ADG-L

ADG-L Series

Programmable DC Power Supply

4kW/8kW/12kW

CE RoHS Compliant

- Output Power: 4kW, 8kW and 12kW.
- Output Current: 0~75A or 0~150A (with parallel operation).
- Output Voltage: up to 1000V.
- 5" touch screen and rotary knob control.
- Wide range of input voltage:
  187~264Vac (1 or 3 phase) or 340~460V (3 phase 4 wires Y connection)
- High power density with only 3U for 12kW.
- Easy master/slave parallel operation.
- CV / CC / CP modes.
- Remote sensing feature for line drop compensation.
- Built-in programmable feature with total 5 groups and 99 sequences to set up voltage, current and time.
- Remote control software available.
- CE and RoHS certified.
- Complete protection features including OVP, OCP, OPP, input OVP/UVP and OTP.

Interfaces

RS-232 | RS-485 | Analog | Ethernet | GPIB | USB

● Standard ● Option

Applications

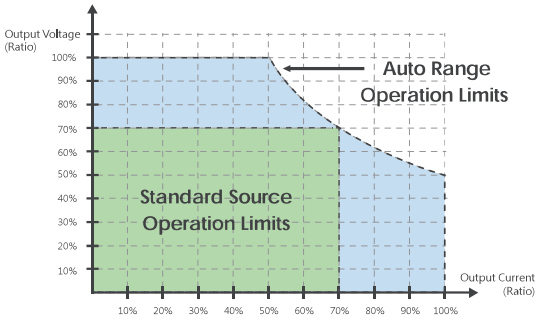
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Renewable Energy
- IT / SMT Production Line
- Transportation
- Motor & Compressor
- Power Tool
- Home Appliance
- Medical Industry
- Aerospace & Defense
- Communication Industry

ADG-L Series

Preen's new ADG-L series is a programmable DC power supply with high power density, low noise, and tight regulation. The combination of DSP and PWM technologies has enabled significant advances in stability and measurements. The ADG-L series includes fourteen models with 4kW, 8kW and 12kW maximum output powers and several Auto Range models to provide a higher output current at lower output voltage. With CV/CC/CP modes and its high voltage and high power features, the ADG-L series is an ideal DC power for applications on photovoltaic (PV), electric vehicle (EV), battery charge simulation, fuse, and contactors.

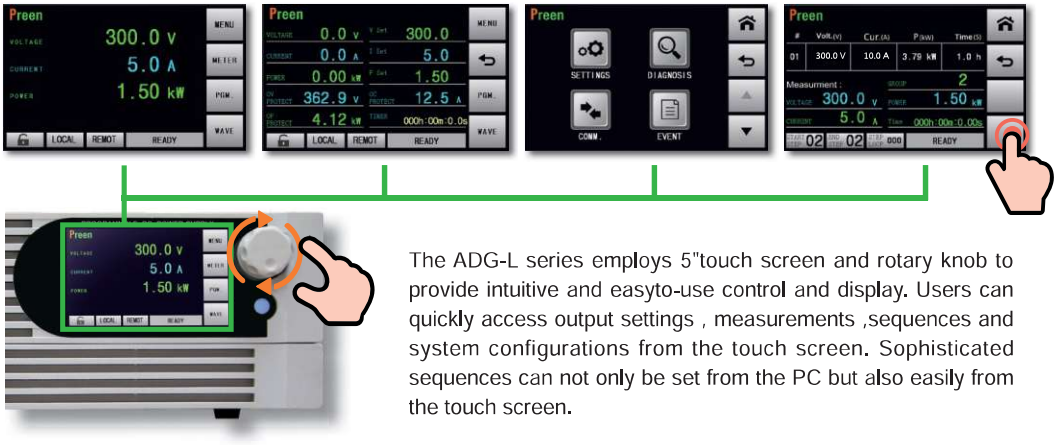
Parallel configuration is available for higher output level. The ADG-L series is operated via the 5"intuitive touch screen or the rotary knob to quickly access measurements, setting parameters, and configurations. The unit can also be controlled via standard RS-232, RS-485 and Analog remote interfaces or through optional Ethernet, USB, or GPIB interfaces. The built-in simulation function allows devices to be tested to voltage dropouts, spikes and other repetitive testing for voltage and current.

Auto Range Models



Comparing to conventional DC power supplies that provide the same rated current at all output voltage, the ADG-L's auto range models offer a wide operation region.
It can generate a higher output current at lower output voltage , or a higher output voltage at lower output current. This feature is an ideal solution for both high current/low voltage and low voltage/high current DUT , and makes one unit to cover a wide range of applications to further save cost and space.

Intuitive Touch Screen and Rotary Knob



The ADG-L series employs 5"touch screen and rotary knob to provide intuitive and easyto-use control and display. Users can quickly access output settings , measurements ,sequences and system configurations from the touch screen. Sophisticated sequences can not only be set from the PC but also easily from the touch screen.

Free Control Software and Various Communication Interfaces

The ADG-L series can be controlled via the Preen Program to configure sophisticate sequences, save/recall STEPs , and generate test result reports. This intuitive control software makes remote programming no longer a difficult task.

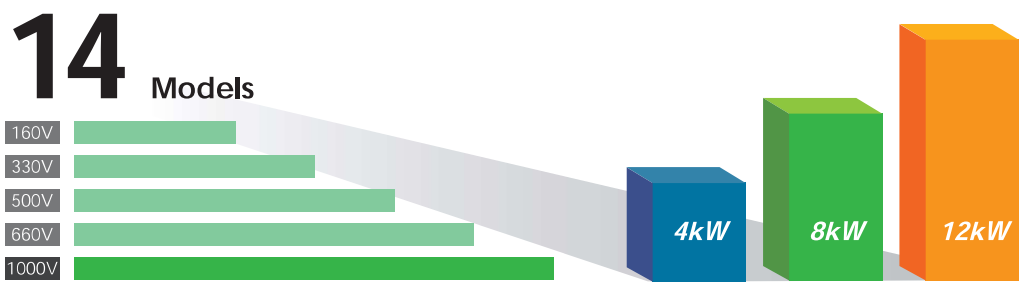
RS-232 | RS-485 | Analog | Standard | Ethernet | GPIB | USB | Optional

The DC power supply is equipped with RS-232/RS-485 (MODBUS) for standard interfaces. Optional Ethernet , USB , GPIB and RS-232/RS-485 (SCPI) are also available for better integrations with automatic test systems and the needs of industry 4.0.

Device Protection

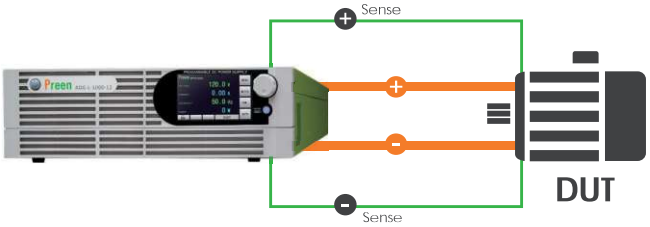
The ADG-L series has multiple levels of protection to safeguard you device. These include over-voltage, over-current, over-power, over-temperature, and input under/over-voltage to shut down the power supply output to prevent fault conditions and further damages.

Wide Voltage and Current Range



Preen's ADG-L series has 14 different models with three output power levels , 4kW , 8kW and 12kW. With up to 1000V output voltage and multiple Auto Range models , the ADG-L series covers a wide range of applications including electric vehicle , photovoltaic , battery , DC/DC converters and electronic products.

Remote Sensing



In many laboratories or factories, the DC power supply is located a certain distance away from the DUT, and this sometimes causes voltage drop due to the resistance of the wires. The ADG-L is equipped with remote sensing to compensate voltage drops and provide a stable output voltage, and it allows users to have the desired voltage appear at DUT.

Master/Slave Parallel Operation

Through a simple and fast setup, the ADG-L series can generate higher power by connecting identical models in a master/slave parallel operation. Users only need to control the master unit for multiple units' setup and readbacks. The master unit automatically calculates the parameters and downloads data to slave units to make programming easier and current sharing more precise.

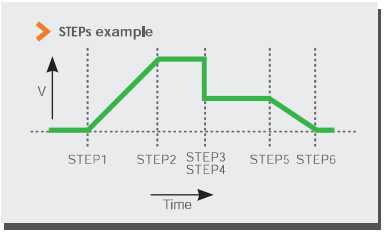
Multiple Ways of AC Input Connection

Conventional DC power supplies have only one type of AC input range and one way of input wirings. Different from most of high power DC power supply, the ADG-L series' 8kW and 12kW models offer more than two ways of input connections. For example, the 8kW models can have single phase or three phase input without factory modifications. This feature provides flexibility and convenience for users to operate the unit in different environments.

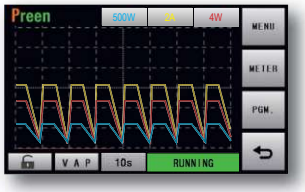
Error Log for Easy Analysis

The EVENT function of the ADG-L series provides an error log to record critical errors up to 999 items. The log includes date, time and error types to help users better analyze fault conditions.

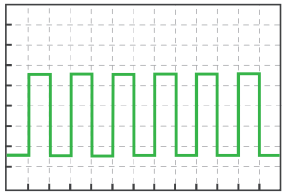
Programming Sequences and Simulations



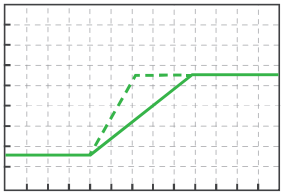
Program Setting Page



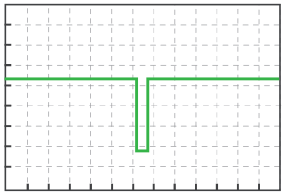
Wave Page



DC Pulse



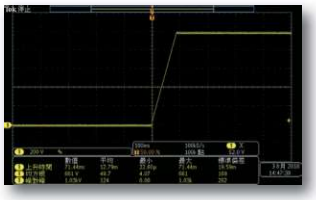
Slew Rate Control



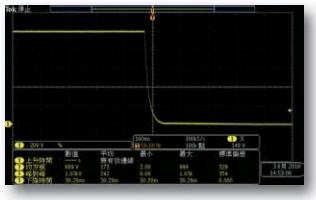
Voltage Sag

The built-in programming function of the ADG-L series has 99 STEPs for each of the 5 GROUPs. Users can set each STEP's output voltage, output current and time to generate consecutive voltage/current changes or set different rise/fall time. This built-in function and the ADG-L's control software allow users to create complex DC waveform with sophisticated coding. Making programming the DC power supply an easy task.

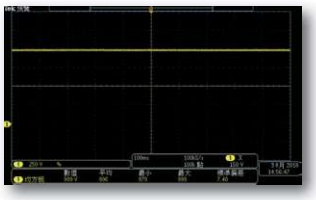
Industry-leading Performance



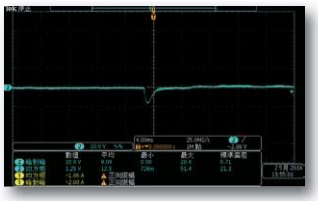
Fast Rise Time



Fast Fall Time



Low Voltage Ripple



Fast Transient Response

The ADG-L series is designed for low ripple, high accuracy and tight regulation for simulating different DC voltages. With fast transient response and rise time, the ADG-L DC sources are ideal to test DUT behavior to voltage sags, dropouts, ON/OFF tests and complex DC waveforms.

High Power Density: 12kW in 3U

12kW

24kW

Employing PWM technology and DSP-based control , Preen's ADG-L series DC power supply has 12kW available only in 3U package , and with parallel configuration , 24kW only has 6U height. The rack-mount enclosure is designed to accommodate a wide range of applications , especially for automatic test systems and integrations.

0.99 Input Power Factor

The ADG-L series is equipped with active Power Factor Corrector (PFC) to enhance input PF up to industry-leading 0.99, which helps reduce the interference on the grid.

01 Effectively increase real power (P) and reduce reactive power (Q) for better energy saving and operation cost.

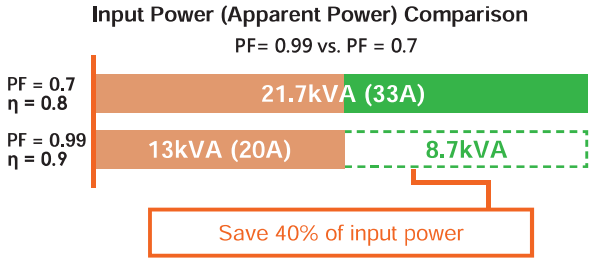
02 Able to suppress peak current and power loss to have lower harmonic distortions.

03 Reduce input current to have compact and high power density DC sources.

04 Save more energy and lower carbon footprint for better environment.

05 The ADG-L series (with PFC) v.s. Conventional DC Sources (no PFC)

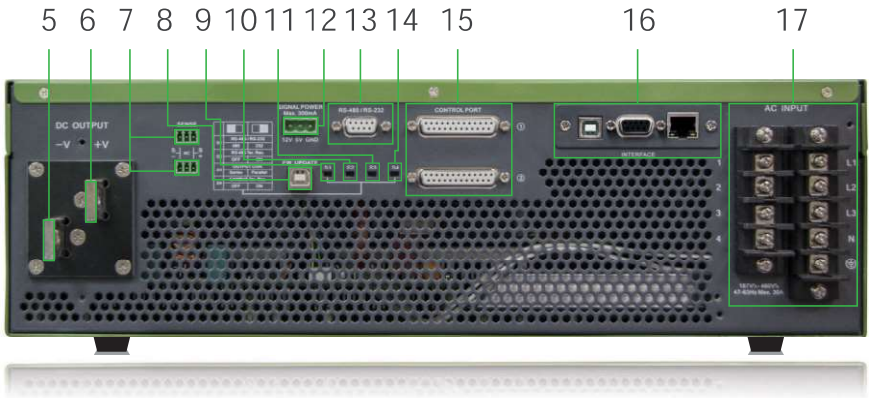
PF up to 0.99



For a 12kW ADG-L model with 3-phase 4-wire 220/380V input, when power factor (PF) increases from 0.7 to 0.99 and efficiency improves from 0.8 to 0.9, input power (apparent power) can effectively reduce 40% for energy saving.

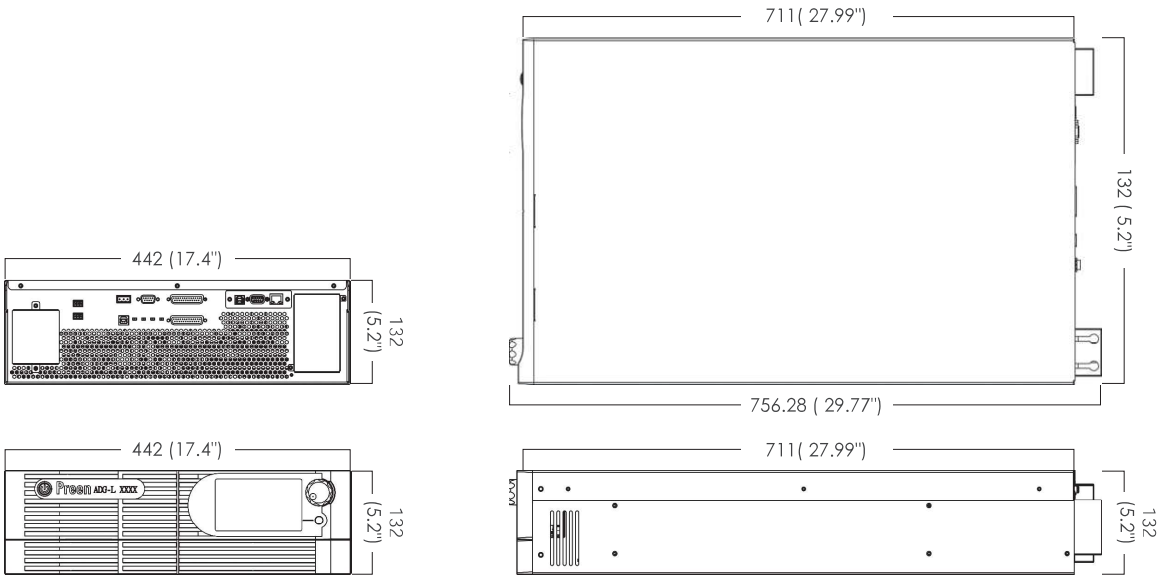
PANEL DESCRIPTION

1. Power Switch
2. Touch Screen
3. Rotary Knob
4. Output / Reset Button
5. DC negative output termi-nal
6. DC positive output terminal
7. Remote Sense Connector
8. USB interface (for firmware update)
9. CANBUS terminal resister switch
10. Serial and parallel switch
11. RS-485 terminal resister switch
12. Accessory power outlet
13. RS232/RS485 Interface (standard)
14. RS232/RS485 Interface switch
15. Analog interface
16. Optional communication interface : USB/Ethernet/GPIB
17. Input terminals



Dimensions

Unit : mm (inch)



PANEL DESCRIPTION

ADG-L Series Single-Phase Output (4kW - 12kW)

Model Number	Description
ADG-L-160-25	Programmable DC Power Supply (4kW/160V/25A)
ADG-L-160-50	Programmable DC Power Supply (8kW/160V/50A)
ADG-L-160-75	Programmable DC Power Supply (12kW/160V/75A)
ADG-L-330-12	Programmable DC Power Supply (4kW/330V/12A)
ADG-L-330-24	Programmable DC Power Supply (8kW/330V/24A)
ADG-L-330-36	Programmable DC Power Supply (12kW/330V/36A)
ADG-L-500-24	Programmable DC Power Supply (12kW/500V/24A)
ADG-L-660-12	Programmable DC Power Supply (8kW/660V/12A)
ADG-L-1000-12	Programmable DC Power Supply (12kW/1000V/12A)
ADG-L-330-25-4	Programmable DC Power Supply (4kW/330V/25A) (Auto Range Model)
ADG-L-330-50-8	Programmable DC Power Supply (8kW/330V/50A) (Auto Range Model)
ADG-L-330-75-12	Programmable DC Power Supply (12kW/330V/75A) (Auto Range Model)
ADG-L-660-25-8	Programmable DC Power Supply (8kW/660V/25A) (Auto Range Model)
ADG-L-1000-25-12	Programmable DC Power Supply (12kW/1000V/25A) (Auto Range Model)
ADG-L-001	Single-Phase Input Power Cord 3m (for 4kW/8kW)
ADG-L-002	Single-Phase Input Power Cord 5m (for 4kW/8kW)
ADG-L-003	Three-Phase Input Y Connection Power Cord 3m
ADG-L-004	Three-Phase Input Y Connection Power Cord 5m
ADG-L-005	Three-Phase Input △ Connection Power Cord 3m
ADG-L-006	Three-Phase Input △ Connection Power Cord 5m
ADG-L-007	RS-232/RS-485/USB/Ethernet (SCPI) Interface Board
ADG-L-008	Multiple Units Connection Cord DB25(Male * 2) 50 cm
ADG-L-013	GPIB Interface Board

SPECIFICATIONS

ADG-L Series (4kVA - 8kVA)

Model		ADG-L-160-25	ADG-L-330-12	ADG-L-330-25-4	ADG-L-160-50	ADG-L-330-24	ADG-L-330-50-8	ADG-L-660-12
Output Power		4kW	4kW	4kW	8kW	8kW	8kW	8kW
INPUT								
Input Voltage		1Ø 2W+G 187-264 Vac			1Ø 2W+G 187-264 Vac 3Ø4W+G 340-460 Vac			
Input Current		24A			1Ø : 48A 3Ø : 24A			
Input Frequency		47 Hz - 63 Hz						
Power Factor		≧0.99 at max. power						
OUTPUT								
Voltage		0~160V	0~330V	0~330V	0~160V	0~330V	0~330V	0~660V
Current		0~25A	0~12A	0~25A	0~50A	0~24A	0~50A	0~12A
Voltage Ripple (RMS)		≦0.15% F.S.	≦0.08% F.S.	≦0.08% F.S.	≦0.15% F.S.	≦0.08% F.S.	≦0.08% F.S.	≦0.08% F.S.
Voltage Ripple (peak to peak)		≦1.6% F.S.	≦0.8% F.S.	≦0.8% F.S.	≦2.5% F.S.	≦1.6% F.S.	≦1.6% F.S.	≦0.8% F.S.
Voltage Line Regulation		≦0.03% F.S.						
Voltage Load Regulation*1		≦0.08% F.S. + 80mV	≦0.05% F.S.	≦0.05% F.S.	≦0.2% F.S. + 80mV	≦0.08% F.S. + 80mV	≦0.08% F.S. + 80mV	≦0.05% F.S.
Current Ripple (RMS)		≦0.15% F.S.	≦0.25% F.S.	≦0.15% F.S.	≦0.15% F.S.	≦0.25% F.S.	≦0.15% F.S.	≦0.5% F.S.
Current Line Regulation		≦0.05% F.S. + 50mA						
Current Load Regulation		≦0.10% F.S.	≦0.10% F.S.	≦0.10% F.S.	≦0.2% F.S.	≦0.2% F.S.	≦0.2% F.S.	≦0.25% F.S.
Transient Response		≦3ms	≦3ms	≦3ms	≦3ms	≦3ms	≦3ms	≦3.5ms
Efficiency*2		≧90% at max. power						
Slew Rate*3	Rise Time	≦25ms	≦35ms	≦35ms	≦25ms	≦40ms	≦40ms	≦60ms
	Fall Time (Full Load)	≦30ms	≦40ms	≦40ms	≦35ms	≦45ms	≦45ms	≦45ms
	Fall Time (No Load)	≦10s						
PROGRAMMING & MEASUREMENT								
Voltage Programming Accuracy		≦0.08%F.S.+ 100mV						
Voltage Measurement Accuracy		≦0.08%F.S.+100mV			≦0.08%F.S.+100mV			≦0.08%F.S. +100mV
Voltage Resolution		100mV						
Current Programming Accuracy		≦0.4%F.S.+60mA						
Current Measurement Accuracy		≦0.3%F.S.+60mA			≦0.3%F.S.+60mA			≦0.4%F.S. +60mA
Current Resolution		10mA						
GENERAL SPECS.								
Interfaces		Standard: RS-485/RS-232 (Modbus) & Analog Optional: Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB						
Remote sense compensation		≦5V						
Operating Temperature		0°C ~ 40°C						
Storage Temperature		-20°C ~ 70°C						
Protections		OVP、OCP、OPP、OTP、Vin OV、Vin UV、LDC OV Vin LV、Phase Fail、Fan Fail						
OVP Range		0~110% F.S.						
OCP Range		0~110% F.S.						
Dimension (HxWxD)		132 x 442 x 756 mm / 5.20 x 17.40 x 29.76 inches						
Weight		4kW: approx. 21kg / 46.31lbs 8kW: approx. 28 kg / 61.71lbs						

*1. Load changes from 0% to 100% under nominal AC input. *2. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.
*3. Measured from 10% to 90% of the output voltage change - resistive load, typical.
* All specifications are subject to change without notice. ** Above specifications are under output voltage over 1% FS

SPECIFICATIONS

ADG-L Series (8kVA - 12kVA)

Model		ADG-L-660-25-8	ADG-L-160-75	ADG-L-330-36	ADG-L-330-75-12	ADG-L-500-24	ADG-L-1000-12	ADG-L-1000-25-12
Output Power		8kW	12kW	12kW	12kW	12kW	12kW	12kW
INPUT								
Input Voltage		1Ø 2W+G 187-264 Vac 3Ø4W+G 340-460 Vac	1Ø2W+G 187-264 Vac 3Ø3W+G 187-264 Vac 3Ø4W+G 340-460 Vac					
Input Current		1Ø : 48A 3Ø : 24A	1Ø : 72A 3Ø△: 42A 3ØY : 23A					
Input Frequency		47 Hz - 63 Hz						
Power Factor		≧0.99 at max. power						
OUTPUT								
Voltage		0~660V	0~160V	0~330V	0~330V	0~500V	0~1000V	0~1000V
Current		0~25A	0~75A	0~36A	0~75A	0~24A	0~12A	0~25A
Voltage Ripple (RMS)		≦0.08% F.S.	≦0.15% F.S.	≦0.08% F.S.	≦0.08% F.S.	≦0.1% F.S.	≦0.06% F.S.	≦0.06% F.S.
Voltage Ripple (peak to peak)		≦0.8% F.S.	≦1.6% F.S.	≦1% F.S.	≦1% F.S.	≦0.8% F.S.	≦0.5% F.S.	≦0.5% F.S.
Voltage Line Regulation		≦0.03% F.S.						
Voltage Load Regulation*1		≦0.05% F.S.	≦0.38% F.S. +200 mV	≦0.25% F.S.	≦0.25% F.S.	≦0.05% F.S.	≦0.05% F.S.	≦0.05% F.S.
Current Ripple (RMS)		≦0.25% F.S.	≦0.1% F.S.	≦0.15% F.S.	≦0.1% F.S.	≦0.25% F.S.	≦0.5% F.S.	≦0.25% F.S.
Current Line Regulation		≦0.05% F.S. + 50mA						
Current Load Regulation		≦0.25% F.S.	≦0.1% F.S.	≦0.1% F.S.	≦0.1% F.S.	≦0.15% F.S.	≦0.15% F.S.	≦0.15% F.S.
Transient Response		≦3.5ms	≦4ms	≦4ms	≦4ms	≦3ms	≦3ms	≦3ms
Efficiency*2		≧90% at max. power						
Slew Rate*3	Rise Time	≦60ms	≦25ms	≦35ms	≦35ms	≦45ms	≦90ms	≦90ms
	Fall Time (Full Load)	≦45ms	≦35ms	≦45ms	≦45ms	≦30ms	≦40ms	≦40ms
	Fall Time (No Load)	≦10s						
PROGRAMMING & MEASUREMENT								
Voltage Programming Accuracy		≦0.08% F.S.+100mV						
Voltage Measurement Accuracy		≦0.08%F.S. +100mV	≦0.08% F.S.+100mV			≦0.08% F.S.+150mV		
Voltage Resolution		100mV						
Current Programming Accuracy		≦0.4%F.S.+60mA						
Current Measurement Accuracy		≦0.4%F.S. +60mA	≦0.4% F.S.+60mA			≦1% F.S.+150mA		
Current Resolution		10mA						
GENERAL SPECS.								
Interfaces		Standard: RS-485/RS-232 (Modbus) & Analog Optional: Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB						
Remote sense compensation		≦5V						
Operating Temperature		0°C ~ 40°C						
Storage Temperature		-20°C ~ 70°C						
Protections		OVP、OCP、OPP、OTP、Vin OV、Vin UV、LDC OV Vin LV、Phase Fail、Fan Fail						
OVP Range		0~110% F.S.						
OCP Range		0~110% F.S.						
Dimension (HxWxD)		132 x 442 x 756 mm / 5.20 x 17.40 x 29.76 inches						
Weight		8kW: approx. 28 kg / 61.71 lbs 12kW: approx. 35 kg / 77.21lbs						

*1. Load changes from 0% to 100% under nominal AC input. *2. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change.
*3. Measured from 10% to 90% of the output voltage change - resistive load, typical.
* All specifications are subject to change without notice. ** Above specifications are under output voltage over 1% FS