

ES 300 Series

300 WATTS PROGRAMMABLE DC SUPPLY

LABORATORY POWER SUPPLIES

Features

- 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 over load and short circuit conditions
- Voltage and current control with 10 turn potentiometers, resolution 0.03 %
- 0 - 5 V analog programmable both voltage and current
- Ethernet, RS232 or IEEE488 programming options



SELECTION TABLE

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

AC single phase, 48 - 62 Hz	92 - 265 V
Input current @ 230 V AC	1.6 A
Power factor, 110 / 230 V AC	0.99 / 0.96
Full load	
Internal fuses	5 AT

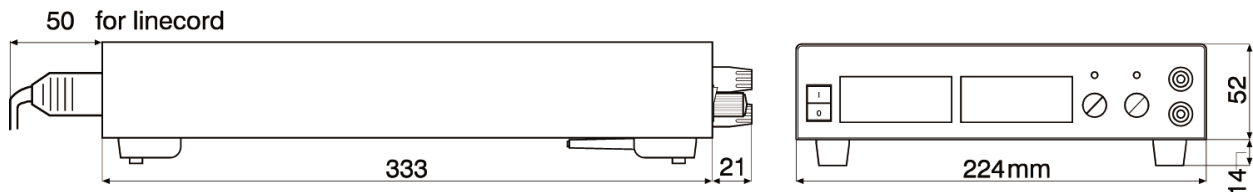
Standby input power ($V_o=I_o=0$)	10 W
Standby input power ($V_o=V_{max}$)	15 W

EFFICIENCY

AC 230 V input, full load	86 %
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REGULATION

Load 0 - 100%	CV	
Internal sensing		10 mV
Optional external sensing		not available
Line 90 - 265 V AC	CV	1 mV
Load 0 - 100%	CC	4 mA
Line 90 - 265 V AC (internal voltage sensing)	CC	1 mA



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Ripple + noise (full load)		
rms (BW=300 kHz)	CV	5 mV
p-p (BW=50 MHz)	CV	15 mV
rms (BW=300 kHz)	CC	6 mA
p-p (BW=50 MHz)	CC	15 mA
Programming speed (10 - 90%) time, (100% load)		
		0 → 30 V
		0.8ms
Output impedance 0-100 kHz		
	CV	< 300 mOhm
Temp. coeff., per °C		
	CV	5.10 ⁻⁵
	CC	10.10 ⁻⁵
Stability after 1 hr warm-up during 8 hrs		
	CV	30.10 ⁻⁵
	CC	10.10 ⁻⁵

ANALOG PROGRAMMING	CV	CC
Programming inputs		
Input range	0 - 5 V	0 - 5 V
Accuracy	± 0.2%	± 0.5%
Offset	- 3... + 10 mV (on 5 V)	0... + 20 mV (on 5 V)
Input impedance	1 MOhm	1 MOhm
Monitoring ou put		
	CV	CC
Output range	0 - 5 V	0 - 5 V
Accuracy	± 0.2%	± 0.5%
Offset	0... + 7 mV (on 5 V)	- 5... 0 mV (on 5 V)
Output impedance	1 Ohm / max. 4 mA	1 Ohm / max. 4 mA

Ethernet, IEEE488 or RS232 Programming

Optional with interface PSC-ETH, PSC-488 or PSC-232

After calibration, the programming accuracy is -0.01%, the monitoring accuracy is ± 0.01%.

Insulation

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

Safety

EN 60950 / EN 61010

EMC	Power Supply Standard	EN 61204-3,
	Generic Emission	EN 61000-6-3, residential, light industrial environment (EN55022B)
	Generic Immunity	EN 61000-6-2, industrial environment

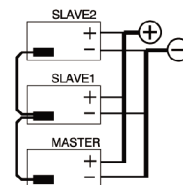
Recovery time	50 µs (after 50-100% load step)
Hold up time	18 ms full load, 50 ms half load
Ambient temperature	- 40 to + 85 °C (storage) - 20 to + 50 °C (operating)
Remote shut down	With 5 V or relay contact
Series operation	Normal and Master / Slave, max. 600 V total voltage.
Parallel operation	Normal and Master / Slave
CC status output	+5 V (or 5 mA) when in CC mode
Remote sensing	Not available
Over voltage limit	Intern. ad just. 6 - 34 V
Digital meters	Dig i tal 3.5 digit
MTBF	500000 hrs
Enclosure degree of protection	IP20
Dimensions (h x w x d)	52 x 224 x 333 mm
Weight	3.1kg

ES 300 Series - Options

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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**

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

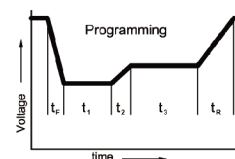
OPTION P179

- 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.