RISHABH

Data Sheet

RISH PI-101

Programmable Single output DC Isolator

RoHS CE

Measure Control Record Analyze

Data Sheet

RISH PI-101

Application :

The purpose of the RISH PI-101 is to electrically isolate input, output 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 one independent output in an extremely small space.

Product Features

Electric Isolation

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

Function

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

Features :

- 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 4) 1...5V
Input resistance	0...12V, 0...10V } ≥ 100 kΩ 0...5V, 1...5V } ≥ 60 kΩ

Measuring output1 :

DC current standard ranges	1) 2...10mA 2) 4...20mA 3) 0...10mA 4) 0...20mA
Burden voltage	15V
External Resistance	Rext max. [Ω] = 15V/ I_{AN} [mA] I_{AN} =Output circuit full scale value
DC voltage standard ranges	1) 0...05V 2) 1...05V 3) 0...10V 4) 2...10V
Burden	Rext min. [k Ω] = U_{AN} [V]/ 5 mA U_{AN} =Output circuit full scale value
Current limiter at Rext =0	< 42mA for voltage output
Voltage limiter at Rext =∞	< 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... 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)

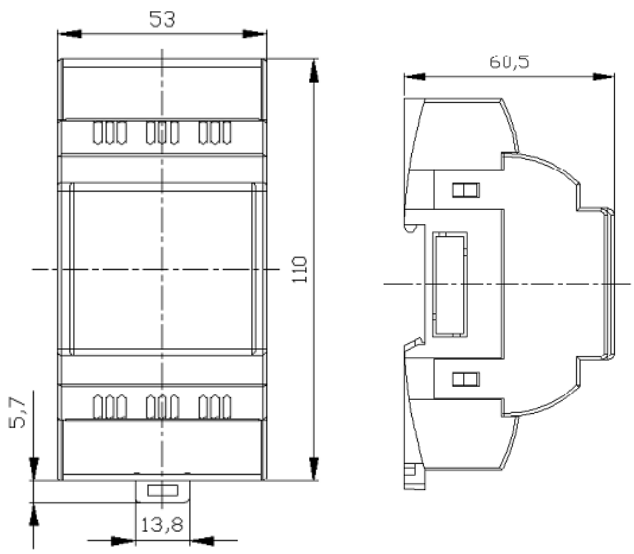
Basic Accuracy	Limit error < ± 0.2 % including linearity and reproducibility errors.
Reference conditions	
Ambient temperature	23°C ± 2°C
Output burden	Current: 0.5 * Rext max. Voltage: 2 * Rext min.
Nominal value of Aux Supply voltage:	**230V 50Hz or 60 Hz AC/DC** 30V 50Hz or 60 Hz AC/DC
Influence factors	
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	Acc. to IEC 61326 - 1
Protection	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 : -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

Measure Control Record Analyze

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

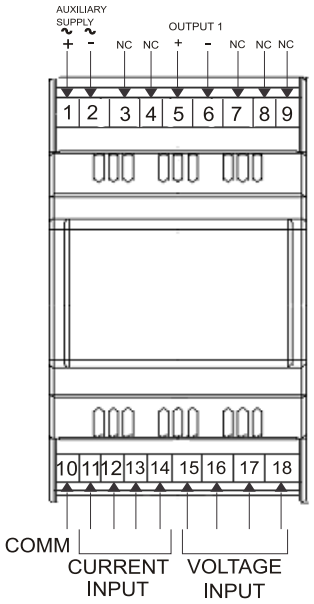
Installation Data	
Mounting position	Rail mounting
Weight	Approx. 0.25kg
Connection Terminal	
Connection Element	Conventional Screw type
Permissible cross section of the connection lead	4.0mm^2 single wire or 2 x 2.5mm^2 Fine wire.
Permissible Vibrations	2 g acc. to EN 60 068-2-6
Shocks	3 x 50 g 2 shocks each in 6 directions Acc. to EN 60 068-2-27

Dimensions



Note : All Dimensions are in mm

Electrical Connections



Connection	Terminal details	
Measuring Current input	+	-
A)0....24mA	11	10
B)4....20mA	12	10
C)0....20mA	13	10
D)0....10mA	14	10
Measuring Voltage input		
A)1....05V	15	10
B)0....05V	16	10
C)0....12V	17	10
D)0....10V	18	10
Measuring output 1	5	6
Auxiliary supply	1	2

Configuration: :

RISH PI-101 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 respectively.
When ever configuration is changed output need adjustment must be accomplished using “Z” (Zero) and “S” (Span) potentiometers provided on front panel,

FIGURE: FRONT PANEL OF RISH PI-101

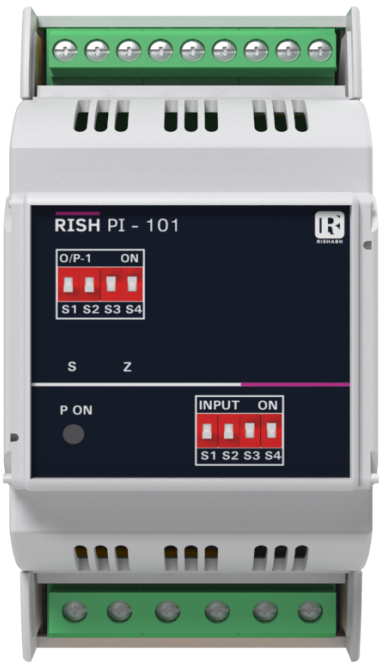


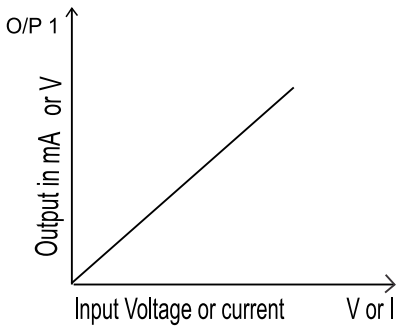
TABLE A: INPUT RANGE SELECTION

Input	S1	S2	S3	S4
0...20mA	OFF	OFF	OFF	OFF
0...10mA	OFF	OFF	OFF	ON
0...24mA	OFF	OFF	ON	OFF
4...20mA	OFF	OFF	ON	ON
0...10V	OFF	ON	OFF	OFF
0...12V	OFF	ON	OFF	ON
0...5V	OFF	ON	ON	OFF
1...5V	OFF	ON	ON	ON

TABLE B: O/P 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

Output characteristics



Variants:

Auxillary Supply
60-300 VAC/DC
20-40VAC/20-60VDC

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