4,000VA
15-1,200 Hz

1Ø $\rightarrow$ 0-135V$_{L-N}$
2Ø $\rightarrow$ 0-270V$_{L-L}$

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:

- T versions include external transformer assembly P/N 134350 for higher voltage ranges
- 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 140ASX

As a member of Pacific's ASX-Series family of high performance AC Power Sources, the 140ASX 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 140ASX 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 140ASX 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 270V$_{L-L}$ are available on the 140ASX model and up to 600V$_{L-L}$ on the 140ASXT model.

PHASE CONVERSION

With the ability to provide either single or two phase output, the 140ASX is an ideal choice to convert three-phase line voltage into precisely controlled split (two-phase) or single-phase output power.

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.

PACIFIC® POWER SOURCE
THE POWER OF EXPERTISE

FREQUENCY CONVERSION   AEROSPACE   R & D   MILITARY   MANUFACTURING   CUSTOM

Output Ratings

140ASX

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)
4000	Direct	1Ø/2Ø	135/270	32/16	15-1200	3Ø 47-65Hz	8.75/222/5U	120 /54.5

140ASXT

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)
4000	Direct	1Ø/2Ø	135/270	32/16	15-1200	3Ø 47-65Hz	140ASX 8.75/222/5U Transformer Module 5.25/134/3U	140ASX 120 /54.5 Transformer Module 120 /54.5
	Transformer 1.5:1	1Ø/2Ø	202/404	21.3/10.7	45-1200			
	Transformer 2.0:1	1Ø/2Ø	270/540	16/8	45-1200			
	Transformer 2.5:1	1Ø/2Ø	338/600	12.8/6.4	45-1200			

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.

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 45-1,200 Hz Transformer Coupled	0.1% max for a ±10% line change	0.25% 15 to 400 Hz., 0.50% 400 to 1,200 Hz. Transformed Coupled 2 to 5% depending on ratio 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	208V 3ØΔ ±10%	220V 3ØΔ ±10%	240V 3ØΔ ±10%	220/380V 3Ø ±10%	230/400V 3Ø ±10%	240/416V 3Ø ±10%	277/480V 3Ø ±10%
Input Current	$13A_{rms}$	$12A_{rms}$	$11A_{rms}$	$7A_{rms}$	$7A_{rms}$	$6.5A_{rms}$	Cost Option
Recommended Input Service	20A	20A	15A	10A	10A	10A	Contact Factory

* Power Source equipped with soft start feature. In-rush current at application of input power will not exceed recommended input service.

Power Factor Rating Curves

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

Single Phase Mode

Split Phase Mode

Short term overload s to 40A are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to severa; minutes depending upon line and temperature conditions.
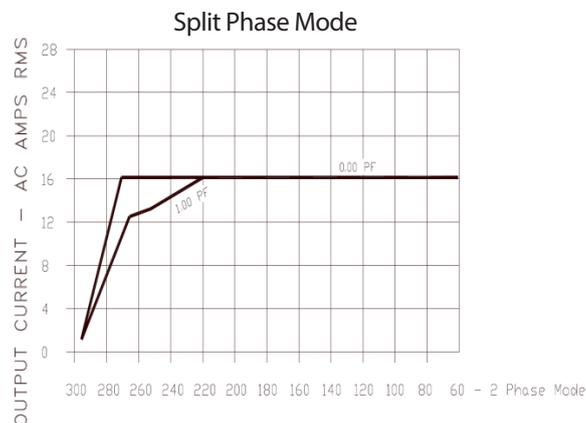
Short term overload s to 20A are permitted. Operating time before thermal shutdown or circuit breaker trip varies from seconds to severa; minutes depending upon line and temperature conditions.
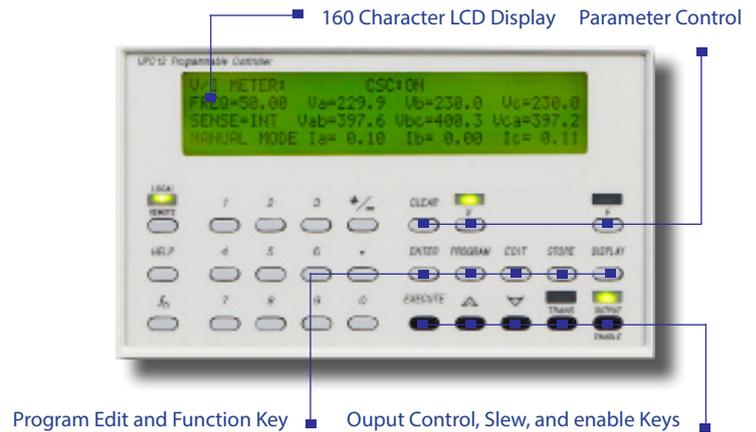
Total Control, Metering, and Analysis of AC Power - Simple, Intuitive Operation

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 140ASX.

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).

160 Character LCD Display   Parameter Control

Program Edit and Function Key   Ouput Control, Slew, and enable Keys

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	GPIB
Remote Interface Opt	NONE	GPIB	RS-232
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

External Inputs/Outputs

Analog Auxilary 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_{IN} = 600 Ω
AM-Amplitude Modulation	±10 Vdc (20Vpk-pk) modulates the output voltage ±100% One input per phase. Z_{IN} = 600 Ω
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 Control Specifications

		UPC-1M/UPC-1	UPC-12
Frequency	Range	15-1,200Hz	20-5,000Hz [1]
	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°	±0. 5°
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

Output Metering

		UPC-1M/UPC-1	UPC-12
Voltmeter True V_{rms} each phase	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 True A_{rms} and Apk each phase	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 True Watts and Volt-Amps each phase	Range	42,480 (W or VA)	
	Resolution	1.0 Watt or VA to front panel, 0.001]l or]VA 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 Ratio : kW_{mtr}/kVA_{mtr}	Resolution	Calculated and displayed to three digits following the decimal point.	
	Accuracy	± 1 % full range	
Crest Factor Ratio: Apk/Arms	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	

140ASXT-UPC1 Power Source with external transformer module

5U (8.75", 222mm)

16.75" (425mm)

16.75" (425mm)

19" (483mm)

19" (483mm)

3U (5.25", 133mm)
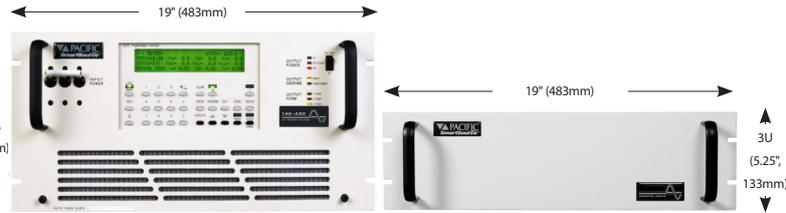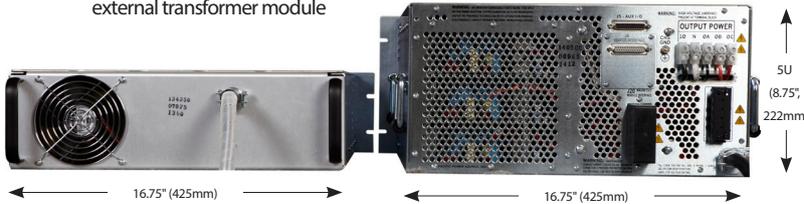
140ASXT-UPC1 Power Source shown with external high range magnetics module.

General/Environmental

Temperature:	Operating: 0° to 55° C Storage: -10 ° to 70° C
Humidity:	0 - 95%, Non-condensing
Cooling:	Front and 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:	2kBTU/ 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	140ASX: 5U (8.75", 222mm) Transformer Module: 3U (5.25", 133mm)
Depth	140ASX: 23.12" (587mm) Transformer Module: 23.5 (597mm) (Approx. from front panel to the rear of chassis).
Weight	140ASX - 120 lbs (54.5kg) Transformer Module: 120 lbs (54.5 kg)
Mounting	Standard 19" rack (483mm). Cabinet options available.

Hardware Options

/M7073	Safety Interlock Normally Open Contacts
/M99413	Safety Interlock Normally Closed Contacts
/P000828	15U rack enclosure, heavy duty vertical cabinet with casters and rear screen. Ordered as separate line item.
/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	T-Ratio (140ASXT Only)	Input Voltage (V$_{IN}$)
☐ 140ASX ☐ 140ASXT	☐ UPC1M ☐ UPC1 ☐ UPC12	See List Above	☐ Ratio 1.5:1 ☐ Ratio 2.0:1 ☐ Ratio 2.5: 1	☐ 208 VACΔ ± 10%, 47-63Hz ☐ 220 VACΔ ± 10%, 47-63Hz ☐ 240 VACΔ ± 10%, 47-63Hz ☐ 220/380VAC ±10%, 47-63Hz ☐ 230/400VAC ±10%, 47-63Hz ☐ 240/416 VAC ±10%, 47-63Hz ☐ 277/480VAC ±10%, 47-63Hz (Consult Factory)

Available Models

With Manual Controller

140ASX-UPC1M
140ASXT-UPC1M

With Programmable Controller

140ASX-UPC1   140ASX-UPC12
140ASXT-UPC1   140ASXT-UPC12

Order Example

140ASXT-UPC1/G, T= 2.0:1, V$_{IN}$: 220/380VAC

- 4 kVA, 1-Phase, AC Power Source with optional transformer assembly and UPC-1 programmable controller.
- Optional GPIB Interface
- 2.0:1 Transformer Ratio
- 220/380V, 3 Phase Input Voltage

Typical Delivery Items

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

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