CLIPSAL®
LIVING ELECTRICAL

cent-@-meter®

COST **36.0** CENTS /HOUR

SAT TOTAL
01:06:08 2
23.9°C $
TARIFF CH 2

MODE ADJUST SET

CLIPSAL
LIVING ELECTRICAL

cent-@-meter®
Wireless Electricity Monitor

C CE

User Manual

1.0 Introduction

Thank you for selecting the Clipsal Centameter Wireless Electricity Monitor.

Keeping an eye on your electrical usage has never been easier with the new Clipsal Centameter. This revolutionary 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.

The Clipsal Centameter 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, Clipsal Centameter's 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 CO_2 emissions the home is producing.

By simply turning off appliances when not in use, or rather being used needlessly, consumers can actually save up to 20% of their electricity usage - a saving that translates directly to reducing their monthly bills and households' harmful carbon emissions.

2.0 Table of Contents

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

3.0 General Safety and Care Guidelines

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

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

SENSORS MUST BE INSTALLED BY A QUALIFIED/LICENSED ELECTRICIAN, UNLESS OTHERWISE PERMITTED BY COUNTRY/LOCAL REGULATIONS.

- 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 transmitter 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.

4.0 How the Clipsal Centameter Works

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 Transmitter to a wireless Display Monitor on a wireless frequency of 433MHz, up to 30 metres (100 feet) away (unbroken transmission).

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

Household Power Cables and Phase

Most Australian and New Zealand household electricity supplies use single-phase, but some use three phase. In singlephase supplies, the current flows to and from your household appliances using neutral and power lines. 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 Clipsal Wireless Electricity Monitor.

Greenhouse 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 gas emission rate on the Remote Monitor is set to 0.84kg (1.85lb) 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 x 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

- The voltage is usually constant - so the amount of power used is directly proportional to the current used

- A Kilowatt (kW) is a larger unit of measurement (1000 W = 1kW) Kilowatt hour (kWh) represents the use of 1000 watts of electricity for one whole hour

- 1kWh is the equivalent of ten (10) x 100-watt bulbs operating at the same time for one hour.

5.0 Features and Functions

Display Monitor Features
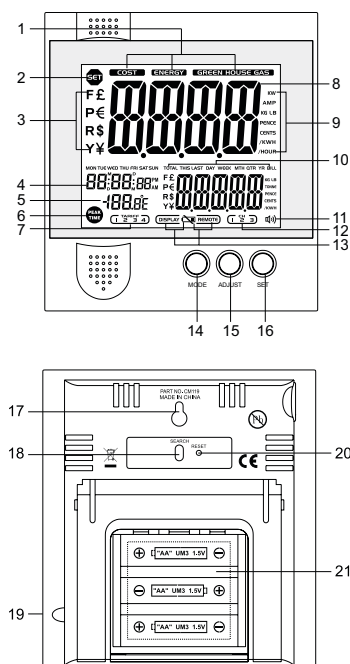
1. Indicates which Display Mode the Monitor is in: COST ENERGY/ GREENHOUSE GAS

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 four)

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.

Display 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
RESET	Press	Clears TOTAL accumulated historical data only from memory generated since last reset or first use
RESET & SET	Press and hold keys simultaneously Release RESET a tone emits Release SET upon second tone	Full Reset clears memory of all historical data and returns Monitor back to Factory Settings
SEARCH	Press and hold until tone emits	Places Display Monitor into search mode to locate and link to a Transmitter

Transmitter Features
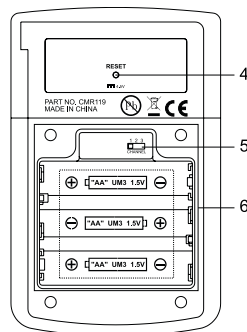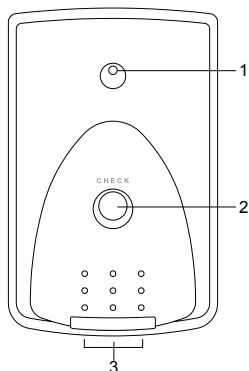
1. Operation LED flashes to indicate data transmitted from Transmitter

2. CHECK key:- Forces transmission every two seconds (for 30 Seconds)

3. Sensor Cable Sockets (x 3)

4. RESET key:- Resets the Transmitter and clears all data held in memory

5. CHANNEL switch (1, 2, 3)

6. Battery Compartment.

6.0 Advanced Settings

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.
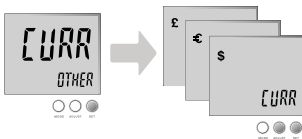

Customising the 'Country Setting'

- From the OTHER menu select Country [CNTY] menu to select generic Country settings

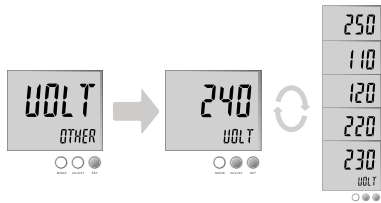- Settings > Voltage / Currency / Units / GHG Factor / Generic Tariff Values.

Customising the 'Currency Setting'

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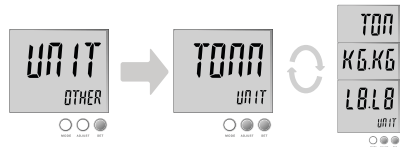

Customising the 'Voltage Setting'

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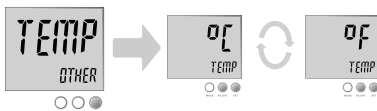

Customising the 'Greenhouse Gas Unit Setting'

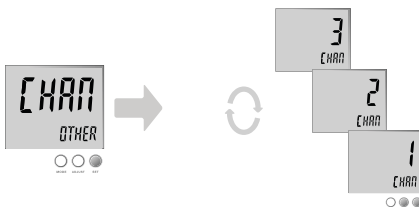- From the OTHER menu select Units [UNIT] menu to select Metric/Imperial units for GHG setting.

Customising the 'Temperature Setting'

• From the OTHER menu select Temperature Units [TEMP] menu to select units.

Customising the 'Channel Setting'

• From the OTHER menu select Channel [CHAN] menu if you wish to change wireless channel of operation from factory default (= 2) to another channel to avoid any interferance from other nearby units.

• The Sender Box will need to be changed to the same channel using the CHANNEL switch shown in Sender Box features.
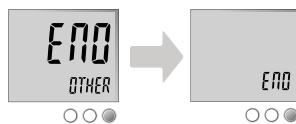
Customising the ' Greenhouse Gas Factor Setting'

• 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.

Exiting Menus

• To Exit OTHER menu select [END]

• To Exit SET mode select [END].

NOTE: For three phase installations, each phase is 240V or equivalent.

7.0 Troubleshooting

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

PROBLEM	SYMPTOM	CHECK THIS	REMEDY
No Display	Nothing is displayed on the screen.	1. Ensure that batteries are not exhausted 2. Ensure that batteries are inserted correctly	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.	1. Check that sensor cable has been connected to Transmitter 2. Check that sensor is clipped around the live wire	Contact customer service at: centameter@clipsal.com.au
'----' displayed on the monitor	Display Monitor and Transmitter are not paired or have lost link.	Press and Hold the <CHECK> key on the Transmitter and the <SEARCH> key on the Display Monitor to see if the communication link can be re-established	Do Sensor search (Refer to Quick Start Guide).
Wrong data is appearing	Display Monitor may have connected to another Sender Box within range.	Remove Sensor cable from Transmitter, Display Monitor should show '00.00'.	1. Establish communications link with Transmitter following full reset (Refer to Quick Start Guide) 2. If connected to Transmitter check the set up of device (Refer to Quick Start Guide).
Flashing '----' displayed on the monitor	Automatic search to find Transmitter underway.	-	Allow search to run to completion.
Day/Month in calendar seems to be in reverse	Display 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).
Display Monitor reading seems to be High/Low	Display Monitor setup may be incorrect.	1. Check that the correct Tariff has been set 2. Check that the correct voltage setting has been selected.	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 two 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 Transmitter until the Red LED flashes forcing the transmitter to transmit every two seconds.

8.0 Technical 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 Monitor Power Supply	3 x AA / LR6 / UM-3 1.5V batteries or 6V AC/DC adaptor
Transmitter 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

Factory Default Settings

Tariff 1 - Peak [Yes/No]	Yes
Tariff 1 - Alarm On/Off	ON
Tariff 1 - Alarm Level	$2.00
Tariff 2, 3 & 4 [On/Off]	Off
Tariff 2 - Rate	9.80 cents
Tariff 2 - Time	08:00pm
Tariff 3 - Rate	5.60 cents
Tariff 3 - Time	10:00pm
Tariff 4 - Rate	9.80 cents
Tariff 4 - Time	07:00am
Tariff 2, 3 & 4 - Peak [Yes/No]	No
Tariff 2, 3 & 4 - Alarm [On/Off]	Off
Tariff 2, 3 & 4 - Alarm Level	$2.00
Transmitter & Display Channel	2

Customer Settings

Tariff 1 - Peak [Yes/No]	
Tariff 1 - Alarm On/Off	
Tariff 1 - Alarm Level	
Tariff 2, 3 & 4 [On/Off]	
Tariff 2 - Rate	
Tariff 2 - Time	
Tariff 3 - Rate	
Tariff 3 - Time	
Tariff 4 - Rate	
Tariff 4 - Time	
Tariff 2, 3 & 4 - Peak [Yes/No]	
Tariff 2, 3 & 4 - Alarm [On/Off]	
Tariff 2, 3 & 4 - Alarm Level	
Transmitter & Display Channel	

9.0 Compliance

Manufactured to ISO-9001 Quality Assurance Standards and 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.

Australian and New Zealand – Declaration of Conformity

Hereby, Clipsal Australia Pty Ltd, declares that the Clipsal Wireless Electricity Monitor (CENTAMETER) is in compliance with the applicable Australian and New Zealand and Electricity Authorities Regulations. A copy of the signed and dated declaration of conformity is available on request.

Limited One Year Warranty

Clipsal Australia Pty Ltd warrant this product for a period of one 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. Clipsal Australia Pty 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 e.g. Original Invoice/Receipt

3. This instrument must not be modified in any way

4. Batteries are specifically excluded from this Warranty

5. Clipsal Australia Pty Ltd will not be liable for indirect, consequential or incidental damages

6. Clipsal Australia Pty Ltd reserves the right to change specifications or designs described in this manual without notice or obligation.

DISTRIBUTOR:
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10.0 Notes

clipsal.com