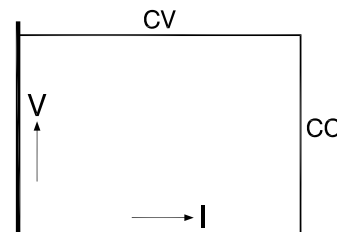




ES 300 300 watts DC POWER SUPPLIES



ES 030-10 0 - 30 V 0 - 10 A



- Weight only 3.1 kg
- Wide input voltage range: 92 - 265 VAC, 48 - 62 Hz
- Active Power Factor Correction
- Efficiency 86 %
- 0 - 5 V analog programmable (on both voltage and current)
- High programming speed, 0 → 30 V in 1 ms
- Isolated analog programming with optional external ISO AMP MODULE to prevent earth loops
- Programming Inputs and Monitoring Outputs have a very low offset
- **Ethernet** or **RS232** programming with optional internal cards
- **IEEE488** programming with optional external interface PSC-488 module
- Very low output ripple
- Stable output voltage or current
- Input / output insulation 3750 V rms
- EMC: high immunity and low emission
- Designed for long life at full power
- Protected against all overload and short circuit conditions
- Voltage and current control with 10 turn potentiometers, resolution 0.03 %
- Optional rear panel output connection
- 48 hours burn-in

Input voltage : AC 92-264 V 48-62 Hz
Fuse 5 A T

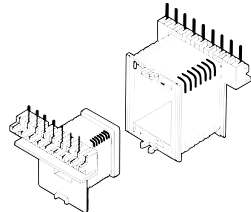
Input current : 1.55 A at 230 V AC
3.20 A at 115 V AC

Power factor : Better than 0.97

Efficiency : 86% at 230 V AC, 82% at 115 V AC

Inrush current : Limited with NTC resistor of 16 Ohms cold resistance

Insulation
Input / output : 4 kV rms (1 min.), 8 mm cr./cl.
Input / case : 2.5 kV rms (1 min.), 5 mm cr./cl.
Output / case : 600 V DC



HF transformer has two isolated bobbins providing very safe 4 kV rms dielectric strength between input and output circuits.

Safety : EN 60950 EN 61010

EMC : EN 61204-3 Power Supply Standard
EN 61000-6-3 (EN55022B) Generic Emission
EN 61000-6-2 Generic Immunity

Voltage regulation : Load 0-100% 10 mV
Line 100-260 V AC 1 mV

Current regulation : Load 0-100% 4 mA
Line 100-260 V AC 1 mA

Ripple + noise : CV 5 mV rms, 15 mV p-p
CC 6 mA rms, 15 mA p-p

Stability : After 1 hr warm up, during 8 hrs
CV: 3.10^{-4} CC: 1.10^{-3} ($T_a = 25^\circ\text{C}$)

Temp. coefficient/ °C: 5.10^{-5} (CV), 1.10^{-4} (CC)

Output impedance : Less than 0.3 Ohm up to 100 kHz
($I_{out} > 0.5\text{ A}$)

Recovery time : 50 μs to within 0.1 V after 50-100% load step. Max. deviation 0.3 V.

Hold up time : 18 ms at full load, 50 ms at half load
(V_{in} 100-230 V AC)

Ambient temperature: Storage -40 to $+85^\circ\text{C}$
Operating -20 to $+50^\circ\text{C}$.
Above 50°C derate output current linearly to 20% at 75°C .

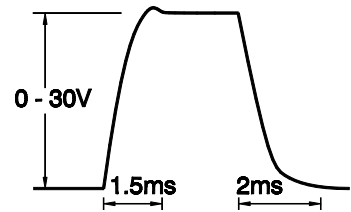
Series operation : Normal and Master / Slave series operation is possible. For fast and easy operation the M / S-SERIES ADAPTER is recommended.

Parallel operation : No limitations. Normal and Master / Slave parallel operation is possible.

V and I control : 10-turn potmeters, res. 0.03%.

Programming inputs
Voltage : 0-5 V, offset -3 to $+10$ mV, full scale error $\pm 0.2\%$
Current : 0-5 V, offset 0 to $+20$ mV, full scale error $\pm 0.5\%$
Input impedance 1 MOhm

Progr. response time: Up 0-30 V 1 ms
with load 3 Ohm Down 30-5 V 2 ms



High programming speed of output voltage, 0-30 V in 1 ms (no electrolytic capacitors on output)

Monitor outputs
Voltage : 0-5 V, offset 0 to $+7$ mV, full scale error $\pm 0.2\%$
Current : 0-5 V, offset -5 to 0 mV, full scale error $\pm 0.5\%$
Output imp. 1 Ohm, max 4 mA

Reference voltage : 5.165 V ± 31 mV, TC 12 ppm typ., 30 ppm max.

CC status output : $+5$ V (or 5 mA) when in CC mode.

Remote shut down : $+5$ V (3.5 - 12 V) or relay contact, response time 3 ms

Remote sensing : Is not provided

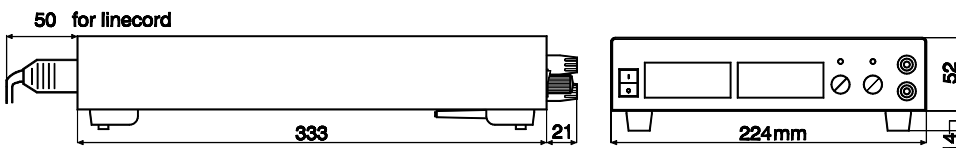
Over voltage limit : Fixed at 34 V (Int.adjust. 6-34 V)

Thermal protection : Shuts down output in case of insufficient cooling.

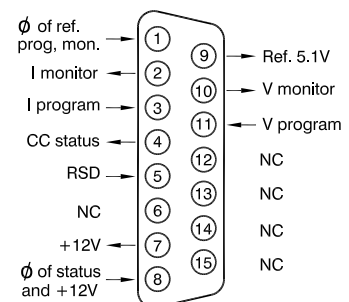
Digital meters : 0-30.0 V / 0-10.00 A 0.5% + 2 dig.

Dim. and weight : $h \times w \times d = 52 \times 224 \times 333$ mm, 3.1 kg

Enclosure : IP20



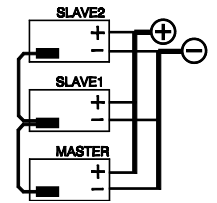
Dimensions



Connections 15-p D-connector

Master / Slave operation

- Parallel and Series operation with equal Current and Voltage sharing.
- This way two or more ES-units can be used together as one high power unit.
- Voltage and current of the units is controlled by the master (by potentiometers or by programming).
- For Parallel operation use 15 pole shielded cables, no special option required.
- For Series operation use the **Master / Slave Series Adapter** together with 15 pole shielded cables (1:1)



Increased max. output voltage/current

OPTION P069

- The maximum output voltage or current can be increased by approximately 10%. Normally this results in a derating of the maximum ambient temperature or other parameters.
- Always add increased value for voltage or current in ordercode, for example **ES 030-10 P069 output 32V**

For exact details consult the technical department, email 'Support@Delta-Elektronika.nl'.

Enforced secondary isolation 1000 V

OPTION P089

- The secondary isolation between output and ground has been increased from standard 600 V to 1000 V .

Rear power outlet

OPTION P185

- Rear connections for power leads (no remote sensing).

External ISO AMP for isolated analog programming

ISO AMP Module

- Provides galvanic isolation when programming and monitoring.
- Prevents problems with earth loops and common mode voltages.
- Pin compatible with the programming connector on the rear side.
- Bench operation and rail mounting.



Internal Ethernet Power Supply Controller

OPTION P179

- Internal Ethernet compatible Controller to program a unit by a computer.
- Combination possible with P185 (rear output terminals)

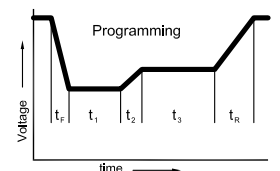
Note: built inside the ES30-10, the digital user in- and outputs of the PSC-ETH are not available. Use the external module PSC-ETH module instead.



Internal RS232 Power Supply Controller

OPTION P180

- Internal RS232 compatible Controller to program a unit by a computer.
- Combination possible with P185 (rear output terminals)



External IEEE488 Power Supply Controller

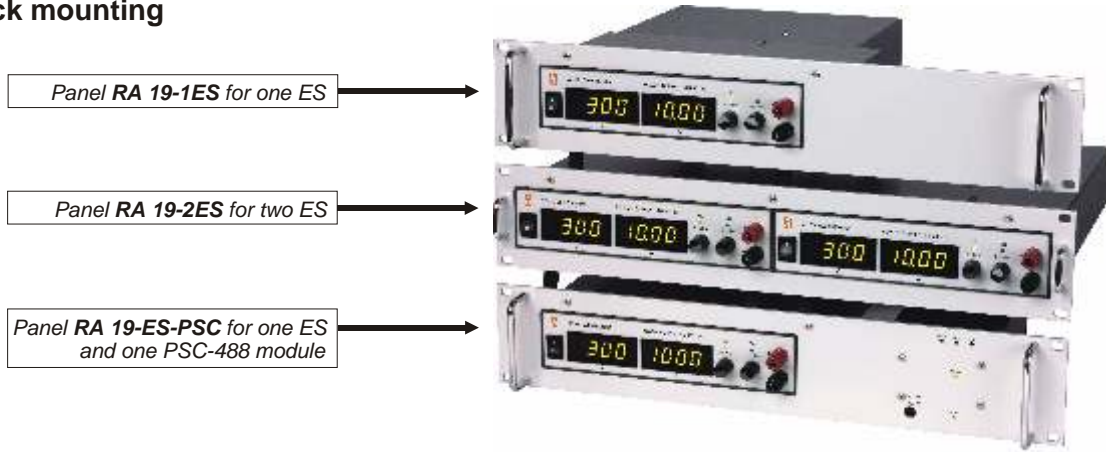
PSC-488 module

- External IEEE488 compatible Controller to program a unit by a computer.
- Pin compatible with the programming connector on the rear side.
- Bench operation and rail mounting.



Note: it is not possible to have a combination of multiple internal and/or external interfaces.

19" rack mounting



Rear Connections

Standard unit:
Analog programming

Switches Manual / Programming
Analog programming

Input Connector Linecord supplied



Option P179:
Ethernet programming

Ethernet programming
Switches Manual / Programming

Combination possible with option P185



Option P180:
RS232 programming

RS232 programming
Switches Manual / Programming

Combination possible with option P185



Option P185:
Rear power outlet

Rear power outlet
Switches Manual / Programming
Analog programming

