

100%  
**LED**  
COMPATIBLE

# STACO ENERGY® PRODUCTS CO.

## **FIRSTLINE® PL 924 CATEGORY "OUST"** *(Battery Times other than 90 minutes)* **9, 13.5, 18, 27 and 36kW**

### **Three-Phase Central Inverter for Emergency Lighting Applications**

FirstLine® PL 924 Emergency Lighting System (ELS) delivers high performance, tailored to meet the demands of emergency lighting applications. With a cost-effective reliable design, the FirstLine® PL 924 helps to ensure personnel safety, during an outage condition.

The FirstLine® PL 924 offers more security and versatility to meet illumination requirements, and is the perfect complement for all lighting applications. Our inverter technology effectively maintains critical equipment with extended brownout protection, tight voltage regulation, and power conditioning. Tight voltage regulation assures that facility egress lumens are maintained 100% at emergency lighting fixtures, in all modes of operation, and also extends ballast, LED driver, and lamp life.

FirstLine® PL 924 features unparalleled quality and reliability, with constant conditioned power to virtually any lighting type. The Staco optional Power Distribution Unit (PDU) makes for a well coordinated circuit distribution system.

#### **Compact & Reliable**

- 10-40kVA provides for a 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

#### **Installation Savings**

- System arrives with batteries pre-mounted and wired saving additional labor cost



Full  
Two Year  
Warranty

[www.stacoenergy.com](http://www.stacoenergy.com)

Your Tailored Power Solutions Provider™

# FIRSTLINE® PL 924

## Three-Phase Central Inverter for Emergency Lighting Applications

In the event of an AC power failure, FirstLine® PL 924 ELS automatically supports the connected lighting loads on battery power and will continue to provide power without any interruption for the applications that require backup time. When the utility power returns to normal, FirstLine® PL 924 ELS will automatically recharge the batteries to be ready for the next power disturbance.

### Technical Specifications

#### General

- On-line double-conversion topology
- True sine wave output
- Continuous, no-break operation
- Three-phase system will support single or three-phase loads
- LCD front panel monitoring and control
- Automatic system bypass
- Circuit breaker protection integral with battery cabinet, molded-case type
- Available with standard UL924 listing with other than 90 Minute battery and listed for Auxiliary Lighting and Power Equipment

#### Input

- Input Voltage 208Y/120VAC and 480/277VAC, 4-wire and 3-wire Delta connection available with optional Transformer Cabinet
- Input Voltage Range: +15%/-20% from nominal
- Input frequency: 60Hz +/-5%
- Full load walk-in from 25% to 100% of rated load in <5 seconds
- Harmonic current distortion <1% at full load
- Surge Withstand: Meets IEEE C62.41

#### Output

- IGBT: true sine wave PWM inverter
- Inverter output distortion: <5% THD (100% non-linear)
- Inverter output distortion: <2% THD (linear loads)
- Voltage regulation: +/-2% of nominal at full load
- Frequency: 60/50 Hz

#### Battery

- Designed for easy maintenance
- Valve-Regulated Lead-Acid (VRLA) battery
- 10 year design life at 77°F (25°C)



#### Housing

- Freestanding, NEMA 1 steel enclosure
- Service access—Front and Left Side
- Bottom access for conduit entries

#### Environmental

- Agency Compliance: UL 924 listed as "Emergency Lighting Equipment" and "Auxiliary Lighting and Power Equipment". Complies with NFPA 101 Life Safety Code.
- Operating temperature range 18°F (-8°C) to 104°F (40°C)
- Acoustical Noise: 67 dbA Max. at 3 feet
- Relative Humidity: 0-95% non-condensing
- Seismic certified

#### Monitoring/Communications

- Front Panel LCD Display
  - 3.5" x 4.58"H character display
  - System status and alarms
- Communications Port
  - RS-232
  - Dry Contacts
  - Remote monitoring
  - SNMP and MOD-BUS standard

### Applications

- Theaters / Concert Halls
- Auditoriums
- Worship Facilities
- Conference / Banquet Centers
- Shopping Malls
- Casinos
- Sports Facilities
- University Buildings
- Healthcare Facilities
- Correctional Facilities
- Subway / Train Stations
- Industrial Manufacturing
- Warehouses

In addition to meeting life safety requirements, the FirstLine® PL 924 Emergency Lighting System can also increase the life expectancy of the protected lighting system and reduce long-term cost of ownership.

# What is an Emergency Lighting System?

The National Fire Protection Association (NFPA) has written Life Safety Code® (NFPA 101®) that defines the requirements for emergency lighting for means of egress. The "OUST" standard allows emergency illumination for back up times other than 90 minutes in the event of failure of normal lighting. UL 924 listed as "Emergency Lighting Equipment" and "Auxiliary Lighting and Power Equipment". Complies with NFPA 101 Life Safety Code.

Central lighting inverter system provides for a single point for power connection, monitoring and management of emergency lighting; plus eliminates the high cost of maintenance and testing of each individual emergency light, while security and peace-of-mind is improved. Additionally, other critical loads can be protected such as data security and fire.

\* Copies of summaries of these NFPA Codes are available upon request.

## Staco FirstLine PL 924 "OUST" ELS Technical Specifications

UPS Rating kVA/kW	10/9	15/13.5	20/18	30/27	40/36
<b>Input</b>					
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				
<b>Output</b>					
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
<b>Battery Run Time (minutes)</b>					
Required Battery Time	Battery Times as specified, other than 90 Minutes				
<b>Environmental</b>					
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	
<b>Standard Communications</b>					
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				
<b>Options</b>					
Input/Output	480/480V (D or Y), 480V/208V (D or Y) with Transformer option				
<b>Standards</b>					
LISTING	UL 924 listed as "Emergency Lighting Equipment" and "Auxiliary Lighting and Power Equipment". Complies with NFPA 101 Life Safety Code.				

## ELS 9kW – 36kW Standard “OUST” Models

ELS Model #	Voltage In/Out	kW	Battery Time	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-924-9-0-A	208Y/120V	9kW	0	47.1x20.3x33	410
FLP-924-9-1-A	208Y/120V	9kW	37	47.1x20.3x33	950
FLP-924-9-2-A	208Y/120V	9kW	17	47.1x20.3x33	735
FLP-924-9-3-A	208Y/120V	9kW	11	47.1x20.3x33	630
FLP-924-13-0-A	208Y/120V	13kW	0	47.1x20.3x33	410
FLP-924-13-1-A	208Y/120V	13kW	22	47.1x20.3x33	950
FLP-924-13-2-A	208Y/120V	13kW	10	47.1x20.3x33	735
FLP-924-13-3-A	208Y/120V	13kW	6	47.1x20.3x33	630
FLP-924-18-0-A	208Y/120V	18kW	0	47.1x20.3x33	410
FLP-924-18-1-A	208Y/120V	18kW	15	47.1x20.3x33	950
FLP-924-18-2-A	208Y/120V	18kW	7	47.1x20.3x33	630
FLP-924-27-0-A	208Y/120V	27kW	0	52x23.2x33	585
FLP-924-27-1-A	208Y/120V	27kW	8	52x23.2x33	1,125
FLP-924-36-0-A	208Y/120V	36kW	0	52x23.2x33	585
FLP-924-36-1-A	208Y/120V	36kW	5	52x23.2x33	1,185

## 9kW – 36kW 480Y/277 to 208Y/120V Transformer Cabinet

Model #	kW	Input/Output Voltage	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-0XX-TC-4Y-2Y	9kW 18kW	480Y/277 208Y/120	43 x 27 x 34	350
FLP-030-TC-4Y-2Y	27kW	480Y/277 208Y/120	52 x 27 x 34	370
FLP-040-TC-4Y-2Y	36kW	480Y/277 208Y/120	60 x 32 x 34	410

## 9W – 36kW 480Y/277 to 480Y/277V Transformer Cabinet

Model #	kW	Input/Output Voltage	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-0XX-TC-4Y-4Y	9kW 18kW	480Y/277 480Y/277	43 x 27 x 34	350
FLP-030-TC-4Y-4Y	27kW	480Y/277 480Y/277	52 x 27 x 34	370
FLP-040-TC-4Y-4Y	36kW	480Y/277 480Y/277	60 x 32 x 34	410

## 9kW – 36kW 208Y/120V Wall Mount Bypass

Model #	kW	Input/Output Voltage	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-015-MBPS	9kW-13Kw	208Y/120	22 x 18.25 x 13	70
FLP-030-MBPS	18kW-27kW	208Y/120	22 x 22.25 x 13	70
FLP-040-MBPS	36kW	208Y/120	60 x 15 x 33	150

## 9kW – 36kW 480Y/277 to 208Y/120V Transformer Cabinet with Bypass

Model #	kW	Input/Output Voltage	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-0XX-TC-4Y-2Y-MBPS	9kW 18kW	480Y/277 208Y/120	43 x 27 x 34	390
FLP-030-TC-4Y-2Y-MBPS	27kW	480Y/277 208Y/120	52 x 27 x 34	400
FLP-040-TC-4Y-2Y-MBPS	36kW	480Y/277 208Y/120	60 x 32 x 34	490

## 9W – 36kW 480Y/277 to 480Y/277 Transformer Cabinet with Bypass

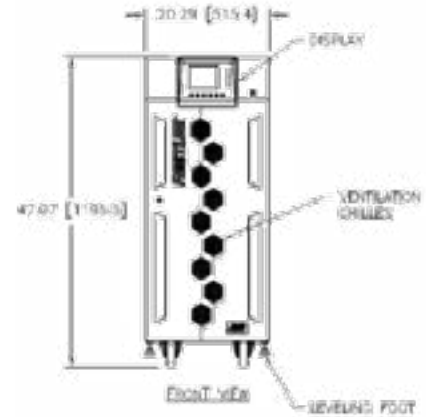
Model #	kW	Input/Output Voltage	Dimensions (H" x W" x D")	Weight (Lbs.)
FLP-0XX-TC-4Y-4Y-MBPS	9kW 18kW	480Y/277 480Y/277	43 x 27 x 34	390
FLP-030-TC-4Y-4Y-MBPS	27kW	480Y/277 480Y/277	52 x 27 x 34	400
FLP-040-TC-4Y-4Y-MBPS	36kW	480Y/277 480Y/277	60 x 32 x 34	490

### NOTES:

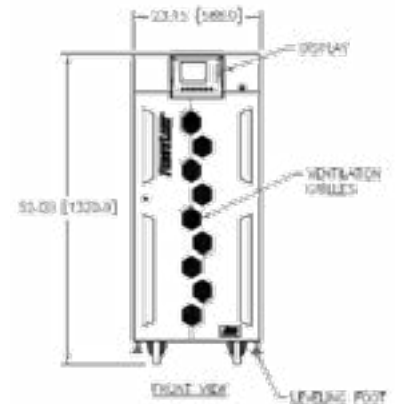
- For 480Y/277 voltages requirements, add the appropriate Transformer Cabinet with or without Bypass.
- Replace the XX with the unit kVA rating.

### Battery Cabinet(s)

Number and dimensions vary depending on required back up time – Consult Factory



10 – 20kva 2 x 2 Unit



30 – 40kva 2 x 2 Unit



## Two Year Warranty

### Electronics:

A full **2 Year On-site Warranty** comes standard, and covers both parts and labor within the continental United States. Factory Authorized Start-up (included) is required for warranty coverage.

### 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.*

### Lighting Types Supported:

(Consult factory for specific application)

- Light Emitting Diode (LED) Lighting
- Incandescent
- Magnetic and electronic fluorescent ballasts
- High power factor compact fluorescent
- High Intensity Discharge (HID)
- High Pressure Sodium (HPS)
- Metal Halide (MH)

### Central Inverter System Advantages:

- Single point operations for simplified testing and recordkeeping
- Simplified service for reduced cost of ownership
- Industry standard battery pack for easy maintenance

## 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**
- **ServiStar: Providing security beyond our standard warranty**

### Why Staco Energy Products?

#### Because we are your tailored 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 tailored solutions provider, to solve a wide range of electrical power problems. Headquartered in Dayton, Ohio, Staco Energy Products is a wholly owned subsidiary of Components Corporation of America, located in Dallas, Texas.



**STACO  
ENERGY<sup>®</sup>**  
**PRODUCTS CO.**

Your Tailored Power Solutions Provider™

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