

algodue RPS50 Multiscale Rogowski Coil Adapter User Manual

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INTRODUCTION

This manual provides information on the installation and use of the main instrument functions. The manual is not intended for general use, but for qualified technicians. This term indicates a professional and skilled technician, authorised to act in accordance with the safety standards relating to the dangers posed by electric current. This

person must also have basic first aid training and be in possession of suitable Personal Protective Equipment.



WARNING!

It is strictly forbidden for anyone who does not fulfil the above-mentioned requirements to install or use the instrument.

The instrument complies with the European Union directives in force, as well as with the technical standards implementing these requirements, as certified by the CE mark on the device. Using the meter for purposes other than intended ones, understood by the manual content, is strictly forbidden. The information herein contained shall not be shared with third parties. Any duplication of this manual, either partial or total, not authorised in writing by the Manufacturer and obtained by photocopying, duplicating or using any other electronic means, violates the terms of copyright and is punishable by law. Any brands quoted in the publication belong to the legitimate registered owners.



The instrument complies with European standards 89/336/EEC, 73/23/EEC and their following updating.

DESCRIPTION

RPS50 is a multiscale Rogowski coil integrator, powered directly from the mains. An integrator is essential to equalize and shift by 90° the output signal from the Rogowski coils. It consists of an active electronic circuit with negligible offset and a good linearity.

RPS50 can be combined with MFC150 coil series. The module is available in the standard configuration with one of the 3 following fullscales: 0.5, 2.5, 10 kA; 2.5, 10, 50 kA; 10, 50, 250 kA (see chapter 9).

On request the input value and the output full scale can be customized according to the application.

RPS50 and a Rogowski current transducer is a very flexible system, suitable for high power load analysis, impulsive current monitoring, DC ripple measurement, etc.

Due to its specific features, flexible Rogowski coil is an extremely comfortable solution for current measurement and can be used in a number of cases where traditional current transducer is not the adequate solution

PRELIMINARY VERIFICATION



NOTE

At the opening the box, check that the instrument has not been damaged during transport. If the instrument appears to be damaged, contact the after sale service.

The box contains:

- the instrument
- the user manual

INSTALLATION



NOTE

The equipment complies with the 89/366/EEC, 73/23/EEC standards and following amendments. However, if not properly installed, it may generate a magnetic field and radio interference.

The environment in which the instrument is installed must satisfy the following features:

- no vibrations
- indoor area
- temperature between -10°C and +50°C (+14°F and +122°F)
- storage between -25°C and +70°C (-13°F and +158°F)
- max. humidity 80% (no condensation)



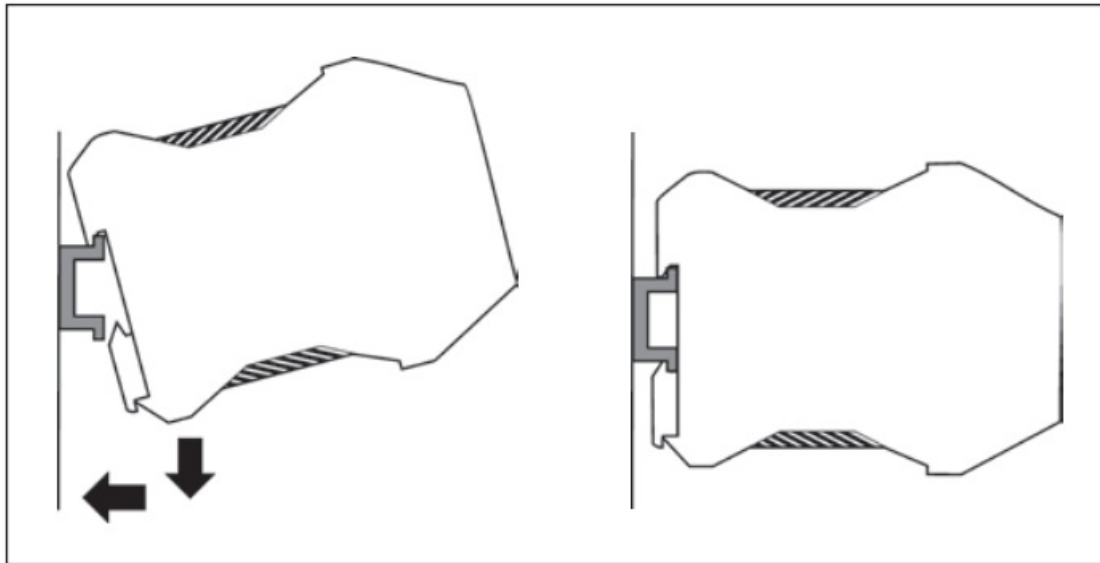
NOTE

The instrument must not be exposed to sun rays.

Fastening to DIN EN 50022 rail is provided for the instrument.

To mount the instrument on DIN rail, follow the description below:

- Hang up to DIN rail the higher fastening part of the instrument.
- Pull the instrument downward and against the DIN rail. The fastening down side of the instrument will be hang up on the DIN rail.
- To remove the instrument, use a screwdriver, as a lever, on the iron hook on the base of the instrument.



SAFETY MEASURES & ELECTRICAL CONNECTIONS



WARNING!

Electrical instrument connections must be carried out only by qualified technicians aware of the risks involved to the presence of voltage.

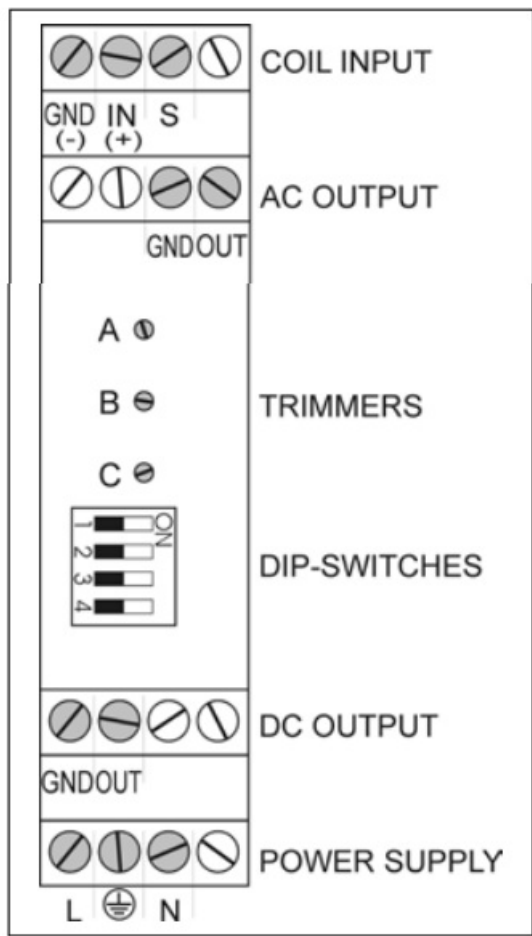


WARNING!

Before making any connection, check that the instrument is NOT POWERED and:

1. the conductor wires are not powered.
2. the power supply corresponds to the values on the instrument label.
3. the instrument has been installed in a vibration-free and a suitable temperature environment (see chapter 4).

4. the wiring is carried out in accordance with the standards in force in the country where the instrument is to be installed.



NOTE For coil connection, please refer to the following table:

	COIL CABLES	
	with edges	stripped
GND (-)	WHITE edge	BLUE cable
IN (+)	YELLOW edge	WHITE cable
S	–	shield

POWER SUPPLY



WARNING! Before connecting the power supply, check if it corresponds to the value on the instrument label (85...250 Vac).
The instrument has not a protection fuse on the power supply, therefore the installer must protect it with a current breaker and an overcurrent protection device (315mA delayed fuse, T type).

ANALOG OUTPUTS

Two different outputs are available:

- the standard AC output carrying out the instantaneous value, with 3 Vrms fullscale
- an optional DC output carrying out the RMS value of the measured current. The available values are: 0...20 mA, 4...20 mA, 0...1 V or 0...10 V.



WARNING! Check if the external load parameters comply to the RPS50 Technical Specifications.

FULLSCALE SELECTION

The dip-switches allow to select the full scale value. The following table shows possibilities for full scale selection, according to instrument factory preset range.

RPS50 MODEL	RANGE	SWITCH SELECTION			TRIMMER
		1	2	3	
0.5 – 2.5 – 10 kA	0.5 kA	ON	OFF	OFF	A
	2.5 kA	OFF	ON	OFF	B
	10 kA	OFF	OFF	ON	C
2.5 – 10 – 50 kA	2.5 kA	ON	OFF	OFF	A
	10 kA	OFF	ON	OFF	B
	50 kA	OFF	OFF	ON	C
10 – 50 – 250 kA	10 kA	ON	OFF	OFF	A
	50 kA	OFF	ON	OFF	B
	250 kA	OFF	OFF	ON	C

DC OUTPUT RESPONSE TIME SELECTION



WARNING!

The dip-switch 4 allows to select the response time only for DC output (optional). The following table shows the response time selection.

SWITCH 4 SELECTION	RESPONSE TIME
ON	150 ms
OFF	50 ms

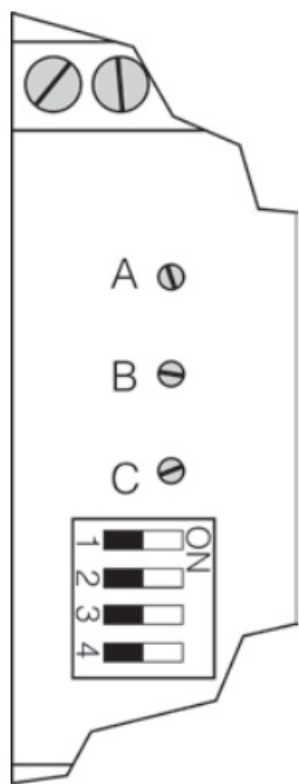
CALIBRATION



WARNING!

The RPS50 is factory calibrated for best measurement performance. However, it is possible to perform a customized calibration of each measuring scale if needed.

The following picture shows the three calibration trimmers with the relevant fullscale values described in the table (full scale values expressed in kA). Carry out the calibration following the indications relevant to the own instrument fullscale (1, 2 or 3).



		FULLSCALE		
		A	B	C
RANGE	1	0.5	2.5	10
	2	2.5	10	50
	3	10	50	250

TECHNICAL SPECIFICATIONS

POWER SUPPLY			
<u>Rated Voltage</u>	<u>80...250 Vac 50/60 Hz</u>		
Consumption	1.5 VA max		
ELECTRICAL CHARACTERISTICS			
<u>Input</u>	<u>no. 1 for Rogowski coil</u>		

<u>Input level (RMS) (1)</u>	<u>100 mV / 1 kA @ 50 Hz, other values on request</u>		
Output 1	1 Vrms (max crest factor 4.5)		
3 Vrms (max crest factor 1.5)			
<u>other values on request</u>			
<u>Output 1 permissible load</u>	<u>>10 kOhm</u>		
<u>Output 2 (optional)</u>	<u>0...20 mA, 4...20 mA, 0...1 V or 0...10 V on request</u>		
<u>Output 2 DC voltage load</u>	<u>>100 kOhm</u>		
<u>Output 2 DC current load</u>	<u>£ 300 Ohm</u>		
Available full scales	1) A: 0.5kA	B: 2.5kA	C: 10kA
(on request)	2) A: 2.5kA	B: 10kA	C: 50kA
<u>3) A: 10kA</u>		<u>B: 50kA</u>	<u>C: 250k</u>
Accuracy (2)	better than ±1% of full scale		
ENVIRONMENTAL CONDITIONS			
<u>Operating temperature</u>	<u>from -10°C to +50°C (from +14°F to +122°F)</u>		
<u>Storage temperature</u>	<u>from -25°C to +70°C (from -13°F to +158°F)</u>		
Relative humidity	80% max. without condensation		
MECHANICAL CHARACTERISTICS			
<u>Material</u>	<u>plastic enclosure</u>		
<u>Protection degree</u>	<u>IP20</u>		

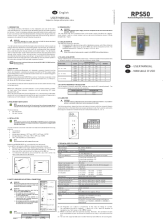
Size / Weight	115 x 100 x 23 mm / approx. 117 gr		
STANDARDS COMPLIANCE			
Safety	73/23/EEC and 93/68/EEC directives, <u>EN61010.1 safety standard</u>		
EMC	89/366/EEC directive and following modifications 93/31/EEC and 93/68/EEC, EN50081-2, EN50082-2, <u>EN61326/A1</u>		

- (1) The Rogowski coil output is proportional to the rate of change of current. The calculation formula is: $\text{AmpereRMS} \times \text{Hertz} \times K \times 10^{-6}$, where K depends on manufacturing. The K value is 2 for 100mV models.
- (2) RPS50 is delivered with the specified accuracy. Moreover, the calibration of each scale is adjustable by user to achieve the maximum accuracy in conjunction with the coil.
- (3) The low limit is approximate and it is determined by noise effect on very low signals.

RPS50

Multiscale Rogowski Coil Adapter

Documents / Resources

	<p>algodue RPS50 Multiscale Rogowski Coil Adapter [pdf] User Manual</p> <p>RPS50, RPS50 Multiscale Rogowski Coil Adapter, Multiscale Rogowski Coil Adapter, Rogowski Coil Adapter, Coil Adapter, Adapter</p>
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