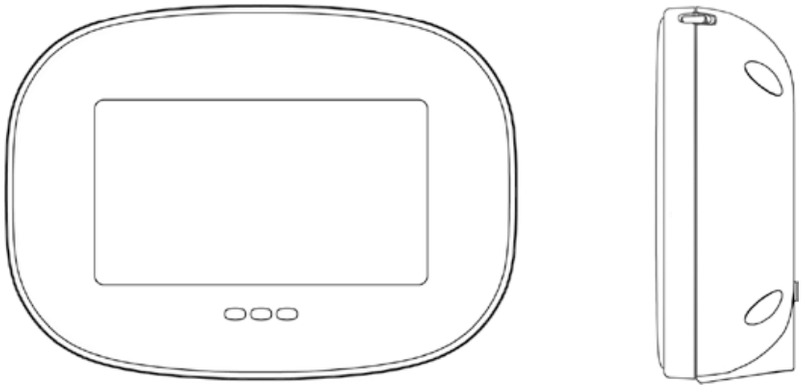
energyaware

PowerTab™ User Guide



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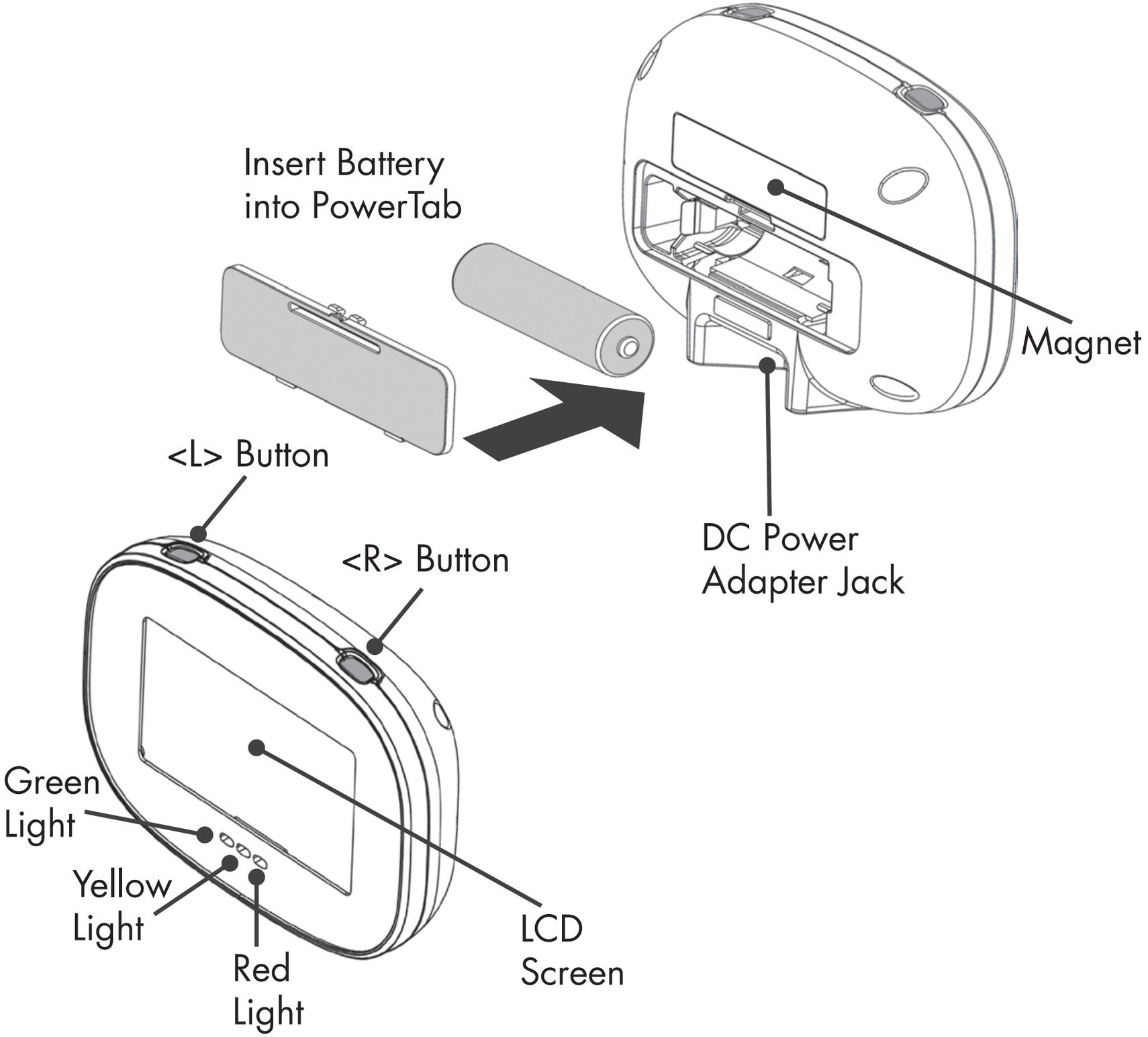
1 Introduction

The PowerTab is an In-Home Display (IHD) that provides real-time feedback on your electricity consumption. The display communicates wirelessly with the smart electricity meter outside your home.

Your PowerTab 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 or service provider

Your PowerTab package contains a display unit, a battery, and a power adapter.


Insert Battery
into PowerTab
Magnet
DC Power
Adapter Jack
<L> Button
<R> Button
Green
Light
Yellow
Light
Red
Light
LCD
Screen

2 PowerTab Basics

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

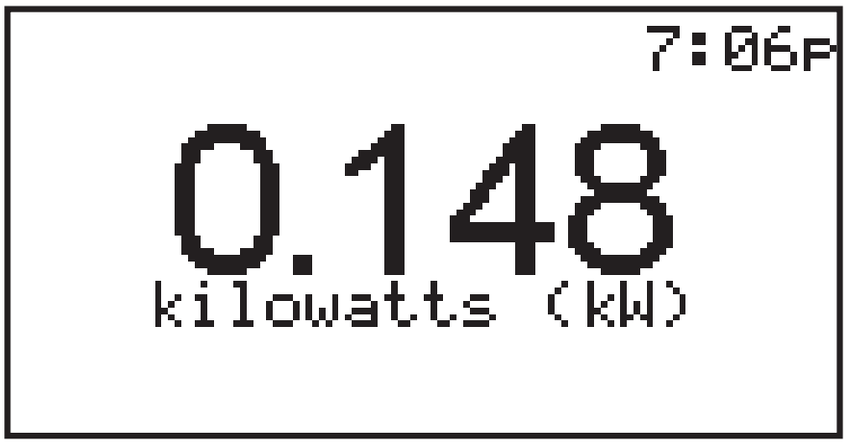
2.1 Your PowerTab's power modes

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

To turn your PowerTab on, press either <L> or <R>. Turn your PowerTab off by pressing and holding <L> for three seconds. A confirmation screen will appear. Press <L> again ("Yes") to approve the shutdown.

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

When not connected to a network, the PowerTab will turn off automatically after 5 minutes of inactivity. When the PowerTab is connected to a network, it will enter sleep mode after 5 minutes of inactivity. In sleep mode, only primary information remains visible and the current time is shown in the top right corner of the screen. This is depicted in the following sample screen.



Wake the PowerTab from sleep by pressing <L> or <R>, or by plugging it in.

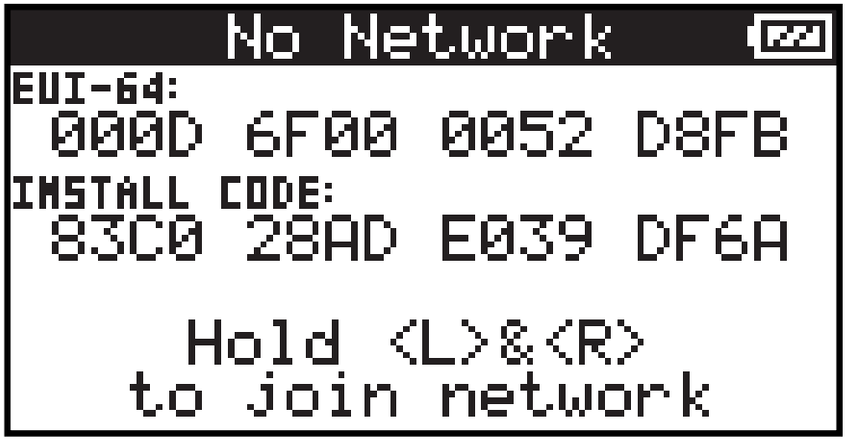
2.2 Charging your PowerTab

To charge your PowerTab, first ensure the battery is installed, then connect the power adapter to the DC power adapter jack and plug your PowerTab into a power outlet.

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

2.3 Joining a ZigBee Smart Energy network

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



To commission your PowerTab, follow the procedures supplied by your service provider. Typical procedures will require the use of the display's Extended Unique Identifier (EUI-64) and its install code, both displayed on the No Network screen.

When the commissioning process is complete, join the network by holding <L> and <R> for three seconds at the No Network screen.

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

Your PowerTab may take up to 5 minutes to complete the network joining process.

2.4 Leaving a ZigBee Smart Energy network

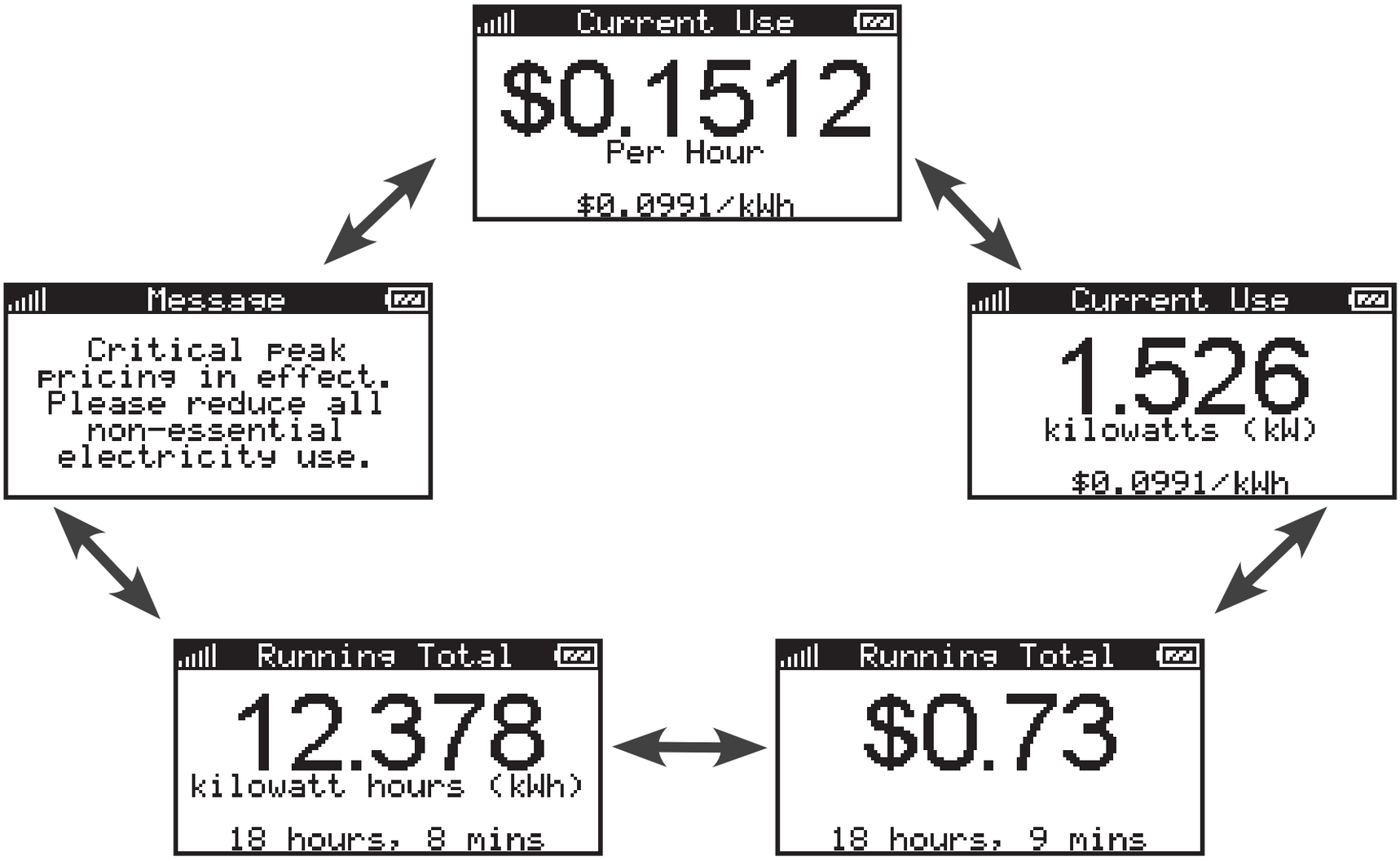
Warning: Involvement from your service provider will be required to recommission your PowerTab when you want to join a ZigBee Smart Energy network again. In general, you should only leave the network if you are moving, or if you were specifically asked to do so by your service provider.

To remove your PowerTab 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> buttons for 10 seconds
4. Press <L> ("Yes") at the network leave confirmation screen that appears

2.5 Navigating your PowerTab screens

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

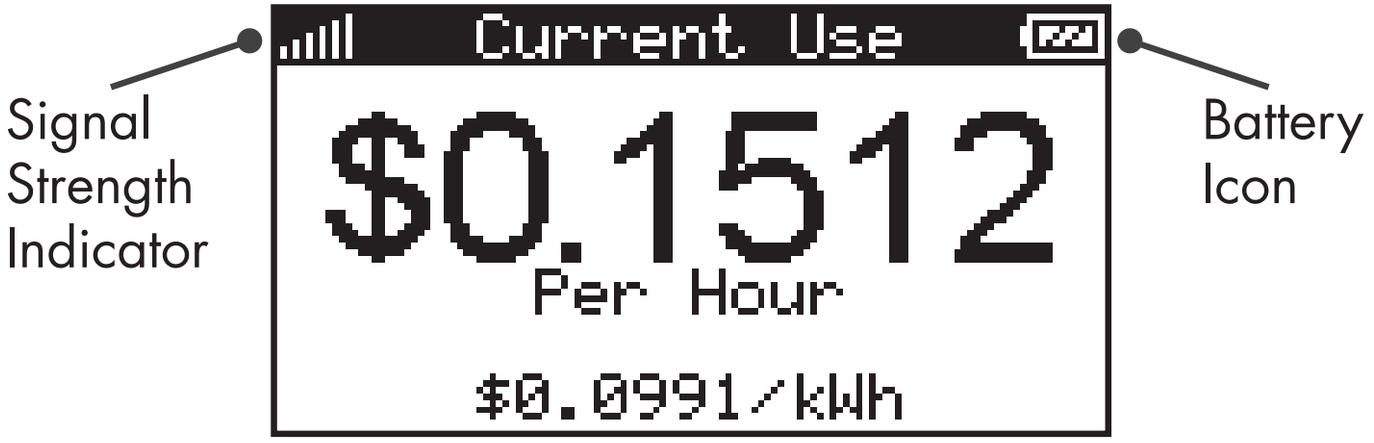


The Message screen is only available when there is at least one active message. Additional message screens will be included in the loop when there are multiple active messages.

2.6 Signal strength and battery charge indicators

The battery icon in the top-right corner of your PowerTab screen shows an approximation of its remaining charge. When connected to external power, the battery icon will animate to show that your PowerTab is charging. When your PowerTab has finished charging but is still plugged in, a plug is displayed in the middle of the battery icon.

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

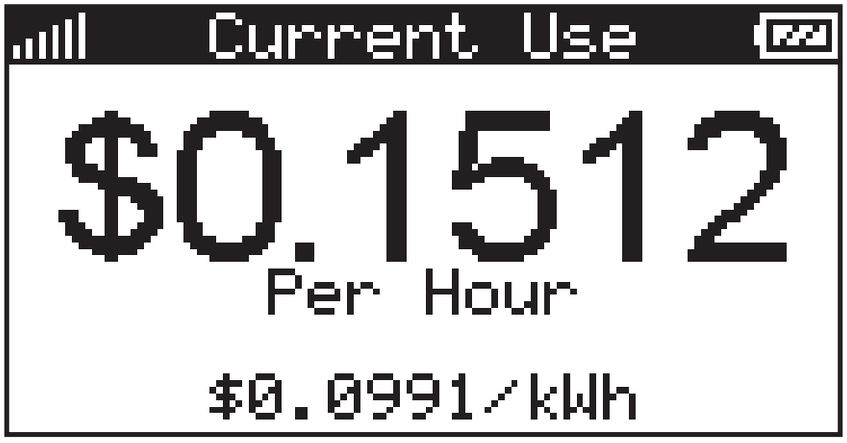


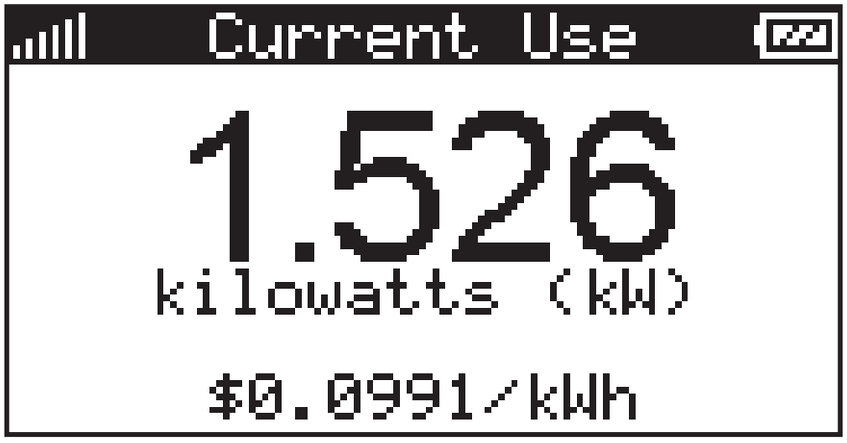
3 Using Your PowerTab

Your PowerTab provides you with feedback that will enable you to better understand your electricity bills and manage your consumption. This section explains a few ways in which you might use your PowerTab.

3.1 Viewing your current electricity use

To view your home's current rate of electricity consumption, navigate to the Current Use screen on your PowerTab shown below using the <L> or <R> button.



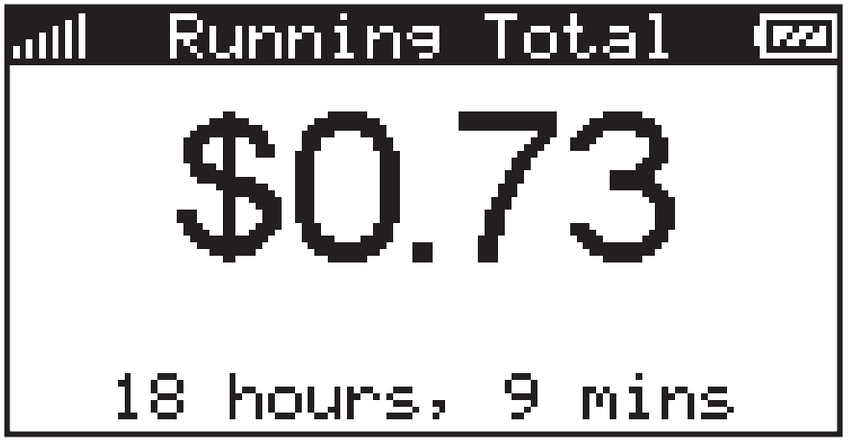


In the screen on the left, the large number shows the cost of your current consumption rate in dollars per hour. The large number in the screen on the right shows your actual consumption rate in kilowatts. The smaller

number at the bottom of the screens show the current price you are being charged for each kilowatt-hour of electricity consumed.

3.2 Tracking your electricity use over time

To view your home's total electricity consumption over a fixed period of time, navigate to either of the Running Total screens on your PowerTab shown below using the <L> or <R> button.



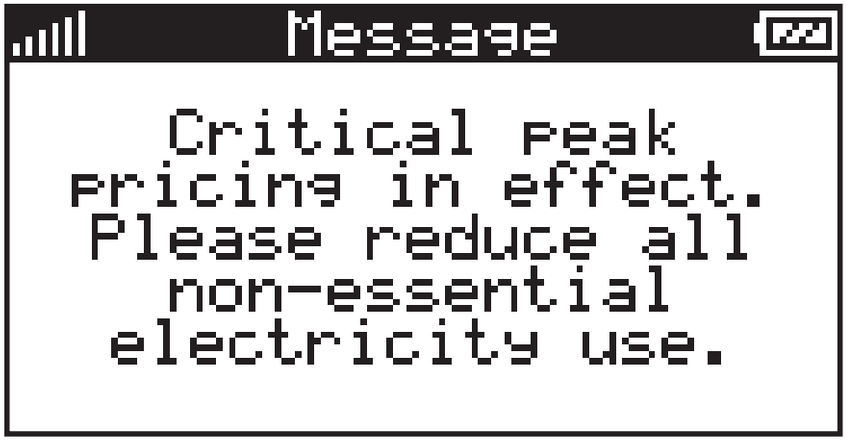
In the screen on the left, the large number shows the cost of your accumulated electricity consumption in dollars. The large number in the screen on the right shows your accumulated consumption in kilowatt-hours.

The Running Total can be reset by pressing the <L> and <R> buttons 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.



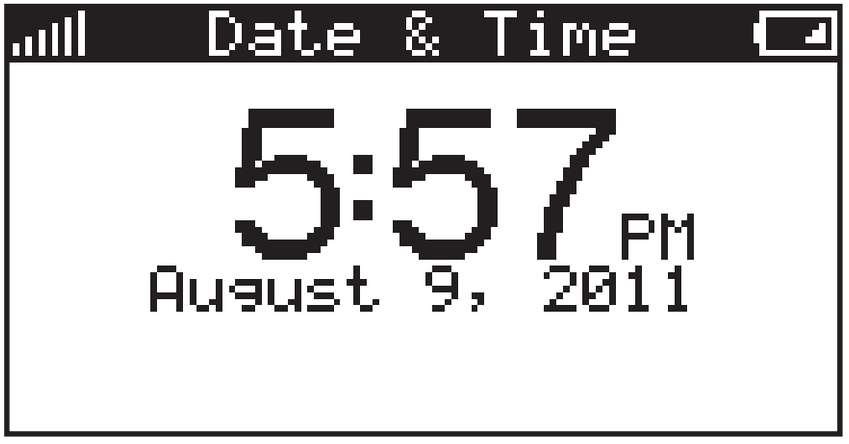
Messages will remain viewable on your PowerTab until they expire (configured by your service provider). Expired messages are not retrievable.

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

acknowledgment expires before you've acknowledged it, it will no longer be possible to send an acknowledgement for that message.

3.4 Viewing the date and time

The PowerTab is also capable of displaying the current date and time on its dedicated date & time screen shown below. Time information is synchronized to your meter and does not need to be entered manually.



3.5 Understanding the lights on your PowerTab

Your PowerTab has three lights that are used to indicate the presence of new messages and the current relative cost of electricity."

Note: The lights will continue to function while your PowerTab is in sleep mode.

When a new or unacknowledged message is available on your PowerTab, the lights will show this by simultaneously blinking once every 7 seconds. The lights will continue to blink until you have acknowledged this message or changed to another display screen.

When no new messages are present, the lights will indicate the current relative cost of electricity. A pulsing light indicates the price period you are currently in, while a blinking light in conjunction with a pulsing light indicates an upcoming price period change. The special case of Critical Peak Pricing (CPP) is indicated when the red light is blinking on its own.

The exact behaviour of the lights is dependent on the number of active price tiers, however green will always indicate the cheapest tiers, and red the most expensive.

The following table shows examples of the lights' behaviour for a typical time-of-use pricing structure involving four price tiers: Off-Peak, Mid-Peak, On-Peak, and CPP.

Pulsing Light “_ _ _”	Blinking Light “-- -- --”	Description
Green	None	Off-Peak price in effect
Yellow	None	Mid-Peak price in effect
Red	None	On-Peak price in effect
None	Red	CPP in effect
Green	Yellow	Off-Peak price in effect Mid-Peak price upcoming within 5 minutes
Red	Green	On-Peak price in effect Off-Peak price upcoming within 5 minutes

4 Troubleshooting/FAQ

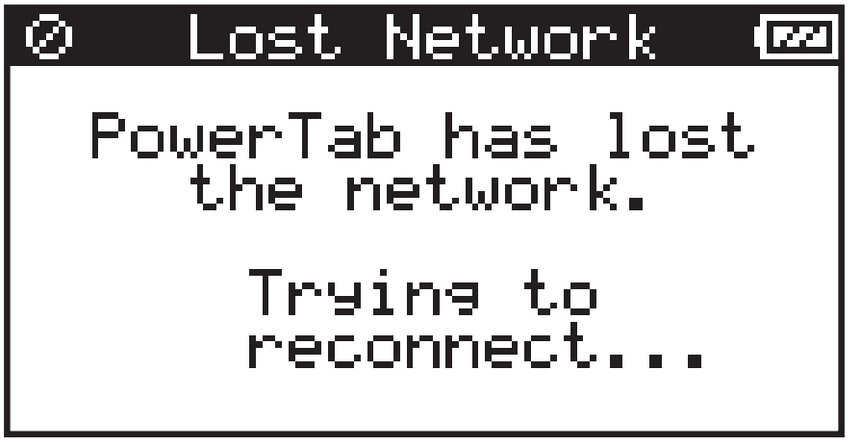
Solutions to most of the problems you might encounter with your PowerTab are described in this section.

4.1 If your PowerTab fails to join a network

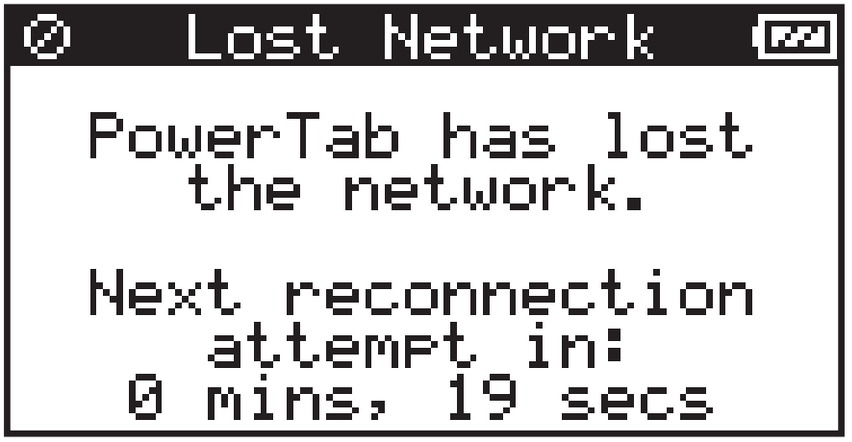
If your PowerTab displays "No networks found" after you attempt to join your meter's network, your PowerTab may not be in wireless range of your meter. Try moving closer to your meter and attempt joining again. If this does not solve the issue, it may be necessary to recommission the PowerTab. Contact your service provider and ask them to commission your PowerTab again.

4.2 If your PowerTab has lost the network

When your PowerTab loses connection to the network it will periodically attempt to reconnect. During a reconnection attempt you will see the following screen.



Between reconnection attempts, the following screen indicates how much time is remaining before the PowerTab's next automatic retry.



You may force an immediate reconnection attempt at any time by pressing <L> or <R>.

The connection interruption may have occurred because:

- Your PowerTab is not within wireless range of your meter.

Try moving your PowerTab closer to the meter or away from large obstacles.

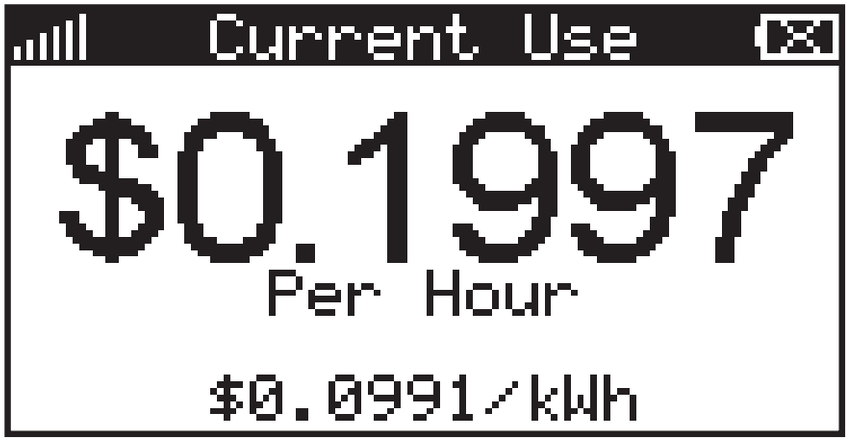
- Your meter's network has gone down due to a power outage or due to being serviced by a field technician.

4.3 If your PowerTab will not turn on

If your PowerTab 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 PowerTab into a power outlet.

4.4 If your PowerTab will not recharge

If your PowerTab will not charge and is displaying the battery icon shown in the following screen, it has detected a battery that it is unable to charge. Replace the battery with a rechargeable Nickel-Metal Hydride (NiMH) battery.



4.5 If you need to change the battery

Your PowerTab uses a rechargeable Nickel-Metal Hydride AA battery.

CAUTION: Only rechargeable, Nickel-Metal Hydride batteries may be used in the PowerTab. DO NOT USE ANY OTHER CELL CHEMISTRIES WITH YOUR POWERTAB.

To replace your PowerTab's battery, follow these steps:

- Disconnect your PowerTab from the power outlet
- Open the battery door and remove the battery
- Insert a new rechargeable Nickel-Metal Hydride (NiMH) battery according to the orientation shown in the battery compartment
- Replace the battery door and check that the PowerTab has turned on

Rechargeable Nickel-Metal Hydride (NiMH) batteries with a capacity from 2300mAH – 2600mAH and manufactured by the following companies, are the only suitable replacements for the battery that you received with your PowerTab.

You should not replace the battery with anything other than those listed here:

- Energizer rechargeable NiMH battery, 2300mAH – 2600mAH
- Duracell rechargeable NiMH battery, 2300mAH – 2600mAH
- PowerEx rechargeable NiMH battery, 2300mAH – 2600mAH
- Sanyo rechargeable NiMH battery, 2300mAH – 2600mAH
- Rayovac rechargeable NiMH battery, 2300mAH – 2600mAH

4.6 Your Running Total does not match your electricity bill

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

4.7 How to figure out what an individual appliance is consuming

Your PowerTab 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. (See section 3.1.)

4.8 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 PowerTab's Current Use screen.

4.9 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 Appendix

5.1 Safety Instructions

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

- The PowerTab contains a magnet. Do not place your PowerTab directly on credit cards, computers, or other pieces of electronic equipment, as this may cause damage.
- Do not attempt to repair your PowerTab or DC power adaptor yourself. If you are experiencing problems with the device, contact your service provider for assistance. Opening the product casing 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 your PowerTab in water.
- Avoid using your PowerTab in high moisture areas such as a bathroom for extended periods of time.
- Keep your PowerTab away from heat sources such as stoves and heaters.

- Do not drop your PowerTab or cause any sudden impact to it.
- Take care when handling a damaged LCD display as the liquid crystals can be harmful to your health. If any fluid does leak from your PowerTab's LCD, immediately wash with soap and water.

5.2 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 between charges: 2 weeks
- Recharge time: 15 hours

5.3 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.

IC RSS 210

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation

est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC/IC 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.

Cet équipement est conforme à l'exposition aux radiations de FCC et d'Industrie Canada établies pour un environnement non contrôlé. L'antenne (s) utilisé pour cet équipement doit être installé pour fournir une distance d'au moins 20cm à partir de toutes les personnes.

5.4 Manufacturing Information

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

Made in Canada in an ISO 9000-2008 certified facility.

PowerTab is a trademark of Energy Aware Technology Inc.