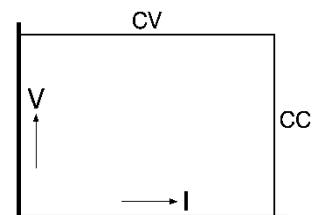




## EST 150 - Series 150W Triple Output DC POWER SUPPLIES

Models	Voltage range	Current range
1)	0 - 20 V	0 - 2.5 A
2)	0 - 20 V	0 - 2.5 A
3)	0 - 10 V	0 - 5 A



- \* 3 independent and floating outputs
- \* 20 V outputs tracking or independent (switch selectable)

### Features

- Very low output ripple and spikes
- EMC surpasses CE requirements:  
low emission & high immunity
- Excellent dynamic response to load changes
- Protected against all overload and short circuit conditions
- Designed for a long life at full power

### Functionalities

- 3 independent, floating outputs
- Dual voltage tracking or series tracking mode
- 3 output On / Off buttons
- Convection cooling
- Voltage and current control with 10 turn potentiometers

		10 V output	20 V output
<b>Output voltage</b>		0 - 10 V	0 - 20 V
<b>Output current</b>		0 - 5 A	0 - 2.5 A
<b>Input AC</b>	single phase, 48 - 62 Hz rated voltage range rated frequency	90 - 265 V 100 - 240 V 50 / 60 Hz	
	Input current @ 230 VAC power factor, 110 / 230 VAC <i>full load</i>	1 A 0.99 / 0.83	
	internal fuses	4 AT	
	standby input power (Vo=Io=0)	12 W	
	standby input power (Vo=Vmax)	15 W	
<b>Efficiency</b>	AC 230 V input, full load AC 110 V input, full load	81 % 78 %	
<b>Regulation</b>			
Load 0 - 100%	<b>CV</b>	6 mV	5 mV
Line 90 - 265 V AC	<b>CV</b>	0.2 mV	0.5 mV
Load 0 - 100%	<b>CC</b>	1 mA	0.5 mA
Line 90 - 265 V AC	<b>CC</b>	0.2 mA	0.1 mA
<b>Ripple + noise (full load)</b>			
rms (BW=300 kHz)	<b>CV</b>	0.5 mV	0.5 mV
p-p (BW=20 MHz)	<b>CV</b>	8 mV	8 mV
rms (BW=300 kHz)	<b>CC</b>	0.5 mA	0.3 mA
p-p (BW=20 MHz)	<b>CC</b>	4 mA	1 mA
<b>Temp. coeff., per °C</b>	<b>CV</b> <b>CC</b>	5.10 <sup>-5</sup> 10.10 <sup>-5</sup>	
<b>Stability</b> after 1 hr warm-up during 8 hrs	<b>CV</b> <b>CC</b>	10.10 <sup>-5</sup> 10.10 <sup>-5</sup>	
<i>t<sub>amb</sub> = 25 ± 1 °C, Vin = 230 VAC</i>			
<b>Tracking accuracy</b>		0.5%	

<b>Indicators</b> (front panel)	CV-mode, CC-mode, output On/Off, Tracking On/Off
<b>Controls</b> (front panel)	Mains On/Off, CV- and CC-potmeters, Display-Settings button, Output On/Off, Tracking On/Off

	10 V output	20 V output
<b>Recovery time</b>		
recovery within	100 mV	50 mV
di/dt of load step	125 mA/μs	75 mA/μs
output voltage	9 V	18 V
time, @ 50 - 100% load step	100 μs	100 μs
max. deviation	200 mV	200 mV
@ 230 VAC input voltage		
<b>Output impedance</b>		
CV, 0-100 kHz	< 250 mOhm	< 250 mOhm
<b>Pulsating load</b>		
max. tolerable AC component of load current		
f > 1 kHz	2 A rms	2 A rms
f < 1 kHz	5 A peak	2.5 A peak

<b>Insulation</b> input / output creepage / clearance	3750 Vrms (1 min.) 8 mm
input / case output / case	2500 Vrms 600 V DC
<b>Safety</b>	EN 60950 / EN 61010, outputs are SELV
<b>EMC</b> Emission Immunity	<b>EN 61326-1</b> , class B equipment (for use in domestic establishments) <b>EN 61326-1</b> , equipment for use in industrial and domestic establishments
<b>Operating Temperature at full load</b>	- 20 to + 50 °C derate output to 75% at 60 °C
<b>Humidity</b>	max. 95% RH, non condensing, up to 40 °C max. 75% RH, non condensing, up to 50 °C
<b>Storage temperature</b>	- 40 to + 85 °C
<b>Thermal protection</b>	Output shuts down in case of insufficient cooling
<b>MTBF</b>	500 000 hrs

<b>Hold-Up time</b> (230 VAC input) Vout = 100% , Iout = 100% Vout = 85% , Iout = 100% Vout = 100% , Iout = 50%	25 ms 30 ms 60 ms
<b>Turn on delay</b> (230 VAC input) after mains switch on	250 ms
<b>Inrush current</b>	10 A with NTC resistor 30 Ohms cold resistance

	10 V output	20 V output
<b>Series operation</b> max. total voltage	600 V	
<b>Parallel operation</b> max. total current	no limit	
<b>Over Voltage Limit</b> (fixed)	max. 13 V	max. 25 V
<b>Potentiometers</b> front panel control with knobs resolution	standard 0.03%	
<b>Meters</b> scale voltage scale current accuracy V-meter accuracy A-meter	3.5 digit 0 - 10.00 V 0 - 5.00 A 0.5% + 2 digits 1% + 2 digits	3.5 digit 0 - 20.0 V 0 - 2.50 A 0.5% + 2 digits 1% + 2 digits

<b>Input Connector</b>	Euro-connector at rear panel 10 Amp / 65 °C IEC320/C14, EN60320/C14
<b>DC Output Terminals</b>	4 mm safety sockets at front-panel
<b>Cooling</b>	Convection cooling
<b>Enclosure</b> degree of protection	IP20
<b>Dimensions</b> (h x w x d)	132 x 222 x 180 mm
<b>Weight</b>	3.5 kg

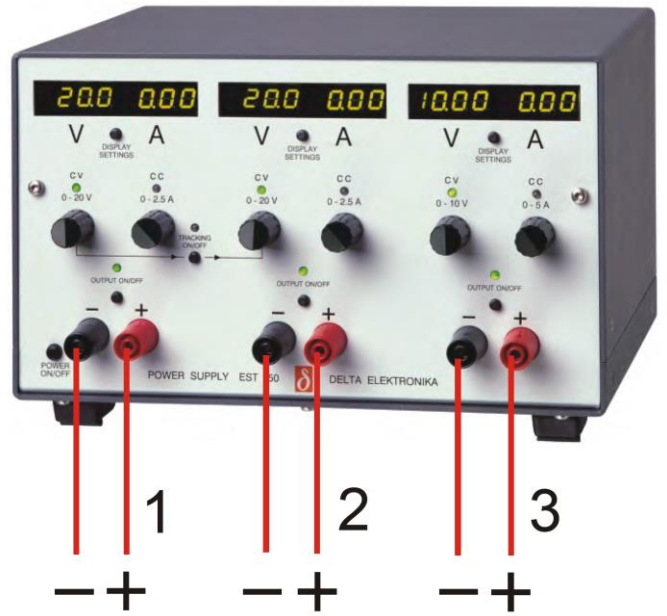
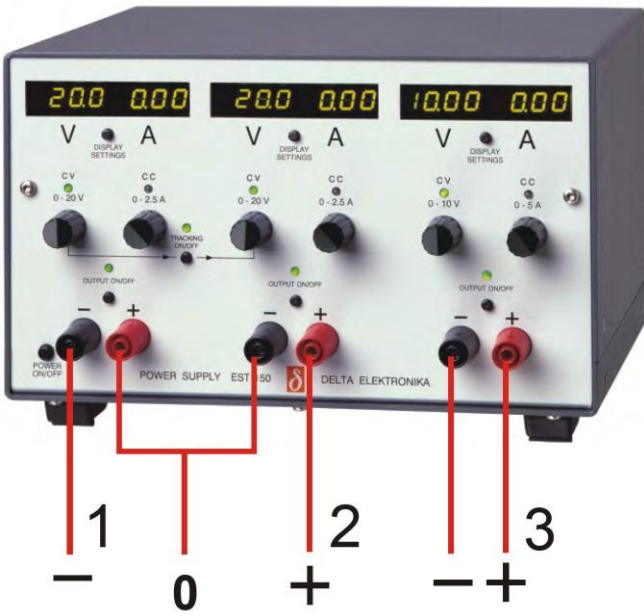
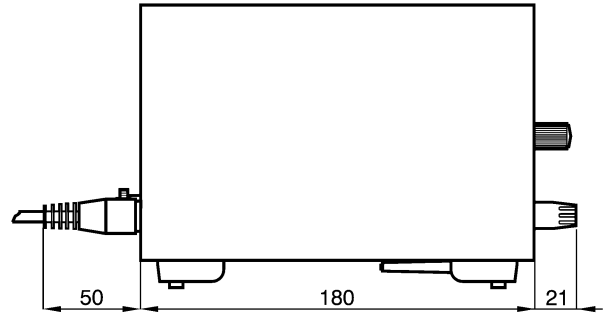
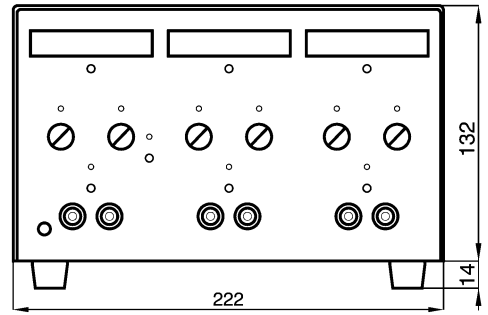
CV = Constant Voltage

CC = Constant Current

Specifications measured at  $t_{amb} = 25 \pm 5 \text{ °C}$  and  $V_{in} = 230 \text{ VAC}$ , 50 Hz unless otherwise noted.



Linecord supplied      Input connector



20 V Outputs in **Tracking - Mode**, to create a dual voltage source. Voltage of Output (2) follows the setting for Output (1), current settings still independent.

Tracking - Mode off. Three independent voltage / current sources. Outputs are floating.

