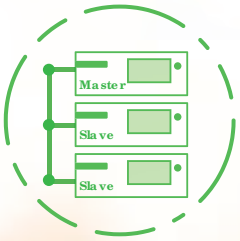
Programmable DC Power Supplies

High Output Voltage and High Power Density for Renewable Energy Applications

Preen's latest 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 19 models with 5kW, 10kW and 15kW maximum output powers and Auto Range models available to provide a higher output current at lower output voltage.



2000V Output Voltage

Wide Voltage Range, Ideal for Renewable Energy Applications

3 Times Auto Range Model

Lower Voltage, Higher Current

Parallel Connection

Fast Setting, Easy Wiring

NEWLY UPGRADE!

5-75kW

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Programmable DC Power Supply

RoHS Compliant CE

Preen's 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 19 models with 5kW, 10kW and 15kW 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 and GPIB interfaces. The built-in simulation function allows devices to be tested to voltage dropouts, spikes and other repetitive testing for voltage and current.

Product Features

- Output Current: 135 A or 0~675A (with 5 units parallel operation).
- Wide range of input voltage: 187~264Vac (1 or 3 phase) or 340~460V (3 phase 4 wires Y connection)
- Easy master/slave parallel operation.
- Capable of simulating all kinds of load testing conditions: step or consecutive voltage variation can be set via STEP & Gradual function.
- Complimentary remote control software available.
- CE and RoHS certified.
- Complete protection features including OVP, OCP, OPP, input OVP/UVP and OTP.
- Optional I-V curve function for Solar Array Simulation (built-in EN50530 mathematical formula).
- I-V curve remote control software (opt.).

Output Power

5kW/ 10kW/ 15kW

Interfaces

Standard: RS-232, RS-485, Analog

Option: Ethernet, USB, GPIB

Applications

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

QR Code

Product Info.

Product Video

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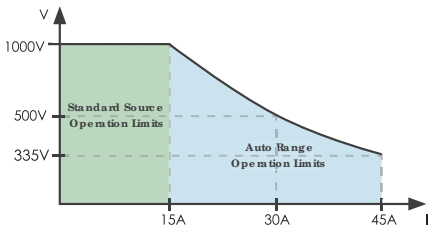
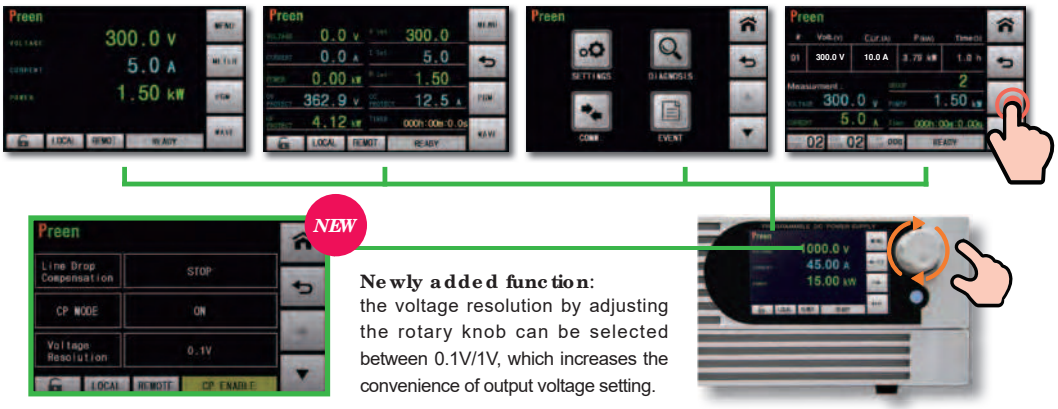
Auto Range Models



ADG-L-1000-45-15

Auto range feature 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



Newly added function: the voltage resolution by adjusting the rotary knob can be selected between 0.1V/1V, which increases the convenience of output voltage setting.

The ADG-L series equips 5" touch screen and rotary knob to provide intuitive display and easy-to-use control. 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.

Complimentary Control Software and Various Interfaces

The ADG-L series can be controlled via the Preen Program to configure sophisticated sequencesd, 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.

High Power Density: 15kW in 3U

15kW 30kW

Employing PWM technology and DSP-based control , Preen's ADG-L series DC power supply has 15kW available only in 3U package , and with parallel configuration, 30kW only has 6U height.

The rack-mount enclosure is designed to accommodate a wide range of applications , especially for automatic test systems and integrations.

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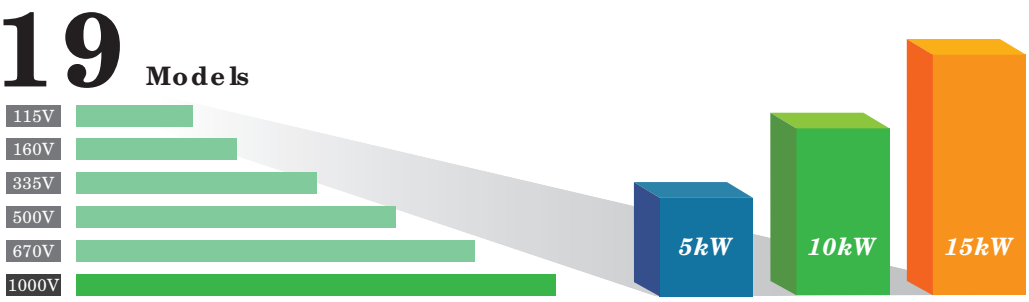
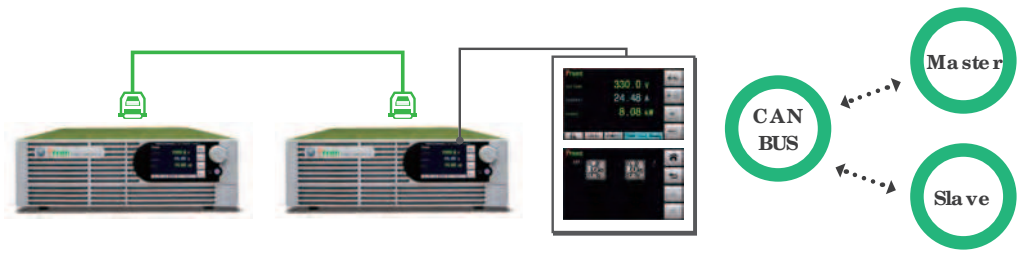
Wide Voltage and Current Range



Preen's ADG-L series has 19 different models with three output power levels, 5kW, 10kW and 15kW. 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.

Master/Slave Parallel Operation



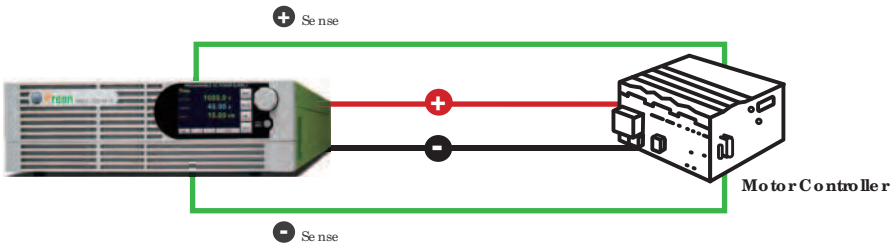
Through a simple and fast setup, the ADG-L series can generate higher power by connecting identical models in a master/slave parallel operation. Users only need to control the master unit for multiple units' setup and readbacks. The master unit automatically calculates the parameters and downloads data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

Screen Lock Password Function

Mis-touch Prevention

In order to prevent the operator from changing the set parameters by mistake, the new Screen Lock Password function is added on ADG-L series, so that the operator can only perform the output of the device,and only authorized personnel has the password to unlock the screen and edit parameters.

Remote Sensing



In many laboratories and factories, the DC power supply is located in a certain distance away from the DUT, and sometimes it causes voltage drop due to the resistance of the wires. The ADG-L's remote sensing function is able to compensate voltage drops and provide a stable output voltage.

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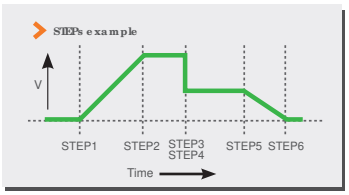
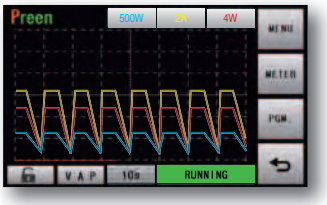
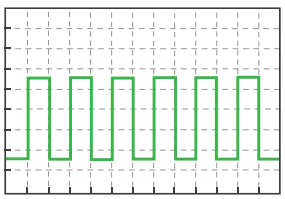
Programming Sequences and Simulations



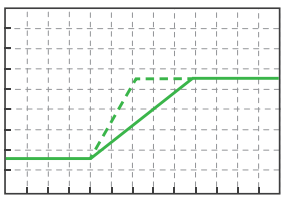
Program Setting Page



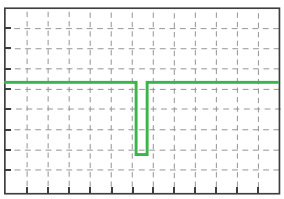
Wave Page



DC Pulse



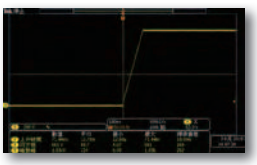
Slew Rate Control



Voltage Sag

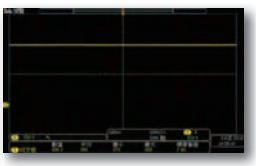
The built-in programming function of the ADG-L series has 99 STEPs for each of the 5 GROUPs. Users can set each STEP's output voltage, output current and time to generate consecutive voltage/current changes or set different rise/fall time. This built-in function and the ADG-L's control software allow 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.

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' 10kW and 15kW models offer more than two ways of input connections. For example, the 10kW 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.

Reverse Current Protection Module (opt.)

ADG-L series has optional Reverse Current Protection Module. When the DUT generates the reverse energy flowing back to the output of ADG-L, it can effectively block the reverse current to protect ADG-L from possible damages.

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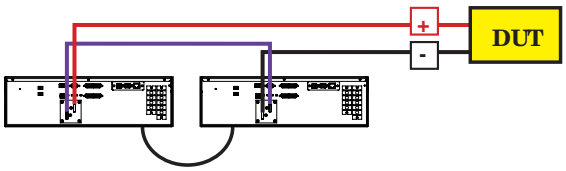
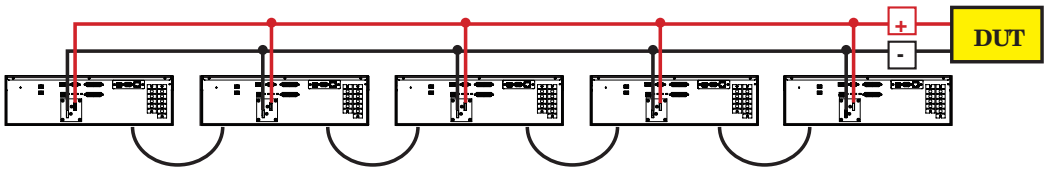
Multiple Connections

Series connection (Max. 2 units)



Parallel connection (Max. 5 units)



The single unit power of ADG-L series can reach up to 15kW, and can be expanded to 75kW through parallel connection, or can output up to 2000V through series connection. Each unit can be set as Master or Slave. The user can freely combine ADG-L series according to the load test requirements, thereby increases flexibility of the application.

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 reducing 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.

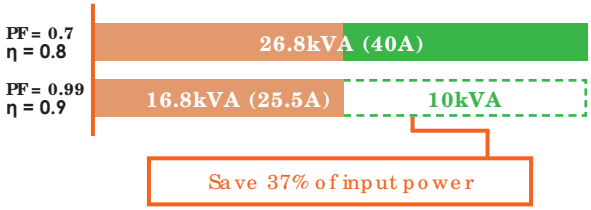
04 Save more energy and lower carbon footprint for better environment.

05 The ADG-L series (with PFC) v.s. Conventional DC Sources (without PFC)

PF up to 0.99

Input Power (Apparent Power) Comparison

PF= 0.99 vs. PF= 0.7



For a 15kW 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 37% for energy saving.

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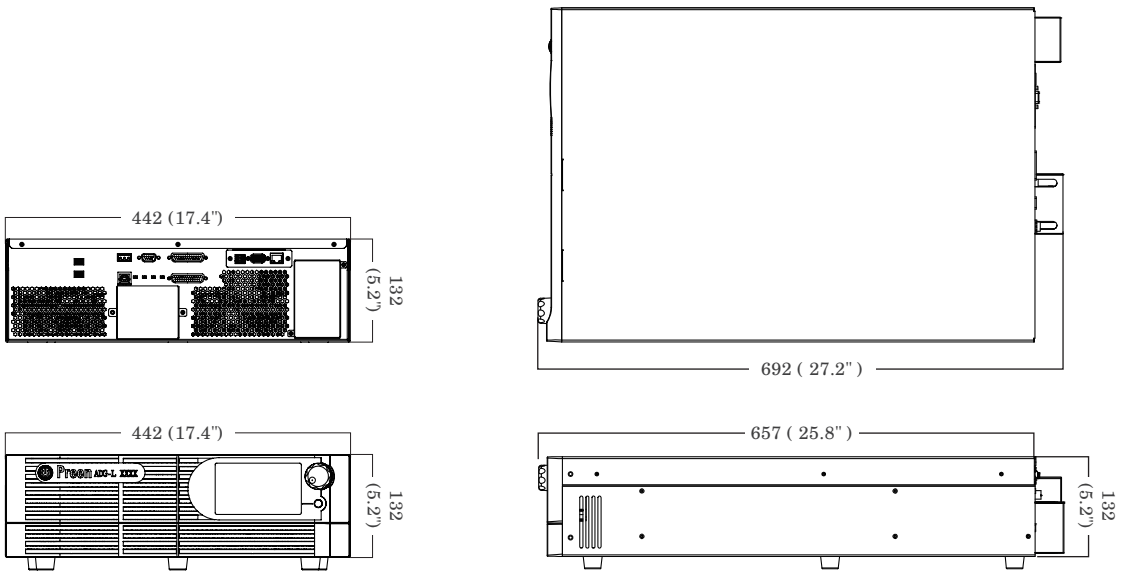
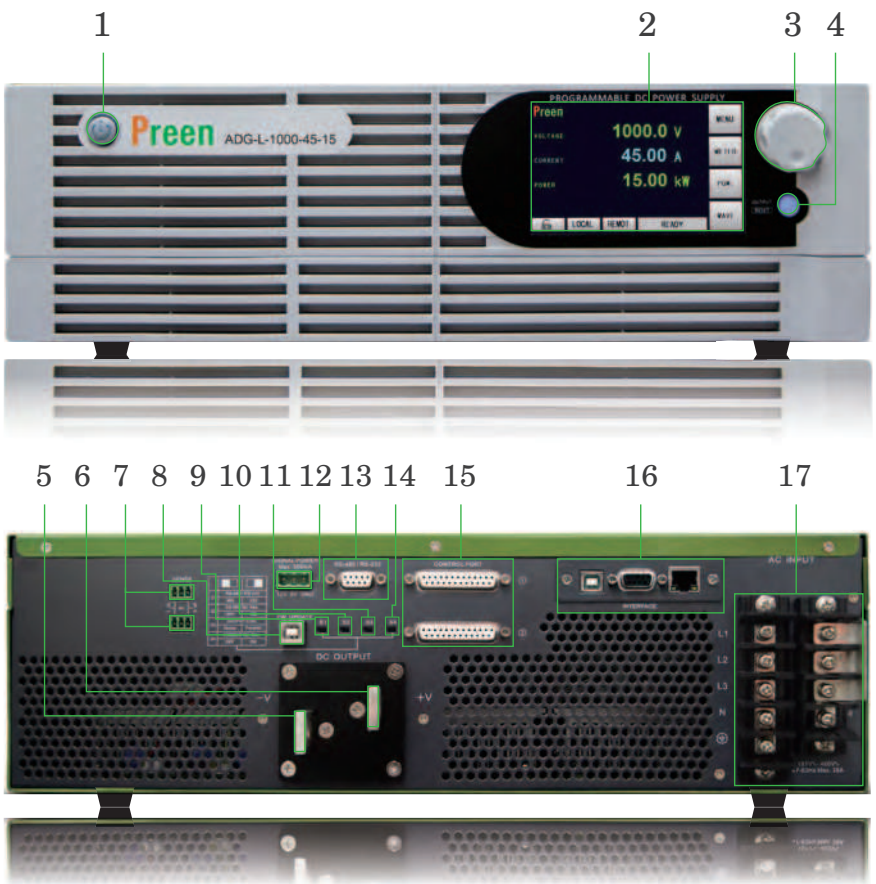
Dimensions

Unit : mm (inch)



PANEL DESCRIPTION

1. Power Switch
2. Touch Screen
3. Rotary Knob
4. Output / Reset Button
5. DC negative output terminal
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/RS-232/RS-485(SCPI)/ Ethernet/GPIB
17. Input terminals



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ORDERING INFORMATION

ADG-L Series (5kW - 15kW)

Model Number	Description
ADG-L-115-45	Programmable DC Power Supply (5kW/115V/45A)
ADG-L-160-32	Programmable DC Power Supply (5kW/160V/32A)
ADG-L-335-15	Programmable DC Power Supply (5kW/335V/15A)
ADG-L-335-45-5	Programmable DC Power Supply (5kW/335V/45A) (Auto Range Model)
ADG-L-115-90	Programmable DC Power Supply (10kW/115V/90A)
ADG-L-160-63	Programmable DC Power Supply (10kW/160V/63A)
ADG-L-335-30	Programmable DC Power Supply (10kW/335V/30A)
ADG-L-335-90-10	Programmable DC Power Supply (10kW/335V/90A) (Auto Range Model)
ADG-L-500-20	Programmable DC Power Supply (10kW/500V/20A)
ADG-L-670-15	Programmable DC Power Supply (10kW/670V/15A)
ADG-L-670-45-10	Programmable DC Power Supply (10kW/670V/45A) (Auto Range Model)
ADG-L-115-135	Programmable DC Power Supply (15kW/115V/135A)
ADG-L-160-94	Programmable DC Power Supply (15kW/160V/94A)
ADG-L-335-45	Programmable DC Power Supply (15kW/335V/45A)
ADG-L-335-135-15	Programmable DC Power Supply (15kW/335V/135A) (Auto Range Model)
ADG-L-500-30	Programmable DC Power Supply (15kW/500V/30A)
ADG-L-670-23	Programmable DC Power Supply (15kW/670V/23A)
ADG-L-1000-15	Programmable DC Power Supply (15kW/1000V/15A)
ADG-L-1000-45-15	Programmable DC Power Supply (15kW/1000V/45A) (Auto Range Model)
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
ADG-L-014	Reverse Current Protection Module
ADG-L-015	I-V Curve Simulation and Remote Control Software

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SPECIFICATIONS

ADG-L Series (5kW - 10kW)

Model		ADG-L-115-45	ADG-L-160-32	ADG-L-335-15	ADG-L-335-45-5	ADG-L-115-90	ADG-L-160-63	ADG-L-335-30	ADG-L-335-90-10	ADG-L-500-20
Output Power		5kW	5kW	5kW	5kW	10kW	10kW	10kW	10kW	10kW
INPUT										
Input Voltage		1Ø 2W+G 187-264 Vac				1Ø 2W+G 187-264 Vac 3Ø3W+G 187-264 Vac 3Ø4W+G 340-460 Vac				
Input Current		30A				1Ø : 60A 3ØΔ: 35A 3ØY : 19A				
Input Frequency		47 Hz - 63 Hz				47 Hz - 63 Hz				
Power Factor		≧ 0.99 at max. power				≧ 0.99 at max. power				
OUTPUT										
Voltage		0~115V	0~160V	0~335V	0~335V	0~115V	0~160V	0~335V	0~335V	0~500V
Current		0~45A	0~32A	0~15A	0~45A	0~90A	0~63A	0~30A	0~90A	0~20A
Voltage Ripple (RMS)		≦ 0.25% F.S.	≦ 0.2% F.S.	≦ 0.08% F.S.	≦ 0.08% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.15% F.S.	≦ 0.15% F.S.	≦ 0.08% F.S.
Voltage Ripple (peak to peak)		≦ 1.6% F.S.	≦ 1.6% F.S.	≦ 0.8% F.S.	≦ 0.8% F.S.	≦ 2.5% F.S.	≦ 2.5% F.S.	≦ 1.6% F.S.	≦ 1.6% F.S.	≦ 0.8% F.S.
Voltage Line Regulation		≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.03% F.S.
Voltage Load Regulation*1		≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.05% F.S.
Current Ripple (RMS)		≦ 0.25% F.S.	≦ 0.2% F.S.	≦ 0.15% F.S.	≦ 0.15% F.S.	≦ 0.3% F.S.	≦ 0.2% F.S.	≦ 0.3% F.S.	≦ 0.2% F.S.	≦ 0.5% F.S.
Current Line Regulation		≦ 0.03% F.S.	≦ 0.03% F.S.	≦ 0.03% F.S.	≦ 0.03% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.05% F.S. +50mA
Current Load Regulation		≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.15% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.25% F.S.
Slew Rate*3	Rise Time	≦ 25ms	≦ 25ms	≦ 30ms	≦ 30mS	≦ 25ms	≦ 25ms	≦ 30ms	≦ 30ms	≦ 55ms
	Fall Time (Full Load)	≦ 30ms	≦ 30ms	≦ 45ms	≦ 45mS	≦ 30ms	≦ 30ms	≦ 45ms	≦ 45ms	≦ 45ms
	Fall Time (No Load)	≦ 3s				≦ 3s				
Transient Response*2		≦ 5ms				≦ 5ms				
Programming & Measurement										
Voltage Programming Accuracy		≦ 0.08% F.S. +100mV				≦ 0.08% F.S. +100mV				
Voltage Measurement Accuracy		≦ 0.08% F.S. +100mV				≦ 0.08% F.S. +100mV				
Voltage Resolution		100mV				100mV				
Current Programming Accuracy		≦ 0.3% F.S. +60mA				≦ 0.3% F.S. +60mA				
Current Measurement Accuracy		≦ 0.2% F.S. +60mA				≦ 0.3% F.S. +60mA				
Current Resolution		10mA				10mA				
Frequency Programming Accuracy		≦ 0.4% F.S.				≦ 0.4% F.S.				
Frequency Measurement Accuracy		≦ 0.4% F.S.				≦ 0.4% F.S.				
Frequency Resolution		0.01kW				0.01kW				
General Specs.										
Efficiency		≧ 90% at max. power				≧ 90% at max. power				
Interfaces		Standard: RS-485/RS-232 (Modbus) & Analog Option : Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB				Standard: RS-485/RS-232 (Modbus) & Analog Option : Ethernet/USB/RS-485/RS-232 (SCPI) or GPIB				
Remote sense compensation		≦ 5V				≦ 5V				
Operating Temperature		0° C ~ 40° C				0° C ~ 40° C				
Storage Temperature		-20° C ~ 70° C				-20° C ~ 70° C				
Protections		OVP、OCP、OPP、OTP、Vin OV、Vin Unbalance 、LDC OV								
OVP Range		0~110% F.S.				0~110% F.S.				
OCP Range		0~110% F.S.				0~110% F.S.				
OPP Range		0~110% F.S.				0~110% F.S.				
Dimension (HxWxD)		132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch				132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch				
Weight		approx. 19.1kg / 42.1 lbs				approx. 26.5kg / 58.42 lbs				

*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.

** Above specifications are under output voltage over 1% F.S.

* All specifications are subject to change without notice.

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SPECIFICATIONS

ADG-L Series (10kW - 15kW)

Model		ADG-L-670-15	ADG-L-670-45-10	ADG-L-115-135	ADG-L-160-94	ADG-L-335-45	ADG-L-335-135-15	ADG-L-500-30	ADG-L-670-23	ADG-L-1000-15	ADG-L-1000-45-15
Output Power		10kW	10kW	15kW	15kW	15kW	15kW	15kW	15kW	15kW	15kW
INPUT											
Input Voltage		1Ø 2W+G 187-264 Vac 3Ø3W+G 187-264 Vac 3Ø4W+G 340-460 Vac		1Ø 2W+G 187-264 Vac 3Ø3W+G 187-264 Vac 3Ø4W+G 340-460 Vac							
Input Current		1Ø : 60A 3ØΔ: 35A 3ØY : 19A		1Ø : 90A 3ØΔ: 52A 3ØY : 30A							
Input Frequency		47 Hz - 63 Hz		47 Hz - 63 Hz							
Power Factor		≧ 0.99 at max. power		≧ 0.99 at max. power							
OUTPUT											
Voltage		0~670V	0~670V	0~115V	0~160V	0~335V	0~335V	0~500V	0~670V	0~1000V	0~1000V
Current		0~15A	0~45A	0~135A	0~94A	0~45A	0~135A	0~30A	0~23A	0~15A	0~45A
Voltage Ripple (RMS)		≦ 0.08% F.S.	≦ 0.08% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.15% F.S.	≦ 0.15% F.S.	≦ 0.15% F.S.	≦ 0.15% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.
Voltage Ripple (peak to peak)		≦ 0.8% F.S.	≦ 0.8% F.S.	≦ 1.6% F.S.	≦ 1.6% F.S.	≦ 1% F.S.	≦ 1% F.S.	≦ 0.8% F.S.	≦ 0.8% F.S.	≦ 0.5% F.S.	≦ 0.5% F.S.
Voltage Line Regulation		≦ 0.03% F.S.		≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.
Voltage Load Regulation*1		≦ 0.05% F.S.	≦ 0.05% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.
Current Ripple (RMS)		≦ 0.5% F.S.	≦ 0.25% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.15% F.S.	≦ 0.1% F.S.	≦ 0.25% F.S.	≦ 0.25% F.S.	≦ 0.5% F.S.	≦ 0.25% F.S.
Current Line Regulation		≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S. +50mA	≦ 0.05% F.S.	≦ 0.05% F.S.
Current Line Regulation		≦ 0.25% F.S.	≦ 0.25% F.S.	≦ 0.1% F.S.	≦ 0.1% F.S.	≦ 0.2% F.S.	≦ 0.2% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.	≦ 0.3% F.S.
Slew Rate*3	Rise Time	≦ 60ms	≦ 60ms	≦ 25ms	≦ 30ms	≦ 30ms	≦ 30ms	≦ 55ms	≦ 60ms	≦ 90ms	≦ 90ms
	Fall Time (Full Load)	≦ 45ms	≦ 45ms	≦ 30ms	≦ 45ms	≦ 45ms	≦ 45ms	≦ 45ms	≦ 45ms	≦ 40ms	≦ 40ms
	Fall Time (No Load)	≦ 3s		≦ 3s							
Transient Response*2		≦ 5ms		≦ 5ms							
Programming & Measurement											
Voltage Programming Accuracy		≦ 0.08% F.S. +100mV		≦ 0.08% F.S. +100mV							
Voltage Measurement Accuracy		≦ 0.08% F.S. +100mV		≦ 0.08% F.S. +100mV							
Voltage Resolution		100mV		100mV							
Current Programming Accuracy		≦ 0.3% F.S. +60mA		≦ 0.4% F.S. +60mA							
Current Measurement Accuracy		≦ 0.3% F.S. +60mA		≦ 0.4% F.S. +60mA							
Current Resolution		10mA		10mA							
Frequency Programming Accuracy		≦ 0.4% F.S.		≦ 0.4% F.S.							
Frequency Measurement Accuracy		≦ 0.4% F.S.		≦ 0.4% F.S.							
Frequency Resolution		0.01kW		0.01kW							
General Specs.											
Efficiency		≧ 90% at max. power		≧ 90% at max. power							
Interfaces		Standard: RS-485/RS-232 (Modbus) & Analog Option : 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 Unbalance 、LDC OV									
OVP Range		0~110% F.S.									
OCP Range		0~110% F.S.									
OPP Range		0~110% F.S.									
Dimension (HxWxD)		132 x 442 x 692 mm / 5.2 x 17.4 x 27.2 inch									
Weight		approx. 26.5kg / 58.42lbs		approx. 31.8kg / 70.1lbs							

*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.
** Above specifications are under output voltage over 1% F.S.
* All specifications are subject to change without notice.

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