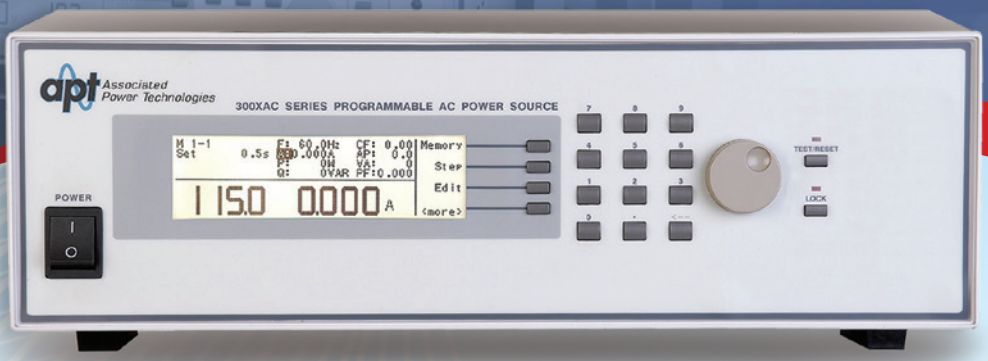
AC Power Sources

Manual - Automated - Modular



300XAC Series Modular AC Power Sources CE

7000 Series Automated AC Power Sources CE

6000 Series Automated AC Power Sources

5000 Series Manual AC Power Sources

LS Series Linear AC Power Sources CE

VariPLUS® Power Converter CE *Model 104 Only*

apt Associated Power Technologies®

APT...The Power of Value!

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300XAC Series

Modular AC Power Sources

Overview

Our 300XAC Series modular AC power sources incorporate the latest in modular technology, making them ideal for the most demanding applications. These versatile AC power sources can be configured for 1Φ stand-alone operation or linked together for up to 18 kVA of AC power in both 1Φ and 3Φ output configurations.

Our smartDETECT® feature automatically assigns the appropriate master/slave designation for each source without the need for the operator to reconfigure internal hardware. The easy-to-use push-button interface allows the operator to select 1Φ or 3Φ operation, setup and perform tests, and simulate the effect of voltage surges and drops for transient testing.

The 300XAC Series comes with your choice of an automated interface at no extra charge. Choose from USB, Ethernet, RS-232, or GPIB.

Features

- Modular design allows operator to connect up to 3 instruments together for 1Φ or 3Φ applications requiring up to 18 kVA of AC power
- Configure 2 sources for 1Φ/3W output voltages up to 600 VAC
- smartCONFIG® feature allows for push-button setup of 1Φ/3Φ output
- 50 built-in memory locations with 9 test steps can be linked to quickly store and recall test parameters for multiple product testing applications
- Transient feature simulates voltage variations, brownouts, and transient voltage conditions
- Adjust the starting and ending angle of the output waveform
- Prompt feature allows operator to display instructions between test steps
- Frequency output up to 1000 Hz
- Constant current output with over current fold back feature
- Advanced metering circuits monitor voltage, current, peak current, power, apparent power, reactive power, power factor, and crest factor
- External voltage sensing for accurate metering
- DC Output Capability
- Standard USB/RS-232 interface with optional GPIB and Ethernet interfaces available at no extra charge
- Rotary knob to adjust voltage and frequency on the fly

APT...The Power of Value!

2 YEAR Warranty

- ***Industry-leading standard 2-year warranty***
- ***Guaranteed 24-hour shipment or we pay the freight***
- ***48-hour turnaround on all repairs***
- ***45-day return policy – no questions asked***

24 Hour Guaranteed Shipment

48 Hour Turnaround On All Repairs

45 Day Return Policy

Toll Free: +1-877-322-7693

The Benefits of the 300XAC Modular AC Power Sources

The APT 300XAC Modular Power Sources can link several AC power sources to give you the maximum flexibility that your operation requires

What is a modular AC power source?

We use the term modular to define the capability of the 300XAC Series of AC power sources to be interconnected in order to produce higher power outputs and different power configurations than an individual instrument. When multiple 300XAC instruments are interconnected the operator can configure the output for Parallel or Polyphase modes. Parallel mode allows the operator to increase the output current of the system by a factor of 2 or 3 depending on the number of sources that are interconnected. Polyphase mode allows the operator to increase the total power output of the system as well as change the output power configuration of the system.

The APT Link Card (Option 08)

The 300XAC Series can be used as a stand-alone instrument which provides 1Φ output power. If the Linking Card option is installed, up to three 300XAC instruments can be interconnected for Parallel or Polyphase output.

Master/Slave Relationship

The master/slave relationship between linked 300XAC instruments synchronizes the firmware of each power source so the output and phase angle separation is regulated. It also gives the operator the capability to program parameters for all linked sources from the front panel of the master instrument.

SmartDETECT®

The SmartDETECT feature automatically determines how many power sources are linked together. After the check is completed the 300XAC Series will automatically change the programming output function based on the number of linked sources.

SmartCONFIG® Feature

The SmartCONFIG feature allows the operator to change the output of the linked sources to Parallel or Polyphase mode with the push of a button.

The Modular AC Source Advantage
Easy to change from 1Φ to 3Φ output
No need to have separate sources for 1Φ to 3Φ applications
Allows for future expansion if power requirements change
Greater mobility of the AC Power Source
The ability to generate greater current or voltage if only 1Φ power is available
The ability to generate 3Φ power if only 1Φ power is available

Specifications - 300XAC Series

INPUT			310XAC	320XAC	340XAC	360XAC
Phase			1Φ			1Φ or 3Φ
Voltage			90 - 264 VAC		180 - 264 VAC	180 - 457 VAC
Frequency			47 - 63 Hz			
OUTPUT						
Voltage			5 - 300 V			
Max Power			1 kVA	2 kVA	4 kVA	6 kVA
Max Current 1Φ	0 - 150 V		9.2 A @ 110 V	18.4 A @ 110 V	36.8 A @ 110 V	55.2 A @ 110 V
	0 - 300 V		4.6 A @ 220 V	9.2 A @ 220 V	18.4 A @ 220 V	27.6A @ 220 V
Phase			1Φ (Parallel/Poly-Phase Linking for 1Φ3W or 3Φ4W)			
Frequency			40.0 - 1000 Hz			
THD			<1% (Resistive Load)			
Crest Factor			Inrush CF ≥ 3 at 110 V, Continuous Current CF ≥ 3 at 110 V			
Line Regulation			± 0.1 V			
Load Regulation			±0.5 V			
DC OUTPUT VOLTAGE						
Voltage			5 - 420 V			
Max Power			1000 W	2000 W	4000 W	6000 W
Max Current 1Φ	0 - 210 V		4.8 A	9.6 A	19.2 A	28.8 A
	0 - 420 V		2.4 A	4.8 A	9.6 A	14.4 A
Ripple & Noise			< 3.0 V p-p		< 4.0 V p-p	
MEASUREMENT						
Voltage	Range		0.0 - 400.0 V			
	Accuracy		± (1% of reading + 2 counts) > 5 V		± (1% of reading + 5 counts) > 5 V	
Frequency	Range		0.0 - 1000 Hz			
	Accuracy		0.0 - 500 Hz ± 0.1 Hz, 501 - 1000 Hz ± 0.2 Hz			
Current (rms)	Range		0.005 A - 13.00 A	0.005 A - 26.00 A	0.05 A - 52.00 A	0.05 A - 78.00 A
	Accuracy		± (1% of reading + 5 counts)		± (1% of reading + 5 counts) @ 40 - 100 Hz, ± (1% of reading + 5 counts) @ 101 - 500 Hz > 0.1 A, ± (1% of reading + 5 counts) @ 501 - 1000 Hz > 0.2 A	
Current Peak	Range		0.0 A - 38.0 A	0.0 A - 76.0 A	0.0 A - 152 A	0.0 A - 228 A
	Accuracy		± (1% of reading + 5 counts)			
Power	Range		0.0 W - 1300 W	0.0 W - 2600 W	0.0 W - 5200 W	0.0 W - 7800 W
	Accuracy	L	± (2% of reading + 15 counts) at PF ≥ 0.2		± (2% of reading + 5 counts) at PF ≥ 0.2	
		H	± (2% of reading + 5 counts) at PF ≥ 0.2			
Power Apparent (VA)	Range		0.0 VA - 1300 VA	0.0 VA - 2600 VA	0.0 VA - 5200 VA	0.0 VA - 7800 VA
	Accuracy		V×A , Calculated value			
Power Reactive (Q)	Range		0.0 VAR - 1300 VAR	0.0 VAR - 2600 VAR	0.0 VAR - 5200 VAR	0.0 VAR - 7800 VAR
	Accuracy		$\sqrt{(VA)^2-(W)^2}$, Calculated value			
Power Factor	Range		0.000 - 1.000			
	Accuracy		W/VA, Calculated and displayed to three significant digits			
Crest Factor	Range		0.0 - 10.0			
	Accuracy		Apeak / Arms, Calculated and displayed to two significant digits			
OPTIONS						
Grounded Neutral	Option 2		Yes			
GPIB Interface	Option 3		Yes			
7 Remote Memory	Option 4		Yes			
Ethernet Interface	Option 6		Yes			
Linking Card	Option 8		Yes			
GENERAL						
Operation Environment			0 - 40°C / 20 - 80% RH			
Dimensions W x H x D – inches/mm			16.92 x 5.26 x 20.87 in	16.92 x 5.26 x 20.87 in	16.92 x 10.51 x 19.69 in	16.92 x 15.77 x 19.69 in
			430 x 133.5 x 530 mm	430 x 133.5 x 530 mm	430 x 267 x 500 mm	430 x 400.5 x 500 mm
Net Weight Lbs. (kg)			44 lbs (20 kg)	46.3 lbs (21 kg)	110.2 lbs (50 kg)	117 lbs (53 kg)

Specifications subject to change

300XAC Specifications

Linking Parallel Output 1Φ2W			310XAC	320XAC	340XAC	360XAC
Linked Units			2 - 3 Units, 1Φ2W (L1 - N)			
Voltage	*Phase*		5 - 300 V			
Power	# Units	2	1.8 kVA	3.6 kVA	7.2 kVA	10.8 kVA
Max		3	2.7 kVA	5.4 kVA	10.8 kVA	16.2 kVA
Max Current	0 - 150 V	L(2)	14.72 A @ 20 V -110 V	29.44 A @ 20 V -110 V	58.88 A @ 20V - 110 V	88.32 A @ 20 V - 110 V
		L(3)	22.08 A @ 20 V - 110 V	44.16 A @ 20 V - 110 V	88.32 A @ 20 V - 110 V	132.48 A @ 20 V - 110 V
	0 - 300 V	H(2)	7.36 A @ 20 V - 220 V	14.72 A @ 20 V - 220 V	29.44 A @ 20 V - 220 V	44.16 A @ 20 V - 220 V
Line		H(3)	11.04 A @ 20 V - 220 V	22.08 A @ 20 V - 220 V	44.16 A @ 20 V - 220 V	66.24 A @ 20 V - 220 V
Linking Polyphase Output 1Φ3W			**310XAC**	**320XAC**	**340XAC**	**360XAC**
Linked Units			2 Units @ 180º, 1Φ3W (L1-L2 - N)			
Voltage	*Phase*		10 - 600 V			
	Line		5 - 300 V			
Power	*Max*		2 kVA	4 kVA	8 kVA	12 kVA
Max Current	0 - 300 V	L(1)	9.2 A @ 110 V	18.4 A @ 110 V	36.8 A @ 110 V	55.2 A @ 110 V
Phase	0 - 600 V	H(1)	4.6 A @ 220 V	9.2 A @ 220 V	18.4 A @ 220 V	27.6 A @ 220 V
Max Current	0 - 300 V	L(2)	9.2 A @ 220 V	18.4 A @ 220 V	36.8 A @ 220 V	55.2 A @ 220 V
Line	0 - 600 V	H(2)	4.6 A @ 440 V	9.2 A @ 440 V	18.4 A @ 440 V	27.6 A @ 440 V
Linking Polyphase Output 3Φ4W			**310XAC**	**320XAC**	**340XAC**	**360XAC**
Linked Units			3 Units @ 120º, 3Φ4W (L1-L2-L3 - N)			
Voltage	*Phase*		5 - 300 V			
	Line		5 - 520 V			
Power	*Max*		3 kVA	6 kVA	12 kVA	18 kVA
Max Current	0 - 150 V	L(1)	9.2 A @ 110 V	18.4 A @ 110 V	36.8 A @ 110 V	55.2 A @ 110 V
Phase	0 - 300 V	H(1)	4.6 A @ 220 V	9.2 A @ 220 V	18.4 A @ 220 V	27.6 A @ 220 V
Max Current	0 - 150 V	L(3)	9.2 A @ 190.5 V	18.4 A @ 190.5 V	36.8 A @ 190.5 V	55.2 A @ 190.5 V
Line	0 - 300 V	H(3)	4.6 A @ 381 V	9.2 A @ 381 V	18.4 A @ 381 V	27.6 A @ 381 V
Max Current	0 - 260 V	L(3)	5.31 A @ 190.5 V	10.62 A @ 190.5 V	21.24 A @ 190.5 V	31.87 A @ 190.5 V
Phase Delta	0 - 520 V	H(3)	2.65 A @ 381 V	5.31 A @ 381 V	10.62 A @ 381 V	15.93 A @ 381 V
Linking Parallel DC Output 1Φ2W			**310XAC**	**320XAC**	**340XAC**	**360XAC**
Linked Units			2 - 3 Units, 1Φ2W (L1 - N)			
Voltage Power	*Line*		5 - 420 V			
Power	# Units	2	1.8 kVA	3.6 kVA	7.2 kVA	10.8 kVA
Max		3	2.7 kVA	5.4 kVA	10.8 kVA	16.2 kVA
Max Current	0 - 210 V	L(2)	7.68 A @ 50 V - 210 V	15.36 A @ 50 V - 210 V	30.72 A @ 50 V - 210 V	46.08 A @ 50 V - 210 V
		L(3)	11.52 A @ 50 V - 210 V	23.04 A @ 50 V - 210 V	46.08 A @ 50 V - 210 V	69.12 A @ 50 V - 210 V
	0 - 420 V	H(2)	3.84 A @ 50 V - 420 V	7.68 A @ 50 V - 420 V	15.36 A @ 50 V - 420 V	23.04 A @ 50 V - 420 V
Line		H(3)	5.76 A @ 50 V - 420 V	11.52 A @ 50 V - 420 V	23.04 A @ 50 V - 420 V	34.56 A @ 50 V - 420 V

300XAC Specifications

Measurement (Total) Linking Parallel 1Φ2W			310XAC	320XAC	340XAC	360XAC
Voltage	*Range*		0.0 - 400.0 V			
	Accuracy		± (1% of reading + 2 counts) > 5 V		± (1% of reading + 5 counts) > 5 V	
Frequency	*Range*		0.0 - 1000.0 Hz			
	Accuracy	L	± 0.1 Hz @ 0.0 - 500 Hz			
		H	± 0.2 Hz @ 501 - 1000 Hz			
Current (rms)	*Range*	2	0.00 A - 26.00 A	0.00 A - 52.00 A	0.00 A - 104.0 A	0.00 A - 156.0 A
		3	0.00 A - 39.00 A	0.00 A - 78.00 A	0.00 A - 156.0 A	0.00 A - 234.0 A
	Accuracy	L	± (1.5% of reading +15 counts) x # of Linked Units @ 40.0 - 70.0 Hz & Current is > 1.0 A		± (1.5% of reading +15 counts) x Link Units @ 40.0 - 70.0 Hz and current(r.m.s.) > 2.00 A, ± (1.5% of reading +15 counts) x Link Units @ 70.1 - 1000 Hz, and current(r.m.s.) > 10.00 A	± (1.5% of reading +15 counts) x Link Units @ 40.0 - 70.0 Hz and current(r.m.s.) > 3.00 A, ± (1.5% of reading +15 counts) x Link Units @ 70.1 - 1000 Hz, and current(r.m.s.) > 15.00 A
		H	± (1.5% of reading +15 counts) x # of Linked Units @ 70.1- 1000 Hz & Current is > 5.00 A			
Power (W)	*Range*	2	0 W - 2600 W	0 W - 5200 W	0 W -10400 W	0 W - 15600 W
		3	0 W - 3900 W	0 W - 7800 W	0 W - 15600 W	0 W - 23400 W
	Accuracy		± (2% of reading + 10 counts) x (# of Linked Units) at PF ≥ 0.2, 40 - 500 Hz, and Current > 5.0 A ± (2% of reading + 10 counts) x (# of Linked Units) at PF ≥ 0.3, 501 - 1000 Hz, and Current > 5.0 A			
Power Apparent (VA)	*Range*	2	0 W - 2600 VA	0 W - 5200 VA	0 W -10400 VA	0 W - 15600 VA
		3	0 W - 3900 VA	0 W - 7800 VA	0 W - 15600 VA	0 W - 23400 VA
	Accuracy		V x A, Calculated Value			
Power Reactive (Q)	*Range*	2	0 W - 2600 VA	0 W - 5200 VA	0 W -10400 VA	0 W - 15600 VA
		3	0 W - 3900 VA	0 W - 7800 VA	0 W - 15600 VA	0 W - 23400 VA
	Accuracy		$\sqrt{(VA)^2 - (W)^2}$, Calculated Value			
Power Factor	*Range*		0 - 1.000			
	Accuracy		W / VA, Calculated and displayed to three significant digits			

Measurement (Total) Linking Polyphase 1Φ3W			310XAC	320XAC	340XAC	360XAC
Voltage	*Range*	2	L1 Voltage + L2 Voltage			
	Accuracy		Summation of linked sources, Calculated and displayed to one significant digit			
Frequency	*Range*		0.0 - 1000.0 Hz			
	Accuracy	L	± 0.1 Hz @ 0.0 - 500 Hz			
		H	± 0.2 Hz @ 501 - 1000 Hz			
Current (rms)	*Range*	2	(L1 Current + L2 Current)/2			
	Accuracy		± (1% of reading + 5 counts) at 40 - 70 Hz ± (1% of reading + 5 counts) at 70.1 - 500 Hz, and output current (r.m.s.) > 0.200 A ± (1% of reading + 5 counts) at 501 - 1000 Hz, and output current (r.m.s.) > 0.300 A			
Power (W)	*Range*	2	L1 Power + L2 Power			
	Accuracy	2	L1 Power + L2 Power, Calculated Value			
Power Apparent (VA)	*Range*	2	L1 VA + L2 VA			
	Accuracy	2	L1 VA + L2 VA, Calculated Value			
Power Reactive (Q)	*Range*	2	L1 VAR + L2 VAR			
	Accuracy	2	L1 VAR + L2 VAR, Calculated Value			
Power Factor	*Range*		0 - 1.000			
	Accuracy		(L1 P + L2 P) / (L1 VA + L2 VA), Calculated and displayed to three significant digits			

300XAC Specifications

Measurement (Total) Linking Polyphase 3Φ4W			310XAC	320XAC	340XAC	360XAC
Voltage	*Range*		(A+B+C)/3			
	Accuracy		(A+B+C)/3 , Calculated and displayed to one significant digit			
Frequency	*Range*		0.0 - 1000.0 Hz			
	Accuracy	L	± 0.1 Hz @ 0.0 - 500 Hz			
		H	± 0.2 Hz @ 501 - 1000 Hz			
Current (rms)	*Range*		(A+B+C)/3			
	Accuracy		± (1% of reading + 5 counts) at 40 - 70 Hz ± (1% of reading + 5 counts) at 70.1 - 500 Hz, and output current (r.m.s.) > 0.200 A ± (1% of reading + 5 counts) at 501 - 1000 Hz, and output current (r.m.s.) > 0.300 A			
Power (W)	*Range*		A Power + B Power + C Power			
	Accuracy		Calculated Value			
Power Apparent (VA)	*Range*		A VA + B VA + C VA			
	Accuracy		Calculated Value			
Power Reactive (Q)	*Range*		A VAR + B VAR + C VAR			
	Accuracy		Calculated Value			
Power Factor	*Range*		0 - 1.000			
	Accuracy		Sum P / Sum VA, Calculated and displayed to three significant digits			

Measurement (Total) Linking Parallel DC			310XAC	320XAC	340XAC	360XAC
Voltage	*Range*		0.0 - 420.0 V			
	Accuracy		± (1% of reading + 2 counts) > 5 V		± (1% of reading + 5 counts) > 5 V	
Current (rms)	*Range*	2	0.05 A - 26.00 A	0.05 A - 52.00 A	0.05 A - 104.00 A	0.05 A - 156.00 A
		3	0.05 A - 39.00 A	0.05 A - 78.00 A	0.05 A - 156.00 A	0.05 A - 234.00 A
	Accuracy		± (1% of reading + 5 counts) x # of Linked Units, Current > 1.00 A		± (1% of reading + 5 counts) x # of Linked Units, Current > 2.00 A	± (1% of reading + 5 counts) x # of Linked Units, Current > 3.00 A
Power (W)	*Range*	2	0 W - 2600 W	0 W - 25200 W	0 W -10400 W	0 W - 15600 W
		3	0 W - 3900 W	0 W - 7800 W	0 W - 15600 W	0 W - 23400 W
	Accuracy		± (2% of reading + 5 counts) x # of Linked Units			

Key

L = Low Limit Range
H = High Limit Range
L (2) = Low Limit Range 2 Units Linked
L (3) = Low Limit Range 3 Units Linked
H (2) = High Limit Range 2 Units Linked
H (3) = High Limit Range 3 Units Linked
2 = 2 Units Linked
3 = 3 Units Linked

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