

# **Model 2022-04**

# **Energy Cost Monitor**

# **Operation Manual**

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# Model 2022-04

## Energy Cost Monitor Operation Manual

Thank you for purchasing the Energy Cost Monitor. This operating manual will provide an overview of the product, safety instructions, a quick guide to operation, and complete instructions for correct usage. Take the time to completely review these instructions as well as safety warnings to ensure your best use of the product.

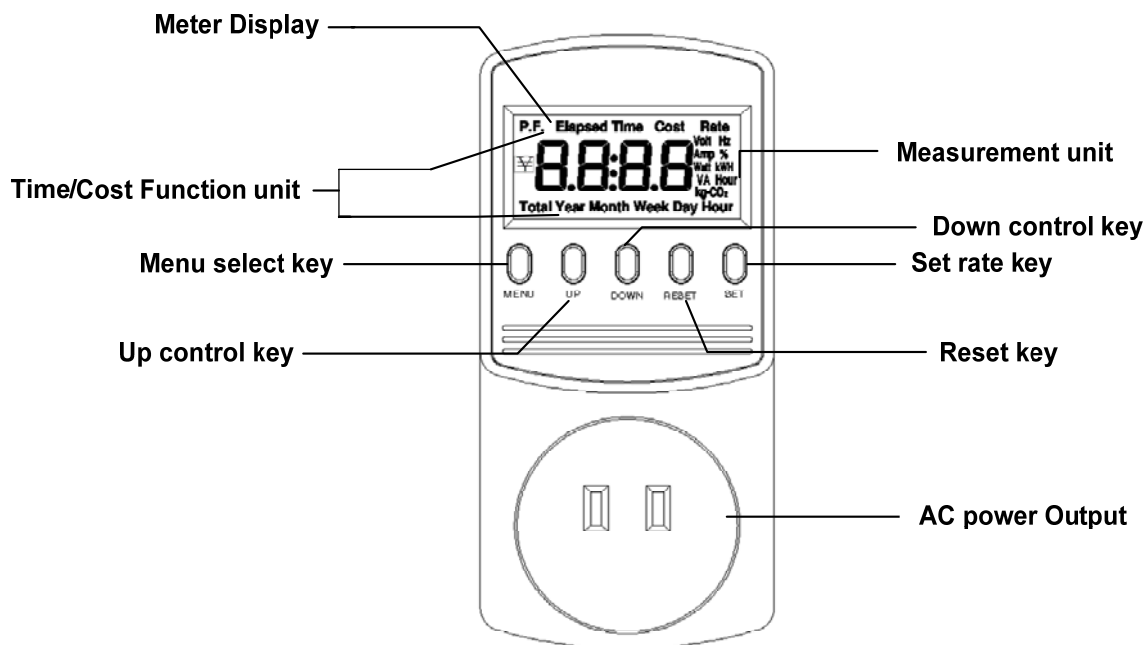
### Safety Instructions:

- The operating voltage is limited to +/- 10% of Line voltage 100Vac. Do not use it in other voltage rating.
- The maximum output current is 15A.
- To reduce the risk of electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

### Warning:

- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

### Panel Description:



### Quick Start Guide:

It is a multiple measure functions AC power meter including **Voltage, Current, Watt, VA, Frequency, Power Factor**, power consumption and actual cost of power consumed or projected cost. Use these quick start instructions to get up and running in just a few minutes. Be sure to review all the operating instructions later to ensure full enjoyment of the product.

1. Connect the Energy Cost Monitor unit to the outlet and the appliance to the unit.
2. The LCD will display **Volt**, to cycle through the various measurements, **Volt, Amp, Watt, VA, Frequency** and **Power Factor**, press the UP and Down key as desired. The measurement unit currently selected will be indicated in the display.
3. Press the MENU key to cycle through the **Cost, Rate, kg-CO2 Rate, KWH, Elapsed Time** and **kg-CO2**.
4. Press and hold RESET key on the unit until "rESt" appears.
5. Press and hold the SET rate key until "Rate" is displayed and the currently set rate flashes.
6. Press the UP and DOWN key to set your desired rate.
7. Press the SET key again. "kg-CO2 Rate" is displayed and the currently set rate flashes.
8. Press the UP and DOWN key to set your desired rate.
9. Press the SET key again. "SAVE" will appear briefly in the display.
10. Press the MENU key until "Cost" is displayed to indicate the actual cost of power consumed.
11. To display the total power consumption, press the MENU key until "KWH" is displayed in the LCD.
12. To display the used time, press the MENU key until "Elapsed Time" is displayed in the LCD.
13. To display the total Kilowatt Hours to show how many kg-CO2 will be discharged from your appliance. And press the MENU key until "kg-CO2" is displayed in the LCD.
14. Review the complete operating instructions to familiarize yourself with all features.

## Installation:

1. Turn off the appliance and remove the power cord from the outlet. Connect the Energy Cost Monitor unit to the outlet and appliance to the unit.
2. Turn the appliance back on and confirm normal operation. If the appliance does not function, please recheck your installation.
3. LCD display **Volt**, Voltage of currently measuring.

## Meter Measurements:

Press the MENU key until "**Volt**" is displayed on the LCD. In the Meter Measurement mode, the LCD can display meter reading such as Voltage(in **Volt**), Current(in **Amp**), Active power(in **Watt**), Apparent power(in **VA**), Frequency(in **Hz**), and Power Factor(in **PF**). To display the various meter measurement, press the UP or DOWN key to cycle through as desired.

## Cost Measurements:

1. To display the actual cost of power consumed or projected cost, press the MENU key until "**Total**", "**Cost**" are displayed on the LCD. The amount on the display represents the total cost of power consumption by attached appliance. It is calculated from multiplying **KWH** by utility rate set.
2. Press UP or DOWN key will cycle through the cost projection periods, "**Year**", "**Month**", "**Week**", "**Day**" and "**Hour**", will display on the LCD. The numeric display will represent the projected cost to run the attached appliance for the selected period.
3. This projection is a historical measurement of power consumption to predict a certain period power consumption, for example, if the attached appliance is measured 2 hours period, multiply it by 12 is Day projection, multiply it by 84 is Week projection. If the attached appliance is measured 24 hours period, multiply it by 7 is Week project, multiply it by 30 is Month projection. It is obviously, the longer the appliance is measured, the more accurate the projection will be.
4. For some appliances that cycle on and off, the projection can not be accurate until the unit has measured some full on and off cycles. For example, TV, if it is always measured for on period, it will be very difficult to do Day, Week projection unless the TV always on for 24 hours, so TV have to be measured by on and off period to do Day, Week accurate projection. For refrigerator, it will cycle on and off within several hours, it is very easy to do Day, Week, Month projection if it is measured for several hours.
5. Press and hold RESET key for a few seconds, "**rESt**" will appear briefly and to reset the **Cost** measurement. **KWH**, **Elapsed Time** and **kg-CO2** have also been reset to zero.

## Rate, kg-CO2 display and Setting:

1. To display the current rate used in cost and **kg-CO2** calculation, press MENU key until "**Rate**" is displayed on the LCD. It will be yen with a decimal point.
2. Press and hold the SET key for a few seconds, the currently rate will flash, press UP or DOWN key to set your desired rate. The rate is typically charged as yen per KWH which you can find this rate on your utility bill. Then press SET key again, the "**kg-CO2 Rate**" will be displayed on the LCD. It will be **kg-CO2** with a decimal point.
3. The currently **kg-CO2 rate** will be lit, and then press UP or DOWN key to set the needed rate. The rate is typically charged as kg-CO2 per KWH which you can find this rate is described on your appliance operation manual. Then press SET key again, "**SAVE**" will appear briefly and the desired rate is set successfully.

## KWH display:

1. To display the total power consumption in Kilowatt Hours, press the MENU key until "**KWH**" is displayed on the LCD, It will be from 0.01KWH to 9999 KWH. The decimal point will shift to accommodate a full reading when the KWH is increased.
2. Press and hold RESET key for a few seconds, "**rESt**" will appear briefly and to reset the accumulated **KWH** measurement. **Cost** measurements, **Elapsed Time** and **kg-CO2** have also been reset to zero.

## Elapsed Time display:

1. To display the total elapsed time that the Power Cost Monitor had been used, press the MENU key until the "**Elapsed Time**" is displayed on the LCD. It will be from Hours: Minutes (00:00) to Hours (9999) to accommodate a full reading when the used period is increased.
2. Press and hold RESET key for a few seconds, "**rESt**" will appear briefly and to reset the accumulated **Elapsed Time**. **Cost** measurements, **KWH** and **kg-CO2** have also been reset to zero.

## Kg-CO2 display:

1. To display the total Kilowatt Hours to show how many kg-CO2 will be discharged from your appliance. So press and hold the MENU key until "**kg-CO2**" is displayed on the LCD, and the value will be from 0.01 kg-CO2 to 9999 kg-CO2. The decimal point will shift to accommodate a full reading when the KWH is increased.
2. Press and hold RESET key for a few seconds, and "**rESt**" will appear briefly and to reset the accumulated **kg-CO2** measurement. **Cost** Measurements, **KWH** and **Elapsed Time** also have been reset to zero.

## Retained measurements:

1. When power to the Energy Cost Monitor is interrupted, the LCD will go blank and the unit will stop measuring. However all accumulated measurements including total **cost** measurement, **KWH**, **Elapsed Time** and **kg-CO2** will be retained. This is great for user to relocate the Energy Cost Monitor to read the display, or to measure another appliance, or to overcome the data lost issue when the utility AC power line is broken accidentally.
2. When the AC power line back or the unit plug another outlet again, the LCD will be initially Voltage measurement, accumulated data will be retrieved by using the keys.

### 3. Specification:

Model 2022-04		Accuracy		
ITEM	RANGE	ITEM	Max.	Typ.
RMS voltage	90.0~110.0 Vrms	RMS voltage	0.5%	0.2%
RMS current	0.05~15.00 Arms	RMS current	0.5%	0.3%
Active power	5~1650 Watts	Active power	1%	0.5%
Apparent power	5~1650 VA	Apparent power	1%	0.5%
Line Frequency	50.0 Hz	Line Frequency	1%	±0.1Hz
Power Factor	0.00~1.00	Power Factor	0.03	±0.01
KWH	0.00~9999 KWH	KWH	1%	0.5%
Elapsed Time	00:00~9999	Elapsed Time	30 ppm	
		Total Cost	1%	0.5%
Total Cost	0.00~9999	Year Cost	1%	0.5%
		Month Cost	1%	0.5%
Month Cost	0.00~9999	Month Cost	1%	0.5%
Week Cost	0.00~9999	Week Cost	1%	0.5%
Day Cost	0.00~9999	Day Cost	1%	0.5%
Hour Cost	0.00~9999	Hour Cost	1%	0.5%
Kg-CO2	0.00~9999	Fuse Rating	0.2A/250V 3x11mm	
Rate	0.000~99.99			
CO2 Rate	0.000~1.999			

ENVIRONMENT CONDITIONS
IN DOOR USE ONLY
ALTITUDE : UP TO 2000M
OPERATION TEMPERATURE : 5°C ~ 40°C
HUMIDITY: Max.R.H. 80%
OPERATION VOLTAGE IS LIMITED TO ±10% OF LINE VOLTAGE
POLLUTION DEGREE : 2
CAT II

GENERAL SPECIFICATION	
POWER RATING	100Vrms ± 10%, 50Hz
POWER CONSUMPTION	10VA
POWER CABLE LENGTH	0 FEET
H/W/D	130.0mm x 60.0mm x 36.7mm
WEIGHT	Around 145g

- Note: 1. The specification is based on sine wave and PF=1.  
 2. The typical accuracy for Voltage is in the range +/- 10% of Line voltage,  
 for Current is in the range from 0.2Amp to 15Amp.  
 3. The Accuracy=X% (Reading + Range).

#### 4. Maintenance

- Protect the meter from adverse weather conditions. The meter is not waterproof. Do not expose the LCD display to direct sunlight for long periods of time.
- CAUTION: To avoid damage to the meter, do not expose it to sprays, liquids, or solvents.
- Clean the exterior of the meter by removing dust with a lint-free cloth.
- Use care to avoid scratching the clear plastic display filter.
- For further cleaning, use a soft cloth or paper towel dampened with water. You can use a 75% isopropyl alcohol solution for more efficient cleaning.
- CAUTION: To avoid damage to the surface of the meter, do not use abrasive or chemical cleaning agents.

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