



## AMX Power Systems

8kVA to 30kVA  
20-5,000 Hz

- 1Ø → 0-338V<sub>L-N</sub>
- 2Ø → 0-600V<sub>L-L</sub>
- 3Ø → 0-338V<sub>L-N</sub> / 585V<sub>L-L</sub>

### Standard Features:

- Master/Slave Operation of 2 to 5 AMX AC Power Sources provides AC Power Levels to from 8KVA up to 30KVA
- Advanced Linear Amplifiers Provide Very Low Voltage Distortion, No Switching Noise, Fast Voltage and Current Slew Rates, Exceptionally Low Output Impedance and High Peak Current Capability
- 1, 2, or 3 Phase Output Form Selectable from Front Panel or Bus Command
- 20 to 5,000 Hz. Operation – 5Hz to 50KHz small signal bandwidth, 3dB at 10% of Full Voltage
- Precision Voltage Programming – 0.05% with Continuous Self-Calibration (CSC) engaged
- True-RMS Metering of Volts, Amps, and Power
- GPIB (IEEE-488.2) or RS-232 Interface
- Waveform Library – Arbitrary Waveform Generator
- 99 Programs with Associated Transients for Static and Dynamic Test Applications
- UPC Studio Software Suite

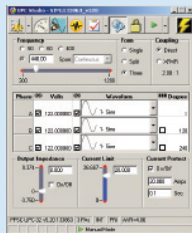
### Available Options:

- T-Versions Include Transformer Assembly for Higher Voltage Ranges
- Fully Installed and Wired in Industrial Strength Instrument Cabinet with Caster Base
- Programmable Output Impedance
- Harmonic Analysis and Waveform Synthesis
- UPC Test Manager Software Application
- IEC Test Sequence Available for IEC 61000-4-11, -4-13, -4-14, -4-27, -4-28 and -4-34 AC Immunity Testing

### UPC Manager Software Suite

*Master the Power of the Wave!*

UPC Manager Software gives you the tools necessary to quickly and easily operate your AC Power Source. With our graphical interface control all areas of your AC Power Source testing with simple presets, user prompts, test sequences, test plans and custom reports..



## Parallel AMX AC Power Systems



### Parallelable AMX Models

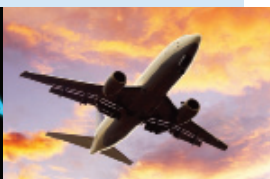
These special version AMX units are designed to easily parallel in a master slave configuration to allow high power cabinet systems to be created ranging from 8KVA to 30kVA. Either 4.5KVA or 6KVA AMX/AMXT units are used as building blocks for these power racks.

The versatility of the Master/Slave Paralleling option provided by the 140/160/345/360AMX and 140/160/345/360AMXT AC Power Sources provide the operator with a wide variety of options using a building block approach to higher capacity linear AC Power Source systems. Each parallelable group of AC Power Sources requires at least one 'Master' (/MST) unit with either UPC-12 or UPC-32 controller and one or more "Slave" (/SLV) units. Any /MST unit can be used as a /SLV with another /MST unit by setting a rear panel mounted switch. This feature provides great flexibility for reconfiguring multiple units into a larger power system as demanded by changing application requirements.

As a member of Pacific's AMX-Series popular family of high performance Linear AC Power Sources, these AMX systems offer the same absence of output switching noise and very low voltage distortion, ease of installation, and high AC waveform fidelity as found in Pacific's single chassis Linear AC Power Sources.

### The Leader in AC Power Technology

An early pioneer in the development solid-state power conversion equipment, Pacific Power Source continues to develop, manufacture, and market both linear and high-performance PWM AC Power Sources. Pacific Power Source's reputation as a market and technology leader is best demonstrated by its continuing investments in both research and development and world-wide customer support. With corporate owned offices in the United States, France, the United Kingdom, and China, local personalized support is always available.



## Output Ratings

### Single Phase Paralleable AMX Models (parallel up to five like units to configure up to 30kVA System)

Model <sup>3</sup>	Rated Power (VA)	Output Form	Output Voltage Ranges Current per Phase (A <sub>max</sub> )				Input Power Form	Frequency Range (Hz)	Height in/mm/U	Weight (Lbs/Kg)
			Direct	(T) 1.5:1	(T) 2.0:1	(T) 2.5:1				
140AMX(T) -UPC12/MST <sup>1</sup>	4000	1Ø/2Ø	0-135/270 32/16	0-202/404 21.3/10.7	0-270/540 16/8	0-338/600 12.8/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS):185/84.0 (T): 125/56.8
140AMX (T)/SLV <sup>2</sup>	4000	1Ø/2Ø	0-135/270 32/16	0-202/404 21.3/10.7	0-270/540 16/8	0-338/600 12.8/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS):185/84.0 (T): 125/56.8
160AMX(T)- UPC12//MST <sup>1</sup>	6000	1Ø/2Ø	0-135/270 48/16	0-202/404 32/10.6	0-270/540 24/8	0-338/600 19.2/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS): 195/88.6 (T): 125/56.8
160AMX(T)/SLV <sup>2</sup>	6000	1Ø/2Ø	0-135/270 48/16	0-202/404 32/10.6	0-270/540 24/8	0-202/404 19.2/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS): 195/88.6 (T): 125/56.8

### Three Phase Paralleable AMX Models (parallel up to five like units to configure up to 30kVA System)

Model <sup>3</sup>	Rated Power (VA)	Output Form	Output Voltage Ranges Current per Phase (A <sub>max</sub> )				Input Power Form	Frequency Range (Hz)	Height in/mm/u	Weight (Lbs/Kg)
			Direct	(T) 1.5:1	(T) 2.0:1	(T) 2.5:1				
345AMX(T) -UPC32/MST <sup>1</sup>	4500 <sup>5</sup>	1Ø/2Ø	0-135/270 36/12	0-202/404 24/8	0-270/540 18/16	0-338/600 14.4-4.8	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS):185/84.0 (T): 125/56.8
		3Ø	0-135/234 12/ø	0-202/350 8/ø	0-270/468 6/ø	0-338/585 4.8/ø				
345AMX (T)/SLV <sup>2</sup>	4500 <sup>5</sup>	1Ø/2Ø	0-135/270 36/12	0-202/404 24/8	0-270/540 18/16	0-338/600 14.4/4.8	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS):185/84.0 (T): 125/56.8
		3Ø	0-135/234 12/ø	0-202/350 8/ø	0-270/468 6/ø	0-338/585 4.8/ø				
360AMX(T)- UPC32//MST <sup>1</sup>	6000 <sup>6</sup>	1Ø/2Ø	0-135/270 48/16	0-202/404 32/10.6	0-270/540 24/8	0-338/600 19.2/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS): 195/88.6 (T): 125/56.8
		3Ø	0-135/234 16/ø	0-202/350 10.7/ø	0-270/468 8/ø	0-338/585 6.4/ø				
360AMX(T)/SLV <sup>2</sup>	6000 <sup>6</sup>	1Ø/2Ø	0-135/270 48/16	0-202/404 32/10.6	0-270/540 24/8	0-338/600 19.2/6.4	3Ø 47-63 Hz	20-5000	(PS): 14/356/8U (T): 5.25/133/3U	(PS): 195/88.6 (T): 125/56.8
		3Ø	0-135/234 16/ø	0-202/350 10.7/ø	0-270/468 8/ø	0-338/585 6.4/ø				

**NOTES:**

1. Paralleable "Master" (/MST) supplied with UPC-12/32 Controller. Power Source provided with Master/Slave mode select switch on rear panel
2. Dedicated "Slave" (/SLV) Power Source requires master unit of same model. No UPC required for Slave units.
3. Complete Model number for basic unit shown.
4. MST formerly referred to as M5283, SLV formerly referred to as M5283/M5304.
5. 3kVA in Form 2/ Split phase mode
6. 4kVA in Form 2/ Split phase mode

### AMX Power Source Specifications (PF = 1.0, V<sub>out</sub> > 25% F.S.)

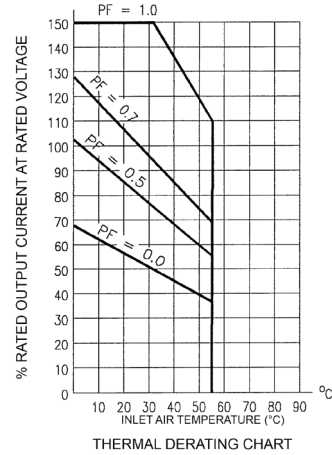
Output Frequency	Line Regulation	Load Regulation	Output Distortion	Ripple and Noise	Response Time
Full Power 20-5,000 Hz Direct Coupled 45-5,000 Hz Transformer Coupled	0.1% max for a ±10% line change	Direct Coupled Ranges: 0.25% 20 to 2,000 Hz. 0.50% 2,000 to 5,000 Hz.  Improves to less than 0.03% with external sense and CSC enabled.  Transformer Coupled Ranges: 1.5:1 2% 2.0:1 4% 2.5:1 5%  Improve to < 0.1% with external sense and CSC enabled.	0.1% THD <sub>AVG</sub> 45 to 1,000 Hz 0.25% THD <sub>AVG</sub> 20 to 5,000 Hz	-72dB	5 µsec typ. For step load change. Small signal bandwidth = 5 Hz to 40 KHz

**Input Power Requirements (47-63 Hz)**

Refer to 140AMX/140AMXT, 160AMX/160AMXT, 345AMX/345AMXT or 360AMX/360AMXT Data sheets for specific model Input Power requirements. Note MST and SLV have same input requirements as respective standard AMX models.

**Thermal and Power Factor Rating Curves**

Rated Continuous Load Current as a Function of Ambient Temperature. Data is shown for combined system configuration.

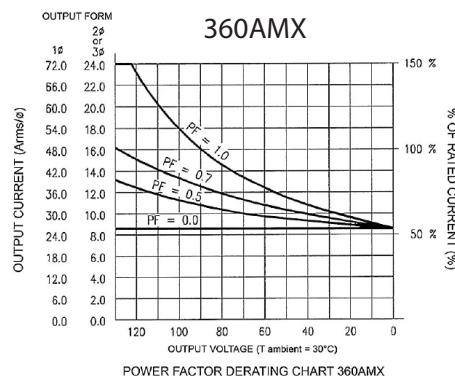
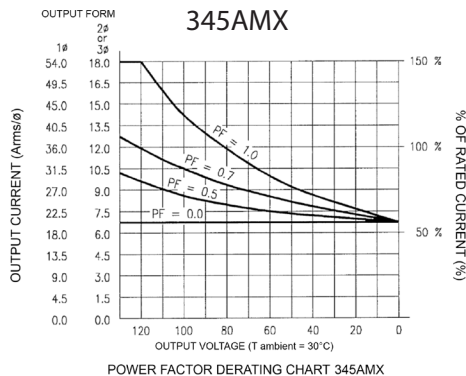
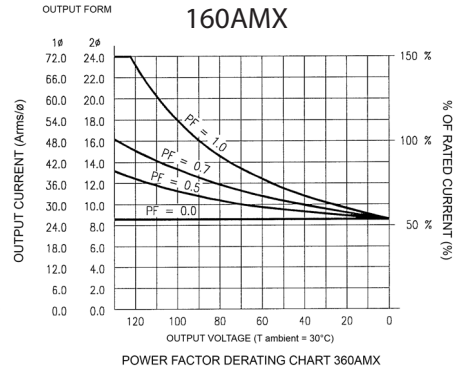
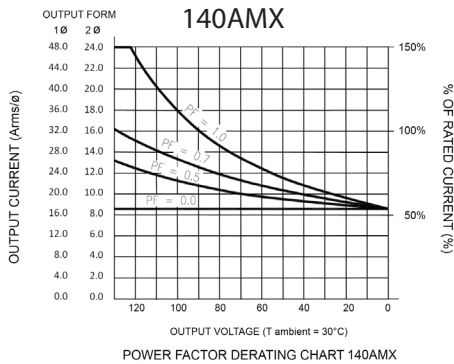


**THERMAL RATING -AC CURRENT RMS**

Short term overloads to 150% of rated current are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to several minutes depending upon line and temperature conditions.

**Power Factor Rating Curves per chassis**

Rated Power Factor and Output Voltage at Nominal Input Line. Data is shown for individual MST or SLV chassis. Multiply Output Current by number of units to obtain total Output Current.



**OUTPUT VOLTAGE – AC VOLTS RMS**

Short term overloads to 150% of rated current are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to several minutes depending upon line and temperature conditions.

## Typical System Configuration Examples

### Single Phase Paralleable AMX Models

Output Power	Number of Master Units	Master Model Number	Number of Slave Units	Slave Model Number	Max. Current	Number of Chassis	Total Height
8kVA (2 x 4kVA)	1	140AMXT-UPC12/MST	1	140AMXT/SLV	64A @ 125V 32A @ 250V	2 PS + 2 XFMR	22U
	2	140AMXT-UPC12/MST	0	-			
12kVA (2 x 6kVA)	1	160AMXT-UPC12/MST	1	160AMXT/SLV	96A @ 125V 48A @ 250V	2 PS + 2 XFMR	22U
	2	160AMXT-UPC12/MST	0	-			
18kVA (3 x 6kVA)	1	160AMX-UPC12/MST	2	160AMX/SLV	144A @ 125V 48A @ 250V	3 PS	24U
	2	160AMX-UPC12/MST	1	160AMX/SLV			
	3	160AMX-UPC12/MST	0	-			
24kVA (4 x 6kVA)	1	160AMX-UPC12/MST	3	160AMX/SLV	192A @ 125V 64A @ 250V	4 PS	32U
	2	160AMX-UPC12/MST	2	160AMX/SLV			
	3	160AMX-UPC12/MST	1	160AMX/SLV			
	4	160AMX-UPC12/MST	0	-			

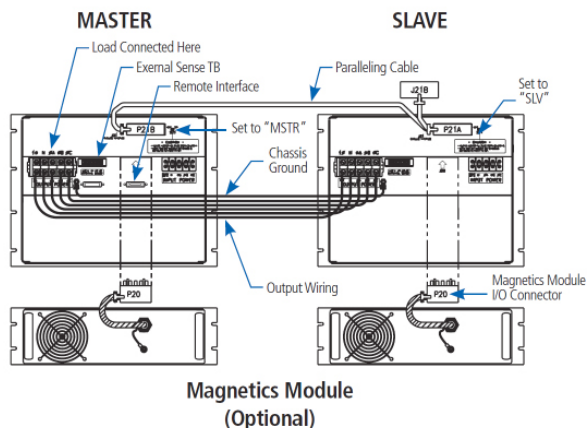
### Three Phase Paralleable AMX Models

Output Power	Number of Master Units	Master Model Number	Number of Slave Units	Slave Model Number	Max. Current Per Phase	Number of Chassis	Total Height
13.5kVA (3 x 4.5kVA)	1	345AMXT-UPC32/MST	2	345AMXT/SLV	36A @ 125V 18A @ 250V	3 PS + 3 XFMR	33U
	2	345AMXT-UPC32/MST	1	345AMXT/SLV			
	3	345AMXT-UPC32/MST	0	-			
18kVA (3x 6kVA)	1	360AMXT-UPC32/MST	2	360AMXT/SLV	48A @ 125V 24A @ 250V	3 PS + 3 XFMR	33U
	2	360AMXT-UPC32/MST	1	360AMXT/SLV			
	3	360AMXT-UPC32/MST	0	-			
24kVA (4 x 6kVA)	1	360AMXT-UPC32/MST	3	360AMXT/SLV	64A @ 125V 32A @ 250V	4 PS + 4 XFMR	44U
	2	360AMXT-UPC32/MST	2	360AMXT/SLV			
	3	360AMXT-UPC32/MST	1	360AMXT/SLV			
	4	360AMXT-UPC32/MST	0	-			
30kVA (5 x 6kVA)	1	360AMXT-UPC32/MST	4	360AMXT/SLV	80A @ 125V 40A @ 250V	4 PS + 4 XFMR	33U
	2	360AMXT-UPC32/MST	3	360AMXT/SLV			
	3	360AMXT-UPC32/MST	2	360AMXT/SLV			
	4	360AMXT-UPC32/MST	1	360AMXT/SLV			
	5	360AMXT-UPC32/MST	0	-			

### Flexible Re-Configuration

Addition or deletion of power source chassis is easily performed by the user in field. The standard AMX-Series features, such as automatic output form selection, extensive output metering, etc. remain intact.

Note that only like models may be paralleled with each other. That is, only 345AMX chassis may be paralleled with other 345AMX chassis, 140AMX with 140 AMX, etc. All Master units are master/slave selectable from rear panel switch.

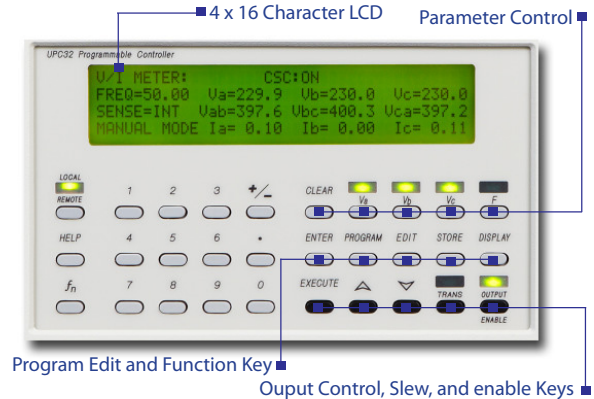


## Total Control, Metering, and Analysis of AC Power- Simple, Intuitive Operation

The UPC Controller is a highly versatile one, two, or three phase oscillator/signal generator designed to control any of Pacific Power's AC Power Sources. Only the full featured UPC-12 or UPC-32 Controller is offered for use with the 3 single or three phase parallelable AMX models.

Using the front panel keyboard and display, all controller models provide for selection of power source output mode, coupling, voltage, and frequency. Selecting the correct UPC controller for a given application varies with your test requirement, desired features, and price.

Both the UPC-12 and UPC-32 Controllers are available with either RS-232 or GPIB remote interface. Commands are structured in accordance with SCPI (Standard Commands for Programmable Instruments).



### Controller Models

Features	UPC-12	UPC-32
Output Modes	1Ø, & 2Ø	1Ø, 2Ø, & 3Ø
Waveform Library	Sine + 15 Editable	Sine + 15 Editable
Transient Functions	YES, 99 Steps	YES, 99 Steps
Program Library	99 Programs	99 Programs
Programmable Current Limit	YES	YES
Programmable Current Protect	YES	YES
Programmable Phase Angle	YES, 0 to 359°	YES, 0 to 359°
CSC (Continuous Self-Calibration)	YES	YES
Remote Interface	Std Opt GPIB RS-232	Std Opt GPIB RS-232
Waveform Synthesis/Analysis	OPTIONAL	OPTIONAL
Prog. Output Impedance	OPTIONAL	OPTIONAL
DRM Link-Synchronization	OPTIONAL	OPTIONAL
Line Synchronization	OPTIONAL	OPTIONAL

### External Inputs/Outputs

Analog Auxiliary Input	Each phase is algebraically summed with UPC waveform and amplified 25X to the direct coupled output. $\pm 10V_{pk}$ (20Vpk-pk). One input per phase. $Z_{in} = 600 \Omega$
AM-Amplitude Modulation	$\pm 10 V_{dc}$ (20Vpk-pk) modulates the output voltage $\pm 100\%$ One input per phase. $Z_{in} = 600 \Omega$
Sync Outputs Zero Crossing	Positive Zero Crossing (0°) of Phase A analog output
Transient Trigger	Pulse at the start of a transient event.
Transient Pedestal	TTL True when a transient is in progress
Output Clock	UPC-32, TTL level 1024 x output frequency

### Waveform Control

Waveform Synthesis (/HAS Option)	Creates waveform by entering magnitude as % of fundamental and specified phase angle for 2nd through the 51st harmonic
Waveform Analysis (/HAS Option)	Reports waveform harmonic content and phase angle relative to the fundamental for the 2nd through the 51st harmonic as Total, Odd, and Even harmonic distortion

### Output Control Specifications

	UPC-12	UPC-32
Frequency	Range	20-5,000Hz <sup>(1)</sup>
	Resolution	4 Significant Digits
	Accuracy	$\pm 0.01\%$ of full scale
Voltage	Range (L-n)	0 - 150/375
	Resolution	0.1V/ 0.5V
	Accuracy	0.5% of full scale (CSC Disabled) $\pm 0.05\%$ referenced to Internal Meter (CSC Enabled)
Phase Angle $\emptyset B$ and $\emptyset C$ relative to $\emptyset A$	Range	0 - 359°
	Resolution	$\pm 1^\circ$
	Accuracy	$\pm 0.5^\circ$
Current Limit	Range	Function of the number of units in parallel.
	Resolution	0.05% F.S.
	Accuracy	$\pm 1\%$ F.S.

### Output Metering

	UPC-12	UPC-32
Voltmeter True $V_{RMS}$ each phase	Range	0-354 $V_{L-N}$ , 708 $V_{L-L}$
	Resolution	0.1V front panel
	Accuracy	50-500Hz, $\pm 0.25\%$ of rdg. $\pm 0.1\%$ F.S. 20-5,000 Hz, $\pm 0.5\%$ F.S.
Ammeter True $A_{RMS}$ and $A_{pk}$ each phase	Range	Function of the number of units in parallel.
	Resolution	0.01A front panel
	Accuracy	$\pm 0.25\%$ of rdg. 50-500Hz, $\pm 0.1\%$ F.S. 20-5,000 Hz, $\pm 0.5\%$ F.S.
Power Meter True Watts and Volt-Amps each phase	Range	Function of the number of units in parallel.
	Resolution	1.0 Watt or VA front panel
	Accuracy	$\pm 1\%$ full range
Power Factor Ratio: $kW_{mtr}/kVA_{mtr}$	Resolution	Calculated and displayed to three digits following the decimal point.
	Accuracy	$\pm 1\%$ full range
Crest Factor Ratio: $A_{pk}/A_{RMS}$	Resolution	Calculated and displayed to three digits following the decimal
	Accuracy	$\pm 1\%$ full range
Freq. Display	Range	20.00-5,000Hz
	Resolution	10.00-99.99 Hz, 0.01 Hz 100.0-999.9 Hz, 0.1 Hz 1,000-5,000 Hz, 1 Hz
	Accuracy	$\pm 0.01\%$ full range

## General/Environmental

Temperature	Operating: 0° to 55° C Storage: -10° to 70° C
Humidity	0 - 95%, Non-condensing
Cooling Per Unit	Front and side forced air intake (600 CFM) with rear exhaust. Automatic Fan Speed Control for low acoustic noise and extended fan life.
Altitude	Operating: 6,500 Ft (1,981m) Storage: 40,000 Ft (12,192 m)
Heat Dissipation Per Unit	6.5kBTU/ hr (Full kW Load)
Audible Noise	65 dba Max @ 1 Meter
Agency Approvals	CE Mark: Safety UL 61010 -1 EN 61010 -1 EMC EN 61326-1

## Protection and Safety

Hardware	Over-current, short circuit, over-temperature
Programmable Current Limit	A single RMS programmed, average responding, value is provided for all phases. Limits current by reducing output voltage.
Programmable Current Protect	Allows the power source to operate in "constant voltage" mode, interrupting output when specified current protect limit is exceeded.

## Mechanical Specifications

Height	See System Configuration Table for required rack height by configuration
Depth	Units: 23.5" (597mm) Transformer Module: 3U (5.25", 133mm) (Approx. from front panel to the rear of chassis).
Weight	Depends on system configuration
Mounting	Standard 19" rack (483mm). **Cabinet options available, see Hardware Option Below.

## Hardware Options

/S	RS232 Interface. 38.4kbps
/G	GPIOB Interface, IEEE-488.2. (Standard on UPC-12 and UPC-32)
/M7073	Safety Interlock Normally Open Contacts
/M99413	Safety Interlock Normally Closed Contacts
/PXXXXXX	Rack option available in different sizes. Available standard cabinet sizes are:
	40" 23U Inside rack height
	49" 28U Inside rack height
	61" 35U Inside rack height
	Available integration levels: Basic Installation only. AMX units installed in cabinet, no wiring, no rear screen. Carriage Return Full Integration. Installation in cabinet, input and output wiring, terminal blocks, rear screen.

## Software/Firmware Options

/Prog-Z	Programmable Output Impedance
/HAS	Harmonic Analysis and Synthesis
Test MGR	UPC Test Manager License: Create, edit, and execute Test sequences and reports. Ordered as separate line item
Test SEQ	Avionics test sequences; DO-160, ABD-0100, ABD-0100 (A350), Ordered as separate line item, Requires 'Test' Manager License.
IEC-AC-4XX	IEC 61000-4 AC Immunity Test Sequences. Includes 4-11, 4-14, 4-27, 4-28 and 4-34. Excludes 4-13 Option.
SCU/UPC32-413	IEC 61000-4-13 Inter Harmonic Generator. Required to run 4-13 tests. Includes 4-13 software.

## Ordering Information

Contact Pacific Power Source or your local Pacific Power Source representative for assistance with specific system configurations.



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