

LAB-SMP

COMPACT 1U SWITCH MODE POWER SUPPLY



POSITIVE PROBLEM SOLVING **+=**

The LAB-SMP series of laboratory DC Sources provides power outputs up to 2.4kW. A wide array of voltage and current ranges are available at each power rating.

Constant voltage, power, resistance and current operating modes are provided as standard. The LAB-SMP also allows the voltage and current outputs to be preset and read before applying them to the load. To enable remote control a number of optional analogue and/or computer interfaces can be specified. The optional SD card can further provide a low cost method of recording and implementing complex waveforms.

- + Analogue and Computer Interfaces
- + CV, CC, CP & CR Operating Modes
- + Both Current and Voltage Presets
- + User Programmable Waveforms
- + Extremely Compact 1U Design
- + Free Operating GUI

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FURTHER DETAILS

These PSUs are found in a wide variety of fields from automotive applications and general lab work to battery charging and automatic test systems. The PV mode allows for basic simulation of a solar cell array via adjustable I and V values.

Your chosen unit is built with a systems interface for master/slave operation. This enables setting values to be equally shared amongst units that are configured in parallel.

A soft interlock circuit allows users to connect the unit to an external safety device such as an emergency stop. This feature requires a high signal (+10V) to be present between two pins, otherwise the output will be shutdown.

The LAB-SMP design is exceptionally flexible and allows ETPS to offer variety of solutions to your particular application requirements. Please contact our office if you require any changes from the standard specification or any specific modifications.

SELECTION TABLE

Part Number	Max Power	Output Voltage	Output Current	Weight	Dimensions (W x H x D)
LAB-SMP 115	1.2kW	0 - 15V	0 - 80A	7kg	19" x 1U x 440mm
LAB-SMP 135	1.2kW	0 - 35V	0 - 35A	7kg	19" x 1U x 440mm
LAB-SMP 145	1.2kW	0 - 45V	0 - 30A	7kg	19" x 1U x 440mm
LAB-SMP 170	1.2kW	0 - 70V	0 - 20A	7kg	19" x 1U x 440mm
LAB-SMP 1150	1.2kW	0 - 150V	0 - 8A	7kg	19" x 1U x 440mm
LAB-SMP 1300	1.2kW	0 - 300V	0 - 4A	7kg	19" x 1U x 440mm
LAB-SMP 1600	1.2kW	0 - 600V	0 - 2A	7kg	19" x 1U x 440mm
LAB-SMP 11200	1.2kW	0 - 1200V	0 - 1A	7kg	19" x 1U x 440mm
LAB-SMP 215	2.4kW	0 - 15V	0 - 160A	7.6kg	19" x 2U x 440mm
LAB-SMP 235	2.4kW	0 - 35V	0 - 68A	7.6kg	19" x 1U x 440mm
LAB-SMP 245	2.4kW	0 - 45V	0 - 53A	7.6kg	19" x 1U x 440mm
LAB-SMP 270	2.4kW	0 - 70V	0 - 34A	7.6kg	19" x 1U x 440mm
LAB-SMP 2150	2.4kW	0 - 150V	0 - 16A	7.6kg	19" x 1U x 440mm
LAB-SMP 2300	2.4kW	0 - 300V	0 - 8A	7.6kg	19" x 1U x 440mm
LAB-SMP 2600	2.4kW	0 - 600V	0 - 4A	7.6kg	19" x 1U x 440mm
LAB-SMP 21200	2.4kW	0 - 1200V	0 - 2A	7.6kg	19" x 2U x 440mm

OPERATING RANGES AND FEATURES

GENERAL	
Static Voltage Regulation	$\pm 0.05\% + 2\text{mV}$
Static Current Regulation	$\pm 0.1\% + 2\text{mA}$
Dynamic Load Regulation	$< 1-3 \text{ ms}$ [typically]
Over Voltage Protection	0 to 120% V_{MAX}
Ripple	$< 0.2\% \text{ RMS}$ [typical]
Stability	$\pm 0.05\%$
Programming Accuracy [V_{OUT}]	$\pm 0.05\% + 2\text{mV}$
Programming Accuracy [I_{OUT}]	$\pm 0.05\% + 2\text{mA}$
Display Accuracy [V_{OUT} and I_{OUT}]	$< \pm 0.5\%$
Accuracy of Full Scale [V_{OUT}]	$\pm 0.2\%$
Accuracy of Full Scale [I_{OUT}]	$\pm 0.5\%$
Isolation [Between Input and Earth]	2150VDC
Isolation [Between Output and Earth]	500VDC [models $\leq 300\text{V}$] 2000VDC [301V-1200V models]
Isolation [Between Input and Output]	3000VAC
Protection	OC / OV / OT / OP
Line Regulation	$< \pm 0.1\% + 2\text{mV}$
Safety Standard	EN 61010-1: 2010
EMC	EN 61326-1: 2013
RoHS	EN 50581: 2012
Cooling	Fans
Operating Temperature	0 to 50°C
Storage Temperature	-20 to 70°C
Humidity	$< 80\%$
Operating Height	$< 2000\text{m}$
Output, Control & Monitoring [Standard]	Front panel, isolated analogue 0 to +5V / +10V & RS-232
Output, Control & Monitoring [Optional]	RS-485, IEEE488, LAN, USB, SD card

HIGHLIGHTED FEATURES



SD MEMORY CARD

An optional integrated SD card provides a convenient low cost method of recording and editing complex waveforms, using simple WAV or script files via a PC.



MODIFICATIONS

Existing platforms can be modified by ETPS's design specialists to meet unusual test needs. Voltage or current outputs can be tailored to suit your requirements.



MASTER / SLAVE

Operation of several PSUs in series or parallel is possible. This allows users to retrospectively expand systems to meet ever changing power requirements.



INTERFACES

A variety of interfaces are available providing unrivalled flexibility for users. Each system can be configured with multiple interfaces.

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INPUT

	1.2kW MODELS	2.4kW MODELS
Connection	3 wire [1P+N+E]	
AC Socket on Rear Panel	IEC-C14	IEC-C20
Input Voltage	90 - 264VAC / PFC	230VAC $\pm 10\%$ /PFC
Input Frequency	47 - 63Hz	
Input Current ^{1,2}	$\approx 6.5A$	$\approx 13A$
Inrush Transient Current ²	$\approx 25A$	$\approx 25A$
Main Input Fuse Rating	10A	16A
Main Input Fuse Type and Location	Built-in fast acting PCB mounted cartridge fuse	
Recommended Supply Breaker Value & Curve ²	10A type D	16A type D
Leakage Current	$\approx 1.5mA$	$\approx 1.5mA$
THD Input Current	$\approx 3.75\%$	$\approx 10.75\%$
THD Input Voltage	$\approx 1.87\%$	$\approx 2.55\%$
Power Factor	≈ 0.99	≈ 0.99
Efficiency Type ¹	$\approx 88\%$ [with PFC]	$\approx 89\%$ [with PFC]
Dissipated Power ¹	$\approx 165W$	$\approx 350W$

¹ For nominal output voltage and nominal output current. ² For nominal input voltage 230VDC/50Hz.

INTERFACES AND CONTROL

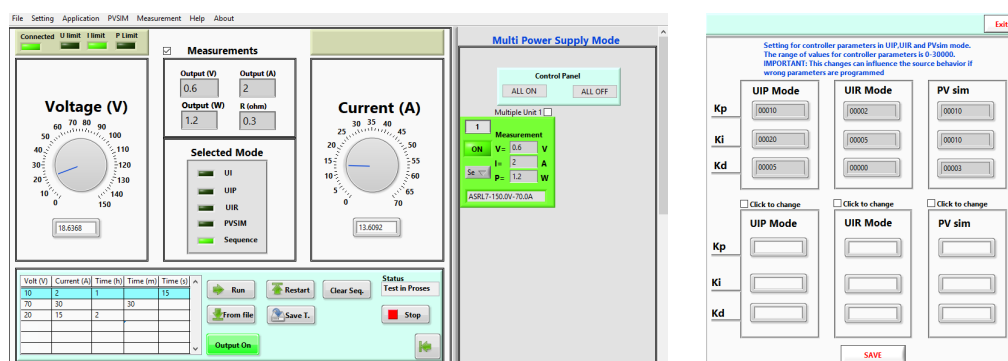
ANALOGUE INTERFACE (STANDARD)	
Digital Outputs [CV, Standby, Error]	Output type: Open collector with pull-up resistor 10k Ω after +5V $I_{SINKMAX}$: 50 mA
Digital Inputs [Ext. Control, Standby]	Input resistance: 47k Ω Maximum input voltage: 50V High level: $V_{IN} > 2V$ Low level: $V_{IN} < 0.8V$
Analog Outputs [Xmon]	Output resistance: 100 Ω Minimum permissible load resistance: 2k Ω Minimum load resistance for $\pm 0.1\%$ accuracy: 100k Ω
Analog Inputs [Xset]	Input resistance: 1M Ω Maximum permissible input voltage: 25V
Reference Voltage	Reference voltage V_{REF} : 10V $\pm 10mV$ Output resistance: <10 Ω Maximum output current: 10mA (not short-circuit-proof)
5 V – Supply Voltage	Output voltage: 5V $\pm 300mV$ Maximum output current: 50mA (not short-circuit-proof)
RS-232 INTERFACE (STANDARD)	
Signal Inputs [Rx, D, CTS]	Maximum input voltage: $\pm 25V$ Input resistance: 5 k Ω [Type] Switching thresholds: $V_H < -3V$, $V_L > +3V$
Signal outputs [Tx, D, RTS]	Output voltage [at $R_L > 3k\Omega$]: min $\pm 5V$, Type $\pm 9V$, max $\pm 10V$ Output resistance: <300 Ω ; Short circuit current: Type $\pm 10mA$
RS-485 INTERFACE (OPTIONAL)	
Maximum Input Voltage	$\pm 5V$
Input Resistance	>12k Ω
Output Current	$\pm 60mA$ Max
High Level	$V_d > 0.2V$
Low Level	$V_d < -0.2V$



OPERATING SOFTWARE

All new LAB-SMP units are provided with free operating software. Live values of the power systems can be viewed remotely in a simple and intuitive way. This is particularly useful when operating the power supply in a location that is remote to the DUT.

Voltage, current, power and resistance values can all be controlled through the GUI. A test sequence function allows for more complex DC waveforms to be implemented directly through the software.



A specialised PV simulation feature is also provided as part of the software. This allows the power system to simulate a generator's MPP tracking in both current and voltage modes. The software contains many pre-loaded solar panels from different manufacturers.



OPTIONS

CODE	DESCRIPTION
/3P208	3 Phase Input of 3 × 208 (187 - 229Vac), 50/60Hz
/3P400	3 Phase Input of 3 × 400 (360 - 440Vac), 50/60Hz
/3P440	3 Phase Input of 3 × 440 (396 - 484Vac), 50/60Hz
/3P480	3 Phase Input of 3 × 480 (432 - 528Vac), 50/60Hz
/400HZ	400Hz input frequency
/DC	Any nominal in the input range 250 - 750VDC ± 10% (eg. 500VDC ± 10% = 450 - 550VDC input)
/ATE	No front panel control or display, analogue interface provided as standard
/USB	USB interface
/LT	IEEE 488.2 (GPIB) interface
/LTRS485	RS-485 interface
/LAN	Ethernet interface
/KFZ12	Output follows a 12Vdc automotive cranking curve
/KFZ24	Output follows a 24Vdc automotive cranking curve
/SD	Integrated memory card slot on the front panel with data logging facility
/SCS	Safety cover for DC output terminal

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



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WE ARE
POSITIVE
PEOPLE
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ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world's leading technology brands.



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