

PROJECT
TYPE
CATALOG #

# 23-LPS

## EMERGENCY POWER SYSTEMS

### DESCRIPTION

- Midsize-electrical inverter systems for powering 375 up to 600 watts of incandescent, fluorescent, induction or LED lighting loads. Pulse width modulated (PWM) output design provides clean, 60 Hz. sinusoidal emergency power to loads.
- All models are designed for fast, easy wall mounting.

### ELECTRICAL SPECIFICATIONS

#### INPUT

- Input Voltages: Universal 120 or 277VAC, 60Hz (User selectable with (2) wire jumpers provided)
- Input Frequencies: 60Hz  $\pm$ 2%
- Input Surge Protection: Meets UL924
- Input Protection: Provided by Service Panel rated at 20 amps maximum

#### OUTPUT

- Output Voltages: (60Hz) 120 or 277VAC
- Efficiency Rating: 98% at full rated load (line)
- Waveform: Sinusoidal (digitally controlled)
- Static Voltage:  $\pm$ 5% during battery discharge. 0-100%linear load.
- Output Frequencies: 60Hz.  $\pm$ 0.3Hz during emergency cycle
- Output Distortion: Less than 3% THD (linear load)
- Transfer Time: Less than 1.0 second
- Load Power Factor Range: 0.88 Lead to 0.88 Lag
- Minimum Loading: 0% of rated system capacity
- Output Protection: Circuit breaker

### HOUSING

- Heavy duty steel cabinet is finished in white baked-on powder paint providing scratch and corrosion resistance.
- Optional special color paint (-SP) finishes are available, consult factory.

### MOUNTING

Surface Mount: Surface mount models are designed for mounting to walls by means of keyhole slots provided in the back of the unit housing.

### WARRANTY

- Unit: (excluding lamps) Full coverage against defects in materials and workmanship for 3 years from date of shipment.
- Battery: 3 years full warranty plus an additional 7 years of pro-rata coverage.
- All models are UL924 Listed and meet NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes.
- UL Listed for damp locations (20° - 30°C).

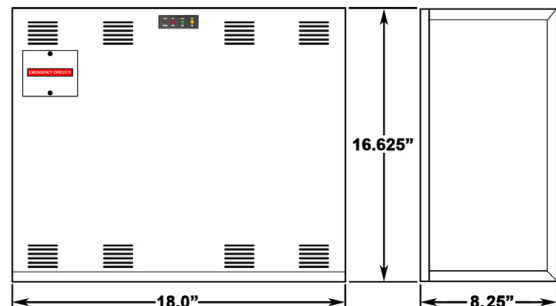


True Sinusoidal Output Power

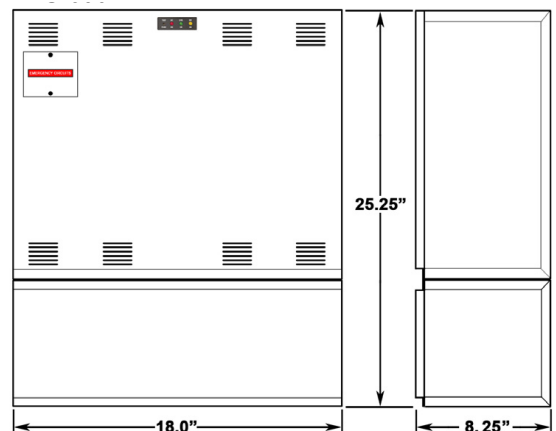


### DIMENSIONS

#### 23-LPS-375



#### 23-LPS-600



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The 23-LPS Series is designed to provide 375 to 600 watts of emergency power to incandescent, fluorescent, induction and/or LED fixtures. The 23-LPS unit provides clean, sinusoidal AC output power allowing it to be remotely mounted up to 1,000 feet away from the controlled fixture(s). Unlike a ballast fluorescent emergency pack, the 23-LPS provides power to the input side of the fixture, (including the ballast) eliminating any chance of incompatibility. The 23-LPS Series is designed for surface mounting. All 23-LPS systems will provide emergency power output for a minimum of 90-minutes.

### FEATURES

- For powering incandescent, fluorescent, induction and LED fixtures \*
- Sinusoidal output eliminates compatibility problems
- Universal 120/277VAC, 60Hz. input/output
- Unit capacities up to 600 watts
- "Soft Start" design reduces fixture inrush current
- Unit may be installed up to 1,000 feet from controlled fixture(s)
- Lumen output from fixture is 100% of nominal
- Unique design eliminates compatibility problems with LED drivers as well as fluorescent and induction ballasts
- Compatible with dimming ballasts
- Normally-ON and/or Normally-OFF load output
- Provisions for local switching capability - Always on during emergency conditions regardless of local switch position
- Emergency fixtures can be ON, OFF or SWITCHED
- Solid-state, line latched low voltage disconnect provides protection against battery deep discharge
- Long life, maintenance-free lead-calcium battery
- Momentary test switch
- AC-ON, Charge-ON and Inverter-ON LED indicators

### WIRING

Connection to an unswitched AC circuit is required by the NEC. Wiring access is provided for by conduit knockouts in the unit housing.

### LOAD COMPATABILITY

23-LPS model's clean, sinusoidal AC output will operate incandescent lamps as well as all common fluorescent, induction and LED lamp types. Consult factory for compatibility with all other lamp types.

Lighting loads are driven at 100% output for the entire emergency power cycle. This outstanding feature translates into greater occupant egress vision and safety.

### SYSTEM OPTIONS (1)(2)

ADD SUFFIX	DESCRIPTION
-OCB1	One Output Breaker
-OCB2	Two Output Breakers
-ICB	Input Breaker
-SP	Special Housing Color (specify)
-AO	Adjustable Output/Dimmer Bypass (3)(4)
-4C	Four Output Circuit Switching (3)(4)
-SDT	Self-Testing / Self-Diagnostics (3)

(1) Other options available. Consult factory.

(2) Some options may impact product UL listing. Consult factory.

(3) For more information, separate specification sheets are available on the -AO,-4C and -SDT options. Consult factory.

(4) Not available together

MODEL NUMBER	INPUT/OUTPUT VOLTAGE	CAPACITY For 1 1/2 Hrs. (Watts/VA)	SYSTEM WEIGHT		SYSTEM EFFICIENCY (Full Load)	NUMBER OF BATTERIES	BATTERY VOLTAGE (VDC)	BATTERY CURRENT (Amps)	AC INPUT CURRENT (MAX)		THERMAL OUTPUT (BTUs)	
			Lbs.	Kg.					120VAC	277VAC	On-Line	Emergency
LPS-375	120/277VAC	375/375	113	51.3	98%	5	60	7.3	3.43	1.49	11	205
LPS-600	120/277VAC	600/600	172	78.1	98%	8	96	7.1	5.50	2.38	15	275

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### BATTERIES AND CHARGER

**Battery:** Sealed Lead Calcium (10 year life)

**Battery Voltage:** 60VDC for 23-LPS-375 model and 96VDC for 23-LPS-600 model

**Runtime:** 90 minutes standard - based on battery performance at 77°F (25°C). Other runtimes available, consult factory.

**Battery Protection:** Low Voltage Battery Disconnect protects the battery from being severely damaged by deep discharge during prolonged power failures.

Reverse Polarity, DC Overload and Short Circuit Protection provided by a DC input breaker and fuse.

### CHARGER

**Charger Type:** Fully automatic, temperature compensated, dual-mode charger

**Power Consumption (Charger Only):**

37W maximum (2.5W in standby) for 23-LPS-375 model 56W maximum (5W in standby) for 23-LPS-600 model

**Recharge Duty Cycle:** Meets UL924 requirements

**Battery Circuit Breaker:** Also used as battery isolator

**Controls:** Momentary test switch, AC-On, Charge-On and Inverter-On LED indicator lights

**Safety Circuitry:** AC Lockout prevents battery discharge prior to initial unit power-up.

Brownout Protection automatically switches the unit to emergency mode when utility voltage is significantly reduced.

### ENVIRONMENTAL

**High Altitude Operation:** Maximum operating temperature drops 1 degree C per 300 meters (2 degrees F per 1000 feet) above sea level.

**Operating Temperature Range:** 68°F to 86°F (20°C to 30°C)

**NOTE:** Optimum system performance between 20°C (68°F) and 30°C (86°F); temperatures outside of this range will affect battery performance and life.

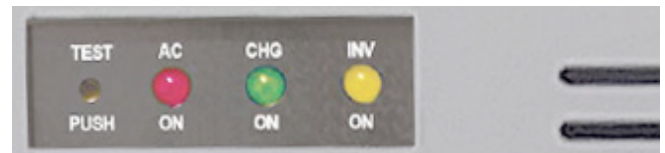
**Relative Humidity:** 95% non-condensing

### OPERATION

Upon failure of the normal utility power the 23-LPS unit is automatically turned on by a solid state switching circuit and provides a minimum of 90 minutes of emergency power to the connected load. Lumen output will be maintained at 100% of the lamp's rating throughout the entire duration.

A solid state low voltage disconnect circuit is used to protect the battery from being severely damaged by a deep discharge. When normal utility power is restored, the unit switches the load back to normal utility operation and the fully automatic, temperature compensated, dual mode charger begins to restore the battery; bringing it to full charge within UL 924 specified parameters. A brownout sensing circuit insures proper operation during "low line" conditions.

### SYSTEM STATUS MONITORING PANEL



All 23-LPS systems provide a monitoring panel on the front of the unit to show operating status at all times. The panel provides a test switch for user initiated system tests and a 3-LED array that provides an intuitive visual indication of unit readiness.

### IMPROVED AESTHETICS

The 23-LPS system's sinusoidal AC output design eliminates voltage drop and proximity concerns. This allows added flexibility in installation location as 23-LPS units can be installed hundreds of feet from the units they power. This means 23-LPS units to be located conveniently out of sight in closets or utility rooms without interrupting architectural aesthetics.

In lighting applications, no special or additional emergency fixtures are necessary. Simply designate and connect existing lighting fixtures, either interior or exterior, to the 23-LPS unit for emergency operation eliminating the need for exposed, stand-alone emergency luminaires.

### 23-LPS SYSTEM ADVANTAGES

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### SUGGESTED SPECIFICATION

An inverter system with sinusoidal output shall be supplied capable of powering any combination of lighting fixtures, including incandescent, fluorescent, induction and/or LED light sources without compatibility problems.

The system shall transfer in less than 1.0 second to reliably back up lighting fixtures without loss of illumination and operate any and all connected lighting fixtures at full lumen output during the complete 90-minute discharge cycle.

The input voltage shall be the same as the output voltage and shall be single phase 120/277 volts, 60 Hz. Output capacity will be (375W/375VA) (600W/600VA) for a minimum duration of 90-minutes.

The design shall be a standby, off-line inverter with on-line efficiency of 98%; on-line double conversion UPS systems shall not be considered acceptable alternatives. 23-LPS System output shall be a PWM generated sine wave with less than 3% total harmonic distortion with "Soft Start" design reduces fixture inrush current. The system shall also provide short circuit and overload protection as standard.

An intuitive three LED display shall provide system operational information at a glance and alert user to any malfunction in system performance. Authorized maintenance personnel shall have access to the system's controls while being protected from any live exposed connections.

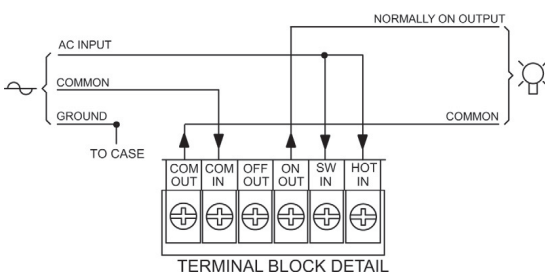
Protective devices shall include AC Line fuses, DC input breaker and a DC input fuse. The entire 23-LPS system, including batteries, shall be incorporated into compact cabinetry which shall have provisions for surface mounting.

System shall be capable of providing up to 4 switch bypass circuits, adjustable output or 2.5 to 10 volt dimmer bypass and self-test/self-diagnostics, were necessary.

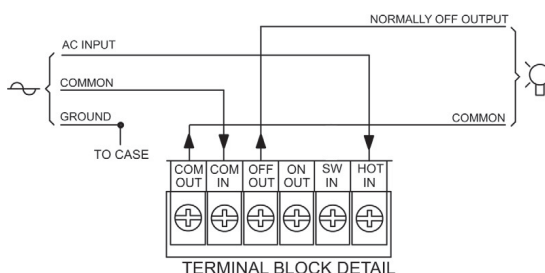
System shall utilize a sealed lead calcium battery with a 10 year design life. The charger shall be temperature compensated, dual mode type, and recharge the batteries as per UL924 guidelines. Entire system shall be tested, approved, and labeled to UL924 Emergency Lighting and Power Systems standards.

### WIRING DIAGRAMS

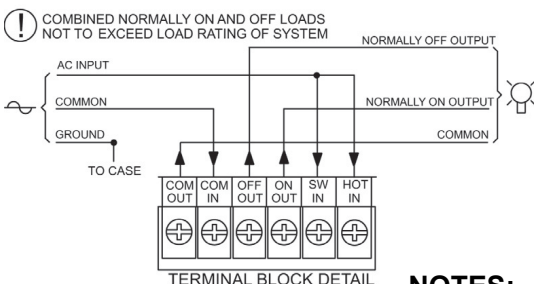
#### NORMALLY ON LOADS



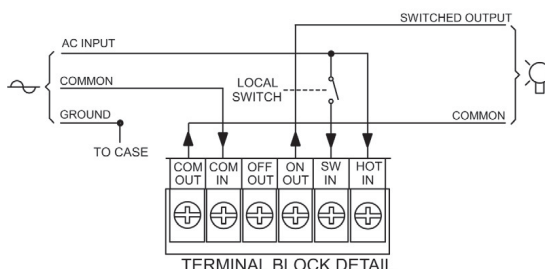
#### NORMALLY OFF LOADS



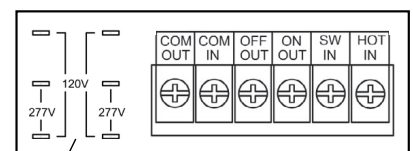
#### NORMALLY ON & OFF LOADS



#### SWITCHED LOADS



### VOLTAGE SELECTION DETAIL



**NOTE:**  
Factory terminated jumper wires are provided with LPS Systems for making user selected input/output voltage connections.

### NOTES:

- ⚡ INPUT SUPPLY FROM UNSWITCHED UTILITY RATED 20 AMPS MAXIMUM.
- 💡 OUTPUT(S) TO LIGHTING LOADS