



Wireless Energy Monitor

MODEL:HA102
User manual

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Model: HA102

User Manual

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Introduction

Thank you for purchasing our Wireless Energy Monitor which is designed for both home and small office interest of use. It includes a Display unit, transmitters and sensors. After successful connection, the display unit will show you real-time information on the amount of electricity, cost and carbon emissions. The data is very helpful for you to save energy, reduce carbon emissions and cut spending! Starts use it immediately to reduce carbon emissions to protect our environment!

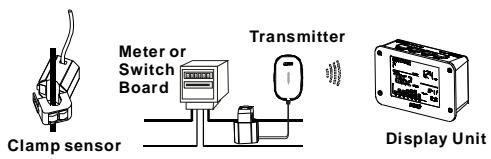
In order to use the Wireless Energy Monitor properly, please read this user manual carefully to operate it. And please take good care of it for future reference. We hope that this manual will enable you to understand and use our products well. If you have encountered any problems, please contact us.

Features

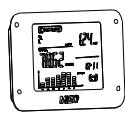
- Displays instant and total power usage, electricity cost and CO₂ emissions
- View hourly, daily, weekly and monthly electricity data
- Historical graphical chart of electricity consumption
- Time view: Clock, day, month and year
- High amount of electricity warning alarm
- Data storage capacity: 2 years
- Valid for single and dual tariff
- Single-phase, dual-phase and three-phase power compatible
- Low battery indicator and backlit display
- Battery life: 1 year
- Wireless transmission distance of 70 meters (without obstacle);
- 5V DC adapter input(optional)
- USB power supply (optional)

Overview

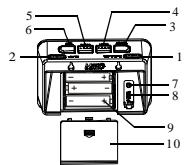
Equipment Distribution



Display unit



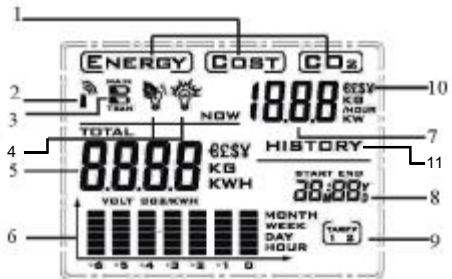
(Front)



(Back)

- 1--- **TIME/ALARM:** Setting time and alarm
- 2--- **SEARCH:** 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 information



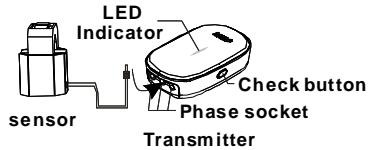
- 1--- Display mode: Energy/Cost/CO₂ emission
- 2--- Receiving signal indicator
- 3--- low Battery indicators
- 4--- Alert icons activated when higher than consumption level set
- 5--- Accumulative ENERGY/ COST / CO₂ Emission data
- 6--- The histogram of Energy/ Cost/ CO₂

Emissions for last seven months, weeks/ days/hours.

- 7--- ENERGY/ COST / CO₂ Emission
- 8--- Clock & Calendar
- 9--- Cost tariff rate
- 10--- Money currencies
- 11---HISTORY means historical data in view

Transmitter and Sensor

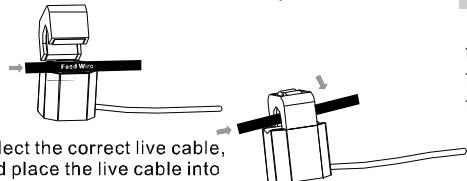
The sensor is clipped around the incoming supply cable, usually near the meter. Then plug the sensor into the transmitter unit and information will be sent wirelessly to the display unit.



Installation

Find power cable and install sensor: most household electricity supplies use single-phase, but also some use three phases.

Clips the sensor around the insulated live cable running into the meter or switch board to the consumer unit. For three phase supplies our Wireless transmitter is required with extra two sensors connected to the other two phases of lines. 3 sensor are necessary.



Select the correct live cable, and place the live cable into the top of the sensor.

Close the sensor.
The sensor is secure
when a click is heard.

Replace batteries

- Remove the battery cover from the back of the transmitter or display unit.
- Insert AA batteries into the battery compartment ensuring that the polarities of batteries are correct.
- Replace the battery cover of the transmitter and display unit.

Link display unit and transmitter

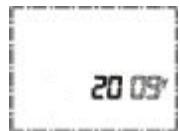
Press the ‘SEARCH’ button of display unit for 2s and the ‘CHECK’ button of transmitter, the display unit will receive the signal from transmitter.

Operating Guide

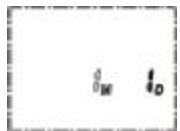
Setting time and date

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

button to increase/reduce number, hold the **FWD /BWD** buttons the number will increase/reduce quickly.



• Press ‘**TIME**’ button again to set the **month**. When the number of **month** flashes, Press the **FWD /BWD** button to set.



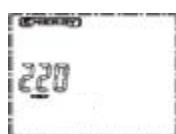
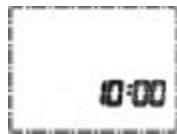
• Press ‘**TIME**’ button again to set the **day**. The number of day flashes, Press the **FWD /BWD** button to set.



• Press ‘**TIME**’ button again to set the **hour**. The number of hour flashes, Press the **FWD /BWD** button to set hours in 24 hours format.

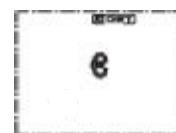


- Press ‘TIME’ button again to activate the **minute** number. The number of minute flashes, Press the **FWD/BWD** button to set.
- seconds to set the ‘**voltage**’ . While ‘220’ flashing, press **FWD/BWD** buttons to adjust the voltage.



- Press ‘TIME’ button back to normal display
- Press ‘ENTER’ button at anytime to save settings instantly and return to normal display.
- If the display unit detects no actions in 60 seconds, the settings will be saved automatically and return to normal display.

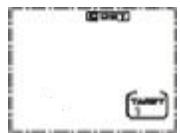
- Press ‘MODE’ button again to set the ‘**currency unit**’ . ‘€’ flashing, Press **FWD/BWD** buttons, the currency symbol will change in this order: € → £ → \$ → ¥.



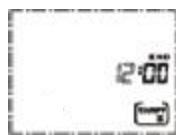
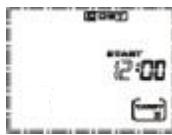
Advanced setting (voltage, currency, tariff, CO2 emission)

- Press ‘MODE’ button and hold for 2

- Press ‘MODE’ button again to set the ‘current tariff’ . ‘TARIFF1’ flashing, Press FWD /BWD buttons into ‘TARIFF2’ for using two tariff standards.

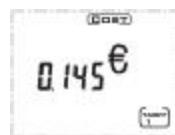


- If chose ‘TARIFF2’ in last step, press ‘MODE’ button again to set the **start time** for TARIFF2. Using **BWD/FWD** Buttons to set the hours and press **MODE** Button to save and move to minute set up. Set minute using **BWD/FWD** and press **MODE** Button to confirm. Repeat the process for setting **end time**.



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- 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 .

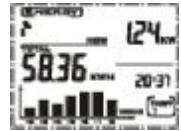


- Press ‘**MODE**’ button again to set **CO2 emission**. The number ‘0.449’ (kg/kwh) flashing, Press **FWD /BWD** button to set .



View instant and accumulative energy, cost, CO2

- In normal display mode, you can view current **Power** (kW) in right screen and accumulated **Energy** (kWh) .



- Press ‘**MODE**’ button to see the ‘**COST**’ display, you can view current cost of electricity per hour in the right screen and accumulated cost since last reset in the right screen.



- Press ‘**MODE**’ button again to see the ‘**CO2**’ display, view current emission of CO2 per hour at the top right corner of the screen and accumulated emissions on the left.



- Date and time display alters every 10 seconds in the lower right screen. The histogram in the lowest 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 shown by ‘**per hour**’ mode, use **BWD/FWD** button to look up the usage of energy for last 7 hours, the corresponding block in chart will flash.



- Press ‘**HISTORY**’ button again to see the historical data shown by “**per day**” mode, 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 historical data shown by “**per week**” mode, 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 historical data shown by ‘per month’ mode. 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, you can view historical data of energy, cost and CO2 emissions.



- Press ‘HISTORY’ button once again back to normal display.

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Switch on or off alarm

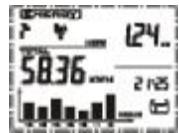
- Press ‘TIME/ALARM’ button to set the alarm . ‘OFF’ flashing indicates that the alarm function is off, press **FWD/BWD** button to switch **on** the alarm..



- Press ‘TIME/ALARM’ button again to set **maximum daily usage**, use **FWD /BWD** button to adjust the number according to your condition. Press and hold **FWD /BWD** button, the number will increase/reduce fast from 0 to 200.



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



- If alarm starts, it will automatically switch to the display interface under ‘ENERGY’ , histogram keeps flashing with the background light and 10 seconds of the alarm sound . Then the leaf icon will change into a light bulb icon. If you did not press any key, the alarm interface will remain 24 hours.

CHECK key on it, and re-insert the batteries, LED lights. When the LED light is off, release the **CHECK** button, then LED flashes five times which means the total storage power has been cleared.

- **Clear historical data**

Clear method: ①. Press both MODE and HISTORY button for 2 seconds to see the following graphics. If you release one of the key, it will not go on to cleanup and return to normal display state automatically;
 ②. If continue to press both keys for 8 seconds, when you hear 'beep' sound, it will start clearance, then you can release the button, clearance will be done.



How to Data Clear

- **Clear the total power data of display unit**
 The total power is stored in the transmitter, remove the transmitter battery, press the

• **Clear ID code of the Display unit**

①. Remove the battery; ②. While pressing both MODE key and SEARCH key, put battery in; ③. To continue to hold down two buttons for three seconds later to hear two consecutive beep sounds, it will finish clearing ID. Release the button, the operation has been done.

• **Update the transmitter ID code:**

Press and hold ‘CHECK’ button on the transmitter, and then replace into the batteries; Continue to press the button to wait it to light on again, and then release the ‘CHECK’ key, the ID code generates randomly. At that time LED flashes 10 times, the ID code has been updated.

• **To view changes of electricity consumption quickly**

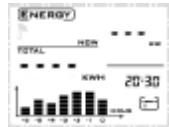
When press ‘CHECK’ button of the transmitter, you can view current power changes quickly.

Notes

- The sensor is installed on the power line, choose correct wire load(do not exceed 70A).
- Do not place the product in the rainy, snowy or magnetic field.
- Do not place the product in the vibrating, extreme low or high-temperature environment.
- Display LCD panel consists of glass. Squeezing or vibration may damage it.
- Keep the product away from heat sources such as radiators, stoves, heaters and so on.
- Do not use products near places of high humidity or too much water such as bathroom, etc..
- Do not attempt to repair it by yourself. If you find any product problems, please contact our retailer or our customer service.

FAQS

- **Question 1: I can not see wireless signal or display data on the screen, does it mean wireless communication unconnected?**



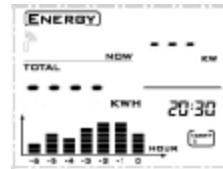
Answer: Please follow the following troubleshooting methods:

1. Hold the SEARCH button for 2 seconds, starts the wireless signal search, this time the antenna symbol  flashes.
2. Press the CHECK button of the transmitter.
3. Check if the display unit and transmitter battery voltage is too low, if the voltage is too low, replace the battery.
4. If there is electromagnetic interference

nearby, move the display unit closer to the transmitter.

5. Remove batteries in the display unit, wait 10 seconds then reinsert the battery.
6. Try to clear the ID code in the display unit, and then remove the transmitter's batteries. After 10 seconds period, re-install them so that the display unit can receive the new ID code from transmitter again.

- **Question 2: There's no data shown on the screen but there's wireless signal flashing.**



Answer: The display unit is searching and receiving for wireless signals.

- **Question 3: There appears low-voltage signal of the display unit or transmitter.**



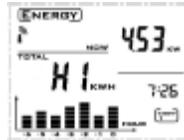
A: The battery is low; please replace the batteries as soon as possible.

- **Question 4: On the upper right corner of the display shows 'HI'**



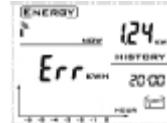
A: That means the current has exceeded measurement range, the sensor should be removed from the electric cable at once.

- **Question 5: On the right of the display shows 'HI'**



A: It means that the value shown has exceeded the maximum value: 9999, because the cumulative total electricity consumption exceeding the maximum value of 9999 can be displayed, the accumulate power value of display unit and transmitter need to be cleared at the same time.

- **Question 6: 'Err' is on the right of screen and the histogram is blank.**



A: It means that the data can't be read from which recorded in the memory chips , there's an internal error in the display unit. It needs to be sent back to the manufacturer for repair.

• Question 7: There's bias between data shown on HA102 display and actual data from power meter.

A: Solution 1: The sensor is not installed correctly; please re-install the sensor clamp on live line.
Solution 2: Considering household electrical power factor is usually 0.8 to 1.0, you can increase or decrease the voltage value when setting the parameter value in order to match the value measured from HA102 with the actual values from power meter.

• Question 8: The total power value from display is sometimes larger or less.

A: Remove the sensor, you will find that the data displaying on the upper right corner of

the data do not indicate '0.00KW' . Solve it by the following methods: Clear and update the ID code of display unit and transmitter, reinstall the battery for the display unit and transmitter.

Electrical Specifications

Frequency: 433.97MHz

Transmission Distance: 70 meters (at sight)

Measuring Range: 10W ~ 17.5KW

Accuracy: $\leq 5\%$

Power Supply: 3 × AA batteries

External Power: 5V DC

USB interface (optional)

Battery Life: 1 year

Operating temperature: -10 °C ~ 60 °C

Storage temperature: -20 °C ~ 75 °C

Packing List

Display Unit 1 pcs
Transmitter 1 pcs
Clamp Sensor 1 to 3 pcs(optional)
User Manual 1 pcs
Energy Efficiency Guide 1 pcs
power adapter 1 pcs (option)
AA batteries 6pcs

Patent No.: 2010292160457

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