

Coastal DC "Watt Wizard"

Installation and Operation

Description

The Coastal DC **Watt Wizard** comprises of a digital display with a membrane keypad mounted in a plastic mounting plate measuring 3.5" x 2.25". The installation requires a cut-out of 3.25"w x 1.75"h and a minimum depth of 1.5" A small ancillary Connector Board connects via an 8" ribbon cable, and a remote shunt is included that is to be connected in the negative lead of the charge source or load to be monitored. An external 12v or 24v power supply is required to ensure continued operation when charging sources are not producing power; i.e. solar at night.



Location

The Display is designed to be mounted on a vertical surface, secured with the screws provided. Care must be taken to ensure that the location chosen will not subject the panel or its components to splashing or running water, steam, corrosive gasses, excessive vibration, or physical damage. The Display connects by a ribbon cable to the Connector Board, which can be attached to the rear of the Display or elsewhere using the Velcro provided, once the wiring connections have been made. Install the Shunt in the negative line of the charge source or load to be monitored.

Wiring

Wire the **Watt Wizard** as per the diagram overleaf. Use minimum AWG 18 wiring for all connections to the Connector Board. Connect the supplied fuse holders as shown on the diagram, but do not insert the 1 amp fuses until all wiring has been completed. The main negative lead connections to the Shunt must be made with ring terminals suitable for 5/16" dia. The ring terminals must be compatible with the wire size of the main negative leads, and properly crimped or soldered. Connect the wires exactly as shown on the diagram, as any deviation from that shown will result in inaccurate readings. An optional 12v or 24v relay can be installed, as shown, if there is a desire for the load or charge source to be disconnected either manually from the display, or under an alarm condition. If a relay is installed, it must have contacts rated for at least the maximum continuous current expected. Also, the relay coil must be of the same voltage as the power supply to the Connector Board and have a current rating of less than 500 mA.

Basic Operation



The top line of the **Watt Wizard** Display shows volts as default. Watts can be selected by pushing the "V/W" button. The lower line is set to show instantaneous amps as default, but accumulative amp/hours and run time can be displayed by repeatedly pushing the "A/AH" button. When power is first applied, the "OUT" LED will be lit, and amp/hour and run time calculations will start along with alarm protection. Pressing the "OUT" button at any time will extinguish the "OUT" LED, stop amp/hour and run time calculations, cease alarm protection, and operate an optional relay, if installed. A long press of the

"A/AH" button will reset the amp/hour and run time readings to zero. If an alarm is activated, the display will show "-AL-0xxx", the buzzer will sound, and the "AL" LED will flash. If an optional relay is installed it will be operated under an alarm condition. Pressing the "OUT" button will stop the alarm.

(continued over)

Programming

Pressing and holding the “OUT” button enters the program mode. Use the “OUT” button to scroll through parameters; use the “V/W” and A/AH” buttons as up and down buttons to change settings.

O-U - Voltage Calibration	7-OC - Over-Current alarm setting
1-C - Current Calibration	8-OP - Over-Power alarm setting
2-FL - Current Multiple (default 75)	9-AH - Over Amp/Hour alarm setting
3-ON - Relay Status when meter powered on	10-H - Time-Out value
4-ES - Save settings	11-T - (Reserved for future use)
5-r - Reset to factory default values	12-L - Under-Voltage alarm setting
6-OV - Over-Voltage alarm setting	13-F - Voltage Multiple (default 10)

Use parameter 14-L to change the state of the relay output if an optional relay is installed. Default is for the relay output to be normally de-powered, and only powered under an alarm condition or when the “OUT” button has been pushed and the “OUT” LED is not lit. Use 14-L to reverse that setting if desired.

Use parameter 4-ES to save all settings after programming changes have been made. Change “n” to “y” and press the “OUT” button. All settings will then be saved and stored.

Calibration

The **Watt Wizard** has been calibrated before shipping, but you may wish to fine-tune the calibration once the unit is installed and operational. Use a known accurate multi-meter with a DC clamp-on ammeter to verify the settings shown on the Watt Wizard display. Enter parameters O-U (voltage) and 1-C (current), and use the “V/W” (up) and “A/AH” (down) buttons to fine tune the displayed value. Save the adjustments by scrolling to parameter 4-ES, changing “n” to “y”, and then pressing the “OUT” button.

Specifications

Power Supply	5v to 40v (Remote power supply required when used for monitoring solar and wind)
Measuring Range	0 to 90.0 volts - 0 to 75.0 amps
Accuracy	Volts: +/- 0.1% - Amps +/- 0.05%
Resolution	0.01 volts, amps, watts, amp/hrs
Sampling Rate	5 readings per second
Voltage Measuring	Internal
Current Measuring	External by negative line Shunt (Supplied)
Operating Temperature	0 to 50 C (32 to 122 F)
Operating Humidity	35% to 85% Relative Humidity
Alarms Available	High and low volts, high amps, high Watts, high Amp/Hrs
Alarm Action	Buzzer, plus relay operation if installed (Optional. Not Included)
Relay Coil Voltage (if installed)	12v if 12v power supply used; 24v if 24v power supply used
Relay Coil Current (if installed)	Maximum 500 mA
Dimensions: Overall - Panel w/ Mounting Plate	4.0" x 2.5"
Dimensions: Required Cut-Out	3.125" x 1.75"
Dimensions: Required Depth	1.5"
Weight (Inc. Shunt)	250g / 9oz



Coastal Climate Control, Inc.