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# LAB-SM

# Switch Mode DC Power Supply

## Description

The LAB-SM series of Laboratory DC Sources provides power outputs up to 12kW. A wide array of voltage and current ranges are available at each power rating. Constant voltage and constant current operating modes are provided. Constant power and constant resistance modes are optionally available making the unit ideal for simulating batteries. PFC of 0.98 is standard across the entire range. A further advantage of this power supply is the automatic ranging combined with automatic power control. This often saves the acquisition of a second unit. The LAB-SM also allows the voltage and current outputs to be preset and read before applying them to the load. Additional features include adjustable over voltage protection, remote sense, stand by and thermal overload protection. To enable remote control a number of optional analogue and/or computer interfaces can be specified. LabVIEW drivers are also available for GPIB computer control and system integration. These PSU's are found in a wide variety of fields from automotive applications and general lab work to battery charging and automatic test systems. The LAB-SM design is exceptionally flexible and allows ET to offer virtually any output required. Please contact our office if you require any changes from the standard specification or any specific modifications.



- Power factor correction as standard
- Extremely compact 100kHz design
- Analogue and computer interfaces
- Both current and voltage presets
- CV/CC operating modes

## Options Table

Code	Description
/ATE.....	No front panel control or display. Analogue Interface provided as standard
/AI-5.....	0-5V Analogue Interface for all control and measurement functions
/AI-10.....	0-10V Analogue Interface for all control and measurement functions
/ATI-5.....	Isolated 0-5V Analogue Interface for all control and measurement functions
/ATI-10.....	Isolated 0-10V Analogue Interface for all control and measurement functions
/LT.....	IEEE 488.2 Interface with listener and talker functions
/LTRS232.....	RS232 Interface with listener and talker functions
/LTRS485.....	RS485 Interface with listener and talker functions
/LT+LTRS232.....	IEEE 488.2 and RS232 Interfaces with listener and talker functionality
/LT+LTRS485.....	IEEE 488.2 and RS485 Interfaces with listener and talker functionality
/CAN.....	CAN Interface with listener and talker functions
/USB.....	USB Interface with listener and talker functions
/ETH.....	Ethernet interface with listener and talker functions over a LAN
/WIPFC.....	90-264Vac input with active PFC (only available for 500W/750W units)
/PFCX.....	185-264Vac input with active PFC (only available for 800W & 1 to 4kW)
/PFCZ.....	90-135Vac input with active PFC for (only available for 800W & 1 to 4kW)
/3P.....	3 * 400Vac input for 2kW to 12kW units
/3P+N.....	3 * 400Vac input + Neutral (standard for units 4-12kW)
/R.....	Constant resistance mode (only available on units =>800W)
/P.....	Constant power mode (only available on units =>800kW)
/KFZ12.....	Output follows a 12Vdc automotive cranking curve
/KFZ24.....	Output follows a 24Vdc automotive cranking curve
/KFZXX.....	Output follows a user specific curve
/OCP.....	Adjustable over current protection in addition to the standard current limit
/AF.....	Power output on the front panel (standard 500W / 750W)
/AR.....	Power output on the rear panel (standard =>800W)

Different output ranges and application/user specific options are possible. Please contact ET to discuss your requirements.



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# LAB-SM

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## Selection Table

Part Number	Power (kW)	Voltage (V <sub>OUT</sub> )	Current (I <sub>OUT</sub> )	Height (U)	Part Number	Power (kW)	Voltage (V <sub>OUT</sub> )	Current (I <sub>OUT</sub> )	Height (U)
LAB-SM 0515	0.5	0 - 15	0 - 33	2	LAB-SM 420	4	0 - 20	0 - 200	4
LAB-SM 0535	0.5	0 - 35	0 - 14	2	LAB-SM 435	4	0 - 35	0 - 140	4
LAB-SM 0570	0.5	0 - 70	0 - 8	2	LAB-SM 445	4	0 - 45	0 - 100	4
LAB-SM 05150	0.5	0 - 150	0 - 3.5	2	LAB-SM 470	4	0 - 70	0 - 70	4
LAB-SM 0715	0.75	0 - 15	0 - 50	2	LAB-SM 4150	4	0 - 150	0 - 30	4
LAB-SM 0735	0.75	0 - 35	0 - 25	2	LAB-SM 4300	4	0 - 300	0 - 16	4
LAB-SM 0770	0.75	0 - 70	0 - 12	2	LAB-SM 620	6	0 - 20	0 - 300	6
LAB-SM 07150	0.75	0 - 150	0 - 5	2	LAB-SM 635	6	0 - 35	0 - 210	6
LAB-SM 105	1	0 - 5	0 - 150	1	LAB-SM 645	6	0 - 45	0 - 150	6
LAB-SM 108	1	0 - 8	0 - 125	1	LAB-SM 670	6	0 - 70	0 - 105	6
LAB-SM 120	1	0 - 20	0 - 50	1	LAB-SM 6150	6	0 - 150	0 - 45	6
LAB-SM 135	1	0 - 35	0 - 35	1	LAB-SM 6300	6	0 - 300	0 - 24	6
LAB-SM 145	1	0 - 45	0 - 30	1	LAB-SM 820	8	0 - 20	0 - 400	8
LAB-SM 170	1	0 - 70	0 - 20	1	LAB-SM 835	8	0 - 35	0 - 280	8
LAB-SM 1150	1	0 - 150	0 - 10	1	LAB-SM 845	8	0 - 45	0 - 200	8
LAB-SM 1300	1	0 - 300	0 - 6	1	LAB-SM 870	8	0 - 70	0 - 140	8
LAB-SM 1500	0.8	0 - 500	0 - 1.6	1	LAB-SM 8150	8	0 - 150	0 - 60	8
LAB-SM 1600	1.2	0 - 600	0 - 2	2	LAB-SM 8300	8	0 - 300	0 - 32	8
LAB-SM 220	2	0 - 20	0 - 100	2	LAB-SM 1010	10	0 - 10	0 - 1000	10
LAB-SM 235	2	0 - 35	0 - 70	2	LAB-SM 1020	10	0 - 20	0 - 500	10
LAB-SM 245	2	0 - 45	0 - 50	2	LAB-SM 1035	10	0 - 35	0 - 350	10
LAB-SM 270	2	0 - 70	0 - 35	2	LAB-SM 1045	10	0 - 45	0 - 250	10
LAB-SM 2150	2	0 - 150	0 - 15	2	LAB-SM 1070	10	0 - 70	0 - 175	10
LAB-SM 2300	2	0 - 300	0 - 8	2	LAB-SM 10150	10	0 - 150	0 - 75	10
LAB-SM 2600	2	0 - 600	0 - 4	4	LAB-SM 10300	10	0 - 300	0 - 40	10
LAB-SM 320	3	0 - 20	0 - 150	4	LAB-SM 1220	12	0 - 20	0 - 600	12
LAB-SM 335	3	0 - 35	0 - 100	4	LAB-SM 1235	12	0 - 35	0 - 420	12
LAB-SM 345	3	0 - 45	0 - 75	4	LAB-SM 1245	12	0 - 45	0 - 300	12
LAB-SM 370	3	0 - 70	0 - 50	4	LAB-SM 1270	12	0 - 70	0 - 210	12
LAB-SM 3150	3	0 - 150	0 - 20	4	LAB-SM 12150	12	0 - 150	0 - 90	12
LAB-SM 3300	3	0 - 300	0 - 12	4	LAB-SM 12300	12	0 - 300	0 - 48	12

## Technical Data

Input Voltage (0.5kW - 3kW).....	230V <sub>AC</sub> ± 10%	Harmonics.....	EN61000-3-2 A14
Input Voltage (Output =>4kW).....	3 x 400V <sub>AC</sub> ± 10%	Safety.....	EN 60950
Input Frequency.....	47-63Hz	Emission.....	EN 61000-6-4
Insulation (Input / Output).....	3000V <sub>AC</sub>	Immunity.....	EN 61000-6-2
Power Factor Correction.....	0.98	Protection.....	OC / OV / OT / OP
Typical Efficiency.....	85%	Remote Sense (<35V).....	2V <sub>MAX</sub>
Voltage Regulation.....	±0.05% + 2mV	Remote Sense (>35V).....	5V <sub>MAX</sub> (no sense V <sub>OUT</sub> ≥ 500Vdc)
Current Regulation.....	±0.1% + 2mA	Isolation Class.....	1
Response Time (10%-90%).....	<0.5ms	Computer Interface Resolution.....	12 Bit
Over Voltage Protection.....	0 to 110% V <sub>MAX</sub>	Cooling (500W&750W).....	Front to Back
Ripple.....	<0.2% RMS	Cooling (1kW).....	Back to Back
Stability.....	0.05%	Cooling (2-12kW).....	Front to Back
Operating Temperature.....	0 - 50°C	Vibration.....	10-55Hz/1min/2G XYZ
Storage Temperature.....	-45°C to +85°C	Shock.....	Less than 20G
Temperature Coefficient.....	0.02% per°C	Case Size (500W & 750W).....	0.5 * 19" x 2U x 360mm
Derating 50°C-70°C.....	~2% per°C	Case Size (0.8kW - 12kW).....	19"x H(U) x 434.5mm

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ET 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. ET specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. The photograph illustrates a 1kW and 2kW DC Source. Please note that your actual unit may differ from those shown.