

## USASPS

### EMERGENCY POWER SYSTEM



Mini-electrical inverter systems for powering up to 220W/250VA of incandescent, fluorescent, induction or LED lighting loads. Pulse width modulated (PWM) output design provides clean, 60Hz sinusoidal emergency power to loads.



#### INPUT

- Input Voltages: 120 or 277VAC  $\pm 10\%$
- Input Frequencies: 60Hz  $\pm 2\%$
- Input Protection: AC Line Fuses

#### 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.  $\pm 0.3\text{Hz}$  during emergency cycle
- Output Distortion: Less than 3% THD (linear load)
- Transfer Time: Less than 1.0 second
- Load Power Factor Range: 0.44 Lead to 0.44 Lag
- Minimum Loading: 0% of rated system capacity
- Output Protection: Line and Inverter Fuses

#### LOAD COMPATIBILITY

- USASPS model's clean, sinusoidal AC output will operate incandescent lamps as well as all common fluorescent 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.

#### WIRING

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

#### GENERAL SPECIFICATIONS

MODEL	INPUT/OUTPUT VOLTAGE	CAPACITY 90MINS	WEIGHT	ONLINE EFFICIENCY	BATTERY VOLTAGE	DC INPUT CURRENT	NUMBER BATTERIES	INPUT CURRENT 120VAC   277VAC	THERMAL OUTPUT ONLINE   EMERGENCY
USASPS-55/125	120/277VAC	55W/125VA	30lbs	98%	24	3.4	2	1.2   0.52	9 90
USASPS-110/125	120/277VAC	110W/125VA	42lbs	98%	24	5.7	2	1.2   0.52	9 95
USASPS-110/250	120/277VAC	110W/250VA	45.2lbs	98%	48	2.1	4	2.4   1.10	18 163
USASPS-220/250	120/277VAC	220W/250VA	60lbs	98%	48	3.8	4	2.4   1.10	18 167

#### WARRANTY & LISTINGS

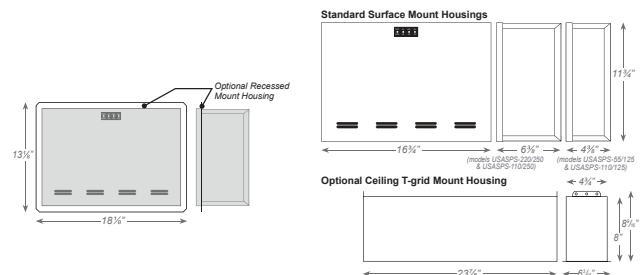
- Unit: (excluding lamps) Full coverage against defects in material and workmanship for 3 years from date of shipment
- Battery: 3-Year Full Warranty plus an additional 7-Years of pro-rata coverage
- All models are UL924 Listed and meet NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes
- UL Listed for damp locations (20° – 30°C)
- FCC Part 15 Class B Compliant

#### 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
- Recess Mount: Recess models provide recess mounting holes on both sides of the enclosure
- T-Grid Mount: Housing design allows simple drop-in installation between t-grid runs. Safety wires (supplied by others) are required for attachment to building structure



The USASPS Series is designed to provide 220W/250VA of emergency power to incandescent, fluorescent and/or LED fixtures. The USASPS 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 USASPS provides power to the input side of the fixture, (including the ballast) eliminating any chance of incompatibility. The USASPS Series is designed for surface, recessed or ceiling T-Grid mounting if required. All USASPS 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
- Surface, recessed or T-Grid mount models
- Lumen output from fixture is 100% of nominal
- Unique design eliminates compatibility problems with LED drivers as well as fluorescent and induction 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
- Maintenance-free lead-calcium and premium grade Nickel-Cadmium battery models offered
- Momentary test switch
- AC-ON, Charge-ON and Inverter-ON LED indicators

\* Consult factory for compatibility for other lamp types

## OPERATION

Upon failure of the normal utility power USASPS 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 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 UL924 specified parameters. A brownout sensing circuit insures proper operation during "low line" conditions.

## SYSTEM STATUS MONITORING PANEL

All USASPS 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.



## SYSTEM OPTIONS <sup>(1)(2)</sup>

ADD SUFFIX	DESCRIPTION
-S	Surface Mount Housing
-R	Recess Mount Housing <sup>(3)</sup>
-T	Plenum Rated Ceiling T-Grid Mount Housing <sup>(3)</sup>
-SP	Special Housing Color (specify)
-4C	4 Output Circuit Switching <sup>(4)</sup>
-RTS	Remote Test Switch Panel <sup>(4)</sup>
-AO	Adjustable Output/Dimmer Bypass <sup>(4)</sup>
-SDT	Self-Testing / Self-Diagnostics <sup>(4)</sup>
-CEC	Title 20 Compliant

<sup>(1)</sup> Other options available. Consult factory.

<sup>(2)</sup> Some options may impact product UL listing. Consult factory.

<sup>(3)</sup> Available with USASPS-55/125 and USASPS-110/125 models only.

<sup>(4)</sup> For more information, separate specification sheets are available on the -4C, -RTS, -SDT and -AO options.

## BATTERIES & CHARGER

### BATTERY

- Battery: Sealed Lead Calcium (10 year life)
- Battery Voltage: 24VDC for USASPS-55/125, USASPS-110/125 models and 48VDC for USASPS110/250, USASPS220/250 models
- Runtime: 90 minutes standard.  
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
- Power Consumption: (Charger Only)
- Recharge Duty Cycle: Meets UL924 requirements
- 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°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

## IMPROVED AESTHETICS

The USASPS system's sinusoidal AC output design eliminates voltage drop and proximity concerns. This allows added flexibility in installation location as USASPS units can be installed hundreds of feet from the units they power. This means USASPS 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 USASPS unit for emergency operation eliminating the need for exposed, stand-alone emergency luminaires.

## SUGGESTED SPECIFICATIONS

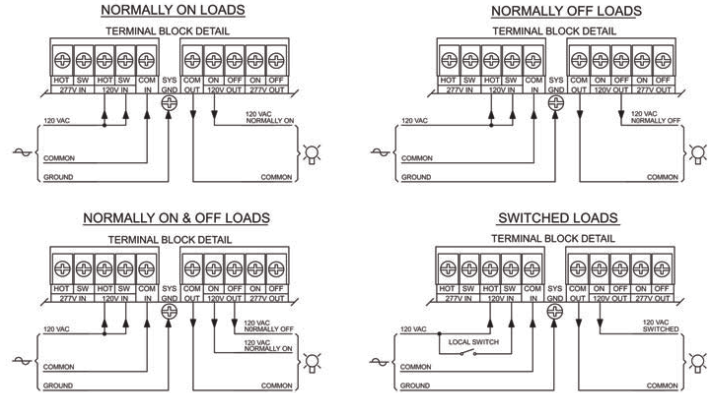
An inverter system with sinusoidal output shall be supplied capable of powering any combination of lighting fixtures, including incandescent, fluorescent, induction and/or LED light sources without compatibility problems. The system shall transfer in less than 1.0 second to reliably back up lighting 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. USASPS 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.

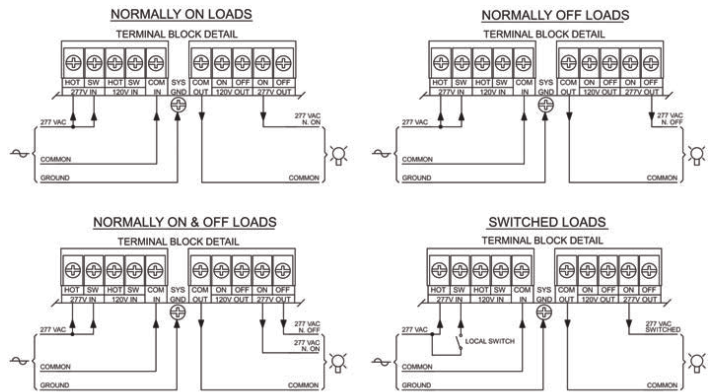
Protective devices shall include AC Line fuses, DC input breaker and a DC input fuse. The entire SPS system, including batteries, shall be incorporated into compact cabinetry which shall have provisions for surface mounting. System shall be capable of providing up to 4 switch bypass circuits, adjustable output or 2.5 to 10 volt dimmer bypass and self-test/self-diagnostics, where 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. (T-Grid models will be plenum rated)

## WIRING DIAGRAMS



### 120VAC CONNECTIONS



### 277VAC CONNECTIONS