

STACO ENERGY[®] PRODUCTS CO.

FIRSTLINE[®] PL



Full
Two Year
Warranty

Three-Phase Double-Conversion, On-Line UPS

Up to 94% Efficient

- Lower energy costs and carbon footprint

Compact & Reliable

- 10-40kVA internal batteries allow smaller footprint
- Cooler operation extends internal component life

AC Input Performance

- High input power factor of 0.99
- Low input current distortion of <1 % (THDi) @ full load
- Soft Start Power walk-in function that ensures progressive rectifier start-up

IGBT and Digital Signal Processor (DSP)

- Reduces the impact of the UPS on the local supply
- Simplifies installation where there is limited power capacity

Dual Input

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

Adaptive Feed Cancellation

- Advanced control with AFC forward cancellation technology for low harmonic distortion.

Menu Select Display

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

Parallel up to 4 Units

- Provides redundancy for mission critical applications with no additional hardware
- Parallel Kit, Communication through CANBUS Parallel Card

Operates as a precision Power Conditioner

- -0 models can operate as a Power Conditioner upgradeable to a UPS in the future.

Frequency Conversion

- All units can be set as a 50/60Hz Frequency Converter.

Nationwide Service Program

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

FirstLine® PL UPS

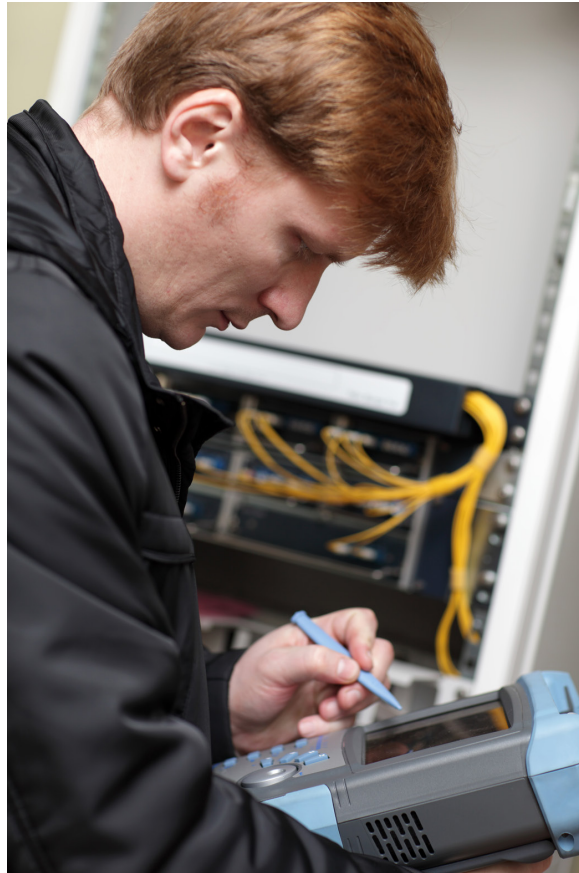
In the event of an AC power failure, the FirstLine® PL UPS will automatically transfer to battery power and continue to provide power without any interruption for the full amount of time you select. When power returns, the FirstLine® PL UPS will automatically recharge the batteries for the next unexpected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

AC Input Performance

FirstLine® PL 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. FirstLine® PL is classed as a “Zero Impact Source” and provides:

- Low input current distortion— <1 % (THDi) @ full load
- 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.

FirstLine® PL 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.



Main Characteristics

- Efficiency up to 94%
- Reduced weight
- Double electronic and galvanic protection of the load from the battery

The entire FirstLine® PL 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 4 units (N+1), and by the Dual Bus System and Dynamic Dual Bus system configurations.

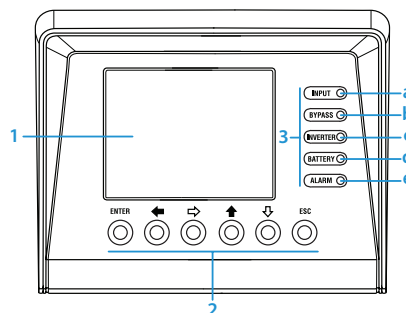
Battery Care System

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

Flexibility

FirstLine® PL 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 emergency standby source) which helps increase the resilience of parallel system configurations.

Mimic Panel



- (LCD) Graphic LCD
 ENT Key <ENTER>
 ESC Key <ESC>
- (↑) Key move up
 (↓) Key move down
 (→) Key move to right
 (←) Key move to left
- (a) Rectifier Input Voltage OK led (green)
 (b) Output Voltage Unit from the Bypass led (orange)
 (c) Inverter is Working led (green)
 (d) Unit Working from Batteries—mains failure led (red)
 (e) General Alarm—in case of any alarm of the unit led (green)

Staco FirstLine PL UPS Technical Specifications

UPS Rating kVA/kW	10/9	15/13.5	20/18	30/27	40/36
Input					
Topology	On-Line Double Conversion				
Voltage	208Y/120 VAC, Three Phase, 4 wire plus ground or 220Y/127 VAC configurable from the Front Panel				
Range	+15% / -20% Battery Discharge @ -15% with full load				
Frequency	60/50Hz +/- 5.0 Hz				
Power Factor	0.99 at 100% load, 0.98 minimum at 50% load				
Current Distortion (THD)	<1% @ 100% Load, <2% @ 50% Load, <5% @ 10% Load				
Input Current (A)	Nominal: 28 Maximum: 33	Nominal: 42 Maximum: 49	Nominal: 55 Maximum: 65	Nominal: 83 Maximum: 97	Nominal: 111 Maximum: 130
Input Current Inrush	Walk-In from 25% maximum to 100% full load rating in 5 seconds				
Output					
Voltage	208Y/120 VAC, Three Phase, 4 wire plus ground or 220Y/127 VAC configurable from the Front Panel				
Static Voltage Regulation	+/- 2%				
Voltage Transient Response	Voltage transient response shall not exceed the following, and shall recover to 95% within 10 milliseconds: a) <5% RMS for 100% step load b) +/- 1% (loss or return of AC input)				
Frequency (inverter synchronous)	60/50Hz (tracks frequency of static bypass source) +/- 0.5, 1.0, 2.0, 5.0 Hz (user settable)				
Frequency Slew Rate (inverter synchronized to static bypass)	± 10 Hz per second				
Free Running Frequency (on battery or asynchronous)	60/50Hz +/- 0.01Hz				
Voltage Distortion THD	Less than 1% (Linear load), less than 2% with crest factor				
Inverter Overload	125% for 10 minutes, 150% for 60 seconds				
Bypass Overload	400% for 10 seconds, 1000% for half line cycle				
Bypass Input – Range Synchronization Voltage	+12% / -15%				
Bypass Input Frequency Tracking Range	+/- 5Hz				
Overall Efficiency	Up to 94%				
Output Current (A)	28	42	55	83	111
Heat Rejection (BTU/Hr)	3,412	5,118	6,824	10,237	13,649
Battery Run Time (minutes)					
Internal Battery String Model (-X)	(-1) 37, (-2) 18, (-3) 9	(-1) 21, (-2) 10, (-3) 4	(-1) 14, (-2) 6	(-1) 8	(-1) 4
Environmental					
Altitude	De-rate load capability above 1000 meters, 1% per 100 meters				
Operating Temperature	40 °C Maximum				
Audible Noise @ 3 feet "A" weighted scale	61dBA			67dBA	
Dimensions and Weights					
H x W x D inches (mm)	41.7 (1059) x 20.3 (516) x 33 (838)			52 (1321) x 23.2 (589) x 33 (838)	
- (X) model, Lbs. (kg)	-0, 410 (186) -1, 950 (431) -2, 735 (334) -3, 630 (286)		-0, 585 (266) -1, 125 (510) -1, 185 (538)		
Standard Communications					
SNMP/WEB	SNMP Card & UPS PowerView Pro Shutdown and Monitoring Software for Windows/Novell				
Modbus	Monitoring & Control via RS-485/RTU Protocol/Read Holding and Write Registers				
Options					
Input/Output	480/480V (D or Y), 480V/208V (D or Y) with Transformer option				
Standards					
208V Model	UL listed to 1778, CUL to CSA C22.2, NEMA PE-1, ASME, ASA-C-39.1-1984, FCC Part 15 Subpart J Class B, NEC, OSHA, IEEE587, ANSI C 62.41-1980, ISO9000				

FirstLine PL 10-40kVA Models

PL Model	kVA/kW	Internal Battery Time (minutes)
FLP-010-0	10kVA/9kW	0
FLP-010-1		37
FLP-010-2		18
FLP-010-3		9
FLP-015-0	15kVA/13.5kW	0
FLP-015-1		21
FLP-015-2		10
FLP-015-3		3
FLP-020-0	20kVA/18kW	0
FLP-020-1		14
FLP-020-2		6
FLP-030-0	30kVA/27kW	0
FLP-030-1		8
FLP-040-0	40kVA/36kW	0
FLP-040-1		4

Note: Longer battery run time available
For Frequency Converter add -FC to PL Model Number.

Two Year Warranty

Electronics:

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

Battery:

Three (3) Full Year, 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.*

Service Options

With our ServiStar® program, a wide range of planned maintenance and extended service options are offered 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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