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# ***PowerPortal In Home Display***

## ***User Manual***

***100.00001A.B***

***July 21, 2009***

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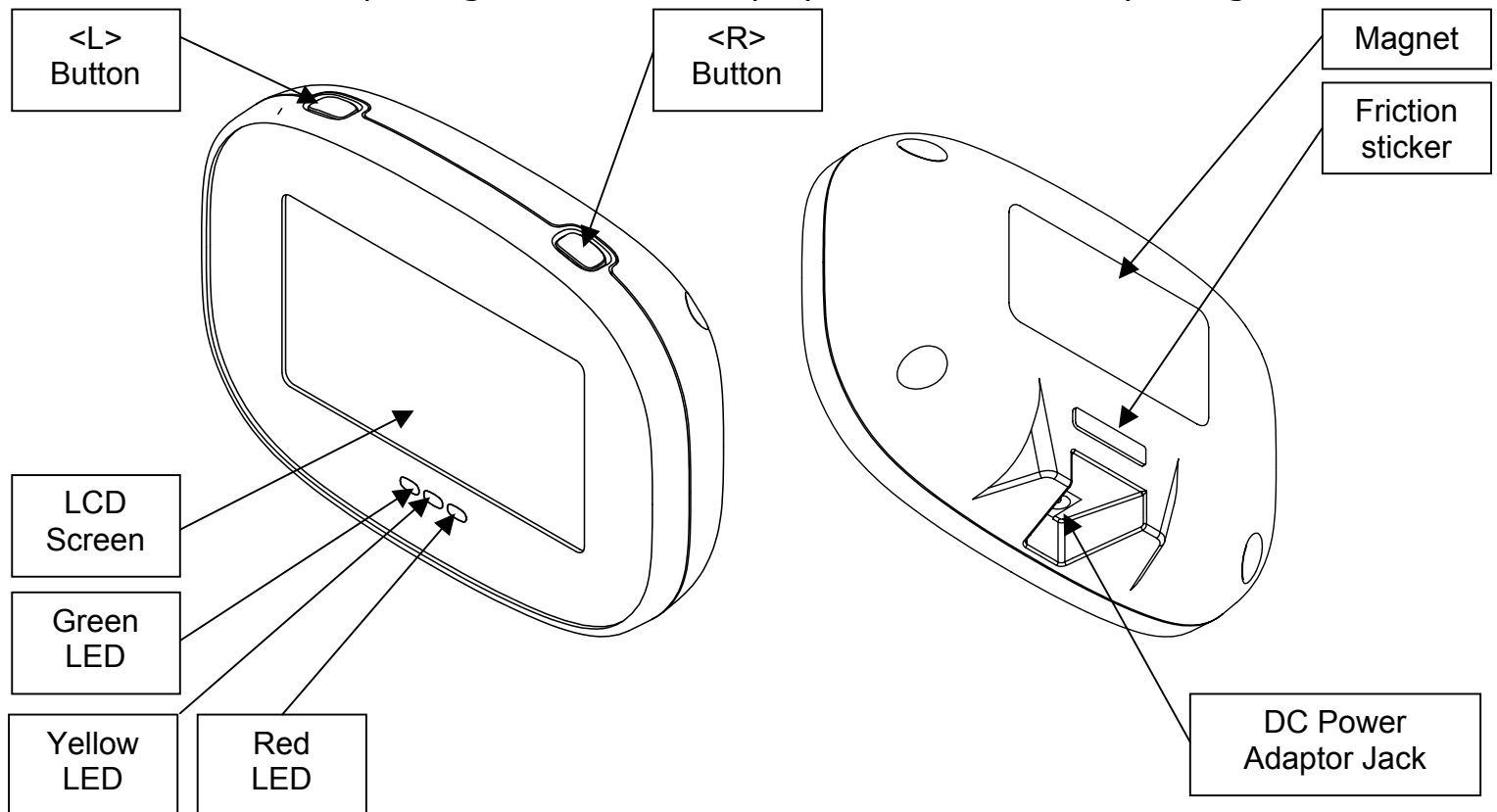
# 1 Introduction

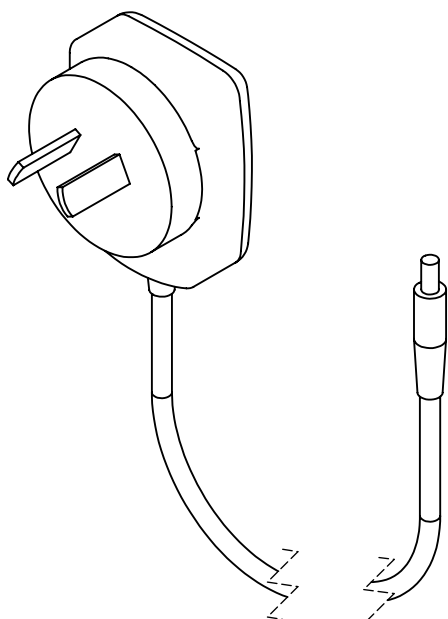
The Converge PowerPortal In Home Display (IHD) is a wireless device that communicates directly with the electricity meter outside your home. It is rechargeable, magnetic and can be taken anywhere in your house.

Your IHD allows you to:

- View your current household electricity use
- Track your electricity consumption and associated costs over time
- Test consumption and costs of operating individual devices
- Receive and acknowledge messages from your utility service provider

Your IHD package contains a display unit and a battery charger:





## 2 IHD Basics

This section provides information on the primary functions of your IHD.

### 2.1 Your IHD's power modes

Your IHD has three power modes: On, Off, and Sleep.

To turn your IHD on, press either <L> or <R>.

Turn your IHD off by pressing and holding <L> for three seconds. A confirmation screen will appear. Press <L> again ("Yes") to approve the shutdown.

*Note: Your IHD is unable to receive text messages from your service provider when it is off.*

When not connected to external power, your IHD will go to sleep after 5 minutes of inactivity. To wake it up, press <L>, <R>, or plug it in.

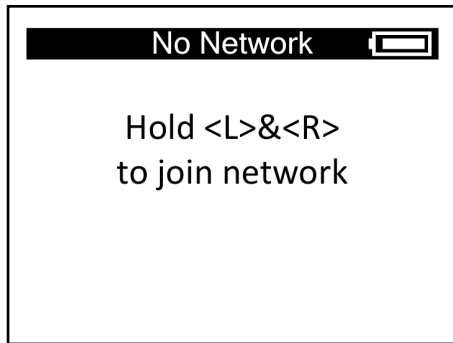
### 2.2 Charging your IHD

To charge your IHD, connect the power adapter to the DC power adapter jack and plug your IHD into a power outlet.

*Note: Leaving your IHD plugged in for extended periods of time will adversely affect your battery life. To maximize battery life, unplug your IHD when it's finished charging and allow it to fully discharge before recharging.*

### 2.3 Joining your meter's network

When your IHD is not joined to a network, it will display the following screen:



In order to connect your IHD to your meter's network, contact your service provider via phone (XXX-XXX-XXXX) or web (<http://www.serviceprovider.com>) and request that they allow your IHD to join. You will then have XX minutes to join your IHD by holding <L> and <R> for three seconds at the No Network screen.

*Note: It is advisable to keep your IHD connected to external power while attempting to join a network to prevent any possible interruptions due to power failure.*

Your IHD may take up to 5 minutes to complete the network joining process. During this time it scans for the network, authenticates the meter, and then discovers the services available on the meter.

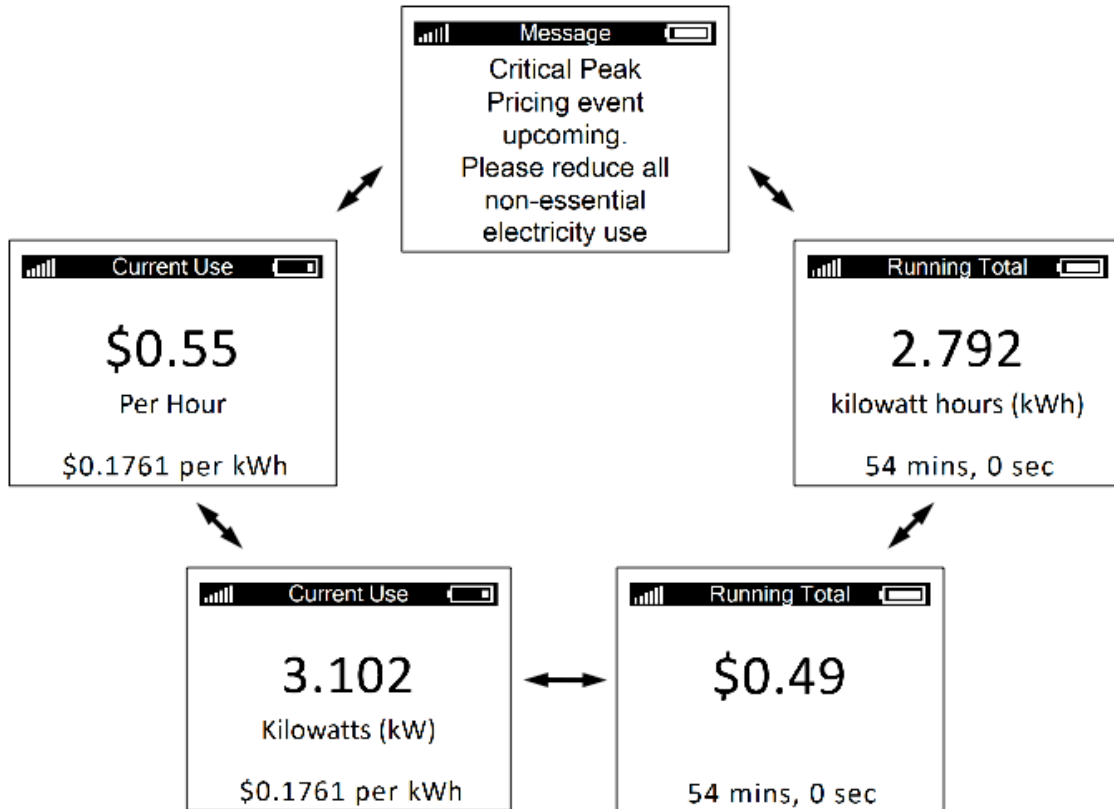
To remove your IHD from your meter's network:

1. Turn the device off
2. Turn the device on
3. While the startup screen is shown, hold <L> and <R> for 10 seconds
4. Press <L> ("Yes") at the network leave confirmation screen that appears

*Note: Involvement from your service provider will be required to commission your IHD when you want to join a meter's network again. Only leave the network if you are moving, or if you were specifically asked to do so by your service provider.*

## 2.4 Navigating your IHD screens

The main screens of your IHD are arranged in a loop. Navigate through the screens by pressing <L> or <R>.

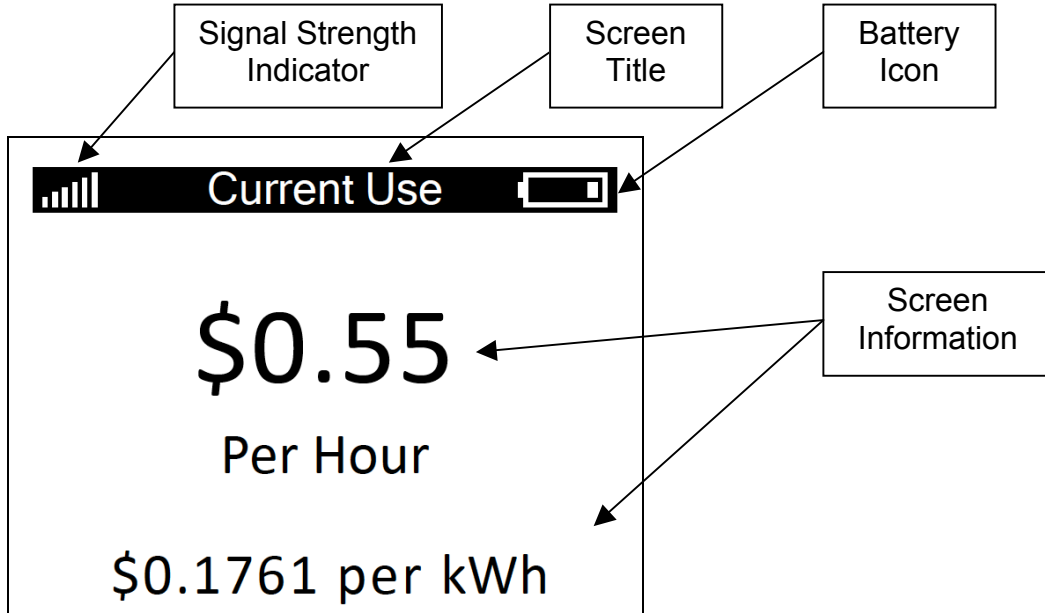


The Message screen is only available when there is at least one message available. Additional message screens will be included in the loop when there are multiple messages available.

## 2.5 Signal strength and battery charge indicators

The battery icon in the top-right corner of your IHD screen shows an approximation of the IHD's remaining charge. When connected to external power, the battery icon will animate to show that your IHD is charging. When the animation ceases, charging has finished.

The vertical bars in the top-left corner of your IHD screen show the strength of your IHD's connection to the network. A full six bars indicates the highest signal strength, while one bar indicates that your IHD is nearly outside the network's range.



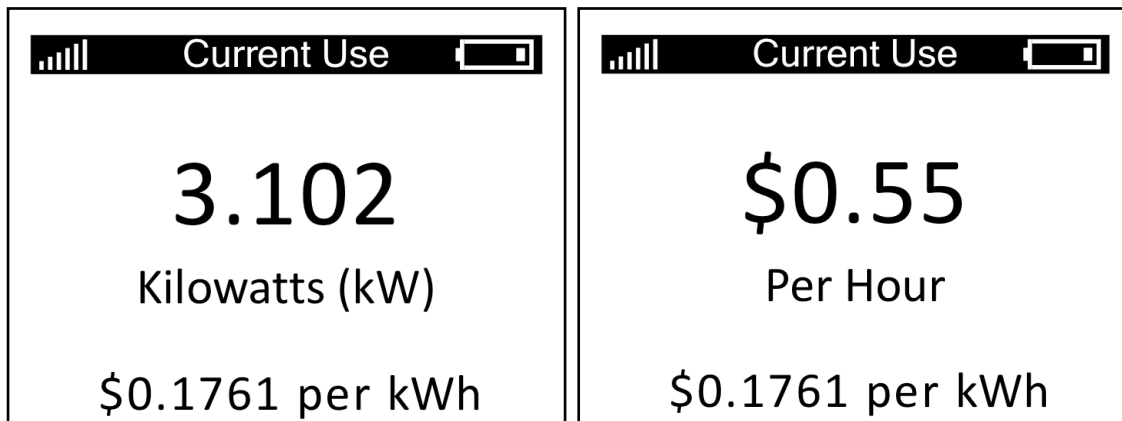


### 3 Using Your IHD

Your IHD provides you with feedback that will enable you to better understand your electricity bills and manage your consumption. This section covers the ways in which you can use your IHD.

#### 3.1 Viewing your current electricity use

To view your home's current rate of electricity consumption, go to the Current Use screens on your IHD shown below.

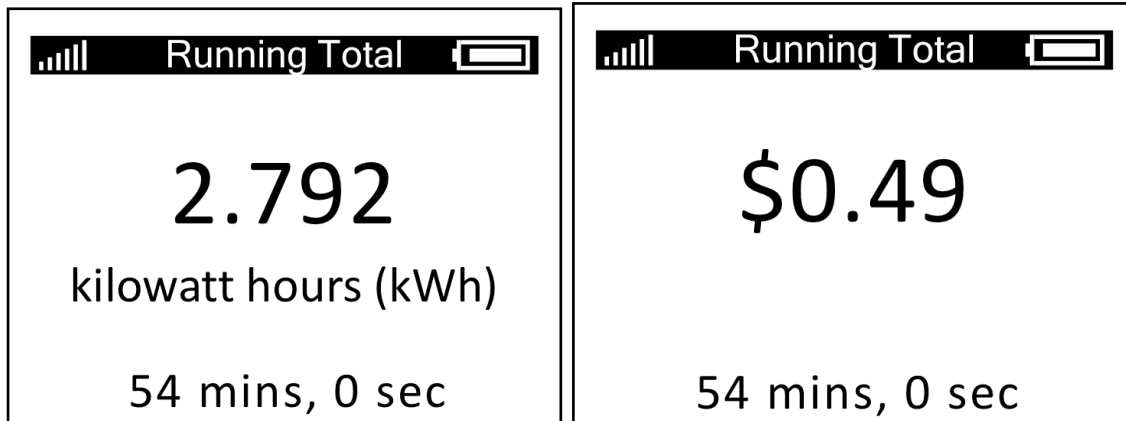


The large number on one screen shows your consumption rate in kilowatts. The large number on the other screen shows the associated cost of your consumption rate in dollars per hour. The smaller number at the bottom of the screens show the current tariff you are being charged for each kilowatt-hour of electricity consumed.

To determine the cost of operating a single appliance, check the current consumption rate on your IHD. Now, turn on an appliance and note the difference between your first consumption rate and the new consumption rate.

### 3.2 Tracking your electricity use over time

To view your home's total electricity consumption over a fixed period of time, go to the Running Total screens on your IHD shown below.

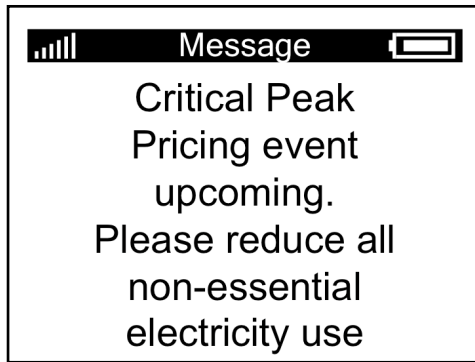


The large number on one screen shows your accumulated electricity consumption in kilowatt-hours. The large number on the other screen shows the associated cost of your consumption in dollars.

The Running Total can be reset by pressing <L> and <R> at the same time. The small numbers at the bottom of the screens show how much time has elapsed since the last reset. If you want to see how much you spend on electricity during a certain event or time period, reset the total and then check it once the event is done.

### 3.3 Receiving messages from your service provider

If your service provider has sent you a message, it will appear on its own screen. An example message is shown below.



Messages will remain viewable on your IHD until they expire. Expiry times are set by your service provider. Expired messages are not retrievable.

Some messages may require that you acknowledge them and will instruct you to do so. Press <L> and <R> at the same time to acknowledge the message.





















### **3.4 Understanding the lights on your IHD**

Your IHD includes three Light Emitting Diodes (LEDs) which it uses to indicate the presence of new messages and the current relative cost of electricity.

*Note: the LEDs will continue to function while the IHD is asleep.*

When a new or unacknowledged message is available on your IHD, the LEDs will show this by simultaneously blinking once every 5 seconds. The LEDs will continue to blink until you have acknowledged this message or changed to another screen.

When no new messages are present, the LEDs will indicate the current relative cost of electricity. A pulsing LED indicates the tariff period you are currently in, while a blinking LED in conjunction with a pulsing LED indicates an upcoming tariff period change. The colour of the blinking LED indicates the upcoming tariff period. The special case of Critical Peak Pricing (CPP) is indicated when the red LED is blinking on its own. The following table clearly defines the LEDs' behaviour for your service providers tariff structure.

<b>Pulsing LED</b> “_ _ _ _”	<b>Blinking LED</b> “_ _ _ _”	<b>Description</b>
Green 	None 	Off-Peak Rates in effect
Amber 	None 	Mid-Peak Rates in effect
Red 	None 	On-Peak Rates in effect
Green 	Amber 	Off-Peak Rates in effect Mid-Peak Rates upcoming
Green 	Red 	Off-Peak Rates in effect On-Peak Rates upcoming
Amber 	Green 	Mid-Peak Rates in effect Off-Peak Rates upcoming
Amber 	Red 	Mid-Peak Rates in effect On-Peak Rates upcoming
Red 	Green 	On-Peak Rates in effect Off-Peak Rates upcoming
Red 	Amber 	On-Peak Rates in effect, Mid-Peak Rates upcoming
None 	Red 	CPP Event in Effect

## 4 Troubleshooting/FAQ

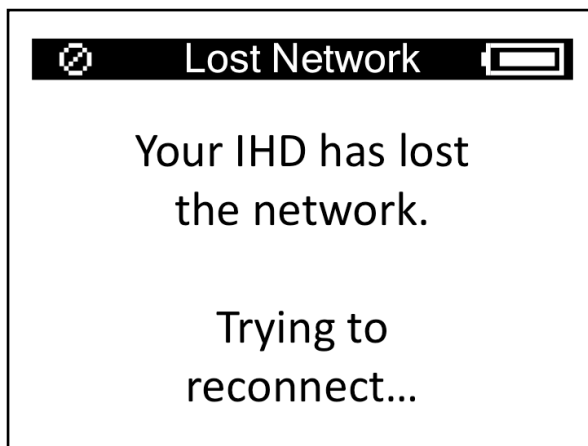
Solutions to most of the problems you might encounter with your IHD are described in this section.

### 4.1 If your IHD fails to join the network

If your IHD says "No networks found." after you attempt to join your meter's network, your IHD may not be in wireless range of your meter. Try moving closer to your meter and attempt joining again. If this fails, there may have been an issue commissioning the IHD. Contact your service provider and ask them to commission your IHD again, then attempt joining a third time.

### 4.2 If your IHD has lost the network

When your IHD loses connection to the network you will see the screen below.



This may have occurred because:

- Your IHD is not within wireless range of your meter. Try moving your IHD closer to the meter or away from large obstacles.
- Your meter's network has gone down due to a power outage or due to being serviced by a field technician.

### **4.3 If your IHD won't turn on**

If your IHD will not turn on in response to a button-press, its battery may be dead. Try connecting the power adapter to the DC power adapter jack and plug your IHD into a power outlet.

### **4.4 Your Running Total does not match your electricity bill**

Your IHD is intended for feedback purposes and is not a billing tool. Discrepancies may exist between your IHD running total and your bill, even if you reset your running total at the beginning of your billing cycle.

### **4.5 How to figure out the consumption rate of an individual appliance**

Your IHD displays the electricity used by your entire home. Electricity consumed by individual outlets or appliances can only be indirectly measured by comparing your home's consumption rate with those appliances on and off.

### **4.6 Your current use value does not change when you turn on/off a light**

Some electrical loads are too small to register a change in your meter's current electricity use value. For example, Compact Florescent Light bulbs (CFLs) draw very little electricity and may not cause a change on your IHD's Current Use screen.

### **4.7 Your service provider sent you a message, where did it go?**

Your service provider sends messages with a pre-set expiration time. Once a message has expired it can no longer be viewed. Generally, messages will not be set to expire until they are no longer relevant.

## 5 Energy Savings Tips

The following is a list of energy savings tips that can help you conserve electricity around your home.

1. Turn off lights when you leave the room.
2. Turn electronics like your computer and printer off rather than leaving them on standby.
3. Plug appliances and electronics into a power bar and turn the power bar off when it is not in use.
4. Replace old appliances with ENERGY STAR approved products.
5. Replace incandescent bulbs with energy-efficient compact fluorescents.
6. Only run your washer, dryer and dishwasher when they are full.
7. Switch to cold water when doing your laundry.
8. Adjust your thermostat while you're sleeping at night and when no one is at home.
9. Ensure your air conditioner is properly maintained and reduce usage when you're not at home.

For more energy savings tips visit [www.serviceprovider.com](http://www.serviceprovider.com)

## 6 Appendix

### 6.1 Safety Instructions

To ensure your IHD is used safely, please read these Safety Instructions and the rest of this User Manual thoroughly before using the product.

- The IHD contains a magnet. Do not place the IHD directly on credit cards, computers or other pieces of electronic equipment, as this may cause damage.
- Do not attempt to repair the PowerTab Display or DC Power Adaptor yourself. If you are experiencing problems with the device, contact your Service Provider for assistance. Opening the product casings for any reason will void the product warranty.
- Do not touch any exposed electronic circuitry of the device if it becomes damaged
- Do not immerse the IHD in water.
- Avoid using the IHD in high moisture areas such as a bathroom for extended periods of time.
- Only use the IHD indoors.
- Keep the IHD away from heat sources such as stoves and heaters.
- Do not drop the IHD or cause any sudden impact to it. The IHD warranty will not cover drops or impacts.
- Take care when handling a damaged LCD display as the liquid crystals can be harmful to your health. If any fluid does leak from the IHD LCD, immediately wash with soap and water.
- Do not use this device in aircrafts or hospitals. The use of radio frequency can cause malfunctions in the control devices of other equipment.



## 6.2 Product specifications

### Communications

- Frequency Band: 2.4GHz
- Radio Output Power: 20dBm
- Protocol: IEEE 802.15.4

### Size and Weight

- Length: 28 mm (1.10 inches)
- Width: 108 mm (4.25 inches)
- Height: 79 mm (3.11 inches)
- Weight: 134 grams (4.7 ounces)

### Battery

- Approximate life: 2 weeks
- Recharge time: 8 hours

## 6.3 FCC Compliance

### FCC Class B Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Energy Aware Technology Inc. may void the user's authority to operate the equipment.

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.

### **ICES-003 Compliance**

This Class B digital apparatus complies with Canadian ICES-003.

### **FCC RF Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least 8 inches (20cm) from all persons.

## **6.4 Warranty**

### **Limited One-Year Warranty**

Energy Aware Technology Inc. warrants this In Home Display System (the "Product") to be free from defects in materials and workmanship under normal consumer usage (the "Warranty") for a period of one year from the date of sale (the "Warranty Period"). Labour charges for removal and installation of the Product are the consumer's responsibility. During the Warranty Period, as the consumer's exclusive remedy for a defective Product, all defective parts will be replaced or repaired free of charge. To obtain Warranty service the consumer must return the Product, freight paid, with a copy of the sales receipt or other proof of purchase that shows the date of sale, to Energy Aware Technology Inc. within the Warranty Period.

The consumer shall NOT have any claim under this Warranty, including but not limited to for repair or adjustment expenses if:

1. The problem is caused by any improper operation or

storage; misuse, abuse, accident or neglect; contact with liquids, extreme humidity or heat; contact with sand, dirt, food or the like; fire, or other cause, or other acts which are not the fault of Energy Aware Technology Inc.; or any other acts that are outside the course of normal consumer usage.

2. The problem is caused by modification or repair by anyone other than Energy Aware Technology Inc.
3. Serial numbers or product labels have been removed, altered or obliterated, or broken seals that show evidence of tampering.
4. Proof of purchase is not presented when requesting Warranty service.

This Warranty shall not extend beyond the Warranty Period and is in lieu of all other warranties, including, without limitation, any statutory or implied warranty or condition, including, without limitation, of merchantability or of fitness for a particular purpose, or those arising by custom, usage or trade.

In no circumstance will Energy Aware Technology Inc. be liable for any direct, indirect, consequential or incidental damages, including without limitation, damages resulting from the use, inability to use, or inaccuracy of the Product or loss of data. Repair or replacement as provided under this Warranty is the consumer's exclusive remedy for any defects in materials or workmanship of a Product. The Warranty applies only to new Products and claims made by the original purchaser as evidenced by a sales receipt or other proof of purchase.

## **6.5 Manufacturing Information**

Designed by Energy Aware Technology Inc.  
134 Abbott Street, Suite 604  
Vancouver BC  
V6B 2K4

Made in Canada in an ISO 9000-2001 certified facility