

Electronic DC Load

EL3000, EL4500, EL6000 Series
Power 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_{AC} ±10%, 50 - 60 Hz
 Load voltage see table
 Load current see table
 Power see table

Regulation:
 Set point accuracy ≤ 0,1% I_{max}, U_{max}
 (Voltage range ± 20%) ≤ 1% G_{max}, P_{max}
 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_{max}
 (after 15 min. working time, const. ambient temp. and const. input voltage) within 8 hours

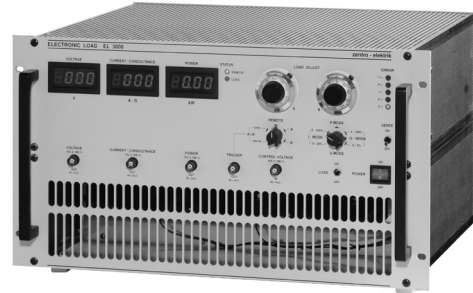
Protection:
 Overload protection min. 2-times, normal load for a short period
 Overvoltage protection power shutdown U_{Lmax} + 5 %
 Thermal protection power shutdown, manual reset
 Overcurrent current limit I_{max} + 20 %
 Safety for load circuit
 Reverse polarity protection fuse and wattless current diode for I_L ≤ 200A

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

Safety:
 Safety standard EN 61010-1
 Isolation
 AC input - load input: U_L ≤ 350 V: 2,3 kV_{eff}
 U_L > 350 V - 800 V: 3,7 kV_{eff}
 1,35 kV_{eff}
 AC input - ground: U_L ≤ 150 V: 500 V_{eff}
 U_L > 150 - 300 V: 820 V_{eff}
 U_L > 300 - 600 V: 1,35 kV_{eff}
 U_L > 600 - 800 V: 2,2 kV_{eff}

EMC:
 Input EMI filter EN61000-6-3
 Input immunity EN61000-6-1

short time
 overload
 on request



Units for Laboratory and Test

Operation and Control:

Manual adjust: Adjustment current, voltage, power and conductance (see table): 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, waveform: square-wave 1 : 1
 Programming ext. voltage (reference - U_L)
 0 - 10 V ≙ 0 - I_{max}
 0 - 10 V ≙ 0 - U_{max}
 0 - 10 V ≙ 0 - P_{max}
 0 - 10 V ≙ 0 - G_{max}
 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 for voltage, current/conductance and power
 Instruments LED digital 3½ dig., accuracy 0,2% ± 1d

Connectors:

Input Euro - plug rear side with switch front side
 Load type DIX SE50 female plug included I_L ≥ 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 w x h x d 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
 EL4500: ca. 45 kg
 EL6000: ca. 48 kg

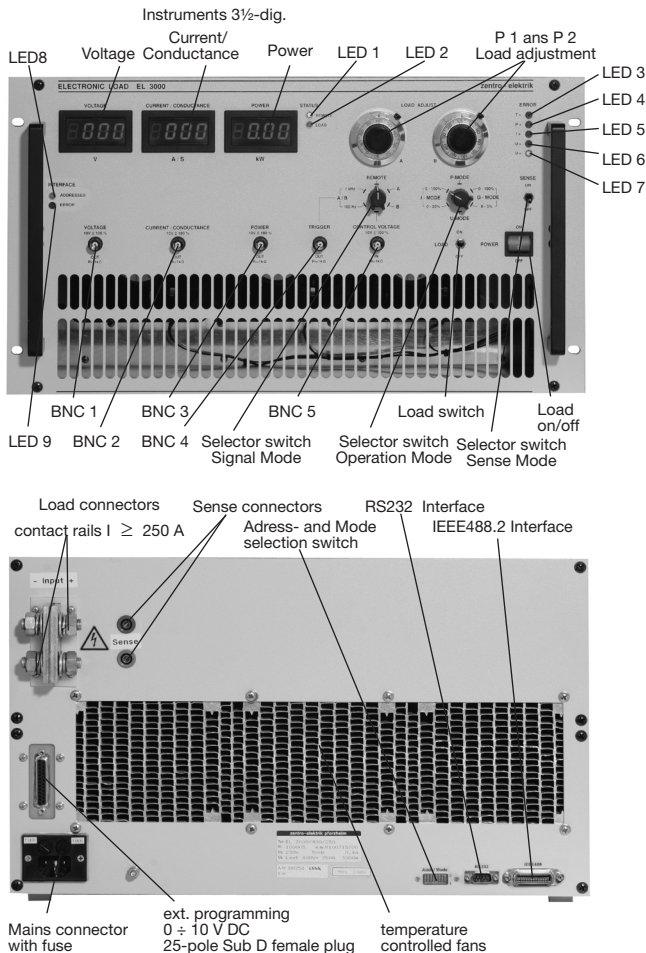
| Power (W) | Load voltage (V) | Load current (A) | Load current in the operating range from 0,1 V to 2,5 V | | Conductance max. (S) | Model Number |
|--------------|------------------------|------------------------|---|-------|----------------------------|-----------------|
| | | | (A) | (A) | | |
| 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:

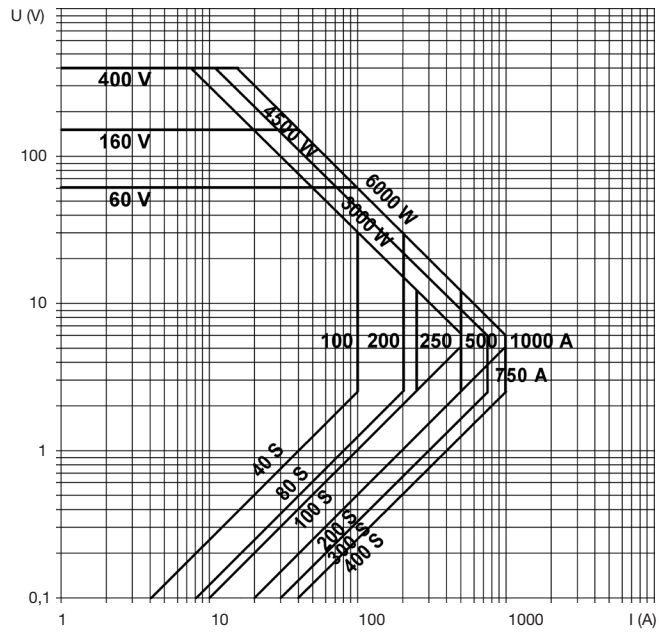
- Autorange current-/voltage-const.
- Installed IEEE 488.2 Interface
- Euro-Card INT2E
- Cutt-off regulation
- (application: battery charging, dynamo / generator test)
- Additional input to modulate upon
- (application: impedance measurements for fuel cells)
- Additional sense-jack on the rear panel
- Input voltage 115VAC ±10%
- USB Interface
- CAN Interface (together with RS232)

* 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