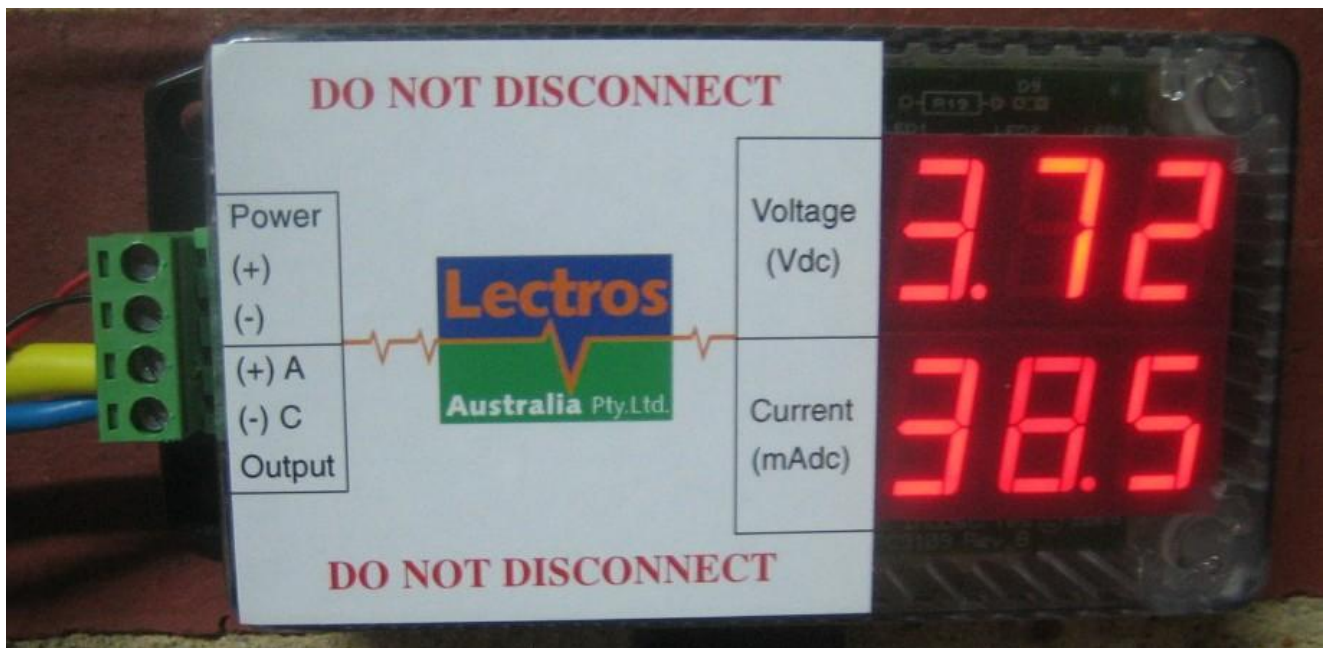




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## Lectros L.E.D. Power Control Unit - Series 4.



### Plug Pack Connection Details.

Cut to Length, separate + ve and - ve wires, strip Insulation and connect bare ends to indicated Terminals.

Positive [+] is usually coloured **RED** or has a coloured stripe [Red or White]

**Note:**

A Black Stripe is **OFTEN** the Negative wire. If **NOT** certain, verify with a multi-meter or similar.

**Anode - YELLOW**  
**Cathode - BLUE**

Most countries building codes mandate that electrical wiring be colour coded to avoid confusion and improve safety when employing active electrical systems such as domestic/residential and commercial/industrial electrical installations. It is understood that yellow/green coded wiring be used exclusively for earthing applications. It is recommended that yellow/green electrical wiring is not used to connect the cathode to avoid future confusion and minimize the safety risk.

## LECTROS L.E.D. Wall Voltage Controller.

1. On Power-UP, the Unit enters **SETUP-Mode** for approx **20 secs**.  
In this mode -  
**TOP L.e.d's**: (**FLASHING**). Display the present - **Static Wall Charge (Voltage)**  
(Note: You may initially see **0.00V** but should expect to see eventual readings between 1.80 – 2.50 vdc)  
  
**BOTTOM L.e.d's**: Display the Plug-pack Rectified DC Voltage.  
Range should be approximately **12V - 18V.D.C.**
2. At the end of **SET-UP Mode**, the unit changes to **Source-Mode** where -  
**TOP L.e.d's**: Display the present – **Source-Voltage** Applied to the Wall.  
**0.00 - 9.99V** Resolution (Increment) is **0.04V**  
**BOTTOM L.e.d's**: Display the present – **Source-Current** Applied to the Wall.  
**00.0 - 99.5mA**, Resolution (Increment) is **0.5mA**
3. **EVERY 55secs the unit switches to Read OUT-Mode, where -**  
**TOP L.e.d's**: Display the **LAST actual Static Wall Charge (Voltage)** reading.  
**N.B.**: The **ACTUAL Static Wall Charge (Voltage)**, is Read **ONCE** every 24hrs, **Live-Read Mode**.  
The process takes app **6 seconds** and the **TOP L.e.d's** will **Flash** to Indicate it is in Progress.  
**BOTTOM L.e.d's**: Display the message **\_rd**

### Fault Conditions.

There are a few Fault Conditions that may be displayed at any time.

- A. Wall Source Current **Too-Low** or **Break** detected. **BOTTOM L.e.d's Flashing**.  
If the Source current drops below **2.0mA**, the unit switches to a **20X** Higher Resolution mode of **0.025mA**. The L.e.d's will now display **0.1mA** increments. IF the current falls **below 0.1mA**, the display will show the message **opn**
- B. Wall Source Current **Too-High**. **BOTTOM L.e.d's Flashing**.  
If the Source current exceeds **68.0mA**, the **BOTTOM L.e.d's** will **Flash**.
- C. Wall Source Voltage **SHORT** Detected.  
If the Wall **Source Voltage** drops below **0.32V**, the **TOP L.e.d's** will **Flash**.

### NOTES:

During ANY of the Fault conditions, the unit will **NOT** turn off or enter a Failsafe Mode. Removing/Restoring AC Power (5secs), will Restart the unit in **SET-UP Mode**.

### SPECIFICATIONS:

**Source Voltage:** 0.00 - 8.50V, (Maximum Open Circuit) (Read Range 8.4 – 8.6 V).  
**Source Current:** 00.0 - 70.0mA, (Maximum Short Circuit) (Read Range 65 – 70mA).

**Input Plug Pack Power Supply:** Volts **D.C.** (Regulated) 15 – 20 Volts, 200mA minimum.  
Volts **A. C.** (Un-Regulated) 12 Volts, 200mA minimum.

### PLEASE NOTE.

**The systems Voltage, Current and Static Wall Charge Voltage figures must be recorded on the top of the control unit to establish "Benchmark" data along with the commissioning date and the Installation Contractors Name and Contact Phone Number.**

# Understanding your Lectros Digital Control Unit Series 4.

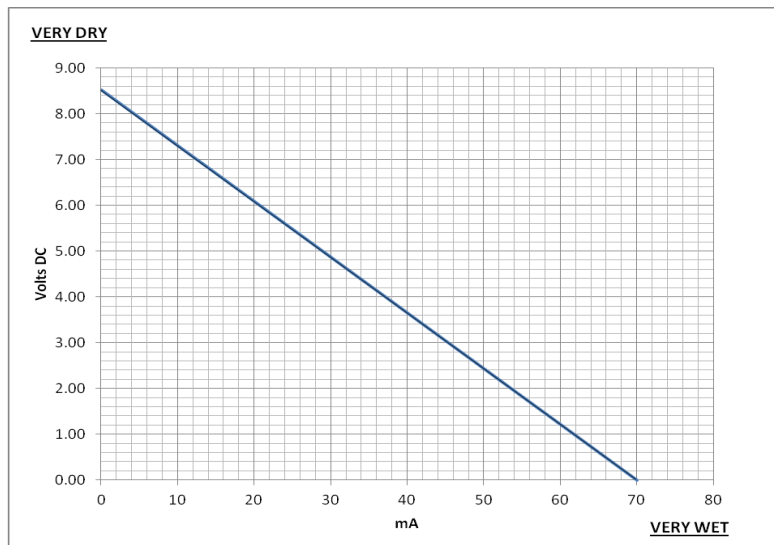
The amount of electrical charge carried from the anodes through the damp masonry down to the cathode buried in the ground is directly related to the amount of free moisture contained in the masonry.

The higher the moisture content the lower the electrical resistance and the higher the capacity to conduct a current. Conversely the lower the moisture content the higher the electrical resistance and the capacity to conduct a current will be much lower.

Resistance is also encountered and affected by the length of anode run, i.e. number of anodes and lineal metreage of treated wall, and the length of the cathode connecting wire. Although two installations may have the same number of anodes they will not share the same electrical characteristics. There are no common values hence the importance of recording initial voltage and current values to establish "benchmark" values.

The maximum voltage available is 8.52 volts and if that is being displayed then there is no charge being transmitted through the masonry down to the cathode i.e. no current. VERY DRY This will occur if there is a faulty connection or break in the systems wiring or, very rarely, when the masonry wall, or the ground, is extremely dry to the degree where there is insufficient moisture to carry a current, e.g. can occur through condensation forming on a wall during drought conditions where soil shrinkage and masonry cracking is visibly evident. The voltage figure displayed is the unused voltage available i.e. if the display shows 5.00 volts than 3.52 volts are being used.

Conversely the maximum current is 70.00mA and if that is being displayed then the masonry may be extremely saturated and all the voltage is being used and there will be 0.00 vdc displayed. This will also occur if the system is short circuited at the control unit - VERY WET



The relationship between the voltage and the current is linear as the chart illustrates, e.g. 4.26 vdc available means that 4.26 vdc are being carried at 35.0mA. As the current reduces the available voltage increases.

The control unit microchip is also programmed to take a reading of the static wall charge which is a naturally occurring feature of masonry which has a natural ambient electrical characteristic. This reading is taken once every 24 hours but displayed approximately every 55.0 seconds. The SWC should eventually read between 1.80 – 2.50 vdc.

**Testing Your System.** (In the first instance always record the displayed voltage and current figures).

**Open Circuit.**

Disconnect your cathode connection, and/or both and your unit should display 8.52 vdc and 0.00mA – no voltage being used subsequently no current flow.

**Short Circuit.**

Create a short circuit between the anode and cathode terminals with a short piece of wire and the unit should display 70.0mA and 0.00 vdc – full current flow using all the available voltage.

**Polarity Reversal.** (If you're game?).

Switch the anode/cathode wire connections for 5.0 to 15.0 minutes and watch the figures change as the ground around the cathode is being dried out with the ground moisture now being transported up the wall to the buried electrodes. Make a note of the final figures then be prepared to compare them to the original figures as you correct the wiring connections. You should see an immediate increase in the current flow and a lower available voltage figure as you have now increased the walls moisture content, i.e. you have made the wall wetter. These figures will settle back to the initial readings as the wall dries out.

**PLEASE NOTE.**

Failure to correct the wiring connections will result in a masonry “waterfall” which may take many months to dry out.