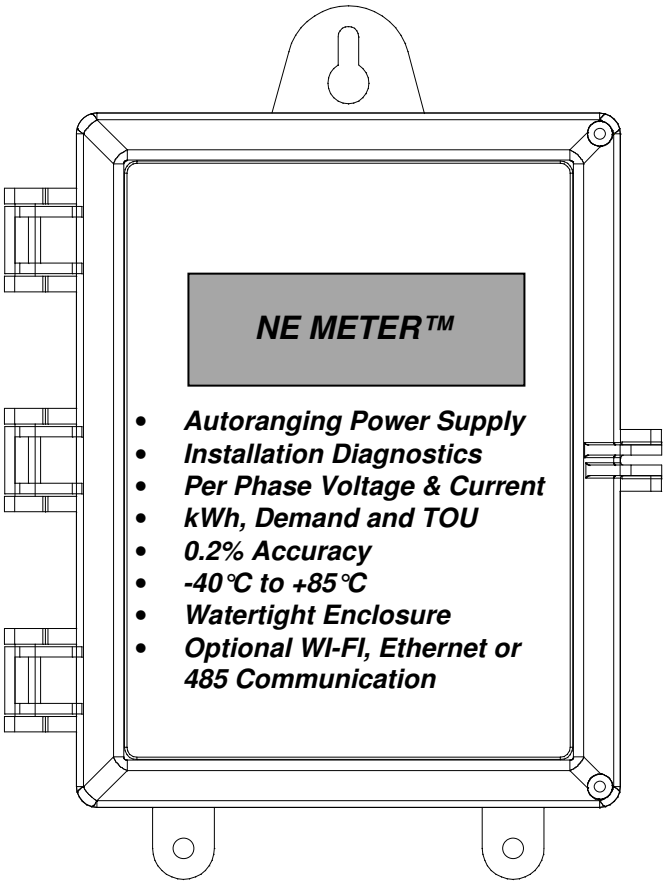
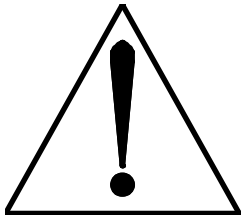
NEW ERA METER

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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NEW ERA METER

Watt-hour, Demand and Time of Use Meter
Installation and Operation Instructions

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 NEW ERA METER™, part of an automated dial-up system or a stand-alone device.

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 485 interface, refer to the NEW ERA METER™ Installation Manual for additional installation instructions.

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
Energy Meter electronics installed in a Flush Mount enclosure	1
Current Transformers (quantity depends on service type)	3 (3P 4W Wye)

Hardware Kit containing:

- Grounding screw with grounding washer
- Wire meter seal
- Plug-on terminal blocks:
  - 4-position block for voltage (TB1)
  - 6-position block for current transformer inputs (TB2)
  - Optional 5-position block for modem or Pulse Output

METER MODELS

NE-5000 Energy Only (Wh)
NE-5100 Energy & Demand (Wh & kWh)
NE-5200 Energy, Demand & Time of Use (Wh, kWh, TOU)
NE-5300 Energy, Demand, TOU & kVA or kVAR (Wh, kWh, TOU, kVA or kVAR)

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.

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.

NOTE: 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 holes in only in the lower half of the box. The upper portion of the box is used to accommodate the circuit boards.

- 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.

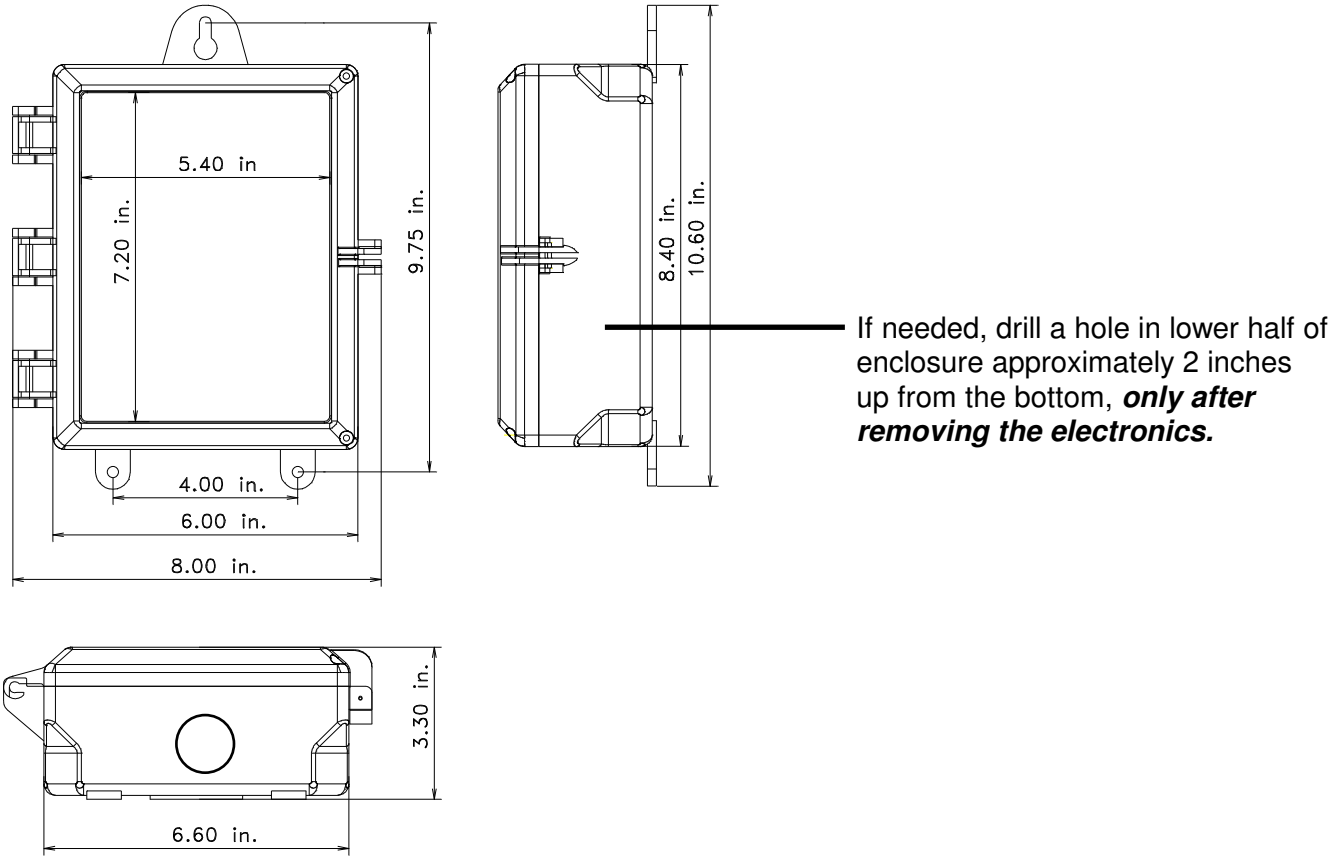


Figure 1, NEW ERA METER Enclosure

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

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.

Typical connections for a 3 Phase 4 Wire load center

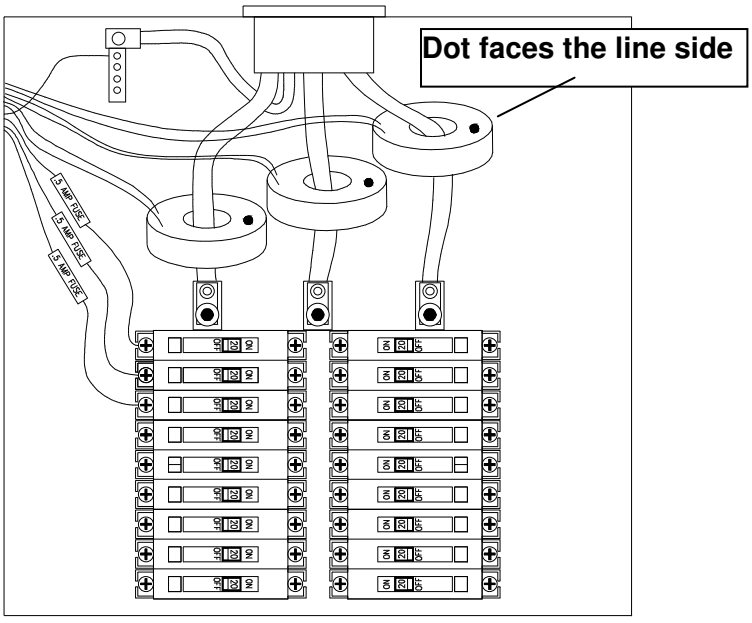


Figure 2

Step 4 Make Voltage, neutral, and grounding taps.

a) Make sure service is disconnected before make any connections

b) Using in-line fuses, tap each of the phases according to all applicable electric codes.

c) Secure one end of a grounding lead to earth ground in the breaker panel or meter board.

d) Attach a lead to the neutral terminal in the breaker panel or meter panel.

e) 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 and Figure 4 for a 3 Phase 3 Wire Service.

a) Attach ground lead to the lower left grounding point on the circuit board using the enclosed grounding washer and screw.

b) Now you are ready to install the terminal blocks. The terminal blocks (TB1 and TB2) found in the hardware kit should be installed on the lower section of the of the board. The four terminal voltage connection block (TB1) goes on the lower left side of the board. The six-terminal current transformer connection block (TB2) goes on the lower right side of the board.

c) Using the wiring diagram found on the inside of the meter cover, make the appropriate voltage and current lead connections. Refer to Figure 3 for a wiring diagram for a 3-Phase 4-Wire Wye or Delta service and Figure 4 for a 3-Phase 3-Wire Delta service.

d) Align each terminal block with the pins and header on the circuit board and gently push the terminal block into place.

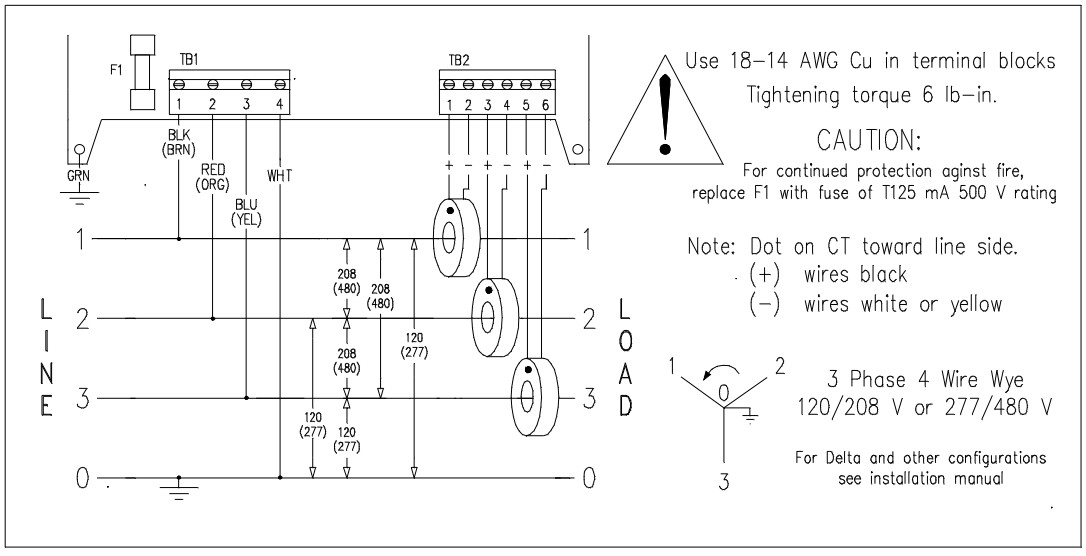


Figure 3 Wiring Diagram for **3-Phase 4-Wire Wye or Delta Service**

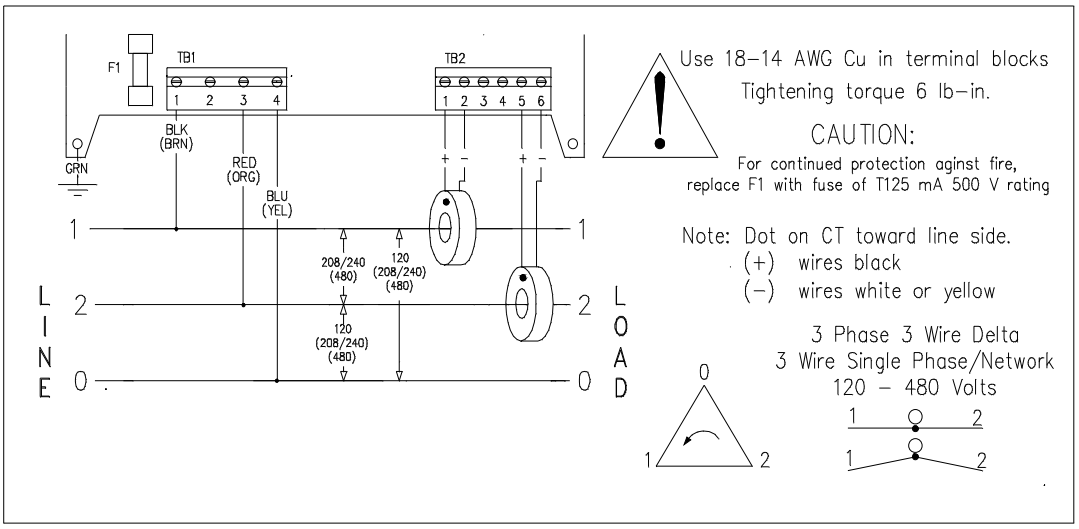


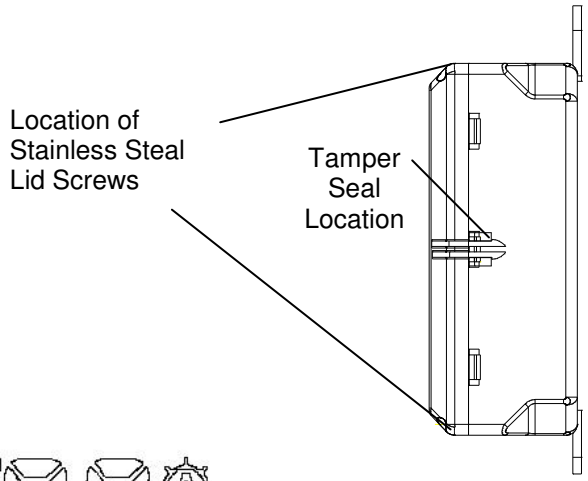
Figure 4 Wiring Diagram for a **3-Phase 3-Wire Delta, Single Phase 3 Wire & Network Service**

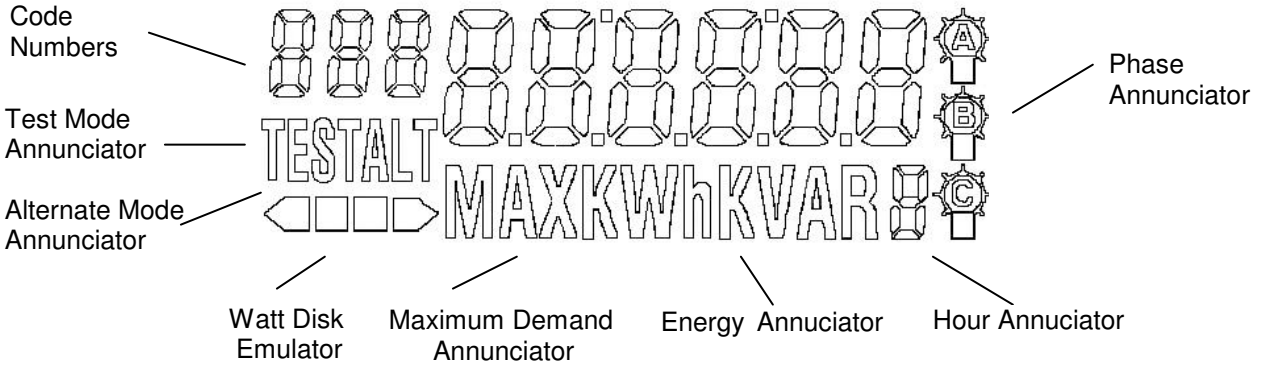
CAUTION

Do not mix the phases of the voltage and current leads. For example, Phase A voltage tap should match phase A Current Transformer leads. Incorrect metering will result, as well as an error being displayed if the leads are improperly connected.

Step 6 Close cover and Seal:

a) Install the two captive screws in the right hand side of the enclosure cover.
b) Install the wire seal in the cover latch.
c) Remove any protective covering on the face of the meter.





Installation Diagnostics

Upon power-up the NEW ERA METER series meters operates in the **Normal** display mode. The display continuously scrolls through the Normal display sequence, displaying each selected quantity, annunciator, and any other programmed parameter. The meter will operate in Normal Mode until power is disconnected, the Alternate display sequence is initiated, the Test Mode is accessed or the Toolbox Mode is accessed.

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.

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
Infrared Test LED	Located on face of meter	Optical Pick-up, Standard & Comparator
Pulse Initiator Outputs	Meter must have KYZ Outputs	Standard & Comparator
Disk Emulation Annunciator	LCD Display	No Additional Equipment

Most field accuracy tests will utilize the Disk Emulator on the bottom of the LCD Display, therefore this method will be described in detail.

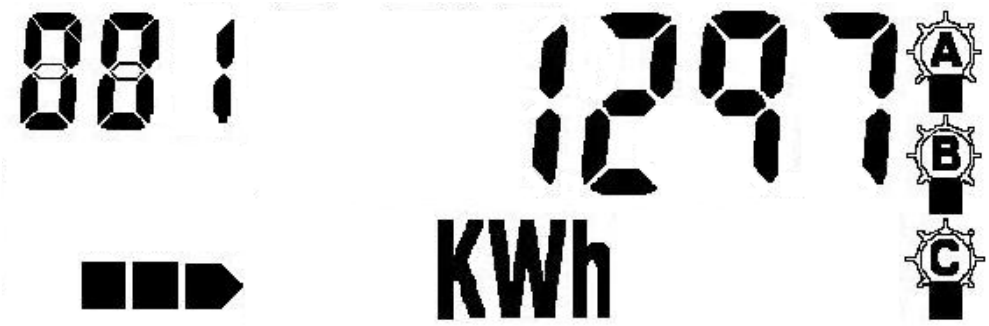
The NEW ERA METER is equipped with a bi-directional Liquid Crystal Display (LCD) watt-hour disk emulation annunciator. The disk emulation annunciator consists of four segments located in the lower left portion of the display. The NEW ERA METER uses internal multipliers to compensate for current transformers larger than 200 Amps.

If your meter is equipped with Time Of Use, Extended Functions or Demand Threshold Outputs, a data sheet of the parameters displayed will be included for all three modes of operation.

MODES OF OPERATION

NORMAL MODE

An NEW ERA METER operates in two modes a "NORMAL" mode and a "TEST" mode. The meter powers-up and runs in the NORMAL mode. This is indicated when the "TEST" indicator is not on, as in the figure below;



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

TEST MODE

The individual NEW ERA METER in a can be put in a diagnostic “TEST” mode by placing a magnet to the right of the display. The meter will sequentially display the voltage, the current and the instantaneous Power for each phase. If a communication module it attached, such as the RS485, the meter will display the programmed ID number, Com ID, and Baud Rate. In addition, the meter will also display Serial Number, Current Transformer Size, Power Outage Monitoring , and Demand Reset Monitoring.

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.

Error Mode

If the individual NEW ERA METER detects an error in the wiring “ERROR” will be displayed in the lower left corner of the LCD.

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

Normal Mode:
These only show if the Y are enabled

Model Type
NE-5000 kWh
NE-5100 kW
NE-5200 kWh, kW and Time of Use
NE-5300 kWh, kW,Time of Use, KVAh,kVA,kVArh,kVAr

Opitional:
Power Factor
Carbon Footprint
Pulse Input A
Pulse Input B
Date
Time

Test Mode:
Voltage Phase A
Current Angle Phase A
Current Phase A
Active Power Phase A
Voltage Phase B
Current Angle Phase B
Current Phase B
Active Power Phase B
Voltage Phase C
Current Angle Phase C
Current Phase C
Serial Number
CT Size
Comm ID
Baud Rate
Power Outage Count
Demand Reset Count

COMMUNICATIONS (Optional Feature)

RS485:

RS485 communications will be provided on an option board located inside the meter's enclosure capable of supporting up to 250 metering points. This multi-drop network will have a running distance of up to 5000 feet.

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 a standard RJ45 cable and CAT 5 wiring.

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.*

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: _____