NOTE
The instructions contained in this manual are not intended to cover all of the
details or variations in equipment, or to provide for every possible contingency
to be met in connection with installation, operation, or maintenance. Should
further information be desired or should particular problems arise which are not
covered sufficiently for the purchaser's purposes, the matter should be referred
directly to Always On.

Any electrical or mechanical modifications to this equipment, without prior
written consent of Always On, will void all warranties and may void UL/cUL
listing. Unauthorized modifications may also result in personal injury, death,
and damage to the equipment.

Dear Customer,

Thank you for selecting our emergency lighting inverter (ELI). We are pleased to
include you as one of our valued Always On customers!

We are confident that this emergency lighting inverter system, developed and
manufactured in our ISO 9001 certified facilities, will provide the quality and
satisfaction you demand.

Please read this installation manual carefully as it contains the necessary
information required to install the ELI properly.

Thank you for choosing Always On.
Preface

Congratulations on your choice of our emergency lighting inverter (ELI).

This equipment has been manufactured and tested using methods and procedures equivalent to UL 924.

This manual describes the recommended procedures for installing the ELI.

While every effort has been made to ensure the completeness and accuracy of this manual, Always On assumes no responsibility or liability for any losses or damages resulting from the use of the information contained in this document.

WARNING: This manual is intended to provide installation instructions only. The information contained in this manual is to be used as a guideline and recommendation only. Only qualified personnel should perform installation and maintenance. Factory authorized personnel shall inspect installation prior to start up and commissioning to validate warranty. Failure to follow this directive will void the warranty.

We recommend that this manual be kept with the ELI for future reference. If any problems are encountered with the procedures contained in this manual, please contact our Service Centre before proceeding.

This document may not be copied or reproduced without the explicit written permission of Always On.

Due to technical advancements and improvements, some of the information contained in this manual may be changed or modified without prior notice.
Symbols

The following symbols are used throughout this manual.

Warning Information

This symbol alerts you to important information.

Electrical Hazard

This symbol indicates an electrical hazard may be present.

Electrical Symbols

Protective grounding terminal; a terminal that must be connected to ground prior to making any other connection to the equipment.

A terminal to/from which an alternating current or voltage may be applied/supplied.

A terminal to/from which a direct current or voltage may be applied/supplied.

This symbol indicates the word “phase”.
Safety Instructions

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
SAVE THESE INSTRUCTIONS.

This manual contains important safety instructions that should be followed during installation and maintenance of the ELI system and optional packages. Before the installation process begins, we recommend that the installer read through the safety precautions, operators manual and the option installation instructions, taking all necessary safety precautions to protect themselves and the equipment being installed.

GENERAL
- Move the ELI in an upright position, in its original packaging, to its final destination.
- To lift the cabinets, use a forklift or lifting belts with spreader bars.
- Check for sufficient floor and elevator loading capacity.
- Check the integrity of the ELI equipment carefully.
- If visible damage is evident, do not attempt to install or start the ELI. Contact the transport delivery company immediately, file a claim with the transport company and inform Always On directly.
- Do not use outdoors.
- The use of accessory equipment not recommended by Always On may cause an unsafe condition
- WARNING! RISK OF ELECTRICAL SHOCK: use extreme caution when removing covers.
- All maintenance and service work should be performed by qualified and trained service personnel. The ELI may contain its own energy source, (batteries) which can be dangerous to the untrained person. This ELI contains potentially hazardous voltages
- The field-wiring terminals may be electrically live, even when the ELI is not connected to the utility.
- Use caution when servicing batteries. A battery can present a risk of electrical shock, burn from high short-current. Battery acid can cause burns to skin and eyes. If acid is spilled on skin or in eyes, flush with fresh water and contact physician immediately.
- When replacing batteries use the same number and type (sealed-cell lead acid).
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Dangerous voltages may be present during battery operation. The batteries must be disconnected during maintenance or service work. (Open battery breaker or fuses)
- Be aware that the inverter can restart automatically after the utility voltage is restored.
- Do not use this equipment for other than intended use.
INSTALLATION

- This ELI is intended for use in a controlled indoor environment free of conductive contaminants and protected against any type of intrusion.
- Do not install the ELI in an excessively humid environment or near water.
- Avoid spilling liquids and/or dropping any foreign object(s) onto the ELI.
- The unit must be placed in a sufficiently ventilated area; the ambient temperature should not exceed 40°C (104°F).
- Optimal battery life is obtained if the ambient temperature does not exceed 25°C (77°F).
- HIGH GROUND LEAKAGE CURRENT: ground connection completed before connecting the AC voltage wires on the input!
- Switching OFF the ELI does not isolate the ELI from the utility as the utility supply is still HOT at the input terminal strip. Supply breaker needs to be opened.
- It is important that air can move freely around and through the unit. Do not block the air vents.
- Avoid locations in direct sunlight or near heat sources (gas or electric heaters).

STORAGE

- Store the ELI in a dry location free of contaminants;
- Storage temperature must be within -25°C (-13°F) to 55°C (131°F).
- If the unit is stored for a period exceeding 3 months, the batteries must be recharged periodically (time depending on storage temperature).

WARNING!
LETHAL VOLTAGES MAY BE PRESENT WITHIN THIS UNIT EVEN WHEN IT IS APPARENTLY NOT OPERATING. OBSERVE ALL CAUTIONS AND WARNINGS IN THIS MANUAL. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH. REFER UNIT TO QUALIFIED SERVICE PERSONNEL IF MAINTENANCE IS REQUIRED. NO ONE SHOULD WORK ON THIS EQUIPMENT UNLESS THEY ARE FULLY QUALIFIED TO DO SO. AN INSTALLER SHOULD NEVER WORK ALONE.

WARNING!
WHEN REMOVING POWER FROM THE ELI, ALLOW FIVE MINUTES FOR CAPACITORS TO DISCHARGE BEFORE WORKING ON THE EQUIPMENT.

CAUTION!
This equipment complies with the requirements in Part 15 of FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause interference to radio and TV reception, requiring the operator to take whatever steps necessary to correct the interference.

CAUTION!
Do not put option control wiring in the same conduit as the ELI input or output power cables.
THIS SAFETY NOTICE IS ADDRESSED TO THE ALWAYS ON CUSTOMER ENGINEERS WHO PERFORM MAINTENANCE OF THE UNINTERRUPTIBLE POWER SUPPLY (ELI) SYSTEMS.

Electrical Safety

- Maintenance work to be performed by a factory trained customer engineers, or qualified personnel. Extremely dangerous voltage levels can exist within the ELI system. Extreme caution must be used.
- Ensure system is in maintenance bypass mode or external wrap-around bypass mode before work is started.
- This manual is designed as an aid tool in diagnosing problems that may arise. Always On does not assume responsibility if information causes injuries.
- Apart from the front door, do not open any other part of the ELI without consulting the factory first. Before removing the protection screens, be sure that the unit is completely powered off.
- Be aware that dangerous voltage can be supplied by the internal battery or electrolytic capacitors.
- When system is in bypass mode and all fuses have been opened dangerous voltages may exist within the ELI system. Use extreme caution when exchanging boards and working inside the unit.

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
SAVE THESE INSTRUCTIONS.
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1.0 INTRODUCTION

Congratulations on your choice of the Aurora On-Line Emergency Lighting Inverter (ELI). This ELI features the latest top of the line microprocessor technology and IGBT transistors and provides clean, highly regulated and pulse width modulated (PWM) true sine wave power.

1.1. Overview
This ELI is designed for installation between your AC power supply (utility or generator) and your lighting equipment. It provides power to your equipment during major power events such as blackouts and brownouts, over-voltage and under-voltage conditions. The ELI provides a consistent supply of regulated AC power during these power events, allowing you to ensure safety and lighting for the period required.

1.2. Features
This ELI provides full time self-diagnostics as well as two levels of audible alarms when the unit is operating in battery mode. Along with the current mode of operation, the LCD screen displays critical system information including:

- Percent Load, Watt, VA
- Remaining battery capacity, battery voltage
- Input voltage,
- Output voltage,
- Input frequency,
- Output frequency and
- Internal ELI temperature.

A manual test switch has been incorporated into the input/test breaker that makes testing a simple procedure. The internal bypass switch allows maintenance on the ELI to be performed without interruption of power to the load.

The communications port, in conjunction with multi-platform monitoring and control software, enables the unit to be connected to a local or networked computer system. Detailed operating information including voltages, currents, and alarm status is available to the monitoring system.

Other communications options include:
- An SNMP adapter to remotely control and monitor the unit via a network or the Internet.
- An AS-400 interface to allow for relay communications in PLC or dry contact environments.
1.3. Definitions

- **Critical Load**: These are loads that require clean, regulated and continuous AC power and which are connected to the output of the ELI module.

- **ELI Module**: The portion of the ELI system that contains one or more of: the rectifier / DFC, charger, inverter, static bypass switch, maintenance bypass switch, controls, monitoring, and indicators.

- **Rectifier / DFC**: Contained in the ELI module. Responsible for converting the normal AC input power to DC power and supplying the inverter with DC power.

- **Charger**: Contained in the ELI module. Responsible for recharging the batteries.

- **Inverter**: Contained in the ELI module. Responsible for converting DC power (supplied by the rectifier) to regulated and filtered AC power that is then supplied to the critical loads.

- **Static Bypass Switch**: Contained in the ELI module. Responsible for automatically transferring the attached load, without interruption, from the inverter AC output to the bypass AC power source in the event of an overload or degradation of the inverter’s performance.

- **Maintenance Bypass Switch**: Contained in the ELI module. Used to transferring the attached load, without interruption, from the inverter AC output to the bypass AC power source while electrically isolating the static bypass switch, rectifier / DFC, charger and inverter. Used for maintenance purposes.

- **Battery**: The battery system provides DC power to the inverter input when the normal AC input power to the ELI fails.

- **IGBT**: Isolated Gate Bipolar Transistor.

- **PWM**: Pulse Width Modulation.

- **ELI**: Emergency Lighting Inverter.

- **BBU**: Battery Backup Unit.

- **PFC**: Power Factor Correction.

- **EPO**: Emergency Power Off.
2. HANDLING

2.1. Delivery
Check the condition of the equipment upon delivery. Contact the carrier and supplier immediately if the packaging or unit is damaged.

2.2. Initial Inspection
- Unpack the ELI carefully.
- Observe the packing method, and retain the box and packing material. If you need to return the ELI at any time, you must repack it the way it was originally shipped.
- Visually inspect the ELI for damage that may have occurred during shipment. If there is any damage or anything is missing, contact the dealer from whom you purchased the unit, and save the packaging for future shipment.
- When the unit has passed the initial inspection, record the installation date on the back panel of the unit and in the space provided towards the front of the commissioning report forms.

2.3. Storage
The ELI is carefully packed for transport and storage.

Never leave an ELI outside the building exposed to the elements and do not place other packages on the top of the ELI.

Storing: It is recommended to store the ELI in its original package in a dry, dust-free room, away from chemical substances, and with a temperature range of -25°C (-13°F) to 55°C (131°F). Exceeding this temperature range may cause damage and will void the warranty.

BATTERY STORAGE AND SHELF LIFE
Although this system includes maintenance free batteries, keep in mind that they are subject to self-discharge and therefore must be recharged at regular intervals.

The storage time without battery recharge depends on the temperature of the storage site. The optimal temperature for battery storage is 20°C (68°F) to 25°C (77°F). If batteries are not recharged at the recommended intervals warranty will be void.

Recharge of the stored maintenance free battery should occur every:
- 6 months when the ambient storage temperature is 20°C (68°F)
- 3 months when the ambient storage temperature is 30°C (86°F)
- 2 months when the ambient storage temperature is 35°C (95°F)
3. PHYSICAL TOPOLOGY

3.1. Front view

Figure 3-1 Front view of the ELI
Removal of the rear access cover exposes personnel to dangerous voltages and shock hazards that may cause damage, injury or death.
4. SITE SPECIFIC INSTALLATION

4.1. Operating Environment
The ELI & BBU’s should be installed in a controlled indoor environment.
- Ambient temperature must not exceed 40ºC (104ºF).
- Temperature should be kept between 15ºC to 25ºC to prolong battery life. Battery life decreases by half for every 10ºC above 25ºC.
- Humidity should be kept between 5 and 95% non-condensing.
- The operating environment must be kept free of conductive contaminants.
- Airflow around the units must be unrestricted. Air vents are located on the rear and sides of the ELI system.
- The system should be connected to the emergency generator, if available.
- The system, when installed in a sprinklered room, must have a sprinkler guard installed.

4.2. Securing the ELI and BBU
Lock the casters to prevent the ELI and BBU from moving. To move the ELI and BBU to another location on its castors, simply unlock the caster stops.

WARNING: Despite locking the casters there is a danger of knocking the ELI over which may result in personal injury and/or damage to the ELI
4.3. **BBU Installation**

For ease of service and maintenance, before placing BBU in final installation position, remove side panels and unscrew screws holding slide-out shelves in place.

![BBU Installation Diagram]

**Figure 4-2 BBU Installation**

- Circuit Breakers, cabling and other electrical components should be sized accordingly.
- Please refer to your national and local electrical codes for your installation.
4.4. **Unit Spacing**
Allow a minimum of 6 inches between ELI and UPS, 36 inches in front of the ELI/BBU and 36 inches to the left of the ELI for service and maintenance access.

![Diagram showing unit spacing with dimensions labeled.]

**Figure 4-3 Unit Spacing**

**UPS CABINET**
42"X27"X67"

**BATTERY CABINET**
32"X34"X76"
4.5. **Input and Load Connections**

There are several input and output voltage configurations for the CHINII Series. The jumpers have been factory set for the ordered voltage. This section is only a reference for connecting your ELI to the utility and to the load. It will ensure that the correct voltages have been selected. Please refer to Figure 5-1 for the location of the terminal block.

---

**Warning**

Only qualified professionals should conduct the ELI installation. Personal injury, fire and damage to the unit and load may result from improper installation.

---

The wiring from the terminal block to the ELI terminates on the top of the terminal block and is done at the factory. The installation wiring should be passed through the bottom of the ELI and connect to the bottom of the terminal strip at the proper terminals for your particular application. The following figures show the terminal strip use for each voltage configurations.

![Figure 4-4 Terminal Block](image-url)

*Figure 4-4 Terminal Block*
4.5.1. Input

- 347 or 277 Volt

![347 or 277 Volt Input](image1)

- 240 or 208 Volt

![240 or 208 Volt Input](image2)
4.5.2. Output

- 347 or 277 Volt

![Diagram of 347 or 277 Volt Output](image)

Figure 4-7 347 or 277 Volt Output

- 120/240 Volt

![Diagram of 120/240 Volt Output](image)

Figure 4-8 120/240 Volt Output
4.6. Battery Cabinet Connection

It is important to follow the correct procedures for connecting the battery packs. If the procedures are not followed properly, it will increase the chance of electrical shock, damage or death.

Observe the appropriate national and local electrical regulations at all times. Using cables of improper size may damage your equipment and cause fire hazards.

Choose the correct battery pack voltage according to the ELI rated capacity. Do not connect too few or too many batteries, as this could cause electrical shock, damage or death.

- The battery cabinet should be installed as close as possible to the ELI system. The cable from the battery cabinet to the ELI should be as short as possible.

![Battery Connection Diagram]

Figure 4-9 Battery Connection
• DC voltage of the battery cabinet must be the same as the DC voltage of the ELI.
• Battery cabinet voltage is
  o 10 kW – 15 kW – 240 VDC
• Before connecting the Battery Cabinet to the ELI
  o Ensure the ELI is not powered and remove the input AC supply.
  o Make sure the battery breaker is in the “Off” position on the ELI and battery cabinet.
• The battery cable that is supplied must be hardwired to the battery cabinet and the ELI without connectors.
• Connect the battery cable to the terminal strip of the Battery Cabinet. (See Figure)
• Connect the battery cable to the terminal strip of the ELI. (See Figure)
• Make sure all cabinets have a common ground.

Ensure correct battery bank voltage and polarity before connecting. Ensure ELI is “OFF” and battery breakers are “OFF”. Do not connect the wiring to the ELI first, electrical shock will occur.
Figure 4-10 Battery Cabinet Connection
5. COMMUNICATION INTERFACES

There are three types of communication interfaces available on the standard ELI, RS-232, Dry Contact and AS-400. There is also an SNMP adaptor available as an option.

Figure 5-1 Communication Interfaces
5.1. RS-232 Port
A 9-pin female SUB-D connector is located on the ELI front panel to provide a communications link between the ELI and a computer. The optional software package and cable allows you to connect the ELI to a computer and monitor the operating status of the ELI system.

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal Name</th>
<th>Direction (Ref. ELI)</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>TxD</td>
<td>Output</td>
<td>TxD Output</td>
</tr>
<tr>
<td>3</td>
<td>RxD</td>
<td>Input</td>
<td>RxD / Inverter Off Input</td>
</tr>
<tr>
<td>5</td>
<td>Common</td>
<td></td>
<td>Common</td>
</tr>
<tr>
<td>6</td>
<td>CTS</td>
<td>Output</td>
<td>AC Failure Output</td>
</tr>
<tr>
<td>8</td>
<td>DCD</td>
<td>Output</td>
<td>Low Battery Output</td>
</tr>
<tr>
<td>9</td>
<td>RI</td>
<td>Output</td>
<td>+8 to 24VDC Power</td>
</tr>
</tbody>
</table>

Table 5-1 RS-232 Pinout

5.2. AS-400 & Relay Contact Port
Located on the front panel of the ELI is a 25 Pin connector, which provides status information through relay contacts and control by photo-coupled inputs.

![Figure 5-2 AS-400 Communication Interface](image-url)
Pin Assignment (DB 25pin male connector)

- **Input signal pin assignment**
  - Remote emergency power off: Pin 24, 25
  - Remote shut down: Pin 22, 23
  - If Vpin22 > Vpin23 (5V~12V), the ELI will power off after a 1 second delay.

- **Output signal pin assignment**:
  - Fault: Pin 1, 2, 3
  - On Battery: Pin 4, 5, 6
  - Battery Low: Pin 7, 8
  - On Bypass: Pin 9, 10
  - On Inverter: Pin 11, 12

- **Dry Contact Capacity**
  - Total maximum power rating is 30W
  - Maximum voltage rating is 250VAC
  - Maximum current rating is 3A

- **Optional Features**
  - Instrumentation Terminal Strip
    - Allows for easy connection of wires if 25pin connector not available

<table>
<thead>
<tr>
<th>State</th>
<th>Pin 1,2</th>
<th>Pin 2,3</th>
<th>Pin 4,5</th>
<th>Pin 5,6</th>
<th>Pin 7,8</th>
<th>Pin 9,10</th>
<th>Pin 11,12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Open</td>
<td>Closed</td>
<td>Open</td>
<td>Closed</td>
<td>Open</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>Fault</td>
<td>Closed</td>
<td>Open</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>Closed</td>
<td>Open</td>
</tr>
<tr>
<td>On Battery</td>
<td>Open</td>
<td>Closed</td>
<td>Closed</td>
<td>Open</td>
<td>*1</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>Battery Low</td>
<td>Open</td>
<td>Closed</td>
<td>Closed</td>
<td>Open</td>
<td>Closed</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>On Bypass</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>Closed</td>
<td>Open</td>
</tr>
<tr>
<td>On Inverter</td>
<td>Open</td>
<td>Closed</td>
<td>*1</td>
<td>*1</td>
<td>*1</td>
<td>Open</td>
<td>Closed</td>
</tr>
</tbody>
</table>

*1 = Inactive. State may be “open” or “closed” condition

Table 5-2 Output Truth Table for the AS-400 pins
5.3. **Dry Contact**

Dry contact outputs are provided through the RS-232 port located at the front of the ELI. Each output contact provides status information of the ELI operation. These contacts enable the ELI to notify a computer or automation device being supported by the ELI of a power anomaly. The connected device may then be programmed to recognize these signals and initiate a shutdown sequence.

The ELI reads the input signal through a photo-coupled diode transistor pair, so your control equipment remains electrically isolated. The photo-coupled transistor is capable of a maximum conduction level of 40VDC at 40mA.

![Figure 5-3 Photo-coupled Transistor]

5.4. **Emergency Power Off**

A customer-supplied switch may be located remotely as an emergency stop button for the ELI. The switch may be used to open the EPO jumper connection and force ELI output to switch off. Since the EPO shuts down the equipment immediately, the power management software is prevented from performing an orderly shutdown. The ELI will have to be manually restarted with the EPO jumper closed again in order to reconnect power to the load. The ELI comes with a simple jumper in place of the push button so that it runs without a switch.
5.5. Emergency Lighting Notification

The fire alarm panel connections are provided to allow the fire alarm panel recognition of the following fault conditions using normally open contacts of the ELI Bypass Status:

1) Output overload condition.
2) Inverter failure due to:
   a. Output short circuit.
   b. Inverter fuse open.
   c. Over temperature condition.
   d. Inverter overload condition.
   e. Inverter stop activation.
   f. Inverter output outside or parameters.
   g. Bypass activated.
   h. Inverter shutdown.
3) Battery low Inverter shutdown condition.
4) No output voltage present.
6. OPTIONAL FEATURES

The Always On Simple Network Management Protocol (SNMP) adapter is a web-based management product that uses multiple, open standards such as Telnet, HTTP, and SNMP to provide full management of supported devices.

The SNMP Adapter is designed to connect directly to the network and allow network broadcasting of ELI conditions as well as remote access to the ELI system to monitor parameters and displays.

For set-up instructions view the READ ME file provided with the set-up disk.

6.2. Monitoring and Optional Control Software
The optional power management software offers powerful features such as the ability to monitor local ELI's, as well as remote units via a TCP/IP network, from your central location. It can notify you of any problems automatically, by sending email or by dialling your pager through a modem when an event such as a power outage occurs. The software is capable of broadcasting messages to remote computers and can even send them commands to shutdown.

The GUI is a real time graphical display of ELI status including input/output voltage, frequency, load, temperature, and capacity. There is also a data-logging feature included. The software can be configured to schedule battery tests. The software can also shutdown the system in a safe fashion before the batteries run out in the case of an extended blackout.

- Install the software package according to the instructions included with CD.
- Connect the ELI to the computer using the RS-232 cable included.
- Start the software.

6.3. Normally Off Function
All Normally Off loads shall not exceed 50% of the ELI rating per phase.
### 7. TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>10 kW</th>
<th>15 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>12.5 kVA / 10 kW</td>
<td>18.75 kVA / 15 kW</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phase / Frequency</strong></td>
<td>1 - Ø (2 Wire + GND)</td>
<td>50 / 60 Hz</td>
</tr>
<tr>
<td><strong>Rated Voltage</strong></td>
<td>208 / 240 / 277 / 347 VAC</td>
<td></td>
</tr>
<tr>
<td><strong>Voltage Range</strong></td>
<td>- 25% to + 15%</td>
<td></td>
</tr>
<tr>
<td><strong>Input Current</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>208 / 100 A</td>
<td>208 / 150 A</td>
</tr>
<tr>
<td></td>
<td>240 / 80 A</td>
<td>240 / 125 A</td>
</tr>
<tr>
<td></td>
<td>277 / 70 A</td>
<td>277 / 125 A</td>
</tr>
<tr>
<td></td>
<td>347 / 60 A</td>
<td>347 / 90 A</td>
</tr>
<tr>
<td><strong>Voltage / Phase</strong></td>
<td>120 / 240 / 277 / 347 VAC (2 Wire + G)</td>
<td>120 / 240 / 277 / 347 VAC (2 Wire + G)</td>
</tr>
<tr>
<td><strong>Voltage Regulation</strong></td>
<td>± 2%</td>
<td></td>
</tr>
<tr>
<td><strong>Total Current</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>120 / 83.3 A</td>
<td>120 / 125 A</td>
</tr>
<tr>
<td></td>
<td>208 / 48 A</td>
<td>208 / 72.1 A</td>
</tr>
<tr>
<td></td>
<td>240 / 41.6 A</td>
<td>240 / 62.5 A</td>
</tr>
<tr>
<td></td>
<td>277 / 36.1 A</td>
<td>277 / 54.1 A</td>
</tr>
<tr>
<td></td>
<td>347 / 28.8 A</td>
<td>347 / 43.2 A</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50 Hz / 60 Hz ± 0.5%</td>
<td></td>
</tr>
<tr>
<td><strong>THD</strong></td>
<td>&lt; 3% Linear Load; &lt; 5% Rectified Load</td>
<td></td>
</tr>
<tr>
<td><strong>Load Power Factor</strong></td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td><strong>Slew Rate</strong></td>
<td>1 Hz / Second</td>
<td></td>
</tr>
<tr>
<td><strong>Transient Response</strong></td>
<td>± 4% (100% Load Change)</td>
<td></td>
</tr>
<tr>
<td><strong>Overload Capacity</strong></td>
<td>110% - 125% for 1 min then switch to bypass</td>
<td>125% - 150% for 10 sec then switch to bypass</td>
</tr>
<tr>
<td><strong>Crest Factor</strong></td>
<td>3:1</td>
<td></td>
</tr>
<tr>
<td><strong>Efficiency (AC - AC)</strong></td>
<td>&gt; 85%</td>
<td></td>
</tr>
<tr>
<td><strong>Transfer Time</strong></td>
<td>0ms</td>
<td></td>
</tr>
<tr>
<td><strong>Outlets</strong></td>
<td>Hard-Wired</td>
<td></td>
</tr>
<tr>
<td><strong>DC System</strong></td>
<td>DC System Voltage</td>
<td>240 VDC</td>
</tr>
<tr>
<td><strong>Abnormal Voltage</strong></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>I / O Noise Protection</strong></td>
<td>Common &amp; Normal Mode Noise Suppression</td>
<td></td>
</tr>
<tr>
<td><strong>I / O Spike &amp; Transient Protection</strong></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>RS 232 / Dry Contact / Optional SNMP or AS400</td>
<td></td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Led Indicator Status Panel</td>
<td></td>
</tr>
<tr>
<td><strong>Audible Alarms</strong></td>
<td>On Battery, Low Battery, Overload, Fault</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Temp.</strong></td>
<td>0 - 40°C</td>
<td></td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>0% - 95% (Non-Condensing)</td>
<td></td>
</tr>
<tr>
<td><strong>Audible Noise</strong></td>
<td>55 dBA At 1 Meter from Unit</td>
<td></td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>UL1778, CSA, C22.2</td>
<td></td>
</tr>
<tr>
<td><strong>EMI / RFI</strong></td>
<td>FCC Part 15 Class A</td>
<td></td>
</tr>
<tr>
<td><strong>Surge / Transient</strong></td>
<td>IEEE C62.41 Cat.A</td>
<td></td>
</tr>
<tr>
<td><strong>W x D x H in mm.</strong></td>
<td>1120 x 865 x 1880</td>
<td></td>
</tr>
<tr>
<td><strong>Gross (Net) Weight in kg.</strong></td>
<td>900 (825)</td>
<td></td>
</tr>
<tr>
<td>Model Size</td>
<td>10kW</td>
<td>15kW</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Output Power Factor</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Input // Output Voltage Combinations Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Single Phase)</td>
<td>208 // 120</td>
<td>208 // 120</td>
</tr>
<tr>
<td></td>
<td>208 // 120 / 240</td>
<td>208 // 120 / 240</td>
</tr>
<tr>
<td></td>
<td>208 // 277</td>
<td>208 // 347</td>
</tr>
<tr>
<td></td>
<td>240 // 120</td>
<td>240 // 347</td>
</tr>
<tr>
<td></td>
<td>240 // 120 / 240</td>
<td>240 // 120 / 240</td>
</tr>
<tr>
<td></td>
<td>277 // 120</td>
<td>277 // 120</td>
</tr>
<tr>
<td></td>
<td>277 // 120 / 240</td>
<td>277 // 120 / 240</td>
</tr>
<tr>
<td></td>
<td>277 // 277</td>
<td>277 // 347</td>
</tr>
<tr>
<td></td>
<td>347 // 120</td>
<td>347 // 120</td>
</tr>
<tr>
<td></td>
<td>347 // 120 / 240</td>
<td>347 // 120 / 240</td>
</tr>
<tr>
<td></td>
<td>347 // 277</td>
<td>347 // 347</td>
</tr>
<tr>
<td>AC Input Voltage / Input Service Amps</td>
<td>208 / 100 A</td>
<td>208 / 150 A</td>
</tr>
<tr>
<td></td>
<td>240 / 80 A</td>
<td>240 / 125 A</td>
</tr>
<tr>
<td></td>
<td>277 / 70 A</td>
<td>277 / 125 A</td>
</tr>
<tr>
<td></td>
<td>347 / 60 A</td>
<td>347 / 90 A</td>
</tr>
<tr>
<td>Output Voltage and Maximum Output Current in</td>
<td>120 / 83.3 A</td>
<td>120 / 125 A</td>
</tr>
<tr>
<td>Amperes at 100% load</td>
<td>208 / 48 A</td>
<td>208 / 72.1 A</td>
</tr>
<tr>
<td></td>
<td>240 / 41.6 A</td>
<td>240 / 62.5 A</td>
</tr>
<tr>
<td></td>
<td>277 / 36.1 A</td>
<td>277 / 54.1 A</td>
</tr>
<tr>
<td></td>
<td>347 / 28.8 A</td>
<td>347 / 43.2 A</td>
</tr>
<tr>
<td>Standard Charger Size (amps)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>DC System Voltage</td>
<td>240 VDC</td>
<td>240 VDC</td>
</tr>
</tbody>
</table>

1 Consult factory for other voltage ratings.
2 Input service listed is for systems with no bypass.
* 120 V not available with 7.5 kW and up.

**Circuit Breakers, cabling and other electrical components should be sized according to your national and local electrical codes.**
### SINGLE PHASE 30 MINUTES BACKUP CONFIGURATIONS

<table>
<thead>
<tr>
<th>Standard Battery Systems for 30 Minute Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Capacity Rating</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td><strong>Maximum System Weight – lb / kg</strong></td>
</tr>
</tbody>
</table>

### SINGLE PHASE 60 MINUTES BACKUP CONFIGURATIONS

<table>
<thead>
<tr>
<th>Standard Battery Systems for 60 Minute Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Capacity Rating</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td><strong>Maximum System Weight – lb / kg</strong></td>
</tr>
</tbody>
</table>

### SINGLE PHASE 90 MINUTES BACKUP CONFIGURATIONS

<table>
<thead>
<tr>
<th>Standard Battery Systems for 90 Minute Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Capacity Rating</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>ELI Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (in)</strong></td>
</tr>
<tr>
<td><strong>BBU Dimensions W x D x H (mm)</strong></td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td><strong>Maximum System Weight – lb / kg</strong></td>
</tr>
</tbody>
</table>

1 Includes two battery cabinets.

* Longer runtimes available. Consult factory.

Specifications are subject to change without prior notice to reflect upgrades and technology advances.
Configuration C

UPS CABINET 42”X27”X67”

BATTERY CABINET 32”X34”X76”

Configuration D

UPS CABINET 42”X27”X67”

BATTERY CABINET 32”X34”X76”
8. CONTACT INFORMATION

QA / Warranty Questions

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 209
Fax: (250) 491-9775
Email: qa@alwayson.com
Website: www.alwayson.com

Software Questions

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 204
Fax: (250) 491-9775
Email: webmaster@alwayson.com
Website: www.alwayson.com

Additional Purchases or Upgrades

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 451
Fax: (250) 491-9775
Email: sales@alwayson.com
Website: www.alwayson.com