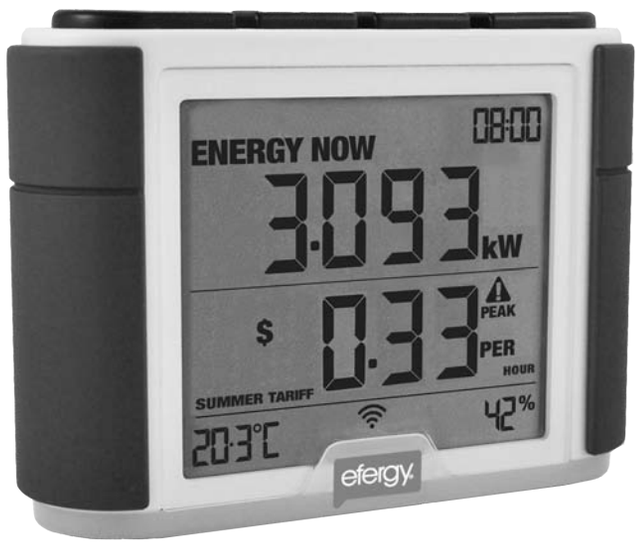
ELITE TRUE POWER METER

WIRELESS ENERGY MONITOR



INSTRUCTION MANUAL

4004583 4000228

FCC NOTE:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

IC NOTE:
This device complies with Industry Canada licence-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. Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

*All values shown in this manual are only examples. Actual figures will vary depending on your consumption.

CONTENTS

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.

The **elite** wireless electricity monitor shows 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 **elite** can help you reduce your energy costs.

Ask Johnny

If you have any questions about using your **efergy** 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.

Email your questions to;
info.canada@efergy.com OR
info.usa@efergy.com

Email your technical questions to;
askjohnny@efergy.com

We aim to answer all your emails within 48 hours

www.efergycanada.ca for Canada
www.efergy.us for USA

IMPORTANT SAFETY INFORMATION

IT IS IMPORTANT THAT YOU OBSERVE SOME SIMPLE PRECAUTIONS BEFORE USING THIS PRODUCT. INCORRECT USE OR POOR SAFETY PRACTISES 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** monitor you should find that everything is relatively straight forward. However, there are a number of health and safety issues which you need to be aware of:

- The sensor clip fits onto the internal live feed cable inside the electricity meter, which delivers the live supply to your home.

- Please read and act upon the important information on the following pages. Remember the device is not intrusive and does not require re-wiring; **no wires or cables need to be cut, removed or modified to perform this installation.**

- **efergy** energy monitoring systems are considered 'plug and play' devices that meet all regulatory requirements for installation in Canada and the United States.

- In some countries (i.e. Australia) the live cable can only be accessed by qualified electricians. 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 sensors are to be attached, stop immediately and report the findings to your supply company.

- 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 display. There are no batteries to change in the sensor.

- Even with the main breaker in the off position, the connection lugs where the mains wires terminate at the main breaker may still be live with potentially lethal voltage. Stay clear of these connections during the installation of the CT sensor (see Fig 1, Page 6).

- The XL CT sensors themselves are insulated so do not be concerned if they slide down the main wire to the breaker after being secured around the insulated wire. A plastic tie wrap (with 2" of the tie not cut off) secured to the main wire under the desired location for the sensors may be used to keep the them from sliding down the wires.

- Millions of these systems have been installed worldwide without incident but please follow the safe working practises as outlined during installation.

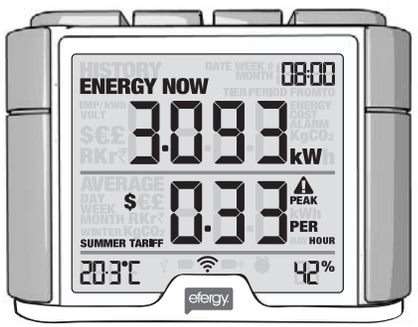
- **EFERGY ASSUMES NO RESPONSIBILITY FOR CLAIMS BROUGHT ABOUT BY IMPROPER OR CARELESS INSTALLATION OR HANDLING OF THIS PRODUCT.**

IN THE BOX

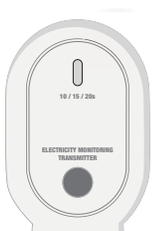
Your **efergy elite true power meter** pack contains the following elements:

1 x **elite TPM** Wireless Energy Monitor
1 x Transmitter
2 x XL CT Sensors
1 x AC/AC Adaptor
1 x AC/DC Adaptor
3 x AA Batteries

You will need to fit the sensors to the live feed cable which connects to the consumer unit. Any power you use in your home will pass through this cable.

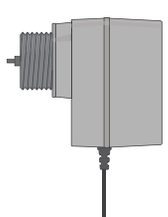


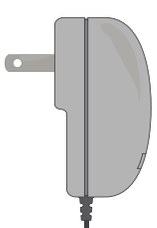
Elite True Power Meter



Transmitter


CT Sensor


AC/AC Adaptor


AC/DC Adaptor

HARDWARE INSTALLATION

PRIOR TO INSTALLATION

The **efergy elite true power meter** is installed by clipping the CT 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.

Note - For a 120/240V panel (typical residential electric panel) power is measured using two CT sensors. For professional installation please consult the **Technical Notes for Electrician** (see page 20).

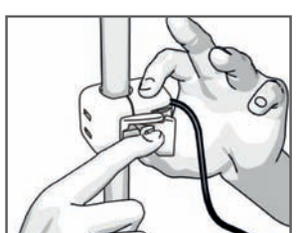
HARDWARE INSTALLATION

MONITOR INSTALLATION CONSIDERATIONS

The wireless energy monitor can be wall mounted at a convenient location or taken throughout your home to determine how much different electrical loads consume. **efergy** monitors update every ten seconds so you can apply any new load and watch for the change in the reading on your display.

1. Pull the clasp to open the CT sensor

2. Place the CT sensor around the cable



3. Push the clasp to close securely

Fig. 1 CT Sensor Installation

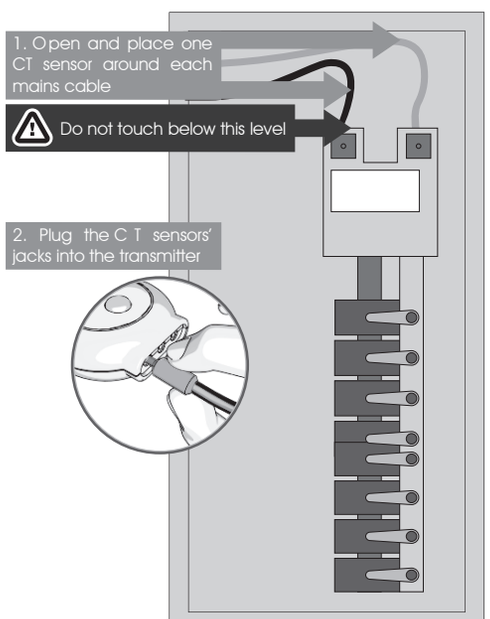


Fig. 2 Typical Service Panel

INSTALLING THE CT SENSORS

IMPORTANT - Always make safety your first priority, see **Important Safety Information** (page 3). Do not touch any metallic connections during the installation of the CT sensors. Do not carry out this installation if under the influence of alcohol or drugs.

Remove a standard ½" knock out from the panel. Feed the CT sensors' leads from inside the panel out through the raw knock out hole, leaving the protective rubber tip on the jacks in place. Open and place one CT sensor around each main feed wire (Fig. 1). The bushing is then pushed on to the CT wires outside the panel and then snapped into the hole. Replace the panel cover(s) when finished installing the CT sensors.

Please note the metal lugs where the main service wires attach to the main breaker. Keep your fingers well away from these lugs unless you are able to turn off the inbound power from your utility source outside. Wiring configurations and types of main panels will vary greatly.

If in doubt, contact an electrician or other qualified person to assist you with the installation of the CT sensors.

You should find up to four feed wires entering your 120/240V or 120/208V 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.

The CT sensors will be installed on the black wires or the black and red wires. Two CT sensors are required for monitoring a 120/240V residential panel or 240V appliances or equipment. One CT sensor is required for monitoring a 120V panel or 120V circuits or appliances.

MONITOR SETUP

LINKING TRANSMITTER AND MONITOR

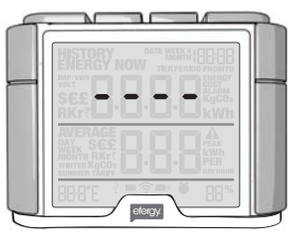
Step 1
Ensure three AA batteries are inserted in the wireless energy monitor. Observe polarity when inserting the batteries.

Step 2
Press the **link** button on the back of the wireless energy monitor and hold for two seconds. The transmission signal symbol will flash for one minute or until the transmitter and monitor are linked.

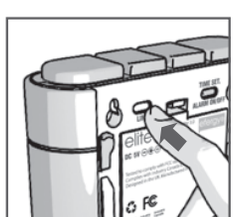
Step 3
While the transmission signal symbol in the display flashes, push the **link** button on the transmitter and wait until the transmission signal symbol becomes solid.

Note - The default value for the transmission frequency is ten seconds. This means the transmitter is sending information to the display every ten seconds. You can change the frequency from 10s to 15s or 20s by pushing and holding the transmitter button for two seconds.

Transmission Signal Symbol



Dashes indicate signals not linked



Wireless energy monitor link button

Transmitter link button

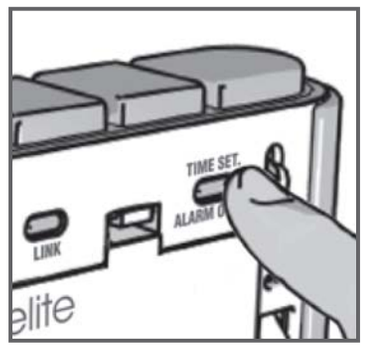
SETTING THE TIME AND DATE

The **elite** monitor needs to know the time and date in order to provide you with the correct information. Set the time and date as follows:

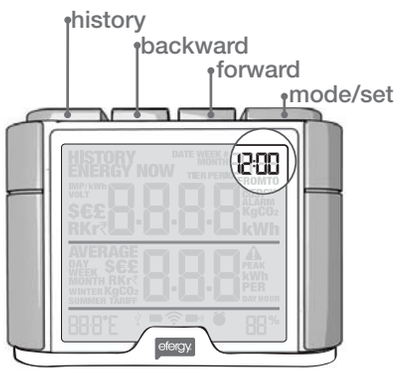
Step 1
On the reverse of the monitor you will find the **time set** button. Press and hold for two seconds. The time setup will flash on the monitor.

Step 2
Set the hour to the correct time by using the **backward** and **forward** buttons. Press the **mode/set** button once to save the hours. Repeat for minutes, using the **mode/set** button to confirm. Once the correct time has been set, push the **mode/set** button to save and move onto the date setup.

Step 3
Set the month by using the **backward** and **forward** buttons. Press the **mode/set** button to confirm and move onto the day and year. Repeat the same process and then press the **mode/set** button to save and exit.



Hold for 2 seconds



MONITOR SETUP

PROGRAMMING THE ELITE TRUE POWER METER

Your **elite** 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.

Note: The elite monitor uses a 24h clock

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.

Tariff Examples
Summer (May 1-Oct 31) - Weekdays

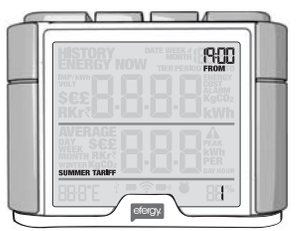
Winter (Nov 1-Apr 30) - Weekdays

SUMMER TARIFF

Summer Hours

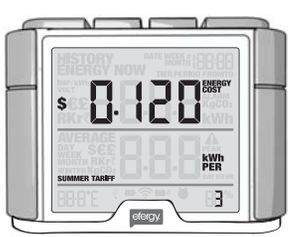
Press the **mode/set** button to enter tariff hours setting - you will note that the words SUMMER TARIFF 1 will appear. The 1 represents the tariff times for weekdays (represented by 1, 2, 3, 4) and weekends (represented by 5). The time setting FROM will be flashing at the top right - use the **backwards** and **forwards** buttons to change the hour, then press the **mode/set** button to set. Repeat process for minutes. 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 adjust and 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** and **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.



Summer 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.



MONITOR SETUP

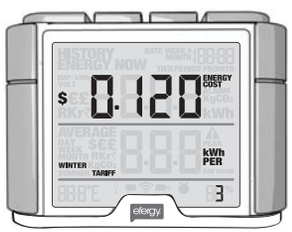
WINTER TARIFF

Winter Hours

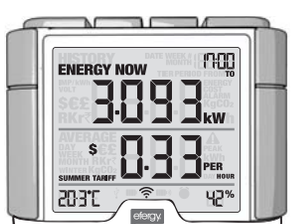
The programming procedure for winter tariffs is identical to the summer tariffs, you will see WINTER TARIFF 1 on the monitor. Use the **mode/set** button to access and the backwards and forwards buttons to adjust time values. Press the **mode/set** button to set and proceed as above through all 3 tariffs. 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.

Winter Tariff Pricing

Pricing will again follow the same process as the summer tariff settings - use the **mode/set** and **backwards** and **forwards** 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, Alarms, and Temperature.



NOTE: To exit the programming section at any time press the history button.

Carbon Emissions Ratio

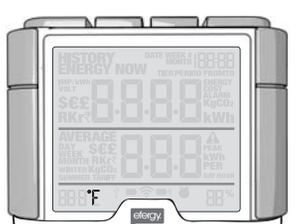
You can also alter the carbon emissions ratio displayed on your monitor. This can be increased and decreased using the **backward** and **forward** arrow buttons. Press the **mode/set** button to store the value. The North American average is 0.50kg.CO_2/ kWh. This is the default value.

Setting an Alarm

The default alarm is set at 5kW. If the alarm function is switched on and you are using more than 5kW, the alarm will sound and a red light will glow from the bottom of the unit. The value can be increased or decreased using the **backward** and **forward** arrow buttons. Press **mode/set** to store the value. To activate or deactivate the alarm push the **Alarm On/Off** button on the reverse of the unit.

Temperature mode

The temperature mode can be changed between fahrenheit and centigrade by pressing the **backward** and **forward** arrow buttons.



PEAK

NOTE: The PEAK symbol shown is displayed when the most expensive tariff is in use

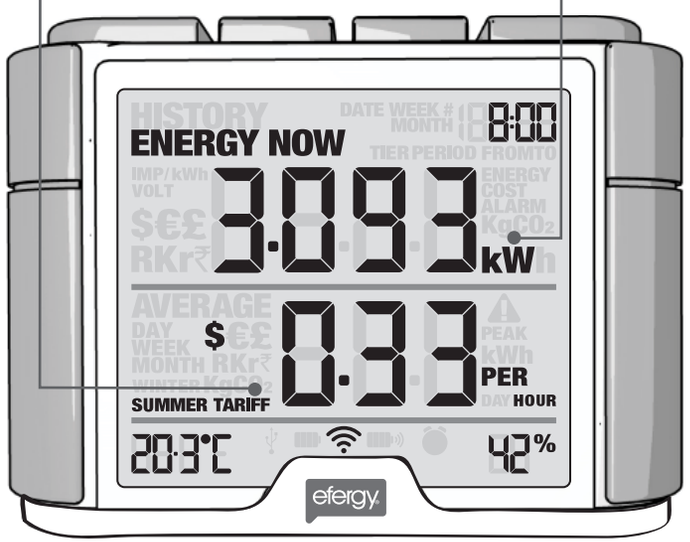
MONITOR SETUP

INSTANT MODE

Push the **mode/set** button to change information being displayed from kW to cost (displayed in $).

Cost and Emission Per Day or Hour
The lower part of the screen shows the estimated cost and carbon emissions per day or hour.

Energy Now
Shows the instant power in kW.

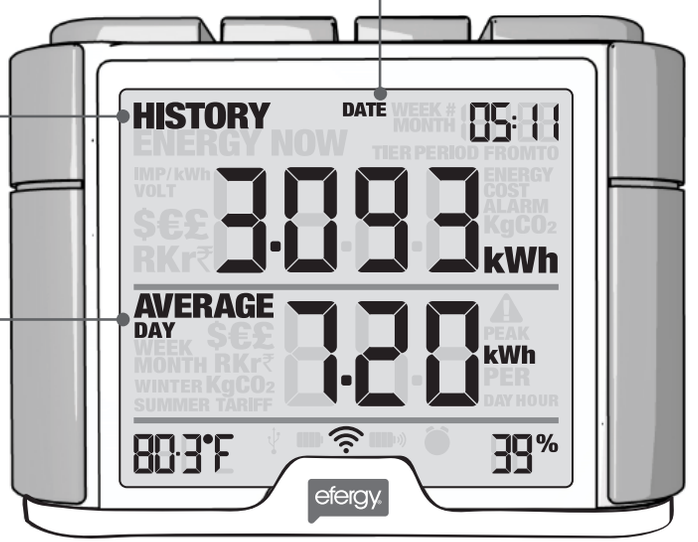


HISTORY MODE

Push the **History** button to access daily, weekly and monthly stored data. Use the **backward** and **forward** arrow buttons to scroll between dates and compare consumption data. Press the **mode/set** button to change the information display from kWh to costs and CO_2 emissions.

Historical consumption information for days, weeks and months in kWh, $ and $KgCO_2$

Average information for days, weeks and months in kWh, $ and $KgCO_2$



FAQS

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

How do I reset the display (clear the stored data and start again)?
Press and hold the **mode/set** and **History** buttons simultaneously for 2 seconds.

How far does the device transmit?
The transmitter work up to around 230ft/ 40m within the home. The 433MHz range is well suited for in-home use. This can cover 3 floors and is also ideal for buildings where electricity meters are situated outside.

I have dashes (- - - -) showing on the display. What does this mean?
Move the display closer to the transmitter and press the **link** button. If the dashes remain on the display this would indicate that the transmitter and receiver are not communicating. Please contact **efergy** customer services to help solve the problem, at askjohnny@efergy.ca

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 display should work at darker periods during the day when any buttons are pressed. The LED backlight will be activated from 18:00 hours - 6:00 hours.

TECHNICAL INFORMATION

Model Name	**Elite true power meter**
Model Number	Elite-TPM-NA 1.0
Frequency	433.5MHz
Transmission Time	10, 15 or 20 seconds
Transmission Range	230ft - 328ft/ 40m - 70m
Working voltage range	110V - 600V
Measuring Current	50mA-200A (MAX)
Carbon Ratio	0.50kg.CO^2/ kWh

INSTALLATION NOTES

Date: _____

mm/ dd/ yyyy

Location installed: _____

_____

Address/ City

Installed By: _____

Number of CTs: _____

TECHNICAL NOTES FOR ELECTRICIAN

NOTE: This table is for reference only. Accuracy may vary depending on the type of connection and loading system used.

	ELECTRICITY SYSTEM	VOLT SETTING AT EFERGY
1.	120V, 3 Wire, Single Phase **(TYPICAL RESIDENTIAL SERVICE IN US & CANADA)**	120
2.	240V, 3 Wire, Single Phase	240
3.	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 CT Sensors**	120
4.	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 CT Sensor**	208
5.	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 CT Sensors**	120
6.	208V, 3 Phase Delta Balanced Load	208
7.	277/ 480V, 4 Wire, 3 Phases, Balanced Load Three phase live + neutral, where 277V is phase to neutral and 480V is phase to phase. **1CT Sensor**	480
8.	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 CT Sensors**	277
9.	230/ 400V, 4 Wire, 3 Phases, Balanced Load Three phase live + neutral, where 230V is phase to neutral and 400V is phase to phase. **1CT Sensor**	400
10.	347/ 575V, 3 Phase, Balanced Load. **1CT Sensor**	580
11.	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 CT Sensors**	350