

ELECTRAVOLT 2.0 (E4100080)

ELECTRAVOLT 3.0 (E4100050)



All EcoSep products are manufactured and marketed by

TechResource

188, Nagdevi Street, 2nd Floor, Mumbai 400003.

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Dear Customer,

Congratulations on procuring the Electravolt a robust & highly functional DC power supply designed & manufactured particularly for electro-phoresis & electro-blotting.

It is indigenously manufactured from high quality parts & is specifically designed to suit Indian laboratory conditions. It is a simple constant voltage (CV) DC power supply.

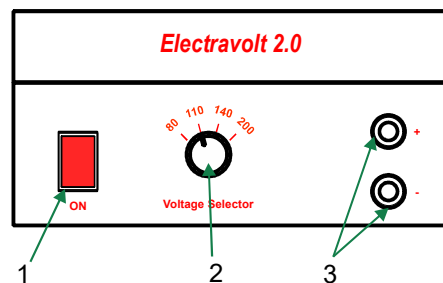
The power supply provides protection against accidental short circuit. It is possible to change the voltage setting during the experiment without stopping the run. In the event of a power failure the unit will come on and continue operations when the power is restored.

This power supply will give you many years of trouble free use. In any event that there is a problem our warranty covers all manufacturing defects. We sincerely hope you that you gain as much satisfaction in using this power supply as we achieved in designing and manufacturing it.

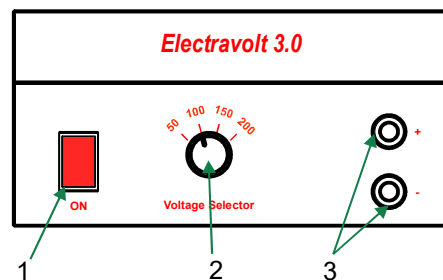
Regards,

The production team of TechResource

Front Panel for Electravolt 2.0



Front Panel for Electravolt 3.0



Components of the Ready-to-use system

Power supply with the following components

1. Power supply with all the components
2. Instruction manual

Additional handy components available on request

1. Extension wires
2. Connecting adapters

Powersupplies manufactured by us under the EcoSep brand are listed below:

- 1) Beacon: 80/140 V, up to 250 mA
- 2) Electravolt 2.0: 80/ 110/ 140/ 200 V, up to 150 mA
- 3) Electravolt 3.0: 50/ 100/ 150/ 200 V, up to 150 mA
- 4) LightSaber: 50-200 V/ 0-150 mA
- 5) Spark: 25-250 V/ up to 250 mA

1. Mains switch

An illuminated DPST rocker switch to control the mains supply.

2. Selection switch

To select between the four fixed voltages.

In Electravolt 2.0 - 80 V/ 110 V/ 140 V/ 200 V

In Electravolt 3.0 - 50 V/ 100 V/ 150 V/ 200 V

3. Outputs

One pair of outputs terminals with partly-recessed contacts.

4. Vents

Vents on the side and back panel (not shown in figure) for passive cooling.

5. Mains cable

On side panel (not shown in figure). Connects to mains socket via a two pin plug

Precautions

Keep the power supply dry at all times

Avoid utilizing very high current at very low voltage settings

Please read the manual carefully before using the power supply

Check before installation

Carefully remove all plastic/ paper covering the power supply. Ensure there are no stray pieces covering the vents on the power pack.

Check for any physical damage to the power supply that may have occurred in transit

Check the mains supply with a multi-meter for proper earthing and correctness of voltage and polarity.

Functionality tests

1. Connect the power supply directly or through the stabilizer to the mains
2. Switch it ON via the mains switch on the front panel
3. Upon activating the power supply unit the illuminated switch will light up
4. Switch off the power supply

Technical Specifications

Feature	Electravolt 2.0	Electravolt 3.0
Voltage output	80/110/140/200 V	50/100/150/200 V
Current output	up to 150 mA	up to 150 mA
Power (wattage)	30 W	30 W
Voltage adjustment	Via rotary switch	Via rotary switch
Current adjustment	None	None
Mode of regulation	CV	CV
Timer	No	No
Auto recovery on power failure	Yes	Yes
Set point stays indefinitely	Yes	Yes
Operating temperature range	-10°C to +50°C	-10°C to +50°C
Voltage input	230 V rms, 50 Hz, single phase	230 V rms, 50 Hz, single phase
Voltage variation accepted (from nominal AC input voltage)	+10%, -15%	+10%, -15%
Frequency	47 Hz to 53 Hz	47 Hz to 53 Hz
Component details		
Mains switch	Illuminated rocker switch	Illuminated rocker switch
Fuse	Internal	Internal
Output socket	4 mm female	4 mm female
Mains inlet	Attached	Attached

Technical Specifications (contd.)

Feature	Electravolt 2.0	Electravolt 2.0
Transient suppression provided	Yes	Yes
Output/ input isolated	No	No
Line regulation in CV mode	Better than +/- 1 %	Better than +/- 1 %
Load regulation in - No load to full load variation (CV)	Better than +/- 1 %	Better than +/- 1 %
Automatic overload & short circuit protection with self-recovery	Yes	Yes
Display	NO	NO
Isolation		
- Bet. AC input/ DC output terminals	2.1 KV AC for 1 min	2.1 KV AC for 1 min
- Bet. DC output terminals /chassis	2 KV AC for 1 min	2 KV AC for 1 min
Insulation between outputs/ chassis	100 M ohms Min at 500 VDC	100 M ohms Min at 500 VDC
Humidity tolerance	Up to 95% (non-condensing)	Up to 95% (non-condensing)
Cooling by normal convection	Venting at the back & sides	Venting at the back & sides
Dimensions of the body (excluding projections)	150 mm (w) x 75mm (h) x 75 mm (d)	150 mm (w) x 75mm (h) x 75 mm (d)

Using the power supply for the first time:

1. Connect the power supply directly or through the stabilizer to the mains.
2. Switch it ON via the mains switch on the front panel.
3. Upon activating the power supply unit the illuminated mains switch will light up.

CAUTION:

Use the apparatus with care. Do not wash the power supply. To clean - wipe the power supply with a damp cloth. Always dry the connecting pins/ terminals before attaching the electrical cords.

The apparatus should **NOT BE**:

1. subjected to impact.
2. exposed continuously to temperatures outside the range of 0-40° C.
3. handled with abrasive or sharp objects.
4. exposed to organic solvents (aromatic or halogenated hydrocarbons, ketones, esters, alcohols over 30% or concentrated acids over 25%)
5. exposed to other solutions which will attack plastic/ metal.

Using the power supply in the CV mode:

1. While the power supply is OFF put the voltage selector switch to the lowest available voltage.
2. Connect the electrophoresis apparatus or blotting unit to the output terminals taking care of polarity.
3. Switch ON the power supply using the mains switch on the top panel.
4. Put the selector switch to the desired voltage by rotating the selector switch.
5. Check the electrophoresis or blotting unit to confirm the presence of bubbles. Do note that the cathode generates more bubbles than the anode.
6. If you wish to know the voltage or current value you can connect an external multimeter. If you do not know how to connect a multimeter please contact us on sales@techresource.in (Note that voltage and current values will follow Ohms law).
7. If there are no bubbles forming in the apparatus then check the tips and notes and the trouble shooting guide.
8. If the resistance of the buffer drops, the current flowing through the apparatus rises to reach the maximum value of 150 mA. If the current goes beyond that then the power

supply will automatically switch to the SAFE mode. In this mode the voltage will drop and the power supply will pulse.

9. To get back into the CV mode decrease the voltage i.e. go to lowest voltage available or increase the resistance of the external circuit i.e. change the buffer.

Using the power supply in the CC mode:

1. This power supply cannot be used in the CC mode.

Tips and Notes

1. Voltage can be set to any voltage indicated in load or no load conditions. That means that whether you have connected any apparatus to the power supply or not, the voltage value can be set. The voltage set will vary slightly from the voltage obtained in load and no load conditions.
- When you check the output voltage using a multimeter and find that the output attained is not what was set then
- The current limit* has been reached.
- If the voltage value decreases then check if the current value has reached 150 mA. This means that the current limit has been reached and the power supply has automatically shifted to the SAFE mode. Now the current value will not increase and will stay on 150 mA while the voltage values will change. The power supply will work in a pulsed fashion.
2. Current values cannot be set in this power supply. The current value will auto set depending on the resistance of the apparatus connected (depends on the size of the apparatus, the buffer system and quantity)

- a) If there are no bubbles seen i.e. current value does not rise above 0 mA it could be due to the cords not being connected, buffer not touching the electrodes, or many of other similar reasons. Refer to the Trouble shooting guide section ‘Power supply ON but no movement of samples/ bubbles in the buffer’.
 - b) The lowest output voltage of the power supply is 80 V or 50 V depending on the model. If the conditions in the apparatus (buffer, samples, size of the gel) are such that the resistance is low, then the minimum current will be set automatically.
3. In all events the power supply will follow Ohms law. If the current exceeds 150 mA the power supply will switch from CV to SAFE mode. If this is the case, use a different buffer, use less buffer, use a smaller gel tank, use a different power supply or come up with a novel solution to this issue and do not forget to contact us.

Troubleshooting Guide

Before reading the trouble shooting guide make sure you have clearly read and understood the instructions of how to use the power supply in the CV mode.

Indication	Cause	Remedy
Power supply will not switch 'ON'. i.e. light on mains switch indicator does not come 'ON'.	Check 230 V mains supply	Restore the mains supply
	Power supply fuse blown	Try replacing with correct fuse (1.5 A) only once. Do not use fuse of higher rating
	Fuse blows again	Contact us
Power supply 'ON' but no movement of samples/ bubbles in the buffer	Cathode and anode are not connected to the right output terminals	Connect the cathode and anode to the right output terminals i.e. red to red and black to black
	Electrical connecting cords are not properly inserted	Insert the electrical connecting cords properly
	The connecting cords are damaged	Use new connecting cords
	Low level of buffer in the apparatus	Raise the level of buffer in the apparatus such that the circuit is formed
	Cello tape stuck on the ends of the tray	Remove cello tape and check
	Wrong composition of buffer	Check the buffer composition
	Oxidation/deposit formation on the contact terminals/ connectors of the power supply	Disconnect the instrument. Shut down the power supply. Clean the terminals. Reconnect the instrument and try again.
	Oxidation/deposit formation on the contact terminals/ connectors of the instrument	Disconnect the instrument. Clean the terminals. Reconnect the instrument and try again.
Bubbles are seen in a pulsed fashion	Defective switch or circuit	Contact us
	The current limit of 150 mA has been reached and PS has entered SAFE mode	Decrease the Voltage or change the buffer
Slow movement of samples	Voltage or current displayed is not correct	Use a multimeter to test the voltage and current on the terminals of the power supply and on the ends of the connecting cords
	Problems with the electrophoresis or blotting apparatus	Check the trouble shooting guide for the apparatus in use
	Incorrect buffer, sample preparation or gel preparation	Check a suitable trouble shooting guide to ascertain the issue

If you are facing any difficulty in understanding the instructions or in operating the Electravolt power supply, kindly contact us at: **sales@techresource.in** with your comments on steps given above. This will provide us with necessary information to advise you properly.