Efergy True power Meter

Instruction manual

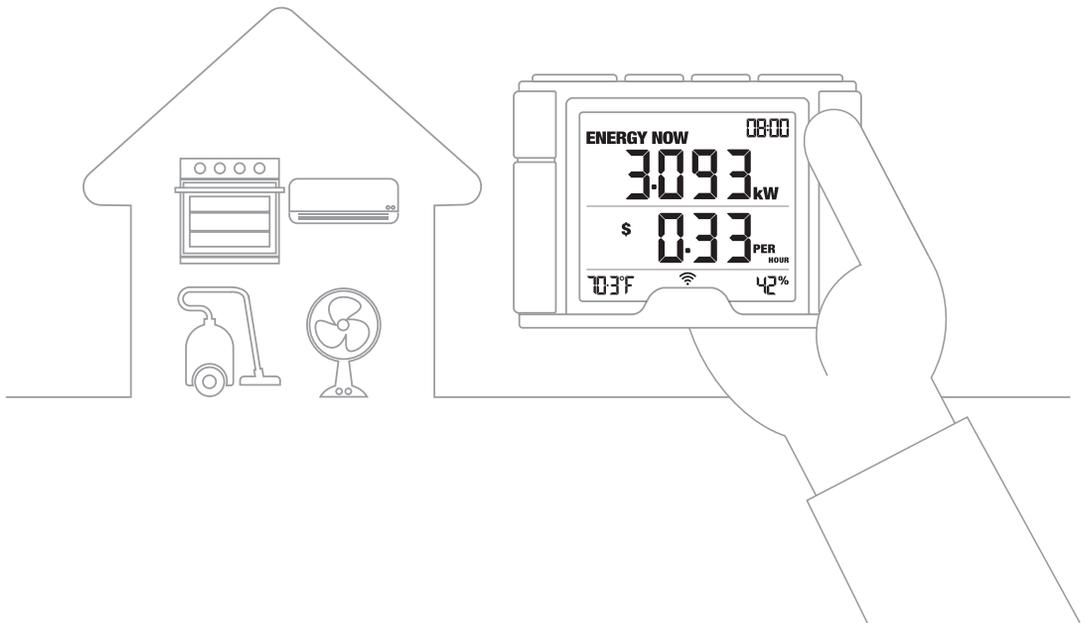efergy®

ENERGY NOW

0·690 kW

$ 0·02 PER HOUR

14:00

26.0°C   50%

CONTENT

INTRODUCTION

Energy metering and monitoring are at the heart of energy management, understanding when and where your energy is consumed is key to saving money.

Efergy Energy Meters show the amount of energy that a household is consuming at the time the display is read. The display can also give the user a reading showing usage in financial terms.

You can walk around the home with your monitor device, switching appliances on and off, to see the difference that each one makes. With a few small changes in your consumption behaviour the monitor can help you reduce your energy costs.

WARRANTY

To obtain maximum benefit from this warranty, we recommend you to:
- Read this instruction manual for safe, proper and efficient use
- Keep your original receipt

Efergy warrants this Energy Meter for the period of 1 year, from the date of delivery, to be free of defects in materials or workmanship (excluding batteries).

This warranty does not apply to normal wear and tear, and does not cover replacement of any components damaged in any way by misuse, abuse, neglect or due to modifications made by any person other than those licensed by Efergy.

This does not cover cracks or scratches to the device or the screen. The repair or replacements of the hardware or of any of the component(s) are the exclusive remedies provided in conjunction with the supply of the Efergy real time monitor.

In no event shall Efergy be liable for any direct, indirect, incidental, special or consequential loss or damages whatsoever caused by the use of the Efergy Energy Meter even if Efergy have been advised of the possibility of such damages.

SAFETY INFORMATION

> **WARNING!** Your electric panel contains energized parts. This device must be installed by a qualified electrician, unless otherwise permitted by local regulations.
>
> It is important that you take some simple precautions before using this product. Incorrect use or poor safety practices can result in injury or fatality. Whenever possible, turn off the main breaker outside your home feeding power to your electricity panel.

When installing the Efergy Energy Meter you should find that everything is straight-forward. However, there are a number of important health and safety issues which you need to be aware of:

⚠ The current sensors clip onto the supply cables inside the main electrical panel, which delivers power to your home.

⚠ Do not touch any metallic connections during the installation of the sensors. Do not carry out this installation if under the influence of alcohol or drugs.

⚠ Remember the device is not intrusive and does not require rewiring; no wires or cables need to be cut, removed or modified to perform this installation. If you notice anything unusual about the electricity supply such as loose wires, exposed cabling, burn marks, holes in the insulating materials or damage to the electric wires in the service panel or where the sensor is to be attached, stop immediately and report the findings to your supply company.

⚠ Efergy energy monitoring systems are considered plug and play devices that meet all regulatory requirements for installation in the United States and Canada.

⚠ Do not force or bend the cables at any point during installation. If you are worried or have any concerns about the installation, please contact a qualified electrician immediately.

⚠ The user does not need to remove the sensor throughout the working life of the unit. Battery changes are performed on the transmitter and on the display. There are no batteries to change in the sensor.

⚠ Even with the main breaker in the off position, the connection lugs where the main wires terminate at the main breaker may still be live with potentially lethal voltage. Stay clear of these connections during the installation of the sensors.

⚠ The sensors are insulated so do not be concerned if they slide down the main wires to the breaker after being secured around the insulated wires. A plastic tie wrap (with 5cm of the tie not cut off) secured to the main wire under the desired location for each sensor may be used to keep them from sliding down the wires.

⚠ Millions of these systems have been installed world wide without incident but please follow safe working practices as outlined during the installation.

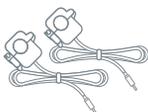# IN THE BOX

The Efergy True Power Meter pack contains the following elements:

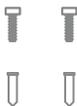1 x Monitor   1 x Transmitter   2 x XL Sensor   1 x AC/AC adaptor

1 x AC/DC adaptor   2 x Anchors   1 x Instruction manual
                           2 x Screws

During the installation you may also need:

Protective   Screwdriver   Flashlight   Hammer
gloves

HARDWARE INSTALLATION

Efergy Energy Meters are installed by clipping the sensors around the feed wires of your electric panel. In Canada and the United States, the residential voltage is 120V for small appliances and lighting and 240V for major appliances and equipment, such as central air conditioner, electric water heater and oven. The AC/AC adaptor also needs to be installed on your service panel, this accurately measures the voltage of your residence and powers the transmitter. Take care to follow the instructions within this guide during the installation and call a qualified electrician if you have any doubts during this process.

Note: For a 120/240V panel (typical residential electric panel) power is measured using two XL sensors. Set the reference point voltage during Monitor Setup to 120V or 130V for most rural installations. For professional installation please consult the **Technical notes for electrician section** (see page 26).

Monitor installation considerations

The meter can be wall-mounted at a convenient location or taken throughout your home to determine how much different electrical loads consume. Efergy Energy Meters update every 10 seconds, so you can apply any new load and watch for the change in the reading on your display.
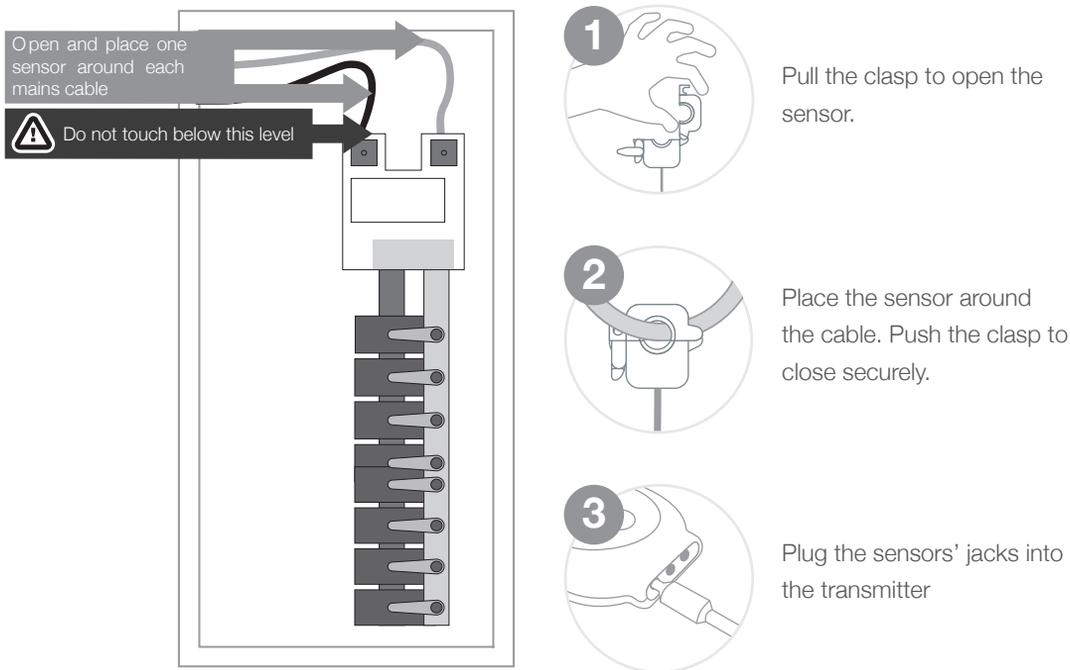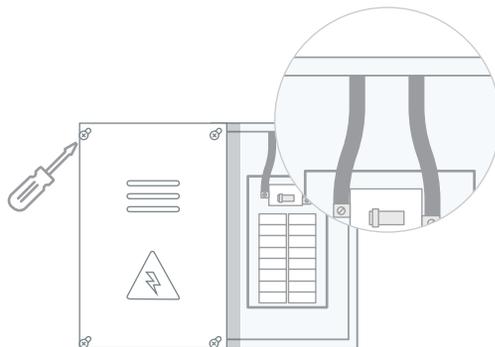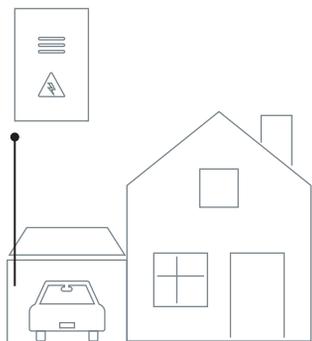
Open and place one sensor around each mains cable

⚠ Do not touch below this level

1 Pull the clasp to open the sensor.

2 Place the sensor around the cable. Push the clasp to close securely.

3 Plug the sensors' jacks into the transmitter

Fig. 1 Typical service panel

Find the main feed wires


Locate your electrical panel

Hardware installation follows the same steps in this case as with an 120/240V panel.

You can normally find your main electrical panel inside your home on the other side of the wall from your electric utility meter. You may also follow the conduit from your utility meter. In many cases it is located in the garage, utility room, laundry room or hallway inside your home. If you live in an apartment, it may be in the kitchen, a utility closet or hallway. Also in the case of an apartment, your voltage may be 120/208V.

Find the main feed wires for your home

Remove the outside cover from your electrical panel and locate the main feed wires. You should find up to four feed wires entering your main electrical panel: two black wires, one white wire and one green wire (there may not always be a green or bare ground wire). The two black wires (or sometimes one black and one red) are the live wires feeding the panel, these are the wires used to measure the power being used in your home or business.
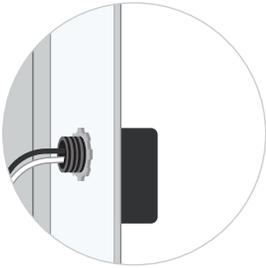
Install the AC/AC adaptor
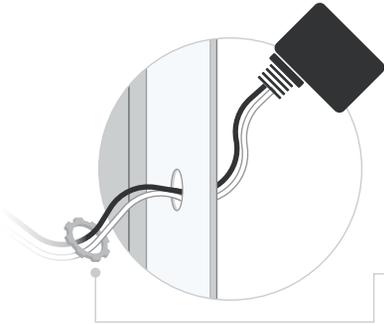
Step 1 - remove a knock out

Either wear proper protective leather gloves or turn off the power to carry out this installation. Carefully remove a standard ½" knock out in the sub portion of your service panel. Remove the locknut from the AC/AC adaptor and pass the wires through the knock out as shown.
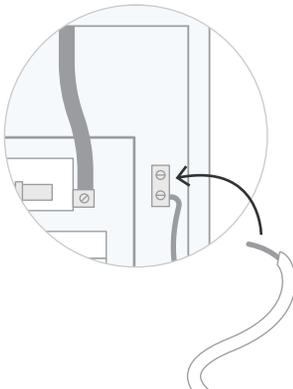
Run the locknut over the black and white leads of the AC/AC adaptor as shown.

Step 2 - Screw the locknut

Screw the locknut onto the threaded hub of the AC/AC adaptor securing the adaptor in place through the wall of the service panel as shown.

Note: The AC/AC adaptor is only to be used for powering the Efergy True Power Meter Transmitter.

Step 3 - Install the white wire

Remove sufficient insulation from the end of the white wire, exposing the bare conductor. Secure the exposed bare wire under a screw on the neutral buss bar of the service panel. Typically, this will be an open solid buss bar within the panel that will have many wires with white installation secured to a common buss.
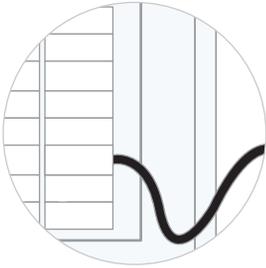
Step 4 - Install the black wire

Remove sufficient insulation from the end of the black wire, exposing the bare conductor. Turn off any 15A single pole breaker and secure the exposed bare wire under the breaker attachment screw. If all breakers are in use, do not place two wires under the screw on the breaker. Pig-tail the wires together into an approved wiring connector and connect a single wire to the breaker.

Install the sensors
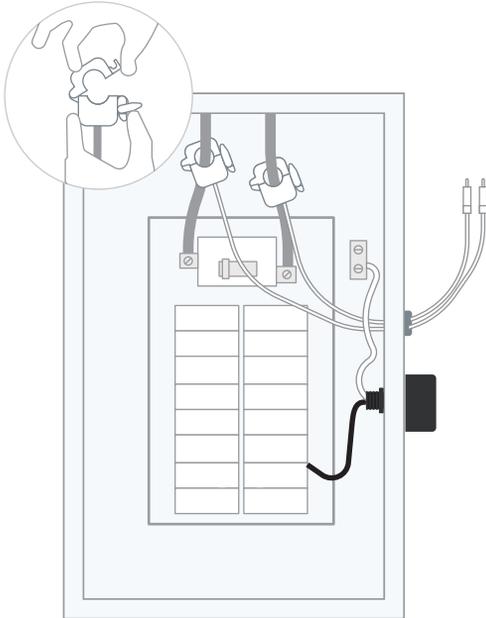
Install a bushing

Locate a circular knockout and install a rubber bushing (not included) on the top, side or bottom of the service panel box that is convenient for routing the sensor wires.

Attach the sensors

Place the sensors around the feed wires of your electric panel. Pull the clasp to open the sensor, place it around the feed cable and push the clasp to shut.
The bushing is then pushed on to the sensor wires outside the panel and then snapped into the hole. Replace the panel cover(s) when finished installing the sensors.
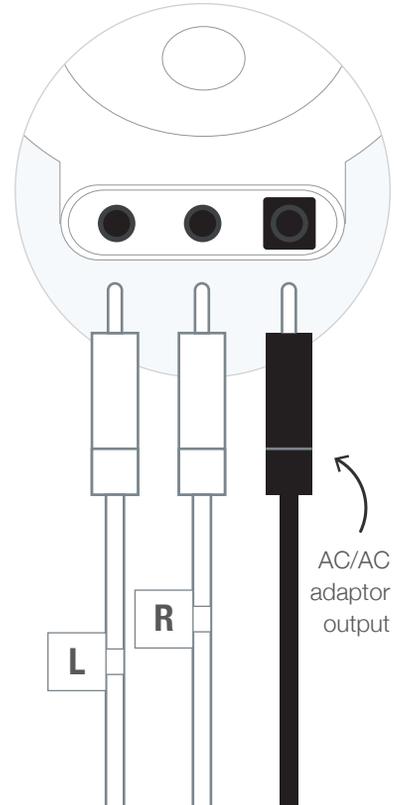
Connect to the the transmitter

Insert 3 AA batteries into the back of the transmitter.
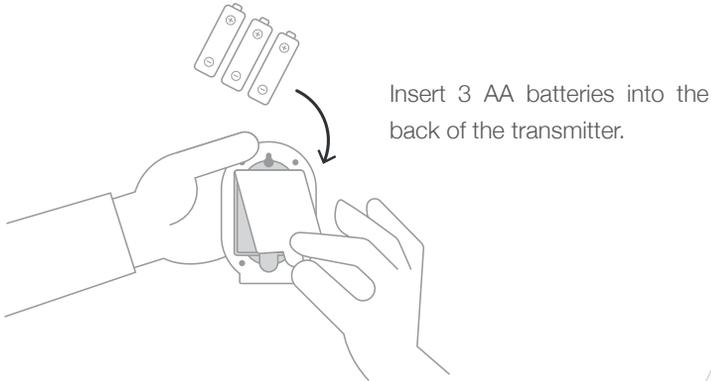
Plug the sensor lead with the "L" into the left port on the transmitter, the sensor lead "R" into the centre port on the transmitter, and the power supply lead into the square right port on the transmitter. Turn on the circuit breaker used for the AC/AC adaptor.

Then mount the transmitter on the wall next to or above the electric panel. This will make it easier to replace the batteries. If the panel is in a finished area, you may mount the transmitter inside the electrical panel. This may reduce transmission distance.

Replace the panel cover(s) when finished installing the the adaptor and sensors.

AC/AC adaptor output

L

R

Link the transmitter and monitor


LINK

DC 5V
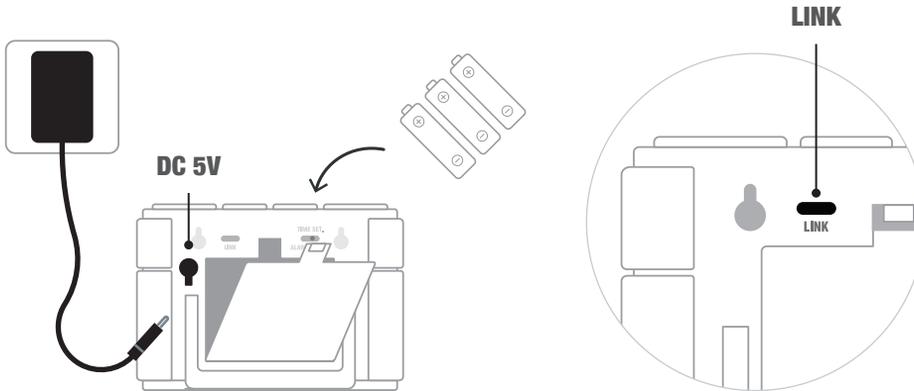
Power on the monitor by plugging it into a household power outlet with the included AC/DC power adaptor, or insert 3 AA batteries into the battery compartment located on the back of the monitor (make sure you match the negative (-) and positive (+) ends of the batteries with the markings inside the battery case).

Press the **LINK** button on the back of the monitor and hold for two seconds. The transmission signal symbol 🛜 will flash for one minute or until the transmitter and monitor are linked.

Note: The transmission frequency is 10s. This means the transmitter is sending information to the display every ten seconds.
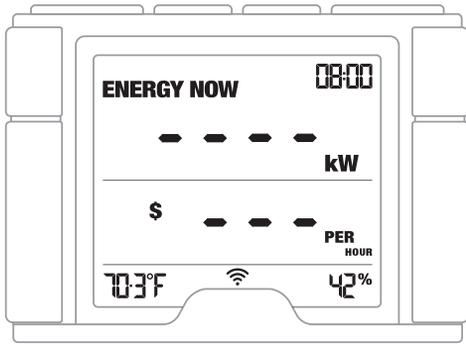
ENERGY NOW

08:00

‒ ‒ ‒ ‒ kW

$ ‒ ‒ ‒ PER HOUR

70.3°F 42%

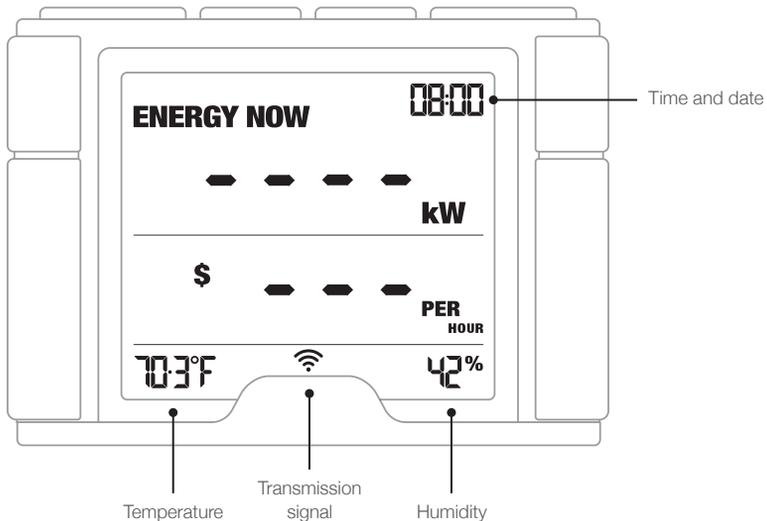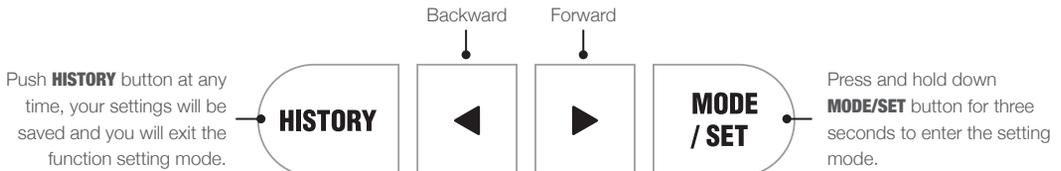The transmission signal symbol 📶 will flash for one minute or until the transmitter and monitor are linked.
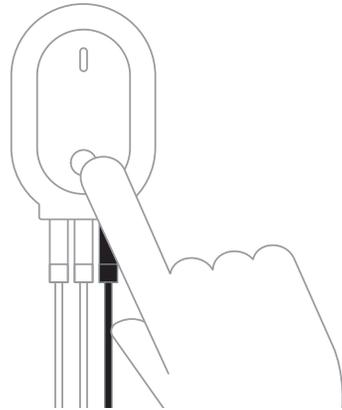
While the transmission signal symbol 📶 in the display flashes, push the button on the transmitter and wait until the transmission signal symbol becomes solid.

MONITOR SETUP

The monitor needs to know the time, date, unit cost per kWh charged by your electricity supplier, along with voltage and alarm settings. The following steps will move through each of these settings.

Backward

Forward

Push **HISTORY** button at any time, your settings will be saved and you will exit the function setting mode.

HISTORY

◄

►

MODE / SET

Press and hold down **MODE/SET** button for three seconds to enter the setting mode.

ENERGY NOW

08:00

Time and date

— — — — kW

$ — — —

PER
HOUR

70.3°F

42%

Temperature

Transmission signal

Humidity
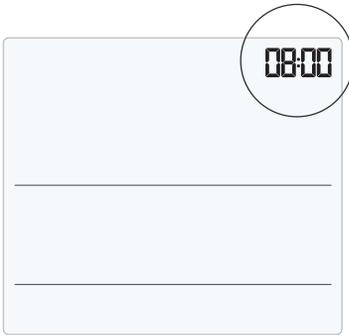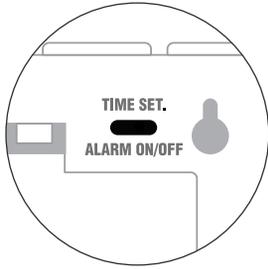
📅 Setting time and date

Press and hold for 2 seconds the **TIME SET.** button located on the reverse of the monitor. The time setup will flash on the display.

Use the **BACKWARD ◀** and **FORWARD ▶** buttons to set the hour. Press the **MODE/SET** button once to save. Repeat the same process to set the minutes. Once the correct time and date have been set, push the **MODE/SET** button to save and move onto the date setup.

Set the month by using the **BACKWARD ◀** and **FORWARD ▶** buttons. Press the **MODE/SET** and move onto the day and year. Repeat the same process and then press the **MODE/SET** button to save and exit.

💲 Currency

Press and hold the **MODE/SET** button for 2 seconds. Select the currency using the **BACKWARD ◀** and **FORWARD ▶** buttons. Default currency will be **$**. Push **MODE/SET** button to confirm and to move onto tariff selection set up.
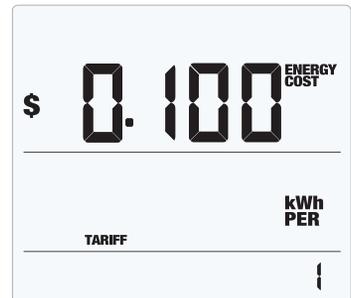
⏻ Programming the tariffs

Your monitor is pre-programmed so this process may not apply for you.

Your monitor has been pre-programmed from the factory in accordance with the standardized Ontario time of use tariffs, including weekends as off-peak. The display will also automatically change from the '**Summer Tariff Structure**' to the '**Winter Tariff Structure**' in accordance with your Ontario utility.
In the future, should any changes be required due to new tariff rates or structures, your display may be easily re-programmed using the following steps:

Program Design: The program has been divided into summer and winter tariffs. Both summer and winter seasons are divided into 5 tariffs. Tariffs 1 through to 4 in both groups represent the 4 tariff settings for weekdays (Monday-Friday) and tariff 5 is for weekends (Saturday-Sunday). Keep in mind that tariff 5 is preset for weekends, therefore you only need to set the tariff
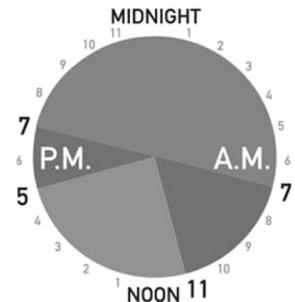cost using the off peak rate.

Start Programming: To start your manual programming press and hold the **MODE/SET** button for 2 seconds. The currency symbol will appear, this has by default been set to '**$**', press the **MODE/SET** button to go to the tariff and cost settings.
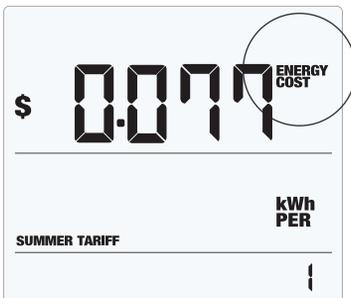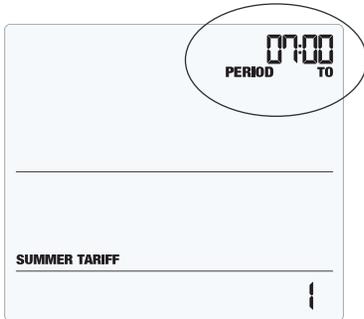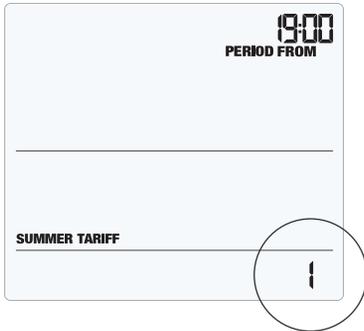
Note: The monitor uses a 24h clock

Tariff examples
Summer (May1-Oct31)
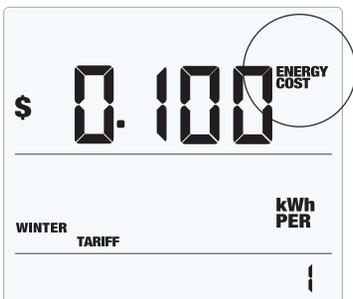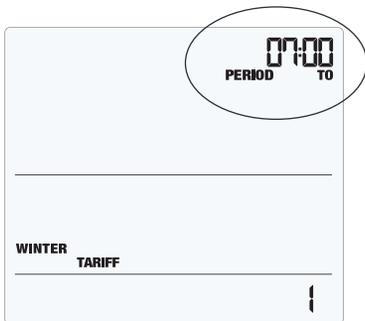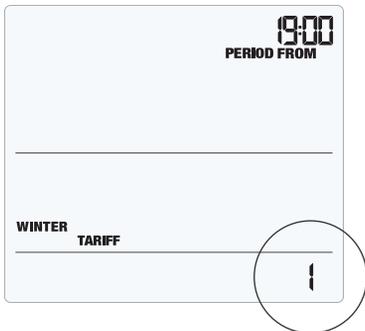Weekdays

Winter (Nov 1-Apr 30)
- Weekdays

⚙ Summer tariff

Press the **MODE/SET** button to enter tariff hours setting - you will note that the words **SUMMER TARIFF 1** will appear. The **1** represents the tariff times for weekdays (represented by 1, 2, 3, 4) and weekends (represented by 5). The time setting **FROM** will be flashing at the top right, use the **BACKWARD** ◀ and **FORWARD** ▶ buttons to change the hour, then press the **MODE/SET** button to set. On pressing the **MODE/SET** button you will confirm the **FROM** time and will move to set the **TO** time. Follow the same routine to set the **TO** time.

Pressing the **MODE/SET** button will complete the tariff time setting for **SUMMER TARIFF 1**. Next you will see the words **SUMMER TARIFF 2**. Again proceed using the **BACKWARD** ◀, **FORWARD** ▶ and **MODE/SET** buttons to adjust and set the time for tariff 2. Proceed as above through all 3 tariffs. The fourth tariff will not appear as the balance of the 24 hour clock is accounted for. You will only need to program cost in tariff 4 and tariff 5 (weekends). Press **MODE/SET** button again to progress onto the tariff costs.

Tariff Pricing

On completing the above, pricing will appear next. Use the **BACKWARD** ◀ and **FORWARD** ▶ buttons to increase or decrease the cost and press the **MODE/SET** button to confirm. As you work your way through the modes each tariff will appear on the bottom right of the screen i.e: 1, 2, 3, 4, 5. The fifth period is set for weekends as 'off peak', you only need to set pricing, no time setting is required as it is preset.

19:00
PERIOD FROM

WINTER
TARIFF

1

07:00
PERIOD   TO

WINTER
TARIFF

1

$ 0.100
ENERGY
COST

kWh
PER

WINTER
TARIFF

1

❄ Winter tariff

The programming procedure for winter tariffs is identical to the summer tariffs, you will see **WINTER TARIFF 1** on the monitor. Use the **MODE/SET** button to access and the **BACKWARD** ◀ and **FORWARD** ▶ buttons to adjust time values. Press the **MODE/SET** button to set and proceed as above through all 3 tariffs. The fourth tariff will not appear as the balance of the 24 hour clock is accounted for. You will only need to program cost in tariff 4 and tariff 5 (weekends). Press **MODE/SET** button again to progress onto the tariff costs.

Tariff Pricing

Pricing will again follow the same process as the summer tariff settings, use the **MODE/SET** and **BACKWARD** ◀ and **FORWARD** ▶ buttons to manoeuvre through the time, tariffs and set pricing for **WINTER TARIFF 1**, **2**, **3** and **4**. The fifth period is set for weekends as off peak, so you only need to set pricing. No time setting is required as it is preset.

You have now completed your manual tariff programming. Press **MODE/SET** button to move onto the set-up for **CARBON EMISSIONS RATIO**, **ALARM**, and **TEMPERATURE**.

Note: To exit the programming section at any time press the **HISTORY** button.

⌂ Carbon emissions ratio

You can also alter the carbon emissions ratio displayed on your monitor. This can be increased and decreased using the **BACKWARD** ◀ and **FORWARD** ▶ buttons. Press the **MODE/SET** button to store the value. The North American average is 0.50kg.CO2/ kWh, this is the default value.

```
0·50
KgCO₂          kWh
               PER
```
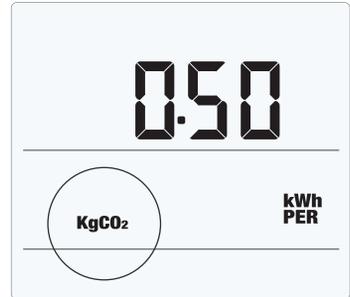
⌂ Alarm

Default alarm is set at **20kW**. If the alarm function is switched on, and you are using more than 20kW the alarm will sound and a red light will glow from the bottom of the wireless energy monitor. The value can be decreased or increased using the **BACKWARD** ◀ and **FORWARD** ▶ buttons. Press the **MODE/SET** button to store the value. To activate and deactivate the alarm at any time push the **ALARM ON/OFF** button on the reverse of the monitor.

```
20·00 ALARM
         kW
```

🌡 Temperature

The temperature setting can be changed between Fahrenheit '**ºF**' and Centigrade '**ºC**' by pressing the **BACKWARD** ◀ and **FORWARD** ▶ buttons. Press the **MODE/SET** button to store the value and exit the setting mode.
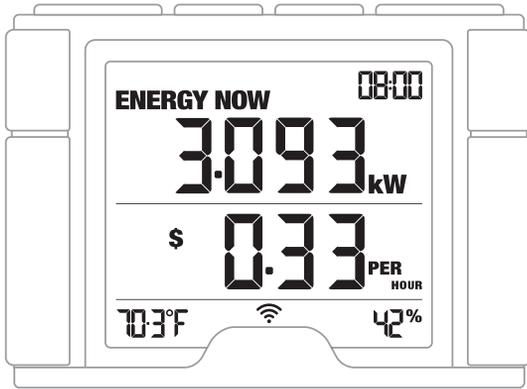
```
°F
```
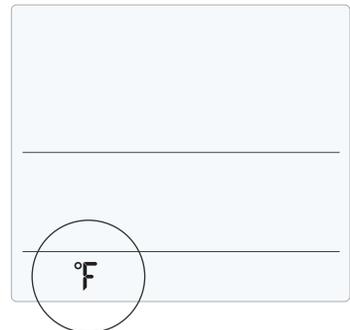
GET FAMILIAR WITH THE DISPLAY

ENERGY NOW

The home screen of the display is the **ENERGY NOW**, it displays accurate energy (KW) usage in real-time. Push the **MODE/SET** button to change information displayed from **KW** to cost (displayed in **$**). The lower part of the screen shows the estimated cost and carbon emissions per hour.

PEAK

When your monitor is in the **ENERGY NOW** mode, this **PEAK** symbol appears when the most expensive tariff is in use.

The alarm icon appears when your **ENERGY NOW** alarm is enabled.

This icon displays the amount of power left within the display's battery cells.

This icon displays the amount of power left within the transmitter's battery cells.
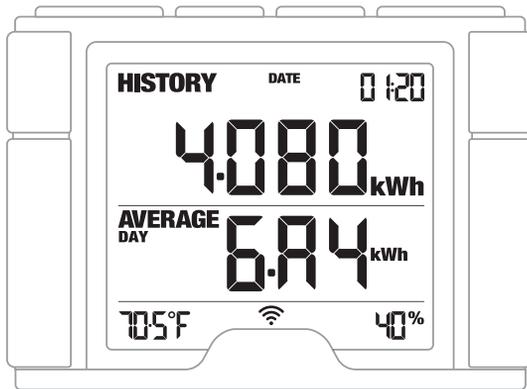
HISTORY

The **HISTORY** mode displays the historical consumption information for days, weeks and months in kWh, $ and KgCO2. The lower part of the screen shows the average information in days, weeks, or months in kWh, $ and KgCO2.

Push the **HISTORY** button to access daily, weekly, and monthly stored data. Use the **BACKWARD** ◀ and **FORWARD** ▶ buttons to scroll between dates and compare consumption data. Press the **MODE/SET** button to change information from kWh to costs and Co2 emissions.

How can I reduce my energy use?

Efergy Energy Monitors show you how much energy you're using, how much it costs, the average and historic usage data.

✓ Once you've installed your energy monitor, walk around your home and switch off everything you can, then walk around holding your energy monitor or app, and switch things back on as you go. You'll see the monitor reading increase when you switch on a new appliance.

✓ An energy monitor can help you to understand how much energy you're using, which appliances are costing you most, and how much you could save by switching items off, using them less or replacing them.
According to the Energy Saving Trust, using an energy monitor could reduce your energy use by 5% - 15% in just a year. So if your annual electricity bill is £600, you could save between £30 and £90.

✓ Find out which appliances or rooms are costing you most, and use the information to help you change habits and make cost-cutting decisions.

FAQs

If I remove the batteries will I lose the information on the monitor?
The monitor has an internal memory, so if you need to change or remove the batteries and the information stored on it will not be lost.

How do I reset the monitor (clear the stored data and start again)?
Press and hold the **MODE/SET** and **HISTORY** buttons simultaneously for two seconds.

How far does the device transmit?
The transmitter works up to around 130-230ft (40-70m) within the home. The 433.5MHz range is well suited for in-home use. This can cover three floors and is also ideal for buildings where electricity meters are situated outside.

I have dashes (- - - -) showing on the monitor. What does this mean?
If the dashes remain on the monitor this would indicate that the transmitter and receiver are not communicating. Move the monitor closer to the transmitter and press the **LINK** button.

The backlight appears to work sometimes and then not others. Is it broken?
No, the backlight is on a timer to save battery life. The monitor should work at darker periods during the day when any buttons are pressed. The LED backlight will be activated from 18:00 to 6:00 hours.

CUSTOMER SUPPORT

If you have any questions about using your monitor or if you'd like further advice on monitoring electricity at home, please feel free to contact us or visit the website for up-to-date information, downloads and frequently asked questions.

Website: www.efergy.com

Support site: efergy.com/support

Technical support: customercare@efergy.com

Sales: sales@efergy.com

Distributed by Florida Eco Products

Website: www.floridaecoproducts.com

Contact: (877) 833-3749

TECHNICAL DETAILS

Model name:	Elite True Power Meter
Model No.	ELITE-TPM-NA-4.0
Frequency:	433.5MHz
Transmission time:	10s
Transmission range:	130-230ft (40-70m)
Working voltage range:	120/240V 60Hz - Single phase only
Measuring current:	50mA - 120A nominal (200A Max.)
Carbon ratio:	0.50 kgCO2/kWh

Designed in the UK / Made in the PRC

Certifications:

Technical notes for electrician

Electricity system	Sensors #	Volt setting
120/240V, 4 Wire, Single Phase (typical residential service in US and Canada)		120
240V, 3 Wire, Single Phase		
120/208V, 3 Wire, 2 Phases of a 3 Phase 120/208V Three wires phase 1 live, phase 2 live, Grid 120V is live to neutral and 208 is phase to phase. Assume unbalanced load.	2 Sensors	240
120/ 208V,4 Wire, 3 Phases, Balanced Load Three phase live, phase 2 live - Neutral, where 120V is phase to neutral and 208V is phase to phase.	1 Sensor	120
120/ 208V,4 Wire, 3 Phases, Unbalanced Load The display does not recognize unbalanced loads in this configuration. The degree of accuracy will be relative to the amount of unbalanced current.	3 Sensors	208
208V, 3 Phase Delta Balanced Load		120
277/ 480V,4 Wire, 3 Phases, Balanced Load Three phase live + neutral, where 277V is phase to neutral and 480V is phase to phase.	1 Sensors	480
277/ 480V,4 Wire, 3 Phases, Unbalanced Load Three phase live + neutral, where 277V is phase to neutral and 480V is phase to phase. The display does not recognize unbalanced loads in this configuration. The degree of accuracy will be relative to the amount of unbalanced current.	3 Sensors	277
230/ 400V,4 Wire, 3 Phases, Balanced Load Three phase live + neutral, where 230V is phase to neutral and 400V is phase to phase.	1 Sensors	400
347/ 575V,3 Phase, Balanced Load.	1 Sensors	580
347/ 575V, 3 Phase, Unbalanced Load. The display does not recognize unbalanced loads in this configuration. The degree of accuracy will be relative to the amount of unbalanced current.	3 Sensors	350

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