

PHOENIX 1

Single Phase, Indoor Online Emergency Inverter



ASSEMBLED IN
USA
WITH GLOBAL COMPONENTS

1/10
WARRANTY

The Phoenix 1 series is a single phase, on-line, double conversion, solid state inverter system utilizing patented ECM technology. Each system consists of a solid-state inverter, a temperature compensated rectifier/battery charger, a continuous duty static switch, an internal maintenance bypass switch, battery plant, status/control panel, and synchronizing circuitry. The Phoenix 1 is designed to function in conjunction with the existing building electrical system to provide high quality power conditioning, back-up power protection and distribution for lighting loads and other critical loads.



Standard Power Level:	2.4, 2.6, 3.0, 3.4, 3.8 and 4.2 KW
Input Voltage:	120, 240, 277 or 480 VAC
Input Voltage Range:	+10% -15%
Output Voltage:	120, 277, 480, 120/240 or 120/277 VAC
Output Voltage Regulation:	±3% for all loads and battery discharge mode
Output Frequency Range:	60 Hz, ±1%
Output Wave Form:	Sine-wave <5% @ 100% linear load
Crest Factor:	2.5:1 typical
Input Protection:	Input Main Circuit Breaker
Output Protection:	Output Main Circuit Breaker
Surge Protection:	The unit will protect itself and the load against surges defined in ANSI/IEEE C62.45 category A/B
Battery:	Sealed maintenance-free (AGM) lead calcium
External Battery:	Provision for hardware connection of external battery cabinets or DC source
Compliance:	Assembled in the USA with global components. American Recovery and Reinvestment Act (ARRA) compliant
Efficiency:	≥92% at 100% linear load
Audible Noise:	<45dBA
Operating Temperature:	0° to 40°C (32° to 104°F)
Storage Temperature:	-20° to 60°C (-4° to 140°F)
Humidity:	5 - 95%, Non-condensing

ORDERING INFORMATION Example: PHX1-2.6-120-480-EPO-90

Series	Power Rating	Input Voltage ¹	Output Voltage ¹	Options	Run Time ³
PHX1	2.4 = 2.4KW	120 = 120VAC	120 = 120VAC	ECM120/# ² = 120V Environmental Control Module / Qty	5 = 5 Min
	2.6 = 2.6KW	240 = 240VAC	240 = 240VAC	ECM277/# ² = 277V Environmental Control Module / Qty	10 = 10 Min
	3.0 = 3.0KW	277 = 277VAC	277 = 277VAC	NOF/V/# = Normally OFF Output Circuit / Voltage / Qty	15 = 15 Min
	3.4 = 3.4KW	480 = 480VAC	480 = 480VAC	NOH/V/# = Normally OFF "Hold ON"/ Voltage / Qty	20 = 20 Min
	3.8 = 3.8KW		120/240 = 120/240VAC	OCB/V/#/A = Output Circuit Breakers / Voltage / Qty / Amps	25 = 25 Min
	4.2 = 4.2KW		120/277 = 120/277VAC	EPO = Emergency Power Off	30 = 30 Min
				RP = Remote Indicator Panel	45 = 45 Min
			SNMP = SNMP Card	60 = 60 Min	
			FCON = Form C Contacts	90 = 90 Min (Std)	
			SRB = Seismic Rated Bracket	120 = 120 Min	
Notes			OST = Onsite Start-Up	180 = 180 Min	
¹ Consult factory for other voltages, may effect weight, size and number of cabinets			IDB = Internal Dimmer Bypass	240 = 240 Min	
² One ECM is used per switching device or circuit			EMB = External Maintenance Bypass Switch		
³ Consult factory for other run times			EW = Extended Warranty		

Model: _____ Date: _____
 Accessories: _____
 Job Name: _____ Type: _____

Series	Select Power Rating (KW)	Voltage (VAC)		UPS Cabinet Dimensions			Weight (LBS)	BTUs	Battery Type	Output Protection	Safety Approvals
		Select Input	Select Output	Width	Height	Depth					
Phoenix 1 Single Phase Online Inverter	2.4	120, 240, 277 or 480	120, 277, 480, 120/240 or 120/277	26"	44"	26"	700	652.8	Sealed, Maintenance Free (AGM) Lead Calcium	Input and Output Circuit Breakers Standard	UL924 UL1778 NFPA101 NFPA70 NEC
	2.6						700	707.2			
	3						800	816			
	3.4						800	924.8			
	3.8						800	1033.6			
	4.2						920	1142.2			

POWER RATING

2400 - 4200 watt, single phase output unit uses the latest technology to provide the most advanced performance and reliability features.

INPUT

120, 240, 277 or 480 VAC input

AC Input Characteristics:

- Input Frequency: 60 Hz
- Power walk-in: 0 to 100% over a 10-second period
- Magnetizing Inrush Current: Less than nominal input current for less than one cycle
- Input Surge Protection: The Phoenix 1 is equipped with a standard input filter assembly that will withstand surges per IEEE 587-1980/ANSI C62.41

OUTPUT

120, 277, 480, 120/240 or 120/277 VAC output, Stand-by design is ≥92% efficient at 100% linear load.

AC Output Characteristics:

- Voltage Regulation: + 3% for no-load to full load and full 90 minute battery discharge mode
- Frequency: 60 Hz (+ 0.1Hz when free running)
- Voltage Distortion: Maximum 5% total (THD) @ 100% linear loads
- Voltage Transient (Step Load) Response:
 - +/- 5% for 50% step load change
 - +/- 8% for 100% step load change
 - +/- 3% for loss or return of AC input power or manual transfer at full load
- Voltage Recovery Time: Return to within 3% of nominal value within 50 milliseconds
- Non-Linear Load Capability: Output voltage total harmonic distortion is less than 8% when connected to a 100% non-linear load with a crest factor not to exceed 2.5%
- Slew Rate: 1 Hz/second maximum
- Power Factor: Unity power factor
- Inverter Overload Capability:
 - 125% of rated load for 1 minute
 - 145% of rated load for 10 seconds
- Bypass Overload Capability: > 200% for one cycle; > 150% for 30 seconds

BATTERIES

The Phoenix 1 module employs a valve regulated, sealed, lead calcium, heavy-duty, industrial battery pack. This battery system is designed for auxiliary power service. The primary battery pack is furnished with an impact resistant plastic case and housed within the cabinet.

- Protection against deep discharge and self-discharge: The Phoenix 1 is equipped to protect the battery pack against deep discharge depending on discharge conditions, with isolation of the battery by a circuit breaker. In particular, a monitoring device will adjust the battery shutdown voltage as a function of a discharge coefficient in order to avoid excessive discharge.
- Battery self-test: The battery monitoring system is to perform the following automatic functions:
 - Battery circuit check
- Sealed, maintenance-free, lead calcium (AGM) batteries
- 10 year prorated warranty
- Guardian Smart Battery Monitoring System is TEMPERATURE COMPENSATED maintaining maximum runtime and battery life
- Microprocessor controlled recharge and overcharge protection is standard

LAMPS AND LOADS

- Pure sine wave output for all types of lamps
- Emergency power provides FULL LIGHT OUTPUT from all lamps and fixtures for the entire runtime
- Standard or LED Exits and other safety equipment
- Standard or electronic ballasts, dimming devices or panels, sensors and most control equipment
- Operates fluorescent, compact fluorescent, incandescent, quartz, LED and other lamp types

CODES

- City of Chicago and New York approved
- Complies with the Buy American Act (Level 3)
- The Phoenix 1 will meet the requirements of the following standards:
 - IEEE 587-1980/ANSI C62.41 1980 Standards for Surge Withstand Ability
 - FCC rules and regulations of Part 15, Subpart J, Class A
 - Meets UL 1778, UL 924, Standards for Lighting Inverter Equipment
 - NEMA PE 1 (National Electrical Manufacturers Association) Lighting Inverter Systems
 - NEMA 250 (National Electrical Manufacturers Association) Enclosures for Electrical Equipment (1000 Volts Maximum)
 - NFPA 70 National Electrical Code
 - ISO 9001
 - Occupational Safety & Health Administration (OSHA)

PROTECTION

- Provides overload, surge and undercurrent protection using the latest technology and Guardian Diagnostics to protect system performance and reliability.
- Transfer in 16msec - 60msec

DIAGNOSTICS, MAINTENANCE AND ACCESSIBILITY

All Phoenix 1 sub-assemblies, as well as the battery, are accessible from the front only. The Phoenix 1 design will provide maximum reliability and minimum MTTR (mean time to repair). The electronic Phoenix 1 control and monitoring assembly is fully microprocessor based. The unit is repairable by replacing standard subassemblies.

- Guardian Diagnostics provides complete self diagnostic capabilities and LED Monitoring
- Informative, advanced display and alarms allow complete control of the emergency lighting environment
- Automatically performs periodic self-tests ensuring a safely lighted environment prior to an emergency
- Single point of testing instead of multiple testing points with battery packs

CABINET

- Enclosure: The Phoenix 1 is housed in a freestanding enclosure. The mechanical structure of the Phoenix 1 is sufficiently strong and rigid to withstand handling and installation operations without risk. Access to Phoenix 1 subassemblies is through the front only. The sheet-metal elements in the structure are protected against corrosion by a suitable treatment, such as zinc electroplating, powder coating, epoxy paint or an equivalent.
- Cable Access: The Phoenix 1 allows for side, top and bottom entry cables.
- Ventilation and Heat Rejection: The Phoenix 1 is designed specifically for forced air cooling. Air inlets are provided from the front, bottom of the unit enclosure. Air exhaust is achieved from the top or side portions of the unit.

INSTALLATION

- Modular design and small footprint allow easy installation in electrical closet or other convenient locations
- Phone assisted factory start-up standard for all systems
- Extended warranty available
- The Phoenix 1 will operate under the following environmental conditions:
 - Temperature:
 - Phoenix 1 Module
 - Operating: 0° to 40°C (32°F to 104°F)
 - Non-Operating: -20°C to +60°C (-4°F to 140°F)
 - Batteries: 25°C (77°F)
 - Relative humidity (operating and storage): 5 to 95% non-condensing
 - Barometric Pressure:
 - Up to 1000 meters above sea level
 - Up to 2000 meters with ambient temperature less than 28°C
 - Up to 12,000 meters above sea level non operating
 - Audible Noise: 45dBA at 3 feet BA at 3 feet
- Site Testing and Start-Up – If selected, the inverter system will be checked, started and tested by a manufacturer's qualified field service engineer either by phone start-up (standard) or by optional onsite start up when performed by a factory technician.

SPECIAL APPLICATIONS

- Barron offers numerous UL924 optional devices to meet unusual or difficult application parameters
- ECM – Eco-Control Module allows fixtures and lamps on the emergency circuit(s) to be operated by normal switching and/or dimming devices in NON-emergency conditions
- Dimming Panel Interface allows use with emergency lights controlled by common dimmer panel

DELIVERY, STORAGE, AND HANDLING

- All products are packaged in a manner to prevent penetration by debris and to allow safe delivery by all modes of ground transportation and air transportation where specified.
- Prior to shipping all products are inspected at the factory for damage.
- Equipment is protected against extreme temperature and humidity and is stored in a conditioned or protected environment.
- Equipment containing batteries will not be stored for a period exceeding three months without powering up the equipment for a period of eight hours to recharge the batteries.

WARRANTY

- 1 year full warranty on system electronics
- Battery warranty 1 year with 9-years pro-rated
- System 1 year on-site warranty labor with phone assisted start-up
- 5 year power train warranty
- Maintenance contracts available