

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 KVA= 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.

³Battery cabinets are stackable. Must be installed under the electronics cabinet

²Batteries are installed in separate modular cabinets

⁴Special voltages can change the size, weight or number of 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 183 for output breaker details

⁵See page 183 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

