



Data Sheet

RISH PI-102

Programmable Dual Output DC Isolator



Measure



Control



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Application

The purpose of the RISH PI-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.

Function

Simple dc isolator serves to electrically isolate programmable input DC signal to programmable DC output signal.

Product Features

- Two electrically isolated analog output prevent 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 – 3.0 kV.
- All input signal range and output signal range are user programmable.
- Electric isolation between input, output and power supply.
- Prevents false measurement due to spurious potentials.
- Processes live zero signals, provision for signal conversion.
- Red LED signals indicates device in operating condition.
- Electrical insulation between power supply versus all other circuits
- 3.0 kV, and between input and output -2.3 kV.

Technical Specifications

Measuring inputs

DC current standard ranges	1) 0...20mA 2) 0...10mA 3) 4...20mA 4) 0...24mA
Input resistance	< 15.5 Ω
DC voltage standard ranges	1) 0...12V 2) 0...10V 3) 0...5V
TPS Output (Optional)	Transmitter Power Supply 24VDC (+/- 15%) Max current Limit: 26mA Electronic
Input resistance	0...12V } ≥ 100 kΩ 0...10V } 0...5V } ≥ 60 kΩ

Measuring output 1 and output 2 :

DC current standard ranges	1) 2...10mA 2) 4...20mA 3) 0...10mA 4) 0...20mA
Burden voltage	15V
External Resistance	$R_{ext\ max.} [\Omega] = 15V / I_{AN} [mA]$ I_{AN} =Output circuit full scale value
DC voltage standard ranges	1) 0...5V 2) 0...10V 3) 2...10V



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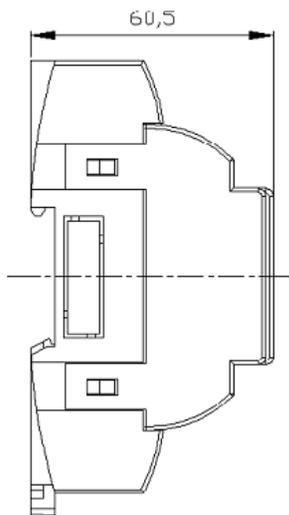
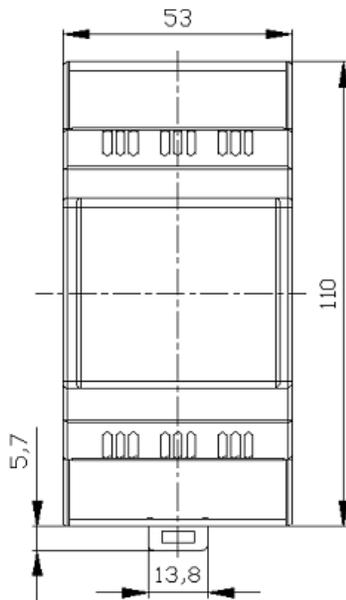


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Dimensions Details



Note : All Dimensions are in mm

Technical Specifications:

Burden	$R_{ext \min.} [k\Omega] = U_{AN} [V] / 5 \text{ mA}$ U_{AN} = Output circuit full scale value < 42mA for voltage output < 20 V for current output
Current limiter at $R_{ext} = 0$	< 1.2% p.p.
Voltage limiter at $R_{ext} = \infty$	< 50 ms
Residual ripple in Output	100V
Response time	2
Common mode voltage	
Pollution degree	
Power supply	
Rated operating voltage	60 ... 230... 300 V DC / AC OR 20 ... 24 ...40 VAC / 20...30...60 VDC
Rated operating frequency	45 ... 50-60 ... 65 Hz
Power input	< 5 VA
Accuracy data (Acc to IEC 60688)	
Basic Accuracy	Limit error < $\pm 0.2 \%$ including linearity and reproducibility errors.
Reference conditions	
Ambient temperature	23°C \pm 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	$\pm 0.01\%$ per °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
Magnetic field	< $\pm 0.2 \%$ (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 61010 -1
Pollution degree	2
Over voltage category	III for power supply II for measuring input and measuring output.
Test Voltage	Power supply versus: All 3.7 kV, 50 Hz 1 min (Leakage current 5mA) Measuring inputs versus: Measuring output 2.3 kV, 50 Hz 1min & O/P1 to O/P 2: 500 V, 50 Hz, 1 min All circuits versus case: 3.7kV, 50 Hz ,1min



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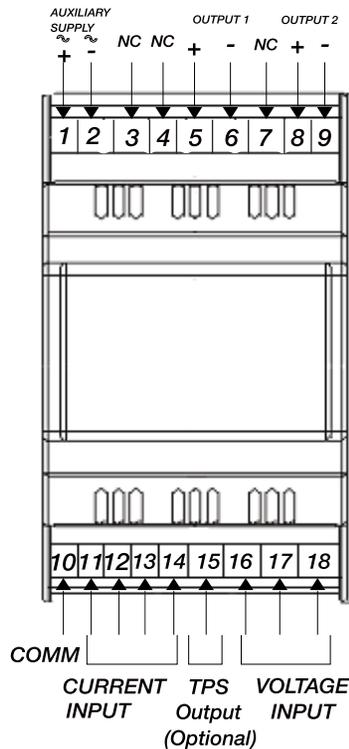


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Electrical Connections:



Technical Specifications:

Environmental condition

Climatic rating	Climate class 3 acc. to VDI / VDE 3540
Operating Temperature	-10...23... 55 °C
Storage temperature	-40 °C to 70 °C
Annual mean relative humidity	< 75% standard Climatic rating.

Installation Data

Mounting position	Rail mounting
Weight	Approx. 0.25kg

Connection Terminal

Connection Element	Conventional Screw type
Permissible cross section of the connection lead	4.0mm ² single wire or 2 x 2.5mm ² Fine wire.
Permissible Vibrations Shocks	2 g acc. to EN 60068-2-6 3 x 50 g 2 shocks each in 6 directions Acc. to EN 60068-2-27

Connection	Terminal details	
Measuring Current input	+	-
A)0....24mA	11	10
B)4....20mA	12	10
C)0....20mA	13	10
D)0....10mA	14	10
TPS Output(Optional)	15	11/12/13/14 (As per sensor full scale value)
Measuring Voltage input		
A)0....5V	16	10
B)0....12V	17	10
C)0....10V	18	10
Measuring output 1	5	6
Measuring output 2	8	9
Auxiliary supply	1	2



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Configuration

RISH PI-102 inputs and output can be configured using slide switches. Table A and B contains the switch position information for the configuration of input and output 1 / output 2 respectively.

When ever configuration is changed output 1 and output 2 fine adjustment must be accomplished using “Z” (Zero) and “S” (Span) potentiometers provided on front panel separately for both the outputs 2.



Fig. Front Panel of RISH PI 102

Output characteristics

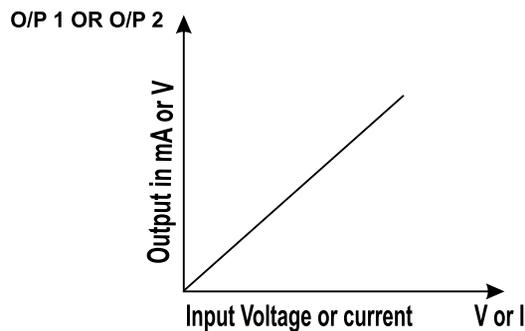


TABLE B: O/P1 & O/P2 RANGE SELECTION

Output	S1 & S2	S3	S4
0...10mA	OFF	OFF	OFF
0...20mA	OFF	OFF	ON
2...10mA	OFF	ON	OFF
4...20mA	OFF	ON	ON
0...5V	ON	OFF	OFF
0...10V	ON	OFF	ON
1...5V	ON	ON	OFF
2...10V	ON	ON	ON

TABLE B: O/P1 & O/P2 RANGE SELECTION

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0...20mA	OFF	OFF	ON
2...10mA	OFF	ON	OFF
4...20mA	OFF	ON	ON
0...5V	ON	OFF	OFF
0...10V	ON	OFF	ON
1...5V	ON	ON	OFF
2...10V	ON	ON	ON

Ordering Information

Ordering Information	PI02-	X	XX	0000000000
Product Type	RISH PI 102 : Programmable Dual Output DC Isolator			
Auxiliary Supply	20-40V AC / 20-60V DC	L		
	60-300V AC/DC	H		
Transmitter Output	Without Transmitter Output		00	
	With Transmitter Output (TPS O/P)		01	

Ordering Code Example : PI02-H01000000000

Rish PI 102 : Programmable Dual Output DC Isolator, Aux 60-300V AC/DC, With Transmitter Output (TPS O/P)



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Specifications may change without prior notice



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