

2,000VA
15-1,200 Hz

1Ø → 0-150V_{L-N}
2Ø → 0-300V_{L-L}



Standard Features:

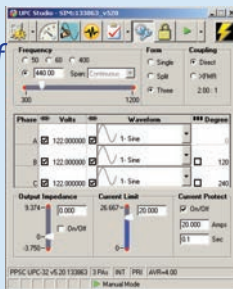
- 1 phase or split phase Selectable Output from front panel or bus command.
- 15 to 1,200 Hz. Operation – 5,000 Hz small signal bandwidth.
- Precision Voltage Programming – 0.05% with Continuous Self-Calibration (CSC) engaged.
- True-RMS metering of volts, amps, and power.
- GPIB (IEEE-488.2) or RS-232 Interface.
- Waveform Library – Arbitrary Waveform Generator.
- 99 stored programs with associated transients for static and dynamic test applications.
- UPC Studio Software Suite.
- UPC Interactive LabVIEW™ Libraries.

Available Options:

- Rack enclosures with caster base
- Programmable Output Impedance
- Harmonic Analysis and Waveform Synthesis
- Peak Inrush Capture and Waveform Analysis
- UPC Test Manager Software Application

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.



Model 120ASX

As a member of Pacific's ASX-Series family of high performance AC Power Sources, the 120ASX offers the low acoustic noise, ease of installation, and maximum power density found in all of Pacific's high frequency, pulse width modulated AC Power Sources. Control and operational features provide a high degree of versatility and ease for applications ranging from simple, manually controlled frequency conversion to harmonic testing and sophisticated bus programmable transient simulation.

AC TEST POWER

The 120ASX is equipped with a powerful micro-controller with the ability to operate as a fully integrated test system. It supplies a variety of power conditions and transients to the device under test while metering and analyzing all output performance parameters.

FREQUENCY/VOLTAGE CONVERSION

The 120ASX is an excellent source of stable AC Voltage over the frequency range of 15 to 1,200 Hz. The output frequency is quartz-crystal stabilized. Output voltages up to 300V_{L-L} are available on the 120ASX model.

UPC SERIES CONTROLLER

Three controller models are available offering both manual and programmable control. All controllers provide manual operation from the front panel. Programmable Controllers may be operated from the front panel or from a remote interface via RS 232 or GPIB.

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'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, Germany, the United Kingdom, and China, local personalized support is always available.



THE POWER OF EXPERTISE



FREQUENCY CONVERSION

AEROSPACE

R & D

MILITARY

MANUFACTURING

CUSTOM

Output Ratings

120ASX

| Rated Power (VA) ¹ | Coupling Mode | Form ² | Output Voltage ³ V _{rms} Max (L-N/L-L) | Current ⁴ (A _{rms}) | Frequency Range | Input Power | Unit Height In/mm/U | Unit Weight (Lbs/Kg) |
|-------------------------------|---------------|-------------------|--|---|-----------------|-------------|------------------------|-------------------------|
| 2000 | Direct | 1Ø/2Ø | 150/300 | 20/14 | 15-1200 | 1Ø | 5.25/133/3U | 75 Lbs/34Kgs |

NOTES:

1. Rated output power is based on a combination of nominal output voltage, rated current and load power factor. Values stated represent the maximum capabilities of a given model. Consult factory for assistance in determining specific unit capabilities as they might apply to your application.
2. Unit is operable as single phase with dual range capability. Output voltage range and 1/2 conversions are selected by front panel or bus commands.
3. Vmax is output voltage with nominal input and full rated load applied.
4. Available current will vary with output voltage and power factor.
5. Source rated at 3kVA in 2Ø mode.

ASX Power Source Specifications (PF = 1.0, V_{out} > 25% F.S.)

| Output Frequency | Line Regulation | Load Regulation (Direct coupled) | Output Distortion | Ripple and Noise | Response Time |
|---|---------------------------------------|--|---|------------------|----------------------------------|
| Full Power 15-1,200Hz Direct Coupled | 0.1% max for a ±10% line change | 0.25% 15 to 400 Hz, 0.50% 400 to 1,200 Hz. Improves to <0.1% with external sense and CSC enabled. | 0.25% THD _{AVG} 15 to 200 Hz 1.25% THD _{AVG} 200 to 1,200 Hz | -66dB | 60 msec typ. 10-90% load step |

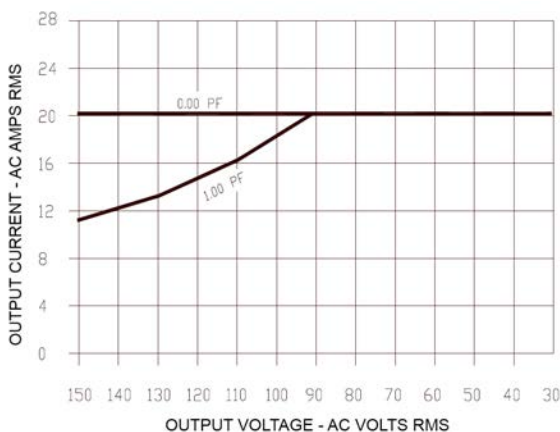
Input Power Requirements (47-63 Hz)

| Input Voltage | 100VAC ±10% | 110VAC ±10% | 120VAC ±10% | 200VAC ±10% | 208VAC ±10% | 220VAC ±10% | 230V ±10% | 240V ±10% |
|---------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| Input Current | 22A _{rms} | 20A _{rms} | 18A _{rms} | 10A _{rms} | 10A _{rms} | 10A _{rms} | 9A _{rms} | 9A _{rms} |
| Recommended Input Service | 25A | 25A | 25A | 15A | 15A | 15A | 15A | 15A |

Power Factor Rating Curves

Rated Continuous load current as a function of Power Factor and Output Voltage-Nominal Input Line

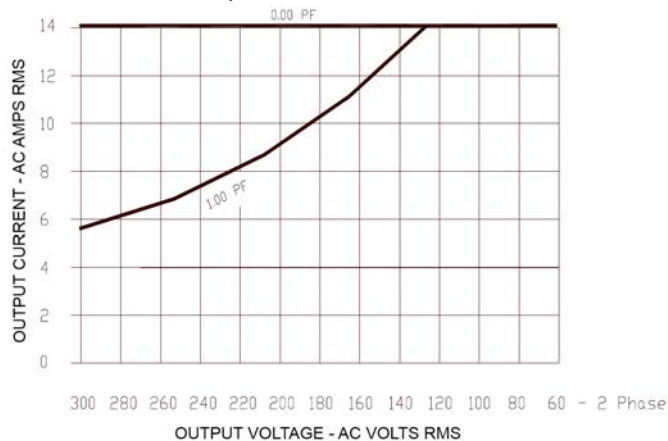
Single Phase Mode



OUTPUT VOLTAGE-AC VOLTS RMS

Short term overloads to 30A are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to several minutes depending upon line and temperature conditions.

Split Phase Mode



OUTPUT VOLTAGE-AC VOLTS RMS

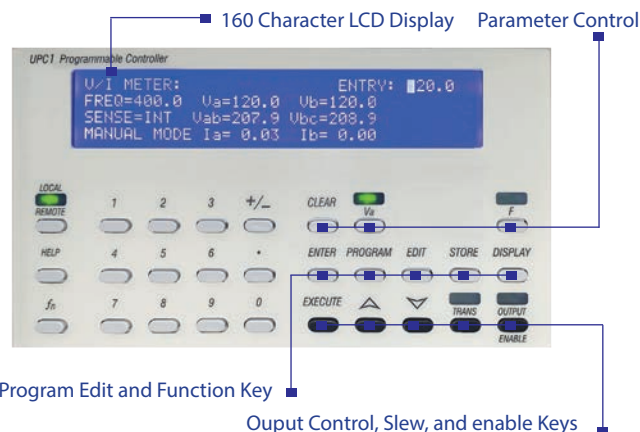
Short term overloads to 15A are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to several minutes depending upon line and temperature conditions.

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's AC Power Sources. Three controller models, UPC-1M, UPC-1, or UPC-12 are offered for use with the 120ASX.

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-1 and UPC-12 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-1M | UPC-1 | UPC-12 |
|-----------------------------------|---------|--------------------|--------------------|
| Output Modes | 1Ø & 2Ø | 1Ø & 2Ø | 1Ø, & 2Ø |
| Waveform Library | Sine | Sine + 21 Editable | Sine + 15 Editable |
| Transient Functions | NO | YES, 50 Steps | YES, 99 Steps |
| Program Library | NO | 99 Programs | 99 Programs |
| Programmable Current Limit | YES | YES | YES |
| Programmable Current Protect | YES | YES | YES |
| CSC (Continuous Self-Calibration) | YES | YES | YES |
| Remote Interface | Std | NONE | RS-232 |
| | Opt | NONE | GPIB |
| Waveform Synthesis/Analysis | NO | OPTIONAL | OPTIONAL |
| Prog. Output Impedance | NO | OPTIONAL | OPTIONAL |
| Inrush Peak Detect | NO | OPTIONAL | NO |
| DRM Link-Synchronization | NO | NO | OPTIONAL |
| Line Synchronization | NO | NO | OPTIONAL |

Output Control Specifications

| | UPC-1M/UPC-1 | UPC-12 |
|---|--------------|--|
| Frequency | Range | 15-1,200Hz |
| | Resolution | 4 Significant Digits |
| | Accuracy | ±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) ±0.05% referenced to Internal Meter (CSC Enabled) |
| Phase Angle ØB and ØC relative to ØA | Range | 0 - 359 ° |
| | Resolution | ± 1 ° |
| | Accuracy | 15.00 - 150Hz, ± 0.5° 15.00 - 300 Hz, ± 1° 15.00 - 600 Hz, ± 2° 15.00 - 1,200Hz, ± 3° |
| Current Limit | Range | 1Ø = 0 - 300 Apk 3Ø = 0 - 100 Apk |
| | Resolution | 0.05% F.S. |
| | Accuracy | ±3% F.S. ±1% F.S. |

(1) Full power output limited to 1,200 Hz in ASX models

External Inputs/Outputs

| | |
|----------------------------|---|
| Analog Auxiliary Input | Each phase is algebraically summed with UPC waveform and amplified 25X to the direct coupled output. ±10Vpk (20Vpk-pk). One input per phase. $Z_N = 600 \Omega$ |
| AM-Amplitude Modulation | ±10 Vdc (20Vpk-pk) modulates the output voltage ±100% One input per phase. $Z_N = 600 \Omega$ |
| Sync Outputs Zero Crossing | Positive Zero Crossing (0°) of Phase A analog output |
| Transient Trigger | Pulse at the start of a transient event. (UPC-12 only) |
| Transient Pedestal | TTL True when a transient is in progress |
| Output Clock | UPC-1, TTL level pulse rate varies with output frequency UPC-12, TTL level 1024 x output frequency |

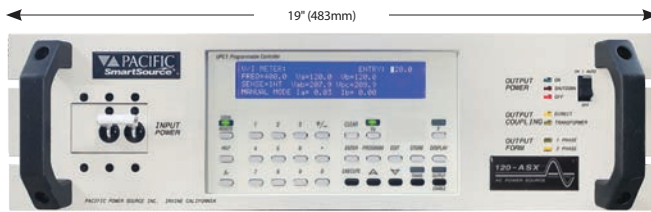
Waveform Control

| | |
|----------------------------------|---|
| 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 |

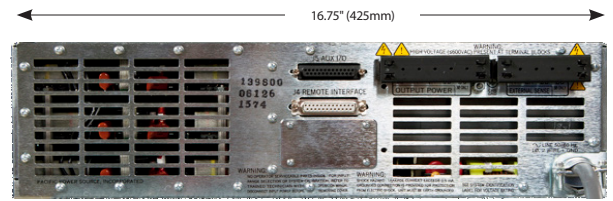
Output Metering

| | UPC-1M/UPC-1 | UPC-12 |
|---------------|--------------|---|
| Voltmeter | Range | 0-354 VL-N, 708VL-L |
| | Resolution | 0.1 Vrms front panel, 0.001 Vrms via remote interface |
| | Accuracy | ±0.2% F.S. plus Cal ref. 50-500Hz, ± 0.25% or rdg. ± 0.1% F.S. 20-5,000 Hz, ± 0.5% F.S. |
| Ammeter | Range | 1Ø = 120 Apk, 2Ø = 60Apk |
| | Resolution | 0.01 Arms or peak front panel, 0.001 Arms via remote interface |
| | Accuracy | ±0.2% F.S. plus Cal ref. ±0.25% of rdg. 50-500Hz, ± 0.1% F.S. 20-5,000 Hz, ± 0.5% F.S. |
| Power Meter | Range | 42,480 (W or VA) |
| | Resolution | 1.0 Watt or VA to front panel, 0.001 kW or kVA via remote interface |
| | Accuracy | ±1% full range ±0.25% of rdg. plus 50-500Hz, ± 0.1% F.S. 20-5,000 Hz, ± 0.5% F.S. |
| Power Factor | Resolution | Calculated and displayed to three digits following the decimal point. |
| | Accuracy | ± 1 % full range |
| Crest Factor | Resolution | Calculated and displayed to three digits following the decimal point. |
| | Accuracy | ± 1 % full range |
| Freq. Display | Range | 15.00 - 1,200 Hz 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 | ± 0.01% full range |

120 ASX-UPC1 Power Source



3U
(5.25",
133 mm)



General/Environmental

| | |
|-------------------|---|
| Temperature: | Operating: 0° to 55° C Storage: -10° to 70° C |
| Humidity: | 0 - 95%, Non-condensing |
| Cooling: | Side forced air intake (300 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: | 1k BTU/ hr (Full kW Load) |
| Audible Noise: | Variable speed fans 65 dba Max @ 1 Meter |
| Agency Approvals: | 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 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 | 120ASX: 3U (5.25, 133mm) |
| Depth | 120ASX: 23" (584mm) |
| Weight | 120ASX : 80 lbs (36kg) |
| Mounting | Standard 19" rack (483mm). Cabinet options available. |

Hardware Options

| | |
|---------|---|
| /M7073 | Safety Interlock Normally Open Contacts |
| /M99413 | Safety Interlock Normally Closed Contacts |
| /M99526 | Input Current Soft Start Option |
| /MXXXXX | Other factory specified modification |

Software/Firmware Options

| | |
|----------|---|
| /S | RS-232 Interface, 38.4 Kbps (std UPC-1) |
| /G | GPIB Interface, IEEE-488.2, (std UPC-12) |
| /Prog-z | Programmable Output Impedance (not available with UPCxM) |
| /HAS | Harmonic Analysis and Synthesis (not available with UPCxM) |
| /IR | In-Rush Meter. Capture and view peak in-rush current values via front panel or remote interface (UPC-3 only). |
| 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. |

Ordering Information

| Model | Controller | Options | Input Voltage (V_{IN}) |
|---------------------------------|---|----------------|--|
| <input type="checkbox"/> 120ASX | <input type="checkbox"/> UPC1M <input type="checkbox"/> UPC1 <input type="checkbox"/> UPC12 | See List Above | <input type="checkbox"/> 100 VAC ±10%, 47-63Hz <input type="checkbox"/> 110 VAC ±10%, 47-63Hz <input type="checkbox"/> 120 VAC ±10%, 47-63Hz <input type="checkbox"/> 200 VAC ±10%, 47-63Hz <input type="checkbox"/> 208 VAC ±10%, 47-63Hz <input type="checkbox"/> 220 VAC ±10%, 47-63Hz <input type="checkbox"/> 230 VAC ±10%, 47-63Hz <input type="checkbox"/> 240 VAC ±10%, 47-63Hz |

Available Models

With Manual Controller

120ASX-UPC1M

With Programmable Controller

120ASX-UPC1

120ASX-UPC12



Order Example

120ASX-UPC1/G, V_{IN} : 230VAC

- 2 kVA, 1-Phase, AC Power Source with optional transformer assembly and UPC-1 programmable controller.
- Optional GPIB Interface
- 2.0:1 Transformer Ratio
- 230 VAC, 2 Phase Input Voltage

Typical Delivery Items

- AC Power Source
- English Manuals (AC Source and Controller)
- UPC Studio Software - (Download)
- UPC Interactive LabVIEW™ Libraries (Download)
- Compliance Certificate with Test data
- CE Conformity Document (CE Models)

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