

Electronic DC Load

Series EL500, EL1000, EL3000, EL4500, EL6000
Power 500 W - 6000 W, 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 period
Stand-alone use and intended for 19" rack

Option:
Installed IEEE 488.2 Interface with Lab View Driver
USB and CAN Interface with Driversoftware

on request
overload possible



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 $\leq 0,1\% I_{max}, U_{max}$
(Voltage range ± 20%) $\leq 1\% G_{max}, P_{max}$
Rise time (at I-Mode, 10 – 90% nominal value change) $< 10 \mu s$
Correction time (at I-Mode 10-90% nominal value change) EL 500, EL 1000 $< 200 \mu s$
EL 3000 - EL 6000 $< 300 \mu s$
Temperature coefficient $\leq 0,1\% / K I_{max}$
(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 and fuse and wattless current
Reverse polarity protection diode for $I_L \leq 200 A$

Environmental Conditions:

Operating temperature 0 – +35 °C
Cooling int. fan, temperature controlled

Safety:

Safety standard EN61010
Isolation
AC input - load input: $U_L \leq 350 V: 2,3 kV_{eff}$
 $U_L > 350 V - 800 V: 3,7 kV_{eff}$
AC input - ground: 1,35 kV_{eff}
Load input - ground: $U_L \leq 150 V: 500 V_{eff}$
 $U_L > 150 - 300 V: 820 V_{eff}$
 $U_L > 300 - 600 V: 1,35 kV_{eff}$
 $U_L > 600 - 800 V: 2,2 kV_{eff}$

EMC:

Input EMI filter EN61000-6-3
Input immunity EN61000-6-2

Operation and Control:

Manual adjust: Adjustment current, voltage, power and conductance (see table): each 2 levels (max., min.)
each over 2 channels adjustable
I-Mode 20/100%, G-Mode 5/100% selectable
Pulse-generator I, U, P, G 100 Hz or 1kHz switch-selected, waveform: square-wave 1 : 1
Programming ext. voltage (reference - U_L)
 $0 - 10 V \cong 0 - I_{max}$
 $0 - 10 V \cong 0 - U_{max}$
 $0 - 10 V \cong 0 - P_{max}$
 $0 - 10 V \cong 0 - G_{max}$
any waveform, frequency range EL500, EL1000: 0–30 kHz(-3 dB)
EL3000, EL6000: 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 under-voltage 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 EL 500, EL 1000: $I_L \leq 25 A$: female plug 4 mm
EL 500, EL 1000: $I_L > 25 A$: plug 6 mm lockable, dependent on type
 $I_L \geq 100 A$: typ DIX SE50 female plug incl.
 $I_L \geq 250 A$ contact rail each pole 2 x M10
Ext. programming 25 pole Sub D female plug

Physical Specifications:

Dimensions see table
Weight see table

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)		
500	2,5 - 60	0,01 - 10	0,4	10	4	EL500/60/10
500	2,5 - 60	0,01 - 25	1	25	10	EL500/60/25
500	2,5 - 60	0,01 - 50	2	50	20	EL500/60/50
500	2,5 - 60	0,01 - 100	4	100	40	EL500/60/100
500	2,5 - 160	0,01 - 10	0,4	10	4	EL500/160/10
500	2,5 - 160	0,01 - 25	1	25	10	EL500/160/25
500	2,5 - 160	0,01 - 50	2	50	20	EL500/160/50
500	2,5 - 400	0,01 - 10	0,4	10	4	EL500/400/10
500	5 - 400	0,01 - 25	0,5	25*	5	EL500/400/25
500	5 - 800	0,01 - 10	0,2	10*	2	EL500/800/10
1000	2,5 - 20	0,01 - 100	0,4	100	40	EL1000/20/100
1000	2,5 - 60	0,01 - 20	0,8	25	8	EL1000/60/20
1000	2,5 - 60	0,01 - 50	2	50	20	EL1000/60/50
1000	2,5 - 60	0,01 - 100	4	100	40	EL1000/60/100
1000	2,5 - 60	0,01 - 200	8	200	80	EL1000/60/200
1000	2,5 - 160	0,01 - 20	0,8	20	8	EL1000/160/20
1000	2,5 - 160	0,01 - 50	2	50	20	EL1000/160/50
1000	2,5 - 160	0,01 - 100	4	100	40	EL1000/160/100
1000	2,5 - 400	0,01 - 20	0,8	20	8	EL1000/400/20
1000	5 - 400	0,01 - 50	1	50*	10	EL1000/400/50
1000	5 - 800	0,01 - 20	0,4	20*	4	EL1000/800/20
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
discharging, 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 Open Interface

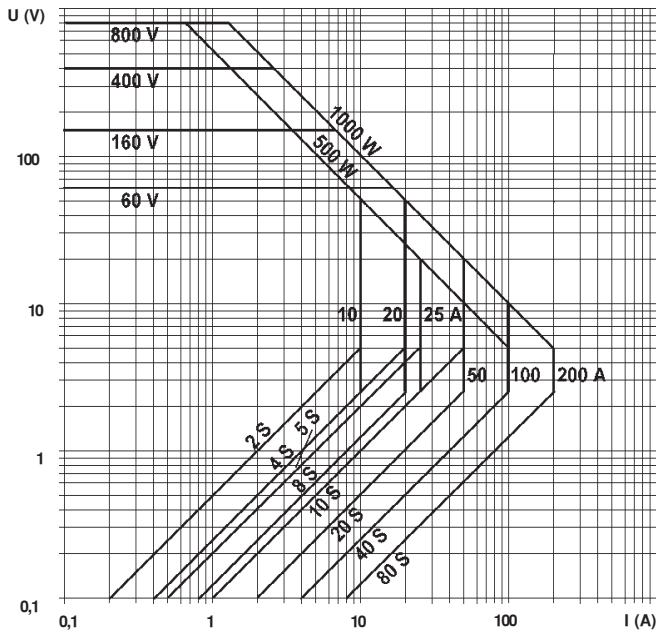
* up to 5 V

Dimensions and weight:

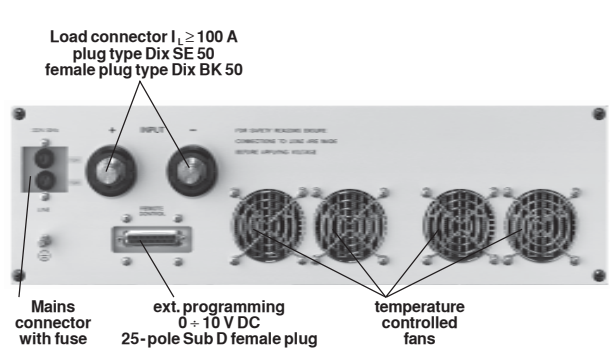
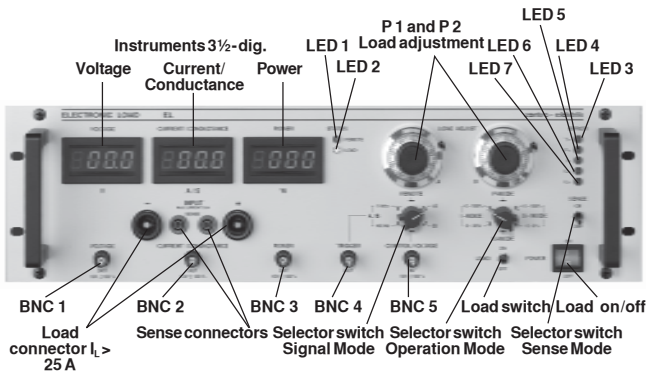
Model Number	Dimensions w x h x d (mm)	Weight (kg)
EL500	485 x 155 x 400	10
EL1000	485 x 155 x 400	13
EL3000	485 x 285 x 500	32
EL4500	485 x 420 x 500	45
EL6000	485 x 420 x 500	48

Electronic DC Load

Operating range EL500, EL1000:



EL500, EL1000:



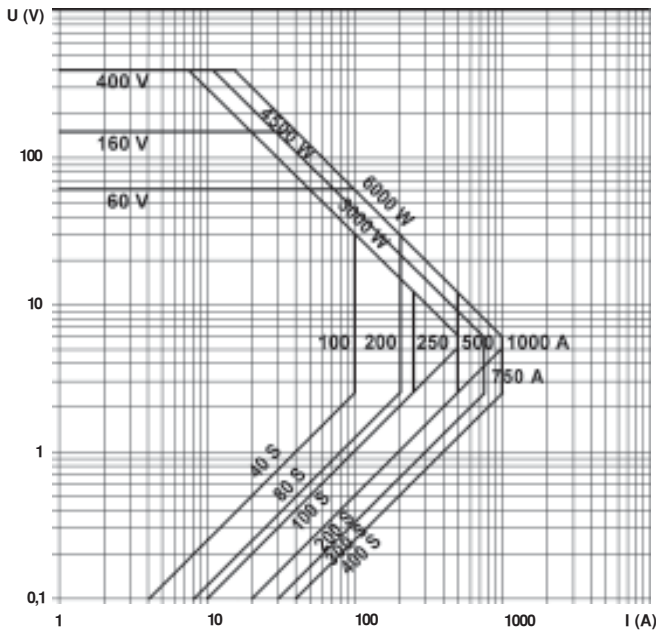
Signals:

- 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

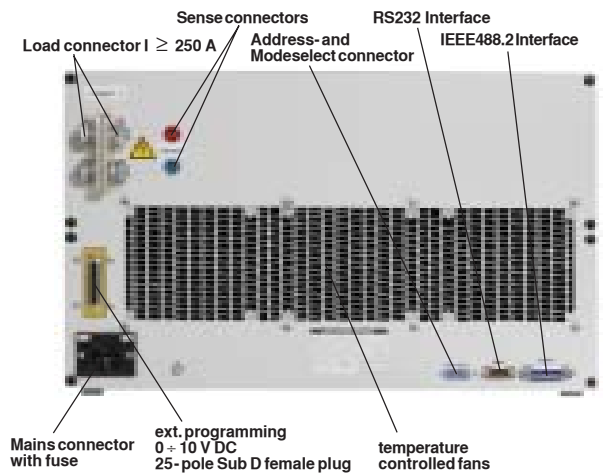
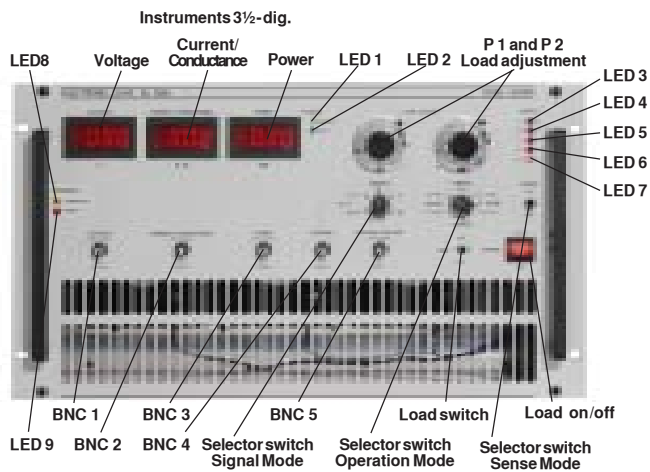
Indication:

- 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

Operating range EL3000, EL4500, EL6000:



EL3000, EL4500, EL6000:



Signals:

- 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: Signal, addressed
- LED 9: Signal, Error