

Emerg-Power Systems FTC Single Phase Series

Uninterruptible emergency lighting inverter system 1.5KVA –16.7KVA



Features

- 98% efficient at full load
- PWM/IGBT technology
- Self-testing/Self-diagnostic
- User programmable with password protection
- Standard input circuit breaker
- Standard normally off and on output
- RS232 communication port
- Micro-processor controlled
- Automatic event and alarm log
- 90 min. standard run time
- Generator compatibility
- Electronic and magnetic ballast compatible
- Custom voltages available
- Automatic event, test and alarm log
- LCD display
- Reduced footprint (stackable cabinets)
- Maintenance free standard batteries
- Forced air cooling during emergency mode only

UL listed to UL 924. Meets NFPA101, NFPA70, NFPA 110, OSHA, UBC, SBCCI. N.Y City approved.



Electrical/mechanical characteristics⁴ (data provided for standard lead calcium batteries)^{1,4}

| Power rating ¹ VA= W | Effic. at full load % | Max. input current (A) | | Heat loss in normal mode (BTU/HR) | Batt. VDC | Batt. A | No. of Batt. | UPS cabinet dimensions | | | Battery cabinet dimensions ^{2,3} | | | No. of batt. cab. | Batt. cab. weight lbs | UPS cab. weight lbs | Batt weight lbs | Total system weight lbs |
|------------------------------------|--------------------------|------------------------|------|--------------------------------------|-----------|---------|--------------|------------------------|----|----|---|-----|-----|-------------------|-----------------------|---------------------|-----------------|-------------------------|
| | | 120V | 277V | | | | | W" | H" | D" | W" | H" | D" | | | | | |
| 1.5 | 98 | 16 | 7 | 102 | 48 | 39 | 4 | 30 | 47 | 25 | N/A | N/A | N/A | N/A | N/A | 250 lbs | 296 lbs | 546 lbs |
| 2.25 | 98 | 24 | 11 | 153 | 72 | 38 | 6 | 30 | 47 | 25 | N/A | N/A | N/A | N/A | N/A | 265 lbs | 444 lbs | 709 lbs |
| 3 | 98 | 32 | 14 | 204 | 96 | 38 | 8 | 30 | 47 | 25 | N/A | N/A | N/A | N/A | N/A | 295 lbs | 592 lbs | 887 lbs |
| 3.75 | 98 | 39 | 17 | 255 | 120 | 37 | 10 | 30 | 47 | 25 | N/A | N/A | N/A | N/A | N/A | 305 lbs | 740 lbs | 1045 lbs |
| 5 | 98 | 50 | 22 | 340 | 144 | 40 | 12 | 30 | 47 | 25 | N/A | N/A | N/A | N/A | N/A | 315 lbs | 888 lbs | 1203 lbs |
| 6 | 98 | 63 | 27 | 408 | 180 | 40 | 15 | 30 | 47 | 25 | 30 | 47 | 25 | 1 | 210 lbs | 350 lbs | 1110 lbs | 1670 lbs |
| 8 | 98 | 84 | 36 | 544 | 240 | 39 | 20 | 30 | 47 | 25 | 30 | 47 | 25 | 1 | 232 lbs | 375 lbs | 1480 lbs | 2087 lbs |
| 10 | 98 | 105 | 45 | 680 | 144 | 82 | 24 | 30 | 47 | 25 | 30 | 47 | 25 | 1 | 420 lbs | 435 lbs | 1776 lbs | 2631 lbs |
| 12.5 | 98 | 131 | 57 | 850 | 180 | 82 | 30 | 30 | 47 | 25 | 30 | 47 | 25 | 2 | 420 lbs | 465 lbs | 2220 lbs | 3105 lbs |
| 16.7 | 98 | 174 | 76 | 1136 | 240 | 80 | 40 | 30 | 47 | 25 | 30 | 47 | 25 | 2 | 464 lbs | 530 lbs | 2960 lbs | 3954 lbs |

¹System capacity can be upgraded in the field up to 2000VA by adding more battery cabinets.Re-programming required by factory service technician. ²Battery cabinets are stackable. Must be installed under the electronics cabinet ³Special voltages can change the size, weight or number of cabinets ⁴Batteries are installed in separate modular cabinets

How to order

| Input voltage ¹ | Battery type | VA/W rating | System type | Output voltage ² | Run time ³ | Input breaker | RS232 Port | Output breakers ⁴ | Options ⁵ |
|----------------------------|--------------|-------------|-------------|-----------------------------|-----------------------|---------------|------------|------------------------------|--|
| 120 | SG= Sealed | 1500 | -FTC | -120 | -90 | -ICB | -RS232 | -OCBxxxx= No trip | -20Y= 20 yr sealed batteries |
| 208 | Lead- | 2250 | | -277 | | | | alarm ⁴ | -12HR= 12 hr fast recharge |
| 240 | Calcium | 3000 | | -208 | | | | | -NOFF= normally OFF output ⁶ |
| 277 | | 3750 | | -120/140 | | | | -OCBxxxx= With trip | -MBYP= Internal bypass switch |
| | | 5000 | | -120/277 | | | | alarm ⁴ | -EMBP= External bypass switch ⁷ |
| | | 6000 | | | | | | | -RMP= Remote metering panel |
| | | 8000 | | | | | | | -RSAP= Remote summary alarm panel |
| | | 10000 | | | | | | | -DCS= Dry summary alarm contacts |
| | | 12500 | | | | | | | -ZONEM= Zone monitoring |
| | | 16700 | | | | | | | -BATM= Battery cycle warranty monitor |

Example: 277SG6000-FTC-277-90-ICB-RS232-OCB0420-DCS-20Y

¹Special voltages may change the size, weight or number of cabinets
²Special voltages may change the size, weight or number of cabinets
³Other run times available
⁴Max. 12 unsupervised single pole positions or 8 with trip alarm. For more output breakers please consult factory.. See page 159 for output breaker details
⁵See page 159 for options description
⁶External bypass switch is not compatible with integrated output circuit breakers. Input/output voltage has to be the same
⁷Normally off loads cannot exceed 20% of total KVA rating with any combination of H.I.D. loads

Specifications

General

Design

- Stand-by. PWM inverter type utilizing IGBT technology with 2ms transfer time

Control

- Microprocessor controlled, 2 x 20-character display with touch pad controls & functions
- 5 LED indicators & alarm with ring-back feature

Metering

- Input and output voltage, battery voltage, battery and output current, output VA, temperature, inverter wattage

Communications RS-232 port (DB9)

Electrical input

Voltage

- 120 or 277VAC 1-phase 2-wire +10% - 15%.
Contact factory for all other voltages

Input power walk-in

- Limiting inrush current to less than 125%, 10 times for 1 line cycle

Input frequency 60Hz, +/-3%, 50Hz available upon request

Protection Input circuit breaker

Harmonic distortion <10%

Power Factor 0.5 lag/lead

Electrical output

Voltage 120 or 277VAC, 1-phase 2-wire Contact factory for all other voltage

Static voltage

- Load current change +/-2%, battery discharge +/-12.5%

Dynamic voltage

- +/-2% for +/-25% load step change
- +/-3% for a 50% load step change, recovery within 3 cycles

Harmonic distortion <3% THD for linear load

Output frequency 60Hz +/- 0.05Hz during emergency mode

Load power factor 0.5 lag to 0.5 lead

Inverter overload 115% for 10 minutes, 125% for 5 minutes, 150% for 12 cycles

Protection Optional distribution circuit breaker

Crest factor 2.8

Environmental conditions

Storage/transport

- -4°F to 158°F (-20°C to 70°C) without batteries
- 0°F to 104°F (-18°C to 40°C) with batteries
(max. 3 months at 104° F (40° C))

Operating temperature

System operates safely from 32°F to 104°F (0°C to 40°C) but optimum operation is between 68° F and 86°F (20°C to 30°C). Battery performance can be affected by temperature

Altitude <10,000 feet (above sea level) without de-rating

Relative humidity 0 to 95% non-condensing

Audible noise Audible noise 45 dBA @ 1m from surface in emergency mode

Cabinets

Modular design, freestanding NEMA Type 1 steel cabinets powder coated for corrosion and scratch resistance. Front access design through hinged lockable doors requires only 39" front clearance and 12" top clearance. Cabinets are stackable if required to further reduce the footprint. Top and left side conduit entry with knockouts.

Inverter

Using IGBT/PWM technology the inverter converts the DC voltage supplied by the batteries to AC voltage of a precise stabilized amplitude and frequency, suitable for most sophisticated electrical equipment. True sinusoidal output waveform with very low distortion (less than 3% for linear loads). Overload capability of up to 150% for 12 line cycles.

Charger

Fully automatic, temperature compensated, microprocessor controlled charger recharges fully discharged batteries in maximum 24 hours at nominal AC input voltage. AC input current limiting and over-voltage protection included.

Battery

System is provided standard with 10 year, maintenance free, sealed valve regulated, front terminals Lead Calcium batteries. 20 year sealed Lead Calcium battery also available. 90 min. standard discharge time at full load under normal operating temperature. Low Voltage Disconnect protection included. No special ventilation required.

Self-diagnostics

Automatic self tests consist of a 5-minute monthly and 90-minute annual function. The front-mounted control panel includes 5 LED indicators, a 2-line 20-character LCD display, and a keypad to control and monitor the internal operation of the system. This control panel allows the operator to easily "watch" system functions as they occur and check on virtually any aspect of the system's operation. Standard RS232 diagnostic interface.

Alarms

High/low battery charger voltage, high/low AC input voltage, near Low battery, low battery, load reduction fault, output overload, high ambient temperature, inverter fault, output fault, optional output circuit breaker trip

Optional features

Output circuit breakers, output trip alarms, 20 years sealed batteries, 12 hours fast recharge, internal/external maintenance bypass switch, remote meter panel, remote summary alarm panel, summary alarm dry Form C contact, inverter on dry contacts, normally off output, fax/modem, bypass relays, auto dialer, seismic mounting.

Factory start-up

Includes one additional year of warranty. See warranty conditions

Warranty (full limited warranty conditions available upon request)

Limited manufacturer warranty is one-year, parts and labor, for system electronics or two-year with factory start-up program. Battery warranty is one year full plus 9 years pro-rata for a total of 10 years, under normal operating conditions. System must be put in service within 6 months from ship date in order to validate warranty.
2-Consult factory for other type batteries than the standard one.

Single line diagram - Normally on Output circuit

