



FIRSTLINE P

THREE PHASE ON-LINE DOUBLE CONVERSION UPS

65 - 500 KVA

APPLICATIONS INCLUDE

- Data Centers
- Computer Networks
- Industrial Process Manufacturing
- Hospitals, Medical (OSHDP Certified)
- Education, Research
- Laboratories, Bio-tech
- Pharmaceuticals, Waste Water
- Critical Power Management Requirements
- Any Areas Needing Computer Grade Power and a High Level of Available Power

PRODUCT FEATURES

- **Up to 98% Efficient**
Lower energy costs and carbon footprint
- **Compact & Reliable**
Requires either front 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.





MORE FEATURES

2 LEVEL IGBT WITH 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

Main power and secondary bypass power increase resilience of single or parallel system configurations.

HIGH PERFORMANCE FILTER

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 THE 8 UNITS

Provides redundancy for mission critical applications.

SEISMIC CERTIFIED

For environments requiring seismic certification, the FirstLine® P is available with an optional OSHPD Certified mounting system which makes the UPS and Battery Cabinet(s) OSHPD Certified. (65-250kVA)

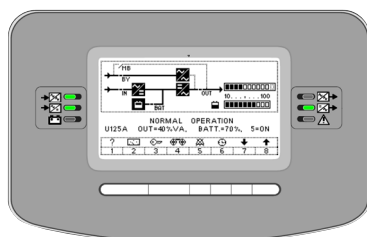
WORLDWIDE SERVICE PROGRAM

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

BATTERY CARE SYSTEM

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

FRONT PANEL DISPLAY



WARRANTY

ELECTRONICS

A full Two Year On-site Warranty (Continental U.S., Canada or Mexico)

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 and preventative maintenance plans are also available. Please refer to our warranty statement for complete details.



FIRSTLINE P UPS

In the event of an AC power failure, the FirstLine® P 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® P UPS will automatically recharge the batteries for the next unexpected power outage or disturbance.

AC INPUT PERFORMANCE

FirstLine® P is a further evolution of the FirstLine® series with the added advantages offered by an IGBT-based rectifier/inverter assembly. 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® P is classed as a "Zero Impact Source" and 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. The FirstLine® P 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® P models feature an output transformer with galvanic isolation (between the load and the battery supply) to provide greater versatility and installation options. The UPS can be supplied from two separate power sources (main power and a second source) which helps increase the resilience of system configurations.

MAIN CHARACTERISTICS

- Efficiency $\geq 96\%$ at full load and up to 98% in ECO / hot standby Mode
- Reduced Weight
- Battery Temp Sensor Module monitors the battery internal cabinet environmental conditions of the Battery Cabinet connected to the UPS and displayed on the UPS front mimic panel.

The entire FirstLine® P 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. 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 or N+1).



FirstLine® P UPS shown with external battery cabinet



COMMUNICATION OPTIONS

SNMP CARD

With UPSMON Monitoring and Shutdown Software, this allows for single unit UPS management across a LAN using any of the main network communication protocols—TCP/IP, HTTP and network interface (SNMP). A SNMP Card enables the UPS to integrate easily into medium and large sized networks and provides reliable communications between the UPS and management systems employed.

BATTERY SENSOR MODULE

Monitors the battery internal cabinet environmental conditions of the Battery Cabinet connected to the UPS and displayed on the UPS front mimic panel.

EXPANSION CARD

Provides additional remote alarm functions. The card contains 6 outputs: potential-free contacts for alarms (programmable from the display panel) and capable of switching up to 30 V AC or DC at UP 1 Amp, 2 inputs (programmable from the panel) and (1) 12V DC maximum 100mA auxiliary input. (2) additional slots shall be available for a total of 12 additional contacts.

REMOTE MONITORING PANEL

Provides monitoring & control of the UPS remotely (same functions as on the UPS) and detailed UPS status overview in real time. It is compatible with all FirstLine P UPS's and can display values for UPS specific input and output supplies, and battery set measurements. It has a high-definition graphical display and can report in seven languages: English, Spanish, French, Chinese, German, Italian and Russian. Includes three independent serial ports, one of which allows for UPS monitoring via the MODBUS/JBUS protocol (on either an RS485 or RS232 serial line). The others can be used with devices such as the SNMP Card or a PC running communication software.

SUPERVISION SOFTWARE

Centralizes UPS management using network interface (SNMP) communications. It is ideal for data center managers and medium to large sized networks. It uses the RFC1628 standard Management Information Base (MIB) and ensures standardized UPS management wherever they are located.

COMMUNICATION SOFTWARE

Used with the SNMP Card for monitoring and shutdown for multiple UPS's. Provides efficient, user-friendly UPS management using bar chart displays to show major operational information such as the input voltage, UPS load % and battery charge %. The software also provides detailed information on fault conditions and UPS operating characteristics. It has been developed with a client/server architecture that makes it flexible and easy to use, and provides multi-lingual and on-line support.

OTHER OPTIONS

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 MBS for total UPS isolation during maintenance or removal of the UPS.

POWER DISTRIBUTION UNIT (PDU)

A Wide Range of Service Programs are Available to Suit all User Requirements. Consult Factory.

BATTERY MONITORING SYSTEM (BMS)

The FirstLine BMS is a system that monitors and records battery cycle data of each battery string or jar. Provides a clean cable free installation.

HARSH ENVIRONMENT ENCLOSURE

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

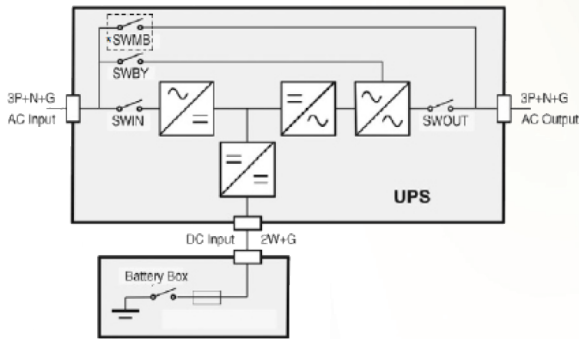
SEISMIC WITHSTAND CERTIFICATION

Site specific seismic certification and documentation. All units come standard with bolt down capability without the use of brackets.

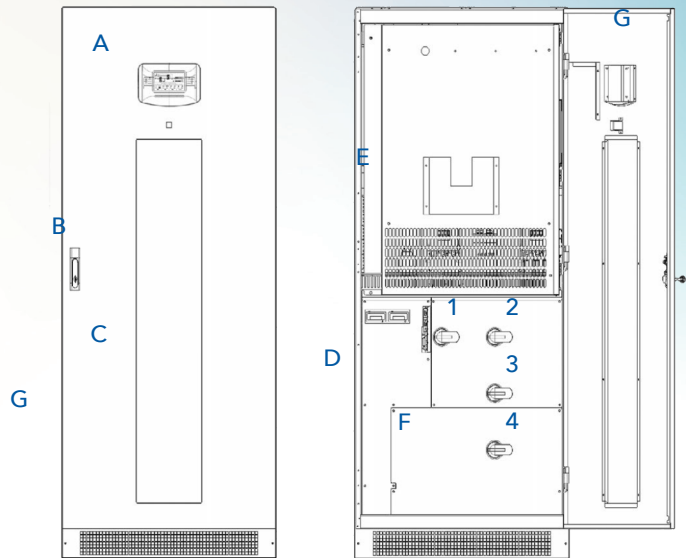
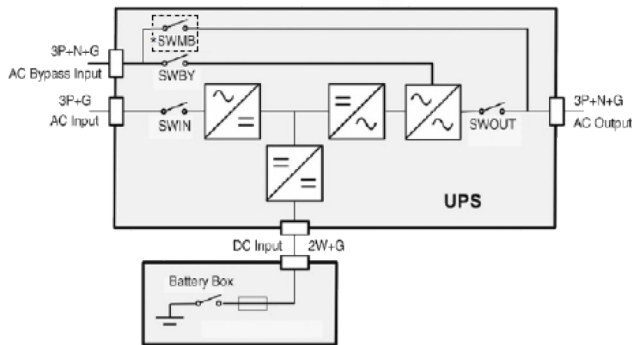
FIRSTLINE P TECHNICAL SPECIFICATIONS

Electrical Data	UPS Power (KVA / KW)										
	65 / 58.5	80 / 72	100 / 90	125 / 112.5	160 / 144	200/180	250/225	300/300	400/400	500/450	
Input											
Nominal Voltage	480VAC 3 Phase, 3 or 4-wire + Grd. (208V Optional with Input Transformer)										
Nominal Voltage Range Without Battery Contribution	-10%, +15%										
Voltage Range in Battery Mode	-40%, + 15%										
Input Frequency Range	From 45 to 65Hz										
Nominal Current Absorbed (480V)	78	96	120	150	188	235	294	361	481	601	
Maximum Current Absorbed at Full Load and Battery Recharging (Amps)	89	109	136	160	212	265	331	433	640	640	
Power Factor at Nominal Voltage (480V) and Battery Charged from 25% to 100% of the Load	> 0.99										
Current Harmonic Distortion (THDi) (with Main Distortion <2%)											
• Load 100%	≤ 3%					≤ 3%					
• Load 75%	≤ 5%					≤ 3%					
• Load 50%	≤ 8%					≤ 5%					
• Load 25%	≤ 8%					≤ 8%					
Progressive Rectifier (Walk-in)	from 0 to 30 Seconds (Configurable)										
Delay of Progressive Start of Rectifier (Power Walk-in Delay Timer)	from 0 to 120 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% (Typical), 2% (max)										
Voltage Distortion with Non-Linear Load	< 3%										
Frequency Stability with Synchronized Inverter to the By-Pass Line	± 2% (± 1% to ± 6% from Control Panel)										
Frequency Stability with not Synchronized Inverter to the By-Pass Line	± 0.05%										
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 200% for 7 Seconds										
• Three Phase											
• Single Phase											
Inverter Efficiency	95%										
By-Pass											
Nominal Voltage	480VAC 3-Phase (With or Without Neutral)										
Nominal Voltage Tolerance	± 15% (Can be Regulated from ± 10% to ± 25% from the Control Panel)										
Nominal Frequency	60 Hz										
Frequency Tolerance	± 2% (Can be Regulated up to ± 6% from the Control Panel)										
System											
AC/AC Efficiency at Full Load	96%										
Efficiency with UPS in STAND-BY Mode	98%										
Full Load Heat Rejection BTU/hr	15,033	18,500	23,120	28,900	36,800	46,100	57,700	58,800	78,410	98,000	
Maximum Current Dispersion	300mA Maximum										
Mechanical											
Dimensions	UPS Power (kVA/kW)										
	65 / 58.5	80 / 72	100 / 90	125 / 112.5	160 / 144	200/180	250/225	300/300	400/400	500/450	
Height x Width x Depth - Inches (mm)											
-00	75.02 x 31.43 x 33.47 (1905.5 x 798.2 x 850.0)				75.02 x 39.37 x 33.47 (1905.5 x 1000.0 x 850.0)			74.80 x 59.06 x 39.37 (1900.0 x 1500.0 x 1000.0)			
-T	-				75.02 x 55.12 x 33.47 (1905.5 x 1400.0 x 850.0)						
-CEC	75.02 x 31.43 x 33.47 (1905.5 x 1198.2 x 850.0)							74.80 x 74.80 x 39.37 (1900.0 x 1900.0 x 1000.0)			
-T-CEC	-				-						
Weight - lbs. / [kg]											
-00	1,499 / 680		1,609 / 730	1,742 / 790	1,984 / 900	2,205 / 1,000	2,425 / 1,100	4,190 / 1,900	4,741 / 2,150		
-T	-				2,236 / 1,055	2,546 / 1,155	2,767 / 1,255	4,200 / 1,905	4,751 / 2,155		
-CEC	1,749 / 793		1,859 / 843	1,992 / 904	2,234 / 1,013	2,455 / 1,114	2,675 / 1,213	4,410 / 2,000	4,961 / 2,250		
-T-CEC	-				-			4,420 / 2,005	4,971 / 2,255		
Freestanding NEMA 1 Enclosure, Powder Coat Painted Black Color with Textured Finish, Bottom Access for Conduit Entries											
Environmental											
Ambient Temperature	0° C to 40° C										
Storage Temperature	-20° C to 70° C										
Relative Humidity	0 - 95% Non-Condensing										
Altitude	3,281 feet without derating										
Audible Noise	65 dBA @ 1 meter				68 dBA @ 1 meter				72 dBA @ 1 meter		

Single Input Unit



Dual Input Unit



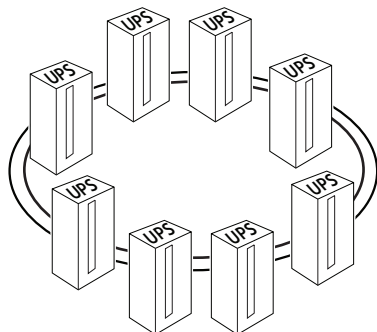
- A Control Panel with Graphic Display
- B Door Handle
- C Ventilation Grills
- D Communication Area
- E Front Cover Panel with Ventilation Grills
- F Switch Cover Panel
- G Door

- 1 Input Isolating Switch
- 2 Output Isolating Switch
- 3 Maintenance Isolating Switch
- 4 Bypass Isolating Switch

FirstLine P 65-500kVA Part Numbers

Model	kVA / kW
1 FLU-065-00	65VA/58.5kW
1 FLU-080-00	80kVA/72kW
1 FLU-100-00	100kVA/90kW
1 FLU-125-00	125kVA/112.5kW
1 FLU-160-00	160kVA/144kW
1 FLU-200-00	200kVA/180kW
1 FLU-250-00	250kVA/225kW
FLU-300-00	300kVA/300kW
FLU-400-00	400kVA/400kW
FLU-500-00	500kVA/450kW

¹ For OSHPD, add "-S" to model number. Top entry available.



FirstLine® P Up to Eight Units in Parallel

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 Part 15, Class B
- National Electrical Code
- IEEE 587 ANSI C 62.41-1980
- ISO 9001
- IBC (International Building Code) Ratings A-F, Site Specific



STACO SERVICE

FIELD SERVICE PROGRAM

Staco specializes in providing choice and flexibility by developing tailored solutions for preventive and remedial maintenance services, as well as emergency repairs for all of our products. Staco Service is built upon a nationwide network of highly trained and motivated customer support engineers and technicians who can provide professional services and care throughout the life of your equipment.

- Start-Ups
- Preventive Maintenance
- Spare Parts
- Battery Analysis/Refresh/Replacement
- On-Site Training
- Time & Material Services

WHY STACO ENERGY PRODUCTS?

BECAUSE WE ARE YOUR CUSTOM POWER SOLUTIONS PROVIDER!

Unique application design demands, harsh environment concerns, the need to meet non-standard physical space requirements; providing the “not so usual” is what we do best. From leading edge uninterruptible power supplies, power conditioners, power factor and harmonic correction equipment, to the world’s most stable voltage control systems, we have the technology you need to protect and manage your business, and the knowledge to make it work for you.

Since 1937, customers worldwide have relied on Staco Energy as their custom solutions provider, to solve a wide range of electrical power problems. Headquartered in Miamisburg, Ohio, Staco Energy Products is a wholly owned subsidiary of Components Corporation of America, located in Dallas, Texas.

Voltage Control



UPS & Emergency Lighting



Power Factor & Harmonics



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