

# OWNL™

## Micro Wireless Electricity Monitor

Keep an eye on your  
electricity bills.

Save money and  
the environment.



[theowl.com](http://theowl.com)

## TABLE OF CONTENTS


<b>TABLE OF CONTENTS</b> .....	<b>1</b>
<b>GENERAL SAFETY &amp; CARE GUIDELINES</b> .....	<b>2</b>
<b>HOW THE ONL<sup>®</sup> MICRO WORKS</b> .....	<b>4</b>
Overview .....	4
Household Power Cables And Phase .....	4
Accuracy.....	4
<b>DISPLAY FEATURES</b> .....	<b>5</b>
Display Key Functions .....	5
<b>TRANSMITTER FEATURES</b> .....	<b>6</b>
Transmitter Key Functions .....	6
<b>GETTING STARTED</b> .....	<b>7</b>
What's in the box .....	7
Synchronising the Display and Transmitter .....	7
Connecting the Sensor .....	8
<b>SWITCHING BETWEEN DISPLAY MODES</b> .....	<b>9</b>
<b>SETTING THE COST</b> .....	<b>9</b>
<b>PLACE DISPLAY INTO POWER SAVE MODE</b> .....	<b>10</b>
<b>RESET ACCUMULATED VALUES</b> .....	<b>10</b>
<b>LOW BATTERY WARNING</b> .....	<b>11</b>
<b>HINTS, TIPS &amp; TROUBLESHOOTING</b> .....	<b>12</b>
<b>ONL<sup>®</sup> SPECIFICATIONS</b> .....	<b>12</b>
<b>COMPLIANCE</b> .....	<b>13</b>
<b>WARRANTY</b> .....	<b>14</b>
Limited One Year Warranty .....	14
Warranty Conditions .....	14
<b>RETURNS PROCESS</b> .....	<b>14</b>

## GENERAL SAFETY & CARE GUIDELINES

To ensure that you use your product safely and correctly please read the Warnings & Safety Precautions, Caring for Your Product and the User Manual sections before using this ONL™ Micro Wireless Electricity Monitor.



**WARNINGS**-Please observe the following warning & safety precaution guidelines when setting up and using this product.

-  This product uses Type C current sensor, do not apply around or remove from HAZARDOUS LIVE conductors.
- When fitting the sensor if in any doubt always contact a qualified electrician.**
- Do not immerse the unit in water or other liquids. If you spill liquid over it, dry it immediately with a soft, lint-free cloth.
- Do not use this product where the use of radio frequency products can cause malfunction in the control devices of other equipment ie:- hospitals, aircraft, etc.
- Do not use or store the product in locations that could adversely affect the product such as rain, snow, desert, and magnetic fields.
- Do not subject the unit to excessive force, shock, dust, temperature or humidity.
- The LCD panel behind the display lens is made of glass, and may break if the unit is dropped, impacted or subjected to shock.
- Take special care when handling a damaged Display, as the liquid crystals can be harmful to your health.
- Keep the product away from heat sources ie radiators, stoves, heaters, etc.
- Do not use the product in or near water or in high moisture areas ie Bathroom
- Do not cover the ventilation holes with any items such as newspapers, curtains etc.
- Do not tamper with the units internal components. This invalidates the warranty.
- Do not attempt to repair the product yourself. Contact the retailer or our customer service department if it requires servicing.



- If the equipment used in a manner not specified in this manual, the protection provided by the equipment may be impaired.
- Take care when handling all battery types. Batteries can cause injuries, burns or damage to property if they come into contact with conducting materials, heat, corrosive materials or explosives. Remove the batteries before storing the product for extended periods of time.
- Only use fresh batteries. Do not mix new and old batteries.
- Do not dispose of old batteries as unsorted municipal waste, do so in accordance with your local waste disposal regulations.
- When disposing of this product do so in accordance with your local waste disposal regulations.

## Caring for your product

To ensure you receive the maximum benefit from using this product, please observe the following guidelines.

- Cleaning - Disconnect the sensor and remove batteries from the sender box and Display before cleaning. Use a damp cloth. Do not use liquid or aerosol cleaning agents, benzene, thinners, abrasive or corrosive materials.
- Do not scratch hard objects against the Display as this may cause damage.
- Do not leave discharged batteries in either the display or sender units for any length of time as they may leak and cause corrosion.

**NOTE** The technical specifications for this product and the contents of the user manual are subject to change without notice.

- The contents of this manual may not be reproduced without the permission of the manufacturer.
- Images shown in this manual may differ from the actual display.



## HOW THE OWL MICRO WORKS

### Overview

This measurement category II product uses current transformer sensing technology to detect and monitor a tiny magnetic field around your household electricity power cable. It measures the current (Amps) being used and, by reference to the system voltage, calculates the amount of power being used and the cost. It then transmits this information from the Transmitter wirelessly to the Display on a radio frequency of 433MHz, from up to 30 metres (100 feet) away (unbroken transmission).

**NOTE** The intention of this ONL™ product is primarily as an educational device to aid understanding of the cost of operating electrical appliances in the home. Hence, there is no intention for the ONL™ Micro Wireless Electricity Monitor to replace your accurate electricity revenue meter.

### Household Power Cables And Phase

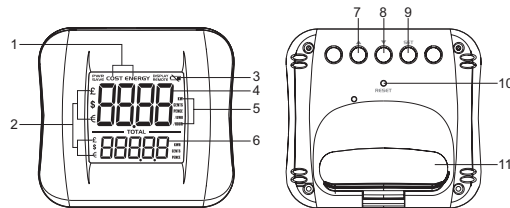
Typical US household electricity supplies standardized at 120V/60Hz are single phase 3 –wire systems, with 2 hot lines and a neutral. The line to neutral voltage is 120V used for general circuits within the household, and a line to line voltage of 240V used for heavy duty applications such as air conditioners, clothes dryers, stoves, ovens, and water heaters.

### Accuracy

The ONL™ Micro Wireless Electricity Monitor has a fixed voltage - 120V and used with the monitoring of current by the sensor clip enables a calculation of KWH. Generally the device is accurate within 10%. The ONL™ Micro Wireless Electricity Monitor is not designed to replace homes electricity meter - they are aimed to provide a very visual and accessible way for users to see the impact of different devices and usage patterns around the home. This we hope will assist in educating users to adopt more beneficial consumption habits, reduce their costs and reduce their carbon emissions.

## DISPLAY FEATURES

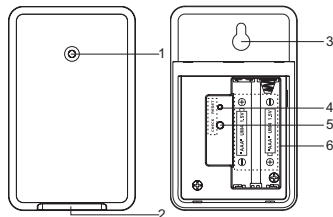
1. Indicates which Display Mode the Monitor is in: **COST / ENERGY**
2. Currency Units for Cost Display Mode
3. Battery low indicator: Display (Monitor) / Remote
4. Display current **COST / ENERGY**
5. Measurement units for Display Modes
6. Accumulative/Historical Data Display
7. [▲] key
8. [▼] key
9. SET key
10. RESET Key
11. Battery compartment



### Display Key Functions

KEY	MODE	ACTION	OPERATION
[SET]	Non SET mode	≥ 2s	Place Display into SET mode → Adjust COST
	SET mode	Pressed	Selects adjusted COST value
[▲]	Non SET mode	Pressed	Change to next display modes: COST → ENERGY → COST
		≥ 2s	Enable sensor searching. Typical search time is ~30secs
[▼]	SET mode	Pressed	Adjusts the COST → Increment
	Non SET mode	Pressed	Change to next display modes: COST → ENERGY → COST
		≥ 2s	Enable/Disable Power Save
	SET mode	Pressed	Adjusts the COST → Decrement
[▲] + [▼]	Non SET mode	≥ 2s	Clear TOTAL COST and TOTAL ENERGY to 0

## TRANSMITTER FEATURES



1. Flashes to indicate data transmitted from Sender Box
2. Sockets for sensors
3. Wall mount hole
4. **RESET** key: Resets the Sender Box and clears all data held in memory
5. **CHECK** key: Forces transmission every 2 seconds (for 30 Seconds)
6. Battery Compartment

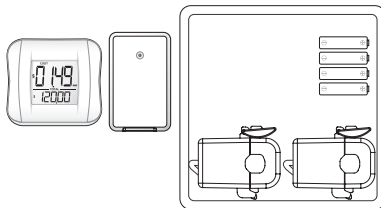
## Transmitter Key Functions

KEY	KEY PRESS	OPERATION
[CHECK]	Press and Hold until Red Light flashes	Places transmitter into increased transmit rate to help speed up synchronisation with Display
[RESET]	Press <2s	Resets the transmitter and allocates new synchronising address

## GETTING STARTED

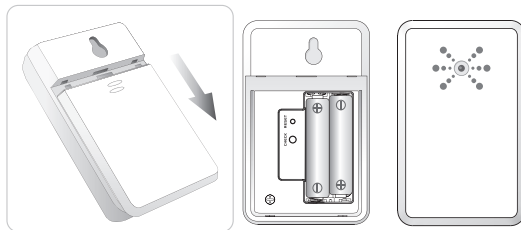
### What's in the box

- Display Unit
- Transmitter unit with attached sensor
- 4x AAA Batteries
- User Manual

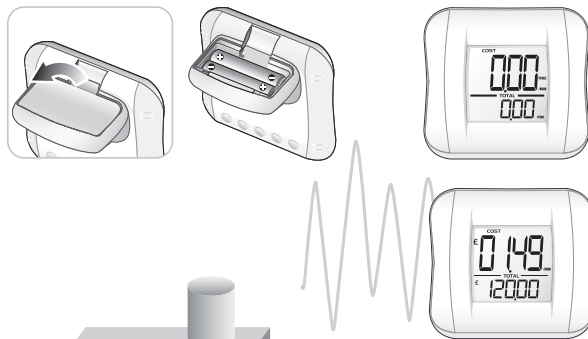


### Synchronising the Display and Transmitter

1. Remove the battery cover from the back of the transmitter
2. Insert 2xAAA batteries into the battery compartment ensuring that the batteries are the correct orientation.
3. Press the reset button in the Transmitter battery compartment.
4. Press and hold the Check key in the Transmitter battery compartment until the Red light starts to flash slowly.

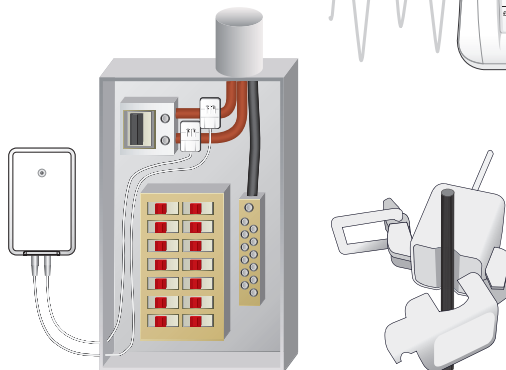


5. Remove the battery cover from the base of the Display.
6. Press and Insert 2xAAA batteries into the battery compartment ensuring that the batteries are the correct orientation.
7. Press the reset button on the back of the Display.
8. Replace the battery cover of the Display
9. Replace the battery cover of the Transmitter



### Connecting the Sensor

1. Sensors must be installed by a qualified/licensed electrician, unless otherwise permitted by country/local regulations.
2. One of the sensors should clip over one of the 2 live Phase cables and the second sensor should be clipped over the remaining live Phase cable.
3. At no time should force or undue pressure be applied to any wiring or connections.
4. Plug the 2 sensor plugs into any of the 3 sockets of the transmitter



## SWITCHING BETWEEN DISPLAY MODES

Electricity use can be viewed in a Cost or Energy Display. Press [▲] or [▼] to switch between the Display Modes.



In the Cost display view current cost of electricity per hour in the upper screen and accumulated cost since last reset in the lower screen.



In the Energy display view current kW in upper screen and accumulated Energy (kWh) since last reset in the lower screen.

## SETTING THE COST

The cost of electricity per hour can be set from 00.00 to 99.99 cents. Press and hold the [SET] key to enable the SET Mode to adjust the cost of electricity per hour (Default 10.00).



The "Main Units" will flash slowly ("10"). Press [▲] and/or [▼] to adjust the cost of electricity per hour "Main Units". Press [SET] to confirm Main Units value. The "Sub Units" will flash slowly ("00"). Press [▲] and/or [▼] to adjust the cost of electricity per hour "Sub Units". Press [SET] to confirm Sub Units value. The cost of electricity per hour has been set and returns back to display mode.

## PLACE DISPLAY INTO POWER SAVE MODE

The display unit has a power save mode to extend the life of the batteries, by changing the receive rate from every 12 seconds to every 60 seconds.

Note that the Transmitter has an auto power save as it transmits every 6 seconds only if there is a change in the electricity usage otherwise transmits every 60 seconds.

Press and hold [ ▼ ] key to place Display into or to take Display out from Power Save Mode.



## RESET ACCUMULATED VALUES

Press and hold [ ▲ ] + [ ▼ ] keys simultaneously for greater than 2 seconds to reset the accumulated cost & energy values to 0.



## LOW BATTERY WARNING

A low battery warning icon will appear in top right hand corner of the display when in either the **COST** or **ENERGY** display modes. This indicates that the batteries in the Display or Transmitter are coming close to the end of their usable life and should be replaced soon.

Replace batteries in the Display unit →



- Remove the battery cover from the base of the Display
- Replace the 2x AAA batteries in the battery compartment with new/ fresh batteries ensuring that the batteries are inserted in the correct orientation.
- Replace the battery cover of the Display
- Press and hold [ ▲ ] key for greater than 2 seconds to place the display into Search mode to resynchronise with the transmitter unit.

Replace batteries in the Transmitter unit →



- Remove the battery cover from the back of the Transmitter
- Replace the 2x AAA batteries in the battery compartment with new/ fresh batteries ensuring that the batteries are inserted in the correct orientation.
- Press and hold the Check key in the Transmitter battery compartment until the Red light starts to flash slowly.
- Replace the battery cover of the Transmitter
- Press and hold [ ▲ ] key for greater than 2 seconds to place the display into Search mode to resynchronise with the transmitter unit.

## HINTS, TIPS & TROUBLESHOOTING

**Cost of Electricity:-** Price per kWh of electricity as shown on your electricity bill.

**Cable Size-** The sensor is suitable to connect over a cable up to 17mm in diameter including the insulation. It is ok for the sensor to be loose over the cable.

**Display is blank:-** Ensure that the batteries are inserted the correct way around and that the batteries are not exhausted. If the batteries are exhausted replace with new batteries. If the display does not return then contact [dg@pdsmn.com](mailto:dg@pdsmn.com).

**Four dashes (----) flashing on the upper part of the Display:-** The Display is in a search mode looking for a Transmitter to synchronise with.

**Four dashes (----) fixed on the upper part of the Display:-** The Display and Transmitter have not synchronised. Repeat the "Synchronising the Display and Transmitter" process in the manual.

**0.00 Reading on the Display:-** The sensor is not able to measure the electricity flow through the Twin/Three Core cables so will return a reading of 0.00 if the sensor is connected over the cable of an appliance.

**0.00 Reading on the Display:** Possible that the Sensor has a damaged Ferrite Core. To check to see if the sensor is damaged, you will need to unclip the sensor from the cable and inspect the Ferrite Core (U-Shaped Black Material) in the sensor lid is still in one piece and that the corresponding faces in the sensor body are in position. If this is damaged then contact [dg@pdsmn.com](mailto:dg@pdsmn.com).

**Lower reading than expected:-** If the cable is a very tight fit for the sensor then it is likely the sensor is unable to be closed properly as in the 2 halves of ferrite core within the sensor do not make a flush contact then the reading will be lower than measured.

## ONL SPECIFICATIONS

Dimensions	Width	Height	Depth	Weight (No Battery)
Display	85mm (3.3in)	78.5mm (3.1in)	19mm (0.7in)	70gm ( 2.5oz)
Sender Unit	56mm (2.2in)	90mm (3.5in)	24mm (0.9in)	50gm (1.8oz)
Sensor	45mm (1.8in)	51mm (2.0in)	30mm (1.2in)	40gm (1.4oz)

Accuracy	<1A	1A to 3A	3A to 71A	>71A
Current RMS	Not Specified	Better than 10%	Better Than 5%	Not Specified

Wireless Link	433MHz Radio Frequency
Wireless Range	30 metres in open area [walls, partitions and electrical appliances may affect reception range]
Display Power Supply	2 x AAA / LR03 / UM-4 1.5V batteries
Sender Box Power Supply	2 x AAA / LR03 / UM-4 1.5V batteries
Operating Temperature	5°C ~ 45°C (41°F ~ 113°F) at 85% relative humidity
Storage Temperature	-5°C ~ 60°C (23°F ~ 140°F) at 85% relative humidity

## COMPLIANCE

Manufactured to ISO-9001 Quality Assurance Standards & tested for compliance relative to configuration for intended market. Product tested by Intertek Testing Services HK Ltd:- European CE, FCC, UL (USA), IC (Canada), C-tick Aus & NZ.

### Declaration of Conformity

Hereby, 2 Save Energy Ltd, declares that the OWL Micro Wireless Monitor (CM130A) is in conformity with Part 15 of the FCC Rules.

#### FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

**WARNING:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## WARRANTY

### Limited One Year Warranty

2 Save Energy Ltd warrant this product for a period of 1 year from date of purchase for all defects in workmanship or materials. All defective parts will be repaired free of charge or replaced.

The following exclusions do not exclude the purchaser from those statutory rights consumers have under the Trade Practices Act or similar State and Territory Laws.

### Warranty Conditions

1. The product must be installed and operated in strict accordance with instructions provided. 2 Save Energy Ltd will not accept liability for any damage or injury caused by mis-use or non-compliance to the instructions.
2. Warranty will only be given where proof of purchase date is provided. Eg Original Invoice/Receipt
3. This instrument must not be modified in any way
4. Batteries are specifically excluded from this Warranty
5. 2 Save Energy Ltd will not be liable for indirect, consequential or incidental damages.
6. 2 Save Energy Ltd reserves the right to change specifications or designs described in this manual without notice or obligation.

## RETURNS PROCESS

Contact [dg@pdsmn.com](mailto:dg@pdsmn.com) to report the issue and reason for wanting to return product. Upon agreement to return the product, Customer Services will allocate a returns reference number that should be used in all correspondence relating to the return. Customer Services will provide a return address to return the product along with Purchaser Name & Address, Supplier Name & Address, and Date of Purchase, which should be sent with the proof of purchase.

## Save Money with the OWL 10-step Plan

Install OWL and reduce your electricity consumption by following our ten-step plan for saving electricity

✓	1) Change light bulbs to energy saving versions
✓	2) Switch off electronic goods such as TV's, videos and games consoles at wall sockets when not in use
✓	3) Remove all telephone chargers from mains when not in use
✓	4) Use tumble dryers less and if possible dry using a washing line
✓	5) Fill washing machines and dish washers to maximum for each cycle
✓	6) Wash clothes on cooler temperatures (ie 40°C → 30°C)
✓	7) Only boil the amount of water necessary when making tea or coffee
✓	8) Put all outside lights on "proximity switches"
✓	9) When changing appliances, ensure that you purchase the best Energy Rating
✓	10) Check your OWL for the background level before going to bed at night



Patents pending, Product tested by  
Intertek Testing Services HK Ltd  
Manufactured by 2 Save Energy Ltd,  
The Annexe, Field House Barn,  
Chineham Lane, Sherborne St John,  
Basingstoke, Hampshire, RG24 9LR