## **CPS 100 Series**



# Advanced AC and DC Programmable Power

	AC+DC POWER SOURCE - Model CPS115E       Org       Org <th></th>	
5	AC+DC POWER SOURCE - Model (CFS100)         Image: Comparison of the comparison o	
-	A: box Reversion of the set of th	1
-2		5

Model:	CPS106	CPS110	CPS115	CPS120	CPS130	CPS140	CPS150
Power:	600W	1000W	1500W	2000W	3000W	4000W	5000W
0-150Vac	4.8 A	8 A	13.8 A	16 A	27.6 A	32 A	46 A
0- 300Vac	2.4 A	4 A	6.9 A				
0- 320Vac				8 A	13.8 A	16 A	23 A
Height		2U		3U		4U	





Worldwide Supplier of Power Conversion Equipment

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$\wedge$ , —
AC Power DC Power
CPS100 Series
600 VA/W to 5000 VA/W
AC: 0 - 150 V / 0 - 320 V 15 - 1000 Hz (S) 15 - 1200 Hz (E)
DC: 0 - 212 V / 0 - 424 V

**Look no further** for powerful yet cost effective single phase AC and DC power test solutions than the compact CPS100 Series programmable power sources. Designed using stateof-the-art Digital Signal Processing, these power sources support a wide range of AC and/or DC tests with excellent performance and reliability, the CPS100 units are versatile power sources with a wide range of functions and capabilities.

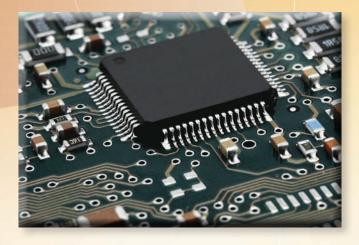
Available in seven power levels from 600 VA to 5000 VA, a wide range of commercial, industrial and aviation test applications are covered. Models up to 1500VA can be operated from 100V to 265V universal AC input power. Models of 2000VA and higher can be operated from single phase 230V or split phase 208V AC power.

CE

#### VALUE & PERFORMANCE BY LEVERAGING MODERN TECHNOLOGY

The all new CPS100 Series of precision power sources uses state of the art digital signal processing and programmable logic technology to implement a digital power conversion topology that combines high efficiency with a rich feature set and excellent specifications.

Packaged in a compact, standard 19" rack mount chassis, these powerful functions are easily accessible through an easy to use, color touch screen based user interface from the front panel or by sending industry standard SCPI commands over one of several standard digital control interfaces.



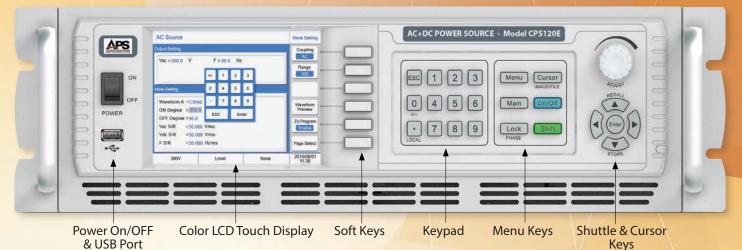
#### **BROAD RANGE OF APPLICATIONS**

The extensive feature set of the CPS100 Series power sources makes them suitable for a broad range of AC and or DC power applications. With power levels from 600VA to 5000VA per unit and paralleling capability, a wide range of present and future power demands can be met. **Put the CPS100 Series to the test!** 



**EMC Compliance Testing** 

#### **MODERN USER INTERFACE FOR EASE OF OPERATION**



All CPS100 Series models share an intuitive user interface using a combination of touch, soft keys, decimal entry pad and rotary shuttle knob. This results in an easy to use power source for novice and experienced users alike.

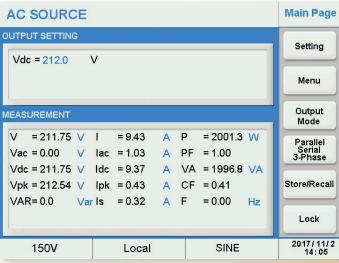
The large color LCD allows visualization of waveforms as well as a wide assortment of precision AC and DC measurements.

#### MODE AND VOLTAGE RANGE SELECTION

AC SOUP	RCE					More Settin
DUTPUT SETT	ING					Coupling
Vac = 125.	o v	F	= 60.00	Hz	150	Range
					300	300
MORE SETTIN	3			_	Auto	
Waveform	A = SINE			_		Waveform
ON Degree	= 90.0	۰				Preview
Vac S/R	e = Disable = Disable	• V/ms				Zo Program Disable
Vdc S/R F S/R	= Disable = Disable	V/ms Hz/ms				Page Select
300V		Local		SIN		2017/11/2 13:14

Select AC, DC or AC+DC Coupling and V Range 150, 300 or AUTO

#### DC MODE



DC Voltage Setting and Measurements

#### AC MODE

		Menu
		Config
V F	= 60.00 Hz	
		LCD Setting
		Calibration
l = 15.97	A P = 1998.9 W	
lac = 15.96	A PF = 1.00	
ldc = 0.02	A VA = 1997.2 VA	
lpk = 23.10	A CF = 1.44	Other
ls = 0.30	A F = 59.99 Hz	_
		Page Select
Local	SINE	2017/10/3 17:19
	I = 15.97 lac = 15.96 ldc = 0.02 lpk = 23.10 ls = 0.30	I = 15.97 A P = 1998.9 W lac = 15.96 A PF = 1.00 ldc = 0.02 A VA = 1997.2 VA lpk = 23.10 A CF = 1.44 rls = 0.30 A F = 59.99 Hz

AC Voltage & Frequency Setting and Measurements

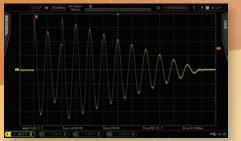
### AC+DC MODE

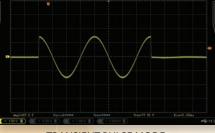
AC SOURCE			Menu
OUTPUT SETTING			Config
Vac = 10.0	V F	= 50.00 Hz	
Vdc = 50.0	v		LCD Setting
MEASUREMENT			Calibration
V = 50.92 V	I = 2.03	A P = 104	.5 W
Vac = 9.98 V	lac = 0.47	A PF = 1.00	)
Vdc = 49.94 V	ldc = 1.97	A VA = 103	.3 VA
Vpk = 64.48 V	lpk = 0.82	A CF = 1.59	) Other
VAR= 0.0 Va	ls = 0.26	A F = 50.0	)0 Hz
			Page Select
150V	Local	SI	NE 2017/10/3 17:04

AC+DC Voltage, Frequency Setting and Measurements

#### **TRANSIENT PROGRAMMING - LINE DISTORTION SIMULATION**

The powerful output transient programmability offers LIST, STEP and PULSE modes to change voltage and or frequency using precise ramp and dwell times. This allows a wide range of Line Distortion conditions to be simulated with the CPS100 power sources for either AC or DC power applications. For AC applications, start and stop phase angles can be programmed for each transient step as needed. Below are some AC output samples for each of the three transient modes.





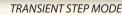


TRANSIENT LIST MODE

Transient programming is easily accomplished from the front panel. Multiple transient list can be saved to internal memory or external USB thumb drive. The LIST Selection screen and Transient RUN screen are shown to the left. During execution, the active step in each list and total steps is shown and counted down as the transient progresses.

AC SOURCE			List Mode
IST MODE SETTING			Trigger
List 1 =TRANS	List 10=	LIST 10	
List 2 =LIST 2	List 11=	LIST 11	Rename
List 3 =LIST 3	List 12=	LIST 12	
List 4 =LIST 4	List 13=	LIST 13	List Sequence
List 5 =LIST 5	List 14=	LIST 14	
List 6 =LIST 6	List 15=	LIST 15	
List 7 =LIST 7	List 16=	LIST 16	
List 8 =LIST 8	List 17=	LIST 17	Edit
List 9 =LIST 9	List 18=	LIST 18	Page Select
300V	Local	SINE	2017/11/3

TRANSIENT PULSE MODE



IST R	UNNING S	TATE	8						Stop
Step = 2/ 3 Count = 0001/ 0001 Cycle = 0001/ 0000									
IEASI	JREMENT								
v	= 88.96	V	1	= 0.93	Α	Ρ	= 120.6	w	
Vac	= 0.11	V	lac	= 0.20	Α	PF	= 0.74		
Vdc	= 88.92	V	ldc	= 0.90	A	VA	= 115.7	VA	
Vpk	= 108.69	V	lpk	= 0.30	A	CF	= 1.13		
VAR	= 7.4	Var	Is	= 0.28	A	F	= 0.00	Hz	
									Page Select
_	300V			Local		DC	TRANS		2017/11/3

VOLTAGE & FREQUENCY SLEW RATES

Voltage slew rates are fully programmable for both AC and DC settings. Expressed in Volts per msec, this allows controlled voltage ramps to limit inrush current or voltage when testing specific

UTPUT SETTING					Coupling
Vac = 125.0 V	F	= 60.00	Hz		AC
				150	Range
				300	300
ORE SETTING			-	Auto	
Waveform A = SINE ON Degree = 90.0	•				Waveform Preview
OFF Degree = Disable Vac S/R = Disable	• V/ms				Zo Program Disable
Vdc S/R = Disable F S/R = Disable					Page Select
300V	Local		SIN		2017/11/2

types of loads. The same is true for frequency changes where the slew rate can be set in Hz/ms.

#### **PROGRAMMABLE START/STOP PHASE ANGLES**

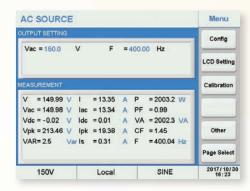
Programmed AC voltage changes can be set to occur at any specific phase angle from 0.0° through 359.9° for precise event occurrence. The example here shows a 100Vac



two cycle event started at 90° and terminated at 90° after two cycles.

#### **INTEGRATED POWER METER**

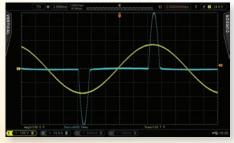
The bottom portion of each setting screen displays up to 15 measurements simultaneously. The order in which these are displayed can be rearranged if needed for best viewing.



This eliminates the need for additional metering equipment saving both time and cost.

#### HIGH CURRENT CREST FACTOR SUPPORT

The CPS100 Series supports current crest factors up to 5 or 6 to 1. This allows proper evaluation of inrush current behavior for a wide range of real-world



loads that don't have adequate inrush limiter design or non power factor corrected AC inputs.

#### ENHANCED VERSION CPS100E MODELS

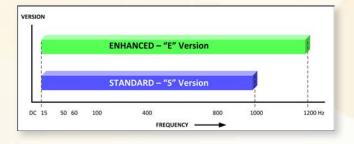
The Enhanced (E Suffix) CPS100 models offer an extensive list of additional features and capabilities compared to the standard CPS100 models. For the most demanding AC or DC power R&D or test applications, the E models represent an excellent value proposition compared to more expensive offerings from premium brands for the more discerning user.

The table on the right show a comparison of features and functions between the Standard S model and the Enhanced E version.

The next few pages highlight some of these Enhanced functions.

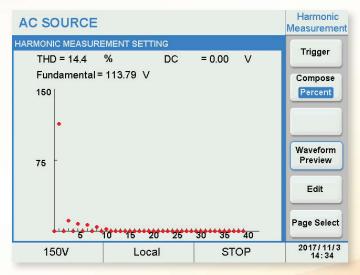
#### **EXTENDED FREQUENCY RANGE**

The ENHANCED models (E suffix) offer an extended frequency range to 1200Hz and improved band-width for enhanced harmonic waveform synthesis.



#### **HARMONICS & DISTORTION MEASUREMENTS**

For industrial and commercial application operating at 50Hz or 60Hz utility frequencies, the Enhanced versions of the CPS100 Series support harmonics measurements up to the 40th harmonic. Individual harmonic amplitudes and phase angles with respect to the fundamental



Harmonic Measurements Bar Chart

#### **MODEL FEATURES COMPARISON**

FEATURES	STANDARD (S)	ENHANCED (E)
AC Mode	•	•
DC Mode	•	•
AC+DC Mode	•	•
Frequency Range	15-1000Hz	15-1200Hz
Dual AC Voltage Ranges 150/300 Vac	•	•
Dual DC Voltage Ranges 212/425 Vdc	•	•
Harmonic Waveforms Library (fixed)	•	•
Waveform Synthesis from Front Panel	•	•
Transient List Mode	•	•
Measurements	•	•
Harmonic Waveform Synthesis		•
Harmonic Analysis & THD Measurements		•
Programmable Impedance		•
IEC411	•	•
IEC413		•
IEC414		•
IEC428		•
Triac Function		•
LAN	option	option
USB	•	•
GPIB	option	option
RS232	•	•
RS485	•	•

Feature Comparison Table Standard versus Enhanced version models

can be display in absolute or relative value as either a visual bar chart or a numeric table as shown below. Harmonic measurements apply to Voltage and Current and include calculation of total harmonic distortion (THD) in % of fundamental.

#### **E VERSION ONLY**

c so	URCE					Harmonic Measuremen
RMONIC	MEASURE	MENT SE	ITING			Stop
THD :	= 14.4	%	DC	= 0.00	V	otop
Funda	amental =	113.79	/			Compose
Ν	%	N	%	N	%	Percent
2	0.0	15	0.0	28	0.0	
3	10.0	16	0.0	29	0.0	
4	0.0	17	0.0	30	0.0	
5	7.1	18	0.0	31	0.0	
6	0.0	19	0.0	32	0.0	Waveform
7	6.0	20	0.0	33	0.0	Preview
8	0.0	21	0.0	34	0.0	
9	3.9	22	0.0	35	0.0	<b>F</b> .04
10	0.0	23	0.0	36	0.0	Edit
11	2.0	24	0.0	37	0.0	
12	0.0	25	0.0	38	0.0	
13	0.0	26	0.0	39	0.0	Page Select
14	0.0	27	0.0	40	0.0	
150	V	Lo	cal	RUN	NING	2017/11/3 14:34

Harmonic Measurements Table Data

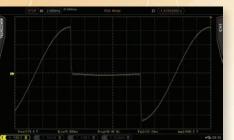
#### **IEC 61000-4 POWER IMMUNITY TESTS**

AC SOURCE	IEC 4-14	AC SOURCE	IEC 4-11 AC SOURCE	IEC 4-11
IEC 4-14 SETTING		IEC 4-11 VOLT DIPS & SHORE INTERUPTIONS	IEC 4-11 VOLT VARIATIONS	
Operation         = Standard         Volt         Range = 300         V           Class         = Class 2         Unom         = 230.0         V           Frequence         = 50.00         Hz         Cycle         = 1	Diagram	Voltage Dips     = Class 2     Volt Range = 300     V       Count     = 3       Unom     = 230.0       Frequency     = 50.00       Step 1%     Cycle       Start Degree     Repeat	Diagram Diagra	Diagram
	Save Page Select	1 0 0.5 0.0 ° 3 10 S 2 0 1.0 0.0 ° 3 10 S 3 70 25.0 0.0 ° 3 10 S	Save ts = 1 ti = 25 Interval = 1 s Rate = 70 %	Save Page Select
300V Local SINE	2017/11/3 17:30	300V Local SINE	2017/11/9 12:35 300V Local SINE	2017/11/3 16:40

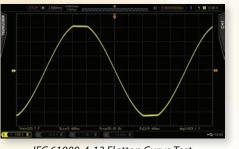
IEC 61000-4-11 Voltage Dip Test Screen - Class 2

IEC 61000-4-11 Voltage Dips Sequence

The ENHANCED models (E suffix) in the CPS100 Series are equipment with a complete set of IEC 61000-4 power compliance test functions. These are all related to power line immunity requirements for conformance to EU regulations for CE marking of products. This allows the user run these tests from the front panel of the power source.



IEC 61000-4-11 1/2 Cycle Voltage Dip @ 90°



#### IEC 61000-4-13 Flattop Curve Test

#### IEC 61000-4-11 Voltage Variations Setup **Included Test Standards are:**

IEC 61000-4-11 Voltage Dips, Interrupts and Variations<sup>1</sup> IEC 61000-4-13 Harmonics and Inter harmonics IEC 61000-4-14 Voltage Fluctuations IEC 61000-4-28 Frequency Variations

Note 1: Pre-compliance only

**E VERSION ONLY** 



IEC 61000-4-14 Voltage Fluctuations Test

#### **GRAPHICAL USER INTERFACE FOR WINDOWS**

A Windows 10 compatible GUI control program can be downloaded from the Adaptive Power Systems website to controi any tace Setup Steady State 0-4-11 EC61000-4-13 EC61000-4-14 EC61 CPS Series models using one of its communication interfaces. 120.01 14.01 The CpsGui provides full control over all output settings and 120.00 14.00 displays all available measurements in numeric form as well as in -0.02 0.00 a set of strip charts. Transient programming is made easy using -169.98 19.81 1282.6 21.79 an Excel type data entry grid. 1481.4 1.414 Also included are test screen for IEC 61000-4-11, IEC 61000-4-13, IEC 61000-4-14 and IEC 61000-4-28. Cycle Cycle Cycle Cycle 0.0 110.0 0.0 110.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 50.00 50.00 50.00 50.00 220.0 110.0 110.0 0.0 0.0 #1 Coolbaint File O Interface Setup nt Tests EC61000-4-11 EC61000-4-13 EC61000-4-14 EC61000-4-28 Steady State Tra ○ 0.0 (%) 
 ○ 0.0 (%) 
 ○ 0.0 (%) 
 0.0
 Cycle
 ~

 0.0
 Cycle
 ~

 70.0
 Cycle
 ~
 CpsGui Control & Measurements 230.0 Filcon (Hz) 50.00 Load File\_ Save\_ Abort 1 2 6 CpsGui Transient Programming

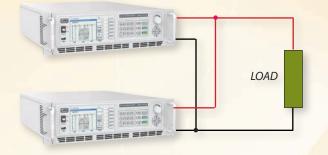
CpsGui IEC 61000-4-11 Voltage Dips & Interruptions

#### **VERSATILE MULTI-UNIT CONFIGURATIONS<sup>1</sup>**

When the need for more power, higher voltage or three phase arises, configure two or more CPS100 Power Sources in either a parallel, series or multi-phase arrangement using the optional Master/Slave bus. This master/slave control mode is supported by all CPS100 models and broadens the use of these power sources to a wider spectrum of applications than just a single unit does. The master/slave bus connects the master unit to two or more slaves and allows programming and read-back to be controlled from the master unit. The user can select the desired configuration mode on the master unit as Series, Parallel or Three Phase mode.

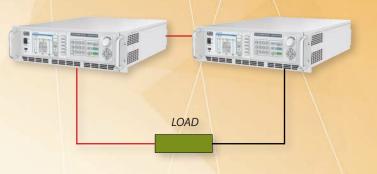
All phase synchronization and scaling is accomplished transparently.

#### PARALLEL MODE - MORE CURRENT

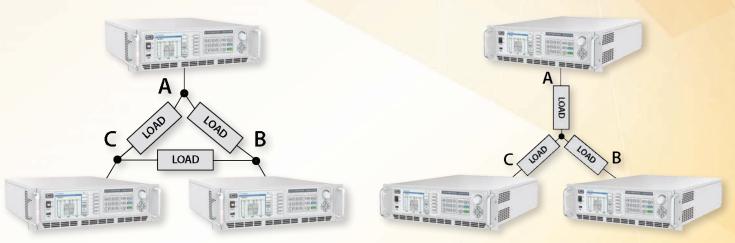


#### THREE PHASE DELTA (3-WIRE) LOADS

#### **SERIES MODE - MORE VOLTAGE**



#### THREE PHASE WYE (4-WIRE) LOADS



Note 1: Multi-unit operation requires the -AUX Option.

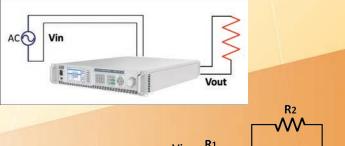
#### **EXTERNAL ANALOG INPUT OPTION**

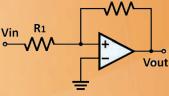
When equipped with the -EXT (CPS106 ~CPS115) or -AUX (CPS120~CPS150) option, the power source can be controlled using an analog input signal or a DC voltage reference. This analog input BNC has three selectable modes of operation:

- **ANALOG:** External AC or DC input signal is amplified and summed with internal voltage setting.
- RMS: External DC voltage input is used to determine AC RMS output level.
- SET: Output voltage is linearly proportional to external AC or DC input voltage.

The external analog input must be Enabled for use. Input voltage range is ±10Vpk or 0-10Vdc.

The BNC input can also be configured as a SYNC input to synchronize the power source to an external clock.





#### **TECHNICAL SPECIFICATIONS**

MODEL		CPS106	CPS110	CPS115	CPS120	CPS130	CPS140	CPS150
OUTPUT POWER & CURRENT SPECIFICATIONS								
Power Rating (VA/W)		600	1000	1500	2000	3000	4000	5000
AC Current	150V Range	5.6	9.2	13.8	16.0	27.6	32.0	46.0
(Aac)	300V Range	2.8	4.6	6.9	8.0	13.8	16.0	23.0
Crest Factor		5.8 to 1		6 t	o 1		5 to 1	4 to 1
DC Current	212V Range	3.96	6.5	9.76	11.3	19.6	22.6	32.6
(Adc)	424V Range	1.89	3.3	4.88	5.65	9.8	11.3	16.3

MODEL CPS106 CPS110

INPUT VOLTAGE & CURRENT SPECIFICATIONS								
AC Input Voltage	90 - 2	65 Vac	100 - 265 Vac	190 - 265 Vac, Single Phase (L, N, G)				
Phases	1 Phase, 2W+G			1 Phase, 2W+G / 2 Phase L-L + G				
Line Frequency		47 - 63 Hz			47 - 63 Hz			
Max. AC Current	10 A	15 A	19 A	14 A	20 A	25 A	30 A	
Input Power Factor @ F.L.	> 0.91	> 0.95	> 0.98	> 0.98	> 0.99	> 0.99	> 0.99	
Efficiency @ Full Load	80 %	84 %	86 %	86 %	85 %	86 %	86 %	

CPS115

MODEL		CPS106~115	CPS120 ~ 150			
OUTPUT SP	ECIFICATIONS					
Voltage	AC Low / High	0 - 150 Vac / 0 - 300 Vac 320 Vac available below 200 Hz on 2kVA to 5kVA CPS Models				
Ranges	DC Low / High	0 - 212 Vdc /	′ 0 - 424 Vdc			
	Resolution	0.1	V			
	Accuracy	± ( 0.3% settin	ıg + 0.3% F.S. )			
Waveforms		Harmoni	uare, Clipped Sine, cs library defined Harmonics			
	Range		5 - 1000 Hz, 5 - 1200 Hz			
Frequency	Resolution	0.1 Hz 15.0 - 99.9 Hz / 1 Hz 100 Hz - 1000 Hz / 5Hz 1001 Hz - 1200 Hz				
	Accuracy	± 0.1% of setting	$\pm$ 0.03% of setting			
a	Range	0 - 359.9°				
Start/Stop Phase	Resolution	± 1° @ 45 - 65 Hz				
Flidse	Accuracy	±1%, 45- 65 Hz				
Lood Dogula	tion	± 0.1% F.S. RL, DC, 15-100 Hz				
Load Regula	luon	± 0.5% F.S. R∟, 100.1-1200 Hz				
External Volt	tage Sense	Remote sense, Max Vdrop 5.0V				
Line Regulat	tion	± 0.1 V				
Harmonic D (Full Resistiv	istortion (THD) e Load)	15-70Hz: < 0.3% @ 80-140Vac in Low Range, @ 160-280Vac in High Range				
		70.1-500Hz: < 1% @	9 80-140Vac in Low			
		<b>J</b> + +	Vac in High Range			
		-	0 100-140Vac in Low			
		5, 2	Vac in High Range			
		1001-1200Hz: < 2% @ 100-140Vac in Low Range, @ 160-280Vac in High Range				
C 11 11		<b>U</b>				

#### **OUTPUT SPECIFICATIONS (Continued)**

CPS130

**CPS140** 

CPS150

CPS120

Ripple & Noise (rms)		L: < 700 mVrms @ 20Hz-1MHz BW		
		H: < 1100 mVrms @ 20Hz-1MHz BW		
Ripple & Noise (peak)		< 4000mVpp @ 20Hz-1MHz BW		
Voltage Rise / Fall time		< 180 usec		
	Resolution	0.01 A		
Current	Accuracy	± ( 0.5% setting + 1.0% F.S. )		
Fold-back	Response	< 1400 msec		

MODEL		All			
PROGRAM	MABLE FUNCTIO	DNS			
	Modes	List, Pulse, Step			
Transients (Available	Parameters	AC Voltage, Frequency, DC Voltage, Current, Start Phase, Stop Phase			
from 15- 70Hz)	Timing	Transition Time: 0.0 - 66.5 ms Resolution: 0.1 sec Transient Count: 0 - 9999			
Test Mode		Pass/Fail based on Measurements			

MODEL		Enhanced (E) Versions Only			
PROGRAM	ABLE IMPEDA	NCE			
Pango	Resistance	0Ω-1Ω			
Range	Inductance	200 uH - 1 mH			
HARMONIC	S & INTER HAR	MONICS			
Range		15 Hz - 2400 Hz			
Waveform Synthesis		2 - 40 Harmonics @ 50 Hz or 60 Hz			
HARMONIC	& THD MEASUR	REMENTS			
Parameters		Voltage, Current			
Harmonic Measurements		2 - 40 Harmonics @ 50Hz or 60 Hz			
THD %		Calculated			

Continued in next column







#### **TECHNICAL SPECIFICATIONS (Continued...)**

MODEL		CPS106	CPS110	CPS115	CPS120	CPS130	CPS140	CPS150	
<b>CURRENT &amp;</b>	POWER MEASU	REMENTS							
	High Range	0.15 -5.6 A	0.15 -9.2 A	0.15 - 13.8 A	0.15 - 20.0 A	0.3 - 27.6 A	0.3 - 32 A	0.3 - 46 A	
	Med. Range	-	-	-	-	0.2 - 20 A	0.2 - 20 A	0.2 - 20 A	
Current	Low Range	0.1 - 2.8 A	0.1 - 4.6 A	0.1 - 6.9 A	0.1 - 5 A	0.1 - 5 A	0.1 - 5 A	0.1 - 5 A	
RMS	mA Range	-	-	-	0.02 - 1.5 A	0.02 - 1.5 A	0.02 - 1.5 A	0.02 - 1.5 A	
(Arms)	Resolution				0.01 A				
	Accuracy			D.4% setting + 1.0% F.S. )         H/M: ± (0.4% setting + 1.5% F.S. )         H/M: ± (0.4% setting + 1.0% F.S. )           0.4% setting + 1.0% F.S. )         L/mA: ± (0.4% setting + 1.2% F.S. )         L/mA: ± (0.4% setting + 1.5% F.S. )					
	Range	0 - 32.4 A	0 - 81.5 A	0 - 81.5 A	0 - 81.5 A	0 - 168.6 A	0.05 - 163 A	0.05 - 188 A	
Peak Curr.	Resolution	0.01 A							
(A)	Accuracy	H/M: ± ( 0.4% setting + 1.0% F.S. ) L/mA: ± ( 0.4% setting + 1.0% F.S. )			H/M: ± ( 0.4% setting + 0.6% F.S. ) L/mA: ± ( 0.4% setting + 1.0% F.S. )				
_	Range	0-612 W	0 - 1020 W	0 - 1530 W	0 - 2040 W	0 - 3060 W	0 - 4080 W	0 - 5100 W	
Power (Watts)	Resolution				0.1 W				
(vvalls)	Accuracy		±(0	0.4% setting + 1.0	0% F.S. ) @ PF > 0.	2 and Voltage > 1	5.0 V		
	Range	0-612 VA	0 - 1020 VA	0 - 1530 VA	0 - 2040 VA	0 - 3060 VA	0 - 4080 VA	0 - 5100 VA	
App. Power (VA)	Resolution					0.1 VA			
(VA)	Accuracy			Cal	culated, Vrms * Ir	ms			
Reactive	Range	0-612 VAR	0 - 1020 VAR	0 - 1530 VAR	0 - 2040 VAR	0 - 3060 VAR	0 - 4080 VAR	0 - 5100 VAR	
Power	Resolution				0.1 VAR				
(VAR)	Accuracy			Ca	lculated, √(VA² - \	W <sup>2</sup> )			

MODEL		All Models
MEASUREM	TIONS-V, F, P	
	AC Range	0 - 320 Vac
Valtaga	DC Range	0 - 424 Vdc
Voltage	Resolution	0.1 V
	Accuracy	± ( 0.2% setting + 0.2% F.S. )
Frequency	Range	S Version: 15 - 1000 Hz, E Version: 15 - 1200 Hz
	Resolution	0.1 Hz 15.0 - 99.9 Hz 1 Hz 100 Hz - 1000 Hz 5 Hz 1001 Hz - 1200 Hz
	Accuracy	± 0.1% of setting
	Range	0.00 - 1.00
Power Factor	Resolution	0.01
Tactor	Accuracy	Calculated W/VA

MODEL	All Models		
<b>TEST MODE PARAMETERS</b>			
Memories	1 through 50		
Steps / Memory	1 through 9		
Memory Cycling	0 - 9999, 0 = Cont., 1 = OFF		
Test Limits	Frequency, Current Hi/Lo, Power Hi/ Lo, App. Power Hi/Lo, PF Hi/Lo		
Ramp Up or Down	0.0 - 999.9		
Delay	0.5 - 999.9		
Dwell	0.5 - 999.9		
Step Cycles	0 - 9999, 0 = Cont., 1 = OFF		
Connect	ON, OFF		
Surge / Drop Voltage	ON: Start 0-20ms, Duration 0-20ms OFF: Start 0-99ms, Duration 0-99ms		

MODEL	CPS106 ~ 115	CPS120 ~ 150			
SYSTEM PARAMETERS					
Display	5.6″ Color Touch 640 x 480	4.3″ Color Touch 640 x 480			
Data Entry Modes		: Keypad, Shuttle, USB stick			
Output Protection	OCP, OV	(P, OTP, RCP			
AC Input Protection	PRI-UVP, PRI	LOTP, PRI_OCP			
Control Interfaces	USB, RS23	2, RS485 (A/B)			
Optional Interface	LAN + GPIB (Replaces Std. I/Fs)	LAN, GPIB			
MODEL	CPS106 CP	S110 CPS115			
Option -EXT: External I	/0				
DIGITAL I/O					
TTL Inputs	Output ON/OFF, KEEP OFF, RESET, RECALL SETUP 1-7 (3 bits)				
Relay Contacts	3 sets, PASS, FA	IL (contact closure)			
Connector Type	20 Position dual row compression				
ANALOG					
Voltage Input	Modes: SYNC or ANALOG, RMS SET				
Connector Type	BNC				
Option -MSB: Master/S	lave Bus				
Modes Parallel	4 units max. f	for higher power			
Series	2 units max.	for 600V output			
Three Phase	3 units in Delta o	r Wye Configuration			
MODEL	CPS120, CPS130	0, CPS140, CPS150			
<b>Option -AUX: Auxiliary</b>	I/O and Master/Sla	ve Bus			
Same as -EXT option for	CPS106 ~ CPS115 bu	ıt adds:			
Relay Contacts	Adds 1 set				
Includes Master/Slave Bu	us:				
Modes Parallel	4 units max. f	for higher power			
Series	2 units max.	for 600V output			
	3 units in Delta o				

#### **TECHNICAL SPECIFICATIONS (Continued...)**

MODEL		CPS106 CPS110 CPS115			CPS120	CPS130	CPS140	CPS150	
MECHANICAL & ENVIRONMENTAL SPECIFICATIONS									
Dimonsions ()		4	32 x 87 x 520 m	m	432 x 133 x 520 mm	432 x 177 x 520 mm			
Dimensions (W	X T X D)	1	7″ x 3.425″ x 20.	5″	17" x 5.24" x 20.5"	17″ x 7″ x 20.5″			
Shipping Size (		74	44 x 241 x 594 m	ım	597 x 276 x 694 mm	597 x 321 x 694 mm		ım	
Shipping Size (	vv x n x D)	29.3" x 9.5" x 23.4"			23.5" x 10.9" x 27.3"	23.5" x 12.6" x 27.3"			
Rack Mount		Width w/Handles & Rack Ear Kit = 483 mm / 19". Shelf or L-Bracket Support Required					d		
Weight	Net	15.9 Kg / 35 lbs		21Kg / 47.2 lbs	29 Kg / 63.9 lbs				
	Shipping		19 Kg / 42 lbs			32 Kg / 70.5 lbs			
<b>Operating Env</b>	vironment								
Temperature	Operating		0° to 40° C / 32° to 104° F						
	Storage			-40°	to 85° C / -40° to 1	85° F			
Fan Cooled Temperature controlled. Front intake rear exhaust. Fan noise 73 dl				an noise 73 dB	A at max. fan spe	ed			
Temperature Coefficient			Voltage: 100ppm/°C, Current: 300ppm/°C, Frequency: 100ppm/°C						
Rel. Humidity			5% to 95% non-condensing						
Altitude	Operating	2000 m / 6550 feet							

MODEL	All Models						
REGULATORY COMPLIANCE							
Emissions	CE marked per EMC Directive 2014/30/EU/EN61326-1:2013 Class A for emissions and immunity as required for CE Mark. FCC verification for conformity for CFR 74 Part 15 of FCC rules						
Safety	CE marked per LVD Directive 2014/35/EU/EN61010-1, third edition as required for CE Mark						
CE Mark	Installation Over voltage Category II, Pollution Degree 2, Class II Equipment, indoor use only						
Isolation Voltage	3000Vac Input to Output, 1500Vac Input to Chassis						
RoHS	Meets EU Directive 2011/65/EU for restriction of hazardous substances in Electrical and Electronic Equipment						

#### **MODEL FEATURES COMPARISON**

FEATURES	STANDARD (S)	ENHANCED (E)
AC Mode	•	•
DC Mode	•	•
AC+DC Mode	•	•
Frequency Range	15-1000Hz	15-1200Hz
Dual AC Voltage Ranges 150/300 Vac	•	•
Dual DC Voltage Ranges 212/425 Vdc	•	•
Harmonic Waveforms Library (fixed)	•	•
Waveform Synthesis from Front Panel	•	•
Transient List Mode	•	•
Measurements	•	•
Harmonic Waveform Synthesis		•
Harmonic Analysis & THD Measurements		•
Programmable Impedance		•
IEC411	•	•
IEC413		•
IEC414		•
IEC428		•
Triac Function		•
LAN option	option	
USB	•	•
GPIB option	option	
RS232	•	•
RS485	•	•
Feature Comparison Table Standard vers	us Enhanced versio	n models

#### SHIP KIT CONTENTS

ITEMS INCLUDED	QTY
Rack mount Handles (removable)	2
Output Terminals Safety Cover	1
Input Terminals Safety Cover	1
Screws to install Rack mount Handles	12
RS232 Serial Cable, 1 meter	1
LAN Cat-5 Cable, 1 meter	1
USB Cable, 1 meter	1
Option -GPIB / LAN+GPIB, GPIB Cable	1
Option - AUX, DVI Cable	1
Option -EXT, BNC Cable	1

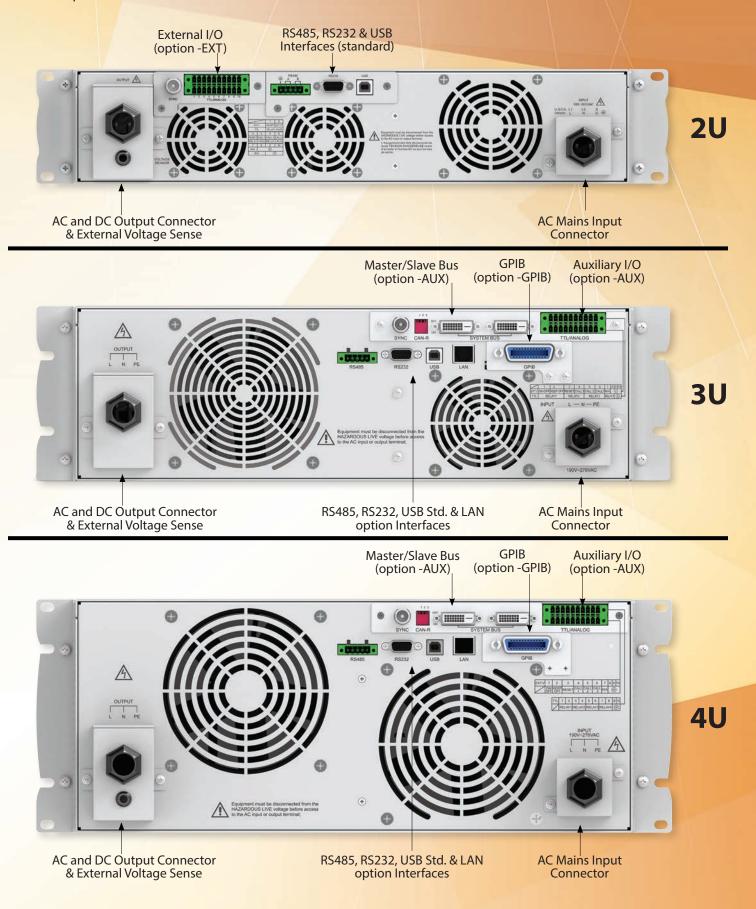


Ship Kit - Content excluding options

#### **REAR PANEL CONNECTORS**

All input power and load connections are made at the rear panel. AC or DC output is available on the same output terminal connector. Safety covers for AC input and AC/DC output connectors are included with each unit.

Digital remote control interfaces are also located on the rear panel. Installed options provide additional connectors.



#### **ORDERING INFORMATION**

STANDARD MODELS         DESCRIPTION         AC INPUT         RACK HEIGHT           CPS106S         AC&DC Power Source, 600VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110S         AC&DC Power Source, 1000VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110S         AC&DC Power Source, 1500VA, USB/RS232/RS485         100 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS112OS         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         3U / 5.25" / 133 mm           CPS130S         AC&DC Power Source, 3000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS140S         AC&DC Power Source, 4000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS150S         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS106E         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS106E         AC&DC Power Source, 1000VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110E         AC&DC Power Source, 100VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110E         AC&DC Power Source, 100VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm
CPS110S         AC&DC Power Source, 1000VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5″ / 89 mm           CPS115S         AC&DC Power Source, 1500VA, USB/RS232/RS485         100 - 265 Vac, 1ø         2U / 3.5″ / 89 mm           CPS120S         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         3U / 5.25″ / 133 mm           CPS130S         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0″ / 178 mm           CPS140S         AC&DC Power Source, 4000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0″ / 178 mm           CPS150S         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0″ / 178 mm           CPS150S         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0″ / 178 mm           CPS150S         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0″ / 178 mm           CPS106E         AC&DC Power Source, 600VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5″ / 89 mm           CPS110E         AC&DC Power Source, 1000VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5″ / 89 mm           CPS115E         AC&DC Power Source, 1500VA, USB/RS232/RS485         100 - 265 Vac, 1ø         2U / 3.5″ / 89 mm           CPS120E         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265
CPS115S         AC&DC Power Source, 1500VA, USB/RS232/RS485         100 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS120S         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         3U / 5.25" / 133 mm           CPS130S         AC&DC Power Source, 3000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS140S         AC&DC Power Source, 4000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS150S         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS106E         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm           CPS106E         AC&DC Power Source, 600VA, USB/RS232/RS485         190 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110E         AC&DC Power Source, 600VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS110E         AC&DC Power Source, 1000VA, USB/RS232/RS485         90 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS115E         AC&DC Power Source, 1500VA, USB/RS232/RS485         100 - 265 Vac, 1ø         2U / 3.5" / 89 mm           CPS120E         AC&DC Power Source, 2000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         2U / 3.5" / 89 mm
CPS120S       AC&DC Power Source, 2000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       3U / 5.25" / 133 mm         CPS130S       AC&DC Power Source, 3000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         CPS140S       AC&DC Power Source, 4000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         CPS150S       AC&DC Power Source, 5000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         CPS150S       AC&DC Power Source, 5000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         CPS106E       DESCRIPTION       AC INPUT       RACK HEIGHT         CPS106E       AC&DC Power Source, 600VA, USB/RS232/RS485       90 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS110E       AC&DC Power Source, 1000VA, USB/RS232/RS485       90 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS115E       AC&DC Power Source, 1500VA, USB/RS232/RS485       100 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS120E       AC&DC Power Source, 2000VA, USB/RS232/RS485       100 - 265 Vac, 1ø       2U / 3.5" / 89 mm
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CPS140S       AC&DC Power Source, 4000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         CPS150S       AC&DC Power Source, 5000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       4U / 7.0" / 178 mm         ENHANCED MODELS       DESCRIPTION       AC INPUT       RACK HEIGHT         CPS106E       AC&DC Power Source, 600VA, USB/RS232/RS485       90 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS110E       AC&DC Power Source, 1000VA, USB/RS232/RS485       90 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS115E       AC&DC Power Source, 1500VA, USB/RS232/RS485       100 - 265 Vac, 1ø       2U / 3.5" / 89 mm         CPS120E       AC&DC Power Source, 2000VA, USB/RS232/RS485       190 - 265 Vac, 1ø       3U / 5.25" / 133 mm
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CPS150E         AC&DC Power Source, 5000VA, USB/RS232/RS485         190 - 265 Vac, 1ø         4U / 7.0" / 178 mm
OPTIONS DESCRIPTION COMPATIBLE WITH MODELS
-LAN+GPIB LAN and GPIB Interface. (Replaces USB, RS232, RS485 interface)
-EXT External Input & Auxiliary I/O (Mutually exclusive with -MSB) CPS106, CPS110, CPS115
-MSB Master/Slave Bus Interface (Mutually exclusive with -EXT)
-LAN LAN Interface
-GPIB GPIB Interface CPS120, CPS130, CPS140, CPS150
-AUX Auxiliary I/O, Series, Parallel & Multi-phase mode



CPS106 2U Model shown with Optional LAN+GPIB Interface

#### **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. With company owned support and service centers around the world, support is never far away.

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#### New Product Warranty: One (1) year.

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).

CHINA

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