

LLSPS Series Inverters

Mini electrical inverter systems provide a minimum of 90 minutes up to 220W/250VA lighting loads. Pulse width modulated (PWM) output design provides clean, 60 Hz. sinusoidal emergency power to loads.

Features:

- Sinusoidal output eliminates compatibility problems
- “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
- Compatible with 0-10v dimming ballasts with **AO option** (Normally-ON and/or Normally-OFF load output)
- Emergency fixtures can be ON, OFF, or SWITCHED
- Provisions for local switching capability with **4C Option** (Always on during emergency conditions regardless of local switch position)
- Solid-state, line latched low voltage disconnect provides protection against battery deep discharge
- Brownout sensing circuit insures proper operation during “low line” conditions.
- Long life, maintenance-free lead-calcium battery (10 Year Life)
- Momentary test switch (Optional remote test switch)
- AC-ON, Charge-ON and Inverter-ON LED indicators

Housing & Mounting:

- Heavy duty steel cabinet in white powder paint provides scratch and corrosion resistance.
- Optional special color paint (SP) finishes are available, consult factory.
- Surface Mount (*Standard*): Surface mount models are designed for mounting to walls by means of keyhole slots provided in the back of the unit housing.
- Optional Recessed and T-Grid Mounting: **For LLSPS-55/125 and LLSPS-110/125 Only**

Electrical Specifications:

- Input Voltages: 120 or 277VAC $\pm 10\%$
- Input Frequencies: 60Hz $\pm 2\%$
- Input Protection: AC Line Fuses
- 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
- Connection to an unswitched AC circuit is required by the NEC.

Warranty/Certifications:

- 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 prorated coverage.
- All models are UL924 Listed and meet NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes. Optional T-Grid models are plenum rated, to UL2043 and meets city of Chicago CCEA Requirements.
- UL Listed for damp locations
- Operating Temperature (20° - 30°C). (*Temperatures outside of this range will affect battery performance and life.*)
- Altitude: < 10,000 feet (3,000m) above sea level without derating.
- Optional -CEC models are Certified to CEC Under Title 20 regulations
- FCC Part 15 Class B Compliant.



SYSTEM STATUS MONITORING PANEL



Battery & Charger:

- Sealed Lead Calcium Battery (*10 year life- see warranty for details*)
- Battery Voltage: 24VDC for LLSPS-55/125, LLSPS-110/125 models and 48VDC for LLSPS110/250, LLSPS220/250 models
- Runtime: 90-minutes standard - based on battery performance at (25°C). Other run times available, consult factory.
- Battery Protection: Low Voltage Battery Disconnect protects the battery from being severely damaged by deep discharge during prolonged power failures.
- DC Overload and Short Circuit Protection provided by a DC input breaker and fuse.
- Fully automatic, temperature compensated, dual-mode charger
- Power Consumption (*Charger Only*):
 - 15W maximum (2.5W in standby) for LLSPS-55/125, and LLSPS-110/125 models.
 - 30W maximum (5W in standby) for LLSPS110/250, and LLSPS220/250 models
- 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.



General Specifications:

MODEL NUMBER	INPUT / OUTPUT VOLTS	CAPACITY for 1½ Hrs.		SYSTEM WEIGHT*		ONLINE SYSTEM EFFICIENCY (full load)	NUMBER of BATTERIES	BATTERY VOLTAGE (VDC)	BATTERY CURRENT (amps)	AC INPUT CURRENT		THERMAL OUTPUT in BTUs	
		WATTS	VA	Lbs.	Kg.					120VAC (max)	277VAC (max)	ONLINE	EMERGENCY
LLSPS-55/125	120/277	55	125	30.0	14	98%	2	24	3.4	1.2	0.52	9	90
LLSPS-110/125	120/277	110	125	42.0	17	98%	2	24	5.7	1.2	0.52	9	95
LLSPS-110/250	120/277	110	250	45.2	21	98%	4	48	3.3	2.4	1.10	18	163
LLSPS-220/250	120/277	220	250	60.0	27	98%	4	48	5.6	2.4	1.10	18	167

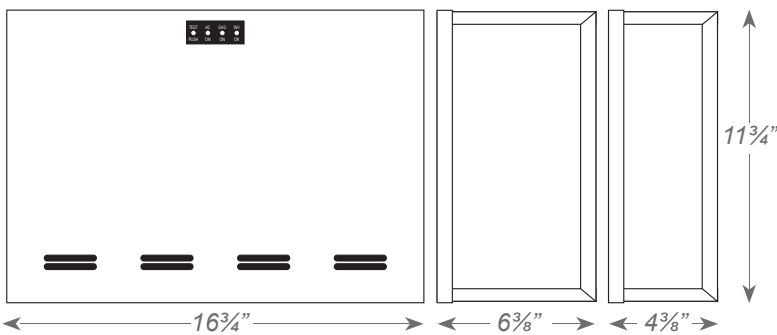
* System weights shown include installed batteries

Ordering Information:

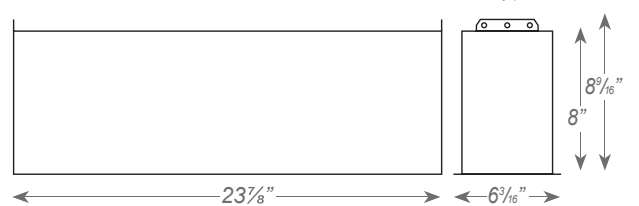
PART #	MOUNTING	OPTIONS
LLSPS-55/125 LLSPS-110/125 LLSPS-110/250 LLSPS-220/250	S: Surface Mount Housing <i>R & T for LLSPS-55/125 and LLSPS-110/125 Only</i> R; Recess Mount Housing T: Plenum Rated Ceiling T-Grid Mount Housing	SP: Special Housing Color (<i>specify</i>) CEC: Title 20 Compliant RTS: Remote Test Switch Panel (see page 4) SDT: Self-Testing / Self-Diagnostics (see page 4) AO: Adjustable Output/Dimmer Bypass (see page 5) 4C: 4 Output Circuit Switching (see page 5)

Dimensions:

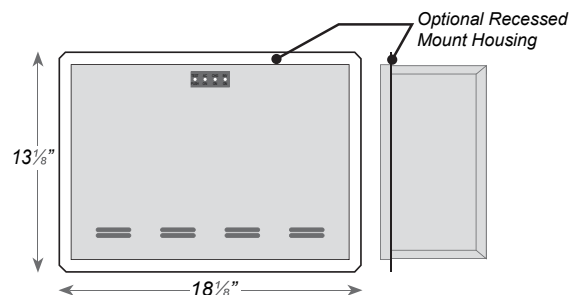
Standard Surface Mount Housings



Optional Ceiling T-grid Mount Housing



(models LLSPS-220/250 & LLSPS-110/250) (models LLSPS-55/125 & LLSPS-110/125)



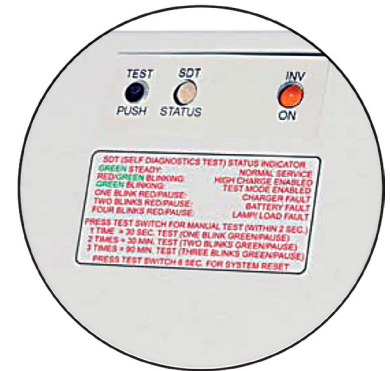
SDT Option Self-Testing/Self-Diagnostic

The self-diagnostic function is factory preset and performs the following:

- Monitoring of battery, battery charger and conneted loads.
- Self-testing and a 30-second battery discharge once every 30 day after normal utility power has been supplied for a minimum of 48 hours.
- Self-testing and a 30-minute battery discharge once every 180 day after normal utility power has a been supplied for a minimum of 48 hours.
- Self-testing and a 90-minute battery discharge once every 365 day after normal utility power has been supplied for a minimum of 48 hours.

Certifications:

- UL Listed for Damp Locations
- UL Listed to meet NFPA 101 for self-testing and self-diagnostic requirements.



Self-Diagnostic Panel

Service Indication:

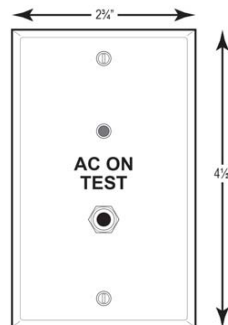
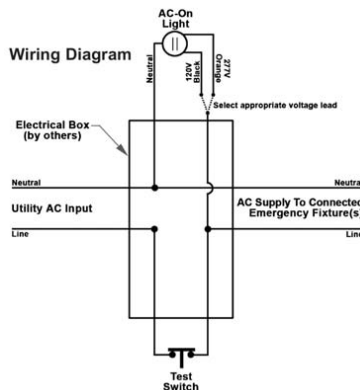
LED INDICATOR	STATUS
GREEN Steady	Normal Service
RED/GREEN Blinking	High Charge Enabled
GREEN Blinking	Test mode Enabled
One Blink RED / Pause	Battery Charger Fault
Two Blinks RED / Pause	Battery Fault
Four Blinks RED / Pause	Lamp / Load Fault

Manual Testing

ACTION	REACTION & LED INDICATION
Push test switch once (within 2 seconds)	30 Second test: One blink GREEN / Pause
Push test switch twice (within 2 seconds)	30 Minute test: Two blinks GREEN / Pause
Push test switch thrice (within 2 seconds)	90 Minute test: Three blinks GREEN / Pause
Push test switch and hold for 3 seconds	Cancels test
Push test switch and hold for 6 seconds	System reset

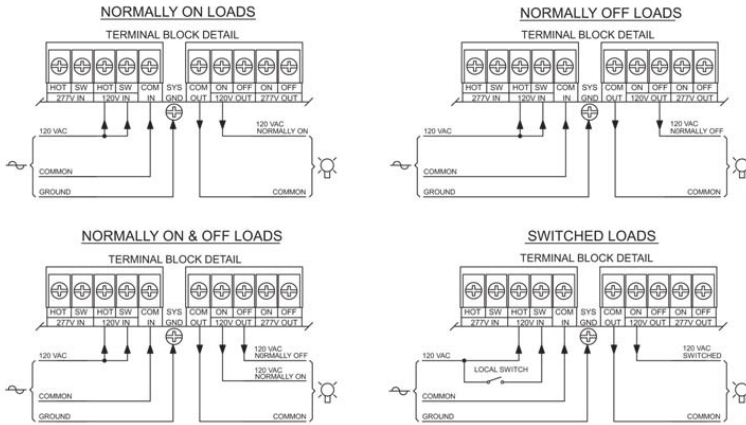
RTS Remote Test Switch

- RTS provides remote testing capability for LLSPS mini-inverter, unit equipment and exit signs. Not compatible with emergency ballasts.
- Field selectable 120 voltage or 277 voltage.
- Power "ON" LED indicator light and push-to-test switch for mandated code compliance testing.
- Remote Test Switch can be mounted to any standard switch box.
- Suitable for wall or ceiling mount.
- Injection-molded, engineering grade, V-0 flame retardant mounting plate in white finish.
- Five year warranty.
- Meets UL924, NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes.

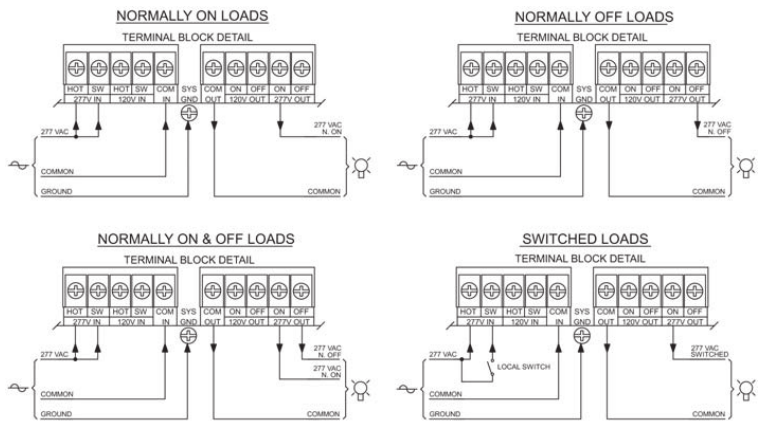


Wiring Diagrams:

120VAC Connections



277VAC Connections



LLSPS AO Option (for 0-10V Dimming)

Adjustable output options provides adjusted power output to dimmable LED lighting loads during emergency mode operation independent of dimmer control switch position.

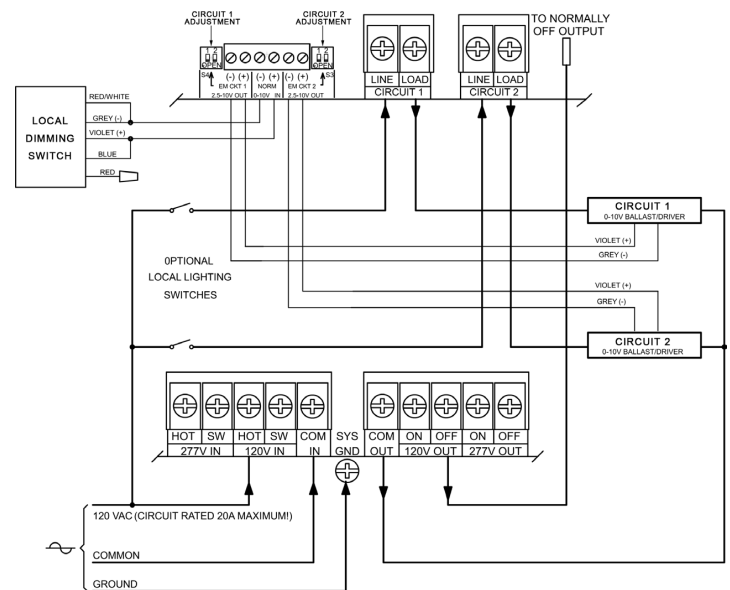
Features:

For use with 0 to 10 volt dimmable LED lighting fixtures, eliminating the need for bypass devices on 0 to 10 volt dimmer controlled fixtures. Provides two user-adjustable emergency output circuits. The option will bypass one 0 to 10 volt local dimmer switch.

- Allows normally-on, normally-off, combination and switched wiring of connected loads
- Delivers 25%, 50%, 75% or 100% of full illumination levels to selected LED fixtures during emergency mode operation regardless of local dimmer control switch position
- Reduced emergency illumination levels means fewer total emergency inverter units required on jobs
- All wiring is done within the LLSPS inverter housing, no need for additional j-boxes

AO Option Wiring

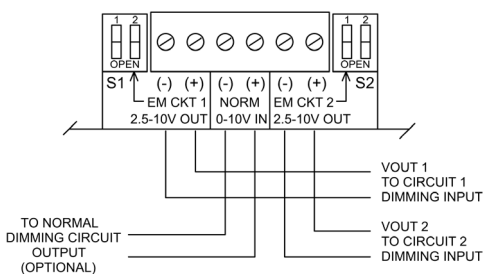
DIMMING OPTION, 120V OPERATION



DIMMING OPTION PROGRAMMING TABLE

S1,2-1	S1,2-2	VOUT 1, VOUT 2
OPEN (OFF)	OPEN (OFF)	10.0V
OPEN (OFF)	CLOSED (ON)	7.50V
CLOSED (ON)	OPEN (OFF)	5.00V
CLOSED (ON)	CLOSED (ON)	2.50V

DIMMING OPTION CONTROL WIRING

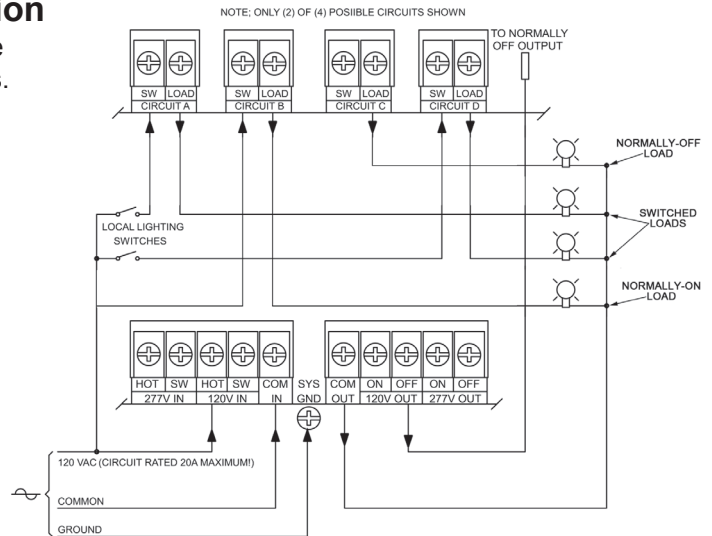


LLSPS Emergency Power Systems 4C Option Four Circuit, Local Switching Device Override Option

Provides full power output to connected loads during emergency mode operation regardless of local control switch position or operating status.

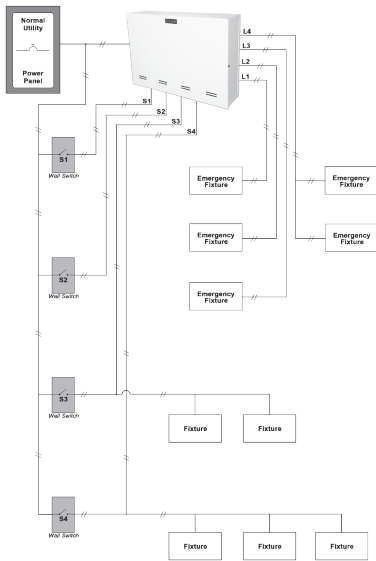
- Provides capacity for four override control circuit
- Provides full power emergency output to connected loads regard-less of local control switch position or operating status
- Works with most standard local control devices including wall switches, dimmers, timers, occupancy sensors and ambient light sensors.
- Eliminates the need for bypass devices or separate inverter for each switched load providing cost efficiency
- All wiring is done within the LLSPS or LLLPS inverter housing, no need for additional j-boxes
- Allows normally-on, normally-off, combination and switched wiring of connected loads

4C Option Wiring Diagram

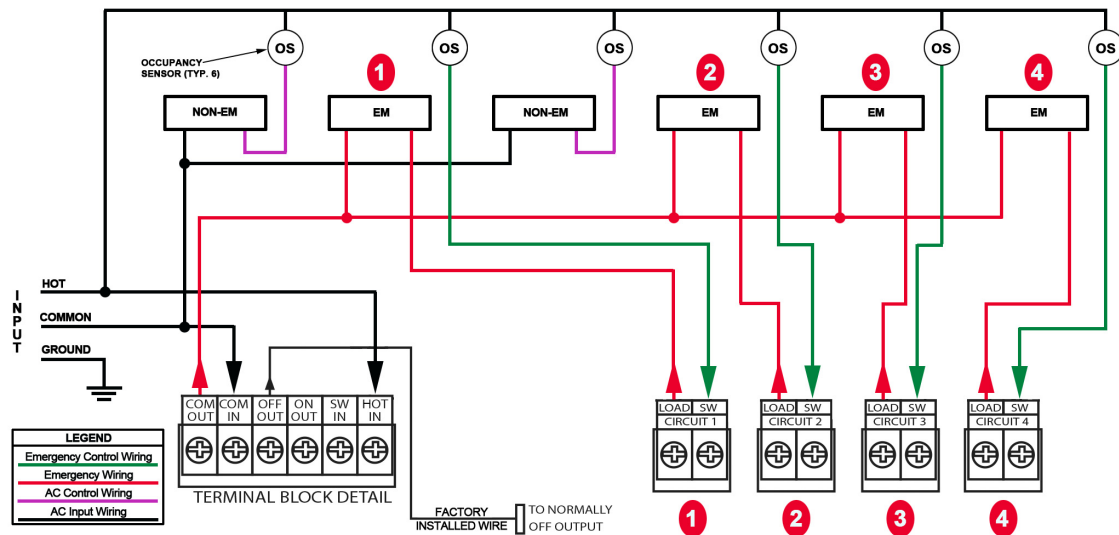


4C Option Schematic

APPLICATION DIAGRAM USING 4C OPTION



4C Option Line Voltage Switching



TYPICAL APPLICATIONS FOR 4C OPTION

LIGHTING FIXTURES ARE ACTIVE IN EMERGENCY MODE REGARDLESS OF SWITCHING DEVICE STATUS

