

HYPERTEC™

FOR THE PROFESSIONAL DATA ROOM INSTALLER

FULL OPERATORS MANUAL FOR POWER-MATE LITE

QUICK START MANUAL BEGINS ON PAGE 5

OVERVIEW

Congratulations on your purchase of the new Power-Mate-Lite (PML). PML is easy to use, accurate and can help you to identify which appliances are guzzling your money. You can then take some steps to reduce energy consumption and therefore save money and also reduce greenhouse gas emissions.

The PML is the easiest to use energy and cost meter that is currently available. Not only is it simple to use but importantly the results are also easily understood and accurate.

It makes no difference whether you purchased the PML to reduce your electricity cost or to help reduce energy consumption and therefore to help the environment, as the two go hand in hand.

The more you reduce your energy & cost, the more the environment benefits – a perfect win/win result.

Although you may be impatient to use the meter straight away, to get the best results from your PML please take a little time to read these instructions before taking measurements. Plug in the PML and press the buttons freely as described whilst reading the text to familiarise yourself with the PML operation.

GENERAL PRECAUTIONS BEFORE USING THE PML

- The Power-Mate is intended for indoor use only.
- Do not use the Power-Mate if the case or cord is damaged.
- Do not use the Power-Mate if it becomes wet.
- Avoid using the Power-Mate in bathrooms or wet areas.
- Use the Power-Mate with sine-wave power sources only ie. Mains power or inverters labelled as “pure sine wave”.
- Do not use the unit with “Quasi sine wave” or square wave inverters, as the Power-Mate may be damaged.
- Do not expose the Power-Mate to excessive heat ie. A vehicle in direct sunlight, to avoid damage to the case.
- Do not dismantle the Power-Mate, there are no user serviceable parts inside and a shock hazard exists.

The PML is limited to a maximum capacity of 10 Amps. If you are unsure of the power required for an appliance, the power (or current) rating is usually written on the unit's label or even cast into the plastic or metal of the appliance. Alternatively refer to the appliance's user manual in the specification section or contact the manufacturer.

THE PML OVERVIEW

It would be helpful now to describe the operation of the three buttons from left to right. The buttons all have two operations, one for a short press or “click”, the other for a longer press or “hold”.

MENU BUTTON

“Click” the Menu button to display the different modes, these are: Cost, Greenhouse Gas, Energy, Meter and Time screens. Each mode (except time) displays multiple lines of information in a small font.

ZOOM BUTTON

In the various modes the un-zoomed first line of information is presented with the first word in reverse video (white on black) we shall refer to this as the “cursor”. “Click” the Zoom button and the cursor will toggle to the next line, “hold” the Zoom button to magnify the information contained in the cursor line to double size allowing it to be read easily. “Click” the Zoom button whilst in the magnified mode to toggle through each line in sequence. “Hold” the Zoom button to revert the screen back to un-zoomed – or simply “click” the Menu button to un-zoom the screen and change to the next mode in one step.

RUN BUTTON

Click the “Run” button to start stop or pause a measurement period, “Hold” the Run button to erase all the data, a message prompts “clear all data Yes/No ?”, selecting Yes clears all the stored data.

When the meter is running (during a measuring period) the top right hand corner of the display has a flashing activity icon. When paused a “II” symbol is displayed. After the PML has been reset the activity icon is not displayed until the Run button is pressed again to start a new measurement period.

ENTERING COST AND GREENHOUSE GAS INFORMATION.

When in the COST screen mode, “hold” the Menu button until the Set Cost screen appears. Click the Zoom button to change the flashing number, click the Run button to select the next digit and so on. When finished setting the cost, click the Menu button to exit the set up mode.

When in the G/GAS screen mode, hold the Menu button until the Set G/GAS screen appears, enter the Greenhouse Gas value in a similar fashion as for entering cost in the previous step. When finished setting the G/GAS, click the mode button to exit the set up mode.

SETTING OR CHANGING THE MEASUREMENT PERIOD.

When in the RUNTIME/ENDTIME screen mode, hold the Menu button until the SET TIMER screen appears. Click the Zoom button to select the desired run time. If no period has been selected (Timer Duration Not Set) then when run, the PML will count time upwards continuously until manually stopped.

When a RUNTIME period has been selected (1,8,12 & 24 hours or 2,5,7,14 & 28 days), pressing “Run” will load the timer with the selected run-time and the displayed time will count downwards until zero is reached causing the meter to stop. Note it is best to stop and clear the Meter before setting a new Runtime.

When finished setting the desired RUNTIME, a short press of the Menu button will exit the set up mode.

When time is counted up the Timer screen is labelled RUNTIME as it shows the actual elapsed time, or when counting down it is labelled as ENDTIME or the time remaining for the measurement.

STARTING A MEASUREMENT PERIOD

Before starting a new measurement period, always clear all the old data from the meters’ memory. Press and hold the Run button until prompted “ ERASE ALL DATA NO?/YES?, press the button under the “Yes” prompt to clear all the old data (or select No to retain the data).

When the meter is running during a measurement period it is OK to “click” the Menu button to change through the various modes to view the data in real time, or to use the Zoom button.

If the appliance being measured is cyclic in nature ie it starts and stops automatically, such as a fridge or similar thermostatically controlled device, the data for estimated cost, greenhouse gas and energy will be more accurate if measured for a longer period. For continuous cyclic appliances such as a fridge it is best to measure over a 24-hour period (or a longer complete multiple of 24-hour periods).

SCREEN BACK-LIGHT

The screen back-light is automatically turned off after 30 seconds but will be turned on again for another 30 seconds if any of the buttons are pressed. The best button to use, if you do not want to change modes or start / stop the unit, is the Zoom key.

When the back-light is off the first click of the Zoom key does nothing except turn on the backlight, of course pressing the Zoom button whilst the back-light is on will toggle to the next line of data as usual.

POWER FAILURE DURING A MEASUREMENT PERIOD.

If the power is interrupted during a measurement period an “unplugged” icon will be displayed next to the activity icon in the top right corner of the screen to inform you of a power failure. Although the meter will resume what it was doing automatically without loss of data after a power-failure, for best accuracy, if the period of the power failure is not known, the measurement should be taken again.

When measuring a refrigerator for 24 hours a short power failure will have little effect on the data, but an extended loss of power could lead to inaccurate data, especially for estimated quarterly or yearly calculations.

To clear the “Power Fail” icon, simply reset the meter by holding down the Run button as described above in the “starting a new measurement” section.

SCREEN DESCRIPTIONS

In the Cost, G/Gas, and Energy screens, information for the actual, hourly, quarterly and yearly periods is provided. These values will be displayed and continuously updated once the PML is “Run” or started.

COST SCREEN

Cost values are provided in dollars and cents for the actual, hourly, quarterly and yearly periods. The “actual” value is the cost to run the appliance since the test was started. The hourly quarterly and yearly values are calculated from the data collected to date, since the measurement period started. The values are displayed and continuously updated once a measurement period is in progress.

G/GAS (GREENHOUSE GAS) SCREEN

Greenhouse Gas emission values are given in kilograms for the actual, hourly, quarterly and yearly periods. The “actual” value is the greenhouse gas emissions released, in kilograms, through the use of the appliance since the test was started. The hourly quarterly and yearly values are calculated from the data collected to date. The values are displayed and continuously updated once a measurement period is in progress

ENERGY SCREEN

Energy usage values are provided in kiloWatt-hours for the actual, hourly, quarterly and yearly periods. The “actual” value is the actual kilo Watt hours of energy consumed by the appliance since the test was started. The hourly quarterly and yearly values are calculated from the data collected to date. The values are displayed and continuously updated once a measurement period is in progress

METER SCREEN DEFINITIONS

The meter screen provides technical information, which may be of little interest to non-technical people.

True Power (Watts) – The actual power used, which the energy provider bills you for.

Apparent Power (VA) – The power figure calculated from the sum of RMS Volts x RMS Amps.

Volts – The RMS AC voltage available for supply to the Load.

Amps – The RMS AC current drawn by the Load.

Power Factor – The ratio of True Power to Apparent Power.

Frequency – The alternating frequency of the mains voltage.

When zoomed in, Minimum and Maximum values are logged and displayed for the True and Apparent Power, also for Volts and Amps. The Min and Max values are only logged during a measurement period (PML is running) and can be cleared by holding the Run button.

SUPPRESSING UNWANTED SCREENS

If your interest is just cost for example, it is possible to suppress any of the other unwanted screens from displaying.

When in the RUNTIME mode hold the Menu key until the Set Timer screen is showing, now press and hold the Menu key again until the Set View screen is showing. Now click the Zoom button to shift between the choices and click the Run button to Y to display a screen or NO to suppress it. When finished screen selection, click Menu to exit back to normal. Of course enabling the screens again is simply a reversal of the above steps, but answering Y (yes) to the screens to be enabled.

OVERLOAD

When the current exceeds 10A, the display flashes the message “WARNING, OVER/LOAD”, disconnect the excessive load as soon as possible to avoid overloading and damaging the Power- Mate.

SPECIFICATIONS

NOTE: This unit is intended for operation @ 240Volts AC with a maximum load current of 10Amps.

| Setting | Range | Units | Resolution | Units |
|----------------------|-----------------|----------------------|-----------------|-------|
| Rate Setting | 0 – 99.999 | c/kWh | | |
| G/Gas Setting | 0 – 9.999 | kg/kWh | | |
| Inbuilt Timer | 1, 8, 12, 24 | Hours | | |
| 2, 5, 7, 14, 28 | Days | | | |
| Cost | 0 – 999999 | ± \$ | 0.01 | c |
| Energy | 0 – 99999 | ± kWh | 0.01 | kWh |
| G-Gas | 0 – 99999 | ± kg | 0.01 | g |
| Volts | 170.0 – 270.0 | ^v RMS | 0.1 | V |
| Amps | 00.000 – 10.000 | ^A RMS | 0.001 | A |
| Power | 0 – 2,400.0 | ± W | 0.1 | W |
| Apparent Power | 0 – 2,400.0 | VA | 0.5 | W |
| Power Factor | ± 0.001 to 1 | (dimensionless) | Leading/Lagging | |
| Frequency | 45-65 | Hz | 0.1 | Hz |
| Run-Time measurement | 99:23:59:59 | Days:Hours:Min.:Sec. | | |

Accuracy error for all ranges is below 2%, (typical accuracy is below 1%)

Note 1 : The VA and Power Factor accuracy is as specified when measuring above 2W.

Note 2 : Where the display shows more digits than the resolution specified, the accuracy of any extra displayed digits is not guaranteed.

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HYPERTEC™

FOR THE PROFESSIONAL DATA ROOM INSTALLER

POWER-MATE LITE “QUICK-START” OPERATING INSTRUCTIONS

Warning: This product contains live mains voltages and should be used only by an adult or under adult supervision. If the power cord or case becomes damaged, please return to either the manufacturer or an authorised service company for repair. Do not use in wet areas or if the unit becomes wet.

INTRODUCTION

The Power-Mate Lite (PML) reveals Running cost, Energy use, Greenhouse Gas (G/Gas) all expected Meter readings (including VA & PF) and it has a selectable timer function built in for taking readings over a preset period.

TERMS USED IN THIS MANUAL

The Power-Mate Lite (PML) screen shows multiple lines of data at the same time.

There are 3 buttons, which you either “click” with a short press or “hold” with a long press.

The “Zoom” button selects a line to magnify by clicking, or zooms into the line by holding.

The “Menu” button changes between the screens for Cost, Greenhouse Gas, Energy, Meter and Timing by clicking, or enters the setting mode for Cost, G/Gas and the Timer screen by holding.

The “Run” button starts, stops or pauses a measurement by clicking the button or resets the meter and clears all data by holding.

In the Time screen, a convenient count-down timer can be set by choosing between 9 selectable preset times or “Not Set”. If “Not Set” is chosen, the Timer counts time up from zero and the display shows the total measurement elapsed time or Runtime. If a time period is selected though, the display then shows the time remaining or Endtime for the measurement.

ENTERING INITIAL COST AND GREENHOUSE GAS (G/GAS) DATA

When delivered from new, the Power-Mate Lite will be prompting you to enter the cost value of your electricity when power is first applied. To obtain best accuracy, the cost must be entered in cents per kilowatt-hour (kWh) from your energy providers’ most recent account.

Note: 1) Some energy providers refer to kWh as units. PML’s are shipped preset to 18c/kWh.
2) You must first be in either the Cost or G/Gas screens to be able to set their values, then simply hold the “menu” button depressed until the “Set” screen is displayed.

To modify the Cost or G/Gas value, click the Zoom button to change the number (this cycles through 0-9). Clicking the Run key moves to the next digit, like setting a typical digital clock.

Similarly, enter the greenhouse gas coefficient, which can be found on the website: [www.climatechange.gov.au/ table #39](http://www.climatechange.gov.au/table#39) which is measured in kg CO₂-e/kWh.

Note: the G/Gas coefficient varies from state to state – look to “Table 5: Indirect (scope 2) emission factors for consumption of purchased electricity from the grid” for your state’s value. If accurate figures are not available, 1.0kg CO₂-e/kWh can be used as a reasonable approximation (units come shipped with the G/Gas value pre-set to 1.0kg CO₂-e/kWh).

DISPLAY

The Cost, G-Gas and Energy screens simultaneously provide four lines of information, shown in order here:

- 1) The real (or actual) figure to date (since the measurement was started).
- 2) The estimated Hourly amount.
- 3) The estimated Quarterly amount.
- 4) The estimated Yearly amount

These estimated amounts are calculated from the average energy consumption of the appliance, derived from the data collected during a measurement period.

The Meter screen displays simultaneously True Power (W), Apparent Power (VA), Volts (V), Amps (A), Power-Factor & Frequency (Hz). Using "Zoom", the meter screen also displays minimum and maximum values for V, A, W & VA

Note: the minimum and maximum figures will not be updated if the PML is stopped or paused.

A click of the Run key will start or stop a measurement period, whilst a hold will reset (clear) the data in the PML. When the PML is running, a flashing triangle icon shows on the top right corner of the LCD.

If the power fails during a measurement period, data is not lost and the PML resumes when power returns, another icon though will show next to the run icon showing that the power was disconnected.

MAKING YOUR FIRST MEASUREMENT

Plug an appliance into the piggy-back plug of the PML and switch on the appliance. If you are not on the cost screen, click the menu button a few times until cost is displayed.

Now hold the Run button until prompted "clear all data" click the button under "Yes".
Now click the Run button to start your measurement. The cost screen will instantly update with the running cost data for the appliance.

Note: devices with a thermostat, like a fridge, should be measured over a 24Hr period to obtain the best accuracy.

Complete operating instructions and specifications can be downloaded from:

www.power-mate.com.au

WARRANTY:

This product is guaranteed against faulty components and workmanship for a period of 12 months from the date of purchase. It is the responsibility of the purchaser to return the unit to the manufacturer or place of purchase with a copy of the sales receipt or invoice when requesting warranty repairs to be undertaken.

After the warranty repairs or work is completed, the manufacturer will return the goods to the purchaser using the Australian Post standard parcel service at no extra cost to the purchaser. If insurance or registered or express post is required, the cost shall be borne by the purchaser.

The Manufacturer is not responsible for goods lost or damaged by the Australian Post service. Great care was taken to ensure the integrity of data and information and correct operation of this product. The Manufacturer though will not accept any claims for data loss, financial loss or any other losses or consequential damage resulting from the data, use or failure to perform of this product, no other guarantees are implied or given.

To obtain warranty service on your Power-Mate Lite, please send it, together with your full name and return address, directly to the manufacturer:

Legend Performance Technology PTY LTD
8 Distribution Place
Seven Hills NSW 2147
Ph: 1800 328 200
Internet: www.legend.com.au
Email: sales@legend.com.au

Address

Date of Purchase

Place of Purchase

Invoice no.