UltraLITE
MODEL ELU

Centralized Emergency Lighting Inverters

True no-break system, with regulated output and transient voltage protection for LED lighting, electronic ballasts, as well as all other existing and future lighting applications.

Peak overload capability up to 1400% to accommodate inrush current from LED fixtures/drivers!

Meets NFPA 101, 111, NEC, IBC and local codes.

Applications:
- Schools / Universities / Dormitories
- Security / Public Address Systems
- Arenas / Stadiums
- Subways / Mass Transit
- Parking Structures / Garages
- Hospitals / Clinics
- Office Buildings
- Shopping Malls
- Airport Terminals
- Casinos / Resorts
- Hotels / Motels
- Apartment Buildings
- Correctional Facilities

UL 924 Listed / C-UL Listed to CSA C22.2 No. 141-10
UL 1778 Listed / C-UL Listed to CSA C22.2 No. 107.1-01
The “UltraLITE, Model ELU” = Life Safety

Apart from the existing emergency lighting codes, many U.S. cities and states have adopted legislation that requires buildings with 5 or more units of occupancy to have a centralized emergency lighting system, where single-point operation controls a facility’s many smaller circuits, and all testing and record-keeping of the emergency power equipment is performed from one location.

Meeting stringent requirements in construction and performance, Controlled Power Company’s self-diagnostic, self-testing, UltraLITE centralized emergency lighting inverters are UL 924 listed as “Emergency Lighting Equipment” and “Auxiliary Power Supplies”, as well as NFPA compliant as “Life Safety Equipment”.

The UltraLITE offers more security and versatility to meet illumination requirements, and is the perfect complement for all life safety and lighting applications — “the universal solution”.

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.

Major Advantages Of The “UltraLITE, Model ELU”

Design Flexibility

Using existing fixtures for emergency lighting and egress assures compliance with minimum illumination code requirements. Extensive combinations of input and output voltages, timed off bus with remote “command on” control, automatic battery testing, and control device override options make the UltraLITE one of the most versatile and dependable lighting inverter systems in the market.

Single Point Operation / Maintenance

One central inverter controls many smaller circuits. Cost-effective, single-point operation provides a common battery pack, and enables all maintenance to be performed and records to be logged from a single location. Additional benefits include:

- Egress lighting integrity test.
- Hot-swappable battery replacement.
- Standard internal bypass.
- Maintenance-free, standard 15-year pro-rated batteries.

Premium Power And Voltage Regulation

Maintains proper operating voltage for HID and high-pressure sodium lighting, as well as electronic ballast and LED lighting, resulting in:

- Voltage sag and surge protection.
- Longer wire runs without upsizing the wire. Regulated voltage source minimizes voltage drop.
- Less-frequent replacement of ballast, LED drivers, and lamps.
- Facility egress lumens are maintained 100% (will not diminish) over the full 90 minutes of emergency power.

Generator-Compatible

The UltraLITE is listed “UL924 Auxiliary Power Supplies”, and is suitable to provide uninterrupted back-up power until a generator starts. Even with an extremely distorted input waveform, the output of the UltraLITE delivers a clean sine wave, with no more than 3% THD, without switching to batteries. This feature also extends ballast, LED driver, and lamp life.

Reduced Utility Expense

Energy conservation continues to be a prevalent issue. The UltraLITE provides several energy-saving solutions without compromising life safety requirements. Use of our optional ZoneSaver-2™, “emergency lighting control unit”:

- Allows for local control of emergency lighting fixtures to reduce / eliminate unnecessary night-light circuits and “always on” lighting loads.
- Allows for automatic bypassing of the local control device during NFPA-mandated test periods.
- Provides multiple, independent zone sensing abilities to reduce / eliminate unnecessary multiple-floor and multiple building-wing illumination. (Refer to the illustration to the left.)

All of these advantages result in the best reliability and net performance of your lighting system!
Features & Benefits

- Uninterrupted, regulated, continuous sinewave output for use with “normally on” lighting fixtures and exit lamps, LED and HID compatible.
- Standby output for use with “normally off” emergency lighting fixtures.
- Pulse width modulation and IGBT technology provide tight output voltage regulation.
- Delivers highly-filtered, regulated, and spike-free power to emergency lighting fixtures and “Life Safety” devices.
- True, online double-conversion topology provides conditioned, regulated power and 100% reliability to emergency lighting loads.
- Auxiliary input command.
- High-speed static bypass.
- System approved for 42k AIC rated source.
- Variable-range logic provides added security during deep brownout conditions, without battery consumption — thus assuring that the batteries will be at full capacity for a power outage.
- Field-modifiable distribution.
- Short-circuit protected.
- NEMA 1 enclosure.
- Generator-compatible.
- 4-stage, temperature compensating smart charge.
- Optional control device override (wall switch, occupancy sensor, dimmer, etc).
- Optional zone sensing.
- Optional remote status panel and automatic phone dialer.
- Optional network connectivity.

Safety

- UL 924 listed Emergency Lighting Equipment
- UL 924 listed Auxiliary Lighting and Power Equipment
- UL 1778 listed Uninterruptible Power Supplies
- C-UL listed to CSA C22.2 No. 141-10 Emergency Lighting Equipment
- C-UL listed to CSA standard C22.2 No. 107.1-01 General Use Power Supplies
- CCMC Approval # 13428-R (Canadian Construction Materials Centre)
- NFPA 101, NFPA 111, NEC, and local codes

Product Specifications

- Input Operating Voltage Range: +12%, -30% typical, load-dependent without battery usage
- Input Frequency: 60 Hz, ± 2.5%
- Input Current Harmonic Distortion: < 5% THD
- Input Power Factor Correction: > .99 PF
- Output Regulation: Typically better than ± 1.5%
- Overload Rating: Up to 125% for 30 cycles, 150% for 4 cycles when fed from the AC power source, or on battery (without use of static bypass).
- LED Inrush Rating: Peak overload capability up to 1400% to accommodate inrush current from LED fixtures/drivers (without use of static bypass).
- Standard Unit Operating Temperature: UL and C-UL\(^1\) listed as 0°C to 40°C.
- Noise Attenuation: \(^2\) Common Mode: 120 dB
  Transverse Mode: 70 dB

\(^1\) C-UL listed to CSA C22.2 No. 141-10 Emergency Lighting Equipment at 20°C to 40°C.
\(^2\) Models supplied with isolation transformer.

Standards

- ANSI / IEEE C62.41 Category B3
- NFPA 101
- NFPA 111 Stored Electrical Energy Emergency and Standby Power Systems. Meets SEPPS / ECE / Level 1 and Level 2 criteria for types O, U, A, B, and 10; and Classes up to and including Class 1.5
- NFPA 70 National Electric Code
- FCC Class A limits, 47 C.F.R. Part 15, Subparts A, B
- IEC 555
Display Monitor & Diagnostics
The UltraLITE’s full-featured monitoring system includes:
• Self-test diagnostics.
• Automatic battery test.
• Audible alarms.
• Protected ON / OFF switch.
• Push-to-test.

The UltraLITE also has a full complement of indicators:
• Percent load.
• High / low / normal input voltage.
• On battery.
• Percent of battery.
• Check battery.
• Bypass status.
• Alarm status.

Communications & Diagnostics
• Integral status and alarm panel.
• Remote communications via alarm signals or RS232.

Batteries
• Integral 90 minute, maintenance-free batteries.
• Automatic, pre-programmed battery testing, including self-diagnostics.
• Small footprint and self-contained batteries maximize floor space.
• Rapid recharge, per UL 924 requirements.

Optional Output Distribution
• Output Circuit Breaker Pole Spaces Available:
  Without Trip Indicator Alarm / Light: 20
  With Trip Indicator Alarm / Light: 10

Simplified Maintenance For Centralized Lighting
• Single-point operation. One central inverter controls many lighting circuits.
• Centralized system significantly reduces man-hours required for monthly testing.
• All testing and record-keeping are performed from one location.
• Secure bypass switch allows for uninterrupted bypass of the inverter to utility power for any maintenance situation.
• Eliminates vandalism potential that exists with wall-pack emergency lighting systems.
• Besides its cooling fans, the UltraLITE has no mechanical or moving parts.
• Low cost of ownership resulting from: high inverter efficiency, lower maintenance, and optional control device override.
Advanced Digital Monitoring — The Intellistat TS™

The user-friendly Intellistat TS™ monitor provides quick, full-access to all of the inverter’s features, allows all programming to be done directly from the touchscreen display, and provides complete system diagnostics and testing. A color, TFT, high resolution touch-screen display indicates all the electrical parameters, as well as the functional status of the inverter. The touch-screen display allows the entry of the date / time values, system setpoints, and password information into the monitor, without the need for an external computer and cable.

The Intellistat TS’s features include:

- LCD display of all electrical parameters.
- NFPA-compliant automatic battery testing / logging.
- User-programmable automatic system testing.
- System alarm annunciation.
- Audible alarm with alarm silence.
- Alarm status display.
- Programmable alarm set-points.
- Date and time display.
- Auto-logging of test results and abnormal events.
- Multi-layer password protection.
- Programmable local interfaces.
- Logs up to 50 events.
- Non-volatile clock and memory.
- Remote monitoring capabilities.
- Optional reporting of test results via fax / e-mail / voice / webpage.
- Optional status notification via e-mail / cell-phone.

Monitored Parameters

The Intellistat TS monitors the following parameters and inverter status indicators:

- Input voltage.
- Output voltage.
- Output current.
- Output VA.
- Output watts.
- Output power factor.
- Output percent load.
- Output frequency.
- Battery voltage.
- Battery charger current
- Percent battery time remaining.
- Battery VA.
- Battery charger current.
- System normal.
- General alarm.
- System on battery.
- System in static bypass.
- System in manual bypass.
- Low battery warning.
- Low battery shutdown.
- Battery test in progress.
- Auto battery test failed / passed.
- Off bus status.
- DC charger fail / DC open.
- Output circuit breaker open.
- REPO shutdown.
- System in static bypass.
- System in manual bypass.

* User-programmable limit referenced during automatic battery testing, to verify integrity of egress lighting.

The color touchscreen display on the Intellistat TS provides all electrical parameters, inverter status, programmable inverter and battery testing, and data-logging. Optional NetMinder™ communications allow for remote monitoring and reporting. For more details, see the “Optional NetMinder Communications” description on Page 7.

Egress Lighting Integrity Test

To satisfy NFPA-mandated periodic and annual requirements, the Intellistat TS automatically initiates the testing of all life safety circuits, regardless of egress lighting design (“always on” or “normally off”). The Intellistat TS then compares power consumption during the test period with user-defined load capacity, analyzes the data, and advises if service is required.

During these NFPA-mandated tests, a “test activated” contact may be used to activate one or more remotely installed ZoneSaver-2 emergency lighting control units. When activated, the ZoneSaver-2 will feed emergency power to egress lighting that is normally off, or dimmed / turned off via a local control device. This option allows for automatic testing of the locally controlled life safety circuit and the ZoneSaver-2 control unit.

Automatic System Tests

The Intellistat TS automatically performs a user-defined (date and time) 5-minute system test every 30 or 90 days. It also performs user-defined (date and time) 30-, 60-, or 90-minute, or 2- or 4-hour annual system tests. For all of these tests, the Intellistat TS logs the test results with date and time, as well as a “pass” or “fail” indication.

Manual System Tests

The Intellistat TS also allows the user to manually invoke a user-defined system test for 30-, 60-, or 90-minutes, as well as 2- or 4-hours. A 1-minute or 5-minute manual test is also available for “spot inspections.”
The UltraLITE offers design flexibilities which are not provided with competing lighting inverters:

**Multi-Voltage Capabilities** *(Figure 1)*

The UltraLITE is a power factor corrected, uninterruptible, double-conversion system, with a static transfer switch for maximum reliability. An internal make-before-break bypass switch maintains the proper output voltage in bypass, even “dual output voltage” configurations. The UltraLITE accepts and distributes the industry’s broadest range of voltages, from 120 VAC – 600 VAC.

**UL 924 Auxiliary Lighting and Power Equipment** *(Figure 2)*

In addition to being UL 924 listed with 90 minutes as Emergency Lighting Equipment, the UltraLITE is UL 924 listed with other battery runtimes as Auxiliary Lighting and Power Equipment. When provided with 10-15 minutes of battery, the UltraLITE is the perfect complement to generator-based emergency lighting systems. The UltraLITE provides uninterruptible, regulated power to critical lighting systems and other life safety related equipment. Additionally, for uncompromised personal safety, critical “always on” lights remain illuminated, and the generator synchronization delay is eliminated.

**Remote Input Command** *(Figure 3)*

Allows the monitoring of multiple locations and events within the emergency lighting system, and may be activated by a signal from any specified monitoring point. If an unacceptable condition exists at one or more of the locations being monitored, the open contact energizes the “Normally Off” bus, thus illuminating the “Normally Off” emergency lights. Likewise, when normal conditions are restored, the “Normally Off” bus is de-energized, and the emergency lights return to their “Normally Off” state.

**Local Control Device Override** *(Figure 4)*

The UltraLITE allows for user control of emergency egress lighting. This includes (but is not limited to) occupancy sensors, wall switches, and dimmer switches. Not only is this approach more reliable, it also saves money because it reduces costly “always on” circuits.

**Zone Sensing** *(Figure 5)*

The most cost-effective emergency lighting applications allow for independent activation of “Normally Off” fixtures in multi-floor or multi-use facilities. The UltraLITE uses ZoneSaver-2™ to monitor normal lighting circuit panels for each floor / zone. Loss of power at the normal lighting circuit panel, or activation by the inverter’s periodic or annual test active contact, energizes the emergency lighting for that floor / zone only.
The “UltraLITE” offers a variety of special options:

**Normally Off Bus**
Provides standby power to “normally off” emergency lamps, at the same or different voltage than “normally on” emergency lamps. When utility power is lost or voltage is inadequate, emergency power is supplied to “normally off” lights, providing a safe means of egress.

**Timed Normally Off Bus**
Functions the same as the Normally Off Bus (above), but differs in that the “Transfer ON” and “Return OFF” times for the bus are programmable. This programmable feature is especially useful to prevent nuisance activation of emergency lighting during short-term power disturbances. Additionally, the return delay provides sufficient time for standard HID lighting recovery, factory-set at 15 minutes.

**Automatic Phone Dialer**
Plugs into the communications port of the inverter, and can be programmed to notify personnel of alarm conditions. This small device can dial up to four (4) phone numbers (land, cell, pager); and records and delivers a custom voice message.

**Output Distribution Circuit Breakers**
Meeting the need for flexible power distribution, circuit breakers can be added, subtracted, or moved without any complex mounting techniques. Output circuit breakers can be configured to supply power to different lighting loads at different voltages. Front-access to the standard input breaker and the optional output distribution circuit breakers is through a lockable drop-down panel door.

**Optional NetMinder Communications**
The NetMinder’s series of adapters integrate the UltraLITE into a BACnet/IP or BACnet MS/TP, Ethernet TCP/IP, MODBUS TCP, or MODBUS RS485 network with a specific IP address for Ethernet connected systems. The NetMinder provides remote monitoring of the inverter status, battery test pass/fail results, alarm conditions, and electrical measurements via a web browser, without the need for any external software. Remote notification of alarms and status are available via SNMP, e-mail, and network broadcast messaging. Temperature and humidity sensing interface are also available.

**Front Access Design**
The UltraLITE has a compact, space-saving “footprint”, and front access to accelerate installation, testing, and maintenance procedures. Standard, 15-year pro-rated batteries are either self-contained or in a user-friendly battery cabinet with easy-access lift-off doors. The “footprint” illustrations below assume unity power factor and 90 minutes runtime. Consult factory for additional front access cabinet configurations using alternative runtimes.

<table>
<thead>
<tr>
<th>OUTPUT RATING</th>
<th>INVERTER (A)</th>
<th>BATTERY (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5kW - 10kW</td>
<td>36”W x 24”D</td>
<td>29”W x 24”D</td>
</tr>
<tr>
<td>12.5kW - 14kW</td>
<td>36”W x 27”D</td>
<td>36”W x 27”D</td>
</tr>
</tbody>
</table>

1.5kW - 3.5kW
4.2kW - 7kW
7.5kW - 14kW
### MODEL NUMBER GUIDE

**PRODUCT** | **INPUT** | **OUTPUT** | **FREQ** | **kVA / kW** | **MONITOR** | **BATTERY** | **DISTRIBUTION** | **OFF BUSS**
---|---|---|---|---|---|---|---|---
ELU - Lighting Inverter | A=120 J=277 L=208/120 G=240/120 V=347 D=480 E=600 | A=120 J=277 Y=277/120 L=208/120 G=240/120 V=347/120 | X=60Hz | Lighting Inverters | 0=Standard 1=Intellistat TS | 5=90m N=None or UPS Battery Option | 0=None 1=Yes | 0=None 1=Off Bus T=Timed Off Bus

**NOTE:** Consult factory for output distribution options.

### ELU MODEL NUMBERS

<table>
<thead>
<tr>
<th>UL 924 MODELS</th>
<th>kVA / kW</th>
<th>WEIGHTS (LBS)</th>
<th>WEIGHTS (LBS)</th>
<th>WEIGHTS (LBS)</th>
<th>WEIGHTS (LBS)</th>
<th>FULL LOAD BTU'S / HOUR</th>
<th>STANDBY MODE BTU'S / HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>**ELU-<strong>X-1.5kW-1S</strong></td>
<td>1.5</td>
<td>898</td>
<td>1081</td>
<td>na</td>
<td>na</td>
<td>511</td>
<td>128</td>
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<td>**ELU-<strong>X-2.2kW-1S</strong></td>
<td>2.2</td>
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<td>na</td>
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<td>**ELU-<strong>X-3kW-1S</strong></td>
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<td>1073</td>
<td>1256</td>
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<td>1256</td>
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<td>1194</td>
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<td>**ELU-<strong>X-4.2kW-1S</strong></td>
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<td>1645</td>
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<td>**ELU-<strong>X-5kW-1S</strong></td>
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<td>1734</td>
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<td>1734</td>
<td>2387</td>
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<td>**ELU-<strong>X-6kW-1S</strong></td>
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<td>2254</td>
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<td>2254</td>
<td>2864</td>
<td>512</td>
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<td>**ELU-<strong>X-7.5kW-1S</strong></td>
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<td>**ELU-<strong>X-8.5kW-1S</strong></td>
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<td>**ELU-<strong>X-10kW-1S</strong></td>
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<td>**ELU-<strong>X-12.5kW-1S</strong></td>
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<td>**ELU-<strong>X-14kW-1S</strong></td>
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<td>4136</td>
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<td>6684</td>
<td>1194</td>
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</tbody>
</table>

### VOLTAGE CONFIGURATIONS

<table>
<thead>
<tr>
<th><strong>XX</strong> = Input - Output VAC, 60 Hz</th>
<th>Output kVA / kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA = 120 - 120</td>
<td>1.5 kW - 5 kW</td>
</tr>
<tr>
<td>JJ = 277 - 277</td>
<td>1.5 kW - 14 kW</td>
</tr>
<tr>
<td>JJ = 277 - 277/120</td>
<td>1.5 kW - 14 kW</td>
</tr>
<tr>
<td>LL = 208/120 - 208/120</td>
<td>3 kW - 14 kW</td>
</tr>
<tr>
<td>GG = 240/120 - 240/120</td>
<td>3 kW - 14 kW</td>
</tr>
<tr>
<td>VV = 347 - 347/120</td>
<td>4.2 kW - 14 kW</td>
</tr>
<tr>
<td>DG = 480 - 240/120</td>
<td>4.2 kW - 14 kW</td>
</tr>
<tr>
<td>DJ = 480 - 277</td>
<td>4.2 kW - 14 kW</td>
</tr>
<tr>
<td>DY = 480 - 277/120</td>
<td>4.2 kW - 14 kW</td>
</tr>
<tr>
<td>EG = 600 - 240/120</td>
<td>4.2 kW - 14 kW</td>
</tr>
<tr>
<td>EV = 600 - 347/120</td>
<td>4.2 kW - 14 kW</td>
</tr>
</tbody>
</table>

**Notes:** Each model includes 90 minutes back-up time, per UL 924 Emergency Lighting Equipment. Battery runtimes other than 90 minutes are available under UL 924 Auxiliary Lighting and Power Equipment – consult factory. Models are also listed UL 1778 and C-UL Uninterruptible Power Supplies. Consult factory for specific applications and runtimes.

1. Cabinet weights include the weight of batteries for standard 90 minutes runtime.
2. Battery weights vary accordingly to desired runtimes – consult factory for runtimes other than 90 minutes.
3. BTU’s are typical at rated load. Consult factory for maximum BTU’s / hour ratings on specific models.
4. Standby BTU’s represent emergency lighting loads that are normally off or turned off via a local control device, used together with a UL 924 listed bypass relay. Stated BTU’s for 120V, 208/120V, and 240/120V models. Consult factory for standby BTU’s on other models.

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