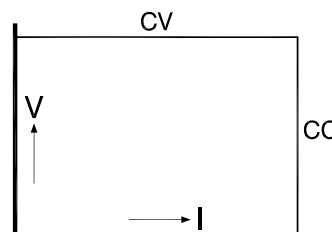




ES 300 300 watts DC POWER SUPPLIES

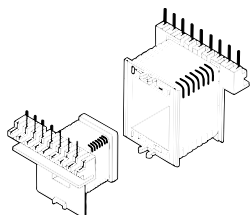


ES 030-10 0 - 30 V 0 - 10 A



- 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

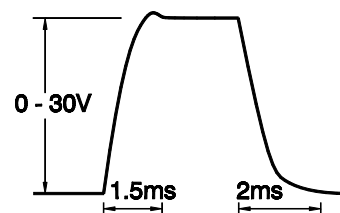
Input voltage	: AC 92-264 V 48-62 Hz Fuse 5 A T
Input current	: 1.55 A at 230 V AC 3.20 A at 115 V AC
Power factor	: Better than 0.97
Efficiency	: 86% at 230 V AC, 82% at 115 V AC
Inrush current	: Limited with NTC resistor of 16 Ohms cold resistance
Insulation	
Input / output	: 4 kV rms (1 min.), 8 mm 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.

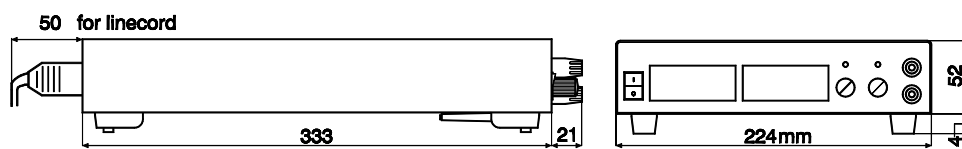
Safety	: EN 60950 EN 61010
EMC	: EN 61204-3 Power Supply Standard EN 61000-6-3 (EN55022B) Generic Emission EN 61000-6-2 Generic Immunity
Voltage regulation	: Load 0-100% 10 mV Line 100-260 V AC 1 mV
Current regulation	: Load 0-100% 4 mA Line 100-260 V AC 1 mA
Ripple + noise	: CV 5 mV rms, 15 mV p-p CC 6 mA rms, 15 mA p-p
Stability	: After 1 hr warm up, during 8 hrs CV: $3 \cdot 10^{-4}$ CC: $1 \cdot 10^{-3}$ ($T_a = 25^\circ\text{C}$)
Temp. coefficient/ °C	: $5 \cdot 10^{-5}$ (CV), $1 \cdot 10^{-4}$ (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 Down 30-5 V 2 ms

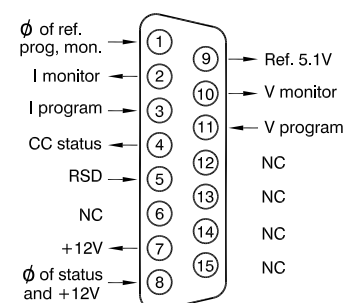


High programming speed of output voltage, 0-30 V in 1 ms (no electrolytic capacitors on output)

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 x w x d = 52 x 224 x 333 mm, 3.1 kg
Enclosure	: IP20



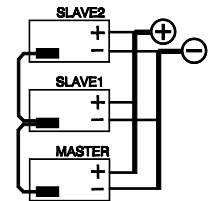
Dimensions



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)

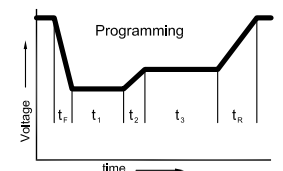
Note: built inside the ES30-10, the digital user in- and outputs of the PSC-ETH are not available. Use the external module PSC-ETH module instead.



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

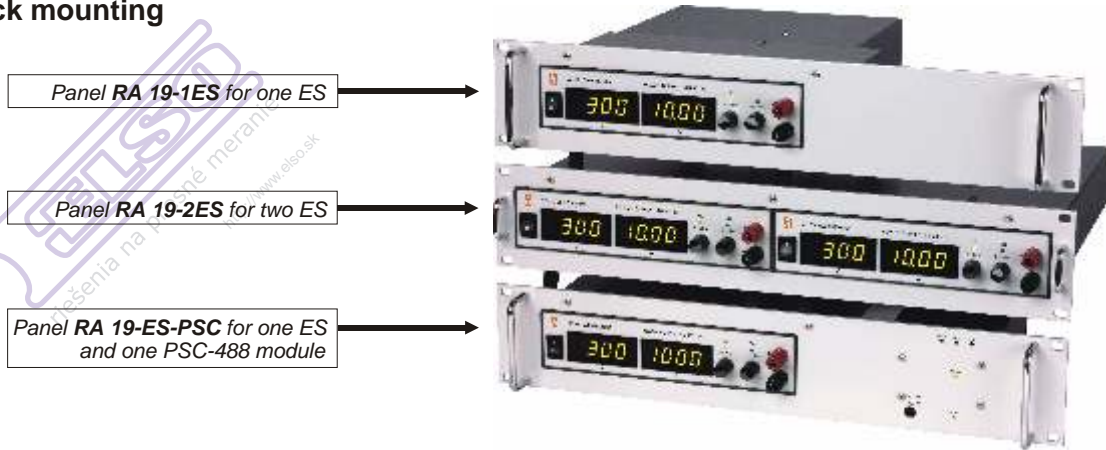
PSC-488 module

- 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



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