Operating Manual

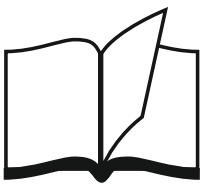
RISH CON SI-101

REV. B - 09/2012

IC 15000929

Operating Instructions

1. Read first and then



The proper and safe operation of the device assumes that the Operating Instructions are **read** and the **safety** warnings given in the various sections are observed.

7. Mounting
8. Electrical Connections
9. Commissioning

The device should only be handled by appropriately trained personnel who are familiar within and authorised to work in electrical installations.

2. Scope of supply (Fig. 1)

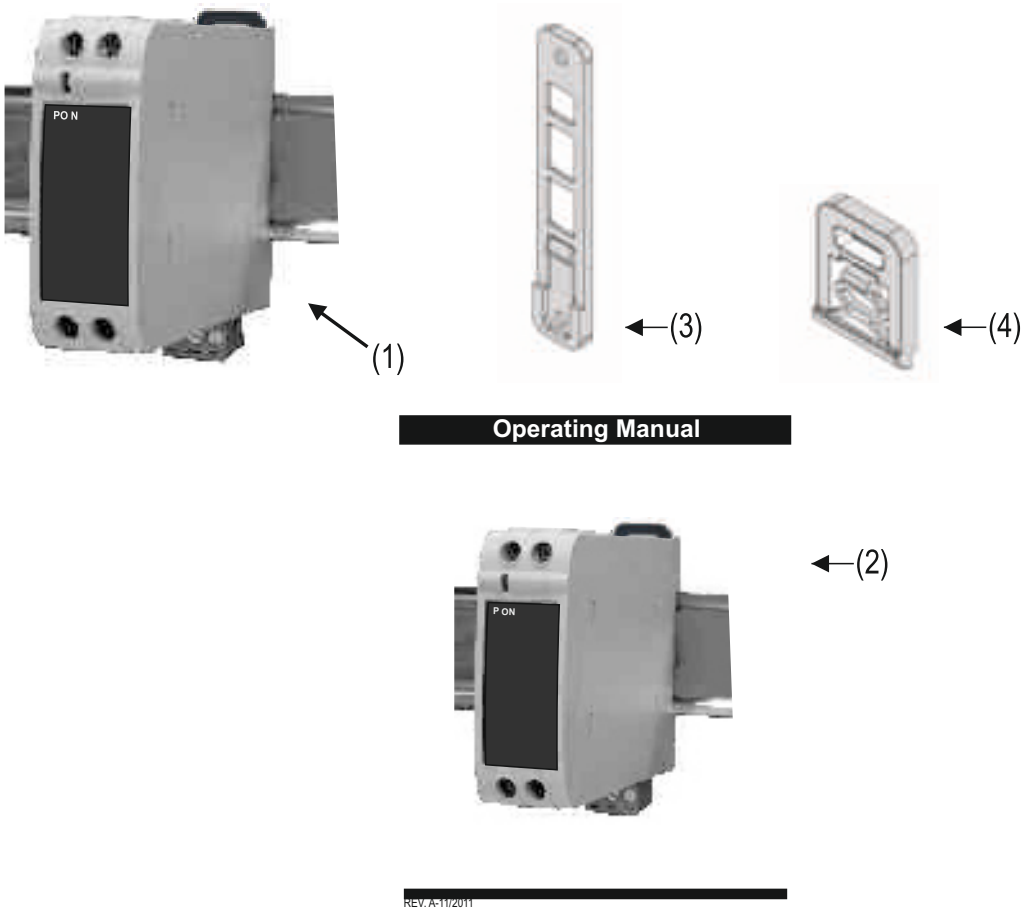


Fig. 1

Signal Isolator	**(1)**
Operating Instructions	**(2)**
Wall mounting holder	**(3)**
Clamp strap	**(4)**

3. Ordering Information-

Product Name - Input range code- Output range code - Aux range code

1. Product Name - SI - 101
2. Standard input range codes:-

Current (mA)	Ordering Code	Voltage (V)	Ordering Code
0.....20	1	0.....10	4
1.....5	2	2.....10	5
4.....20	3	1.....5	6

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. Standard Aux range codes:-

Voltage (AC/DC)	Ordering Code
24.....65	L
65.....300	H

Example :-

To order model of 0...20 mA input, 0...10 V output & 24...65 V AC/DC Aux specification, ordering information will be as follow :- SI -101 -1-3-L

4. Brief description

The purpose of the isolating amplifier is to electrically insulate input and output signals, respectively to amplify and/or change the signal level or type (current or voltage) of the input signals.

5. Overview of the parts

Figure 2 shows those parts of the device of consequence for mounting, electrical connections and other operations described in the Operating instructions.

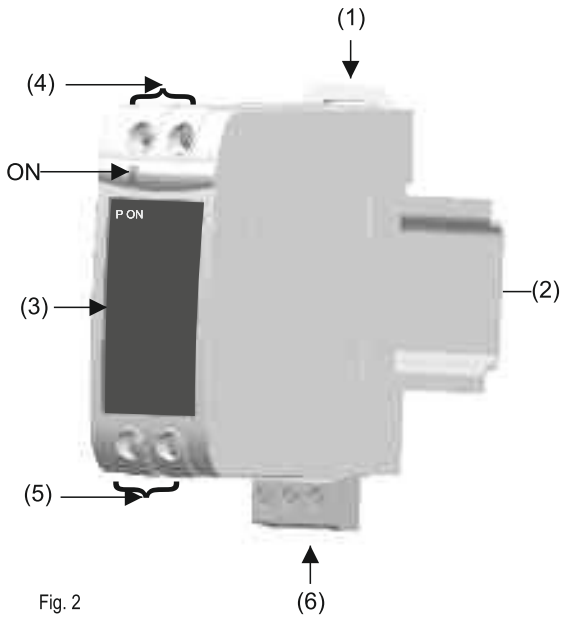


Fig. 2

(1) Fixing Bracket
(2) Top-hat rail
(3) Front sticker
(4) Terminal
(5) Terminal
(6) Aux Input Terminal

ON Green LED for Power ON indication.

6. Technical Data

Measuring Input ⊕→

DC Current :
Standard ranges :

1) 0 - 20 mA
2) 4 - 20 mA
3) 1 - 5 mA
R_i = 15Ω

DC Voltage :
Standard ranges:

1) 0 - 10 V
2) 2 - 10 V
3) 1 - 5 V
R_i = 100KΩ

Overload :

DC current
Continuously 2-fold
DC voltage
Continuously 2-fold

Measuring outputs ⊖→

DC Current :
Standard ranges

1) 0 - 20mA
2) 4 - 20 mA

Burden Voltage :

12 V

External resistance :

$$R_{ext}\ \text{max.}\ (K\Omega) = \frac{12\ V}{I_{AN}\ (mA)}$$

I_{AN} = output circuit full-scale value

DC Voltage :

Standard ranges
1) 0 - 10V
2) 2 - 10 V

Burden : R_{ext} min. (KΩ)$\geq \frac{U_{AN}\,[V]}{5mA}$

U_{AN}=output circuit full-scale value

Current limiter at R_{ext} =0 : < 30 mA for voltage output-

Voltage limiter at $R_{ext} = \infty$: < 17V for Current output

Power supply H →○

Rated operating Voltage: 24 to 65 V AC/DC
65 to 300 V AC/DC

Rated operating frequency: 45 to 400 Hz

Power input : ≤ 1.2 W resp. ≤ 3VA

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*R_{ext} max. Voltage: 2*R_{ext} min.

Influencing Factors:

Temperature	< ± 0.15% per 10°C
Burden influence	< ± 0.1%
Longtime drift	< ± 0.3%/ 12 months
Switch- on drift	< ± 0.2%

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. 0.15 kg

Connection Terminal:

Connection Element	:Conventional Screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	£ 4.0 mm² single wire or 2 x 2.5 mm² fine wire
connection lead 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
Electrical :	All circuits (measuring inputs/ insulation measuring outputs/power supply) are electrically insulated

Regulation

Electromagnetic : Compatibility	Acc. to IEC 61326-1
Protection class:	II (Protection isolated EN 61010)
Protection :	For Housing : IP 40 For Terminals : IP 20
Pollution degree:	2
Electrical standards :	Acc. to IEC 61010-1 resp. EN 61010-1
Test voltage :	Power supply versus : - all 3.7 kV, 50 Hz, 1 min. Measuring inputs versus : - measuring outputs 2.3 kV, 50 Hz, 1 min.

Environmental conditions

Climatic rating :	Climate class 3Z acc. to VDI/VDE 3540
Operating temperature	-10...55°C

Storage temperature	-40...70°C
Relative humidity of annual mean	£ 75%
Altitude	up to 2000 m

7. Mounting

The Isolator can be mounted either on a top-hat rail or directly onto a wall or mounting plate.

Make sure that the ambient temperature stays within the permissible limits :
-10 and 55°C

Fig. 3 Top-hat rail Mounting

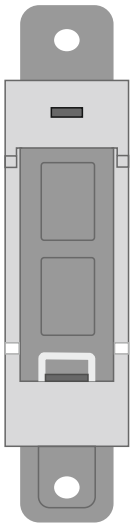


Fig. 4 Wall Mounting

As the front of the enclosure conforms to IP 40. The terminals of the product should be protected from liquids. Transducer should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range -10 to 55C .° Vibration

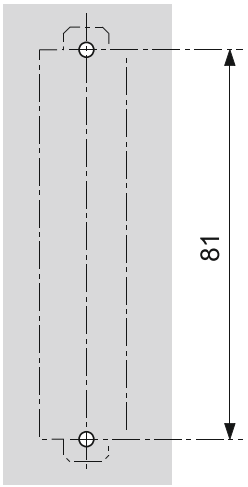
should be kept to a minimum and the product should not be mounted where it will be subjected toexcessive direct sunlight.

Caution

1. **In the interest of safety and functionality this product must be installed by a qualified engineer, abiding by any local regulations.**

2. **Voltages dangerous to human life are present at some of theterminal connections of this unit. Ensure that all supplies are de-energised before attempting any connection or disconnection.**

3. **These products do not have internal fuses therefore external fuses must be used to ensure safety under fault conditions.**

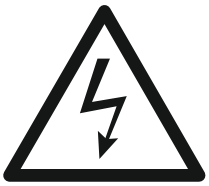


Drill 2 holes in the wall or panel as shown in the drilling pattern (Fig. 5). Now secure the power pack to the wall or panel using two 4 mm diameter screws.

Fig. 5. Drilling plan

8. Electrical connections

Input connections are made directly to screw-type terminals with indirect wire pressure. Choice of cable should meet local regulations. Terminal for Current inputs will accept up to 4.0 mm² single wire or 2 x 2.5 mm² fine wire.



Make sure that the cables are not live when making the connections !

The 230 V power supply is potentially dangerous !

Note that, ...

...the data required to perform the electrical insulation task agree with the data on the nameplate of the Isolator (⊣⊕ input E, ⊖→ output A and →○ power supply H !)

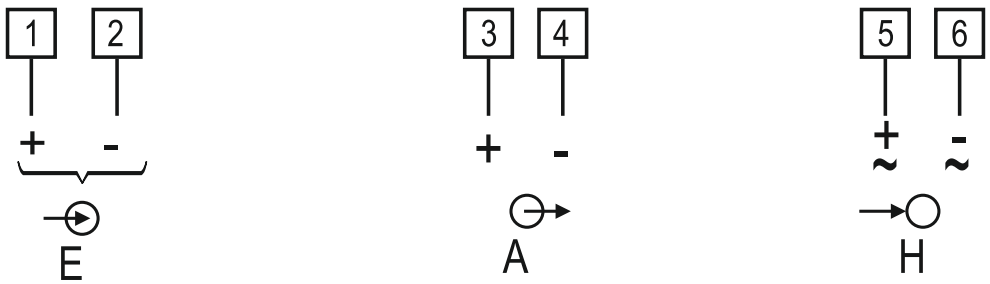
...the total loop resistance connected to the output (receiver plus leads) does not exceed the maximum permissible value R_{ext} max. See “Measuring Output” in sec. “6. Technical data” for the maximum values of R_{ext}!

...the input and output cables should be twisted pairs and run as far as possible away from heavy current cables !

In all other respects, observe all local regulations when selecting the type of electrical cable and installing them !

Connection	Terminal details	
Measuring input	+ -	1 2
Auxilliary Power supply	~ , + ~ , -	5 6
Measuring output	+ -	3 4

Fig. 6. Front View of Device for electrical Connections



E = Input
A = Output
H = Power supply

9. Commissioning

Switch on the measuring inputs and the power supply. The green LED lights continuously after switching on.

> The power supply unit must be capable of supplying a brief current surge when switching on. The instruments presents a low impedance at the instant of switching ON which requires a current I_{start} of $\geq$35 mA

10. Maintenance

No maintenance is required.

11. Dimensional drawings

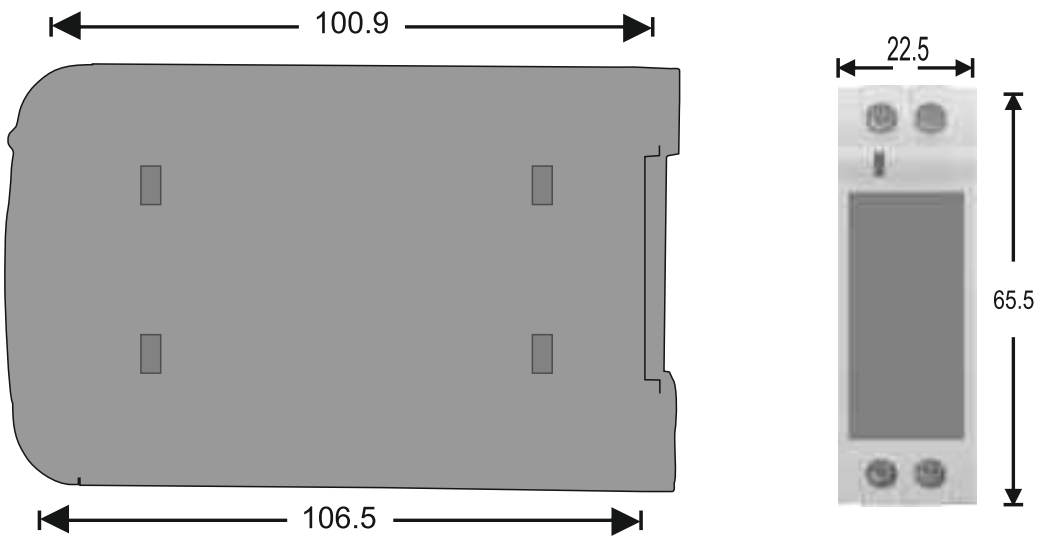


Fig. 7. Side View & Front view

Notes

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