

# ECO ALARM

## INSTALLATION INSTRUCTIONS

### COPYRIGHT

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### WARRANTY

This product is covered by a warranty against material and manufacturing defects for a period of 24 months period from the manufacturing date.  
The warranty does not cover the defects that are due to:

- Negligent and improper use
- Failures caused by atmospheric hazards
- Acts of vandalism
- Wear out of materials
- Firmware upgrades

Akse reserves the right, at its discretion, to repair or substitute the faulty products

The warranty is not applicable to the products that will result defective in consequence of a negligent and improper use or an operating procedure not contemplated in this manual.

### RETURN AND REPAIR FORMALITIES

Akse accepts the return of instruments for repair only when authorized in advance. The transport costs are at customer charge.

### RE-SHIPING OF REPAIRED PRODUCT

The terms for re-shipment of repaired products are ex-works, i.e. the transport costs are at customer charge.

Products returned as defective but found to be perfectly working by our laboratories, will be charged a flat fee to account for checking and testing time irrespective of the warranty terms.

### SAFETY

This instrument was manufactured and tested in compliance with IEC 61010 CAT III-300V, class 2 standards for operating voltages up to 300 VAC rms phase to neutral.

In order to maintain this condition and to ensure safe operation, the user must comply with the indications and markings contained in the following instructions:

- When the instrument is received, before starting its installation, check that it is intact and no damage occurred during transport.
- Before mounting, ensure that the instrument operating voltages and the mains voltage are compatible then proceed with the installation.
- The instrument power supply needs no earth connection.
- The instrument is not equipped with a power supply fuse; a suitable external protection fuse must be foreseen by the contractor.
- Maintenance and/or repair must be carried out only by qualified, authorized personnel
- If there is ever the suspicion that safe operation is no longer possible, the instrument must be taken out of service and precautions taken against its accidental use.
- Operation is no longer safe when:

- 1) There is clearly visible damage.
- 2) The instrument no longer functions.
- 3) After lengthy storage in unfavorable conditions.
- 4) After serious damage occurred during transport

The instruments must be installed in respect of all the local regulations.

### OPERATOR SAFETY

**Warning:** Failure to observe the following instructions may lead to a serious danger of death.

- During normal operation dangerous voltages can occur on instrument terminals and on voltage and current transformers. Energized voltage and current transformers may generate lethal voltages. Follow carefully the standard safety precautions while carrying out any installation or service operation.
- The terminals of the instrument must not be accessible by the user after the installation. The user should only be allowed to access the instrument front panel where the display is located.
- Do not use the digital outputs for protection functions nor for power limitation functions. The instrument is suitable only for secondary protection functions.
- The instrument must be protected by a breaking device capable of interrupting both the power supply and the measurement terminals. It must be easily reachable by the operator and well identified as instrument cut-off device.
- The instrument and its connections must be carefully protected against short-circuit.

**Precautions:** Failure to respect the following instructions may irreversibly damage to the instrument.

- The instrument is equipped with PTC current limiting device but a suitable external protection fuse should be foreseen by the contractor.
- The outputs and the options operate at low voltage level; they cannot be powered by any unspecified external voltage.
- The application of currents not compatible with the current inputs levels will damage to the instrument.

Further documentation may be downloaded from our web site [www.electrex.it](http://www.electrex.it).

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### DECLARATION OF CONFORMITY

Akse hereby declares that its range of products complies with the following directives EMC 89/336/EEC 73/23CE 93/68 CE and complies with the following product's standard CEI EN 61326 – IEC 61326 CEI EN 61010 – IEC 61010.

The product has been tested in the typical wiring configuration and with peripherals conforming to the EMC directive and the LV directive.

## PROTOCOLLO DI COMUNICAZIONE

Holding Registers				
Address	n° Register	Type	Description	Value
0	1	B	Alarm state	Bit 0 = Alarm state string 1: Bit 1 = Alarm state string 2 Bit 2 = Alarm state string 3 0 = no alarm 1 = alarm
1	1	I	Baudrate serial port RS485	0 = 9600 1 = 19200 2 = 38400 3 = 4800
2	1	I	Low action threshold string 1	from 0 to 65000
3	1	I	High action threshold string 1	from 0 to 65000
4	1	I	Low action threshold string 2	from 0 to 65000
5	1	I	High action threshold string 2	from 0 to 65000
6	1	I	Low action threshold string 3	from 0 to 65000
7	1	I	High action threshold string 3	from 0 to 65000
8	1	I	Action threshold time (s)	from 0 to 1000

INPUT REGISTERS					
Address	n° Register	Type *	Description	Symbol	Unit
0	1	I	Reading AD string 1		
1	1	I	Reading AD string 2		
2	1	I	Reading AD string 3		

\*

F	Float IEEE754
I	Integer
B	Bitmapped

### INSTRUMENT DEFAULT CONFIGURATION

The instrument is configured through the Energy Brain software.

The default configuration settings are the following:

Address 485	27
Baud rate	38400, 8, N, 2

### STARTING SEQUENCE

SEQUENCE	LED STATUS POWER/STATUS
Instrument turned off (Not powered)	○
Turned on / Boot Loader phase begins	☀
SAME LED STATUS FOR 30 SECONDS	
Boot Loader END	☀
During 30 seconds you can connect to the instrument using the default settings. (Baud: 38400, ID 485: 27)	
Correct Booting procedure	☀

### FEMTO - ATTO CONFIGURATION

The following table shows the primary and secondary (VT) values to be used for configuring the Atto/Femto DC/DC 3I instruments.

VOLTAGE INPUTS CONNECTED	PRIMARY	SECONDARY
1	923	300
2	967	300
3	1011	300
4	1055	300
5	1099	300
6	1143	300
7	1187	300
8	1231	300
9	1275	300
10	1319	300
11	1363	300
12	1407	300
13	1451	300
14	1495	300
15	1539	300

### MECHANICAL CHARACTERISTICS

Enclosure	Self-extinguishing plastic material class V0
Protection degree	IP40 on front panel
Dimensions	70 x 90 x 58 mm (4 DIN modules)
VOLTAGE INPUT	
Direct insertion	up to 900 VDC
Input impedance VDC	300 kOhm
Input VDC	NOT INSULATED
Aux. power supply	230/240Vac +/- 10% 50/60Hz
Self consumption	< 3VA
MODELS	
PFAT401-02	ATTO D4 DC ECOALARM RS485 900V/300V
PFAT4G1-02	ATTO D4 DC ECOALARM 6I RS485 900V/300V

## CONNECTION

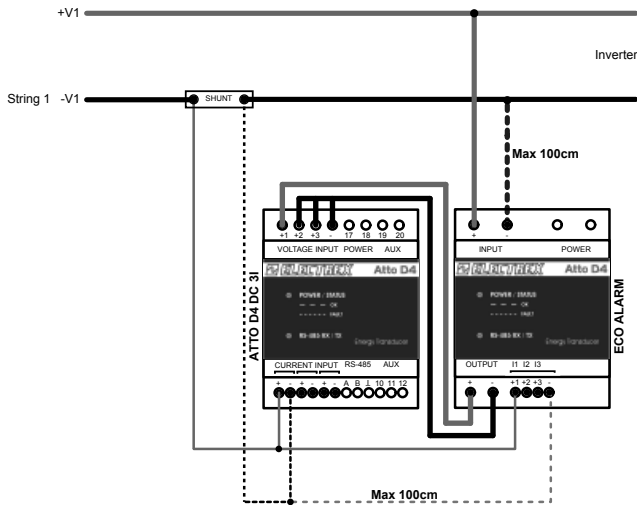
### Voltage connection:

Use cables with max cross-section of 2,5 mm<sup>2</sup> if stranded 4 mm<sup>2</sup> if rigid and connect them to the terminals marked INPUT/OUTPUT on the instrument according to the applicable diagrams that follow.

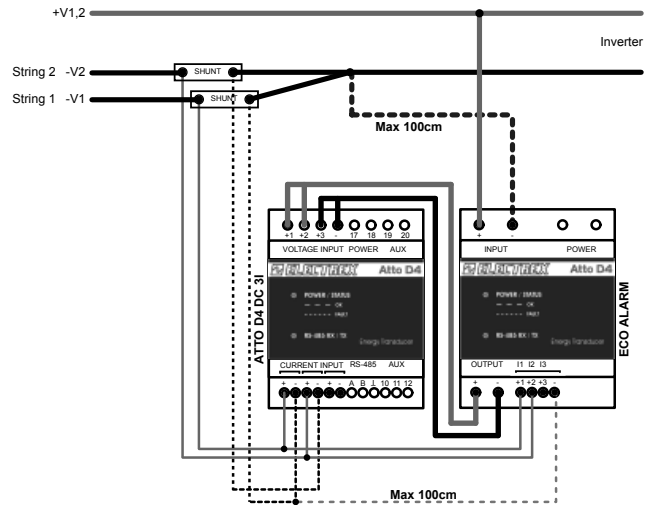
### Current connection:

Connect the amperometric signal upcoming from the SHUNT to the terminals signed I1, I2, I3, (current input) as shown in the diagram here below. Use cables with max cross-section of 2,5 mm<sup>2</sup> if stranded 4 mm<sup>2</sup> if rigid.

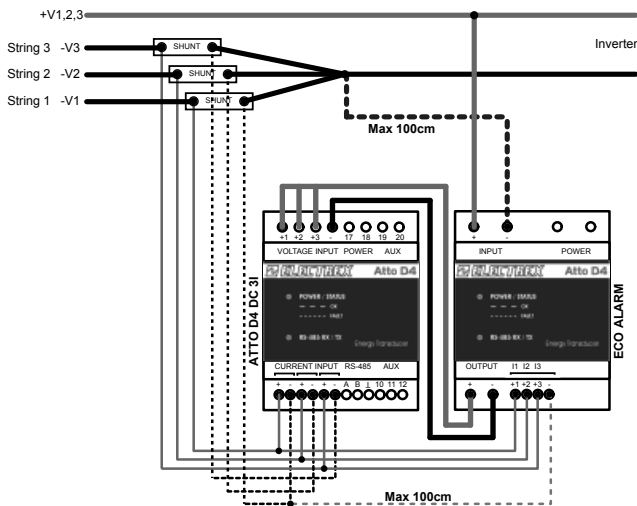
#### 1 STRING



#### 2 STRINGS



#### 3 STRINGS



### ATTENTION

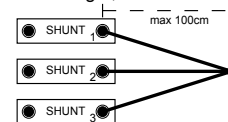
The shunt's resistance has a range of mohm, here below you can find some resistance values related to different models of shunts.

PRIMARY (A)	SECONDARY (mV)	RESISTANCE(mohm)
5	60	12
10	60	6
25	60	2,4
100	100	1

The length of the connections and the serial insertion of protection devices (fuses, switchers, etc.), can distort the measurement results.

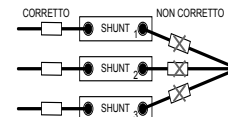
### PRECAUTIONS FOR NOT ALTERING THE MEASUREMENTS

- 1) The wire's length from the shunt's output terminal (1,2,3) to the junction point (4) must be the shortest possible (lower than 100cm);
- 2) The wires should have the same length;

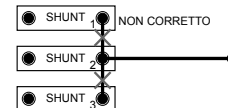


- 3) The shunt and the instrument should be installed, preferably, within the same or in adjacent panels.
- 4) Important:
  - Do not insert fuses in the shunt's output: the fuse has a resistance and it is not the same for all the fuses;
  - Do not insert breakers in the shunt's output: the contact surface of the breaker generates a resistance;
  - Do not insert diodes in the shunt's output;

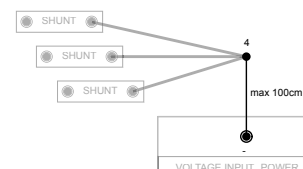
The presence of fuses, breakers or diodes before the input of the shunt does not generate measurement distortion.



- 5) Do not make any bridge connection on the shunt outputs. In the example here below the resistance between the points 1-4 and 3-4 results higher than the one between the points 2-4, because the bridge's resistances is added too.

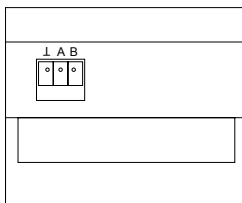


- 6) The wire's length from the point (4) and the "-" input of the instrument must not be higher than 100cm.



- 7) The shunts must be connected on the negative pole.

### RS 485 CONNECTION



### POWER SUPPLY

The instrument is fitted with a separate power supply. Use cables with max cross-section of 2,5 mm<sup>2</sup> if stranded, 4 mm<sup>2</sup> if rigid.

