

Comverge PowerPortal In-Home Display (IHD)

User Guide for Members of New Hampshire Electric Cooperative



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About the Comverge PowerPortal In-Home Display (IHD)

The Comverge PowerPortal® In-Home Display (IHD) is a wireless device that communicates directly with the electricity meter outside your home. Your IHD allows you to:

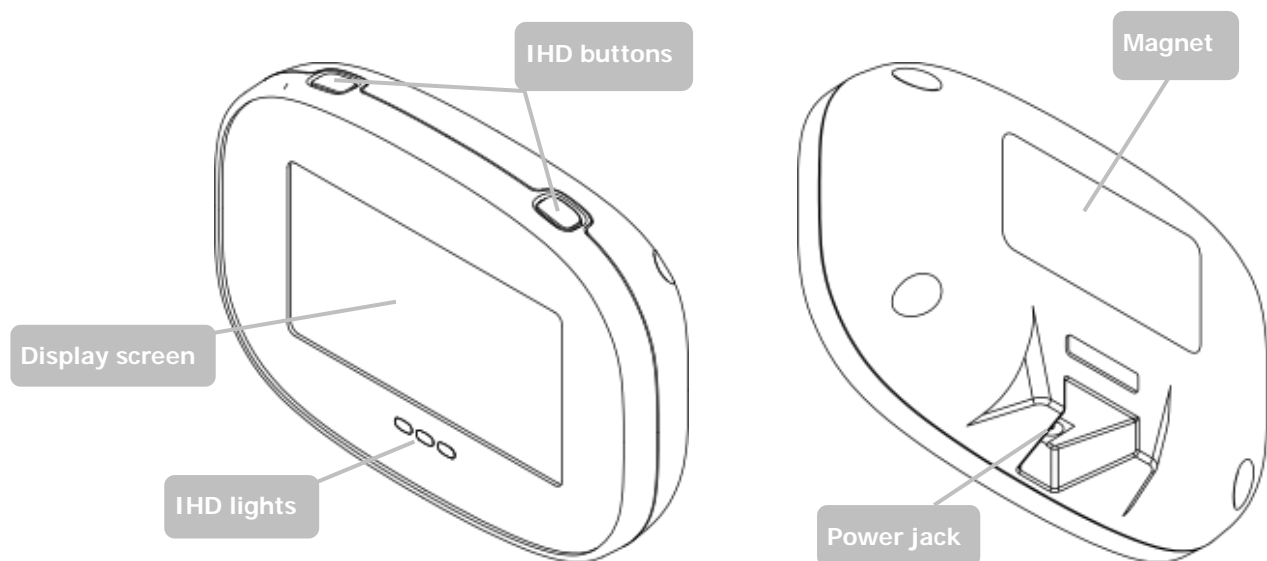
- View your household's current electricity use.
- Track your electricity consumption and associated costs over time.
- Test consumption and costs of operating individual devices.
- Receive messages from New Hampshire Electric Cooperative, Inc. (NHEC).

The IHD is rechargeable. It has a magnetic backing so you can place it on your refrigerator, or it can stand upright on a table or countertop.

IHD Parts

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

Display Unit



*Front View**Back View*

Safety Instructions



Caution: To ensure your IHD is used safely, it is important that you 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 In-Home Display or DC Power Adaptor yourself. If you experience problems with the device, contact Comverge at 1-866-224-5559 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 does not cover drops or impacts.
- Take care when handling a damaged LCD display as the liquid crystals can be harmful to your health. If the LCD screen of your IHD becomes damaged and begins leaking fluid, wash the LCD and any surface or material that has come in contact with the damaged screen. Wash your hands with soap and water after handling the damaged LCD.
- Do not use this device in aircrafts or hospitals. The use of radio frequency can cause malfunctions in the control devices of other equipment.

IHD Basics

This section provides information on the primary functions of your Comverge PowerPortal® In-Home Display (IHD).

Your IHD's Power Modes

Your IHD has three power modes:

1. On
2. Off
3. Sleep

Turn on your IHD

- Press either the Left (<L>) or Right (<R>) button.

Turn off your IHD

1. Press and hold the Left button for three seconds. A message appears, confirming whether you want to turn off the IHD.
2. Select **Yes** by pressing the Left button again.

Important: Your IHD is unable to receive text messages from NHEC when it is off.

Sleep Mode

When not connected to external power, your IHD will go to sleep after 5 minutes of inactivity. If desired you can “wake up” the IHD from Sleep Mode.

Wake up the IHD that is in Sleep Mode

- Press the Left or Right button.
- Or
- Plug it in.

Charging Your IHD

You must charge your IHD before you can start using it.

Charge your IHD

1. Connect the power adapter to the power adapter jack on the bottom of the IHD.
2. Plug the other end of the power adapter into a power outlet.

Important: 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 has finished charging.
- Allow it to fully discharge before recharging.

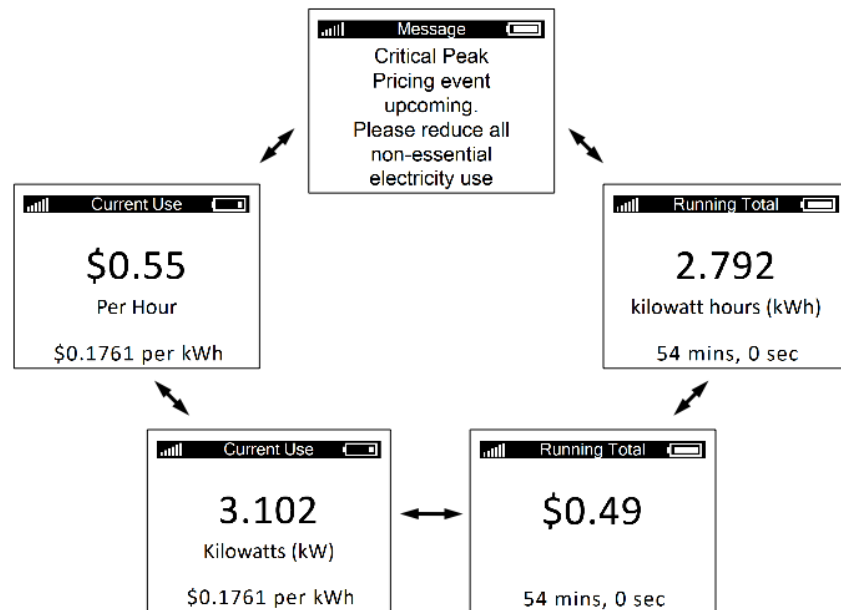
Navigating Your IHD Screens

The main screens of your IHD are displayed in a sequential loop.

The **Message** screen, which appears at the top of the diagram below, is only available when there is at least one message available from NHEC. Additional message screens are included in the loop when there are multiple messages available.

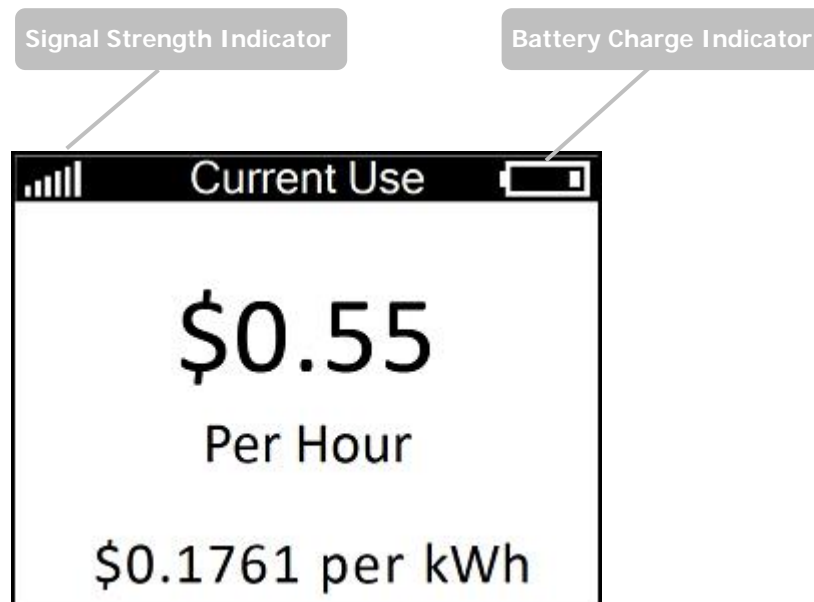
Move from one screen to the next

- Press the Left or Right button to move through the screens in the sequence.



Battery Charge Indicator

The battery icon in the top right corner of your IHD screen indicates the IHD's remaining charge. When connected to external power, the battery icon animates to show that your IHD is charging. When the animation stops, charging has finished.



Signal Strength Indicator

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.

Using Your IHD

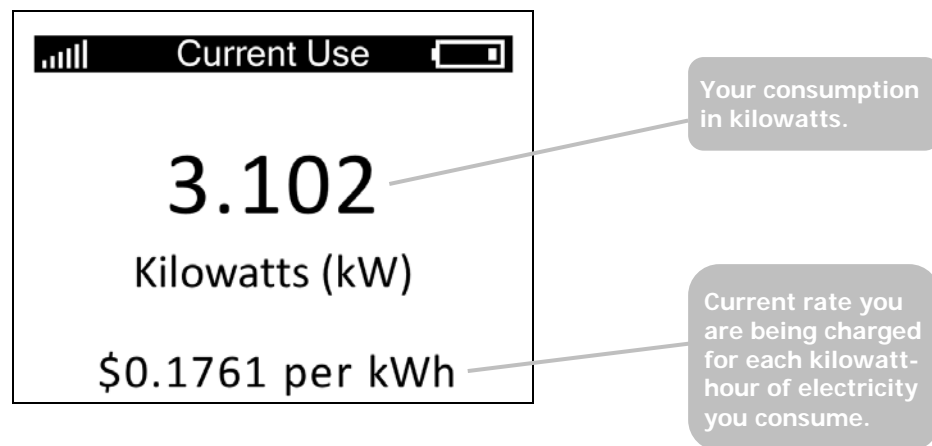
Your IHD provides you with feedback to help you better understand your electricity bills and manage your consumption. This section covers the ways in which you can use your IHD.

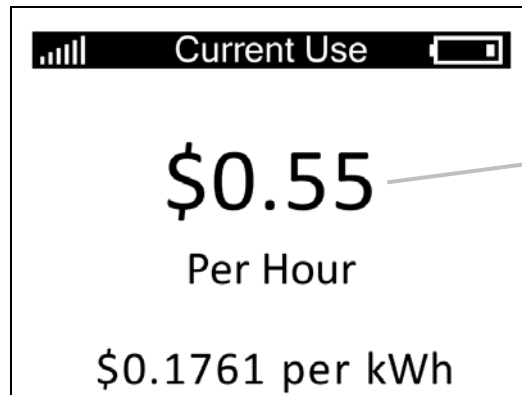
Viewing Your Current Electricity Use

The **Current Use** screens on your IHD display information about your home's current electricity consumption. There are two **Current Use** screens:

- One screen shows your consumption in kilowatts.
- The other screen shows the associated cost of your consumption in dollars per hour.

The smaller number at the bottom of both screens shows the current rate you are being charged for each kilowatt-hour of electricity consumed.





Cost of your
consumption in \$
per hour.

Tracking Your Electricity Use Over Time

The **Running Total** screens on your IHD (shown below) display information about your home's total electricity consumption over a fixed period of time. There are two **Running Total** screens:

- One screen shows your accumulated electricity consumption in kilowatt-hours.
- The other screen shows the associated cost of your consumption in dollars.

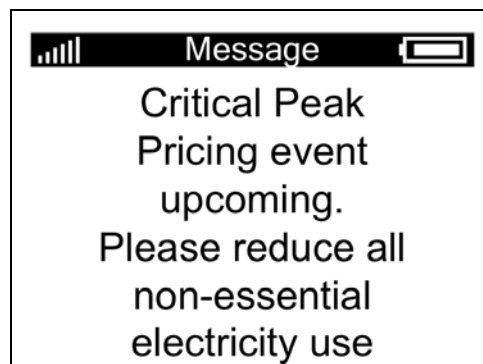
The smaller numbers at the bottom of the screens show how much time has elapsed since the last reset.

Resetting the Running Total

Your IHD will automatically reset each month to coincide with your billing cycle.

Receiving Messages from NHEC

If NHEC has sent you a message, it will appear on a **Message** screen. An example message is shown below.



Messages will remain viewable on your IHD until they expire. Expiration times are set by NHEC. You can no longer view a message that has expired.

Understanding the Lights on Your IHD











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

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

The LEDs indicate a new message by simultaneously blinking once every five seconds. The LEDs will continue to blink until you have read the message or changed to another screen. When no new messages are present, the LEDs indicate the current relative cost of electricity. The LEDs can either pulse or blink.

- A blinking LED indicates the rate period you are currently in.
- A blinking LED in conjunction with a pulsing LED indicates an upcoming rate period change.

The color of the pulsing LED indicates the upcoming rate period. The special case of Critical Peak Pricing (CPP) is indicated when the red LED is pulsing on its own. The following table defines the LEDs' behavior for NHEC's rate structure.

Pulsing LED " _ _ _ _ "	Blinking LED " _ _ _ _ "	Description
None 	Green 	Off-Peak Rates in effect
None 	Amber 	On-Peak Rates in effect
Amber 	Green 	Off-Peak Rates in effect On-Peak Rates upcoming
Green 	Amber 	On-Peak Rates in effect Off-Peak Rates upcoming
Red 	None 	Critical Peak Rates in effect

Troubleshooting and Frequently Asked Questions (FAQ)

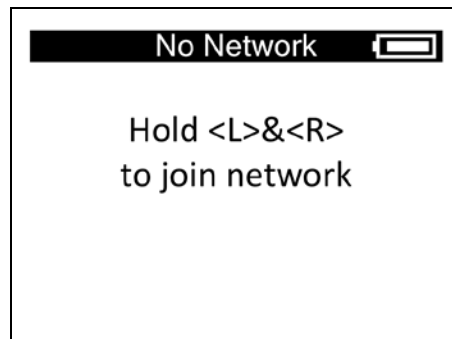
This section describes solutions to most of the problems you might encounter with your IHD.

Joining Your Meter's Network

Your IHD has already been joined to your meter's network prior to delivery. Only use the following instructions if you turn on the IHD and see the 'No Network' screen as displayed below.

Your IHD needs to connect to your electricity meter's network in order to receive and display messages.

When your IHD is not connected to a network, it displays the following screen:



Connect your IHD to the meter's network

1. Turn on your IHD and connect the power adapter. The **No Network** screen (shown above) should appear.
2. Contact NHEC at 1-800-698-2007 to request that your IHD be authorized to join the electricity meter's network.
3. Once you have confirmation from NHEC that the IHD is authorized to join the meter's network, press and hold the Left and Right buttons at the same time for at least three seconds to initiate the network joining process.

Your IHD may take up to five 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.

Important: Once NHEC has authorized your IHD to join the meter's network, you have a limited time to complete the rest of the process. You should complete Step 3 above as soon as possible.

Remove your IHD from your meter's network

1. Turn the IHD off.
2. Turn the IHD back on.
3. While the startup screen is displayed, hold the Left and Right buttons at the same time for 10 seconds. A network leave confirmation screen appears.
4. Select **Yes** by pressing the Left button.

Note: Involvement from NHEC 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 NHEC.**

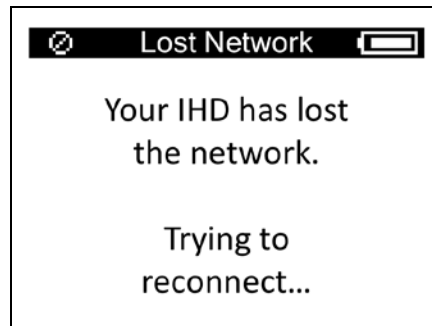
Your IHD fails to join the network

If your IHD displays a **No networks found** message 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 NHEC and ask them to commission your IHD again, then attempt joining a third time.

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.

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 power adapter jack and plug your IHD into a power outlet.

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. Please note that your running total as displayed by your IHD does not include the NHEC monthly Member Service Charge of \$23.24 (as effective 6/1/12 and subject to change).

To calculate the consumption rate of an individual appliance

You can use your IHD to determine the cost of operating an appliance, such as your dishwasher or clothes dryer.

Determine the cost of operating a single appliance

1. Check the current consumption and current cost on the IHD **Current Use** screens.
2. Turn on the appliance.

3. Calculate the difference between your first consumption and cost and the new consumption and cost. This is the cost of operating the appliance.

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.

NHEC sent you a message. Where did it go?

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

Energy Savings Tips

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

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

Appendix

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

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 Comverge, 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, you should 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.