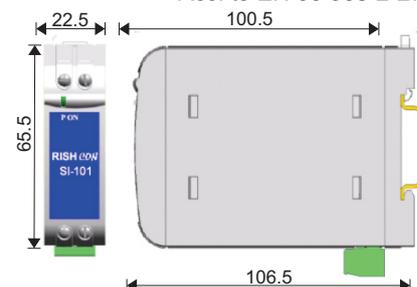
Installation Data

Mechanical Housing	Lexan 940 (polycarbonate) Flammability Class V-0 acc. to UL 94 self extinguishing, non dripping, free of halogen.
Mounting position	Rail mounting / wall mounting
Weight	Approx. 0.15kg

Connection Terminal

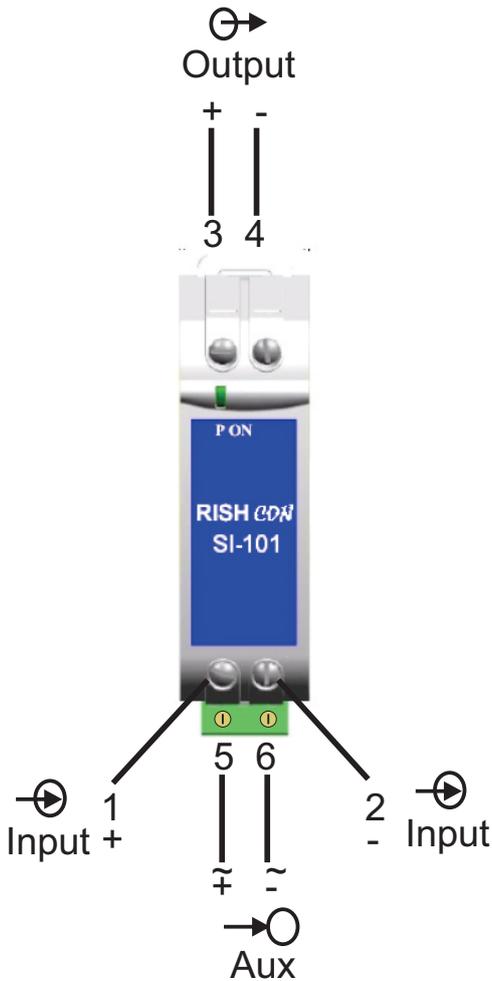
Connection Element	Conventional Screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	4.0 mm single wire or 2 x 2.5mm Fine wire.
Permissible Vibrations Shocks	2 g acc. to EN 60 068-2-6 3 x 50 g 2 shocks each in 6 directions Acc. to EN 60 068-2-27

Dimensions



Note : All Dimensions are in mm

Electrical connections



Connection	Terminal details	
Measuring input	+	1
	-	2
Measuring output	+	3
	-	4
Auxiliary Supply	~, +	5
	~, -	6

Ordering Information

PRODUCT NAME- INPUT RANGE CODE-OUTPUT RANGE CODE
-AUXILLARY SUPPLY

1) Product Name : SI-101

2) Input range codes

Input(mA)	Order code	Input(V)	Order code
Standard input ranges			
0...20	1	0...10	4
1...5	2	2...10	5
4...20	3	1...5	6
Non standard input ranges			
0...0.1	7	0...0.06	20
0...0.2	8	0.....0.1	21
0...0.5	9	0.....0.2	22
0.....1	10	0.....0.5	23
0.....2	11	0.....1	24
0.....5	12	0.....2	25
0.....10	13	0.....5	26
0.....40	14	0.....20	27
0.....80	15	0.....40	28
0...100	16	0.2.....1	29
0.2...1	17	1.....5	30
1.....5	18	4.....20	31
2.....10	19		

3) Standard output range codes

Current (mA)	Ordering Code	Voltage (V)	Ordering Code
0...20	1	0...10	3
4...20	2	2...10	4

4)

Auxiliary supply	Ordering Code
60 ...300V AC/DC	H
24...60V AC/DC	L

Example:

To order model of 0 to 20 mA input & 0 to 10V output and auxiliary supply 24 to 60 V AC DC, ordering information will be as follow :-
SI-101-1-3 -L



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