

Introduction

Thank you for purchasing your REED R5090 Power Meter. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured in an ISO 9001 facility and has been calibrated during the manufacturing process to meet stated product specifications.

Safety

Warnings

This manual includes important safety and instrument maintenance information. Please read each part of this manual carefully before use. Any misunderstanding of the information in this manual may lead to physical injury and/or product damage.

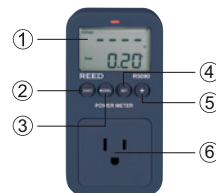
- Do not expose this product to water, rain, moisture, dust or extreme temperatures.
- Do not expose to naked flames or other heat sources.
- Do not drop or subject the device to undue shock.
- Keep device away from magnets at all times.
- Keep away from direct sunlight. Indoor use only.
- Unplug this device during lightning storms.

CE	EU certification related information.
	This symbol signifies the product complies with both USA and Canada requirements.

Safety Instructions

- Never attempt to repair or modify your instrument. Dismantling your product, other than for the purpose of replacing batteries, may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center.
- Do not use if product is damaged.
- In the event of any abnormal operation, please do not use this power meter. Keep this power meter away from explosive gases, vapor and dust environments.
- The load power of electrical appliance of this product should not exceed its rated power of 1800W or a maximum current of 15A. When running under a full load, it is recommended not to exceed 1 hour of continuous use.

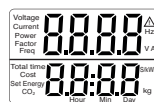
Instrument Description



- LCD Display
- Cost Button
- Model Button
- Set Button
- "/Reset/Power Button
- Power Input Socket

Display Description

The dual LCD display area provides two readings. The upper reading is the main display area and each unit of measurement can be toggled through by pressing the **MODEL** button. The lower reading is a secondary display area and each logging function can be toggled through by pressing the **COST** button.



Features and Specifications

The R5090 is an easy-to-use power meter that accurately measures power consumption of electronic devices. Simply set the local utility rate in Kilowatt-hours (KWh) and connect an appliance to start tracking cost. The R5090 can be used to verify power quality by monitoring voltage, frequency and power factor.

- Calculates the operating costs of electronic devices

- Displays 8 important units of measure (voltage, current, watts, frequency, power factor, energy used (kWh), total cost and elapsed time)
- Over-current warning function
- Easy-to-read, dual LCD display
- Built-in battery backup
- Conforms to UL and CSA standards

Measuring Ranges & Accuracy

Voltage:	Range: 100 to 150VAC (60Hz); Accuracy: $\pm(1\% \text{ rdg.} + 1\text{dgt.})$
Current:	Range: 0 to 15A; Accuracy: $\pm(1\% \text{ rdg.} + 10\text{dgt.})$ @ 0.010 to 0.999A; $\pm(1\% \text{ rdg.} + 5\text{dgt.})$ @ 1.00 to 15.00A
Power:	Range: 0 to 1800W; Accuracy: $\pm(1\% \text{ rdg.} + 10\text{dgt.})$ @ 1.0 to 100.0W; $\pm(1\% \text{ rdg.} + 5\text{dgt.})$ @ 100.0 to 999.9W; $\pm(1\% \text{ rdg.} + 1\text{dgt.})$ @ 1000 ~ 1800W
Power Factor:	Range: 0 to 1.00; Accuracy: $\pm(2\% \text{ rdg.} + 10\text{dgt.})$ @ 0.30 to 0.49; $\pm(2\% \text{ rdg.} + 5\text{dgt.})$ @ 0.50 to 1
Frequency:	Range: 45 to 65Hz; Accuracy: $\pm(1\% \text{ rdg.} + 1\text{dgt.})$

Logging Ranges

Energy:	0 to 9999kWh
Cost:	\$0 to \$9999
Total Time:	0 minutes to 9999 days
Display:	Dual LCD
Display Update:	1 time/second
Overrange Indicator:	Yes
Power Supply:	1 x 3V (CR2032, back up battery)
Overvoltage Category:	CAT. II 150V
Product Certifications:	CE, ETL, Conforms to UL STD.61010-1, 61010-2-030; Certified to CSA STD.C22.2 NO.61010-1, 61010-2-030

Storage Temperature:	14 to 140°F (-10 to 60°C)
Operating Humidity	10 to 90%
Dimensions:	5.1 x 2.6 x 1.5" (130 x 65 x 37mm)
Weight:	1.9oz (155g)

Function Keys Description

- The **MODEL** button cycles through each function in the upper display as indicated by "Voltage", "Current", "Power", "Power Factor" and "Freq".
- The **COST** button cycles through each function in the lower display as indicated by "Total time", "Cost", "Set", "Energy" and "CO₂".
- The **SET** button allows you to configure the CO₂ & kWh cost functions.
- The + button has three main functions, the first is to increase the number of digits when configuring the CO₂ & kWh costs at a 0-9 cycle. The second is the reset function; reset the Energy, Cost or emission load of CO₂ by holding it down. The + button is also used to power on the unit when power is off.



Operating Instructions

- Plug the power meter into a household receptacle and it will automatically start.
- Select the desired function by pressing the **MODEL** button.
- Return to the default function ("Voltage") by holding the **MODEL** button.

Note: If the unit has been in use for less than 1 day, only "Hour and Min" will be displayed as shown in Figure 1 below. Check elapsed time by pressing the + button as shown in Figure 2. If the time accumulated exceeds 1 day, it will be displayed in the form of "Day" as shown in Figure 3. To view the total accumulated time, press the + button to display "Day" followed by "Hour and Min".



Setting the CO₂ Cost Function

The production of energy releases greenhouse gases (among others carbon dioxide CO₂), which places a burden on the environment. With this device, you are able to determine how much CO₂ is released by an energy supplier with the measured kWh value. There are different CO₂ equivalents depending on the type of energy. The CO₂ equivalent indicates how much of a defined quantity of a greenhouse gas contributes to the greenhouse effect. Carbon dioxide serves as a comparison value.

The factor for the CO₂ equivalents is entered in the device in kg/kWh and displayed accordingly in kg/kWh. You can find information on the CO₂ equivalents to be entered on your power bill and on the internet, technical manuals or by contacting your energy supplier.

- To set your kg/kWh cost, switch to the "CO₂" cost function by pressing the **COST** button.
- Once the CO₂ parameter is visible press and hold the **SET** button.
- Adjust the values by pressing the + button.
- When the desired value has been set, save the data by holding the **SET** button.



Setting the kWh Cost Function

To accurately calculate the actual cost of electricity consumed and to project future costs, first you must set your local utility's electric rate into the unit. The rate is typically charged as dollars (or cents) per kilowatt-hour (KWH). You can find this rate on your last utility bill or you can contact your utility supplier directly to confirm your rate.

- To set your utility rate cost, switch to the "Cost \$" function by pressing the **COST** button.
 - Press and hold the **SET** button for approx. 2 seconds to enter the utility rate cost menu.
 - Press the **SET** button to toggle through the adjustable values.
 - Adjust the applicable rate value by pressing the + button.
- Note:** The \$ values can be set between 0 and 99.99.
- Press the **SET** button to confirm your selection and skip to the next value.
 - When the desired value has been set, save the data by holding the **SET** button.



Battery Replacement

Please ensure the meter has been disconnected from power prior to replacing battery. Remove the battery cover with a screwdriver.

Once the cover has been removed, replace the battery cell and tighten the cover back on. See the following figure for detailed steps:



Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@REEDInstruments.com.

Please visit www.REEDInstruments.com for the most up-to-date manuals, datasheets, product guides and software.

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