

## Electronic Load Unit 500

## LOADSAVER®

- Multi-Channel Electronic Load
- Recycles > 80% of Loading Energy
- Programmable Control and Measurement
- High Voltage Input (to 420V DC)



Electronic Load Unit 500

The LOADSAVER product family is a revolutionary, compact and cost effective approach to the test and burn-in of AC and DC sources. LOADSAVER offers a highly versatile combination of multiple programmable load units coupled to an energy recycling system.

### Features of the Electronic Load Unit 500

- Highly flexible and user selectable
- Remote control and monitoring over RS485 and RS232 allow for automated process control
- Energy costs are dramatically reduced over prolonged testing, such as Burn-in
- Complicated and unreliable air handling and water cooling equipment is eliminated

The diagram below shows a typical Loadsaver configuration, with 10kW drawn from the sources under test. If these sources are 90% efficient, 11kW will be drawn from the mains. However due to the recycling abilities of Loadsaver, 8.5kW of this power shall be returned to the mains resulting in a net power draw of 2.5kW for the total system.

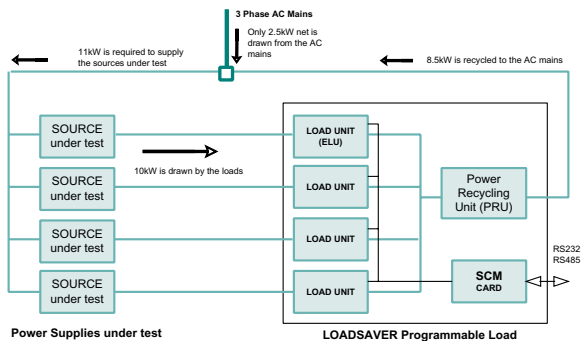


Figure 1: Loadsaver drawing 10kW from the UUT

Each electronic load unit (ELU) acts as a programmable current load under the direction of a system control and monitoring card (SCM). Loading power is not dissipated

in the ELU as with traditional loads but is transferred to the ELU output for recycling. The ELU's feed into a common output bus, which in turn feeds a single power-recycling unit (PRU). This recycling unit recycles the load energy back to a three phase AC mains.

Each ELU 500 load channel will take a DC voltage between 40 and 420V and can draw currents of up to 12.5A with a maximum input power of 5kW per channel. Multiple channels can easily be paralleled for higher power configurations. ELU's feeding into the same PRU share a common negative rail.

The LOADSAVER is controlled from a computer communicating over an RS232 (single drop) or RS485 (multi drop) link to the SCM card. Voltage, current and fault status may be monitored from the PC. A Windows compatible virtual instrument front end is available. Alternatively a simple but powerful command language makes it easy to incorporate the loadsaver into the user's own test program.

Two types of SCM card are available. The standard SCM controls up to 10 channels in constant current mode only. The extended version (ESCM) offers higher precision, constant current, constant resistance, constant voltage and constant power modes. An ESCM will control up to 8 channels.

In summary, the Loadsaver combines versatility while significantly reducing the energy cost of testing high power sources. It saves on installation because of the lower current feed and lower cooling requirements as in the case of more traditional Loads.

Technical Specifications					
<b>Electronic Load Unit(4U)</b> ELU500-420/12/ 5k/2	Input Polarity Positive DC	Vin range 40V to 420V	I <sub>max</sub> /Channel 12.5A	P <sub>max</sub> / Channel 5,000	Channels 2
<b>Power Recycling Unit</b> PFCPRU500-25	Max. Power 25,000W	AC Supply User specified, three phase	Power Factor >0.98 (Load >30%)	Cabinet Size 20U 30U option 20U+20U	Extra Load Space None 12U 20U
<b>Sys Cntrl. &amp; Mntr. Card</b>	No. of Channels	Operating Modes	Basic Accuracy	Interface	
SCM-001	10	I mode	1%	RS232	
SCM-002	10	I mode	1%	RS485	
ESCM-001	8	V, I, R, P modes	0.2%	RS232	
ESCM-002	8	V, I, R, P modes	0.2%	RS485	
<b>Family Specifications</b>					
<b>DC Inputs</b>					
<i>Current Setting Precision</i>	0.1A SCM, 0.01A ESCM	<i>Overtemperature</i>	Automatic shutdown		
<i>Step Response</i>	0.3s, 25%-75% final value	<i>DC Voltage out of Range</i>	Automatic shutdown		
<i>Terminals</i>	10mm studs	<i>Fuses</i>	Fusing at input and output of load		
<b>AC Regeneration output</b>					
<i>No. of Phases</i>	3	<i>Recycling Efficiency</i>	Up to 85% typical		
<i>Voltage and Frequency</i>	User specified	<i>THD</i>	2% at full load		
<i>Terminals</i>	Screw clamp	<i>Mains Fault</i>	Internal circuit breaker		
<i>Mains Loss &amp; Overtemp.</i>	Automatic shutdown	<i>AC Power Factor</i>	>0.98 (30% to 100% load)		
<b>Auxiliary AC Supply</b>					
Safety	For control circuits: 1 phase, 115 / 230V, 50 / 60Hz, 7.2A / 3.6A				
EMC	EN61010-1: 1993				
CE	EN55081-2 : 1993, EN55082-2 : 1994				
<b>Options</b>					
30U	30U cabinet which houses the PRU, leaving 12U of space for load units.				
20U+20U	20U+20U split cabinet option, offers 20U of space for load units (24U special available).				
RS485CI/F	RS232 to RS485 converter, useful for driving multi-drop RS485 from a PC.				
IEEE488CI/F	Allows the RS232 loadsaver to be used on an IEEE488 bus.				
LS_APPLET	Virtual instrument software for Microsoft Windows.				
<b>Ordering Information</b>					
n x ELU500	Your choice of load units.				
+ (E)SCM	Your choice of system control and monitoring card.				
+ PFCPRU500	Your choice of recycling unit, you must specify AC mains voltage and frequency.				
Options	Your choice of options should be specified when ordering.				

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