SL Series: 1.5 kW to 6 kW

SL Series 1.5 kW, 2.6 kW, 4 kW, 6 kW

Product Name:	SL Series
Number of Models:	70
Power Levels:	1.5 kW, 2.6 kW, 4 kW, and 6 kW
Voltage Range:	Models from 0-5 Vdc to 0-1000 Vdc
Current Range:	Models from 0-1.5 Adc to 0-250 Adc
Enclosure	Rack-mount, 1U

Overview

Magna-Power Electronics SL Series was designed for high reliability and to provide market leading 1U (1.75" height) rack-mount power density, with output isolation up to 1000 Vdc. This product series utilizes Magna-Power Electronics signature current-fed power processing, delivering robust power conversion with high efficiency. A wide variety of input voltages are available, from 208 Vac up to 480 Vac. A single-phase universal input (UI) featuring active power factor correction is available for 1.5 kW models. High accuracy programming and monitoring levels allow confidence in power supply measurements, eliminating the need for external power meters.

All SL Series power supplies come standard with isolated 37-pin external I/O, RS232, Remote Interface Software, IVI drivers for integration into a variety of programming environments, and modulation capabilities for non-linear output profile emulation. Two front panel types are available for different application requirements. The standard SL Version front panel (pictured in the image above) provides front panel control and calibration, start and stop buttons, and a digital display for voltage and current. The C Version front panel provides a blank display panel, allowing control only from the computer or isolated 37-pin I/O connection.

Available Options and Accessories

- Single Phase Universal Input (UI) (1.5 kW Only)
- Cabinet and Integrations (CAB1, CAB2, CAB3, CAB4)
- High Slew Rate Output (+HS)
- IEEE-488 GPIB Interface (+GPIB)
- LXI TCP/IP Ethernet Interface (+LXI)
- Photovoltaic Power Profile Emulation (PPPE)
- RS-485 Converter (RS485)
- UID47: Universal Interface Device (UID)
- USB Edgeport Converter (USB)

SL Series Specifications

Input Specifications	
Nominal Voltage **1 phase, 2 wire + ground**	85 - 265 Vac, 1Φ (UI—Universal input) (Available on 1.5 kW Models Only)
Nominal Voltage **3 phase, 3 wire + ground**	208 Vac, 3Φ (operating range 187 - 229 Vac) 240 Vac, 3Φ (operating range 216 - 264 Vac) 380 Vac, 3Φ (operating range 342 - 440 Vac) 415 Vac, 3Φ (operating range 373 - 456 Vac) 440 Vac, 3Φ (operating range 396 - 484 Vac) 480 Vac, 3Φ (operating range 432 - 528 Vac)
Frequency	50 Hz - 400 Hz (operating range 45 - 440 Hz)
Power Factor	0.99 at maximum power for 1Φ units > 0.82 at maximum power for 3Φ units

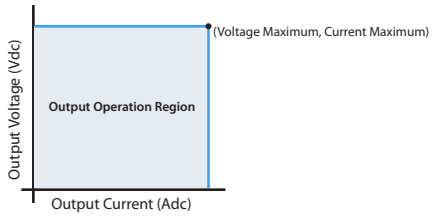
Output Specifications	
Ripple	(See Models Chart)
Line Regulation	Voltage Mode: ± 0.004% of full scale Current Mode: ± 0.02% of full scale
Load Regulation	Voltage Mode: ± 0.01% of full scale Current Mode: ± 0.04% of full scale
Load Transient Response	2 ms to recover within ±1% of full scale output, with a 50% to 100% or 100% to 50% step load change
Efficiency	≥ 86% at full load (See Models Chart)
Stability	± 0.10% for 8 hrs. after 30 min. warmup
Isolation	User inputs and outputs: referenced to earth ground Maximum input voltage to ground: ±2500 Vac Maximum output voltage to ground: ±1000 Vdc
Maximum Slew Rate	Standard Models: 100 ms for output voltage change from 0 to 63% 100 ms for output current change from 0 to 63% With High Slew Rate Option (+HS): 4 ms for output voltage change from 0 to 63% 8 ms for output current change from 0 to 63%
Bandwidth	Standard Models: 3 Hz for remote analog voltage programming 2 Hz for remote analog current programming With High Slew Rate Option (+HS): 60 Hz for remote analog voltage programming 45 Hz for remote analog current programming

Note: Specifications are subject to change without notice. For three-phase configurations, input specifications are line-to-line. Unless otherwise noted, input voltages and currents are specified for three-phase configurations.

Physical Specifications		
Power	**Size (H" x W" x D")**	**Weight**
1.5 kW	1.75 x 19 x 24 in (4.44 x 48.3 x 61.0 cm)	32 lbs (14.52 kg)
2.6 kW	1.75 x 19 x 24 in (4.44 x 48.3 x 61.0 cm)	34 lbs (15.42 kg)
4 kW	1.75 x 19 x 24 in (4.44 x 48.3 x 61.0 cm)	35 lbs (15.88 kg)
6 kW	1.75 x 19 x 24 in (4.44 x 48.3 x 61.0 cm)	35 lbs (15.88 kg)

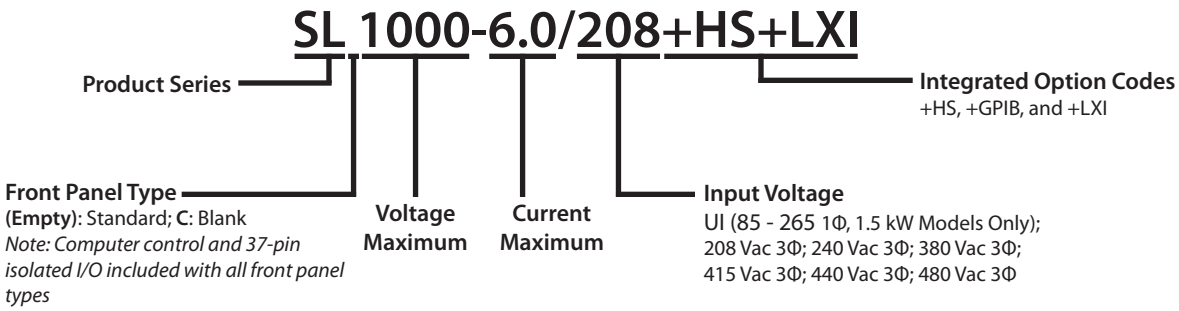
Control Specifications	
Voltage Programming Accuracy	± 0.075% of full scale voltage
OVT Programming Accuracy	± 0.075% of full scale voltage
Current Programming Accuracy	± 0.075% of full scale current
OCT Programming Accuracy	± 0.075% of full scale current
Voltage Readback Accuracy	± 0.2% of full scale voltage
Current Readback Accuracy	± 0.2% of full scale current
External Analog Programming and Monitoring Levels	0 - 10 Vdc
External Analog Output Impedances	Voltage output monitoring: 100 Ω Current output monitoring: 100 Ω +10 Vdc reference: 1 Ω
External Digital Programming and Monitoring Limits	Input: 0 to 5 Vdc, 10k input inpedance Output: 0 to 5 Vdc, 5 mA drive capacity
Remote Sense Limits	3% maximum voltage drop from output to load

Environmental Specifications	
Ambient Operating Temperature	0 °C to 50 °C
Storage Temperature	-25 °C to 85 °C
Humidity	Relative humidity up to 95% non-condensing
Temperature Coefficient	0.04 % / °C of maximum output voltage 0.06 % / °C of maximum output current



SL Series Models

Model Ordering Guide



Models Chart

The following chart details the available standard SL Series models. The Current Maximum (Adc) column is separated by the available power levels. To determine the appropriate model, first select your output Voltage Maximum (Vdc) to find appropriate row. Next, select one desired Current Maximum from the row that contains your desired Voltage Maximum. Then, construct you model number according to the model ordering guide, above. Non-standard voltage and current configurations are available.

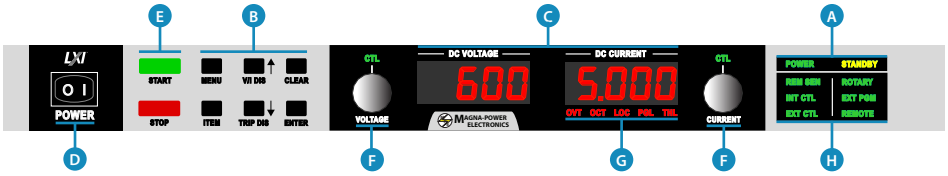
	1.5 kW	2.6 kW	4 kW	6 kW		
Voltage Maximum (Vdc)	**Current Maximum (Adc)**				**Ripple (mVrms)**	**Efficiency (%)**
5	250	*N/A*	*N/A*	*N/A*	50	86
10	150	250	*N/A*	*N/A*	40	86
16	93	162	250	*N/A*	35	86
20	75	130	200	250	40	86
25	60	104	160	240	40	86
32	46	81	125	186	40	86
40	37	65	100	150	40	87
50	30	52	80	120	50	87
60	25	43	66	100	60	87
80	18	32	50	75	60	87
100	15	26	40	60	60	87
125	12	20	32	48	100	87
160	9	16	25	36	120	87
200	7.5	13	20	30	125	87
250	6	10.4	16	24	130	88
300	5	8.6	13.2	20	160	88
375	4	6.9	10.4	16	170	88
400	3.7	6.5	10	15	180	88
500	3	5.2	8	12	220	88
600	2.5	4.3	6.4	10	250	88
800	1.8	3.2	5.0	7.5	300	88
1000	1.5	2.6	4.0	6.0	350	88

	Input Current Per Phase (Aac)			
UI (85 - 265 Vac, 1Φ)	21 - 7	*N/A*	*N/A*	*N/A*
208/240 Vac, 3Φ	6	11	16	24
380/415 Vac, 3Φ	5	8	11	16
440/480 Vac, 3Φ	4	6	9	14

Ripple specified for standard models. For models with the High Slew Rate Output Option (+HS), ripple will be higher.

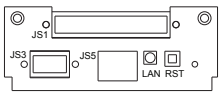
SL Series Diagrams

SL Front Panel (*Standard*)

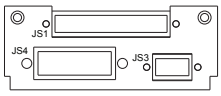


C Version Front Panel

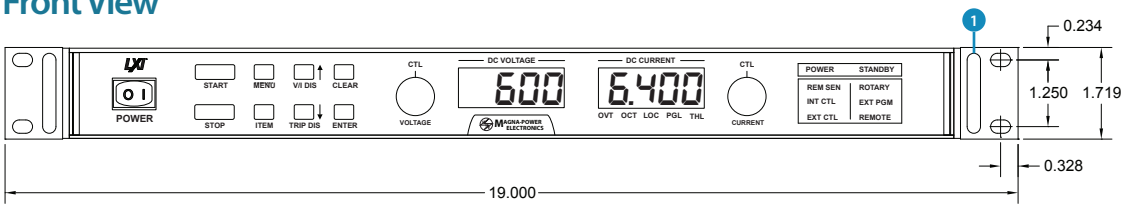
Optional (+LXI) Interface



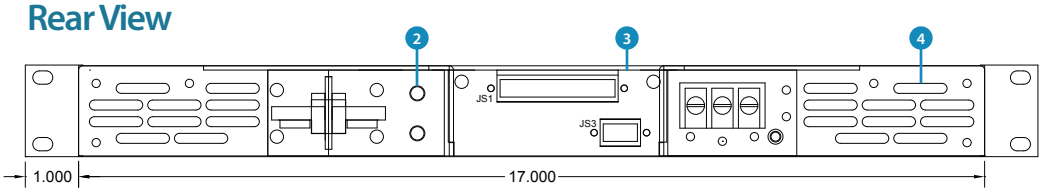
Optional (+GPIB) Interface



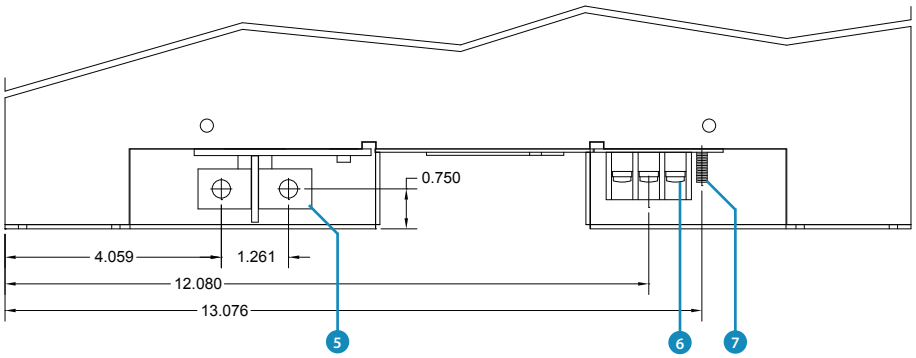
Front View



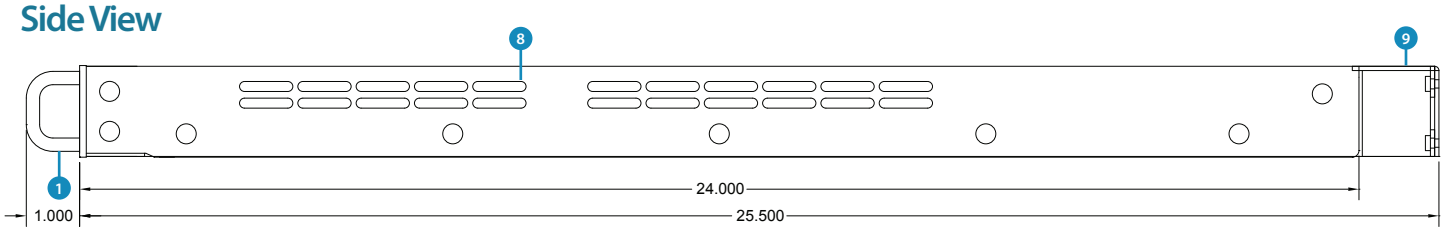
Rear View



Top View (Rear Side)



Side View



A MODE
POWER: Indicates power output
STANDBY: Indicates control power only

B FUNCTION KEYS
MENU: Selects function
ITEM: Selects item within function
V/I DIS: Displays voltage/current settings
TRIP DIS: Displays OVT and OCT settings
CLEAR: Clears setting or resets fault
ENTER: Selects item

C Meters display output voltage, output current, voltage set point, current set point, over voltage trip, and over current trip

D Power switch energized control circuits without engaging main power

E Engages and disengages main power

F Stepless rotary knob to set voltage/current

G DIAGNOSTIC ALARMS
LOC: Interlock
PGL: External input voltage beyond limits
THL: Indicates over-temperature condition
OVT: Over-voltage protection has tripped
OCT: Over-current protection has tripped

H CONFIGURATION
REM SEN: Remote sense enabled
INT CTL: Front panel start/stop/clear enabled
EXT CTL: External start/stop/clear enabled
ROTARY: Front panel control
EXT PGM: External voltage/current control
REMOTE: Computer control

1 Front Panel Handles (Removable)

2 Remote Sense Connections

3 Computer and External Control Connections

4 Rear Air Exhaust

5 Output DC Connections
0.25" x 0.75" Tin Plated Copper Bus
Qty (2) 3/8-16 Threaded Insert

6 Input AC Connections
38660 Molex Input Connector

7 10-32 Ground Stud

8 Side Air Intake

9 Qty (2) Rear Metal Covers (Removable)