

## Emerg-Power Systems FTE Single Phase Series

Uninterruptible emergency lighting inverter system for for all lighting and motor loads  
1.5KVA –16.7KVA



### Features

- 98% efficient at full load
- 2ms transfer time
- PWM/IGBT technology
- Self-testing/Self-diagnostic
- User programmable with password protection
- Standard input circuit breaker
- RS232 communication port
- Micro-processor controlled
- Automatic event and alarm log
- 90 min. standard run time
- Generator compatibility
- Custom and mixed voltages available
- Automatic event, test and alarm log
- Space saving single cabinet design
- Maintenance free standard batteries
- Forced air cooling during emergency mode only

UL listed to UL 924.  
Meets NFPA101, NFPA70, OSHA.



Electrical/mechanical characteristics (data provided for standard lead calcium batteries)

Power rating KVA= W	Effic. at full load %	Max. input current (A)		Heat loss in normal mode		Batt. VDC	Batt. A	No. of Batt.	UPS cabinet dimensions			UPS cab. weight lbs	Batt. weight lbs	Total system weight lbs
		120V	277V	(BTU/HR)	Batt. VDC				W"	H"	D"			
1.5	98	16	7	102	48	39	4	30	47	25	215 lbs	296 lbs	511 lbs	
2.25	98	24	11	153	72	38	6	30	47	25	230 lbs	444 lbs	674 lbs	
3	98	32	14	204	96	38	8	30	47	25	235 lbs	592 lbs	827 lbs	
3.75	98	39	17	255	120	37	10	30	47	25	240 lbs	740 lbs	980 lbs	
5	98	50	22	340	144	40	12	30	47	25	280 lbs	888 lbs	1168 lbs	
6	98	63	27	408	180	40	15	48	76	25	605 lbs	1110 lbs	1715 lbs	
8	98	84	36	544	240	39	20	48	76	25	640 lbs	1480 lbs	2120 lbs	
10	98	105	45	680	144	82	24	48	76	25	785 lbs	1776 lbs	2561 lbs	
12.5	98	131	57	860	180	82	30	48	76	25	805 lbs	2220 lbs	3025 lbs	
16.7	98	174	76	1135	240	80	40	48	76	25	885 lbs	2960 lbs	3845 lbs	

### How to order

Input/output voltage	Series	Nominal capacity	Battery type	Emergency run time <sup>2</sup>	Output breaker configuration	Output breaker voltage	Output breaker amperage	Output breaker qty.
1= 120-120 2= 120-120/277 3= 208-120 <sup>1</sup> 4= 240-120/240 5= 277-120 6= 277-277 7= 277-277/120 8= 208-120/240 <sup>1</sup> 9= 347-347 A= 208-120/208 <sup>1</sup>	FTE	1= 1500VA 2= 2250VA 3= 3000VA 4= 3750VA 5= 5000VA 6= 6000VA 7= 8000VA 8= 10.0KVA 9= 12.5KVA 10= 16.7KVA	SG= Standard G= VRLA 20 yr.	Blank= 90 min. 120= 120 min. <sup>3</sup>	Blank= Normally ON N= Normally OFF <sup>4</sup>	A= 120 B= 208 C= 240 D= 277	10= 10 Amp 16= 16 Amp 20= 20 Amp 25= 25 Amp 32= 32 Amp 40= 40 Amp 50= 50 Amp 63= 63 Amp	01-24= Choose the number of output breakers between 01 and 24 <sup>5</sup>

Options	Monitoring	Warranty (one year standard)	Accessories
<b>A=</b> Remote summary alarm panel <b>BL=</b> Circuit breaker locks <b>BTM=</b> Battery temperature monitor <b>C=</b> Status monitoring contacts <b>DT=</b> Drip top (NEMA 2) <b>F=</b> Fast charge <b>H=</b> OSHPD "withstand" seismic (Not available with "VRLA 20 yr." battery) <b>I=</b> Inverter on dry form C contact <b>L=</b> Load control relay (line voltage dimmer or switch bypass) <b>M=</b> Maintenance bypass (MBB) <b>M(BBM)=</b> Internal maintenance bypass <b>O=</b> Output transfer delay (factory set at 3 seconds adjustable 0 to 7.5 seconds)	<b>P=</b> Remote status panel (status alarms, requires C option) <b>R=</b> Remote meter panel <b>S=</b> Summary fault form C contacts <b>SEA=</b> Serial to ethernet adapter <b>T=</b> Output trip (supervised) alarm <sup>5</sup> <b>V=</b> Time delay 15 minutes (15 minute retransfer time delay of normally off circuit after return of utility) <b>Z=</b> Seismic mounting (Anchorage based on calculations. For systems requiring OSHPD/Withstand testing, please contact the factory) <b>ZM=</b> Zone monitoring (quantity must be specified)	<b>2YW=</b> Start up & same day training <b>2YWT=</b> Start up, same day training and full run test <b>5YP=</b> 5-year preventative maintenance plan (startup included) <b>5YW=</b> 5-year extended electronics warranty <b>TR=</b> Training if required on day other than startup	<b>Blank=</b> No accessories <b>EMBP=</b> External maintenance bypass switch <sup>6</sup> <b>SPARES=</b> Spare fuses & circuit boards <b>SPAREF=</b> Spare fuse kit

Example: 1FTE4SG1201010CBAC2YWT

<sup>1</sup>Maximum output breakers available: 12 unsupervised (1-pole), 8 supervised (1-pole) for 1.5KVA-5KVA; 24 unsupervised (1-pole), 18 supervised (1-pole) for 6KVA-16.7KVA; Breakers provided are 20 Amps unless specified otherwise. A 2-pole breaker occupies 2 positions. Additional output breakers available on 1.5KVA units with optional top mount enclosure. Contact factory for details

<sup>6</sup>Cannot be purchased with internal output breaker option

## Specifications

### General

#### Design

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

#### Control

- Microprocessor controlled, 4 x 20-character display with touch pad controls & functions
- Continuous scrolling display of system status and faults, with alarm 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% - 20%.  
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%

#### 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

- +/-3% @ 25% load step change and +/-6% @50% 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, 150% for 16 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

UL924 listed to provide 90 mins of battery back up 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 50 dBA @ 1m from surface in emergency mode

### Cabinets

Single 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. Top, left or right 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 16 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 DC 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 a 4-line 20-character 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, charger fault, output overload shutdown and system test failure.

### 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, bypass relays, seismic mounting, circuit breaker locks, battery temperature monitor, drip top, output transfer delay, time delay, zone monitoring, serial to ethernet, BACnet MS/TP, BACnet IP, MODBUS serial, MODBUS TCP/IP, serial to ethernet adapter.

### 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

