Advantage. Environmental Lighting

Catalog Number	
Project	
Type	

EPSB

Emergency Power System - Mini Inverter up to 220 Watts

PRODUCT SPECIFICATIONS

DESCRIPTION

The EPSB Mini Inverter provides sinusoidal emergency power of up to 220 Watts to any of our fixtures. Clean, sinusoidal AC power allows for the inverter to be remotely located up to 1,000 feet away from the controller fixtures. The EPSB Mini Inverter comes in recessed, surface, or ceiling mount variations, and are designed to install quick and easily. Our EPSB model supports Normally On, Normally Off , and switched operation, as well as the combination of any of these(see wiring diagram).

APPLICATIONS

The EPSB Mini inverter is the perfect for any application that requires emergency power, and requires full light output. Useful for hospitals, schools, prisons, restaurants, stores, warehouses, etc.

CONSTRUCTION

Constructed of heavy duty steel, and powder-coated white to provide scratch and corrosion resistance. Custom color finishes are available on request.

ELECTRICAL SPECIFICATIONS

120 - 277VAC input/output. 98% efficiency at full load. True Sinusoidal waveform emergency power, digitally controlled. Transfer time of power is under 1 second. Input/Output frequencies of 60Hz (±2%). Built in inverter fuse for output protection.

MOUNTING

The EPSB Mini Inverter is available in surface mounted, recessed, and T-Grid mounting options.

LISTINGS

UL and cUL Listed. Damp location rated.

WARRANTY

3-Year Limited Warranty. Complete warranty and terms located at www.aelnow.com/

ORDERING INFORMATION

Example: EPSB2-
Options Example: S-RTS-SDT

Models:

MODEL NUMBER	INPUT / OUT-PUT VOLTS	CAPACITY for 1½ Hrs.		SYSTEM WEIGHT*		ON-LINE SYSTEM EFFICIENCY (full load)	NUMBER of BAT-TERIES	BATTERY VOLTAGE (VDC)	BATTERY CUR-RENT (amps)	AC INPUT CURRENT		THERMAL OUTPUT in BTUs	
		WATTS	VA	Lbs.	Kg.					120VAC (max)	277VAC (max)	ON-LINE	EMER-GENCY
EPSB1	120/277	55	125	30.0	14	98%	2	24	3.4	1.2	0.52	9	90
EPSB2	120/277	110	125	42.0	17	98%	2	24	5.7	1.2	0.52	9	95
EPSB3	120/277	110	250	45.2	21	98%	4	48	3.3	2.4	1.10	18	163
EPSB4	120/277	220	250	60.0	27	98%	4	48	5.6	2.4	1.10	18	167

* System weights shown include installed batteries

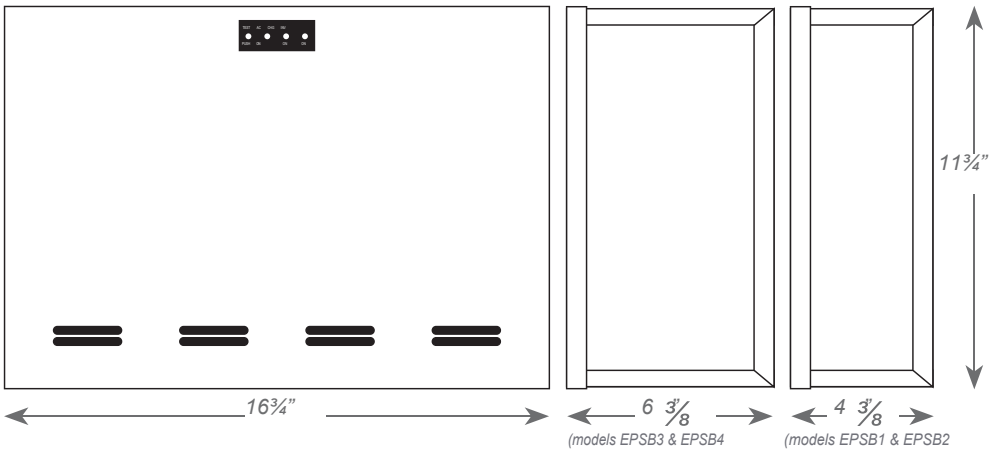
Options:

ADD SUFFIX	DESCRIPTION
-S	Surface Mount Housing
-R	Recess Mount Housing
-T	Plenum Rated Ceiling T-Grid Mount Housing*
-SP	Special Housing Color (specify)
-4C	4 Output Circuit Switching
-RTS	Remote Test Switch Panel
-AO	2 User- Adjustable Output/Dimmer Bypass
-SDT	Self-Testing / Self-Diagnostics
-CEC	Title 20 Compliant

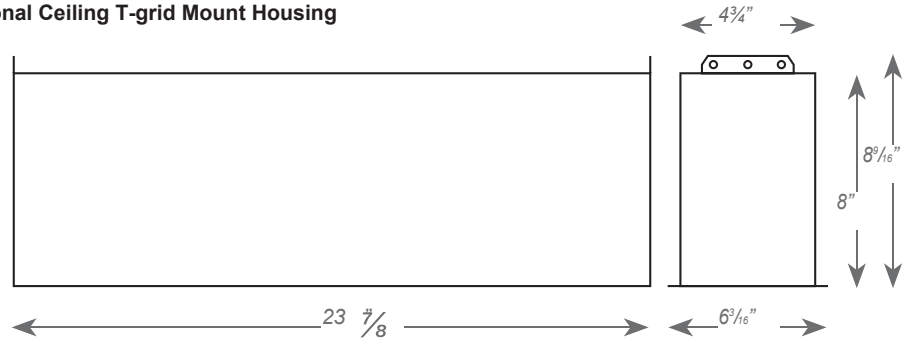
Some options may impact product UL listing. Consult factory.
*Available with ESPB1 and ESPB2 models only.

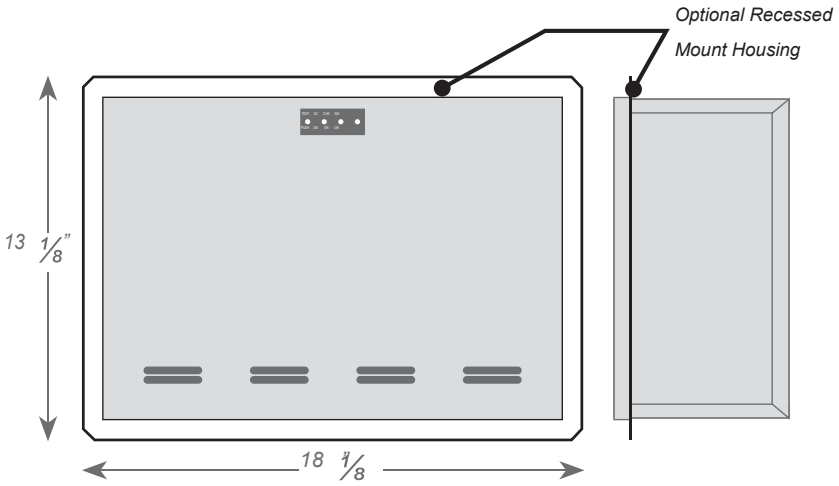
DIMENSIONS

Standard Surface Mount Housings



Optional Ceiling T-grid Mount Housing





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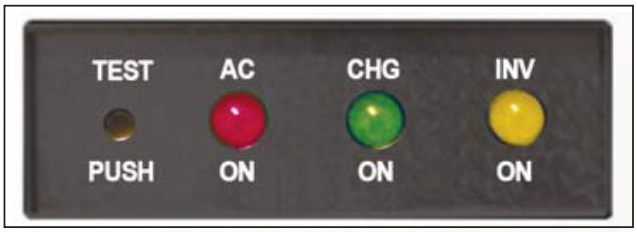
EPSB

Emergency Power System - Mini Inverter
Up To 220 watts

SYSTEM STATUS MONITORING PANEL



All of our Emergency Power Inverter 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.

OPERATION

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

THE ADVANTAGES

Compared to traditional discrete emergency lighting units, the EPSB Series provides emergency illumination from a single power source resulting in lower maintenance overhead and routine testing expenses.

EPSB units lower installation costs by powering existing lighting fixtures during emergencies. And because connected fixtures are driven at full brilliancy, they provide far superior egress lighting and deliver improved occupant safety.

BATTERIES AND CHARGER

Battery

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

***Battery Voltage**: 24VDC for SPS-55/125, SPS-110/125 models and 48VDC for SPS110/250, SPS220/250 models*

***Runtime**: 90-minutes standard - based on battery performance at (25ºC). 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.*

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)**:*
15W maximum (2.5W in standby) for EPSB1, and EPSB2 models

30W maximum (5W in standby) for EPSB, and EPSB 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.

Environmental

***Altitude:** < 10,000 feet (3,000m) above sea level without derating.*
***Operating Temperature Range**: 20ºC to 30ºC*
***NOTE**: Optimum system performance between 20°C and 30° C; temperatures outside of this range will affect battery performance and life.*
***Relative Humidity**: 95% non-condensing*

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EPSB

Emergency Power System - Mini Inverter
Up To 220 watts

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 (55W/125VA) / (110 Watts/125VA) / (110 Watts/250VA) / (220 Watts/250VA) 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. EPSB System output shall be a PWM generated sine wave with less than 3% total harmonic distortion with
"Soft-Start" design reducing fixture inrush current. The system shall also provide short circuit and overload protection as standard.

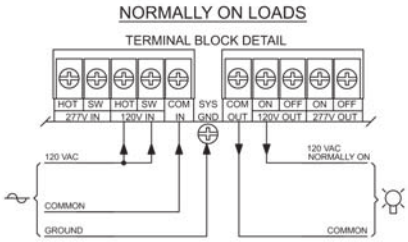
An intuitive three LED display shall provide system operational information at a glance and alert user to any malfunction in system performance. Authorized maintenance personnel shall have access to the system's controls while being protected from any live exposed connections.

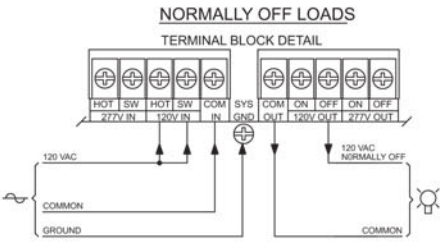
Protective devices shall include AC Line fuses, DC input breaker and a DC input fuse. The entire EPSB system, including batteries, shall be incorporated into compact cabinetry which shall have provisions for (surface, recessed or
T-Grid) mounting.

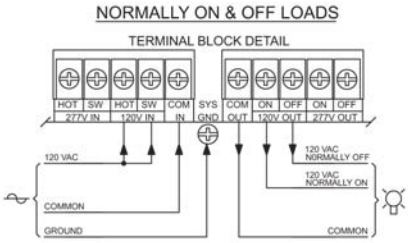
System shall be capable of providing up to 4 switch bypass circuits, adjustable output or 0 to10 volt dimmer bypass, remote test switch, and self-test/self-diagnostics, were necessary

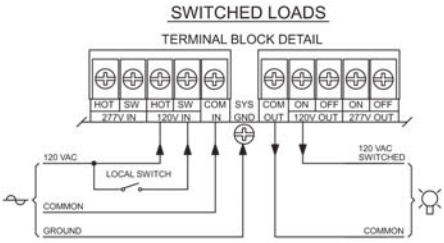
System shall utilize a sealed lead calcium battery with a 10 year design life. The charger shall be temperature compensated, dual mode type, and recharge the batteries as per UL924 guidelines. Entire system shall be tested, approved, and labeled to UL924 Emergency Lighting and Power Systems standards.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

120VAC Wiring Diagram

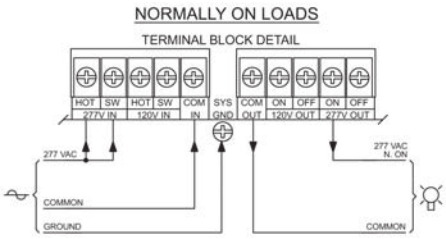


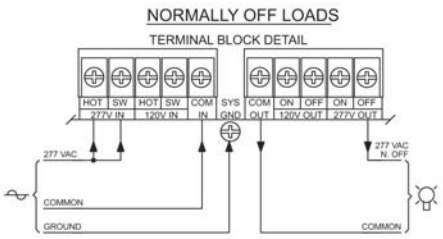


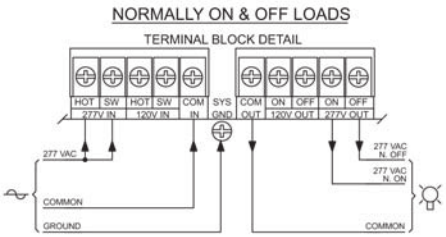


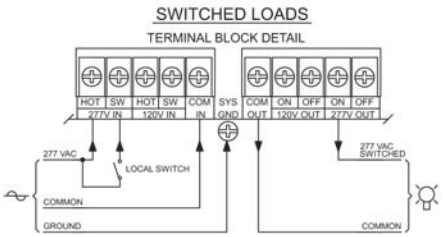


277VAC Wiring Diagram



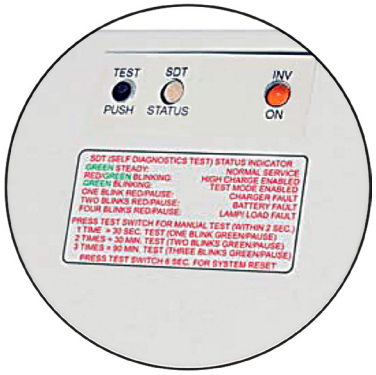






Option: SDT

Self-Testing/Self-Diagnostic



DESCRIPTION

Advantage Environmental Lighting offers the self-testing and self-diagnostic (SDT) options in our EPSB series of inverters. This feature is becoming increasingly more important to architects, engineers and building owners as they become more aware of its tremendous value-added functions and safety-assuring technology. UL Listed to meet NFPA 101 for self-testing and self-diagnostic requirements.

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

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

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

Option: RTS

Remote Test Switch

DESCRIPTION

The RTS Option for the EPSB Emergency Power System Micro Inverter provides remote testing capability. It is compatible with the EPSB, other optional equipment, and LED Exit signs.

ELECTRICAL

Field selectable 120 voltage or 277 voltage.
Power "ON" LED indicator light and push-to-test switch for mandated code compliance testing.

MOUNTING

Remote Test Switch can be mounted to any standard switch box. Suitable for wall or ceiling mount.

CONSTRUCTION

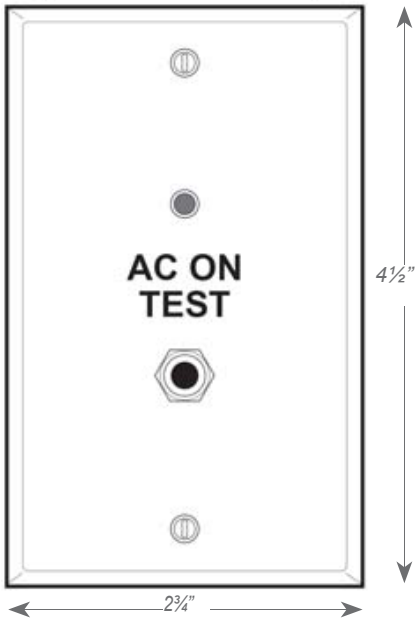
Constructed with an Injection-molded, engineering grade, V-0 flame retardant mounting plate, and finished in white.

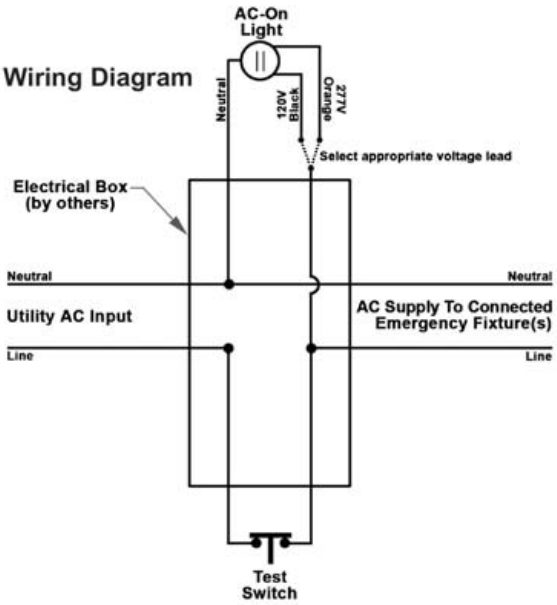
LISTINGS

Meets UL924, NFPA 101 Life Safety Code, NEC, OSHA, Local and State Codes.

WARRANTY

5-Year Limited Warranty. Complete warranty and terms located at www.aelnow.com/

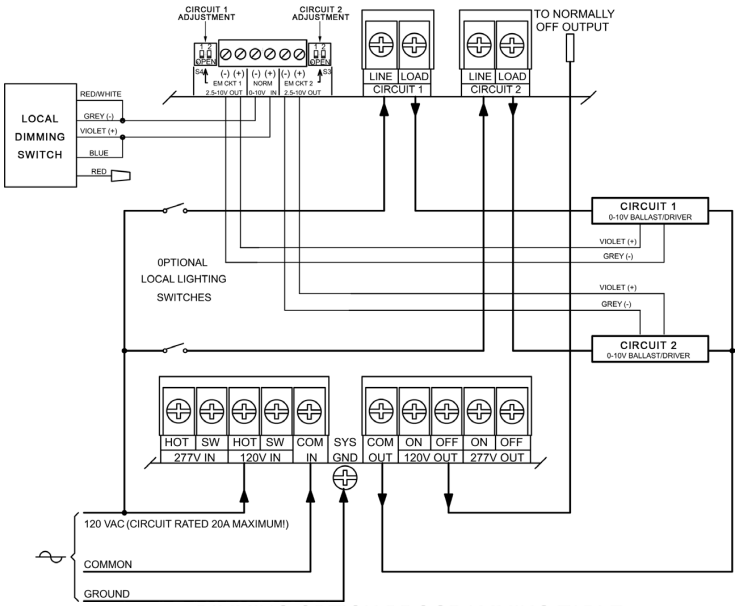




Option: AO

Adjustable Output Options

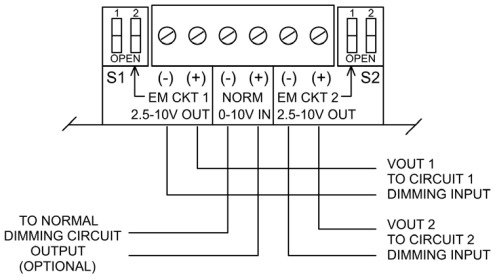
DIMMING OPTION, 120V OPERATION



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



DESCRIPTION

- *For use with 0 to 10 volt dimmable LED lighting fixture*
- *AO Option for use with EPSB model inverters provides two user-adjustable emergency output circuits*
- *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*
- *Works with all standard 0 to 10 volt dimmer control*
- *Reduced emergency illumination levels means fewer total emergency inverter units required on jobs*
- *The AO Option for EPSB Series inverters eliminates the need for bypass devices on 0 to 10 volt dimmer controlled fixtures*
- *All wiring is done within the EPSB inverter housing, no need for additional j-boxes*
- *Allows normally-on, normally-off, combination and switched wiring of connected loads*
- *System may be remotely mounted up to 1,000 feet*
- *The AO Option is available on EPSB inverter models with 55 to 220 watt capacity ratings*

OPERATION

The AO Option is designed for use with the EPSB Series of inverter power systems. The option will bypass one 0 to 10 volt local dimmer switch as well as allow user-programmable setting of emergency output lighting levels. Two load terminals as well as two dip-switch sets for independent output settings are provided to allow 25%, 50%, 75% or 100% of nominal illumination output during power outages. This outstanding level of control allows for fewer SPS power systems to be required in typical applications.

CONNECTIVITY

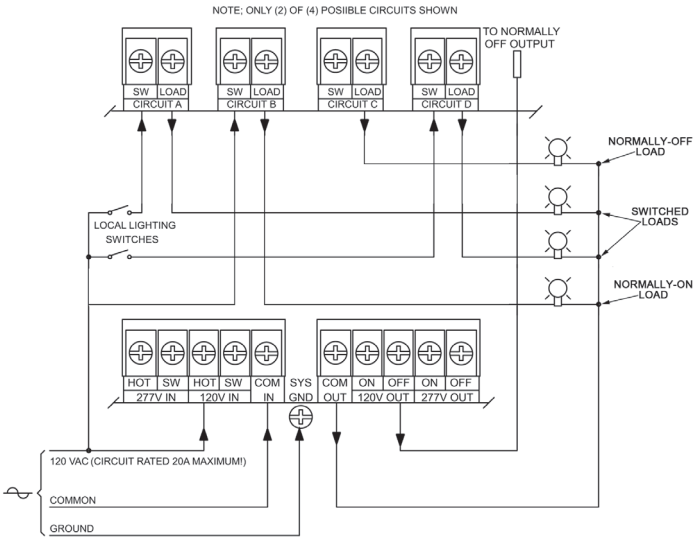
The AO option's emergency output circuits may be used to power dimmable LED lighting loads up to the maximum output capacity of the EPSB system. Additionally, the override circuits allow the user to select the power level the connected load will be operated at in emergency mode. Each override circuit is controlled by DIP switches which determine the emergency output power level. Emergency output can be set for 25%, 50%, 75% or 100% of maximum fixture illumination, independent of the local dimmer switch position. This level of flexibility provides a highly efficient use of the system output. EPSB Series systems provide additional connectivity and flexibility features to the AO option. The system's universal output allows for the power-ing of 120VAC and/or 277VAC loads and because the system's output is a clean, sinusoidal waveform, load compatibility issues are never a problem. Additionally, provisions are provided so that emergency loads can be configured for normally-on, normally-off, combination or switched operation.

Option: 4C

Four Circuit, Local Switching Device Override Option

DESCRIPTION

- *Provides capacity for four override control circuit*
- *Provides full power emergency output to connected loads regardless 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.*
- *Ideal for use with incandescent, fluorescent or LED lighting! fixtures*
- *Eliminates the need for bypass devices or separate inverter for each switched load providing cost effeciency*
- *All wiring is done within the EPSB inverter housing, no need for additional j-boxes*
- *Allows normally-on, normally-off, combination and switched wiring of connected loads*
- *System may be remotely mounted up to 1,000 feet*
- *Models available from 55 to 600 watt capacit*



OPERATION

The inverter power system's 4C option allows lighting fixtures or other load types on circuits controlled by local switching devices to be easily connected to and powered by the EPSB system during utility power outages. The 4C option provides four local switching device override circuits which, under emergency mode operating conditions, automatically disconnect the load side of the local control device(s) and connect the selected loads to the invert-er output assuring normal operation of connected loads regardless of local control device switch position operating status.

CONNECTIVITY

Any or all of the 4C option override circuits may be used to power lighting fixtures or other loads, up to the maximum output capacity of the system. The outstanding features of the EPSB systems provide additional connectivity and flexibility features to the 4C option. The system's universal output allows for the powering of 120VAC and/or 277VAC loads and because the system's output is a clean, sinusoidal waveform, load compatibility issues are never a problem. Additionally, provisions are provided so that emergency loads can be configured for normally-on, normally-off, combination along with switched operation.