



Power Protection Solutions  
for Traffic and ITS Applications



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## A BRIEF HISTORY

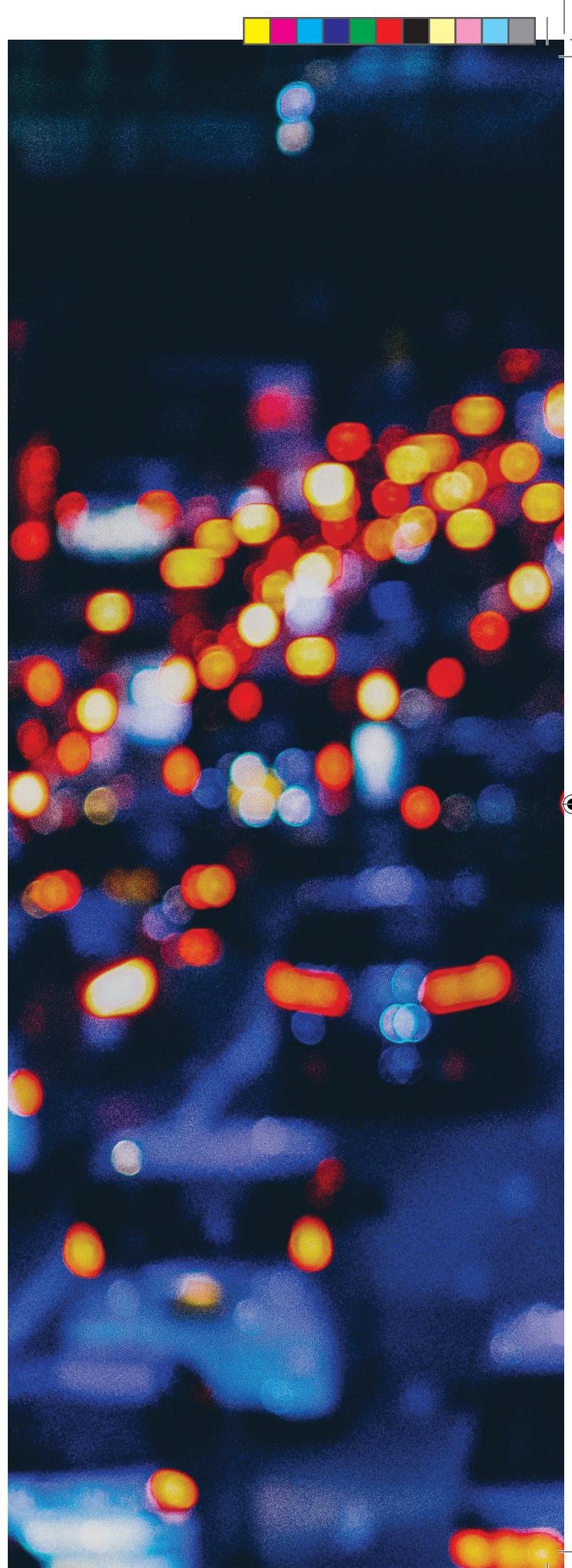
In 1939, Clary Corporation started out as a high-tech manufacturer of precision aircraft parts for the military. Over the next 30 years, Clary evolved into manufacturing unique technology including gyroscopic devices for military missile programs, mini-computers and electro-mechanical adding machines. Clary's experience in computer manufacturing challenged the company to evolve once again.

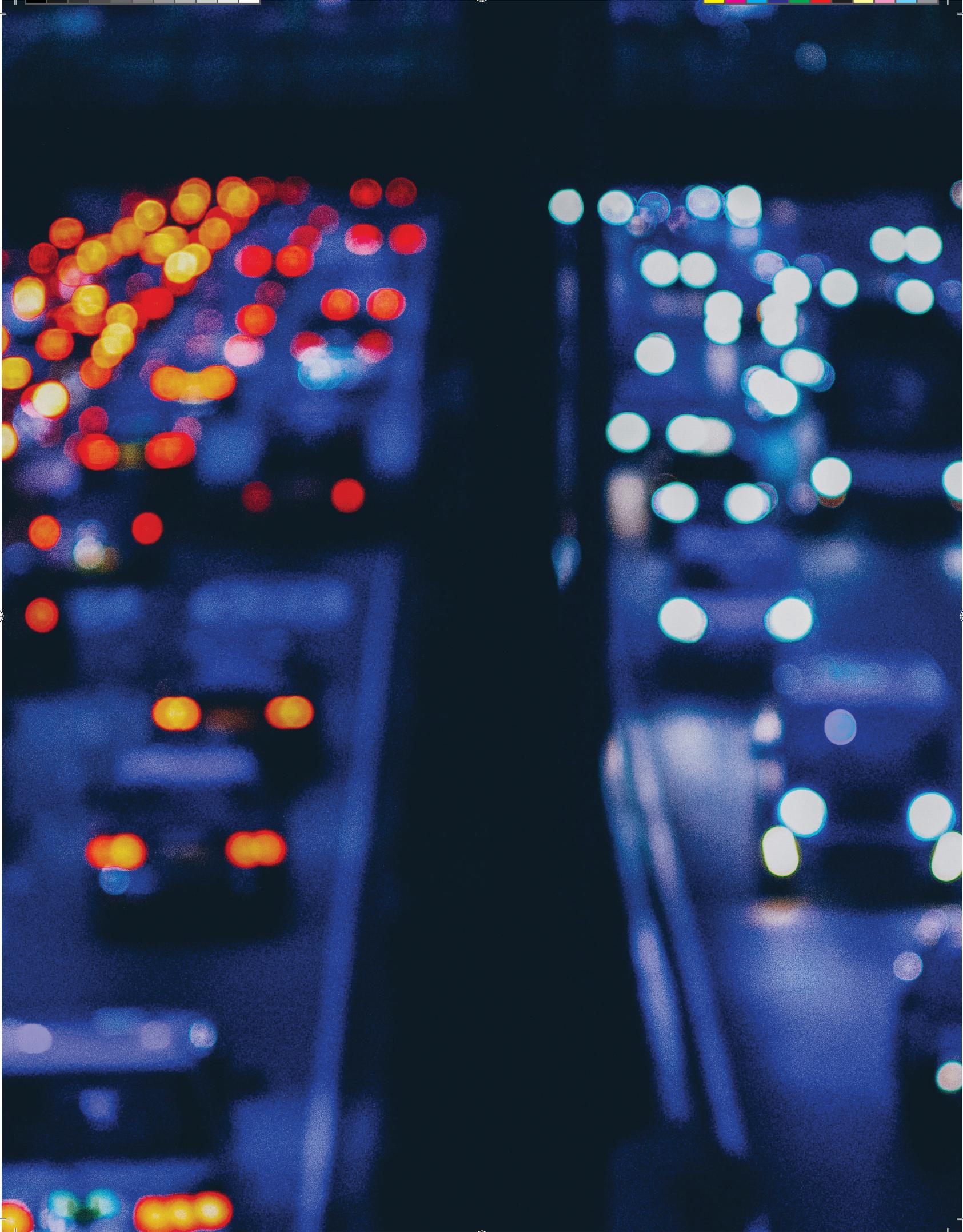
In the early 1970's, Clary designed the industry's first all solid-state Uninterruptible Power Supply (UPS). In 1997, Clary refined their solid-state UPS technology, integrating it with digital technology to become the industry standard for rugged devices. Ever since, Clary has been innovating and refining this technology to meet the expanding needs of customers globally. Clary all-digital UPS systems are known worldwide for their extreme temperature capability and rugged, reliable design. Clary UPS systems utilize online double-conversion technology which isolates equipment from raw utility power and produces a regulated pure sine wave output that protects sensitive instrumentation and electronics from every power anomaly imaginable.

## TRAFFIC PRODUCTS

The demands of the traffic industry today are noticeably different from the past. Today traffic signal equipment utilizes all the latest technologies including video detection, Bluetooth readers, radar and Ethernet/cellular communications, in addition to the most advanced controllers available. It is imperative to protect and keep this equipment running smoothly. There are many different traffic cabinet configurations, with specific power requirements. Fortunately, Clary manufactures various UPS products to satisfy all your power protection needs.

Clary UPS systems have been certified to comply with NEMA standards for temperature, shock and vibration and are approved for use by some of the most respected state transportation agencies, including Caltrans, TxDOT, and FDOT. Clary is committed to meeting the highest quality standards and has achieved ISO 9001:2015 certification.





# SP 1400LT

ONLINE UPS FOR THE  
NEW GENERATION OF  
TRAFFIC CONTROLLERS



## OVERVIEW

The SP 1400LT is a small form-factor online-UPS optimized for use in modern compact ATC traffic cabinets. The LT Series are advanced UPS systems that provide clean, regulated double-conversion power for controllers and other sensitive equipment inside the traffic cabinet. Rated for 1400 VA/1000 W, the SP 1400LT has been independently tested and certified to comply with NEMA temperature standards as well as NEMA standards for shock and vibration. Compatible with most existing traffic cabinets, the SP 1400LT may be shelf mounted (a rack-mount kit is available). The SP1400LT provides full operation in LED signalized intersections when configured with optional Lithium Iron Phosphate or VRLA batteries. Advanced communication features allow monitoring, configuration and control of the system over RS232, modem or network connections.

This power factor corrected uninterruptible power supply is designed to enhance utility power or repair failing utility power in traffic, ITS or security cabinets. Clary's SP 1400LT extends the reliability of the cabinet when the utility power fails (black out) or falters (brownout). The SP 1400LT system also protects the cabinet by insuring that no harmful power anomalies arrive at the cabinet to destroy or degrade the cabinet electronics. Clary's industry proven on-line, true sine wave power protects the cabinet 100% of the time to insure reliable and continuous error-free operation. The SP 1400LT operates in extreme environments from -40°C to +74°C (-40°F to 165°F), and communicates via USB with monitoring center or other equipment. Power quality analytical data is recorded and exportable to Excel in CSV format. Available with battery bus voltage of 48 V.

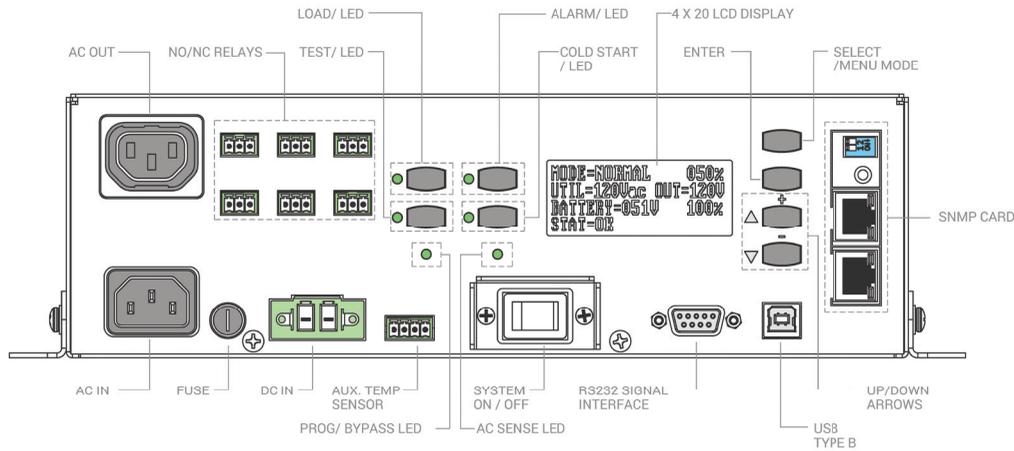


Ideal for ATC cabinets



Our SP48LI battery pack  
mates nicely with the  
SP1400LT UPS

# New Product



## ELECTRICAL INPUT

### Voltage

120 VAC (85 VAC to 155 VAC before going to battery, when configured with batteries)

### Frequency

40 Hz to 70 Hz

## ELECTRICAL OUTPUT

### Voltage

120 VAC  $\pm 3\%$

### THD

3.00%

### Frequency

50 Hz or 60 Hz

### Dynamic Response

$\pm 4\%$  for 100% step load change, 0.5 ms recovery time

### Current

10.4 A

### Overload

- 110% for 10 sec
- 200% for 50 ms

### Rating

1400 VA / 1000 W

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Altitude

Sea level to 10,000 ft

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Input

IEC style

### Weight

8 lb

### Outputs

IEC style

### Cooling

- Low velocity
- Forced air
- Fan is field replaceable

### Dimensions (H x W x D)

3.5" x 11" x 8.5" (2U)

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection

### Certifications

- FCC Class A
- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

## CONTROL AND INDICATORS

### User Interface

Backlit OLED display panel with current and historical operational status of power system, battery system, output load, alarm states, event logs and configurations.

### Audible Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery

### Switches / Control Panel

- System power
- Cold start
- Load I
- Test

### Intelligent Computer Interfaces

1 each DB9-F (RS232 and signal interface pins) and 1 each USB

## OPTIONS

### SNMP

Allows full control and monitoring interface over network connection. Compatible with major software offerings. Includes RJ-45 (Network), RJ-45 (EMD), USB-A, USB-mini connectors.

# SP 1250XLE

SPACE SAVING  
DESIGNED UPS



## OVERVIEW

The SP1250 XLE is a full-featured on-line dual conversion UPS rated for 1250 VA / 875 W that comes in a rack-mounted 1U form factor. Clary's unique technology conditions utility power and protects critical and valuable cabinet equipment from a broad range of power disturbances. The SP1250 XLE is designed to provide extended run time when configured with an available lithium battery pack or a 4 battery AGM system - allowing traffic to continue running smoothly even when utility power is interrupted. When configured with Clary's SP48LI X2 rack mounted lithium battery pack, the entire UPS system takes up only 3U of rack space. The SP1250 XLE is optimized to support industry standard 332 style controller cabinets without the need for a separate UPS or battery cabinet. The SP1250 XLE boasts a variety of features including three contact closures, built-in SNMP communications and an OLED display. (One

contact closure is a low voltage DC output for powering an LED "On-battery" indicator light on the outside of the cabinet.) The brightly lit 4-line OLED display provides the user with critical information such as an event log, input/output status, battery status, temperature, SNMP IP address, firmware version and more. The event log is exportable to Excel in CSV format for analytical purposes. Real-time data is available via the SNMP interface. The SP1250 XLE is designed to withstand temperature extremes ranging from -40° C to 74° C, making it ideal for use in roadside traffic cabinets.

Options available in Q2 2023 include: 10A battery charger, 24/48VDC / 600W output module, rear power connections, and remote battery monitor with optional battery balancer.

# New Product



Optional Battery Pack

## ELECTRICAL INPUT

### Voltage

120 VAC (85 VAC to 155 VAC before going to battery, when configured with batteries)

### Frequency

40 Hz to 70 Hz

## ELECTRICAL OUTPUT

### Voltage

120 VAC  $\pm 3\%$

### THD

3.00%

### Frequency

50 Hz or 60 Hz

### Dynamic Response

$\pm 4\%$  for 100% step load change  
0.5 ms recovery time

### Current

10.4 A

### Overload

- 110% for 10 sec
- 200% for 50 ms

### Rating

1250 VA / 875 W

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Altitude

Sea level to 10,000 ft

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Input

IEC-320, C14 male connector

### Weight

10 lbs

### Outputs

IEC-320, C13 female receptacles (2)

### Cooling

- Low velocity
- Forced air

### Dimensions (H x W x D)

1.75" x 16.75" x 12.25" (1U)

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection

### Certifications

- FCC Class A
- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

## CONTROL AND INDICATORS

### User Interface

Backlit OLED display panel with current and historical operational status of power system, battery system, output load, alarm states, event logs, and configurations.

### Switches / Control Panel

- System power
- Cold start
- Load

### SNMP Interface

Allows full control and monitoring interface over network connection. Compatible with major software offerings. Includes RJ-45 (Network), RJ-45 (EMD), USB-A, and USB-mini connectors.

### Typical Recharge Time (to 85% Capacity @ 100% Load)

- 3 to 5 hrs with SP 48SB battery pack
- 48 to 72 hrs with Outpost or Garrison batteries

### Audible Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery

### Intelligent Computer Interfaces

1 each DB9-F (RS232 and signal interface pins) and 1 each USB

### Contact Closures

- 3 provided

## OPTIONS

### External Battery Pack

SP48LI x2 rack mounted battery pack.  
Provides up to 4 hours runtime at 200 W.

# SP 560

## COMPACT UPS THAT DELIVERS UNCOMPROMISING PROTECTION

The compact SP 560 from Clary delivers on-line protection 100% of the time, for reliable, continuous error-free operation, regardless of utility power quality. The smallest UPS of its kind, the SP560 is only 1U high and can fit into any cabinet. Clary's SP 560 is a 560 VA / 400 W power source built for electronics equipment in ITS, traffic and security applications, delivering constant, conditioned, regenerated AC power. It protects equipment from being disrupted, degraded or damaged due to harmful power events. Clary power conditioning completely isolates the cabinet from

utility power enabling error-free operation during surges, sags, spikes, and other power anomalies. With an optional battery pack, the SP 560 system operates as an on-line, double-conversion UPS, extending the reliability of the cabinet's electronics during utility power failures (black-outs). The SP 560 is power factor corrected to reduce utility current draw and wiring requirements. Designed for indoor/outdoor use, the Clary SP 560 will operate in temperature extremes from -40°C to +74°C (-40°F to 165°F) and it communicates locally or remotely via serial, USB or an optional web agent.



### ELECTRICAL INPUT

#### Voltage

120 VAC (85 VAC to 155 VAC before going to battery, when configured with batteries)

### ELECTRICAL OUTPUT

#### Voltage

120 VAC ±3%

#### Frequency

Software selectable to sync with input utility or run at crystal controlled 50/60 Hz ±1 Hz

#### Current

4.8 A

#### Rating

560 VA / 400 W

#### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

### ENVIRONMENTAL

#### Temperature

-40°C to +74°C (-40°F to +165°F)

#### Humidity

0% to 95% non-condensing

### MECHANICAL

#### Input

IEC-320, C14 male connector

#### Outputs

IEC-320, C13 female receptacles (2)

#### Dimensions (H x W x D)

1.7" x 11.0" x 8.5" (1U)

#### Frequency

40 Hz to 70 Hz

#### THD

3.00%

#### Dynamic Response

±4% for 100% step load change  
0.5 ms recovery time

#### Overload

- 110% for 10 sec
- 200% for 50 ms

#### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

#### Altitude

Sea level to 10,000 ft

#### Weight

5 lb

#### Cooling

- Low velocity
- Forced air

### DESIGN

#### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection

#### Certifications

- FCC Class A
- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

### CONTROL AND INDICATORS

#### Visual Indicators

- Battery status
- AC output
- AC input
- Alarm

#### Switches / Control Panel

- System power
- Cold start
- Load I

### OPTIONS

#### External Battery Pack

SP 48SB battery pack. Compact design. Ideal for runtime requirements less than an hour.

#### Typical Recharge Time (to 85% Capacity @ 100% Load)

- 3 to 5 hrs with SP 48SB battery pack
- 48 to 72 hrs with Outpost or Garrison batteries

#### Audible Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery

#### Intelligent Computer Interfaces

1 each DB9-F (RS232 and signal interface pins) and 1 each USB

# SP 1250LE

SPACE SAVING  
DESIGNED UPS

The SP 1250LE universal power conditioner is a power factor corrected 1250 VA / 875 W device designed to enhance utility power or repair failing utility power in traffic, ITS or security cabinets. Clary's SP 1250LE can also operate as an on-line, dual conversion UPS when configured with the optional battery pack, which extends the reliability of the cabinet when the utility power fails (black out) or falters (brownout). The SP 1250LE system also protects the cabinet by insuring that no harmful power artifacts arrive at the cabinet to destroy or degrade the cabinet

electronics. Clary's industry proven on-line, true sine wave power protects the cabinet 100% of the time to insure reliable and continuous error-free operation. The SP 1250LE operates in extreme environments from -40°C to +74°C (-40°F to 165°F), and communicates via USB with a monitoring center or other equipment. Power quality analytical data is recorded and exportable to Excel in CSV format. The 1250LE can be placed directly on a cabinet shelf or mounted in the cabinet with an optional rack-mount kit.



## ELECTRICAL INPUT

### Voltage

120 VAC (85 VAC to 155 VAC before going to battery, when configured with batteries)

## ELECTRICAL OUTPUT

### Voltage

120 VAC  $\pm 3\%$

### Frequency

50 Hz or 60 Hz

### Current

10.4 A

### Rating

1250 VA / 875 W

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Input

IEC-320, C14 male connector

### Outputs

IEC-320, C13 female receptacles (2)

### Dimensions (H x W x D)

1.7" x 15.25" x 8.5" (1U)

### Frequency

40 Hz to 70 Hz

### THD

3.00%

### Dynamic Response

$\pm 4\%$  for 100% step load change  
0.5 ms recovery time

### Overload

- 110% for 10 sec
- 200% for 50 ms

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Altitude

Sea level to 10,000 ft

### Weight

8 lb

### Cooling

- Low velocity
- Forced air

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection

### Certifications

- FCC Class A
- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

## CONTROL AND INDICATORS

### Visual Indicators

- Battery status
- AC output
- AC input
- Alarm

### Switches / Control Panel

- System power
- Cold start
- Load I
- Load II

## OPTIONS

### External Battery Pack

SP 48SB battery pack. Compact design. Ideal for runtime requirements less than an hour.

### Typical Recharge Time (to 85% Capacity @ 100% Load)

- 3 to 5 hrs with SP 48SB battery pack
- 48 to 72 hrs with Outpost or Garrison batteries

### Audible Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery

### Intelligent Computer Interfaces

1 each DB9-F (RS232 and signal interface pins)  
and 1 each USB

### Contact Closures

- 2 contact closures

# SP 1250DLE-MC

## CLEAN POWER FOR THE NEXT GENERATION

Designed for today's 48 V low-voltage ATC traffic cabinets, this digital UPS provides both multiple voltage outputs to support a variety of needs. This digital UPS is designed to be plug and play with Swarco/McCain cabinets and supports other manufacturers' low-voltage cabinets. The SP 1250DLE is designed for temperature extremes of -40°C to +74°C (-40°F to +165°F)

and supports 85-155 VAC or 48 VDC input voltages, as well as generator input. The unit provides a 120 VAC output as well as 48VDC and 24VDC outputs, rated up to a maximum of 875 watts for all outputs. For customers who do not yet require DC support but anticipate a future need, the SP 1250DLE can be ordered without DC output and later upgraded in the field.



## LOW VOLTAGE UPS

### ELECTRICAL INPUT

#### INPUT #1

##### Voltage

85 VAC - 155 VAC

##### Frequency

60 Hz  $\pm$  5 Hz

#### INPUT #2

##### Voltage

48 VDC nominal battery pack

##### Power Factor

Power factor corrected

##### Isolation

Thru-neutral design

### ELECTRICAL OUTPUTS

#### OUTPUTS - GENERAL

##### Total Power

875 W maximum all outputs combined

##### Overload

120% for 10 mins

##### Isolation

AC, 48 VDC and 24/12 VDC isolated from each other

##### UPS Protection

- Input and output short circuit
- Input and output overload

#### AC - LOAD 1 & LOAD 2

##### Voltage

120 VAC  $\pm$  3%

##### Frequency

60 Hz

##### VA / Power

1250 VA / 875 W

##### THD

5% maximum

##### Isolation

Thru-neutral design

##### UPS Protection

- Input and output short circuit
- Input and output overload

#### DC OUTPUTS 1 & 2

##### Voltage

48 VDC  $\pm$  3%

##### Current

12 A combined max

#### DC OUTPUT 3

##### Voltage

24 VDC  $\pm$  3%

##### Power

144 W

##### Current

6 A max

### ENVIRONMENTAL

#### Temperature

-40°C to +74°C (-40°F to +165°F)

#### Humidity

95% maximum, non-condensing

#### Altitude

-1000 to 10,000 ft

#### Cooling

- Forced air
- Removable filter
- Reversible direction

### DESIGN

#### Standard Features

- Power factor corrected input
- Fully isolated DC output stages
- Wide AC input operating range without battery use
- True on-line continuous power
- High inrush current capability

#### Typical Recharge Time (to 85% Capacity @ 100% Load)

- 3 to 5 hrs with SP 48SB battery pack
- 48 to 72 hrs with Outpost or Garrison batteries

### CONTROL AND INDICATORS

#### Visual Indicators

- AC input
- DC input
- Battery status
- Load status
- Fault indicators

#### Audible Alarms

For fault conditions

#### Switches / Control Panel

- System power
- Cold start
- Fault silence
- Battery test
- AC output
- DC output

#### Intelligent Computer Interfaces

- USB 2.0 and RS232 serial data interface
- Full interactive remote computer monitoring and control of most features including load control (requires optional monitoring software)

### OPTIONS

#### SNMP Interface

Allows full control and monitoring interface over network connection. Compatible with major software offerings. Includes RJ-45 (Network), RJ-45 (EMD), USB-A, and USB-mini connectors.

# SP 1250LX

ONLINE UPS WITH  
INTEGRATED PIM AND  
PROGRAMMABLE DISPLAY

The SP 1250LX features an integrated Power Interface Module and programmable display. The LX Series are advanced UPS systems that provide clean, regulated dual conversion power for controllers and other sensitive equipment inside the traffic cabinet. Rated for 1250 VA / 875 W with operational temperature of -40°C to +74°C (-40°F to 165°F), meeting all NEMA temperature specifications. Compatible with most existing traffic cabinets, the SP 1250LX can be rack or shelf mounted

and can be configured with either front or rear power connectors. The SP 1250LX provides full operation in intersections with all LEDs. Advanced communication features allow monitoring, configuration and control of the system over RS232, modem or network connections. Available with battery bus voltages of 48 V or 72 V. Optional 96 V battery bus in SP1250LX-HW increase wattage rating from 875 to 1,000 watts.



BEST SELLER

## ELECTRICAL INPUT

### Voltage

75 VAC to 155 VAC (before going to batteries)

### Frequency

45 Hz to 65 Hz

## ELECTRICAL OUTPUT

### Voltage

120 VAC ±3%

### THD

4.00% maximum

### Frequency

50 Hz or 60 Hz

### Dynamic Response

±4% for 100% step load change  
0.5 ms recovery time

### Current

10.4 A

### Overload

- 110% for 10 sec
- 200% for 50 ms

### Rating

1250 VA / 875 W (1000 W in SP1250LX-HW)

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Altitude

Sea level to 10,000 ft

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Input

Hardwired to bypass box

### Weight

13 lb

### Outputs

Hardwired to bypass box, with  
single 15 Amp receptacle

### Cooling

- Low velocity
- Forced air

### Dimensions (H x W x D)

3.5" x 19.0" x 10.0" (2U)

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection
- EIA/RS232 data interface

### Certifications

- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

### Typical Recharge Time (to 85% Capacity @ 100% Load)

48-72 hrs (more time required with  
extended battery option)

## CONTROL AND INDICATORS

### Switches / Control Panel

- System power
- Cold start
- Test
- Alarm silence
- Four line LCD display panel provides current and historical operational status of power system, battery system, output load, alarm states, event logs, and configurations.

### Intelligent Computer Interfaces

- Serial interface for EIA 232
- 1 each DB9-F (RS232 and signal interface pins) and 1 each USB
- Full interactive remote computer monitoring and control of most features including load control (requires optional monitoring software)
- NTCIP and TCP/IP ready

### Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery
- Self test

### Contact Closures

- "D" connector
- Open collector (see user manual for additional interface information)

## OPTIONS

### SNMP Interface

Allows full control and monitoring interface over network connection. Compatible with major software offerings. Includes RJ-45 (Network), RJ-45 (EMD), USB-A, and USB-mini connectors.

### Battery Bus Voltage

- 48 V or 72 V
- 96 V in HW model

# SP 2000LX

IDEAL POWER  
PROTECTION FOR LARGE  
DIAMOND INTERSECTIONS

The SP 2000LX features an integrated power interface module and programmable display. The LX Series are advanced UPS systems that provide clean, regulated dual conversion power for controllers and other sensitive equipment inside the traffic cabinet. Rated for 2000 VA / 1400 W with operational temperature of -40°C to +74°C (-40°F to +165°F), meeting all NEMA temperature specifications. Compatible with most existing traffic

cabinets, the SP 2000LX can be rack or shelf mounted and can be configured with either front or rear power connectors. The SP 2000LX provides full operation in intersections with all LEDs. Advanced communication features allow monitoring, configuration and control of the system over RS232, modem or network connections. Available with battery bus voltage of 48 V or 96 V.



NOW AVAILABLE WITH 48 V BUS

## ELECTRICAL INPUT

### Voltage

75 VAC to 155 VAC (before going to batteries)

### Frequency

45 Hz to 65 Hz

## ELECTRICAL OUTPUT

### Voltage

120 VAC  $\pm 3\%$

### THD

4.00% maximum

### Frequency

50 Hz or 60 Hz

### Dynamic Response

$\pm 4\%$  for 100% step load change  
0.5 ms recovery time

### Current

16.7 A

### Overload

- 110% for 10 sec
- 200% for 50 ms

### Rating

2000 VA / 1400 W

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Altitude

Sea level to 10,000 ft

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Input

Hardwired to bypass box

### Weight

13 lb

### Outputs

Hardwired to bypass box, with single 15 Amp receptacle

### Cooling

- Low velocity
- Forced air

### Dimensions (H x W x D)

3.5" x 19.0" x 10.0" (2U)

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection
- EIA/RS232 data interface
- 96 VDC battery system

### Typical Recharge Time (to 85% Capacity @ 100% Load)

48-72 hrs (more time required with extended battery option)

### Certifications

- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

## CONTROL AND INDICATORS

### Switches / Control Panel

- System power
- Cold start
- Test
- Alarm silence
- Four line LCD display panel provides current and historical operational status of power system, battery system, output load, alarm states, event logs, and configurations.

### Intelligent Computer Interfaces

- Serial interface for EIA 232
- 1 each DB9-F (RS232 and signal interface pins) and 1 each USB
- Full interactive remote computer monitoring and control of most features including load control (requires optional monitoring software)
- NTCIP and TCP/IP ready

### Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery
- Self test

### Contact Closures

- "D" connector
- Open collector (see user manual for additional interface information)

## OPTIONS

### SNMP Interface

Allows full control and monitoring interface over network connection. Compatible with major software offerings. Includes RJ-45 (Network), RJ-45 (EMD), USB-A, and USB-mini connectors.

# SP Captain

A NEW BREED OF UPS  
FOR ITS APPLICATIONS

Here is the only UPS that puts you in full control of your traffic system. With the SP Captain you can remotely and securely reset power on cabinet equipment to reboot or shed devices. Eight IP-addressable 15 A 120 V receptacles can be individually controlled remotely from your office of traffic management center. The SP Captain is the only combined UPS and

IP-addressable PDU that is NEMA rated for traffic applications. Remote control of individual devices in the cabinet provides long-run savings by permitting trouble-shooting without the expense of field service. The 1250VA / 875 Watt system also provides continuous online power conditioning that protects your ITS infrastructure against surges, sags, and spikes.



CONTROL 8 DEVICES REMOTELY

## ELECTRICAL INPUT

### Voltage

120 VAC (85 VAC to 155 VAC before going to battery, when configured with batteries)

### Frequency

40 Hz to 70 Hz

## ELECTRICAL OUTPUT

### Voltage

120 VAC  $\pm 3\%$

### THD

3.00%

### Frequency

Software selectable to sync with input utility or run at crystal controlled 50/60 Hz  $\pm 1$  Hz

### Dynamic Response

$\pm 4\%$  for 100% step load change  
0.5 ms recovery time

### Current

10.4 A

### Overload

- 110% for 10 sec
- 200% for 50 ms

### Rating

1250 VA / 875 W

### UPS Protection

- Input and output short circuit
- Input and output overload
- Excessive battery discharge

### Crest Factor Ratio

- 50% load up to 4.8:1
- 75% load up to 3.2:1
- 100% load up to 2.4:1

## ENVIRONMENTAL

### Temperature

-40°C to +74°C (-40°F to +165°F)

### Altitude

Sea level to 10,000 ft

### Humidity

0% to 95% non-condensing

## MECHANICAL

### Front Panel Input

IEC-320, C14 male connector

### Weight

10 lb

### Front Panel Output

IEC-320, C13 female receptacles

### Cooling

- Low velocity
- Forced air

### Rear Panel Output

NEMA 5-15R (x8)

### Dimensions (H x W x D)

1.75" x 16.75" x 12.25" (1U)

## DESIGN

### Standard Features

- Power factor corrected input
- Fully regenerative
- True on-line continuous power
- Low distortion sine wave output
- Designed for non-linear loads
- Extended brownout protection

### Typical Recharge Time (to 85% Capacity @ 100% Load)

- 3 to 5 hrs with SP 48SB battery pack
- 48 to 72 hrs with Outpost or Garrison batteries

### Certifications

- FCC Class A
- IEEE 587/ANSI C62.4
- IEC 555 @ 120 VA
- NEMA

## CONTROL AND INDICATORS

### Visual Indicators

- Battery status
- AC output
- AC input
- Alarm

### Audible Alarms

- Utility interrupt
- Inverter failure
- Overload
- Low battery

### Switches / Control Panel

- System power
- Cold start
- Load I

### Intelligent Computer Interfaces

1 each DB9-F (RS232 and signal interface pins)  
and 1 each USB

### SNMP

- RJ-45 (Network)
- RJ-45 (EMD)
- USB-A
- USB-Mini

### Digital Input (x4)

### Digital Output (x4)

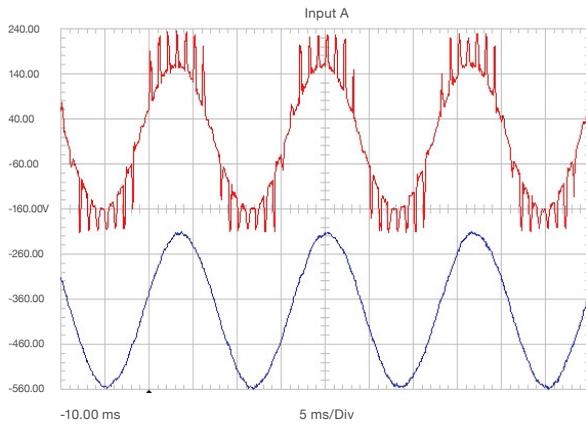


Back Panel View

# Power Conditioning

## CLEAN UP DIRTY POWER

Clary's UPS systems do much more than provide backup in event of power loss. Our exclusive digital on-line double conversion cleans and conditions utility power and protects your valuable equipment from a wide variety of power anomalies, such as surges, spikes, noise, and harmonic distortion.



## ELIMINATE HARMONIC DISTORTION

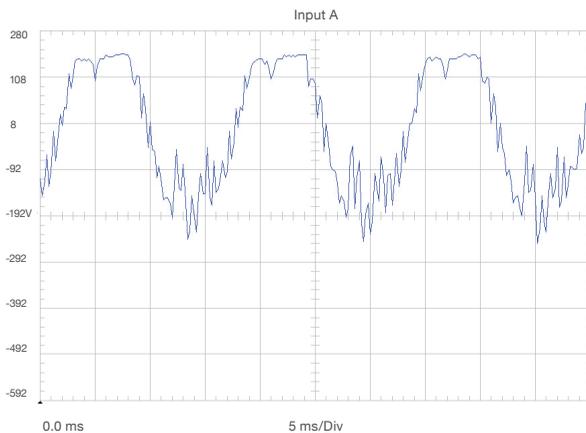
Some products in the market, such as line-interactive UPS systems simply "boost" or "buck" incoming voltage. Unfortunately, the "boost" also increases or "boosts" the power anomalies, sending more dirty power to your system.

This image shows incoming power that suffers from harmonic distortion. However, when this power is run through a Clary UPS the harmonic distortion is eliminated and the output is a clean pure sinewave that your equipment needs.

## STABILIZE GENERATOR INPUT

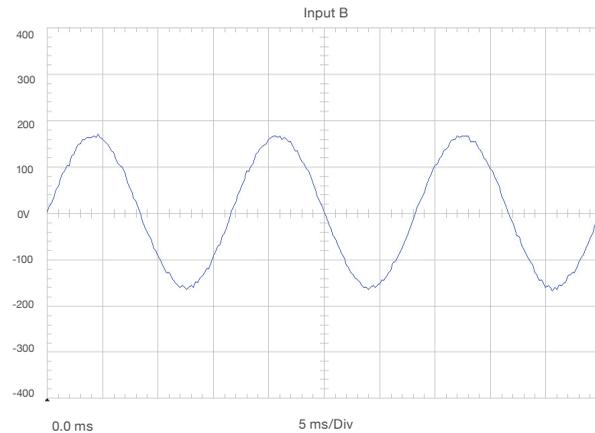
In the event of prolonged outages, many agencies deploy generators to power intersections. The use of generators in traffic signals often poses a problem since not all generators produce a sinewave or frequency that allows traffic equipment to operate as designed.

## PORTABLE GENERATOR



This image shows the output from a portable generator. The sinewave is erratic. But when the generator output is run through a Clary UPS, the wave form is corrected and stable sinewave output is sent to power your equipment.

## CLARY CONVERSION TECHNOLOGY



These are but a few of the differences between line-interactive type BBS systems and Clary's digital on-line double conversion technology. Clary only manufactures on-line double conversion UPS systems because only the best power protection is worthy of the Clary name.

# Accessories & Communications



## SPH 302 BYPASS SWITCH

Bypass switches allow you to bypass the UPS for utility power in the event the UPS needs to be serviced or removed. Crest factor ratio: 50% load up to 4.8:1, 75% load up to 3.2:1, 100% load up to 2.4:1. Several switches are offered. Model depicted is SPH 302.



## SPH 303 BYPASS SWITCH

The SPH-303 Bypass switch provides the same performance as the SPH-302 as well as connectors on the back that will accept 18 to 4 gauge wire. Dimensions are 5.29 W x 8.6 D x 1.65 H.



## SPD 302 BYPASS SWITCH

Bypass switches allow you to bypass the UPS for utility power in the event the UPS needs to be serviced or removed. Crest factor ratio: 50% load up to 4.8:1, 75% load up to 3.2:1, 100% load up to 2.4:1. Several switches are offered. Model depicted is SPD 302 with GFCI plug, circuit breaker and generator plug.



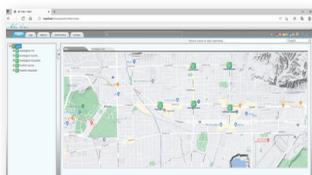
## BATTERY STRAP

Optimal battery straps are available for ease in handling batteries.



## SNMP / HTTP ADAPTER

The USHA IX901 SNMP adapter provides browser-based monitoring and control with the option of working with virtually any network management software using MIB files that can be downloaded from [www.clary.com](http://www.clary.com). This new model provides greater speed and more memory than prior models.



## IEC VIEW

Monitor the status of up to 1,000 Clary UPS systems from a single platform which can be viewed in lists or as icons on a user-uploaded map. IEC View has three major functions: environment status detection, abnormal event notification and device control. Works with USHA IX901 SNMP Card.

# Garrison™ & Outpost™ Batteries



## GARRISON™ BATTERIES

The Garrison™ batteries are designed to provide extended runtimes of up to 25 hours in extreme temperature applications. They have been field tested and used for years in the traffic and ITS markets.

Operational from -20°C to +50°C (-4°F to +122°F). This maintenance-free sealed lead acid battery features absorbent glass mat (AGM) technology

for efficient gas recombination of up to 99%. The Garrison series is offered in 80 and 100 Ampere-Hour (AH) ratings, each outputting 12 VDC. The batteries are available packaged in 48 VDC, 72 VDC, or 96 VDC strings.

Includes models: CAGM-1280, CAGM-1280-4, CAGM-1280-6, CAGM-1280-8, CAGM-12100, CAGM-12100-4, CAGM-12100-6 and CAGM-12100-8.

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (hrs) at 25°C (77°F) Full Charge							Weight per Battery lb (kg)	Overall Dimensions		
				300 W	500 W	700 W	875 W	1000 W	1200 W	1400 W		Length in (mm)	Width in (mm)	Height in (mm)
CAGM-1280-4 (4 batteries)	12 VDC	80 Ah	48 VDC	9	5.2	3.3	2.4				56.2 (25.5)	10.28 (261)	5.45 (168.5)	8.41 (213.5)
CAGM-1280-6 (6 batteries)			72 VDC	14	7.5	5	3.9							
CAGM-1280-8 (8 batteries)			96 VDC	20	12	8.3	6.8	6	4.2	3.9				
CAGM-12100-4 (4 batteries)	12 VDC	100 Ah	48 VDC	11	6.6	4.1	3.1				66.6 (30.2)	12.15 (308.7)	6.65 (169)	8.41 (213.5)
CAGM-12100-6 (6 batteries)			72 VDC	19.8	10	6.8	5.3							
CAGM-12100-8 (8 batteries)			96 VDC	25	16	10	8	7	5.3	5				

## OUTPOST™ BATTERIES

The Outpost™ batteries are designed for deep cycle, extreme temperature applications. They have been field tested and used for years in the traffic and ITS market as well as the US military.

Operational from -40°C to +74°C (-40°F to +165°F). Available in 41 and 51 Ampere Hour (AH) ratings. Outpost batteries are sealed lead acid batteries built using an advanced absorbed glass mat (AGM) construction with microporous spun glass separators. The result is a

highly reliable, non-spillable, maintenance-free battery usable in the most demanding applications. The casing is a copolymer polypropylene technology originally developed for military jet fighter applications where wide temperature range performance is demanded.

Positive plates—special lead calcium. Includes models: OP72C-41, OP96C-41, OP72D-51, OP96D-51, OPB-1241, OPB-1251

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (hrs) at 25°C (77°F) Full Charge							Weight per Battery lb (kg)	Overall Dimensions		
				300 W	500 W	700 W	875 W	1000 W	1200 W	1400 W		Length in (mm)	Width in (mm)	Height in (mm)
OP48C (4 batteries)	12 VDC	41 Ah	48 VDC	4.3	2.5	1.5	1.1				29 (13.2)	7.71 (195.9)	4.96 (126)	8.05 (204.4)
OP72C (6 Batteries)			72 VDC	6.4	3.5	2.4	1.7							
OP96C (8 batteries)			96 VDC	8.8	5.2	3.5	2.8	2.5	1.9	1.6				
OP48D (4 batteries)	12 VDC	51 Ah	48 VDC	5	3.2	1.9	1.4				35 (15.9)	8.81 (224)	.25 (133)	8.82 (224)
OP72D (6 batteries)			72 VDC	8.3	4.4	3	2.2							
OP96D (8 batteries)			96 VDC	11	6.5	4.4	3.5	3.2	2.4	2				

## SPH-EQ4 BATTERY MONITOR

Individually monitor the voltages of each battery in a string. Status is indicated through the UPS's LCD display, through the SNMP card and on the monitors' LED indicator light. One box monitors four batteries.

## BATTERY BALANCER

For use with AGM batteries, the battery balancer allows replacement of one battery in the string without overcharging or damaging the other batteries in the string. The battery balancer equalizes the state of charge of connected batteries to avoid damage. Must be used with SPH-EQ4 battery monitor. Currently compatible with SP1400LT and SP1250XLE.

# Specialty Batteries



## SP48SB BATTERY PACK

Clary UPS systems work not only with traditional sealed lead acid batteries but some of the newer battery technologies as well. We've implemented small form-factor solutions that allow you to reduce cabinet size on new installations or fit a UPS into an otherwise jam-packed existing cabinet. Our SP48SB Battery Pack is the perfect complement to our SP560

or SP120LE products and the right choice for ITS systems. It's only 1U and can stack neatly on top of the UPS to provide the necessary run-time to ride out power glitches. THE SP48SB features Cyclon batteries, a series of nonspillable sealed-lead rechargeable D cells.

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (min) at 25°C (77°F) Full Charge				Weight per Battery lb (kg)	Overall Dimensions		
				200 W	400 W	600 W	800 W		Length in (mm)	Width in (mm)	Height in (mm)
SP48SB	Lead Acid	2.5 Ah	48 VDC	17 min	6 min	3.5 min	1.75 min	10 (4.5)	11 (279)	8.5 (216)	1.7 (44)

## SPB-48LI BATTERY PACK

Our SP48LI battery pack mates nicely with the SP1400LT UPS. It features Lithium Iron Phosphate technology which packs high energy density into a compact footprint. The SP48LI offers the flexibility to meet space restraints by resting either on top, behind, or aside the UPS. Two battery packs may be combined to provide double the runtime.

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (min) at 25°C (77°F) Full Charge					Weight per Battery lb (kg)	Overall Dimensions		
				300 W	500 W	700 W	875 W	1000 W		Length in (mm)	Width in (mm)	Height in (mm)
SPB-48LI	Lithium Iron Phosphate (LiFeP04)	11.4 Ah	48 VDC	75 min	45 min	29 min	23 min	18 min	13 (5.9)	11 (279)	4.25 (108)	6.25 (159)

## SPB-48LI X2 BATTERY PACK

Rackmount lithium iron phosphate battery pack in a space-saving 2U design. Rated for 4 hours of backup power at 200 watts. Includes built-in battery monitor. Designed for use with UPS models SP1400LT, SP1250XLE and SP1250DLE-MC.

Model	Voltage (nominal)	AH Capacity (20 hr rate)	System Voltage	Estimated Runtime (min) at 25°C (77°F) Full Charge					Weight per Battery lb (kg)	Overall Dimensions		
				300 W	500 W	700 W	875 W	1000 W		Length in (mm)	Width in (mm)	Height in (mm)
SPB-48LI X2	Lithium Iron Phosphate (LiFeP04)	22.8 Ah	48 VDC	160 min	100 min	70 min	54 min	45 min	30 (13.6)	15.3 (389)	19 (483)	3.5 (89)

## Battery Monitor (PAGE 16)



## Battery Balancer (PAGE 16)



# SP Series Cabinets

BATTERY BACK-UP CABINETS  
FOR TRAFFIC APPLICATIONS

Clary UPS cabinets are manufactured to the highest standards. Fabricated from durable anodized aluminum, Clary's enclosures provide a safe and watertight environment for your UPS system. All cabinets are fully ventilated for proper air flow and made to accept generator input. Clary cabinets are NEMA 3R rated and can be manufactured to Caltrans, TEES standards. These highly configurable cabinets offer a variety of options including:

- Corbin or Best locking systems
- Custom powder coating
- Anti-graffiti paint
- Pole-mount hardware
- Base skirts
- Piggy-back mounting
- Generator Input
- Thermal control
- Pre-installed bypass switches
- Stainless steel

Battery trays and swing-out battery boxes are offered for customers who install the UPS inside existing 332 and 170 cabinets.



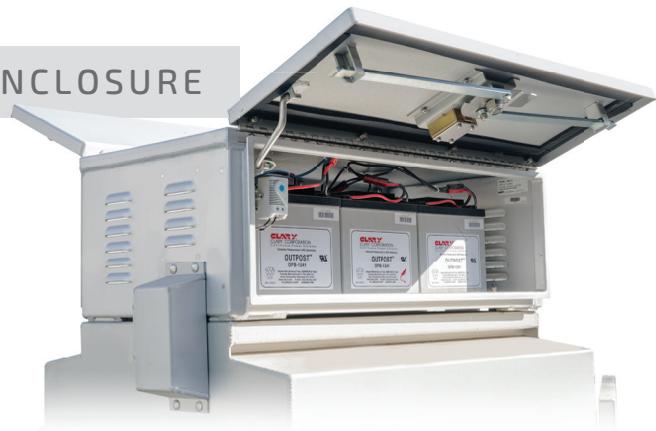
Top mounted UPS  
enclosure for 337 cabinet



Free standing or side-mount  
UPS and battery enclosure

## CABINET TOP MOUNTED BATTERY ENCLOSURE

Made of aluminum construction and designed to mount on top of a 332 traffic cabinet, the enclosure can house either (8) 41 amp hour batteries or (6) 51 amp hour batteries. The Uninterruptible Power System (UPS) resides below in the 332 cabinet and the batteries are connected to the UPS through the cable wire way, mounted on the side of the 332 cabinet and battery enclosure. It is vented for airflow and has front and rear access doors. Mounting brackets are included.



# Applications

Agencies across the nation rely on Clary power protection solutions to keep their critical transportation infrastructure operating safely and efficiently. There are numerous traffic and ITS applications that can benefit from Clary's technology. Among these applications are:

- Major intersections
- Light rail crossing
- Pedestrian crossing
- Video traffic detection
- Open road tolling
- Variable message signs
- Evacuation routes
- Safe routes to schools
- Rail preemption
- Emergency preemption
- Fire stations
- Intersections with a history of signal malfunction
- Hospital entrances
- Mall entrances
- Sport / concert venues
- Airports
- Parking garages and gates
- Regional transportation corridors
- Traffic enforcement systems
- EMS routes
- Ramp meters
- Arterials
- Bridges
- Tunnel safety systems
- Smart cities



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Specifications are subject to change without notice. Revised specifications may be available on our website [www.Clary.com](http://www.Clary.com).

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 Designed and built in the USA







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