

STACO ENERGY[®] PRODUCTS CO.

FIRSTLINE[®] P_E **50 - 200 kVA/kW**



Three-Phase Double-Conversion On-Line UPS

Up to 99% Efficient

- Lower energy costs and carbon footprint

Compact & Reliable

- Requires either front, top or bottom access, so it can be placed against a wall to minimize footprint
- Cooler operation extends internal component life

AC Input Performance

- High input power factor of 0.99
- Low input current distortion of $\leq 3\%$
- Power walk-in function that ensures progressive rectifier start-up

3 Level IGBT Switching and DPS Processing

- Reduces the impact of the UPS on the local supply
- Simplifies installation where there is limited power capacity in the form of available electrical supply rating or generator size

Single or Dual Input Configuration

- Main power and secondary emergency standby power increase resilience of single or parallel system configuration

High Performance Input Filtering

- Protects upstream power supply sources from harmonics and reactive power generated by the loads

Menu Select Display

- User friendly display is easy to see and intuitive to use

Parallel up to 8 Units

- Provides redundancy for mission critical applications with no additional hardware

Seismic Certified

- Equipped with proper anchorage for seismic applications; Seismic certificates available upon request

Worldwide Service Program

- Factory trained service personnel maximize equipment life
- Full start-up service & preventive maintenance lowers cost of ownership

Full Four Year
Warranty

www.stacoenergy.com

Your Tailored Power Solutions Provider™

FirstLine® PE UPS

In the event of an AC power failure, the FirstLine® PE UPS will automatically transfer to battery power and continue to provide power without any interruption for the full amount of time you select. When power returns, the FirstLine® PE UPS will automatically recharge the batteries for the next unexpected power outage or disturbance.

AC Input Performance

FirstLine® PE is a further evolution of the FirstLine® series with the added advantages offered by a 3 level switching rectifier and inverter. This feature reduces the impact of the UPS on the local supply and simplifies installation where there is limited power capacity in the form of available electrical supply rating or generator size. The FirstLine® PE provides:

- Low input current distortion— $\leq 3\%$
- High input power factor 0.99
- Power walk-in function that ensures progressive rectifier start up
- Delayed start up phased with the return of mains power supply, when several UPS are connected in the system.
- High energy efficiency, $\geq 96\%$ at full load.

FirstLine® PE also performs the role of a high performance filter, protecting its upstream power supply sources from any harmonics and reactive power generated by the loads powered.

Flexibility

FirstLine® PE UPS can be supplied from two separate power sources (main power and a second emergency standby source) which helps increase the resilience of parallel system configurations.



Main Characteristics

- Efficiency $\geq 96\%$ at full load and up to 99% in ECO / hot standby Mode
- Reduced weight
- Battery Temp Sensor Module monitors the battery internal cabinet environmental conditions of one (1) Battery Cabinet connected to the UPS and displayed on the UPS front mimic panel.

The entire FirstLine® PE range is suitable for a wide range of applications thanks to the flexibility of configurations, accessories, options, and choice of performance levels. The UPS is compatible with capacitive loads, such as blade servers, without any reduction in active power, ranging from 0.9 lead to 0.8 lag and up to 0.8 capacitive power with a low derating equal to 15% of the active power (kW). Efficient and reliable power supply for mission critical applications is guaranteed by operating in redundancy and power parallel mode with up to 8 units (N+1), and by the Dual Bus System and Dynamic Dual Bus system configurations.

Other Options

Remote Status Panel provides fault indication for System Normal, UPS Alarm, Shutdown Imminent, Mains Failure, Load on Service, and Inverter Fault.

Top or Side Cable Entry

A "side-car" cabinet expansion is offered to accommodate top or side incoming cable entry.

External Maintenance Bypass, 3 Breaker with Electronic Interlocks

Make-Before-Break, Line Up and Match wrap-around MBP for total UPS isolation during maintenance or removal of the UPS.

Power Distribution Unit (PDU)

PDU provides 208/120 output distribution capabilities to peripheral devices. Up to (4) 42 Pole Panelboards or Sub-Feed Circuit Breakers available.

Battery Monitoring System (BMS)

The FirstLine BMS systems provide monitoring and record battery cycle data of each battery string or jar. Factory installed for easy commissioning.

Harsh Environment Enclosure

UPS and accessories mounted and pre-wired internal, with AC cooling inside any NEMA (12, 3R, 4X) type enclosure.

Seismic Withstand Certification

Site specific seismic certification and documentation. All units come standard with bolt down capability.

Start-Up Service, Preventative Maintenance Programs

A wide range of service programs are available to suit all user requirements. Consult factory.

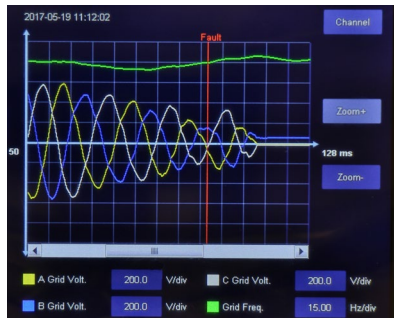
Battery Care System

FirstLine® PE uses the Battery Care System which optimizes battery performance while extending battery life.

Front Panel Display



Color touch screen display with integrated 4 channel oscilloscope for troubleshooting input, output, and DC signal without any use of special software or encrypted tools. Allows analysis of 3 phase voltage, current, frequency, DC link voltage and DC current within the UPS chassis.



Detection of the input failure from the generator. Input voltage and frequency shown for easy understanding of why the UPS accessed the battery backup circuit.

Applications

- Data Centers
- Computer Networks
- Industrial Process Manufacturing
- Hospitals/Medical
- Education/Research
- Laboratories, Bio-Tech
- Pharmaceuticals/Chemical
- Critical Power Management Requirements
- Any areas needing computer grade power and a high level of available power



FirstLine® PE UPS shown with optional side car

Four Year Warranty

Electronics:

A full **Four Year On-site Warranty** (Continental U.S.)

Battery:

Three (3) Year Full, Limited Warranty,

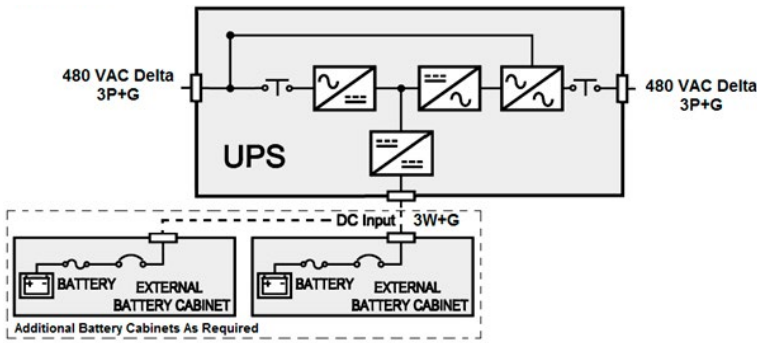
on the Battery System ensures that your batteries are protected from system failure now and in the future. *(Warranty provided by battery manufacturer.)*

Extended warranties, customized service plans and preventative maintenance are also available. *Please refer to our warranty statement for complete details.*

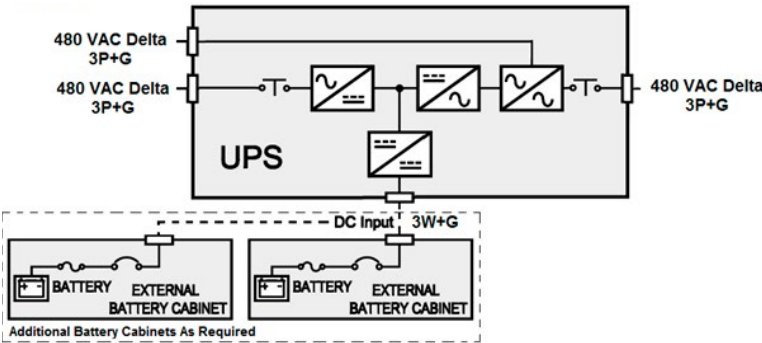
Electrical Specifications

Electrical Data	UPS Power (kVA / kW)						
	50 / 50	65 / 65	80 / 80	100 / 100	125 / 125	160/160	200/200
INPUT							
Nominal voltage	480VAC 3 phase, 3-Wire + Grd.						
Nominal voltage range	-30%, +15%						
Input frequency range	From 45 to 65Hz						
Nominal input current	63	81	100	125	156	200	250
Maximum input current	73	94	112	145	181	224	280
Power factor at nominal voltage (480 V) and battery charged from 25% to 100% of the load	> 0.99						
Reflected Current Harmonic distortion (THDi) at 100% load	≤ 3%						
Rectifier Walk-in	from 0 to 125 seconds (configurable)						
Rectifier Walk-in Delay	from 0 to 600 seconds (configurable)						
D.C. INTERMEDIATE CIRCUIT							
Number of cells	240						
INVERTER							
Static variation	± 1%						
Dynamic variation	± 5%						
Crest Factor	3:1						
Voltage distortion with linear load	≤ 1%						
Voltage distortion with non-linear load	< 3%						
Frequency stability with synchronized inverter to the by-pass network.	± 2% (± 1% to ± 6% from control panel)						
Frequency stability with not synchronized inverter to the by-pass line	± 0.1Hz						
Speed of frequency variation	1Hz/sec (parallel units can be calibrated from 0.1 to 1Hz/s)						
Phase voltage asymmetry with balanced and unbalanced load.	≤ 1%						
Phase displacement of the voltages with balanced and unbalanced loads.	120 ± 1 °el						
Overload in referred to the nominal power	110% for 60 minutes, 125% for 10 minutes, 150% for 1 minute						
Inverter efficiency	≥ 96%						
BY-PASS							
Nominal voltage	480VAC 3-phase (without neutral)						
Nominal voltage tolerance	± 10% (up to ± 20% Programmable)						
Nominal frequency	50/60 Hz						
Frequency tolerance	± 5% Nominal (up to ± 10% Programmable)						
SYSTEM							
AC/AC efficiency at full load	≥ 96%						
Efficiency with UPS in STAND-BY mode	up to 99 %						
Full Load Heat Rejection BTU/hr	7,000	9,100	10,350	13,058	17,055	21,000	26,300
MECHANICAL							
Height x Width x Depth – inches (mm)							
UPS	70.98 x 27.65 x 32.07 [1803 x 702.4 x 814.6]					70.98 x 31.59 x 32.07 [1803 x 802.4 x 814.6]	
UPS with side car	70.98 x 43.58 x 32.24 [1803 x 1107 x 819]					70.98 x 47.52 x 32.24 [1803 x 1206.9 x 819]	
Weight – lbs. / [kg]							
UPS	991 / [450]					1268 / [575]	
UPS with side car	Minimum 1141 / [518] Maximum 1281 / [581]					Minimum 1438 / [652] Maximum 1578 / [716]	
Freestanding NEMA 1 enclosure, powder coat painted black color with textured finish, bottom access for conduit entries							
ENVIRONMENTAL							
Ambient temperature	-5° C to 40° C						
Storage temperature	-25° C to 55° C						
Relative Humidity	0 ~ 95% non-condensing						
Altitude	< 2000 meters Derate load capability above 1000 meters 1% per 100 meters						
Audible Noise	≤ 69 dBA						
COMMUNICATIONS							
SNMP/WEB (Standard)	SNMP Card with NetAgent Software						
Modbus (Standard)	Monitoring via RS-485/RTU Protocol/Read Holding						
BACnet (Optional)	TCIP & RS485						
SNMP/WEB WiFi or Cellular (Optional)	SNMP Card with NetAgent Software						
Modbus WiFi or Cellular (Optional)	Monitoring Protocol/Read Holding						
BACnet WiFi or Cellular (Optional)	TCIP						

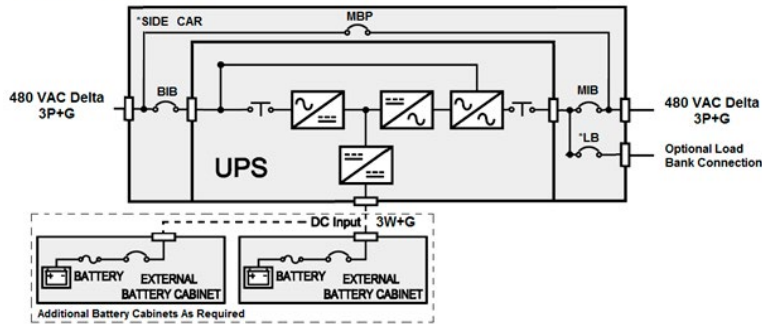
FLE-XXX-01 Standard UPS - Single Input Unit



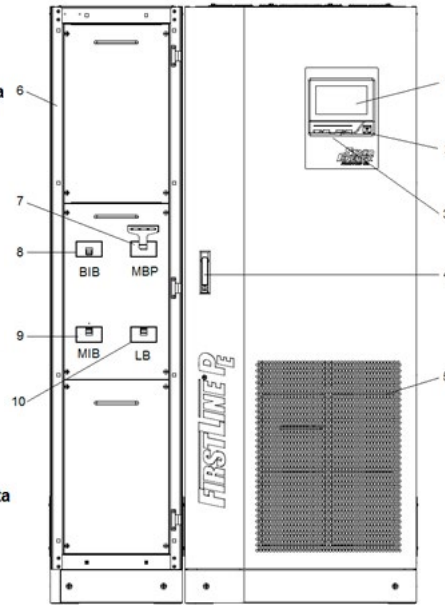
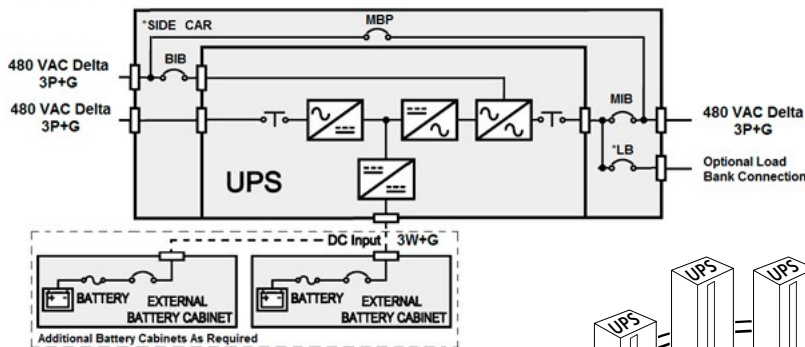
FLE-XXX-01 Standard UPS - Dual Input Unit



FLE-XXX-03 or Higher - Single Input with Optional Side Car



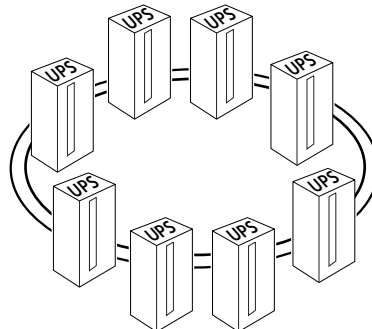
FLE-XXX-03 or Higher - Dual Input with Side Car



- 1 Touch Screen Color Display
- 2 EPO Switch
- 3 Dual Action & Redundant ON & OFF Switch
 - a Secured Against Incidental Touch
- 4 Key Access Door Handle
- 5 Filtered Ventilation
- 6 Optional Side Car – Shown with door open. Door is lockable.
 - a Empty for Top Cable Entry Only
 - b With 3 Breaker MBP (UL1778)
 - c With 3 Breaker MBP & LB Breaker (UL1778)
 - d With b. or c. plus SKRU
- 7 MBP Breaker with HASP
- 8 BIB Bypass Input Breaker
- 9 MIB – Maintenance Isolation Breaker
- 10 Load Bank Breaker

Standards

- Underwriters Laboratories, Listed to UL1778 (Designed to 60950); c-UL to CSA C22.2
- NEMA PE-1
- ASME
- ASA-C-39.1-1984
- FCC PT 15, Subpart J, Class B
- National Electrical Code
- IEEE 587 ANSI C 62.41-1980
- ISO 9001
- IBC (International Building Code) Ratings A-F, Site Specific



FirstLine® PE
Up to Eight Units in Parallel



Service Options

Staco Service offers a wide range of planned maintenance and extended service options to maximize equipment life and reliability of your FirstLine® UPS. Through an extensive network of factory trained professionals you receive:

- Annual Service Plan
- 24/7 Emergency Service
- Preventive Maintenance
- Programs tailored to meet your needs

About Staco Energy Products

Since 1937, customers worldwide have been relying on Staco Energy Products Company to deliver voltage control and power quality solutions tailored to their needs.

As a leading power quality resource, we offer our customers world-class support; from our thorough applications assessment, to our ability to design and deliver a solution that is tailored to the specific needs of our customers; through delivery and commissioning.

Our professional, factory trained service team is in place to ensure that our customers' revenues are protected, and their investment provides them with many years of trouble free operation.

Staco develops total power solutions for OEM and end user applications.

Represented locally by:

In addition to the FirstLine® products we offer a wide array of power quality products, including:

- **Uninterruptible Power Supplies**
- **Power Conditioners**
- **Voltage Regulators**
- **Power Factor Correction and Harmonic Mitigation**
- **Active Harmonic Filters**
- **Variable Transformers**
- **Custom Engineered Test Sets**



STACO ENERGY PRODUCTS CO.®

Your Tailored Power Solutions Provider™

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For more information about the FirstLine PE
www.stacoenergy.com/