

ADG-L Series

4kW/8kW/12kW

CE



Programmable DC
Power Supply

INTEPRO
SYSTEMS

THE POWER TEST EXPERTS

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Preen[®]

NEW

Programmable DC Power Supplies

High Output Voltage and High Power Density for Renewable Energy Applications

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 Auto Range models available to provide a higher output current at lower output voltage.

Up to 1000V Output

Wide Range of Output Voltage for Renewable Applications

Auto Range Available

Deliver Higher Current at Lower Output Voltage

Intuitive Local & Remote Control

Easy-to-Use Touch Screen and User-Friendly Remote Control Software

ADG-L series **4~60kW**
Parallel Connection up to 5units



ADG-L Series

RoHS
Compliant



Output Power
4kW/8kW/12kW

Interfaces

Standard

Analog

RS-232

RS-485

Option

GPIB

Ethernet

USB

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

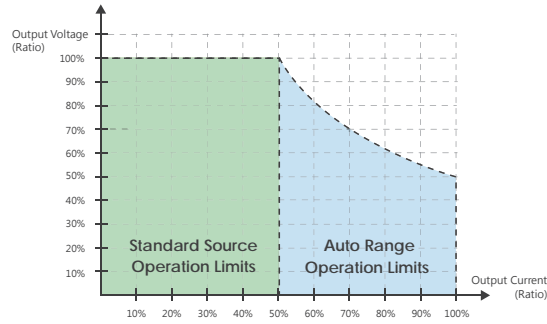
ADG-L Series Programmable DC Power Supply

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.

- Output Power: 4kW, 8kW and 12kW.
- Output Current: 0~75A or 0~150A (with parallel operation).
- Output Voltage: up to 2000V(with series operation).
- 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 onnection)
- 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.
- Complimentary remote control software available.
- CE and RoHS certified.
- Complete protection features including OVP, OCP, OPP, input OVP/ UVP and OTP.

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 equips 5" touch screen and rotary knob to provide intuitive and easy-to-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.

Complimentary Control Software and Various Complimentary Interfaces

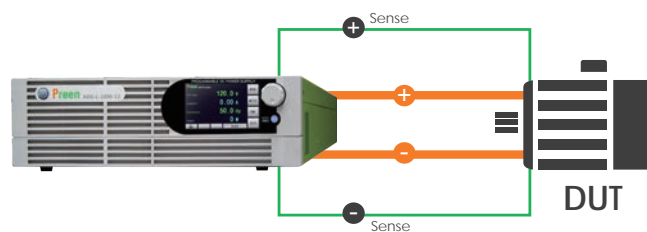


The ADG-L series can be controlled via the Preen Program to configure sophisticated sequences, save/recall STEPs, and generate test result reports. This intuitive control software makes remote programming no longer a difficult task.

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.

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.

Wide Voltage and Current Range

14 Models



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.

Master/Slave Parallel Operation

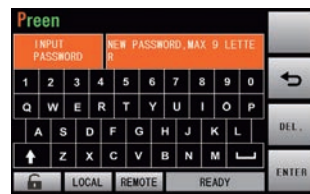
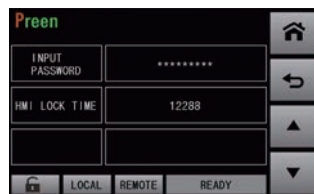


Through a simple and fast setup, the ADG-L series can generate higher power by connecting identical models in a master/slave parallel operation. Users only need to control the master unit for multiple units' setup and readbacks. The master unit automatically calculates the parameters and downloads data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

Device Protection

The ADG-L series has multiple levels of protection to safeguard your 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.

Screen Lock Password Function



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.

Multiple Ways of AC Input Connection

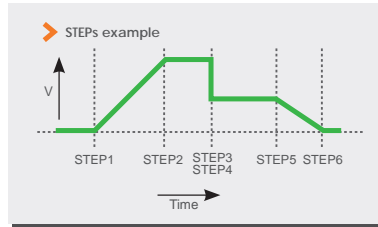
Conventional DC power supplies have only one type of AC input range and one way of input wirings. Different from most of high power DC power supply, the ADG-L series' 8kW and 12kW models offer more than two ways of input connections. For example, the 8kW models can have single phase or three phase input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

Error Log for Easy Analysis

#	Date/Time	Error Type
001	2018/02/13 12:28:39	OVP
002	2018/02/14 12:47:34	V.in OV
003	2018/02/14 12:51:30	V.in OV

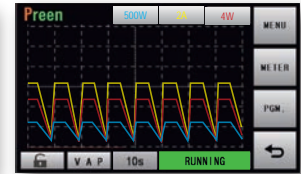
The EVENT function of the ADG-L series provides an error log to record critical errors up to 999 items. The log includes date, time and error types to help users better analyze fault conditions.

Programming Sequences and Simulations

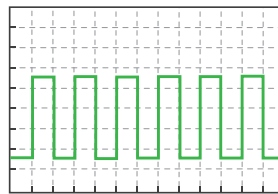


#	Volt. (V)	Cur. (A)	Time	T-scale
01	330.0 V	10.00 A	2.00 s	SECON
02	330.0 V	10.00 A	5.00 s	SECON
03	10.0 V	10.00 A	2.00 s	SECON

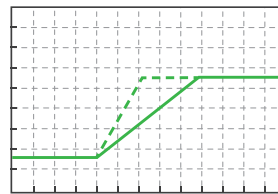
Program Setting Page



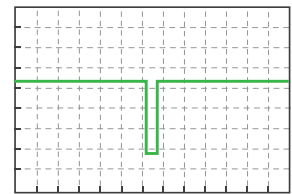
Wave Page



DC Pulse



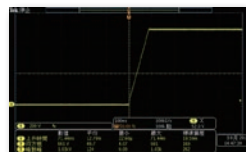
Slew Rate Control



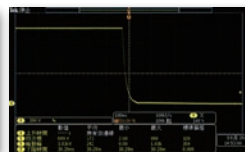
Voltage Sag

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.

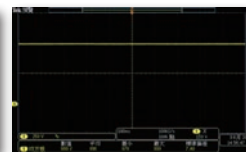
Industry-leading Performance



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

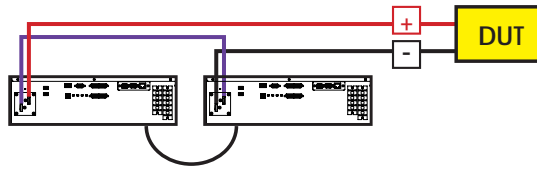


24kW

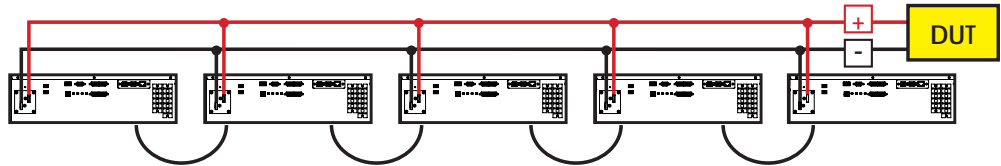
Employing PWM technology and DSP-based control, Preen's ADG-L series DC power supply has 12kW available only in 3U package, and with parallel configuration, 24kW only has 6U height. The rack-mount enclosure is designed to accommodate a wide range of applications, especially for automatic test systems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

Multiple Connections

Series connection (Max. 2 units)

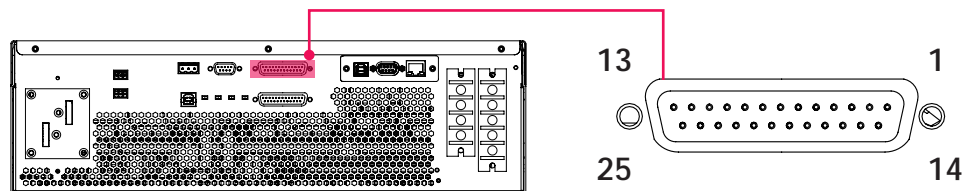


Parallel connection (Max. 5 units)



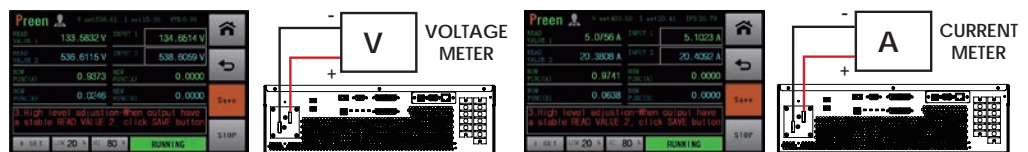
The single unit power of ADG-L series can reach up to 12kW, and can be expanded to 60kW through parallel connection, or can output up to 2000V through series connection. Each unit can be set as Master or Slave. The user can freely combine ADG-L series according to the load test requirements, thereby increasing the flexibility of the application.

Analog Control (V/I)



Pin	Name	Description
1	Vset-OVP	Analog control input: 0-5 Vdc= 0-110% of full-scale output voltage
6	Vset	Analog control input: 0-5Vdc= 0-100% of full-scale output voltage.
14	Iset-OCP	Analog control input: 0-5 Vdc= 0-110% of full-scale output current.
15	PS-ON	Control signal for the device ON/OFF: a logic-high state (5V) is to turn ON the device; a logic-low state (0V) is to turn OFF the device.
20	Iset	Analog control input: 0-5Vdc= 0-100% of full-scale output current.

HMI Output Calibration Function



Voltage calibration: open circuit

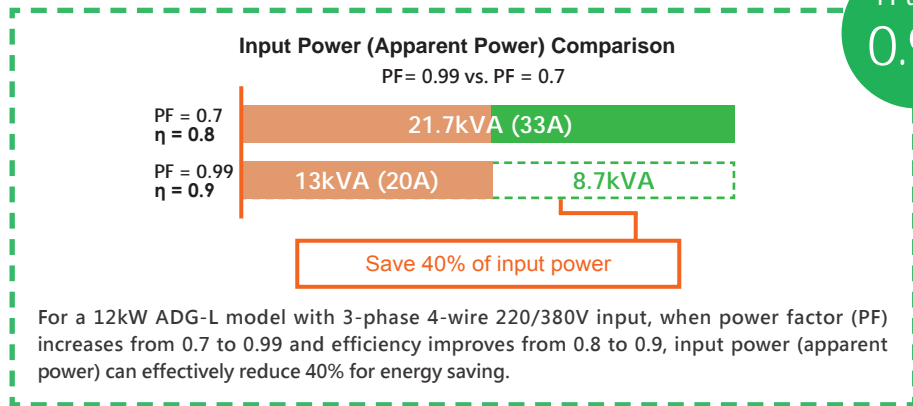
Current calibration: short circuit

ADG-L series can perform output calibration via HMI, simple connection of voltmeter / current meter and instructions on the screen, thus improving the convenience of calibration.

0.99 Input Power Factor

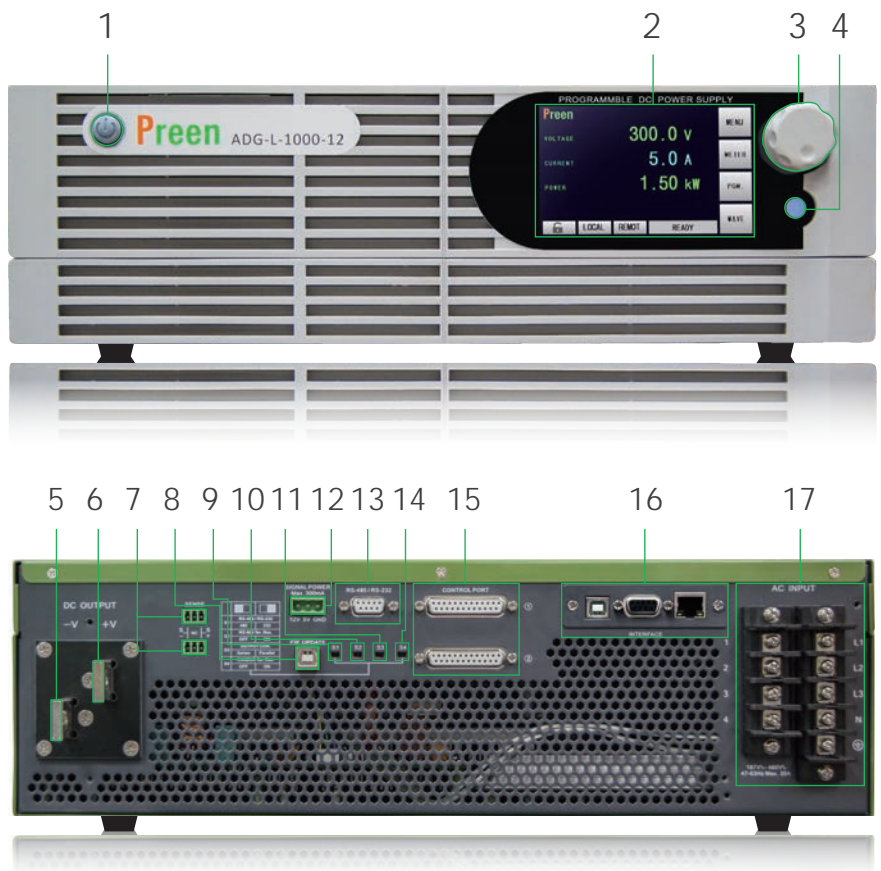
The ADG-L series is equipped with active Power Factor Corrector (PFC) to enhance input PF up to industry-leading 0.99, which helps reduce the interference on the grid.

- 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)



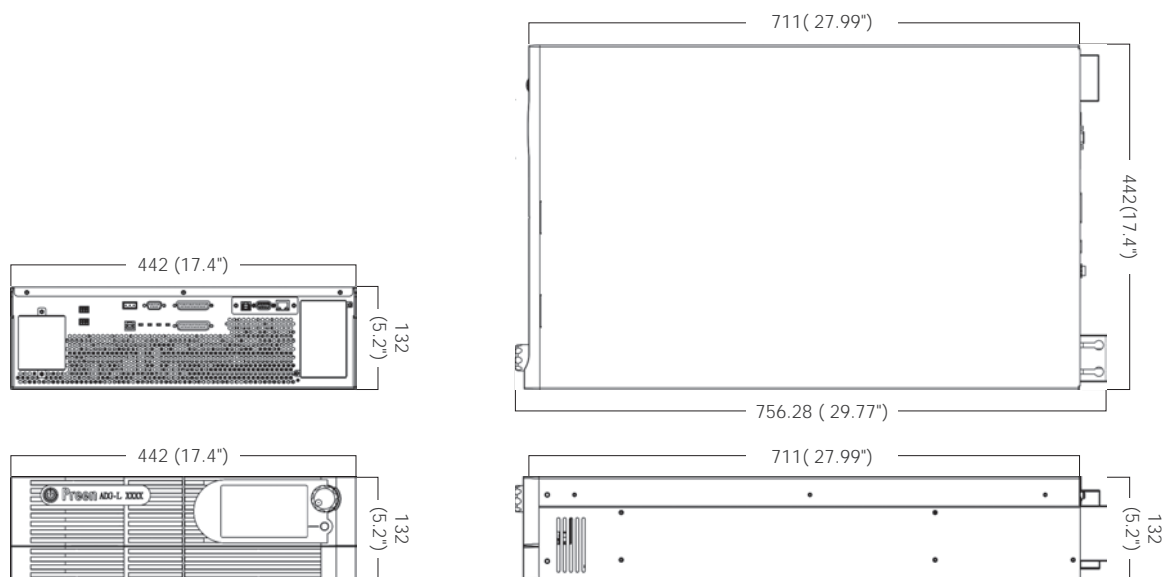
PANEL DESCRIPTION

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 resistor switch
10. Serial and parallel switch
11. RS-485 terminal resistor 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(SCP)/
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 Δ Connection Power Cord 3m
ADG-L-006	Three-Phase Input Δ 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 DC Output (4kW - 8kW)

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			1Ø2W+G 187-264 Vac 3Ø3W+G 187-264 Vac 3Ø4W+G 340-460 Vac			
Input Current	24A			1Ø : 48A 3Ø : 42A			
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)	≤ 0.3% F.S.	≤ 0.15% F.S.	≤ 0.15% 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.	≤ 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	≤ 0.1% F.S.			≤ 0.15% F.S.			≤ 0.03% F.S.
Voltage Load Regulation ¹	≤ 0.3% F.S.	≤ 0.1% F.S.	≤ 0.3% F.S.	≤ 0.4% F.S.	≤ 0.2% F.S.	≤ 0.4% F.S.	≤ 0.05% F.S.
Current Ripple (RMS)	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.5% F.S.
Current Line Regulation	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.1% F.S.	≤ 0.2% F.S.	≤ 0.1% F.S.	≤ 0.05% F.S. +50mA
Current Load Regulation	≤ 0.3% F.S.	≤ 0.5% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.2% F.S.	≤ 0.25% F.S.
Transient Response ²	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms
Efficiency	≥ 90% at max. power						
Slew Rate ³	Rise Time	≤ 25ms	≤ 35ms	≤ 35ms	≤ 25ms	≤ 40ms	≤ 60ms
	Fall Time (Full Load)	≤ 30ms	≤ 40ms	≤ 40ms	≤ 35ms	≤ 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. +100 mV
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. +60 mA
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. 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. 28kg / 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 DC Output (8kW - 12kW)

Model	ADG-L-660-25-8	ADG-L-160-75	ADG-L-330-36	ADG-L-330-75-12	ADG-L-500-25	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 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 : 48A 3Ø : 42A		3Ø : 42A				
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.	≤ 0.3% 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.	≤ 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.	≤ 0.1% F.S.	≤ 0.25% F.S.	≤ 0.25% F.S.	≤ 0.1% F.S.	≤ 0.2% F.S.	≤ 0.2% F.S.
Voltage Load Regulation ¹	≤ 0.05% F.S.	≤ 0.4% F.S.	≤ 0.2% F.S.	≤ 0.4% F.S.	≤ 0.2% F.S.	≤ 0.1% F.S.	≤ 0.2% 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.	≤ 0.2% F.S.	≤ 0.2% F.S.	≤ 0.3% F.S.	≤ 0.6% F.S.	≤ 0.6% F.S.
Transient Response ²	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms	≤ 5ms
Efficiency	≤ 90% at max. power						
Slew Rate ³	Rise Time	≤ 60ms	≤ 25ms	≤ 35ms	≤ 35ms	≤ 45ms	≤ 90ms
	Fall Time (Full Load)	≤ 45ms	≤ 35ms	≤ 45ms	≤ 45ms	≤ 30ms	≤ 40ms
	Fall Time (No Load)	≤ 10s				≤ 30s	
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 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 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. 28kg / 61.7lbs 12kW: approx. 35kg / 77.2lbs						

¹1. Load changes from 0% to 100% under nominal AC input

²2. Under nominal AC input, recovers to ±1% of full-scale output voltage for a 50% to 100% or 100% to 50% load change

³3. 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

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