

# Electronic DC Load

**EL3000, EL4500, EL6000 Series**  
**Powerg 3000W, 4500W u. 6000W**  
**Cooled by int. fans**

Constant I-Mode, U-Mode,  
 P-Mode or G-Mode  
 All Modes ext. programmable  
 Nominal value indication and offline setting  
 of all Modes  
 Auto change to true values  
 Overload possible for a short time  
 Stand-alone use and intended for 19" rack

Options a.o.:  
 Installed IEEE488.2 (GPIB) / RS232\* / USB\*  
 interface with Lab-View Driver (Series INT2E)  
 Installed USB Interface with driver software  
 External CAN Open Interface (on request)  
 \*selectable RS232 or USB

**Input:**  
 Input voltage 230 V<sub>AC</sub> ±10%, 50 - 60 Hz  
 Load voltage see table  
 Load current see table  
 Power see table

**Regulation:**  
 Set point accuracy ≤ 0,1% I<sub>max</sub>, U<sub>max</sub>  
 (Voltage range ± 20%) ≤ 1% G<sub>max</sub>, P<sub>max</sub>  
 Rise time (at I-Mode, 10-90% nominal value change) < 10 μs  
 Transient time (at I-Mode 10-90% nominal value change) < 300 μs  
 Temperature coefficient ≤ 0,1% / K I<sub>max</sub>  
 (after 15 min. working time, const. ambient temp. and const. input voltage) within 8 hours

**Protection:**  
 Overload protection min. 2-times, normal load for a short period  
 Overvoltage protection power shutdown U<sub>Lmax</sub> + 5 %  
 Thermal protection power shutdown, manual reset  
 Overcurrent current limit I<sub>max</sub> + 20 %  
 Safety for load circuit  
 Reverse polarity protection fuse and wattless current diode

**Environmental Conditions:**  
 Operating temperature 0 - +35°C  
 Cooling int. fan, temperature controlled

**Safety:**  
 Safety standard EN 61010-1  
 Isolation  
 AC input - load input: U<sub>L</sub> ≤ 350 V: 2,3 kV<sub>eff</sub>  
 U<sub>L</sub> > 350 V - 800 V: 3,7 kV<sub>eff</sub>  
 AC input - ground: 1,35 kV<sub>eff</sub>  
 Load input - ground: U<sub>L</sub> ≤ 150 V: 500 V<sub>eff</sub>  
 U<sub>L</sub> > 150 - 300 V: 820 V<sub>eff</sub>  
 U<sub>L</sub> > 300 - 600 V: 1,35 kV<sub>eff</sub>  
 U<sub>L</sub> > 600 - 800 V: 2,2 kV<sub>eff</sub>

**EMC:**  
 Input EMI filter EN61000-6-3  
 Input immunity EN61000-6-2

short time  
 overload  
 on request



Units for Laboratory and Test

**Operation and Control:**

Manual adjust: current, voltage, power and conductance (see table):  
 Adjustment each 2 levels (max., min.)  
 each over 2 channels adjustable  
 selectable I-Mode 20/100%,  
 G-Mode 5-100%  
 Pulse-generator I, U, P, G 100 Hz or 1 kHz switch-selected,  
 Programming waveform: square-wave 1 : 1  
 ext. voltage (reference - U<sub>L</sub>)  
 0 - 10 V ≙ 0 - I<sub>max</sub>  
 0 - 10 V ≙ 0 - U<sub>max</sub>  
 0 - 10 V ≙ 0 - P<sub>max</sub>  
 0 - 10 V ≙ 0 - G<sub>max</sub>  
 any waveform, frequency range  
 typical 0-10 kHz (-3 dB)  
 Parallel operation same units  
 Monitor Signals current-, voltage-, power- and  
 conductance-monitor,  
 signal undervoltage,  
 sum alarm signals for overcurrent,  
 temp. limit, overload or overvoltage  
 Indication overcurrent, temp. limit,  
 overload, over- and undervoltage  
 each 1 LED  
 Instruments LED digital for voltage,  
 current/conductance and power  
 3½ dig., accuracy 0,2% ± 1d

**Connectors:**

Input Euro - plug rear side  
 with switch front side  
 Load type DIX SE50 female plug included  
 I<sub>L</sub> ≥ 250 contact rails  
 each pole 2 x M10  
 Sense female plug 4mm rear panel  
 Ext. programming 25 pole Sub D female plug

**Physical Specifications:**

Dimensions wxhxd EL3000: 485 x 285 x 500 mm (6U)  
 EL4500: 485 x 420 x 500 mm (9U)  
 EL6000: 485 x 420 x 500 mm (9U)  
 Weight EL3000: ca. 32 kg  
 EL6000: ca. 48 kg

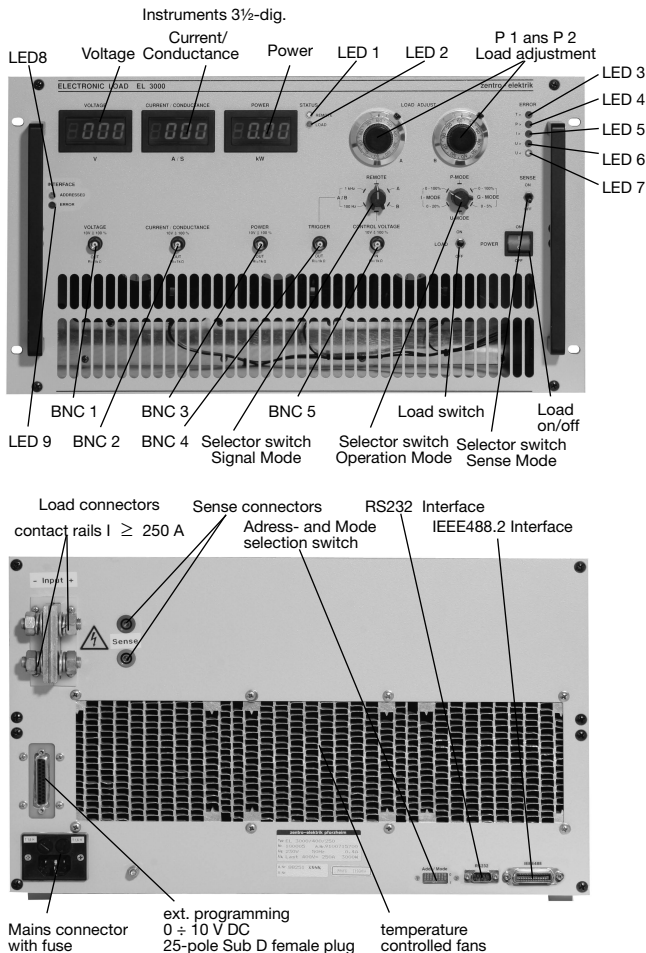
Power (W)	Load voltage (V)	Load current (A)	Load current in the operating range from 0,1 V to 2,5 V (A)		Conductance max. (S)	Model Number
			(A)	(A)		
3000	2,5 - 60	0,01 - 100	4	100	40	EL3000/60/100
3000	2,5 - 60	0,01 - 250	10	250	100	EL3000/60/250
3000	2,5 - 60	0,01 - 500	20	500	200	EL3000/60/500
3000	2,5 - 160	0,01 - 100	4	100	40	EL3000/160/100
3000	2,5 - 160	0,01 - 250	10	250	100	EL3000/160/250
3000	2,5 - 160	0,01 - 500	20	500	200	EL3000/160/500
3000	2,5 - 400	0,01 - 100	4	100	40	EL3000/400/100
3000	2,5 - 400	0,01 - 250	10	250	100	EL3000/400/250
3000	5 - 400	0,01 - 500	20	500*	100	EL3000/400/500
4500	2,5 - 60	0,01 - 150	8	150	80	EL4500/60/150
4500	2,5 - 60	0,01 - 375	20	375	200	EL4500/60/375
4500	2,5 - 60	0,01 - 750	40	750	400	EL4500/60/750
4500	2,5 - 160	0,01 - 150	8	150	80	EL4500/160/150
4500	2,5 - 160	0,01 - 375	20	375	200	EL4500/160/375
4500	2,5 - 160	0,01 - 750	40	750	400	EL4500/160/750
4500	2,5 - 400	0,01 - 150	8	150	80	EL4500/400/150
4500	2,5 - 400	0,01 - 375	20	375	200	EL4500/400/375
4500	5 - 400	0,01 - 750	40	750*	200	EL4500/400/750
6000	2,5 - 60	0,01 - 200	8	200	80	EL6000/60/200
6000	2,5 - 60	0,01 - 500	20	500	200	EL6000/60/500
6000	2,5 - 60	0,01 - 1000	40	1000	400	EL6000/60/1000
6000	2,5 - 160	0,01 - 200	8	200	80	EL6000/160/200
6000	2,5 - 160	0,01 - 500	20	500	200	EL6000/160/500
6000	2,5 - 160	0,01 - 1000	40	1000	400	EL6000/160/1000
6000	2,5 - 400	0,01 - 200	8	200	80	EL6000/400/200
6000	2,5 - 400	0,01 - 500	20	500	200	EL6000/400/500
6000	5 - 400	0,01 - 1000	40	1000*	200	EL6000/400/1000

**Option:**

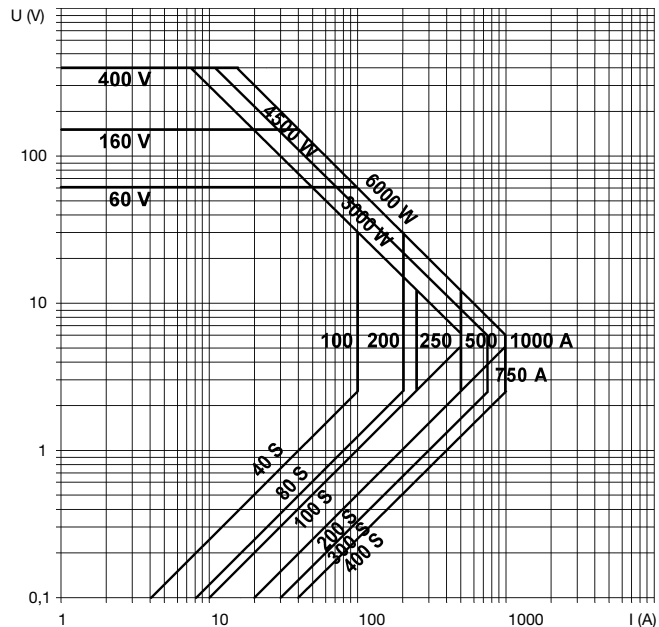
- Autorange current-/voltage-const.
- Installed IEEE 488.2 Interface
- Euro-Card INT2E
- Cutt-off regulation ( application: battery charging, dynamo / generator test)
- Additional input to modulate upon (application: impedance measurements for fuel cells)
- Additional sense-jack on the rear panel
- Input voltage 115VAC ±10%
- USB Interface
- CAN Interface

\* up to 5 V

**Front view/Back view:**



**Operating range:**



- Signale:  
 BNC 1: Output true value load voltage  
 BNC 2: Output true value load current/ -conductance  
 BNC 3: Output true value load power  
 BNC 4: Output trigger  
 BNC 5: Input control voltage
- Indication:  
 LED 1: Remote on/off  
 LED 2: Load on  
 LED 3: Temperature limit  
 LED 4: Max. power  
 LED 5: Max. load current  
 LED 6: Max. load voltage  
 LED 7: Min. load voltage  
 LED 8: relocated  
 LED 9: Error