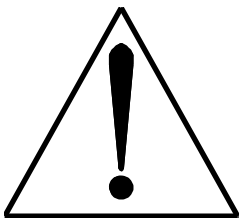
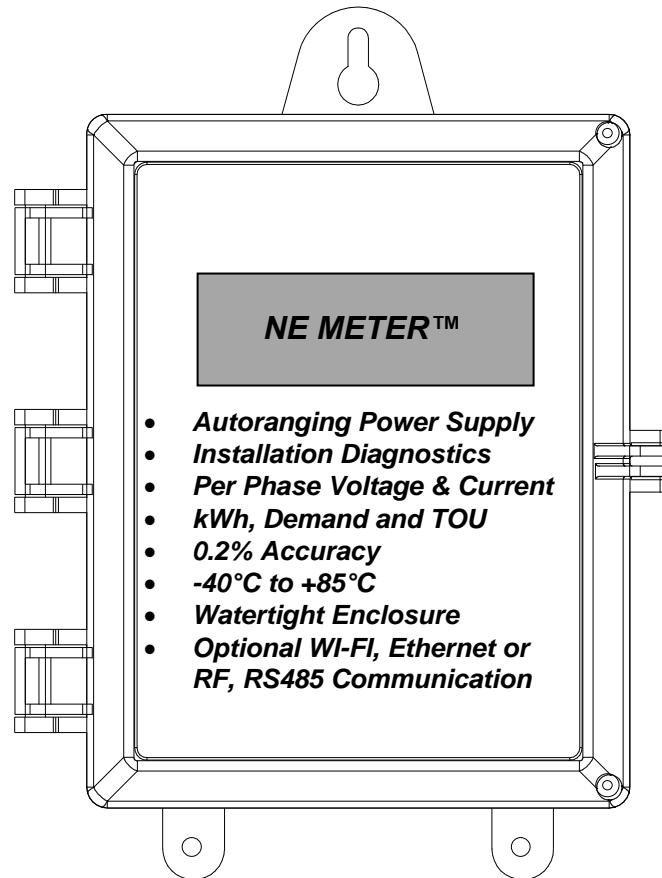


# ***NEW ERA METER***

## **Installation & Operation Guide**



### **WARNING**

To reduce the risk of electric shock, always disconnect the appropriate circuit from the power distribution system before servicing or installing any NEW ERA METER metering product.

***Global Power Products***

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# 1.0 INTRODUCTION

Use these instructions to assemble the NEW ERA METER. **Read all instructions before you begin the installation.**

The NEW ERA METER is designed for a variety of metering configurations. It can be used as a stand-alone meter or part of a network of meters.

All information required to install a stand-alone NEW ERA METER is given in these installation instructions and on the diagram inside the meter enclosure. If this meter is to be used with an automated system using WIFI, Ethernet or RF Communications, refer to the Specific instruction of each communications above.

## 1.1 CONTENTS

The NEW ERA METER is shipped from the factory in a kit containing all the hardware needed to assemble the Energy Meter.

Each box contains:

Description	Quantity
New Era Energy Meter with Electronics Installed in a Flush Mount Enclosure	1
Grounding Screw with Grounding Washer	1
Current Transformers	Quantity depends on service type
Hardware Kit Containing: <ul style="list-style-type: none"><li>• Wire meter seal</li><li>• Testing Magnet</li><li>• Plug-on terminal blocks:<ul style="list-style-type: none"><li>4-position block for voltage (TB1)</li><li>6-position block for current transformer inputs (TB2)</li><li>Optional 5-position block for modem or Pulse Output</li></ul></li></ul>	1

## METER MODELS

NE-5000 Energy Only (kWh)

NE-5100 Energy & Demand (kWh & kW)

NE-5200 Energy, Demand & Time of Use (kWh, kW, TOU)

NE-5300 Energy, Demand, TOU & kVA or kVAR (kWh, kW, TOU, kVA or kVAR)

## 2.0 METER INSTALLATION

This section gives instructions for assembling and installing the NEW ERA METER as a stand-alone unit. The NEW ERA METER should be installed only by a qualified electrician and in accordance with these instructions and should observe all local and national electrical codes.

These instructions are not intended to control the interface between this product and the facility wiring. Compliance with NEC and local codes in the final applications should be verified by the local inspection authorities. If equipment is used in a manner not specified by Global Power Products, the protection provided by equipment may be impaired.

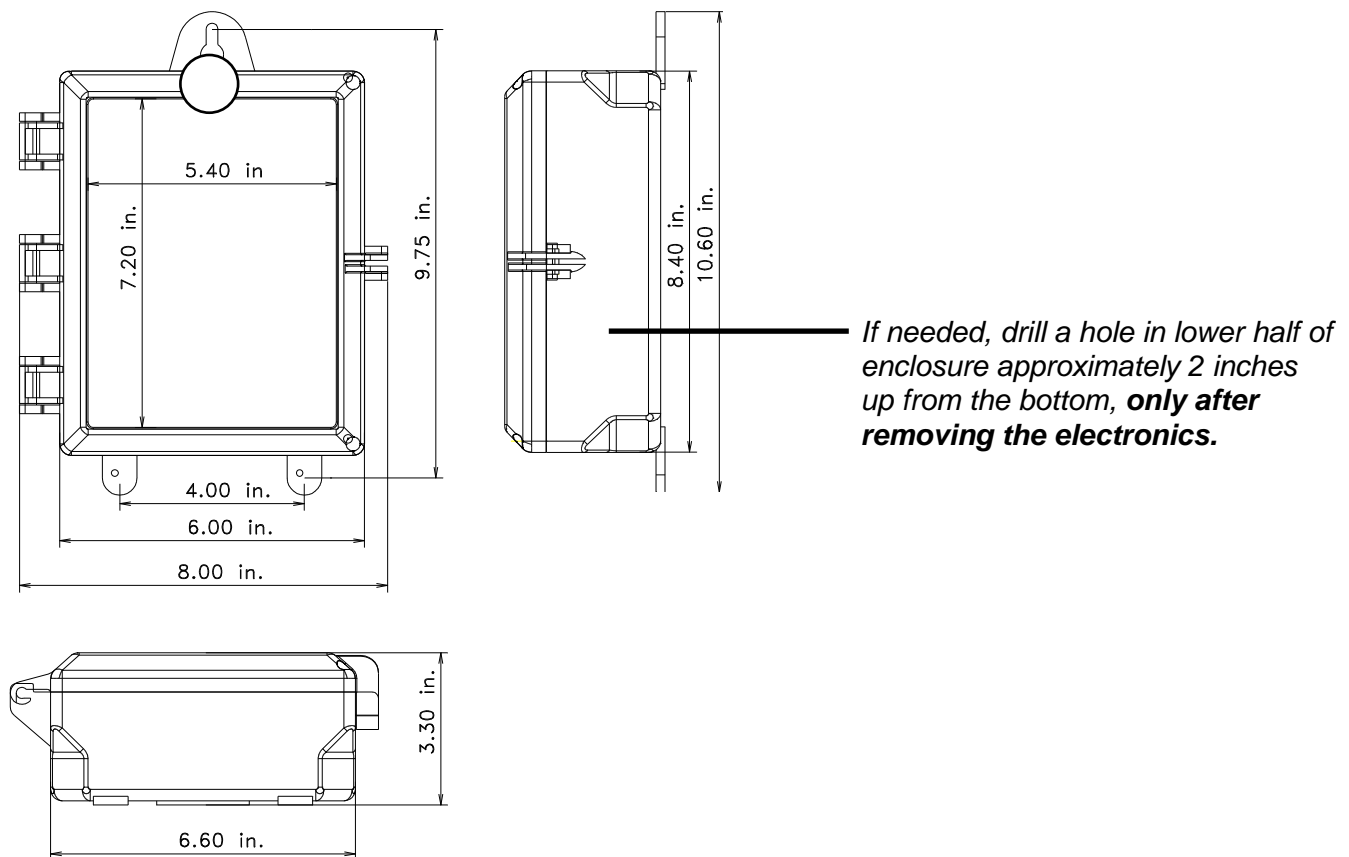
### 2.1 Mounting the Meter

The NEW ERA METER is equipped with one hole in the bottom of the box to accommodate 3/4" conduit. If connecting from the bottom is inconvenient, remove the electronics and drill a hole in the lower half of the box ONLY. The upper portion of the box is used to accommodate the circuit boards.

The conduit must be short enough that the splices in the CT leads are not within the conduit, but are within the meter enclosure.

**NOTE:** Select a mounting location at a minimum of 18" off of the floor.

**Step 1** Mount enclosure by the three mounting tabs found on the back of the enclosure using mounting hardware appropriate for the mounting surface.



**Figure 1 - NEW ERA METER Enclosure**

**Step 2** Connect conduit to load center (or switchgear) and to enclosure.

## 2.2 Current Transformer Installation & Wiring

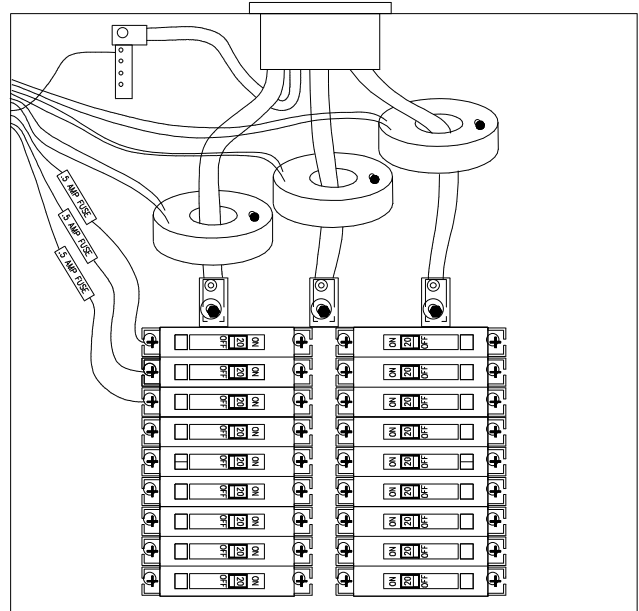
Before disassembling the CTs, note the location of the polarity dots. The CT must be reassembled in the same configuration.

Verify that the CT is marked to indicate the basic equipment for which it is intended.

The installer must prevent the body of the CT from contacting the line terminals of the panel.

Refer to Figure 2 for steps 3 through 5

**Step 3** Install Current Transformers. Current Transformers can be used on the incoming lines or on individual breakers. The dot on the Current Transformer always faces the line or supply side of the service.



**Figure 2**

**NOTE:** Current Transformers may not be installed in a panel where they exceed 75% of the wiring space of any cross-sectional area within the panel.

**Step 4** Make Voltage, neutral, and grounding taps.

1. Make sure service is disconnected before make any connections
2. Using in-line fuses or UL listed circuit breaker with a short circuit rating of 10,000 amps, tap each of the phases according to all applicable electric codes.
3. Secure one end of a grounding lead to earth ground in the breaker panel or meter board.
4. Attach a lead to the neutral terminal in the breaker panel or meter panel.
5. Run voltage taps along with a secured neutral and ground tap through the conduit to the meter.

## Step 5

Referring to the wiring diagram on the inside of the meter cover; terminate CT, voltage, ground, and neutral leads.

See [Figure 3](#) for a 3 Phase 4 Wire Wye or 4 Wire Delta service

1. Attach ground lead to the lower left grounding point on the circuit board using the enclosed grounding washer and screw.
2. Now you are ready to install the terminal blocks.
  - a. The terminal blocks (TB1 and TB2) found in the hardware kit should be installed on the lower section of the board.
  - b. The four terminal voltage connection block (TB1) goes on the lower left side of the board.
  - c. The six-terminal current transformer connection block (TB2) goes on the lower right side of the board.
3. **Using the wiring diagram on the inside of the meter cover**, make the appropriate voltage and current lead connections. *Referring to Figure 3 for a wiring diagram for a 3-Phase 4-Wire Wye or Delta service*
4. Align each terminal block with the pins and header on the circuit board and gently push the terminal block into place.

## 2.3 Line Voltage & Current Transformer Wiring Diagrams

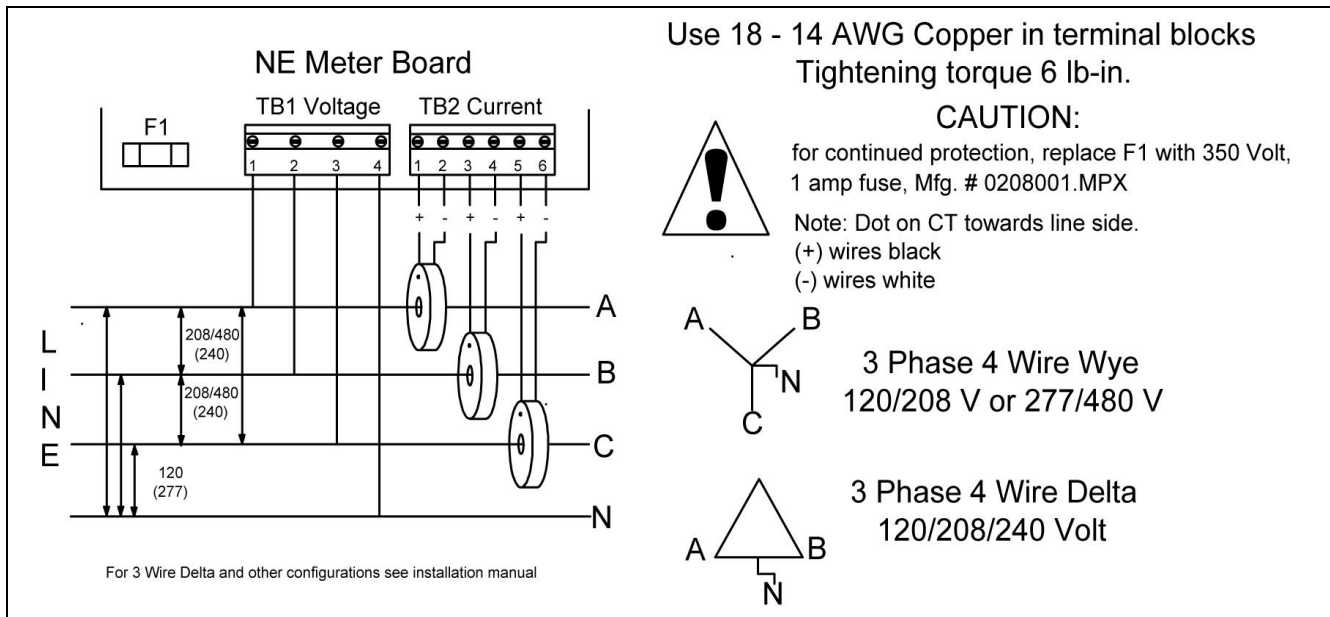


Figure 3 Wiring Diagram for **3-Phase 4-Wire Wye or Delta Service**

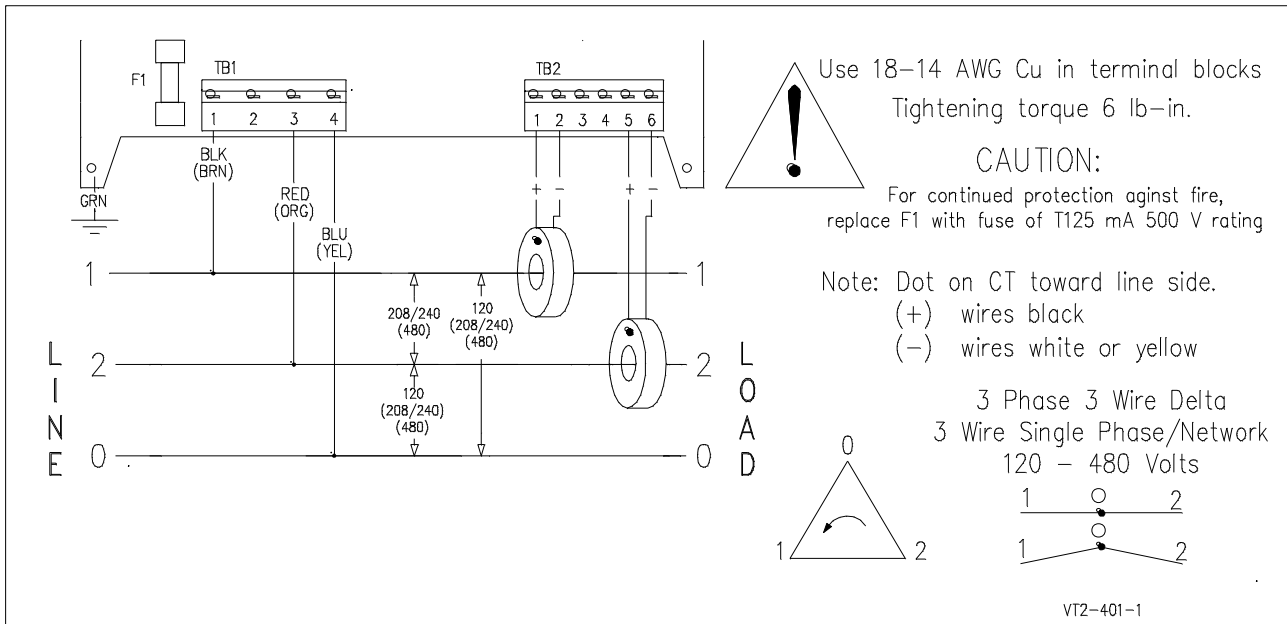


Figure 4 Wiring Diagram for 3-Phase 3-Wire Delta, Single Phase 3 Wire & Network Service

### CAUTION

**DO NOT mix the phases of the voltage and current leads. For Example, Phase A voltage tap should match Phase A current transformer leads. If the leads are improperly connected an error message will display and could result in incorrect metering.**

## Step 6 COMMUNICATIONS (Optional Feature)

### Ethernet:

Ethernet communications will be provided on an option board located inside the meter's enclosure capable of supporting up to 1000 metering points using CAT 5 and RJ45 cable and CAT 5 wiring.

### RF (915 MHz):

RF communications will be provided on an option board located inside the meter's enclosure. With the range of 4 miles (Line of Sight) it can poll data from the meter to the PC. The polling data software will be provided by Global Power Products.

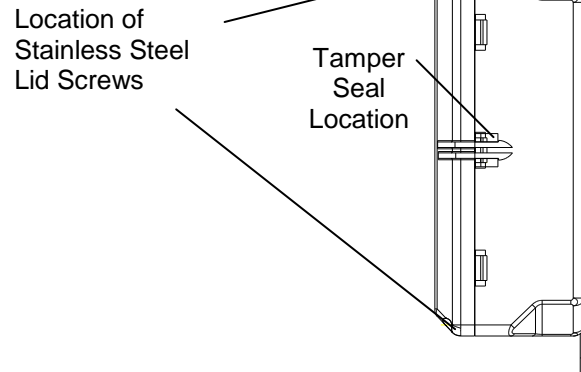
### Wi-Fi:

If each meter is equipped with Wi-Fi, the meter shall have the ability to be polled through internet, email, and PC Applications using Wi-Fi module that connects to local wireless network or LAN.

- Requirements for this connection included:
  - SSID – Service Set Identifier – name of the wireless network
  - Password
  - Security Type (WPA, WPA2, WPE)
- Each of these requirements must be specified by the customer and are pre-programmed to each meter before leaving the manufacturing facility.

## Step 7 Close the cover and seal the meter:

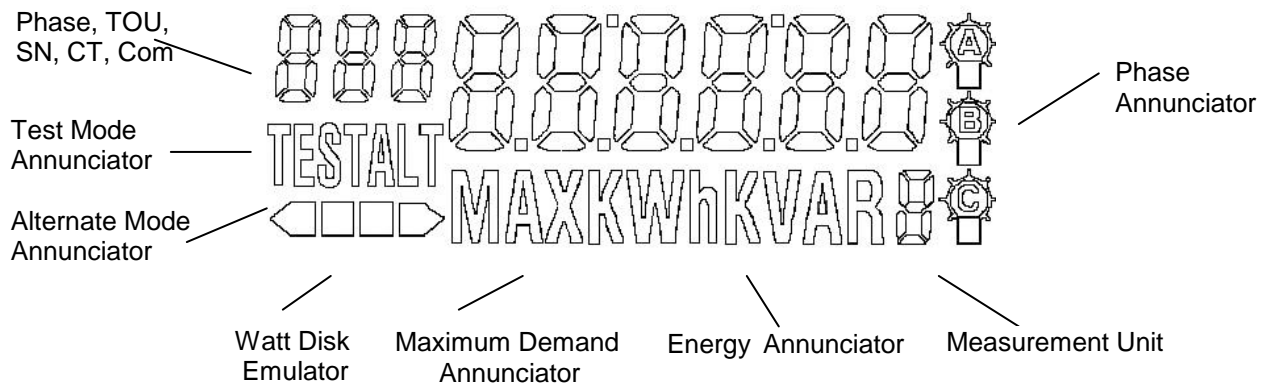
1. Install the two captive screws in the right hand side of the enclosure cover.
2. Install the wire seal in the cover latch.
3. Remove any protective covering on the face of the meter.



## 3.0 METER FEATURES & FUNCTIONS

Test Mode can be accessed using a small magnet (30 gauss) near the reed switch. The reed switch is located in the one o'clock position just above the nameplate. Please refer to session 3.2 under Test Mode.

### 3.1 Meter Display



## 3.2 MODES OF OPERATION

### NORMAL MODE

An NEW ERA METER operates in two modes a "NORMAL" mode and a "TEST" mode. This is indicated when the "TEST" indicator is not on and meter is in "NORMAL" mode as shown in the figure below.





When the arrow in the lower left corner increments to the right, it indicates the meter is accumulating properly. The center letters indicates the meter parameters are being displayed. In this case Total **kWh** is displayed.

## TEST MODE

The individual NEW ERA METER can be put in a diagnostic “TEST” mode by placing a magnet on the upper right hand corner of the display. The meter will sequentially display the voltage, the current and the instantaneous Power for each phase.



Test Mode Tool Placement location. The NEW ERA METER will go into a “Test Mode” when a magnet is placed on the surface of the meter.

## 3.3 TESTING

There are several ways to test a NEW ERA METER. The following table lists different testing methods and the equipment required.

Testing Method	Location	Requirements
<b>Pulse Initiator Inputs</b> (Dry Contacts Inputs)	Located on side of meter as <b>Dry-Contacts</b> pulse input only	Standard & Comparator
<b>Pulse Initiator Outputs</b>	Meter must have KYZ Outputs	Standard & Comparator

### 3.4 HOW TO READ PHASE CURRENT IN “TEST MODE”

#### 100:0.1 Amp Current Transformers:

- The Current outputs from the 100:0.1 Amps CT which displays on the NE Meter LCD in “Test Mode” should be EQUAL or almost IDENTICAL if compared to the Current displays on the Amp Probe measured from the LINE.
- The CT Multiplier for the 100:0.1 Amps CT is equal to **1**. The CT Multiplier programmed in the Meter INTERNALLY is also equal to **1**.
- Since the meter’s Internal CT Multiplier for the 100:0.1 Amps CT is equal to **1**, the meter automatically multiplied its CT Multiplier internally as the KWH and KW accumulate. The Total KWH and KW display on the Meter LCD are the TOTAL CONSUMPTIONS. **There will be no additional calculation or multiplication needed necessarily.**

#### 200:0.1 Amp Current Transformers:

- The Current outputs from the 200:0.1 Amps CT which displays on the NE Meter LCD in “Test Mode” should be equal to 1/2 (one half) or almost close to 1/2 (one half) if compared to the Current displays on the Amp Probe measured from the LINE.
- **To match the Current output from the 200:0.1 Amps CT with the Current displayed on the Amp Probe, multiply the Current output from the CT has to by 2.**
- The CT Multiplier for the 200:0.1 Amps CT is equal to **2**. The CT Multiplier programmed in the Meter INTERNALLY is also equal to **2**.
- Since the meter’s Internal CT Multiplier for the 200:0.1 Amps CT is equal to **2**, the meter automatically multiplied its CT Multiplier internally as the KWH and KW accumulate. The Total KWH and KW display on the Meter LCD are the TOTAL CONSUMPTIONS. **There will be no additional calculation or multiplication needed necessarily.**

#### 400:0.1 Amp Current Transformers:

- The Current outputs from the 400:0.1 Amps CT which displays on the NE Meter LCD in “Test Mode” should be equal to 1/4 (one fourth) or almost close to 1/4 (one fourth) if compared to the Current displays on the Amp Probe measured from the LINE.
- **To match the Current output from the 400:0.1 Amps CT with the Current displayed on the Amp Probe, multiply the Current output from the CT has to by 4.**
- The CT Multiplier for the 400:0.1 Amps CT is equal to **4**. The CT Multiplier programmed in the Meter INTERNALLY is also equal to **4**.
- Since the meter’s Internal CT Multiplier for the 400:0.1 Amps CT is equal to **4**, the meter automatically multiplied its CT Multiplier internally as the KWH and KW accumulate. The Total KWH and KW display on the Meter LCD are the TOTAL CONSUMPTIONS. **There will be no additional calculation or multiplication needed necessarily.**

CT AMPERAGE	MULTIPLIER
400:0.1	4
600:0.1	6
800:0.1	8
1000:0.1	10

SO ON AND SO FORTH.

## 4.0 TECHNICAL SPECIFICATIONS & ADDITIONAL INFORMATION

Measurement Category	Category III
Altitude	2000 meters Maximum
Temperature Rating	-40°C To + 85°C
Relative Humidity Range	0 To 95% Non-condensing
Installation (Overvoltage) Category	Category III
Pollution Degree	Degree 2
Enclosure Material	NEMA 4X

### **Test Mode:**

Voltage Phase A  
 Current Phase A  
 Angle Phase A  
 Active Power Phase A  
 Reactive Power Phase A  
 Apparent Power Phase A  
 Frequency Phase A  
 Power Factor Phase A  
 Total Consumed Active Energy Phase A  
 Voltage Phase B  
 Current Phase B  
 Angle Phase B  
 Active Power Phase B  
 Reactive Power Phase B  
 Apparent Power Phase B  
 Frequency Phase B  
 Power Factor Phase B  
 Total Consumed Active Energy Phase B  
 Voltage Phase C  
 Current Phase C  
 Angle Phase C  
 Active Power Phase C  
 Reactive Power Phase C  
 Apparent Power Phase C  
 Frequency Phase C  
 Power Factor Phase C  
 Total Consumed Active Energy Phase C  
 Total Consumed Active Energy All Phase  
 Total Consumed Reactive Energy All Phase  
 Meter Serial Number  
 Meter CT Size  
 Communication

# UNITS OF ELECTRICITY MEASUREMENT

	Units	x1,000	x1,000,000
Current	Ampere (A)	kA	-
Potential difference	Volt (V or E)	kV	-
Real power	Watt (W)	kW	MW
Energy	Watt-hour (Wh)	kWh	MWh
Reactive power	VAR (volt-ampere reactive)	kVAR	MVAR
Apparent power	Volt-ampere (VA)	kVA	MVA

## 4.0 WARRANTY

All products manufactured by North American Power Products are guaranteed against defects in material and workmanship for a period of one year from the date of shipment. In the unlikely event a meter needs calibrated or a customer wants to verify the calibration, a service technician can verify the calibration in the field or the meter can be returned to the factory for recalibration. In either case a calibration fee may be charged.

All guarantees are limited to repair or replacement of the defective product.

All products returned to the factory for repair **must be accompanied by a Return Authorization number** and it will be inspected to determine the cause of the failure. Metering equipment determined to have been subjected to an improper installation, neglect or misuse will be repaired or replaced at a standard rate, pending customer approval.

### FCC PART 15, CLASS A

The NEW ERA METER has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection from harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area may cause harmful interference, in which case you will be required to correct the interference at your own expense.

Any modifications or changes to the equipment, not expressly approved by the party responsible for compliance, could void your authority to operate the equipment.

### FCC PART 15, CLASS B

The NEW ERA METER 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 when the equipment is operated in a residential environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 are 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.

Any modifications or changes to the equipment, not expressly approved by the party responsible for compliance, could void your authority to operate the equipment.

**INSTALLATION SIGN OFF:** (this must be completed for warranty verification)

\_\_\_\_\_ CT SIZE    \_\_\_\_\_ VOLTAGE    \_\_\_\_\_ SERVICE

Electrician Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## ***Global Power Products***

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