

FMG

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Home Energy Monitor

MODEL:SE302

User Manual

Home Energy Monitor

Model: SE302

User Manual

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Introduction

Welcome to the world of Home Energy Monitor! A world where energy usage is visible and controllable. Your device Home Energy Monitor delivers this world to you. The Home Energy Monitor is an elegant and simple in-home display that places easy to understand energy usage information at your fingertips. The Home Energy Monitor makes reducing energy waste, saving money and leading a green lifestyle easy and fun.

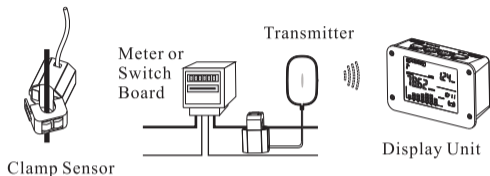
For your protection, please read the overview, installation and safety sections before installing the device. Please carefully observe all warnings, precautions and instructions on the device.

Features

- Display of current and cumulative energy usage, cost and CO2 emissions
- Display of hourly, daily, weekly and monthly energy usage data
- Graphical display of historical energy consumption data
- Time and date information
- Alarm to notify high energy use
- Two years of historical data storage
- Single and dual tariff rates
- One, two and three phase support
- Low battery indicator and backlit display

Overview

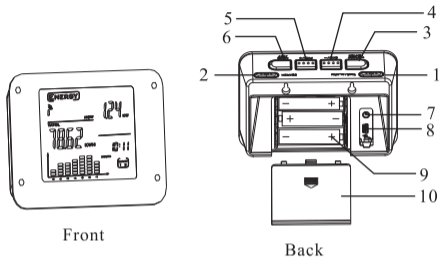
System



The Home Energy Monitor consists of an elegant in-home display and a companion transmitter. The transmitter is a battery operated measurement unit that uses its accompanying sensors to measure the electricity flowing into the home. The sensors are clipped around the incoming power wires found on the home circuit panel (This operation should be performed by a licensed electrician or a professional installer. Consult your retailer for more information).

The transmitter makes continuous measurements of the sensor. These measurements that relate to the electricity flowing into the home are transmitted periodically to the display.

Display Unit

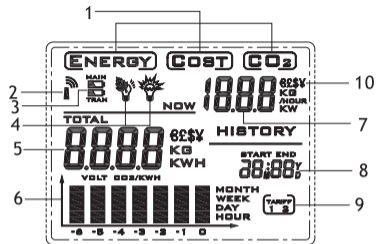


Front

Back

- 1----**TIME/ALAM**: Setting time and alarm
- 2----**SARCH**: Searching wireless signals
- 3----**HISTORY/ENTER**: Inquiry history data and enter confirmation
- 4----**BWD/-**: Check last data/ number minus 1
- 5----**FWD/+**: Check next data/ number plus 1
- 6----**MODE/SET**: Setting modes and parameters
- 7----**DC** socket
- 8----**USB** socket
- 9----**3×AAA 1.5V battery**
- 10----**Battery cover**

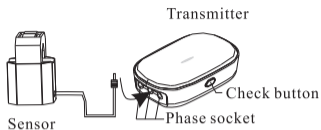
Display Details



LCD Display

- 1-- Display mode: Energy/Cost/CO2 emission
- 2-- Signal link indicator
- 3-- Low Battery indicators
- 4-- Alarm icons
- 5-- Current/historical Energy consumption/ cost / CO2 Emission data
- 6-- Histogram of Energy/ Cost/ CO₂ Emissions
- 7-- Display current Energy consumption/ cost / CO2 Emission data
- 8-- Clock & Calendar
- 9-- Tariff rates
- 10-- Currency

Transmitter and Sensor



The sensors are clipped around the insulated incoming power cables. Most household electricity supplies use single phase. But some use two or three phases. There are typically two cables in a US home. The sensors are connected to the sockets on the Transmitter as seen in the diagram. This operation should be done by a licensed electrician or a professional installer. Consult your retailer for more information.

Installation

—Install clamp sensor

The following installation instructions are for a licensed electricians or a professional installer.

1. Remove Circuit Breaker panel cover
2. A typical home has three lines phase A, phase B, and a neutral. Locate phase A and phase B lines. Push downwards on the sensor latch to open it. Place the opened sensor

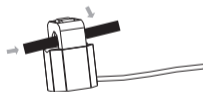
around the Phase A wire. Close the sensor and ensure that the latch is locked. Do the same for the Phase B wire with the second sensor. Do not place a sensor on the neutral wire. This will cause an incorrect reading. Ensure that both sensors are locked firmly around the wires.

3. Plug the other end of the sensors from phase A and phase B lines into two consecutive slots on the transmitter unit. There will be one empty slot. Place a cap around the empty slot.

4. Hang the transmitter on the wall (use slot at the back) or place it down on a level surface. Make sure it is secure and not exposed to extreme temperature, rain, snow, high humidity or vibrations.



Placed the open sensor around the incoming Power wire



Close the sensor. The sensor is secured when a 'click' is heard.

—Register transmitter

- Remove the battery cover from the back of the transmitter and display unit.
- Firstly insert AA batteries into display unit and then AA batteries into transmitter
- If LED light of transmitter turn on, quickly press and hold “SEARCH” key of display unit.
- When The LED light of transmitter flashes 5 times, the transmitter is registered successfully by display unit

Operating Guide

Setting time and date

- Press the ‘**TIME**’ button and hold for 2 seconds. The last two digits of year flashes. Press the **FWD /BWD** button to set the current year.



- Press ‘**TIME**’ button again to set the **month**. Use **FWD /BWD** button to set the correct month.



- Press ‘**TIME**’ button again to set the **day**. Use **FWD /BWD** button to set the correct day



- Press ‘**TIME**’ button again to set the **hour**. Use **FWD/BWD** button to set the correct hours in 24 hours format



- Press ‘**TIME**’ button again to activate the **minutes**. Use **FWD/BWD** button to set the correct value.



- Press ‘**TIME**’ button to get back to the default screen. Press ‘**ENTER**’ button at anytime to save settings instantly and return to the default screen. If the display detects no actions within 60 seconds, the settings will be saved automatically and the default screen will be shown.

Advanced setting

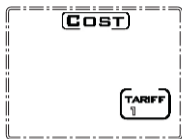
- Press ‘**MODE**’ button and hold for 2 seconds to set the ‘**voltage**’. While ‘220’ flashing, use **FWD/BWD** buttons to adjust the voltage. The voltage should be in the range of 110 — 132 Volts for the US; 200--240 volts for most countries.



- Press ‘**MODE**’ button again to set the “**currency unit**”. Default “€” will be flashing, Use **FWD/BWD** buttons to choose the \$ currency symbol



- Press ‘**MODE**’ button again to set the “**tariff**”. Default “**TARIFF1**” will be flashing, Use **FWD** /**BWD** buttons into “**TARIFF2**” for using two tariff standards.



- If “**TARIFF2**” is selected in the last step, press ‘**MODE**’ button again to set the **start time** for **TARIFF2**. Use **BWD**/**FWD** buttons to set the hours and press **MODE** button to save and move to minute set up. Set minutes using **BWD**/**FWD** and press **MODE** Button to confirm. Repeat the process for setting **end time**.



- Press ‘**MODE**’ button again to set **tariff2 standard**, when numbers ‘0.145’ flashing, use **FWD** /**BWD** button to set, Press and hold **FWD**/**BWD** button to increase the number quickly from 0.05 to 9.95.



- If you have not chosen “**TARIFF2**”, the above step will be skipped.
- Press ‘**MODE**’ button again to set **tariff1**, the number “0.125” flashing, Pressing **FWD** /**BWD** button, the number will increase/reduce .

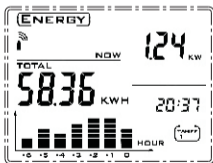


- Press ‘**MODE**’ button again to set **CO₂emission**. The number “0.449” (kg/kwh) flashing, Press **FWD /BWD** button to set.

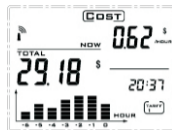


Current and Cumulative Energy Consumption, Cost,CO2

- Default screen shows the current and cumulative usage in kW and kWh



- Press ‘**MODE**’ button to see the ‘**COST**’ display. Current and cumulative cost



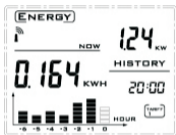
- Press ‘**MODE**’ button again to see the “**CO₂”** display. Current and cumulative emissions



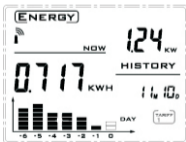
- Time and date display (in the lower right screen) toggles every 10 seconds. The histogram in the left screen indicates the usage of energy in last 7 hours.
- Press ‘**MODE**’ button once again to return to current ENERGY display.

How to view historical data

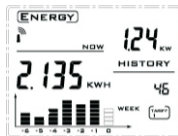
- Press ‘**HISTORY**’ button to see the hour historical data denoted by “**per hour**” display. Use **BWD/FWD** button to look up the usage of energy for last 7 hours. The corresponding block in histogram will flash.



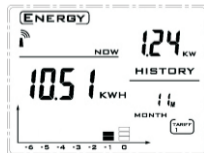
- Press ‘**HISTORY**’ button again to see the day historical data denoted by “**per day**” display. Use **BWD/FWD** button to look up the usage of energy for last 7 days. The corresponding block in histogram will flash.



- Press ‘**HISTORY**’ button again to see the week historical data denoted by “**per week**” display. Use **BWD/FWD** button to look up the usage of energy for last 7 weeks. The corresponding block in histogram will flash.



- Press ‘**HISTORY**’ button again to view the month historical data denoted by “**per month**” display. Use **BWD/FWD** button to look up the usage of energy for last 24 months. The histogram shows the data for the current and last six months usage and the corresponding block in histogram will flash.



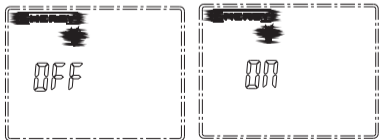
- Press ‘**MODE**’ button to switch among **ENERGY/COST/CO2** modes



- Press “**HISTORY**” button once again back to normal display.

Alarm

- Press ‘**TIME/ALARM**’ button to set the **alarm**. “**OFF**” flashing indicates that the alarm function is off, press **FWD/BWD** button to switch on the alarm.



- Press ‘**TIME/ALARM**’ button again to set maximum daily usage, use **FWD/BWD** button to adjust the threshold value.



- Press ‘**TIME/ALARM**’ button again will back to normal display with a leaf symbol in the screen. The alarm is activated.



- The alarm will activate(if enabled) if the threshold is passed. The display screen flashes for approximately 10 seconds. A “beep” sound will also be made.. After the 10 seconds, the leaf icon will change into a light bulb icon. The light bulb icon will remain on the screen for 24 hours or until a button is pressed.

Miscellaneous Functions

◆ Clearing data

• Cumulative Energy Usage Data

The cumulative energy usage data is stored in the transmitter. First, remove the transmitter battery and press the **CHECK** button. While the **CHECK** button is being pressed, re-insert the batteries. A red-color LED button will appear. Release the **CHECK** button when this light disappears. The LED will flash five times to confirm the clearing of the cumulative energy usage data. This action will also lead to the resetting of the cumulative energy usage values shown on the display.

• Clear Historical Data

Press and hold "HISTORY" key on the display unit until you hear "Bi Bi Bi" sound



• Change Transmitter

When you change new transmitter, please re-register transmitter.

• Increase update frequency of data

Press "CHECK" button of the transmitter to temporary increase the frequency of updates sent to the display. The update frequency goes back to the default rate after some time.

Important Safeguards

- Sensor installation should be done by a certified electrician or a professional installer. Please contact your retailer for more information.
- The sensor can make accurate measurements up to 70A. If the amperage is larger, an error signal will appear on the display.
- Do not place the transmitter in an open environments exposed to rain, snow or a magnetic field
- Do not place transmitter or display in a vibrating environment.
- The display consists of a LCD panel. Pressure or vibrations may damage to the panel.
- Do not place transmitter or display in a high-temperature environment. (ex near radiators, stoves, heaters etc).
- Do not place transmitter or display in places of high humidity or water (ex. bathroom, etc).
- There are no serviceable parts. Do not attempt to repair. Please contact your retailer in case of a problem.

- **Increase update frequency of data**

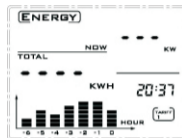
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FAQS

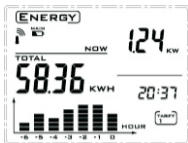
- ◆ **Question 1: " Signal link indicator " and data on screen is disappear**



Answer :

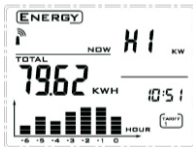
1. Press the CHECK key on the transmitter on the transmitter to increase the transmission rate.
2. Check whether the battery voltage of the receiver and transmitter is too low. If the voltage is low, replace the battery.
3. Check if there is electromagnetic interference nearby, will the receiver move closer to the transmitter.
4. Remove the receiver battery and wait for 10 seconds, and then to install the battery one more..
5. Register transmitter.

◆ Question 2: The battery low icon is on the screen



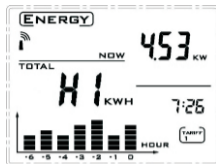
Answer: Please replace new batteries into transmitter or display unit

◆ Question 3: The display unit shows "HI" on top left corner



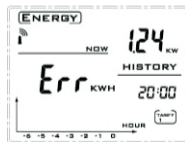
Answer: The voltage has exceeded the measurement range. Reset the transmitter. See Clearing Data section

◆ Question 4: The display unit shows "HI" on left side



Answer: The cumulative energy consumption has exceeded its maximum value of 9999 KWH. The cumulative energy consumption value on the transmitter and display must be reset to 0. See clearing cumulative energy consumption data in the Clearing Data section.

◆ Question 5: The display shows "Err" and the histogram is blank?



Answer: Data cannot be read from the internal memory. Please provide unit back to the retailer.

- ◆ **Question 6: The energy consumption values reported by the Home Energy Monitor is different than that reported on my utility meter?**

Answer:

·The sensors may not be correctly installed.Please re-install the sensors.

·This may be attributed to the home electric power factor that typically ranges between 0.8-1.0. In the ideal case when it is 1.0, all electricity drawn from the utility is used completely by the home appliances. However, in most cases, some degree of electricity (and power) is wasted.To account for the power factor, take two sets of electricity consumption values on consecutive days from the Wireless Energy Monitor and the utility meter. The energy used recorded by the Home Energy Monitor divided by what's reported from the utility meter provides an approximation for the power factor. Now divide the voltage value set (110 Volts or 220 Volts) by this calculated power factor and set it on the display (Press Mode signal to set voltage). Below an example

Date	Wireless Energy Monitor (Kwh)	Utility meter (Kwh)
12/01/10	100	3250
12/02/10	135	3290

12/01- 12/02 consumption reported by
 Wireless Energy Monitor = (135 - 100) KWh = 35 Kwh
 12/01- 12/02 consumption
 reported by Utility meter = (3290 - 3250) KWh = 40 KWh
 Power factor estimate = 35/40 = 0.875
 New Voltage = 110/0.875 = 126 (rounded) Volts
 (Assumed voltage set to 110Volts)
 New Voltage = 220/0.875 = 251 (rounded) Volts
 (Assumed voltage set to 220Volts)

- ◆ **Question 7: The power data on screen shows up to be big or small**

Answer:

- Take off the sensor and replace it.
- Register transmitter

Specifications

Radio frequency: 433.92MHz

Transmission distance: 100m (line of sight)

Power measuring range: 10w ~ 17.5KW (single phase)

Power supply : 6 x AA batteries

Operating temperature: -10°C ~ 60°C

Storage temperature: -20 °C~ 75°C

Packing List

Display unit: 1pc

Transmitter: 1pc

Sensors: 1pc or 3pcs

User Manual: 1pc

Energy Efficiency Guide: 1pc

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