

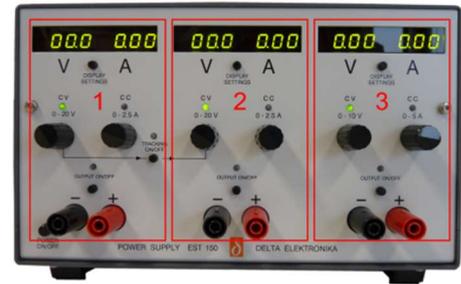
## Delta EST150 DC power supply.

### Features.

This power supply combines 3 independent DC power supplies in one housing. Each with its own settings and output terminals. These supplies can be used as constant voltage, but also as constant current supplies.

The main on/off switch is located at the left hand bottom side, labeled 'POWER ON/OFF'.

Use this to switch on the power supply, or completely shut off.



### Power supply settings and display.

Each of the 3 power supplies has its own display and dials for output voltage and (maximum allowed) current. And has its own output on/off switch. By switching off an output, settings can be adjusted without the risk of damaging the connected circuit. Because your circuit is disconnected via an internal switch. When you power on the device, the outputs are always off.

You can read **the actual voltage difference on the output terminals (in V)** on the left part of each display. And **the actual current through the output (in A)** on the right part of each display. When the display settings button is pushed and held, the display shows the voltage difference and maximum current **settings**. That means the settings button must be held while changing the settings, otherwise the settings will not be visible on the display.

If the set value for the maximum current is exceeded the current limiter indicator (labeled CC for Constant Current) will be lit green and the output voltage will be reduced such that the maximum current is not exceeded anymore. In this way the connected circuit is protected.



### Use as tracking power supply (coupled outputs).

The two 20 V supplies can be coupled to form a tracking power supply, by pressing the tracking button. The corresponding indicator will be lit. And the most left output on/off button will activate both coupled outputs.

A tracking feature on a dual output supply means that one output can track another. With this feature a second output always has exact the same output voltage as the first one. And can be adjusted with a single voltage dial. The maximum current settings stay independent of each other.

This allows you to set up, for example, a positive and negative supply. Also called a symmetrical supply (e.g. -15 V, 0 V, +15 V Quite common for OpAmp circuits).

And because the output voltages are exact the same. There is also another option; you can connect these outputs in parallel, to double the maximum output current. Useful when you need to power heavy loads. But before you do so, have a look at the specifications of the third power supply, at the right hand side.

## Usage:

**Before connecting your circuit** first set the power supply to the desired settings.

- 1) Switch on the power supply using the main power switch labeled 'Power on/off'.
- 2) For each of the 3 power supplies you are using:
  - a. While changing the settings press and hold the 'Display Settings' button. The display now **shows the set values for output voltage difference (in V) and current limit (in A)**. Be aware the display value is in A, not mA.
  - b. Set the desired output voltage by turning the voltage adjustment knob.
  - c. Set the current limiter value a bit higher than the expected current for the circuit you are connecting using the adjustment knob.
  - d. Release the 'Display Settings' button so the display **shows the actual values for voltage difference on the output terminals (in V) and current through the circuit (in A)**. Again, be aware the display value is in A, not mA.
- 3) Connect your circuit using banana plugs (eventually in combination with alligator clips). Common practice is to use a black wire for the - connection and a red wire for the + connection.
  - a. Connect the minus or ground of your circuit (often indicated as  $\perp$  or  $\dashv$ ) to the - (black) terminal.
  - b. Connect the voltage supply connection of your circuit to the + (red) terminal.
- 4) Use the 'Output on/off' switch to switch the output to on. The output indicator is now lit green and the output is active.
- 5) If the current limiter indicator (CC) light goes on and the indicated voltage difference is below the set value, you exceed the current limit, most likely because of a mistake in making in your circuit. Or incorrect estimate of the current your circuit needs. You might decide to switch off the output using the 'Output on/off' switch and go to step 2 to change settings.
- 6) **If you make changes to your circuit always switch off the output** by using the 'Output on/off' switch.