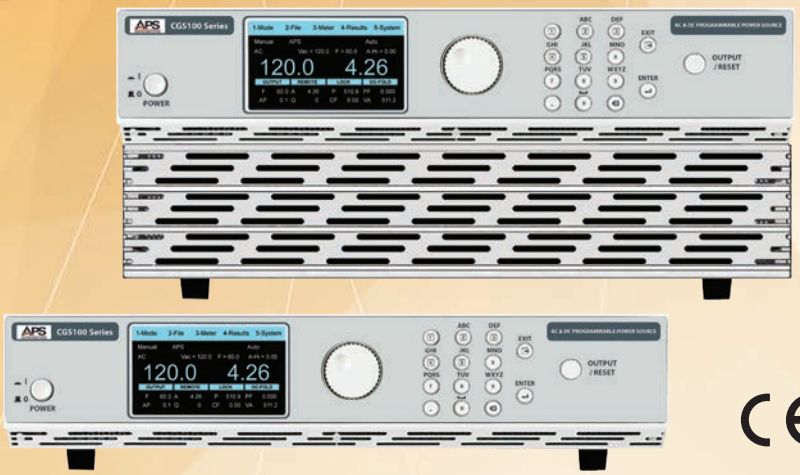
CGS 100 Series

PPST SOLUTIONS

Single Phase AC or DC Power Testing Simplified...



AC Power

DC Power

CGS105	CGS112	CGS120	CGS140
500 VA	1250 VA	2000 VA	4000 VA
300 W	750 W	1200 W	2400 W
AC Mode: 40 - 500 Hz 0 - 155 V_{LN} / 0 - 310 V_{LN}			
DC Mode: 0 - 210Vdc / 0 - 420Vdc			

CE

USB UNIVERSAL SERIAL BUS · RS232 · LAN · GPIB

Look no further for cost effective single phase AC or DC power test solutions than the compact CGS100 Series programmable power sources. Designed to perform a wide range of AC and/or DC tests with good performance and excellent reliability, the APS CGS100 units are industry work horses.

Available in four power levels of 500 VA, 1250 VA, 2000VA or 4000 VA, a wide range of commercial, industrial and aviation type equipment testing is covered. The CGS105, CGS112 & CGS120 can be operated from 100Vac to 240Vac input power. The CGS140 can be operated from 200Vac to 240Vac power.

CGS100 Series Features:

- Choice of four power Levels to fit your Requirements
- AC and DC Mode Output Capability
- Low distortion Sine wave output in AC mode
- Wide AC Frequency Range of 40 Hz to 500 Hz covers both industrial/commercial and avionics/defense applications
- Extensive List of AC and DC Measurements
- Ten Memory Locations for settings and test sequences
- Standard USB, LAN Remote Control, Analog and PLC Interface
- Optional GPIB or RS232 Interface available
- Universal Single Phase AC Input on models up to 2kVA
- CE Mark

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Worldwide Supplier of Power Conversion Equipment

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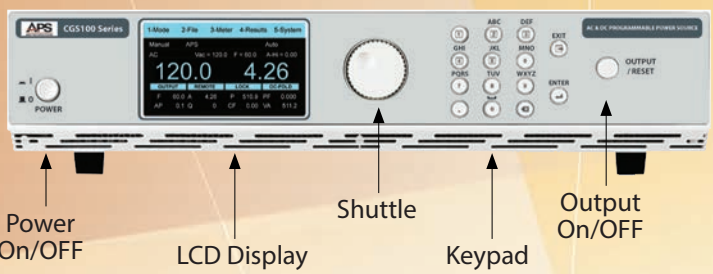
SIMPLIFY TESTING OF AC OR DC PRODUCTS

Testing both AC and DC powered products for performance to specifications and proper operation has never been easier or more cost effective than with the CGS100 Series programmable power sources. These compact rack mountable units make it easy to test single phase AC or DC products powered products, all with the same instrument.

Available in several power levels, the CGS100 units feature an intuitive menu driven user interface with a large back-lit LCD display that shows settings and measurements.

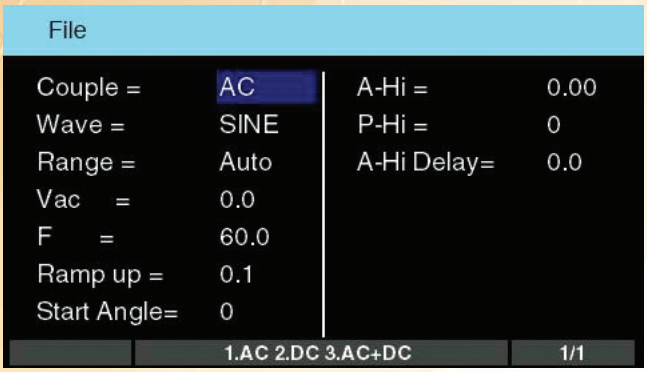
Two modes of operation are available to the user:

- **Manual Mode** - Allows manual settings of all output parameters
- **File Mode** - Allows sequencing through up to 9 test steps, each having distinct output settings and measurement pass/fail test limits

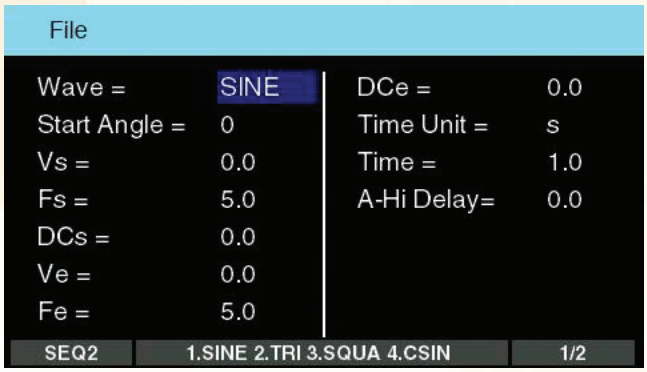


File mode settings can be stored in the 10 available non-volatile memory locations for quick recall. Each program memory can be assigned an name for easy reference to a test requirement or EUT. For quick setups of lab work, Manual mode is an easy way to change output values and observe measurement data without any limit testing.

Manual Mode or Pass / Fail Limit Testing



Manual Mode Setup Screen



File Mode Setup Screen

Manual Mode allows setting individual output parameter settings and limits. By setting limits on voltage and frequency, accidental output settings that could damage an EUT can be avoided. When the Test Output button is pushed, power is applied to the EUT and the LCD screen displays all measurement values. Large characters are used for Voltage and one user selected measurement. The bottom area of the display always shows up to eight measurements.

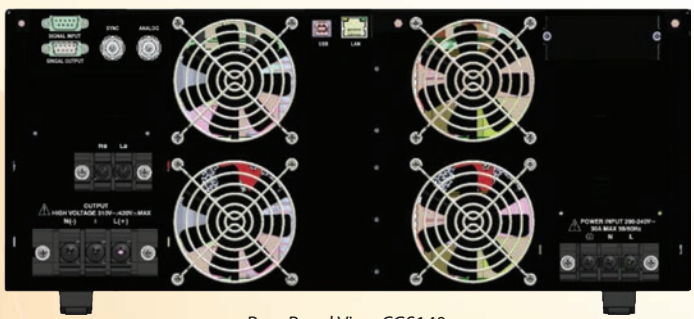
File Mode allows a sequence of up to nine timed test steps to be applied to the EUT. At each step, measurements are taken and compared to pre-set pass/fail limits. If all selected measurements pass, the output proceeds to the next test step once the programmed dwell time has expired. If not, an alarm sounds and the power to the EUT is cut. This mode is ideal for production test and pass fail testing without the need to develop test software.

Power Output Connections

All load connections are made at the rear panel. Both AC or DC output are available on the same output terminal strip. An output safety cover is provided.

Rear Panel View CGS105

Rear Panel View CGS112 & CGS120



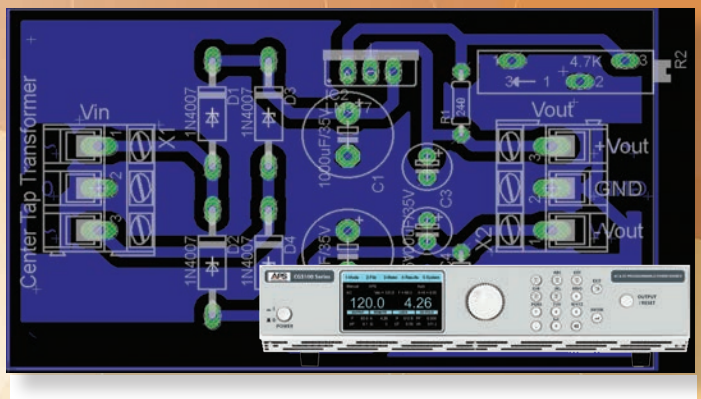
Rear Panel View CGS140

APPLICATIONS

Manufacturing

The rugged construction and optimized forced air cooling construction of the CGS100 Series makes these power sources well suited for harsh manufacturing environments. Optional front-to-back airflow reduces heat stress on the instrument and maintains reliable performance over time.
The standard USB and LAN remote control interface combined with standard SCPI programming command syntax allow easy integration of the CGS100 power sources in automated test systems (ATE).
A choice of power levels at different price points allows for managing production costs while allowing seamless power upgrades over time as needed.

Product Development



The simple front panel operation of the CGS100 Series power source allows for quick setup and adjustment of voltage, frequency and current and immediate measurement read back of up to ten AC and DC parameters like current, active power, apparent power and more.
Testing of prototypes designed to operate from AC grid voltages found around the world is made easy using the File mode feature that allows application of multiple voltage and frequency combinations.

Quality Control & Service

Test purchased or manufactured components like inductors, transformers, capacitor for performance to specifications. Validate current and power consumption as well as voltage margins. Use one of the remote control interfaces to collect and analyze data for quality monitoring purposes.
For equipment calibration and repair, the CGS100 power source provides a stable source of AC or DC power with programmable current limiting to prevent further damage to a equipment returned for repair. Also suitable to power equipment during calibration.

Avionics Power

For field or depot service of LRU[2] avionics equipment, the CGS100 provides a stable and precisely regulated 115Vac output at 400Hz with the ability to check for voltage and frequency tolerance immunity. Low noise and low voltage distortion of the AC sine wave output ensures minimal interference with the LRU[2] being services or tested.
For DC powered avionics equipment requiring 28Vdc or 270Vdc, the same CGS100 can be used in most cases.

Note 1: SCPI = Standard Commands for Programmable Instruments
Note 2: LRU = Line Replaceable Unit

Technical Specifications

MODEL		CGS105	CGS112	CGS120	CGS140
OUTPUT SPECIFICATIONS - AC MODE					
Power Rating		500 VA	1200 VA	2000 VA	4000 VA
AC Output Terminals		Rear Panel (L, N, G), Floating Neutral			
Voltage Ranges	Low / High	0 - 155 Vac / 0 - 310 Vac / Auto Range			
	Resolution	0.1 V			
	Accuracy	± (0.2% setting + 0.3 V)			±(0.2%+0.6 V)
Max. Current[1]	0-155V	5.0 A @ 100V	12.5 A @ 100V	20.0 A @ 100V	40.0 A @ 100V
	0-310V	2.5 A @ 200V	6.25 A @ 200V	10.0 A @ 200V	20.0 A @ 200V
Crest Factor		≥ 3 to 1			
Frequency	Range	DC, 40 - 500 Hz			
	Resolution	0.1 Hz @ 40.0 to 500.0 Hz			
	Accuracy	± 0.03% of setting			
Output waveform		Sinusoidal (AC Mode), DC (DC Mode)			
Start Phase	Range	0 - 359°			
	Resolution	1°			
Harmonic Distortion		< 0.3% @ 50/60Hz (Full Resistive Load)			
Line Regulation		± 0.1 V for a 10% Line Change			
Load Regulation		± 0.2V, < 1 sec response time			
Protection		Over Current, Short Circuit, Over Voltage, Under Voltage, Reverse Current, Over Temperature, Fan			

MODEL		CGS105	CGS112	CGS120	CGS140
MEASUREMENT SPECIFICATIONS - AC MODE					
Voltage Ranges	Low / High	0.0 - 155Vac / 0.0 - 310.0 Vac / Auto Range			
	Resolution	0.1 V			
	Accuracy > 5V	± (0.2% Rdg + 0.3V)			± (0.2% Rdg+0.6V)
Frequency	Range	0.0 - 500.0 Hz			
	Resolution	0.1 Hz			
	Accuracy	± 0.1 Hz			
Current RMS, DC	Range (L)	0.05 - 1.20A	0.05 - 5.00A		-
	(H)	1.00 - 6.25A	4.00-15.62A	4.00 - 25.00A	0.10-50.00A
	Resoln (L)	0.001 A			-
	(H)	0.01 A			
	Accuracy (L)	± (1.0% Rdg + 0.01A)			-
	(H)	± (0.5% Rdg + 0.08A)			± (0.5% Rdg + 0.12A)
Current Peak	Range	0.0 - 20.0 Apk	0.0 - 50.0 Apk	0.0 - 80.0 Apk	0.0 - 160.0 Apk
	Resolution	0.1 A			
	Accuracy	± (0.5% Rdg + 0.8A)			± (0.5% Rdg + 0.12A)
Crest Fact.	Range	0.00 - 10.00			
	Resolution	0.01			
Power	Range (L)	0.0 - 75.0 W	0.0 - 300 W		-
	(H)	60 - 625 W	240 - 1563 W	240 - 2500 W	0 - 5000 W
	Res. (L)	0.1 W			-
	(H)	1 W			
	Accuracy (L) (PF > 0.35)	±(1% Rdg + 1.0W)	±(2% Rdg + 1.5W)		-
	Accuracy (H) (PF > 0.35)	±(1% Rdg + 5W)	±(2% Rdg + 10W)		± (1.0% Rdg + 20W)
Power Factor	Range	0.000 - 1.000			
	Resolution	0.001			
	Accuracy	Calculated, W/VA			
Apparent Power (VA)		Calculated, Vrms * Irms			
Reactive Power (VAR)		Calculated, √ (VA^2 - W^2)			

MODEL		CGS105	CGS112	CGS120	CGS140
OUTPUT SPECIFICATIONS - DC MODE					
Power Rating		300 W	750 W	1200 W	2400 W
DC Voltage Ranges		0.0 - 210 Vdc / 0.0 - 420 Vdc / Auto Range			
	Resolution	0.1 Vdc			
	Accuracy	± (0.2% setting + 0.3 V)			±(0.2%+0.6 V)
Max. Current	210V Rng	3.0 A	7.5 A	12.0 A	24.0 A
	420V Rng	1.5 A	3.75 A	6.0 A	12.0 A
Ripple & Noise RMS		< 700 mVrms			< 800mVrms
Ripple & Noise p-p		< 6.0 Vpp			< 7.0 Vpp
Load Regulation		± 0.2 Vdc, < 1 sec response time			

MODEL		CGS105	CGS112	CGS120	CGS140
MEASUREMENT SPECIFICATIONS - DC MODE					
Voltage DC	Range	0.0 - 210 Vac / 0.0 - 420.0 Vac / Auto Range			
	Accuracy	± (0.2% Setting + 0.3V)			
Current & Power		See MEASUREMENTS - DC MODE			

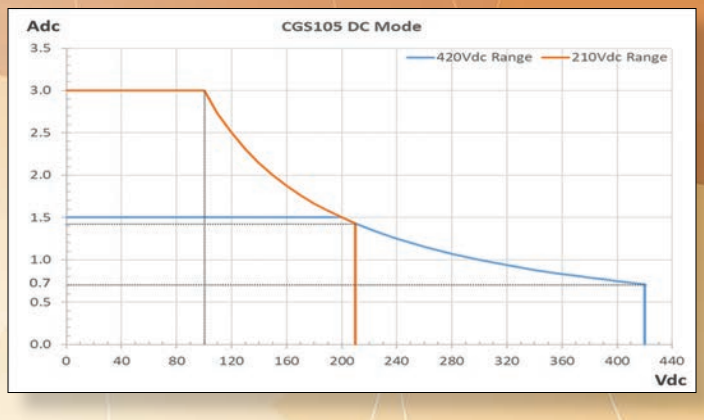
MODEL		CGS105	CGS112	CGS120	CGS140
SETTING PARAMETERS					
Current Fold-back	Low Vrng	0.05-5.00 A	0.05-12.50 A	0.05-20.00 A	0.10 - 40.00 A
	High Vrms	0.05-2.50 A	0.05-6.25 A	0.05-10.00 A	0.10 - 20.00 A
	Resolution	0.01 A			
	Accuracy	± (2.0% setting + 0.04 A)			
OC Fold-back Response Time		< 1.45 sec			
		h: 1.0 - 999.9 / m: 1.0 - 999.9 / s: 1.0 - 999.9 / ms: 02 - 999.9			
Ramp Up	Range	0.1 - 999.9 sec, 0 = OFF			
	Resolution	0.1 sec			
	Accuracy	± (0.1% + 0.1 sec)			

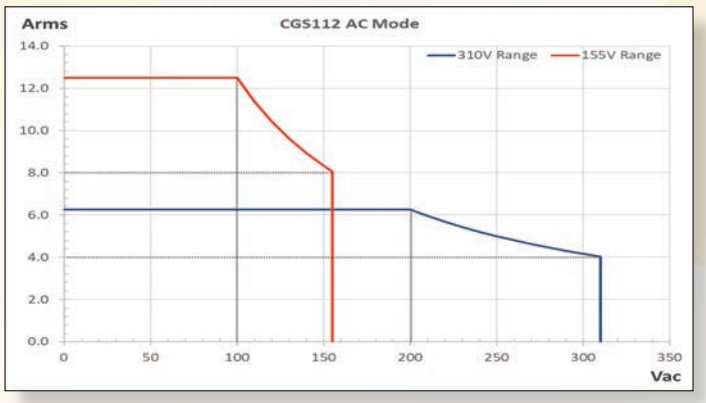
MODEL		CGS105	CGS112	CGS120	CGS140
MISCELLANEOUS					
PLC Remote Control	Input	Output ON, Output OFF/Reset, Output Verify, Interlock,File Recall M1 through M7, Trigger			
	Output	Fail, Test-in-Process			
AC Input Connection		IEC60320 C14	Terminal Block		
Memory		10 x 100 (file x sequence)			
Display		4.3", TFT LCD			
Output Response Time		275 ~ 400 µsec (Typical)			

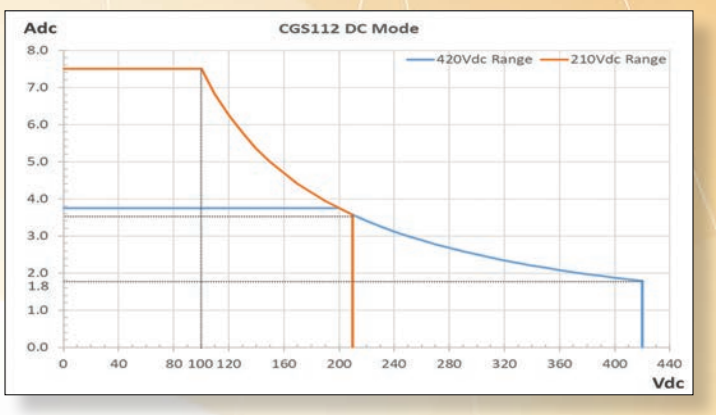
MODEL	CGS105	CGS112	CGS120	CGS140
INTERFACES AND I/O				
Remote Control	USB, LAN, PLC, Analog			
LAN / Ethernet[1]	Option -GPIB, -RS232			
Digital Outputs	Pass, Fail, Test in Progress, DB9, rear panel, Relay contact closures			
Output Sync Signal	+5Vdc Out, BNC connector, rear panel			

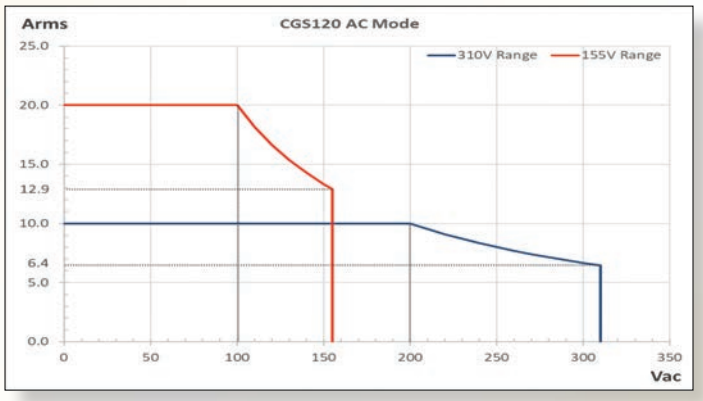
Voltage / Current Output Operating Ranges by Model

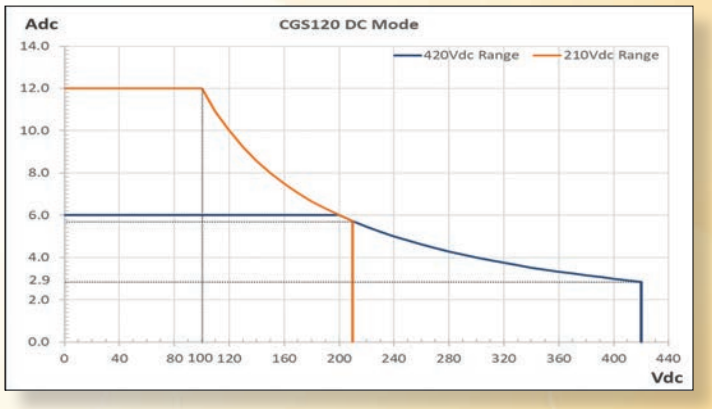
The CGS100 Series power sources use a constant power VI operating range for available output current as a function of programmed voltage output. This provides a wider usable operating area as would be possible using a point rating (square) VI profile. The VI profiles for both AC mode and DC mode operation are shown for each model in the diagrams below.

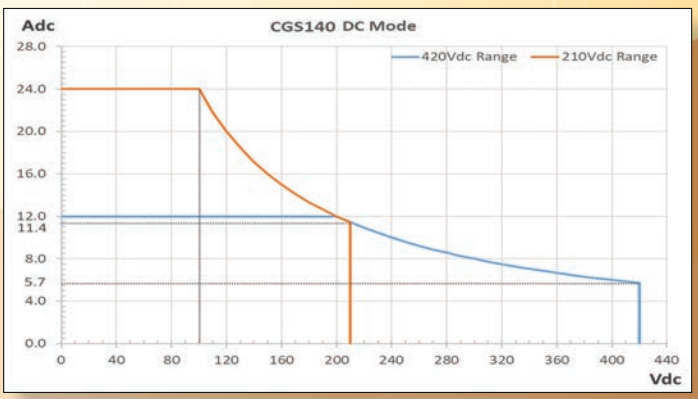












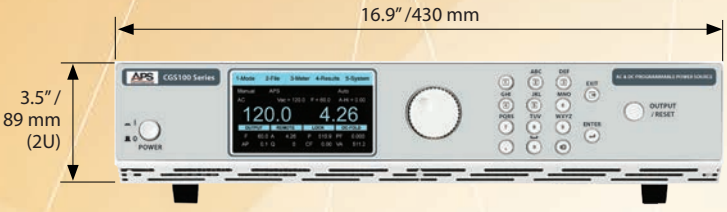
Technical Specifications - Continued

MODEL	CGS105	CGS112	CGS120	CGS140
AC INPUT SPECIFICATIONS				
Input Phases	1ø			
Frequency	47 - 63 Hz			
Input Voltage	100 - 240Vac ±10%			200-240Vac ±10%
Max. Input Current	8 A	18 A	30 A	30 A
Power Factor (Full Load[1])	> 0.93	> 0.97		
Efficiency (Full Load[1])	> 74%	> 81%	> 84%	> 84%
AC Line Cord, IEC 60320	IEC6320 C14	Terminal Strip		

Note 1: Maximum output power into linear load, sine wave, output frequency 40Hz to 500Hz

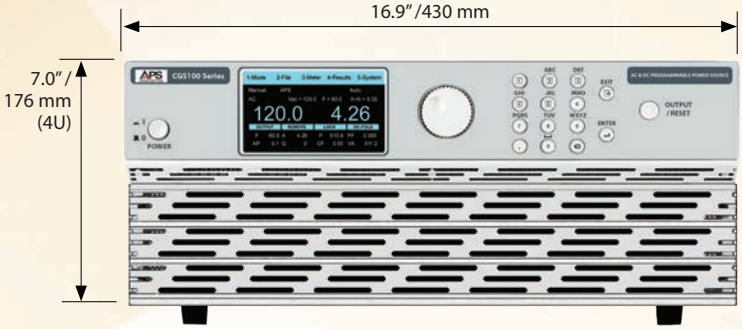
MODEL	CGS105, CGS112, CGS120	CGS140
MECHANICAL & ENVIRONMENTAL SPECIFICATIONS		
Dimensions (WxHxD)	430 x 89 x 500 mm	430 x 176 x 500 mm
	16.9" x 3.5" x 19.7"	16.9" x 7.0" x 19.7"
Rack Mount	Handle & Rack Ear Kit included	
Weight	15 Kg /33 lbs.	28 Kg /61.7 lbs.
Environment		
Temperature (Operating)	0 ~ 40° C / 32 ~ 104° F	
Temperature (Storage)	-40 ~ 75° C / -40 ~ 167° F	
Humidity	20 - 80% R.H. Non-condensing	
Altitude - Operating	2000 meters / 6,562 feet	
Storage	7620 meters / 25,000 feet	
Regulatory Compliance		
Safety & EMC	CE Mark, TUV-EMC / IEC 61362-1 / IEC 61010-1	

Dimensions



Depth: 20.0" / 508 mm

Front Panel Views CGS105, CGS112, CGS120



Depth: 20.0" / 508 mm

Front Panel View CGS140

Ordering Information

MODEL	DESCRIPTION
CGS105	AC, DC Power Source, 500VA/300W, USB, LAN
CGS112	AC, DC Power Source, 1250VA/750W, USB, LAN
CGS120	AC, DC Power Source, 2000VA/1200W, USB, LAN
CGS140	AC, DC Power Source, 4000VA/2400W, LAN, USB

OPTION	DESCRIPTION
OPT GPIB[1]	GPIB Interface
OPT RS232[1]	RS232 Control Interface
Note 1: I/F Options replace standard USB/LAN Interface on CGS100 Units	

Service and Support

Adaptive Power Systems' customer support is second to none. Our Customer Support Program provides the training, repair, calibration, and technical support services that our customers value. So, in addition to receiving the right test equipment, our customers can also count on excellent support before, during and after the sale.

New Product Warranty: AC Sources & Loads: 1 year, DC Power Supplies: 2 years.
Complete calibration and repair services are offered at our US, European and Chinese manufacturing facilities (see contact info below). Calibrations are to original factory specifications and are traceable to NIST (National Institute of Standards and Technology).

NORTH & SOUTH AMERICA
PPST Solutions, Inc.
Irvine, USA
Phone: +1(888) 239-1619
Email: sales@ppstsolutions.com

EUROPE
Caltest Instruments GmbH.
Kappelrodeck, Germany
Phone: +49(0)7842-99722-00
Email: info@caltest.de

CHINA
PPST Shanghai Co. Ltd.
Shanghai, China
Phone: +86-21-6763-9223
Email: info@ppst.com.cn

APS™ ADAPTIVE POWER SYSTEMS

PPST Solutions, Inc. Sales Department
2802 Kelvin Avenue, Suite 100, Irvine CA 92614
Direct: 888-239-1619 • Fax: 949-756-0838
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