

OWNL[®]

Wireless Energy Monitor

Keep an eye on your electricity bills.

Save money and the environment.



theowl.com

INTRODUCTION

Thank you for selecting the ONL® Wireless Energy Monitor.

Keeping an eye on your electrical usage has never been easier with the new ONL® Wireless Energy Monitor. This revelatory device, which aims to help in the fight against climate change, is set to show millions of people just how much electricity we waste in our homes, whilst highlighting the money we can all save as a result.

ONL® monitors the home's electricity supply and for the first time provides real-time monetary information about the household's energy usage. When lights and appliances are turned on, ONL® easy-to-read LCD monitor reveals exactly how much electricity is being used, how the cost of electricity per hour changes, and how much harmful CO₂ emissions the home is producing.

By simply turning off appliances when not in use, or rather being used needlessly, UK consumers can actually save up to 25% of their electricity usage - a saving that translates directly to reducing their monthly bills and households' harmful carbon emissions

2 Save Energy plc

TABLE OF CONTENTS

INTRODUCTION	1
TABLE OF CONTENTS	1
GENERAL SAFETY & CARE GUIDELINES	2
HOW THE ONL® WORKS	3
Overview	3
Household Power Cables And Phase	3
GreenhouseGas	3
Definitions	3
ONL® FEATURES & FUNCTIONS	4
RemoteMonitorFeatures	4
Remote Monitor Key Press Functions	4
SenderBoxFeatures	4
ONL® ADVANCED SETTINGS	5
WHAT TO DO IF?	7
ONL® SPECIFICATIONS	8
ONL® Factory Default Setting	8
COMPLIANCE	9
WARRANTY	9
Warranty Conditions	9
Returns Process	9
Customer Services	9

NOTE Please keep this Manual and Quick Start Guide handy as you use your ONL® Wireless Energy Monitor. They contain practical systematic instructions, technical specifications, and safety precaution warnings you should know about.

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 OWL Wireless Energy Monitor

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

- **When fitting sensors 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.
- 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.

Overview

This 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, the cost, and the amount of greenhouse gas emissions. It then transmits this information from the Sender Box to a Wireless Remote Monitor on a wireless 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® Wireless Energy Monitor to replace your accurate electricity revenue meter.

Household Power Cables And Phase

Most UK household electricity supplies use single-phase, but some use three phase. In single-phase supplies, the current flows to and from your household appliances using a neutral and power line. The neutral line has a voltage close to zero while the power line carries a fluctuating voltage or phase. The difference between these two lines makes the current flow through your appliances.

In three phase supplies, current flows to and from a device through a group of three lines - each one carrying a fluctuating voltage or phase. One sensor should be connected to each of the three phase lines before using the ONL®.

Green House Gas

Fossil fuel power stations emit gases such as carbon dioxide when producing electricity. This causes an atmospheric imbalance, which in turn has been linked to global warming (global temperature rise).

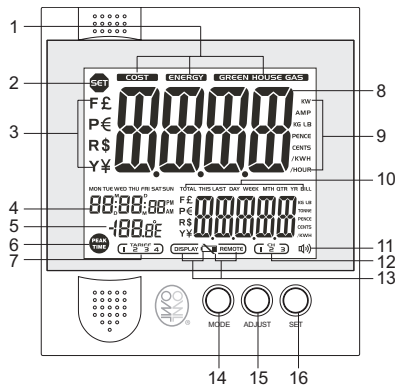
Every power station has a slightly different ratio of emissions to electricity production, depending on the type of fuel used to generate electricity. Sustainable energy sources such as hydro, solar and wind power do not create any emissions.

The default greenhouse emission rate on the Remote Monitor is set to 0.43kg (0.95lbs) of greenhouse gas for every 1KWh of electricity produced. This can be changed depending upon the fuel or energy source used by your power generating authority.

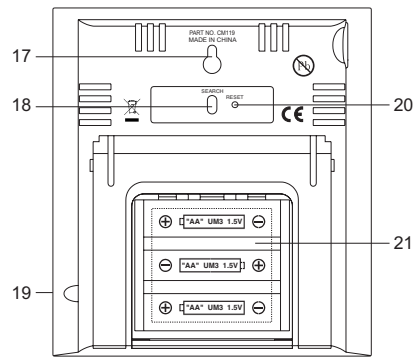
Definitions

- **Voltage:-** is the measure of electrical potential in Volts(V).
- **Current:-** signifies the amount of electricity flowing through a conductive material, such as a wire. Electrical current is measured in amperes or amps (A).
- **Power:-** is the rate at which electrical energy is converted to another form. Both voltage and current are necessary to provide electrical power for your household appliances. Power is the product of Volts times Amps, and the unit of measure is Watts. A Watt is the standard unit of measurement for the amount of energy (electric or otherwise) being transferred to or from somewhere each second.
 - o The voltage is usually constant - so the amount of power used is directly proportional to the current used.
 - o A Kilowatt (kW) is a larger unit of measurement (1000 W = 1 kW).
 - o Kilowatt hour (kWh) represents the use of 1000 watts of electricity for one whole hour.
 - o 1 kWh is the equivalent of ten (10) x 100-watt bulbs operating at the same time for one hour.

Remote Monitor Features



1. Indicates which Display Mode the Monitor is in:
COST / ENERGY / GREENHOUSE GAS
2. Indicates Monitor is in **SET** mode
3. Currency Units for Cost Display Mode
4. Clock /Date Display (Toggles ~10secs)
5. Room Temperature Display
6. Indicates when Peak Time Tariff is in operation
7. Indicates which Tariff is in use (up to 4)
8. Real Time Data Display
9. Measurement units for Display Modes
10. Accumulative/Historical Data Display

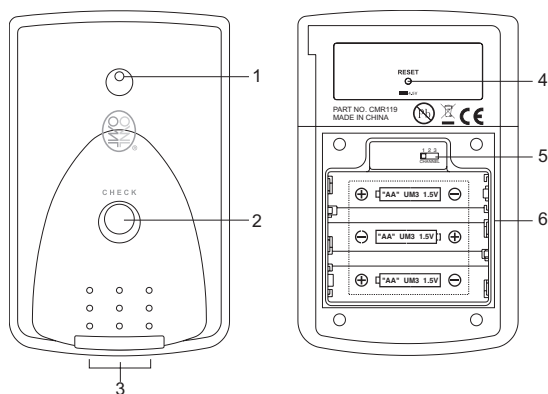


11. Indicates Cost Alarm is **ON**
12. Channel indicator
13. Battery low indicator: Display (Monitor) / Remote (Sender Box)
14. **MODE** key
15. **ADJUST** key
16. **SET** key
17. Wall mount hole
18. **SEARCH** key: search for transmitter
19. **AC / DC** power adapter socket.(Power pack is optional)
20. **RESET** Key
21. Battery compartment

Remote Monitor Key Press Functions

KEY(S)	ACTION	FUNCTION
MODE	Press	Changes the Display Mode in View COST → ENERGY → GREENHOUSE GAS
ADJUST	Press	Scrolls the Accumulative Display through various Historical Data values TOTAL → THIS/LAST (DAY/WEEK/MONTH/QUARTER/YEAR)
SET	Press and Hold until Tone Emits	Enters the SET Mode enabling customisation of settings
MODE	Press and Hold until Tone Emits	Enables/Disables the Alarm Function
ADJUST	Press and Hold until Tone Emits	Changes the Units of Measure kg-Tonne-°C → lb-Ton-°F → kg-kg-°C → lb-lb-°F
MODE&SET	Press and Hold Simultaneously until Tone Emits	Resets the Since Last Reset TOTAL Accumulated Cost/Energy/Greenhouse Gas to zero, but the THIS/LAST → DAY/WEEK/MONTH/QUARTER/YEAR historical data remains unchanged
RESET	Press	Software RESET All stored data in Memory is maintained
RESET&SET	Press and Hold Simultaneously. Release RESET a Tone Emits. Release SET upon second Tone	Hardware RESET Clears all stored data from Memory and returns Monitor to factory settings
SEARCH	Press and Hold until Tone Emits	Places Display Unit into Search Mode to locate and link/re-link to a Transmitter

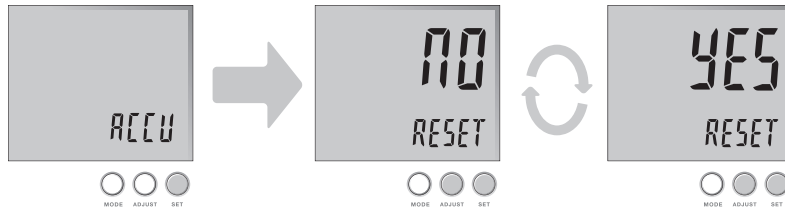
Sender Box Features



1. Flashes to indicate data transmitted from Sender Box
2. **CHECK** key:- Forces transmission every 2 seconds (for 30 Seconds)
3. Sensor Cable Sockets (x3)
4. **RESET** key:- Resets the Sender Box and clears all data held in memory
5. **CHANNEL** switch (1,2,3)
6. Battery Compartment

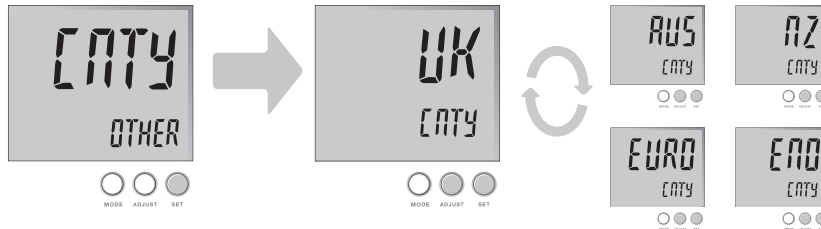
1 Reset Total Accumulated Data

- Selecting **YES** sets accumulated data back to '0' since last reset or device first started
- This function can also be implemented using the **RESET** button at the back of the unit



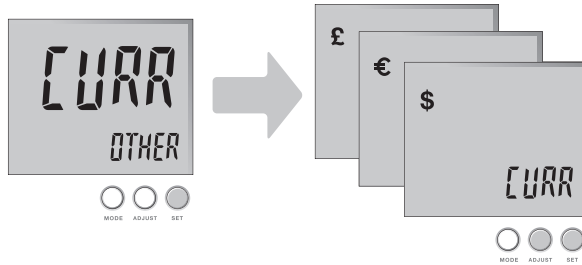
2 Customising the Setup 1

- From the **OTHER** menu select Country [**CNTY**] menu to select generic country settings
- Settings > Voltage / Currency / Units / GHG Factor / Generic Tariff Values



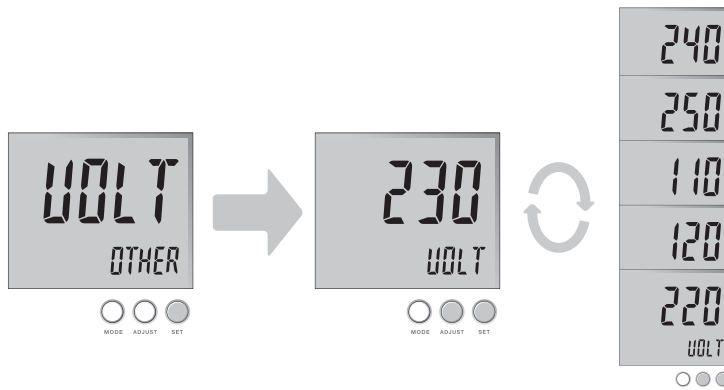
3 Customising the Setup 2

- From the **OTHER** menu select Currency [**CURR**] menu to select currency symbol



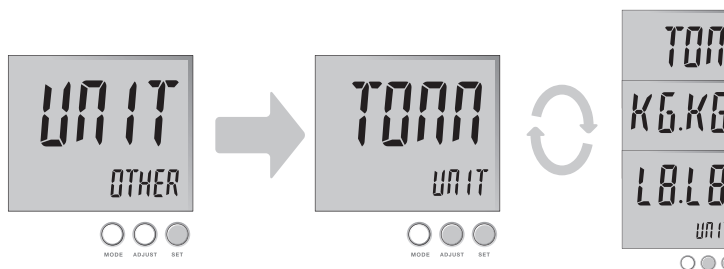
4 Customising the Setup 3

- From the **OTHER** menu select Voltage [**VOLT**] menu to select voltage setting



5 Customising the Setup 4

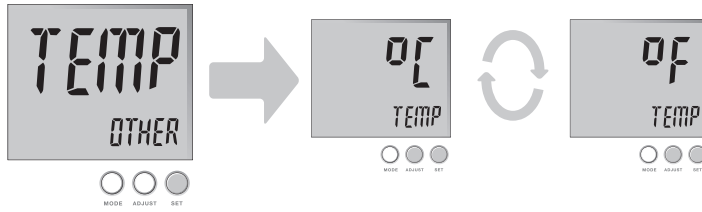
- From the **OTHER** menu select Units [**UNIT**] menu to select Metric / Imperial units for **GHG** Setting



6

Customising the Setup 5

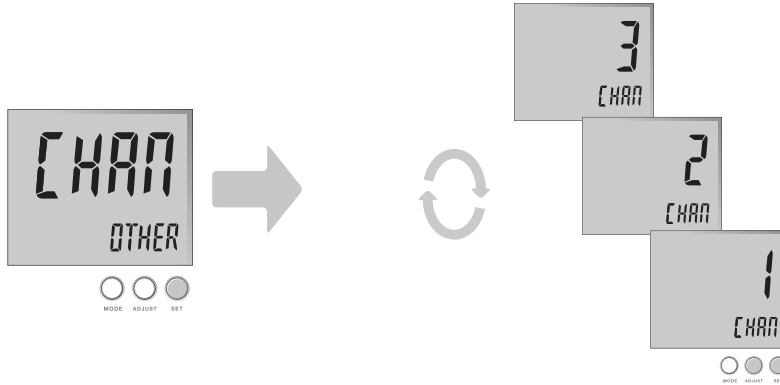
- From the **OTHER** menu select Temperature Units [**TEMP**] menu to select units



7

Customising the Setup 6

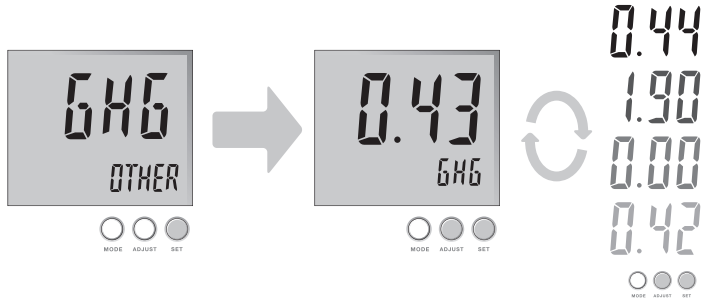
- From the **OTHER** menu select Channel [**CHAN**] menu if you wish to change wireless channel of operation
- The Sender Box will need to be changed to the same channel using the **CHANNEL** switch shown in Sender Box features



8

Customising the Setup 7

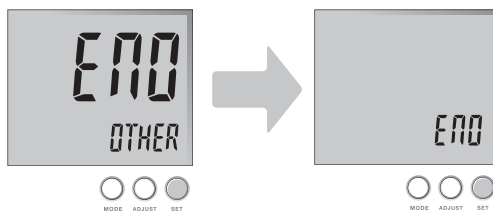
- From the **OTHER** menu select **GHG** Factor [**GHG**] menu to set Utility-Related Factor for calculating the kWh of Energy into KG of **GHG** emissions



9

Exiting Menu

- To Exit **OTHER** menu select [**END**]
- To Exit **SET** mode select [**END**]



WHAT TO DO IF?

ONL® Wireless Energy Monitor should reach you in perfect condition. In the event that you are unable to get the ONL® working correctly please follow the troubleshooting guide below to see if you can identify the problem and get your ONL® working.

PROBLEM	SYMPTOM	Check This	REMEDY
No Display	Nothing is displayed on the screen	<ol style="list-style-type: none"> 1. Ensure that batteries are not exhausted 2. Ensure that batteries are inserted correctly 	<ol style="list-style-type: none"> 1. Replace Batteries in Display 2. Refer to Quick Start Guide to ensure batteries are inserted correctly
"00.00" displayed on the monitor	No Current Detected	<ol style="list-style-type: none"> 1. Check that sensor cable has been connected to sender box 2. Check that sensor is clipped around the live wire 	Contact ONL® Customer Services customer.services@theowl.com
"----" displayed on the monitor	Remote Monitor and Sender Box are not paired or have lost link	Press and Hold the <CHECK> key on the Sender Box & the <SEARCH> key on the Remote Monitor to see if the communication link can be re-established	Do Sensor search (Refer to Quick Start Guide)
Wrong data is appearing	Remote Monitor may have connected to another Sender Box within range	Remove Sensor cable from Sender Box, Remote Monitor should show "00.00".	<ol style="list-style-type: none"> 1. Establish communications link with Sender Box following full reset (Refer to Quick Start Guide) 2. If connected to sender unit check the set up of device (Refer to Quick Start Guide)
Flashing "----" displayed on the monitor	Automatic search to find Sender Unit underway	-	Allow search to run to completion.
Day/Month in calendar seems to be in reverse	Remote Monitor setup may be incorrect	Check that the preferred date display option has been selected	Enter the Date setup menu and select preferred date display (Refer to Quick Start Guide)
Remote Monitor reading seems to be High/Low	Remote Monitor setup may be incorrect	<ol style="list-style-type: none"> 1. Check that the correct Tariff has been set. 2. Check that the correct voltage setting has been selected. 	<ol style="list-style-type: none"> 1. Enter the TARIFF setup menu and adjust RATE setting (Refer to Quick Start Guide) 2. Enter the VOLT setup menu and select correct voltage (Refer to Quick Start Guide)

NOTE After resetting the display it can take up to 2 minutes to complete a full search of available sender units or to re-establish a communications link. This can be expedited by pressing and holding the <CHECK> key on the Sender Unit until the Red LED flashes forcing the transmitter to transmit every 2 seconds.

ONL® SPECIFICATIONS

Dimensions	Width	Height	Depth	Weight (No Battery)
Display	107mm (4.2 in)	117mm (4.6in)	30mm (1.2in)	164gm (5.8oz)
Sender Unit	78mm (3.1in)	113mm (4.5in)	40mm (1.6in)	110gm (3.9oz)
Sensor	50mm (2.0 in)	50mm (2.0in)	30mm (1.2 in)	66gm (2.3oz)

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

Wireless Link	433MHz Radio Frequency
Wireless Range	30 metres in open area [walls, partitions and electrical appliances may affect reception range]
Display Power Supply	3 x AA / LR6 / UM-3 1.5V batteries or 6V AC/DC adaptor
Sender Box Power Supply	3 x AA / LR6 / UM-3 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

ONL® Factory Default Setting

Country Setting	UK
Voltage	230V
Units	Metric (Kg / C)
Currency	£:pence
Power Units	KW
Energy Units	KWH
GHG Units	Kg/hr
Accumulative GHG Units	Tonne
Temperature Units	C
GHG Conversion	0.43Kg CO2 = 1KW/hr
Clock	12 hr
Date	ddmm
Tariff 1 - Rate	10.50 pence
Tariff 1 - Time	06:00am

Tariff 1 - Peak [Yes/No]	No
Tariff 1 - Alarm On/Off	Off
Tariff 1 - Alarm Level	£2:00
Tariff 2, 3 & 4 [On/Off]	Off
Tariff 2 - Rate	7.50 pence
Tariff 2 - Time	10:00am
Tariff 3 - Rate	10.50 pence
Tariff 3 - Time	04:00pm
Tariff 4 - Rate	7.50 pence
Tariff 4 - Time	08:00pm
Tariff 2, 3 & 4 - Peak [Yes/No]	No
Tariff 2, 3 & 4 - Alarm [On/Off]	Off
Tariff 2, 3 & 4 - Alarm Level	£2:00

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.

EU - Declaration of Conformity

Hereby, 2 Save Energy plc, declares that the OWL Wireless Monitor (CM119) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A copy of the signed and dated Declaration of conformity is available on request.

WARRANTY

Limited One Year Warranty

2 Save Energy plc 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 Consumer Laws that exist in the UK.

Warranty Conditions

1. The product must be installed and operated in strict accordance with instructions provided. 2 Save Energy plc 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 plc will not be liable for indirect, consequential or incidental damages.
6. 2 Save Energy plc reserves the right to change specifications or designs described in this manual without notice or obligation.

Returns Process

Contact customer.services@theowl.com to report the issue and reason for wanting to return product. Upon agreement to return the product Customer Services will allocate a reference number that should be added onto the form on the next page with Purchaser Name & Address, Supplier Name & Address, and Date of Purchase, which should be sent with the proof of purchase and product to the following address:-

Customer Services

2 SAVE ENERGY plc
72/73 Bartholomew Street, Newbury
Berkshire, RG14 5DU
United Kingdom

NOTE

- A record of the Return Reference Number should be kept and used in all correspondence relating to the return
- No returns will be accepted without a Returns Reference Number being allocated
- All returns must be by recorded delivery

Product Name:

Product Model Number:

Purchaser Name:

Purchaser Address:
.....
.....
.....

Purchaser Telephone Number:

Supplier Name:

Supplier Address:
.....
.....
.....











Date Of Purchase:

Return Reference Number:



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



Patent pending, Product tested by
Intertek Testing Services HK Ltd
Manufactured by 2 Save Energy plc,
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