



# Data Sheet

## RISH CON SI-102



Measure



Control



Record



Analyze

### Application

The purpose of the RISH CON SI-102 is to electrically isolate input, outputs and power supply. The isolator fulfills all requirements and regulation concerning electromagnetic compatibility EMC and safety (IEC61326-1 and IEC 61010-1:2010).

The device has one input and provides two independent outputs in an extremely small space.

### Product Features

#### Electric Isolation

- Two electrically isolated analog outputs prevent interference voltage and current. Solves grounding problem in meshed signal networks.
- High electric isolation between input and outputs – 2.3 kV, and power supply versus all other circuits – 3.0 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.

### Features

- Electric isolation between input, outputs and power supply. Prevents false measurement due to spurious potentials.
- Processes live zero signals, provision for signal conversion. Green LED signals indicates device in operating condition.
- Electrical insulation between power supply versus all other circuits
- 3.0 kV, and between input and outputs -2.3 kV.

### Technical Specifications

#### Measuring inputs

DC current standard ranges	<ul style="list-style-type: none"> <li>• 0...20mA</li> <li>• 4...20mA</li> <li>• 1...5mA</li> </ul>
Input resistance	≤ 15.5Ω
DC voltage standard ranges	<ul style="list-style-type: none"> <li>• 0...10V</li> <li>• 2...10V</li> <li>• 1...5V</li> </ul>
Input resistance	≥ 100 kΩ

#### Measuring output1 and output2

DC current standard ranges	<ul style="list-style-type: none"> <li>• 0...20mA</li> <li>• 4...20mA</li> </ul>
Burden voltage	<13V
External Resistance	$R_{ext\ max.} [k\Omega] = 12V / I_{AN} [mA]$ $I_{AN}$ =Output circuit full scale value
DC voltage standard ranges	<ul style="list-style-type: none"> <li>• 0...10V</li> <li>• 2...10V</li> </ul>
Burden	$R_{ext\ min.} [k\Omega] = U_{AN} [V] / 5\ mA$ $U_{AN}$ =Output circuit full scale value

Current limiter at $R_{ext} = 0$	< 42mA for voltage output
Voltage limiter at $R_{ext} = \infty$	< 20 V for current output
Residual ripple in Output	< 0.4% p.p.
Response time	< 50 ms
Common mode voltage	100V
Pollution degree	2

#### Power supply

Rated operating voltage	60...230...300V DC/AC OR 20...30...40V AC / 20...30...60V DC
Rated operating frequency	40 ... 50-60 ... 400 Hz
Power input	< 2W resp < 4 VA

#### Accuracy data (Acc to IEC 60688)

Basic Accuracy	Limit error < ± 0.2 % including linearity and reproducibility errors.
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#### Reference conditions

Ambient temperature	23°C ± 2°C
Output burden	Current: 0.5 * $R_{ext}$ max. Voltage: 2 * $R_{ext}$ min.
Nominal value of Aux supply voltage	230V 50Hz or 60 Hz AC/DC 30V 50Hz or 60 Hz AC/DC

#### Influence factors

Temperature	± 0.01% per °C
Burden influence	< ± 0.1 % for current output < ± 0.1 % for voltage output
Switch-on drift	< ± 0.2%
Longtime drift	< ± 0.3% / 12 months
Magnetic field	< ±0.2 % (400 A/T)

#### 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
Pollution degree	2
Over voltage category	III for power supply II for measuring input and measuring output
Test Voltage	Power supply versus : <ul style="list-style-type: none"> <li>• All 3 kV, 50 Hz 1 min</li> </ul> Measuring inputs versus : <ul style="list-style-type: none"> <li>• Measuring outputs 2.3 kV, 50 Hz 1min &amp; O/P1 to O/P 2: 500 V ,50 Hz , 1 min</li> </ul>

#### Environmental condition

Climatic rating	Climate class 3 acc. to VDI /VDE 3540
Nominal Range of Use	0 °C to 45 °C (Usage group II)
Operating Temperature	-10 °C to 55 °C
Storage temperature	-40 °C to 70 °C
Annual mean relative humidity	< 75% standard Climatic rating.



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### Installation Data

Mechanical Housing

Lexan 940 (polycarbonate)  
Flammability Class V-0 acc.  
non dripping, free of halogen.  
Rail mounting / wall mounting  
Approx. 0.2kg

Mounting position

Weight

### Connection Terminal

Connection Element

Conventional Screw type  
terminal with indirect wire  
pressure

Permissible cross section  
of the connection lead

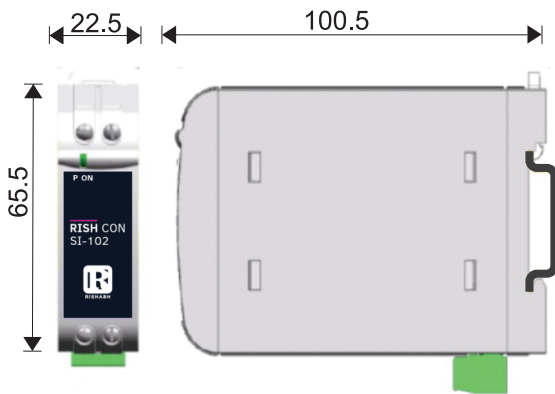
4.0mm<sup>2</sup> single wire or  
2 x 2.5mm<sup>2</sup> Fine wire

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

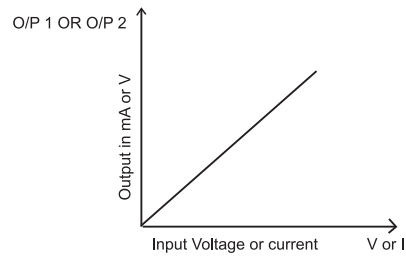
Connection	Terminal details	
Measuring input	+	3
	-	4
Measuring output 1	+	5
	-	6
Measuring output 2	+	7
	-	8
Auxiliary Supply	~, +	1
	~, -	2

## Dimensions



Note : All Dimensions are in mm

## Output characteristics



## Electrical Connections



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### Ordering Information

Product Code	SI02-	XX	XX	XX	X	00000000
Input Range	0-20mA	32				
	1-5mA	53				
	4-20mA	55				
	0-10V	5H				
	2-10V	3C				
	1-5V	3B				
	0-75mV	3D				
	0-5V	3E				
	250V*	3G				
	0-60mV	3F				
	0-100mV	3H				
	0-15V*	5J				
	0-125V*	5K				
	0-75V*	5L				
	0-3V	5M				
	0-100V*	5N				
	0-50V	5P				
	0-310V*	5Q				
	0-30V*	5R				
	0-300V	5S				
	0-150V	5T				
	0-20V	5U				
	0-220V*	5V				
175V*	5W					
0-1V	5A					
Output Range1	0-20mA		32			
	4-20mA		55			
	0-10V		5H			
	2-10V		3C			
Output Range2	0-20mA			32		
	4-20mA			55		
	0-10V			5H		
	2-10V			3C		
Power Supply	24-60V AC/DC				F	
	60-300V AC/DC				H	

\*Non standard Inputs

#### Ordering Example

SI02-555555H000000 – Rish CON SI 102, Input: 4-20mA, Output 1 : 4-20mA, Output 2 : 4-20mA, Aux 60-300 VAC/DC



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All specifications are subject to change without notice



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