



Fig 1. shows the display layout

**QUICK START GUIDE**

Plug in the unit and plug an appliance into it's power socket.

The display will show: mains voltage of nominally 240 (VOLTag), nominal frequency of 50Hz and the timer will increment automatically, with the colon between the hour and minute display (Radix Point), flashing every second.

Press the FUNC (function) button once and the display will show X:XX AMP and XX POWER FACTOR and the timer.

Press the FUNC again and the display will show X WATT, (as well as power factor and timer).

Press the FUNC again and the display will show X x Kwh (Kilowatt Hours), (as well as power factor and timer).

This is the most important reading and can be multiplied by the cost per Kwh shown on your most recent electricity bill to get the cost of running the attached appliance for the amount of time shown on the timer.

Press the FUNC again and the display will show 0.00 TOTAL PRICE and TOTAL ON TIME XX:xx.

The Cost reading will show 0.00 Total price as there are no cost per Kwh rates set within the meter, however in order to set these rates you need to program the day, time and two different rates, such as normal and off peak rates and the times or days that these rates apply. To do this refer to the normal Installation and Operating Instructions supplied with your meter or these may be downloaded from the Arlec Website <http://www.arlec.com.au>

**GENERAL FEATURES**

1. Display current clock.
2. Display line voltage.
3. Display line current.
4. Display accumulative total electric quantity.
5. Display total on time and total electric charge.
6. Display total on time and total electric charge of price1.
7. Display total on time and total electric charge of price2.
8. Display the frequency.
9. Display power factor.
10. Adjustable price / kWh
11. Combinations of day or blocks of days available as follows:
 

MO	TU	WE	TH	FR	SA	SU
MO,TU,WE,TH,FRI	MO,TU,WE,TH,FR,SA	SA,SU	MO,TU,WE,TH,FR,SA,SU			

**REPLACING BATTERY**

Insert the 3pcs battery(LR44/AG13) according to the correct direction indication, replace battery cover.

**NOTE**

1. The cover must be in place before use.
2. The battery must be taken out if not use for an extended period of time.

**THE DATA DISPLAY**

Press FUNC. Button and the data displays as follows:

**VOLTac AMP WATT KWh ON TIME PRICE1 PRICE2**

1. The meter will display current clock and line voltage and frequency.
2. Press FUNC. button once and release, the meter will display current clock and line current, power factor.
3. Press FUNC. button once again and release, the meter will display current clock and real power, power factor.
4. Press FUNC. button once again and release, the meter will display current clock and accumulative power.
5. Press FUNC. button once again and release, the meter will display total on time and total electric charge.
6. Press FUNC. button once again and release, the meter will display total on time of price 1 and total electric charge of price 1.
7. Press FUNC. button once again and release, the meter will display total on time of price 2 and total electric charge of price 2.
8. Press FUNC. button once again and release, the meter will come back to display current time and line voltage. Press and hold FUNC. button for 5 seconds to clear accumulative total electric quantity and total electric charge during display state of total electric charge or total electric charge of price 1 or total electric charge of price 2.
9. LCD display-----when total electric quantity, total electric charge overflow, the OVER will flash at the same time.

## SPECIFICATIONS

Power supply	230-240V AC 50Hz
Max. load	10A, 2400W
Measure voltage range	200-276V AC
Measure voltage accuracy	+/-1%
Measure current range	0.01-10A
Measure current accuracy	+/-1% or +/-0.01A
Measure power range	0.2-2760W
Measure power accuracy	+/-1% or +/-0.2W
Accumulative electric quantity range	0-9999.9kWh
Measure frequency range	45-65Hz
Clock accuracy	+/-1 minute per month
Power cost	<0.3W
Operating temperature	-10°C to +40°C
Battery	3 x 1.5V LR44/AG13
Battery Life	About 3 months without AC power

## Warranty

Arlec guarantees this product in accordance with the Australian Consumer Law. Arlec also warrants to the original first purchaser of this product ("you") from a retailer that this product will be free of defects in materials and workmanship for a period of 12 months from the date of purchase, provided the product is not used other than for the purpose, or in a manner not within the scope of the recommendations and limitations, specified by Arlec, is new and not damaged at the time of purchase, has not been subjected to abuse, misuse, neglect or damage, has not been modified or repaired without the approval of Arlec and has not been used for commercial purposes ("Warranty").

If you wish to claim on the Warranty, you must, at your own expense, return the product, and provide proof of original purchase and your name, address and telephone number, to Arlec at the address below or the retailer from whom you originally purchased the product within 12 months from the date of purchase.

Arlec will, for authorisation the retailer to, assess any claim you may make on the Warranty in the above manner and if, in Arlec's reasonable opinion, the Warranty applies, Arlec will, at its own option and expense (or authorise the retailer to) replace the product with the same or similar product, or repair the product and return it to you or refund the price you paid for the product. Arlec will bear its own expenses of doing those things, and you must bear any other expenses of claiming on the Warranty.

The Warranty is in addition to other rights and remedies you may have under a law in relation to the product to which the Warranty relates.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

**Proof of purchase**

Please retain your proof of purchase for all warranty claims.



Arlec Australia Pty. Ltd. ACN 009 322 105 ("Arlec") gives the Warranty. Arlec's telephone number, address and email address are:

**Customer Service: (03) 9982 5111**

**New Zealand Toll Free: 0800 003 329**

Building 3, 31 - 41 Joseph Street, Blackburn North, Victoria, 3130  
Blackburn North LPO, P.O. Box 1065, Blackburn North, 3130

Email: [custservice@arlec.com.au](mailto:custservice@arlec.com.au)

CPIN1050/6

# ARLEC *electrical* Energy Cost Meter

## Installation and operating instructions

PC222

**IMPORTANT! PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE CONNECTING THIS METER TO ELECTRICAL APPLIANCES.**

**WARNING: DO NOT PLUG TWO OR MORE METERS TOGETHER.**

### IMPORTANT

Don't plug in an appliance where the load exceeds 10 Amps.

Always ensure the plug of any appliance is fully inserted into the meter outlet. If cleaning of the meter is required, remove from mains power and wipe meter with a dry cloth.

### Introduction

The PC222 measures a number of parameters of the power supply to the appliance that is plugged into it. The attached appliance should not exceed 10 Amps or 2400Watts.

The product can be used without being programmed, it can be used just as a display device by scrolling through measured parameters using the FUNC (function) button, and this gives access to the most important information.

The most important information for working out the cost of running an attached appliance is the Kwh (Kilowatt Hours) used, this is the Voltage (VOLTac) multiplied by the Current (AMP) multiplied by the POWER FACTOR over a period of time. The total amount of time that the unit is plugged in is measured, irrespective of whether the day and time display is programmed or not.

POWER FACTOR is relevant only to appliances that present an inductive load such as electric motors, power transformers or fluorescent light fittings, please refer to glossary for power factor.

Power factor is a correction factor of between 0.8 - 1.0 for accurate measurements of these type of devices.

### KEYBOARD DEFINITION

1. Master Clear: Clear all data in memory including current time and all programs.
2. UP: Set current time, price, price programs, combined with buttons SET; 12-24 hour mode during clock display state.
3. SET: Set current time, price, price programs, combined with buttons UP.
4. FUNC: Set current time, price, price programs, max. overload combined with buttons UP.

## SETTING PRICE OF COST/kWh

Press and hold FUNC. button for 5 seconds during display state of voltage or current or power.

### 1. Setting price 1:

- Press SET button once and release, SET display, the first digital COST/kWh flash, press UP button to set it.
- Press SET button once again and release, the second digital COST/kWh flash, press UP button to set it.
- Press SET button once again and release, the third COST/kWh flash, press UP button to set it.
- Press SET button once again and release, the fourth COST/kWh flash, press UP button to set it.
- Press SET button once again and release, the radix point COST/kWh flash, press UP button to set it.
- Press SET button once again and release, the weekday flash, press UP button to set it.
- Press SET button once again and release, the hour of ON TIME flash, press UP button to set it.
- Press SET button once again and release, the minute of ON TIME flash, press UP button to set it.

### 2. Setting price 2:

Press FUNC button once and release after finish Setting price 1. Setting price 2, repeat above steps.

## SETTING CURRENT CLOCK

- Press FUNC button until the CLOCK displays in LCD. (Clock is located at the bottom right hand corner of the LCD).
- Press SET button once, The "WEEK DAY" will flash at same time, the clock change to SET mode. You can set the current clock now.
- Press UP button to set the "WEEK DAY".
- Press SET button once again and release. The "HOUR" will flash. The "WEEK DAY" will stop flashing and keep display.
- Press UP button to set the "HOUR".
- Press SET button once again and release, the "MINUTE" will flash. The "HOUR" will stop flashing and keep display.
- Press UP button to set the "MINUTE".
- Press SET button once again and release, the time will come back to CLOCK display mode.
- Press UP button during the CLOCK display state, to change 12-24 hour mode.

To reset incorrect time, repeat above steps.

After finishing set up, plug the meter into a regular power outlet.

Plug in an appliance that you want to use and turn the mains power on.

The meter will now measure the consumption of the appliance.

## STAND BY MODE

Display of LCD will disappear without any operation once AC power is off for 10 seconds. Press any key to bring up the display.

## GLOSSARY:

### VOLTAGE:

Electrical potential or electromotive force measured in Volts (V). Domestic mains voltage in Australia is nominally 240V RMS and is Alternating Current (AC) (+/- 20% = 216V - 264V).

### FREQUENCY:

Alternating current rate of change measured in Hertz (Hz) (is called cycles per second).

### CURRENT:

Measured in Amps (A). Domestic mains outlets in Australia are rated at a maximum of 10 Amps AC RMS.

### ALTERNATING CURRENT:

Alternating current is a current that flows in a periodically positive and negative direction usually following a sinusoidal waveform (AC).

### WATTS:

Wattage is a measure of power consumed, which can be determined by multiplying the RMS Voltage by the RMS Current (assuming that the Power Factor is 1), i.e. the maximum nominal appliance wattage is  $240\text{ V} \times 10\text{ A} = 2400\text{ Watts}$ .

### KILOWATT HOUR:

This is a convenient measure of Energy consumed (Kwh) i.e. 1000 Watts used over the period of one hour, 500 Watts used over 2 hours etc. This is how most electricity bills are expressed, i.e. as dollars per Kwh.

### RMS:

The root mean square (abbreviated RMS or rms), also known as the quadratic mean, is a statistical measure of the magnitude of a varying quantity. It is especially useful when measuring the effective value of a sinusoidal waveform such as mains voltage and current.

### POWER FACTOR:

The power factor of an AC electric power system is defined as the ratio of the real power flowing to the load compared to the apparent power and is a number between 0 and 1 (frequently expressed as a percentage e.g. 0.5 PF or 50%). Real power is the capacity of the circuit to perform work in a particular time. Apparent power is the product of the current and voltage of the circuit. Due to energy stored in the load and returned to the source, or due to a non-linear load that distorts or changes the phase of the wave shape of the current drawn from the source, the apparent power can be greater than the real power.