Electronic Load ESL

Constant current and resistance regulation
Voltages 60 - 500 Vdc • Currents 1 - 2000 A • Power from 100 - 100000W



The Electonic Load for Laboratory and System Applications

- **R- and C-constant !**
- **DC Voltage up to 500 Vdc**
- **DC Currents up to 2000 A**
- **Powers up to 100 kW**
- **Color touch screen**
- **Resolution 16 Bit**
- **Standard USB, Option RS 232, Ethernet or Analogue Interface**

The electronic load ESL is one of the most modern version of the outdated sliding resistor. The modes of operation current- and resistance constant guarantee continuously and electronically controlled load of an output on a supply mains, an electric circuit, a battery etc.. The Color Touch Display shows all set and measure values.
Optionally the programming and measuring may follow via the RS232, IEEE488 or Ethernet interface.

Short specification ESL				
Type	**Power W**	**Voltage Vdc***	**Current Adc***	**Case**
ESL-500-USB	500 W	1....60 Vdc	0.....50 A	235x135x435mm
ESL-750-USB	750 W	1....60 Vdc	0.....75 A	19”, 3U,490mm
ESL-1000-USB	1000 W	1....60 Vdc	0....100 A	19”, 3U,490mm
ESL-1500-USB	1500 W	1....60 Vdc	0....125 A	19”, 3U,490mm
ESL-2000-USB	2000 W	1....60 Vdc	0....150 A	19”, 6U,540mm
ESL-3000-USB	3000 W	1....60 Vdc	0....200 A	19”, 6U,540mm
ESL-4000-USB	4000 W	1....60 Vdc	0....250 A	19”, 9U,600mm
ESL-5000-USB	5000 W	1....60 Vdc	0....300 A	19”, 9U,600mm
ESL-6000-USB	6000 W	1....60 Vdc	0....350 A	19”,12U,600mm
ESL-7000-USB	7000 W	1....60 Vdc	0....400 A	19”,12U,600mm
ESL-8000-USB	8000 W	1....60 Vdc	0....500 A	19”,15U,600mm
ESL-9000-USB	9000 W	1....60 Vdc	0....550 A	19”,15U,600mm
ESL-10000-USB	10000 W	1....60 Vdc	0....600 A	19”,15U,600mm
ESL-12000-USB	12000 W	1....60 Vdc	0....700 A	19”,18U,600mm
ESL-14000-USB	14000 W	1....60 Vdc	0....800 A	19”,21U,600mm
ESL-16000-USB	16000 W	1....60 Vdc	0....900 A	19”,24U,600mm
ESL-18000-USB	18000 W	1....60 Vdc	0..1000 A	19”,27U,600mm
ESL-20000-USB	20000 W	1....60 Vdc	0..1000 A	19”,30U,600mm
ESL-30000-USB	30000 W	1....60 Vdc	0..1000 A	System rack
ESL-40000-USB	40000 W	1....60 Vdc	0..1000 A	System rack
ESL-50000-USB	50000 W	1....60 Vdc	0..1000 A	System rack
ESL 100000-USB	100000 W	1....60 Vdc	0..2000 A	System rack
*** Please choose higher voltages with option -V and smaller currents with option -C**				

Short spezification options ESL	
Option	**Description**
-ENC	Without operation and indication
-Cxxx	Customer specific current < standard value (minimum 1A)
-V100	Voltage 1...100 V CmaxNew = Cmax -50%
-V250	Voltage 1...250 V CmaxNew = Cmax -75%
-V500	Voltage 1...500 V CmaxNew = Cmax -90%
-ETH	Ethernet Interface, Programming and measurement
-RS232	RS232 Interface, Programming and measurement
-A	Analogue Interface (0...5 Vdc, TTL), Programming and measurement
-EUAB	Adjustable undervoltage cutoff
-VP	V-Constant Mode and P-Constant Mode
-DYN	Adjustable Dynamic in CC Mode: 1 up to 100Hz; Impuls duty cycle
-C2M	Second current measurement range = 10% from maximum
-V2M	Second voltage measurement range = 10% from maximum
-NZ	19” case for ESL-500
-AKF	Safety output connectors on the front side (only up to 20A)

Unit Description ESL

LCD display : The electronic load ESL has a big LCD display. Set values and measure values are indicated at the same time.

Adjustments : The settings of current A can be reached through a potentiometer.

Operating Mode : The load operates in the constant-resistance as well as in the constant-current mode. With the Option -VP constant voltage and constant power mode is available

Interfaces : USB Interface is Standard, As an option the interfaces RS 232, Ethernet and the ana logue interface are available.
All settings and measurements can be carried out with the interfaces. The resolution for programming and measuring is 12 bit.

Power Outlet : The output of the load is always on the backside of the unit and is carried out as screw terminal up to 300A and > 300A as an sopper rail . As an option there is an addi tional output on the front panel carried out as a safety pole terminal. The measure ment of the output voltage (Sense) is at separate outputs on the back of the unit.

Maximum Current : The maximum adjustable current emerges from the order table. If a lower maximum current is needed due to a better resolution, this can simply be chosen with the option -C i.e. ESL-100-C5 -Now the load has got a maximum current of 5 Ampere with the option -C5 instead of a maximum current of 20 Ampere.

Higher Voltage : With the option V100 up to V500 the input voltage of the load can be increased. Attention has to be paid to the fact that through increasing the voltage, the maximum current is reduced (for current reduction see option table). ESL-1000-V250 for example has now got an input voltage of 1...250 Vdc and a current of 0...25 A. The power of 1000 W remains.



Back side
ESL 500-USB
Case 235x135x435mm

Unit Description ESL

Undervoltage cutoff : By default, the load is switched off at <1Vdc. With the optional adjustable undervoltage cutoff **EUAB** can set the switch - off threshold of the Load from 1Vdc to 90% of the maximum voltage.

Dynamic Mode: With the DYN option you can clock between 2 set values in CC mode. The square wave signal can be set in the pulse pause ratio. The maximum frequency is 100Hz.

2. Current measuring range: With option C2M there is a second current measuring range with the full resolution available. The maximum value of the 2nd current measuring range corresponds 10% of the total current range of the electronic load.

2. Voltage measuring range: With option V2M there is a second voltage measuring range with the full resolution available. The maximum value of the 2nd voltage measuring range corresponds 10% of the total voltage range of the electronic load.

Switching OFF : The load has got protective device and switching-offs for all possible errors. In case of overpower, overcurrent or overtemperature the load switches off. The error is indicated through the LCD display. With the Stand By key the load can be switched on again.



Electronic Load EDL-4000 with 250A screw terminal

Specification ESL

Type	ESL-500	ESL-750	ESL-1000	ESL-1500	ESL-2000
Output Data					
Power max.	500 W	750 W	1000 W	1500 W	2000 W
Input voltage	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	0 – 60 VDC
Current	0 – 20 ADC	0 – 30 ADC	0 – 50 ADC	0 – 125 ADC	0 – 150 ADC
Current Rise Time max. ms	1	1	1	1	1
Programming Accuracy					
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Measurement					
Voltage	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Mains Input					
Line Input -10%/+15%	230VAC	230VAC	230VAC	230VAC	230VAC
Line Input ±10% (Option -Z)	115VAC	115VAC	115VAC	115VAC	115VAC
Input Frequency	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz
Isolation voltage	2000Veff	2000Veff	2000Veff	2000Veff	2000Veff

Type	ESL-3000	ESL-4000	ESL-5000	ESL-6000	ESL-7000
Output Data					
Power max.	000 W	4000 W	5000 W	6000 W	7000 W
Input voltage	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	0 – 60 VDC
Current	0 – 200 ADC	0 – 250 ADC	0 – 300 ADC	0 – 350 ADC	0 – 400 ADC
Current Rise Time max. ms	1	1	1	1	1
Programming Accuracy					
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Measurement					
Voltage	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Mains Input					
Line Input -10%/+15%	230VAC	230VAC	230VAC	230VAC	230VAC
Line Input ±10% (Option -Z)	115VAC	115VAC	115VAC	115VAC	115VAC
Input Frequency	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz
Isolation voltage	2000Veff	2000Veff	2000Veff	2000Veff	2000Veff

Type	ESL-8000	ESL-9000	ESL-10000	ESL-12000	ESL-14000
Output Data					
Power max.	8000 W	9000 W	10000 W	12000 W	14000 W
Input voltage	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	0 – 60 VDC
Current	0 – 450 ADC	0 – 550 ADC	0 – 600 ADC	0 – 700 ADC	0 – 800 ADC
Current Rise Time max. ms	1	1	1	1	1
Programming Accuracy					
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Measurement					
Voltage	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Mains Input					
Line Input -10%/+15%	230VAC	230VAC	230VAC	230VAC	230VAC
Line Input ±10% (Option -Z)	115VAC	115VAC	115VAC	115VAC	115VAC
Input Frequency	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz
Isolation voltage	2000Veff	2000Veff	2000Veff	2000Veff	2000Veff

Type	ESL-16000	ESL-18000	ESL-20000	ESL-30000	ESL-40000
Output Data					
Power max.	16000 W	18000 W	20000 W	30000 W	40000 W
Input voltage	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	1 – 60 VDC	0 – 60 VDC
Current	0 – 900 ADC	0 – 1000 ADC	0 – 1000 ADC	0 – 1000 ADC	0 – 1000 ADC
Current Rise Time max. ms	1	1	1	1	1
Programming Accuracy					
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Measurement					
Voltage	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Current	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Mains Input					
Line Input -10%/+15%	230VAC	230VAC	230VAC	230VAC	230VAC
Line Input ±10% (Option -Z)	115VAC	115VAC	115VAC	115VAC	115VAC
Input Frequency	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz
Isolation voltage	2000Veff	2000Veff	2000Veff	2000Veff	2000Veff

Specification ESL

Type	ESL-50000	ESL-100000
Output Data		
Power max.	50000 W	100000 W
Input voltage	1 – 60 VDC	1 – 60 VDC
Current	0 – 1000 ADC	0 – 2000 ADC
Current Rise Time max. ms	1	1
Programming Accuracy		
Current	0,2 %	0,2 %
Voltage	0,2 %	0,2 %
Current	0,2 %	0,2 %
Mains Input		
Line Input -10%/+15%	230VAC	230VAC
Line Input ±10% (Option -Z)	115VAC	115VAC
Input Frequency	47-63 Hz	47-63 Hz
Isolation voltage	2000Veff	2000Veff



ESL 10000-C1000-A , Case 19", 18U with 1000A output



ESL-Solar500
Case 235x135x435mm