



## Operating Instructions Energy Monitor



These operating instructions belong to this product. They contain important information for operation and handling. They must be observed, even if the product is passed on to a third party. In this regard, keep these operating instructions for future reference.

### 1. Introduction

With the Energy Monitor, you have acquired a measurement device created according to the most current state of the art. You are now able to determine power costs of your power loads in the easiest way. The Energy Monitor meets with the safety and corresponds with the requirements of valid European and national guidelines. The conformity was proven and the corresponding declarations are available from the manufacturer. In order to maintain this condition and ensure safe operation, you as the user have to observe this operating manual.

### 2. Operation

The measurement range of the energy Monitor extends from 50 to 3000W. If values fall below or exceed these limit values, exact measurements are no longer possible. Also the device could be overloaded and thereby destroyed.

The Energy Monitor has been developed for monitoring and measuring electrical loads.

Although the Energy Monitor is very accurate, it is not officially certified for usage by power companies and users for measuring power expenditures.

The Energy Monitor is only certified for operation at 230V AC. The maximum power of any connected load may not exceed 3000W (max. current 13A).

Operation of the Energy Monitor is only permitted in interior spaces and dry environments. Usage in the open air is strictly forbidden. Always observe the declarations on the identification labels of connected power loads.

Another use than the one described above leads to damages to the product and is also associated with dangers like short circuit, fire, electric shock, etc. The entire product may not be converted or modified. The safety instructions must be strictly observed.

### 3. Safety instructions

We will not assume any liability for damages to items or persons caused by improper handling or non-compliance with the safety notices. Any warranty claim will become null and void in such cases.

It must be observed that the conductive ground wire is not broken as this can pose a lethal danger in the event of a malfunction.

This device is not a toy and does not belong in the hands of children.

Only connect the Energy Monitor to certified protected contact outlets 230V AC/50Hz (10/16A) with a ground wire.

The connected load may not exceed 3000W (13A).

The recommended operation temperature is between +10 and +40°C. High temperatures, especially during measurement of large power loads, lead to danger of overheating and can thereby permanently destroy the Energy Monitor.

Avoid operating under adverse environmental temperatures and near flammable gases, vapours and dust.

For reasons of safety, never allow the device to be operated when wet or in a damp environment.

When cleaning or servicing, the device must be disconnected from every source of operation voltage.

Condensers in the device may still be charged, even if the device was disconnected from all voltage sources.

In schools, training facilities, hobby and self-help workshops, qualified personnel must supervise the operation of measurement units.

In commercial institutions, make sure you observe the accident prevention regulations of the commercial trade organization for electric installations.

Do not insert needles, metals or any other objects into the device.

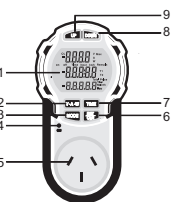
If it has been ascertained that safe operation is no longer possible, take the device out of operation and secure it against accidental reactivation. It can be ascertained that safe operation is no longer possible if the device shows visible damage, no longer works correctly, has been stored for a long period under unfavourable conditions or has been placed under heavy stresses in transport.

If the long time does not use, please take the Energy Monitor internal batteries preservation in the dry place.

### 4. Front Panel Description

- 1-LCD display
- 2-V(AC Voltage), A(AC Current), W (Watt) Select button
- 3-MODE/Power on button
- 4-230V AC supply power indication
- 5-Load power plug
- 6-SET/CLR(Reset)/exit button
- 7-TIME display button
- 8-Set DOWN button
- 9-Set UP button

Note: Tilt battery compartment are on rear of unit.



### 5. LCD Display

1. The above figure shows the actual voltage, current, active power values of current meter. (as follows)



2. Middle figure show the time of the electric energy meter billing (current time, T1, T2's time) and general energy consumption (as follows)



3. The following figures are used to display current total electricity billing and price setting, and can be budgeted the total cost by every day, every month, year. (as follows)



### 6. Properties

- Monitoring of voltage, current, active power display Max value recording of voltage, current, active power.
- Display of used energy and accrued power costs.
- Cost forecast.

### 7. Connection, operation settings

Before you connect the Energy Monitor to an outlet or power load, the desired power tariff must be set.

Note: when has not turned on the AC230V electric power supply, presses MODE key to be possible starting to carry on the function establishment.

### A. Display of supply voltage, load current, load active power values.

• Immediately after the Energy Monitor is plugged into an outlet, the supply voltage, load active power and present current consumption of the connected loads is displayed in the LCD.

• Press the "V.A.W" button select to display of supply voltage, load current, load active power values.

• When supply voltage > 250V AC; Load current > 13A; Load active power > 3000W, LCD will display "OL" and flash alarm.



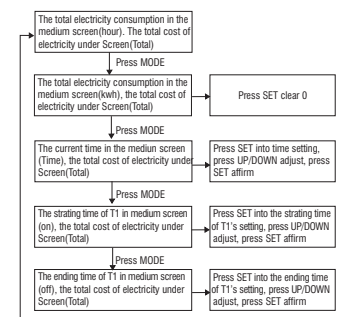
### B. Display current time setting

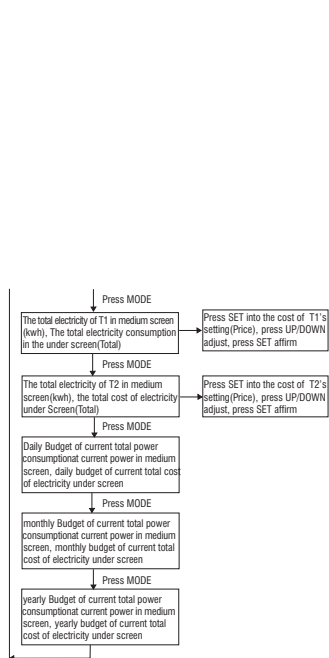
- Press "TIME" button into current time mode.
- Press "SET/CLR" button into setting mode, "Hour" or "Minute" digital will flash display.
- When "Hour" or "Minute" digital will flash display, press "UP" or "DOWN" button setting time.
- Again press "SET/CLR" button the Energy Monitor into normal display current time, when "Hour" or "Minute" digital will Static display.

### C. Display the electricity consumption of electric energy billing explorer and the setting of time and billing.

- Press MODE button between LCD display on and hour.
- Press MODE button between LCD display on and kwh, that mean the total power consumption; at this time press the SET/CLR key will clear all data.
- Press MODE button between LCD display Time, mean the time of current total power consumption; at this time press the SET/CLR button to set the starting point of electricity time.
- Press MODE button between LCD display display T1 and Time, mean the start time of T1, now press the SET/CLR button to set the starting point of T1 electricity time.
- Press MODE button between LCD display display off, T1 and Time, express the end of time of T1, now press the SET/CLR key to set the starting point of T2 electricity time.
- Press MODE button between LCD display display on, T1 and kwh, mean the electricity consumption of period T1, now press the SET/CLR key to set the Price of Electricity of T1.
- Press MODE button LCD between display on, T2, that means power consumption of T2, now press the SET/CLR button to set the electricity price of T2 time.

- Press MODE button between and following LCD screen display kwh and Day, show that according to the unit price you setting you can budget total cost of electricity by day.
- Press MODE button between and following LCD screen display kwh and Month, show that according to the unit price you setting you can budget total cost of electricity by month.
- Press MODE button between and following LCD screen display kwh and Year, show that according to the unit price you setting you can budget total cost of electricity by year.
- The specific set ways as follows:





### 8. Replacing the battery

When the LCD loses contrast, immediately replace the battery of the device. The Energy Monitor requires two 1.5V "AAA" batteries. For replacing the battery, proceed as follows:

- Turn the screw of the battery compartment and remove the battery compartment.
- Remove the used battery from the Energy Monitor and replace it with two new 1.5V "AAA" batteries. Observe correct polarity when inserting the battery.
- Replace the battery compartment cover and refasten the screw.

### 9. Additional notes

The connected loads should be operated as normal when producing the cost forecast if an exact cost forecast is to be made per week/month/year for a power load, we recommend leaving the energy monitor connected to the load for at least one day. The energy monitor can thereby calculate an average power/load and accrued costs more accurately. The longer the Energy Monitor is connected, the more accurate is the cost forecast.

The power supply on a power net is never constant and varies from place to place. For example, a voltage fluctuation of 1% per second for a calculated cost forecast over 5 minutes will never be as accurate as a cost forecast taken 3 hours.

Some devices use more current than others immediately after switching on. The current usage decreases the longer the device is used (warm-up phase).

### 10. Maintenance

- Regularly inspect the Energy Monitor for damage.
- For cleaning the device and LCD, only use a dry, soft cloth. Do not use any cleaning solutions.
- Never immerse the device in water.
- Maintenance or repairs may only be performed by a technician familiar with associated regulations.

### Technical data

<b>Operating voltage</b>	230V AC/50Hz alternating voltage(AC) 3000W(3kW)
<b>Max. connected power</b>	3A
<b>Max. current</b>	Via protected contact plug/outlet Blinking display at approx. 3000W Caution More than 3000W will destroy the device.
<b>Input/Output</b>	
<b>Overrun display</b>	
<b>Tolerance</b>	±1%±1W typical(max. ±2% and ±2W for Measurements up to 2500W; max. ±4% for measurements over 2500W) 10 to 40°C
<b>Working temperature</b>	
<b>Battery type</b>	two "1.5V (AAA)" batteries.
<b>Auto power off</b>	When has not turned on 230V AC power supply, the Energy Monitor appliance automatic close-down's time probably is 5 seconds
<b>Tariff setting range</b>	0.01 to 99.99
<b>Power load display</b>	1 to 3000 kwh
<b>Voltage measurement</b>	1V
<b>Current measurement</b>	0.01A

<b>Active and apparent power</b>	1W
<b>Energy(kwh)and costs(Total)</b>	0.01
<b>Dimensions(L x W x H)</b>	approx.140×72×43mm
<b>Weight</b>	214g

### 11. Liability exclusion

- Manufacturers and distributors take no responsibility for incorrect measurement values or the results of such values.
- This product may not be used for medical purposes or published information.
- This device has been developed as an indicator for current usage and energy costs. Despite the high accuracy of the device, it is not to be used official calculation between power providers and users.
- The technical data of the device can be changed without prior notice.
- The product is not a toy-keep it away from children.
- These instruction or declarations may only be reproduced with the permission of the manufacturer.



Rev.090630