



Installation/User Manual

APsystems eSensor

Version 1.2 7/2015

APsystems
600 Ericksen Ave NE, Ste 200; Seattle, WA 98110
TEL: 844-666-7035 EMAIL: info@APsystems.com
WEB: www.APsystems.com

© All Rights Reserved

TABLE OF CONTENTS

1.0 APsystems eSensor Introduction and Features.....	1
2.0 APsystems eSensor Interface.....	1
3.0 APsystems eSensor Operation.....	2
4.0 APsystems eSensor Installation.....	6
Slideway Installation.....	6
Screw Installation.....	6
Installation Wiring.....	8
5.0 APsystems eSensor Technical Data.....	9

APsystems eSensor Introduction 1.0

The eSensor is a “smart” ammeter equipped with a micro control unit and electrical energy measurement chip, as well as an LCD display, designed to provide you with comprehensive system monitoring.

FEATURES

1. Instantaneous voltage, current, and power value tracing
2. Historical peak voltage and current value recording
3. Volatile memory readings for single period power generation
4. Cumulative record of total power generated
5. Time parameter for a single time period, as well as historical cumulative operating hours

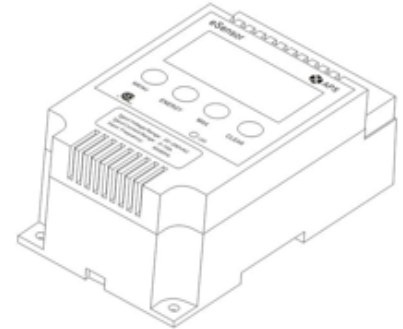


Figure 1

APsystems eSensor Interface 2.0

The eSensor’s front panel is organized into three (3) areas; the LCD display, functionality selection buttons, and LED indicator light.

LCD DISPLAY

The LCD is used to display power generation, time, and an array of other parameters (see 3.0 Operation).

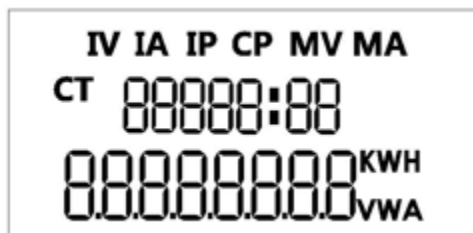


Figure 3

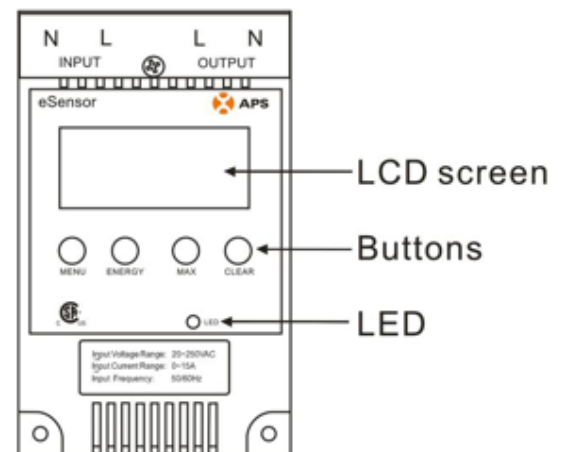


Figure 2

Functionality Selection Buttons

The four (4) functionality selection buttons are used to toggle between the various functional read outs (see 3.0 Operation).

LED

The eSensor is functioning as expected when the LED is on. If the LED is not on, the eSensor is not operational.

APsystems eSensor Operation 3.0

The eSensor is designed to work when it is correctly connected to a power source. Under normal operating conditions, the LCD display will be updated with new data every two (2) seconds. The default data values are Instantaneous Power and Current Time. Toggle through the functional read outs by using the following selection buttons:

Button	Method	Values	Time Period
MENU	Quick Press	Instantaneous Voltage, Current, Power, and Current Cumulative Power	Current
ENERGY	Quick Press	Cumulative Power Generation	Cumulative
MAX	Quick Press	Maximum Voltage and Current	Cumulative
CLEAR	3 Second Press	Clears All Values	

Figure 4

Power Generation

The power generation values are displayed at the bottom of the LCD display. By selecting one of the three (3) functionality section buttons (MENU, ENERGY, or MAX) the user can toggle between seven (7) power generation values (Instantaneous Power, Instantaneous Voltage, Instantaneous Current, Current Cumulative Power, Maximum Voltage, Maximum Current, and Cumulative Power).

Voltage and power is calculated in 0.1 increments. The current and generated power is calculated in 0.001 increments.

Time

The time elements are displayed in the middle of the LCD display. The eSensor provides two (2) elements of time - Current Time (T), and Cumulative Time (CT).

Values (Displayed in LCD)

Instantaneous Power – Use MENU button. Maximum power output reading is 4200W (4.2Kw).

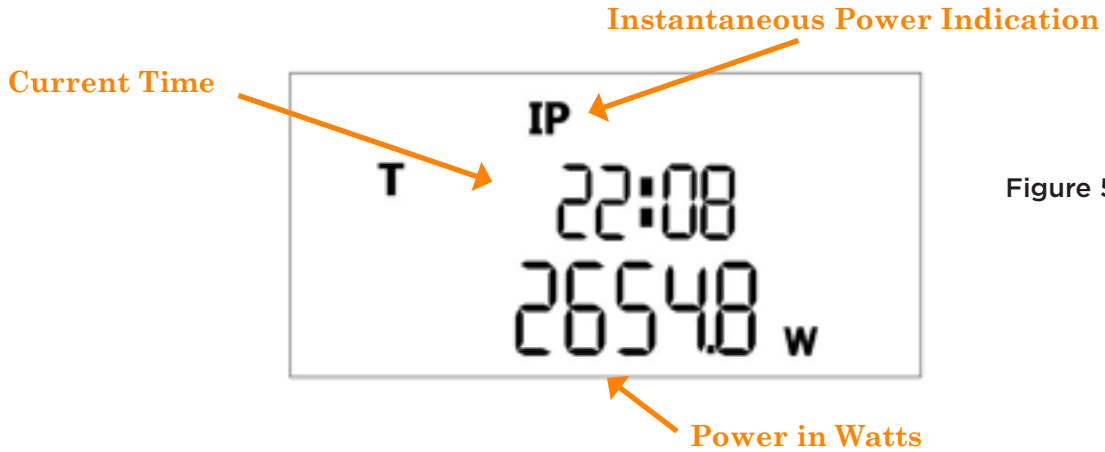


Figure 5

Instantaneous Voltage – Use MENU button. Maximum input voltage is 280V.

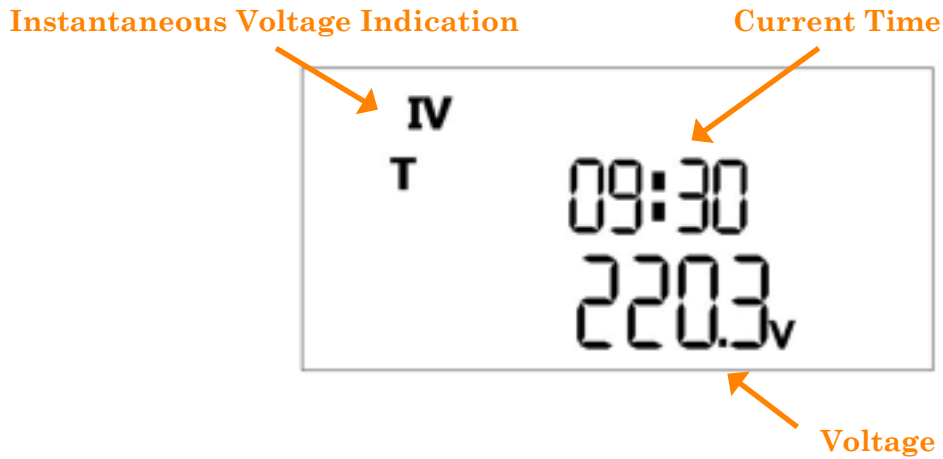


Figure 6

Instantaneous Current – Use MENU button. Maximum input current is 15Amps.

Instantaneous Current Indication

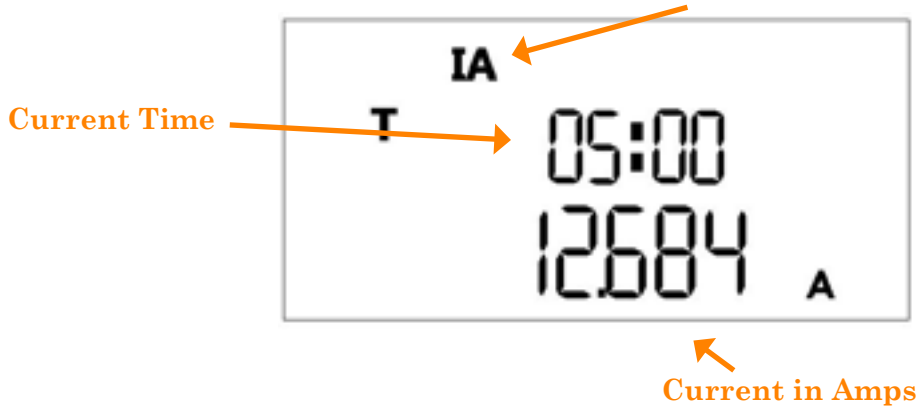


Figure 7

Current Cumulative Power – Use MENU button.

Current Cumulative Power Indication

Current Time

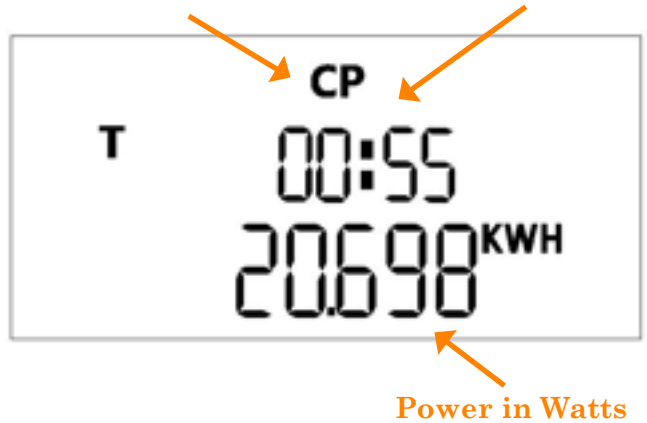


Figure 8

Maximum Voltage – Use MAX button.

Maximum Voltage Indication

Cumulative Time

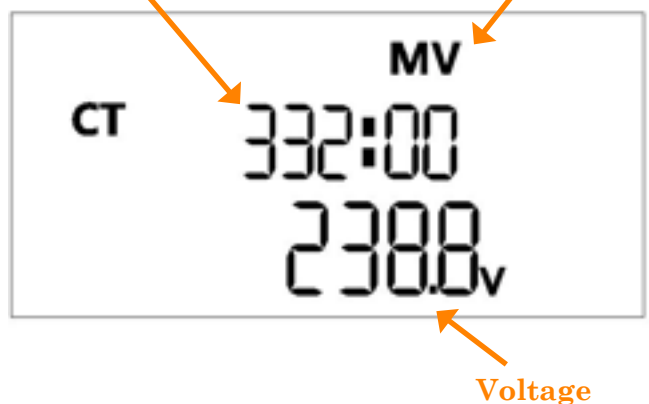


Figure 9

Maximum Current – Use MAX button.

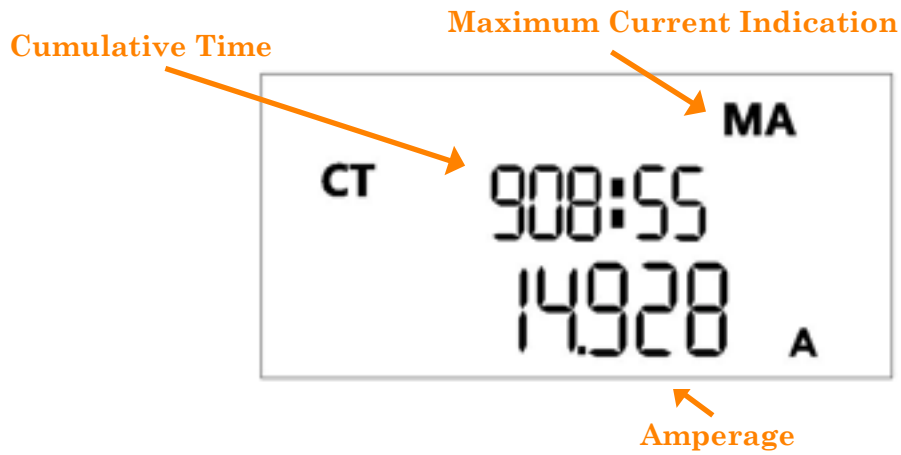


Figure 10

Cumulative Power Generation – Use ENERGY button.

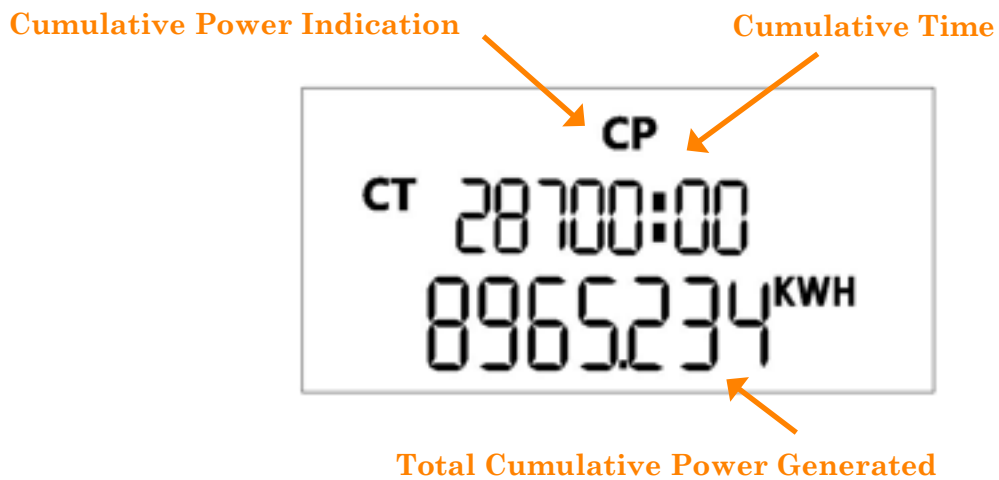


Figure 11

APsystems eSensor Installation 4.0

The eSensor can be slide mounted using a DIN Rail (Slideway), bolted directly to a wall, or mounted in an appropriately sized Module Component Enclosure.

Installing with a DIN Rail (Slideway)

1. Select a DIN Rail (Slideway). Width = 35mm. Thickness = no more than 2mm.
2. Pull down the Flexible Snap.
3. Place the DIN Rail (Slideway) behind the Fixed Snap, making sure it is flush against the back of the eSensor.
4. Release the Flexible Snap, holding the eSensor in position.

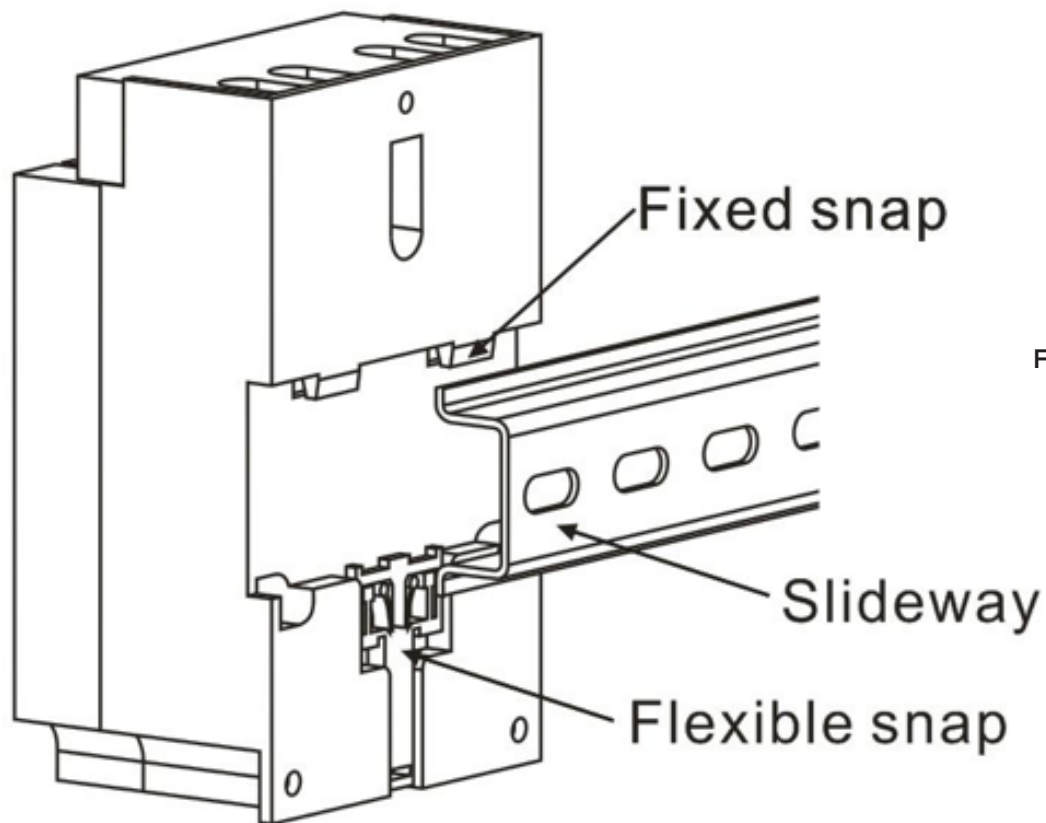


Figure 12

Installing with Screws

1. Loosen the screw in the middle of the plate and set it aside.
2. Remove the cover plate and set it aside.
3. Mount the eSensor using the three (3) screw holes – one at the top of the eSensor and two along the bottom edge.

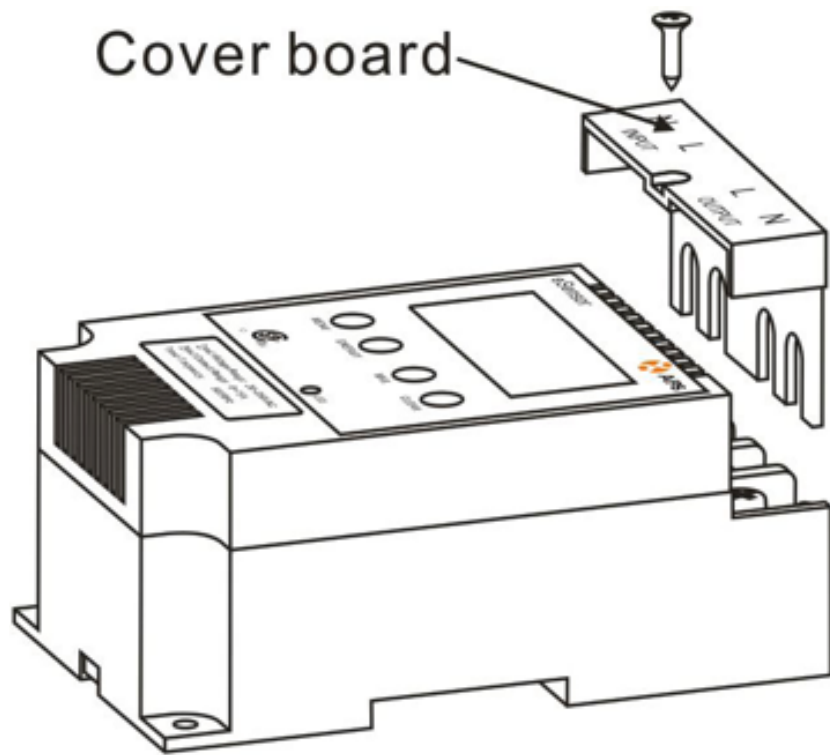


Figure 13

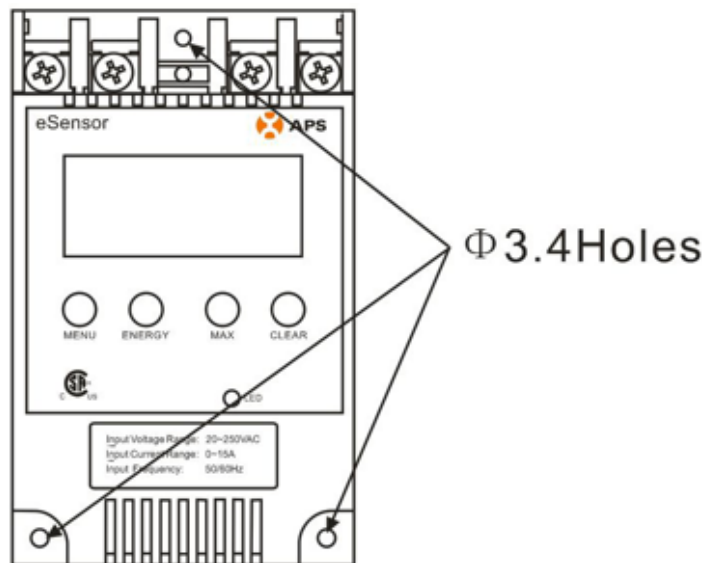
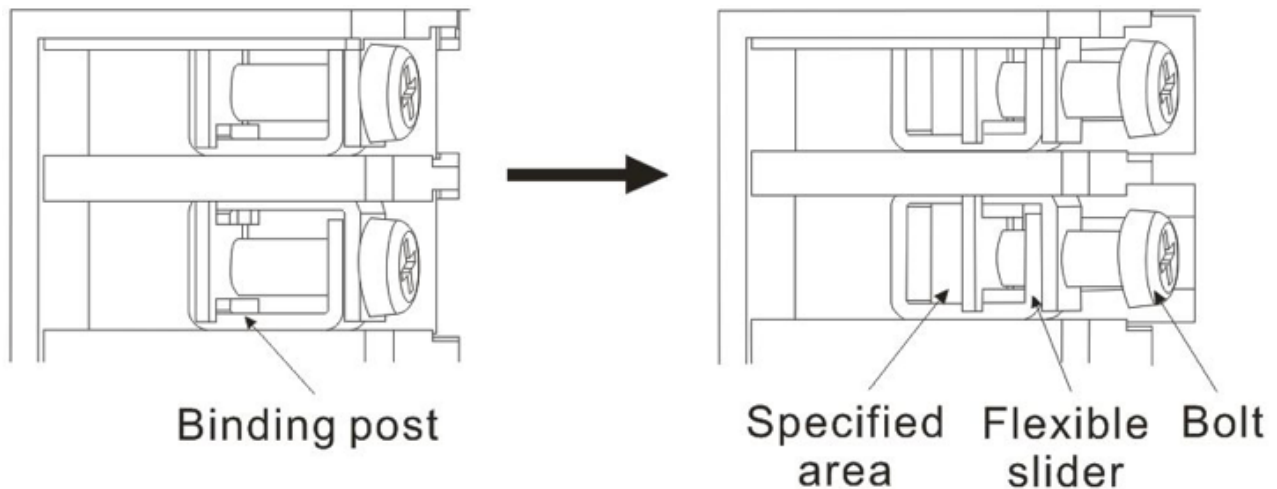


Figure 14

Installation Wiring

With the cover plate removed ... you'll see four (4) binding posts.

1. Loosen the bolt ends on the binding posts.
2. Pull up flexible slider.

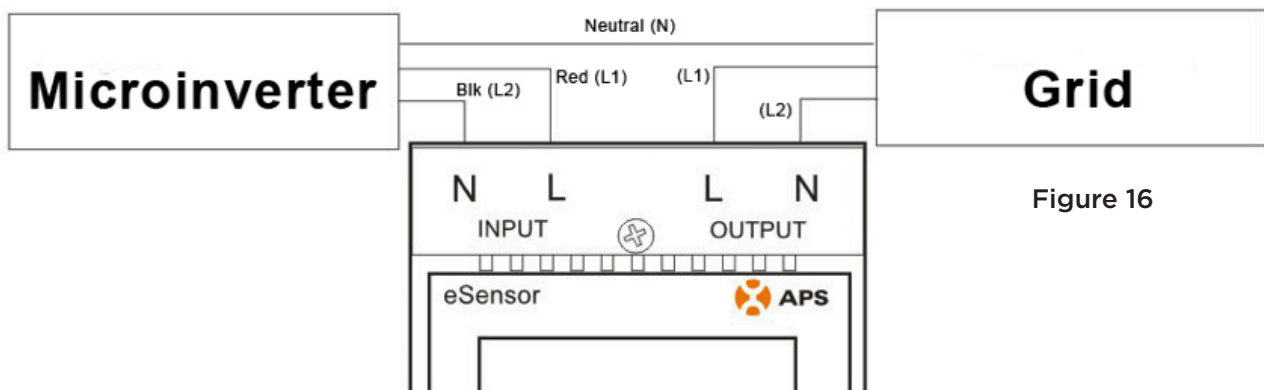


3. Place wire in the appropriate post locations and tighten.

The Red (L1) wire from the inverter circuit connects to the left side (L) post (INPUT) on the eSensor. The Black (L2) wire from the inverter circuit connects to the left side (N) post (INPUT) on the eSensor.

The L1 from the Grid connects to the right side (L) post (OUTPUT) on the eSensor. The L2 from the Grid connects to the right side (N) post (OUTPUT) on the eSensor.

The inverter's Neutral (N) wire is jumped to the AC Grid Neutral.



4. Replace the cover plate.
5. Replace the cover plate screw.

eSensor Technical Data 5.0

MEASURING DATA

Input Voltage Range	20-280 VAC, 50/60 Hz
Input Current Range	0-15A
Power Range	0-4200W
Cumulative Energy Range	0-99999KWH
Cumulative Run Time Range	0-99999H
Measurement Accuracy	1%

MECHANICAL DATA

Ambient Temperature Range	-4°F to +185°F (-20°C to +70°C)
Cooling	Natural Convection (No Fans)
Enclosure Environmental Rating	Indoor - NEMA 1 (IP30)