OPERATING MANUAL
COST CONTROL - POWER CONSUMPTION MONITOR

Contents

1.0   INTRODUCTION:

Congratulations on purchasing the Cost Control. This is a state-of-the-art power monitoring socket that is highly accurate and easy to use. Please read this instruction manual before putting the Cost Control into operation as it will allow users to gain the optimum benefits of all its features.

2.0   THE COST CONTROL
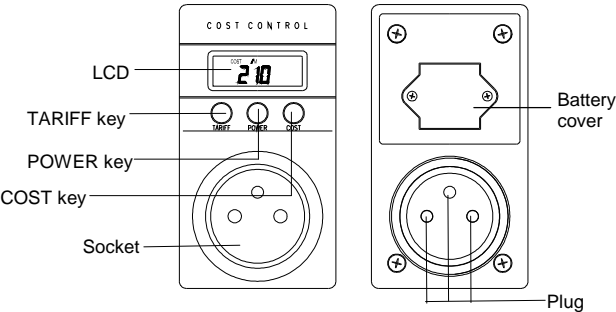
3.0   FEATURES:
- Cost monitoring
- Cost forecasting
- Instantaneous power consumption (Watt).
- Maximum load power display (Max Watt).
- Total energy consumption display (Total kilo Watt hour)

4.0   COST MONITORING:

Using this feature, users will see the cost of electricity in running an their electrical appliances. For cost monitoring, the value is shown on the LCD as "TOTAL COST" and the information obtained will enable users to be more power consumption aware and efficient.

5.0   COST FORECASTING:

Cost forecasting is useful for budgeting future electricity bills as the approximate cost to run an electrical appliance over a period of time can be estimated in this way. There are three cost forecasting displays screens as follows:

1) COST/D = cost per day forecast (assuming normal usage)
2) COST/M = cost per month forecast (assuming normal usage)
3) COST/Y = cost per year forecast (assuming normal usage)

6.0   INSTANTANEOUS POWER CONSUMPTION:
When an electrical appliance is plugged into the Cost Control, by pressing the **"POWER"** key, the instantaneous power (Watts) being used at that precise moment in time can be ascertained.

7.0   THE MAXIMUM LOAD POWER DISPLAY:
Again, by pressing the **"POWER"** key, the maximum load power (Maximum Watts) will be displayed. This reading applies to maximum power that an electrical appliance has used during its monitoring period.

8.0   TOTAL ENERGY CONSUMPTION DISPLAY:
Again, by pressing the **"POWER"** key for a third time, the LCD will alternate to show the total kWh consumed by an electrical appliance for the monitoring period.

9.0   INTENDED USE:
The measuring range of the Cost Control is from approximately 4W to 3600W (automatically varies from one appliance to another) and is therefore ideal for use with a large variety of electrical appliances.

Cost Control is designed for use only as an indicator for the average cost and average amount of electricity used for electrical appliances. Despite its accuracy it is not officially certified and therefore readings cannot be used as evidence in any dispute between the Electricity Company and the user.

- Cost Control is approved for use on a 230V / 50Hz mains supply only.

- Only loads with the same voltages (230V / 50Hz) can be connected.
- The max. load of any appliances connected must not exceed 3600 Watt (Max. current 16A).
- Cost Control is only designed for indoor use within dry environments. Outdoor use is strictly prohibited!
- Cost Control may not to be altered or modified in any way.
- Observe the specifications on the type plate of the appliance to be connected!
- Do not connect one Cost Control after another.
- Any other use, other than described, may risk dangers in short circuiting, fire, electrical shock, etc and damage of this product.

In order to maintain perfect condition and guarantee safe operation of this product, the user must observe the **Intended Use**, **Safety Precautions** and **Disclaimer Liability** notes in this operating manual.

10.0 SAFETY PRECAUTIONS:
- Connect Cost Control only to an approved 230VAC / 50Hz ± 10% (10/16A) earth-contact type mains outlet (VDE)
- The max. load of 3600 Watts (16A) must not be exceeded
- The recommended operating temperature is 0℃ to +50 ℃. Higher temperatures may especially during measurements of large loads lead to dangers of overheating and permanent damage of the product.

- Do not operate the product within confined rooms or other adverse conditions where inflammable gases, vapors or dusts may be present!
- For safety, never allow the product to operate in moist conditions or to get wet.
- The product must under all circumstances be separated from mains supply prior any to maintenance, repair, change of parts or disassembly otherwise components and connectors carrying high and dangerous voltages may be exposed.
- Capacitors in the circuitry of the product may still carry high voltage charges even though it has been separated from the mains supply.
- In commercial institutions the safety regulations of the alliance of commercial professionals associations for electrical installations and production facilities must be observed!
- In schools, educational institutions, hobby shops or co-operative workshops the use of the product must be responsibly supervised by trained personnel!
- Never insert needles, metal or any other objects into the mains outlet!
- Do not plug one Cost Control into another !
- If the product is no longer able to operate safely, it must to be put out of operation and disposed of for reason of any accidental use when the following is evident:-

  a)   product shows obvious signs of damage.
  b)   product does not function
  c)   product has been stored in unfavorable conditions for a long period of time.
 d)   heavy strain during product's transport may have occurred.

11.0 SETTING UP:
Before plugging the Cost Control into the mains socket and any appliances into it, the values must be set.

Firstly, enter the **"TOTAL COST"** display by pressing the **"COST"** key to alternate between **"COST/D"**, **"COST/M"** and **"COST/Y"** displays. Now check that all the values displayed are set to zero as follows: (as illustrated below).
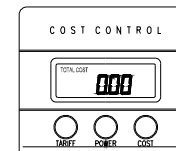
1. Any preset values in the "TOTAL COST" display that the user has not set in must be reset to zero to ensure accurate readings. To do this, simply press and hold down the "COST" key (for approximately 4 seconds) and all values with the exception of Tariff (cost per kilowatt hour) will be reset to zero.
2. Once all the values displayed are set zero in the "TOTAL COST" display, then press the "TARIFF" key to enter the Tariff setting mode.

12.0 TARIFF SETTING MODE:
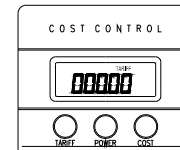
The value of a single unit of kWh (kilo Watt hour) can usually be found on a previous electricity bill. Please take this figure from a recent bill as costs may have since been updated by the Electricity Company. If the cost of a kWh cannot be found on the bill, then contact your local Electricity Company for the price of this unit. The Tariff display may not necessarily be set to zero (as illustrated above). If there are any preset values that the user has not set themselves, then simply overwrite them when setting the unit cost of a kWh as follows:

1. Press and hold the "TARIFF" key (approximately 3 seconds) until the first digit on the right hand side starts flashing.
2. Now press either the "POWER" or "COST" keys to set the desired digit. Each press of either key changes the digits by one. The "POWER" key increases the digits from 0 to 9 and the "COST" key decreases from 9 to 0.
3. Once a digit is set, press the "TARIFF" key once to move to the next digit.

4. Repeat steps 2. and 3. until the desired values for the kWh are set. If any of the digits do not require changing then simply press the "TARIFF" key to move to the next. Once all the desired value has been selected, the "TARIFF" key should be pressed once more to confirm the setting of all digits (the last digit on the left had side will stop flashing).

Note: if no keys are pressed for about 8 seconds during tariff setting mode and the digit is flashing, the unit will automatically confirmed and display the last entered tariff; the digit will stop flashing.
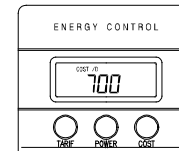
5. Once the Tariff is set, plug the Cost Control into the mains supply and then plug the electrical appliance into the Cost Control.

Note: The appliance should be operated as normal - for hints on this see the **"Extra Notes"** section.
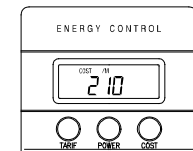
13.0 USING THE COST CONTROL

Using the Cost Control is very easy. For example: the cost to operate appliance "X" is 7.00 (€, £ and etc.) per day and after 20 days of operating the appliance, the TOTAL COST is 140.00 (€, £ and etc.), therefore, we can assume the following readings:

a) Cost per day is:

ENERGY CONTROL

COST /D
700

TARIF POWER COST

b) Cost per month is:

ENERGY CONTROL

COST /M
210

TARIF POWER COST

c) Cost per year is:

ENERGY CONTROL

COST /Y
2520

TARIF POWER COST

d) Total Cost is:

ENERGY CONTROL

TOTAL COST
14000

TARIF POWER COST
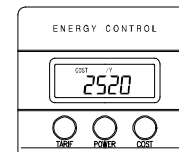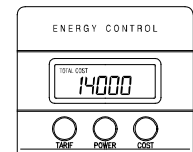
When the monitoring of an electrical appliance is complete; simply turn the appliance off; remove the Cost Control from the mains and then remove the appliance from the Cost Control. However, should

further monitoring be required, then do not remove the electrical appliance from the Cost Control and mains supply but simply take the reading with the electrical appliance still plugged in.

Notes: The above illustrations shown assume a daily value of 7.00 (€, £ and etc.) and 7 days per week, 30 days a month and 12 months a year (to alternate between these displays simply press the "**COST**" key.

"OFL" will be displayed on the LCD should any cost forecasting reading be over the 6-digit display range.

As the price of a kWh unit does not change (unless by the Electricity Company), only the Total Cost display (actual electricity used per day, month and year) requires resetting once the Cost Control has completed a reading. To reset, press and hold down the "**COST**" key (for approximately 4 seconds) where all values (with the exception of Tariff - cost per kilowatt hour) will be reset to zero (as was done in **Setting up -** step 2, above).

14.0 REPLACING BATTERIES
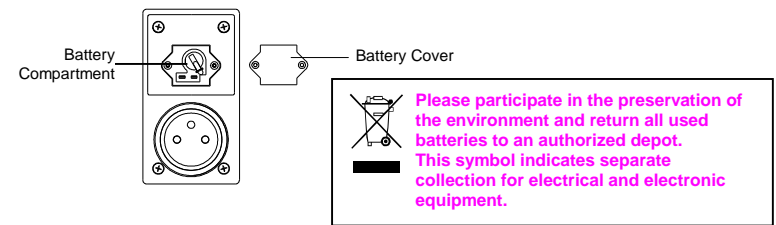
Low power batteries usually reduces the contrast of the LCD. If the LCD becomes difficult to read then the battery must be replaced immediately. The Cost Control uses a single LR44 Key Cell Battery, 1.5V which has an estimated average lifetime of 2 years.

To replace the battery, simply follow these steps:
1.   Unscrew the screws on the battery cover and remove (as illustrated below).

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2. Remove old battery and replace with a new one of the same size and voltage whilst observing correct polarity.
3. Replace battery cover and secure back into place.

Battery Compartment — Battery Cover

Please participate in the preservation of the environment and return all used batteries to an authorized depot. This symbol indicates separate collection for electrical and electronic equipment.

15.0 EXTRA NOTES:

The electrical appliance connected to the Cost Control should always be operated as normal if forecasting of the cost is required. If an accurate reading per day, month or year is required then it is highly recommended to keep the appliance plugged into the Cost Control and to operate it normally for at least a few days. This is so that it can take an average of the power used and its cost over the time period.

The longer the Total Cost of an appliance is monitored by the Cost Control, the more accurate any forecast (day, month, year) or Total Cost reading will be. There are a variety of reasons for this, some of them are:

- The power supply to the mains from the Electricity Company is never constant and at some stage will vary slightly. For example, if electricity varies by 1% for every 1 second of usage and the Cost Control is used for only 5 minutes then the cost forecast will not be as accurate compared to use for 3 hours with the same variation of 1% for every 1 second in the power supply.
- Some electrical appliances use more electricity when first turned on than others and the amount of electricity it uses will decrease the longer it left operating (commonly referred to as "Warming up").

Example 1:
A lamp is plugged into the Cost Control and operated every evening:

> Day 1, from 18.00hrs to 2000hrs
> Day 2, from 19.00hrs to 2100hrs
> Day 3, from 18.30hrs to 2030hrs

Assume it costs 1.00 (€, £ and etc.), per hour to run this lamp, the Total Cost at 2000hrs on day 1 would be 2.00(€, £ and etc.). If Total Cost per day is required then it will show 24.00 (€, £ and etc.) - at this point the Cost Control is assuming the lamp will be left on all day for 24 hours, but this is not the case. At 1859hrs on day 2, the Cost Control will show the Total Cost as the same at 24.00 (€, £ and

etc.) but now the cost per day would have dropped to about 2.00 (€, £ and etc.) as it has not been used for the last 23 hours. Before the lamp is turned "ON" on day 3, the Cost Control will have taken the total power consumption and the length of time that it has been turned off and averaged them out for an accurate cost per day reading. This should show 2.00 (€, £ and etc.) and so you know how much, on average, the lamp is costing to operate everyday.

Example 2:
Some appliances are constantly turned on and off for varying amounts of time, such as refrigerators (motors), freezers, TV sets and etc. The power used by each of these electrical appliances varies greatly due to the time the motor is switched on and off, in such cases, it is recommended to keep the appliance plugged into the Cost Control for several days before taking the reading. If a reading is taken after the appliance has turned on and off only once, then this will not be an accurate account of its cost over time. It will only be an accurate reading of the cost of power that it has used in total.

Example 3:
Some appliances are used infrequently, such as power tools, food processors/mixers and so on. In cases like these, it is not recommended to try to work out the average cost per day, month or year. It is much easier to simply see make a note on how much it has cost (Total Cost) each time the appliance has been operated.

16.0 MAINTENANCE:
- Check the product for any damages at regular intervals!

- When cleaning the LCD and casing, use a soft damp cloth only. Do not use solvents or scouring agents.
- Do not submerge this unit into water.
- Any maintenance or repairs must only be performed by authorized service personnel being familiar with all relevant regulations.

17.0 SPECIFICATIONS:
- Absolute max. rating (short-time)
  - Load   :   3600W
  - Current   :   16A
- Operating voltage   :   230VAC/50Hz
- Operating temperature   :   0℃ to +50℃
- Battery   :   LR44 1.5V

18.0 LIABILITY DISCLAIMER:
- The electrical and electronic wastes contain hazardous substances. Disposal of electronic waste in wild country and/or in unauthorized grounds strongly damages the environment
- Please contact your local or/and regional authorities to retrieve the addresses of legal dumping grounds with selective collection
- All electronic instruments must from now on be recycled. User shall take an active part in the reuse, recycling and recovery of the electrical and electronic waste.

- The unrestricted disposal of electronic waste may do harm on public health and the quality of environment.
- This product must however not be thrown in general rubbish collection points.
- As stated on the gift box and labeled on the product, reading the "User manual" is highly recommended for the benefit of the user.
- The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should an inaccurate reading take place.
- This product is only designed for use only as an indicator for the average cost and average amount of electricity used for electrical appliances. Despite its accuracy it is not officially certified and therefore readings cannot be used as evidence in any dispute between the Electricity Company and the user.
- This appliance is not intended for use by persons (including children) with reduce physical, sensory, or mental capacities, or lack of experience or knowledge, unless they have been given supervision or instructions concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with this appliance.
- This product is not to be used for medical purposes or for public information.
- The specifications of this product may change without prior notice.
- This product is not a toy. Keep out of the reach of children
- Damage caused by neglect, misuse or failure to comply with this manual will invalidate the warranty of this product.

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- The manufacturer cannot and will not be held liable for any consequential damages caused for the above.
- No part of this manual may be reproduced without written authorization of the manufacturer.