

ELECTRO-BOY

High voltage CV/CC power supply USER MANUAL

Please read this manual before operating the power supply. This is high voltage product and improper handling might cause injury and death.

Main specs:

Input voltage: 110/220V

Input power: 30W

Output voltage: 20-450V (+-1% MAX)

Output current: 1-20mA (+-1% MAX)

Output duration: 1 minute – 99 hours 99 minutes/continuous

Enable/disable input: Non-polar, TTL/CMOS Level ($\leq 12V$ DC, $< 20mA$), insulated

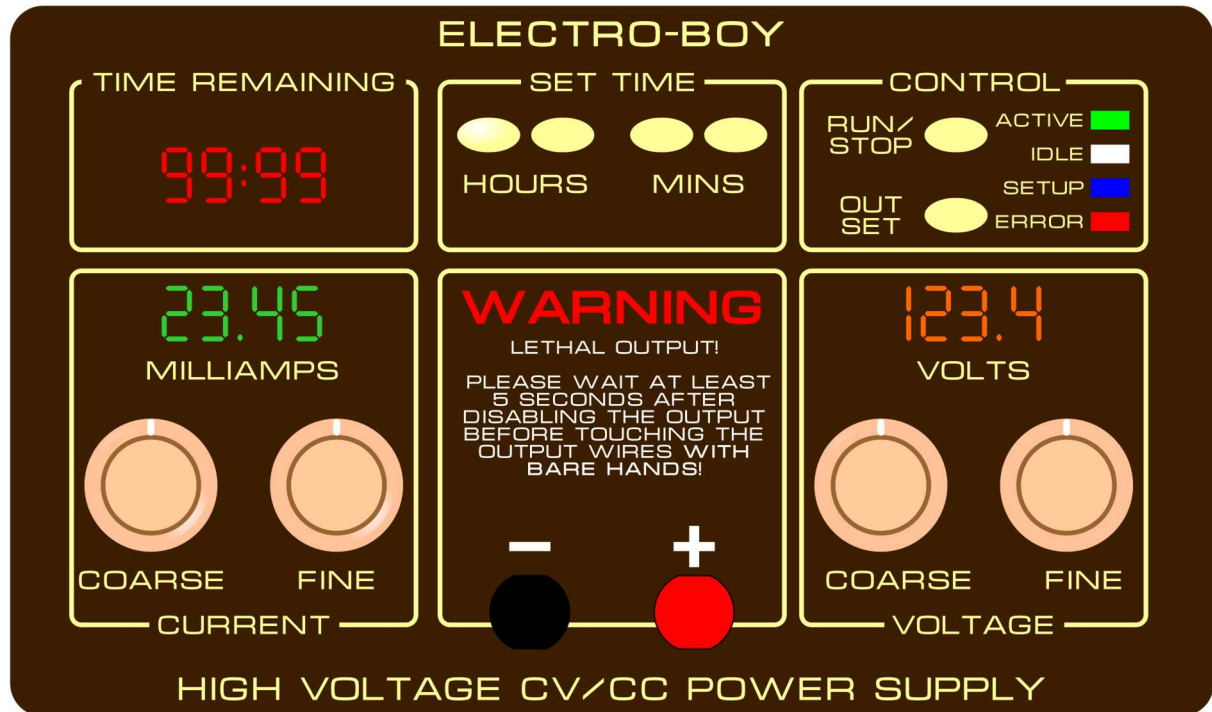
Enable/disable input response time: 2-3 seconds (Not suitable for PWM dimming)

Scope of operation:

HV experiments, nixie tube segment heating, VFD displays, electrophoresis experiments

Main controls and operation

The image below shows the location of main controls and while most settings should be quite self-explanatory, there are some additional settings that need detailed explanation.



First run and time set-up

When powered on, output is disabled – “IDLE” indicator is on, voltage and current displays show zero and “time remaining” indicator will show the current time. Please note, the clock inside the device is powered by a supercap, so if it being unplugged for more than 3-4 days, time settings will be lost. To adjust the time, please press both “hour” buttons to advance hours by 1 and press both “mins” buttons to advance minutes by 1 minute. Please note: clock function is implemented as a “bonus” feature and not required for the proper operation of device. If you like, you can disable the clock display completely. To do so, please press “hours” buttons before powering clock on, and release them after the “time remaining” display will show 00:00. This setting will be saved and on next boot, instead of the current time, last preset duration will be displayed. To Re-enable clock operation, press “mins” button before powering clock on and wait for current time to be displayed on the display.

Output setting

To set output current, voltage and time, press the “OUT SET” button. The “SETUP” light will come on and you can adjust voltage and current as desired.

Please note, you can also adjust both current and voltage during the run-time, this setting is just for your convenience – it just shorts output, so you can set the limits.

While in this menu, you can use the “HOURS” and “MINS” buttons to adjust the output duration. This can be useful when doing some time-related experiments, like phoresis works or nixie tube cathode healing. The device remembers last settings, so when you enter setup mode, the last used values will be displayed there. If you need continuous output, just set hours and minutes to 0. To return to the main mode, press the “OUT SET” button again.

Operation

Press the “RUN/STOP” button to enable the output. Status indicator “IDLE” will go off and “ACTIVE” will go on. Please note, when enabling/disabling the output, it needs 2-3 seconds to go to max voltage and (or) zero. So, do not touch output wires, after you turn off the output, for 2-3 seconds at least - there still might be some voltage in the output capacitor.

Possible errors

The device is equipped with overheating control and cooling fan, which enables according to the power consumption. To avoid heat issues, please do not block vent holes on the cabinet or interfere fan operation. In such case, “ERROR” indicator will come on, and output will be disabled. Once overheating issues will be resolved, the device will return to the idle state, so you can resume the normal operation.

Sound control

The device provides audio feedback when output is enabled/disabled, time had run out and on keypresses. If you want to disable these sounds, press and hold RUN/STOP button before powering the device on and power it on. There will be 3 short beeps, meaning that sound had been disabled and setting saved. To re-enable the sound, press the OUT SET button before powering the device on and power it on. There will be a one long beep, meaning that sounds are enabled and setting is saved.

External control

This device has external control input for enabling/disabling the output. This is non-polar, galvanically insulated TTL level input. This input is simply wired to RUN/STOP button, so it is NOT usable for PWM dimming or similar things – output response time is 2-3 seconds approximately.