ZincBlue2

ZincBlue2 Manual

ECONOLITE

ZincBlue2

This user manual provides the essential information you need in order to get the most from your ZincBlue2 Uninterruptible Power Supply & ZincBlue2 Software.

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Introduction

Proprietary Information

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Trademarks

Support

Support Contacts

For technical support, please contact an Econolite support representative:

Support Phone: 800.225.6480
Support Email: support@econolite.com
Support Website: wwww.econolite.com/support

Returns

For product returns, please contact an Econolite support representative to obtain a return material authorization (RMA).

Econolite
1250 N. Tustin Ave.
Anaheim, CA 92807

Returns Email: repairs@econolite.com
Support Phone: 800.225.6480

Save the packaging material in the event a return is needed. Econolite does not warranty product damage from return shipping unless it is shipped in approved packaging.

Warranty

Econolite's ZincBlue2 is covered by Econolite's Limited Warranty. Please refer to the Limited Warranty in the back of the manual.

About this Manual

This manual contains information to help owners and operators understand how to safely and properly prepare, install and operate the Econolite ZincBlue2. Attention to this manual will help avoid risks, reduce repair costs and downtime, and increase the reliability of the ZincBlue2.

Instructions in this manual must be followed to ensure proper installation, operation and maintenance of the system in accordance with the Limited Warranty.

Save this Manual

This manual provides guidelines for safe and reliable ZincBlue2 operation. Save this manual, it contains important installation and operating instructions. If you have any questions about the safe installation, operation, or maintenance of the ZincBlue2, contact an Econolite support representative (visit www.econolite.com/support or call 800.225.6480).

ZincBlue2 Recycling

Econolite cares about our environment and has made arrangements for users to easily recycle all ZincBlue2 components, including the cases, electronics, cabling, and batteries at end of life. Each ZincBlue2 component has a recycle label on the back of the enclosure indicating how to contact our recycling partner ER2 to properly recycle ZincBlue2 products.

ZincBlue2 Recycling

Disclaimer

While efforts have been made to ensure the accuracy and validity of information contained in the document, Econolite assumes no responsibility and disclaims all liability for any errors and/or omissions that may be contained herein.

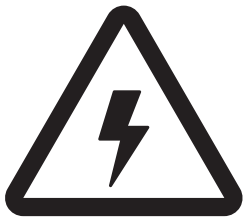
Due to possible changes and/or updates to component design and software applications, this document, completely or in part may become obsolete or out-of-date until a subsequent revision is released by Econolite.

Econolite may make changes to specifications, product descriptions, and documentation at any time, without notice.

Safety

Safety Symbols

Econolite ZincBlue2 Uninterruptible Power Supplies (ZincBlue2) are carefully designed and tested to ensure that they are safe and reliable products when used properly. To ensure the safe and proper use of Econolite's ZincBlue2, the following symbols are used on the product and throughout this manual. Operators, buyers, and technicians must observe each occurrence of these symbols as they appear throughout the document. Only qualified personnel should carry out instructions accompanied by these symbols.



Danger Symbol

Danger:
An electrical danger exists in this area. Use extreme caution at all times.

Attention Symbol

Attention:
Important information or operating instructions. Follow them exactly.

Uninterruptible Power Supply (UPS) and Battery Safety

This Uninterruptible Power Supply (UPS) and batteries must be installed in a UL or 3rd party safety approved cabinet by trained personnel qualified in the safe use of high-energy power supplies and their batteries. Also assumed is knowledge of the local electrical code(s) and their safe application.

To prevent accidental shorts, shocks or electrocutions, never let water or any form of liquid enter the UPS and batteries.

Do not operate the UPS and batteries with damaged cables and wires. Defective cables and wires must be replaced before system installation. Prior to system installation, verify that all cables and wires are properly secured and connected. Faulty connections can interrupt operation and cause irreparable damage to this product.

Dismantling or opening the equipment enclosures will void the product warranty and create risk of electrical shock. The equipment enclosures should only be opened by a Econolite representative or trained professional.

Don't leave interconnect cables plugged into batteries when not in use.

This ZincBlue2 system is design for fail safe operation. With a failure of the ZincBlue2 UPS 1000W/1500W, the PIM will automatically bypass in order to provide Utility power to the Cabinet load. The Transfer switch internal to the ZincBlue2 UPS 1000W is a normally closed relay contact that defaults to the AC input connected to the AC output.

Warnings and Cautions

UPS

- ☐ To avoid fire, shock, or death; turn off power at circuit breaker or fuse and test that power is off before wiring, servicing, or removing.
- ☐ Read this manual prior to installation and operation. If you have any questions about safe installation, operation or maintenance, contact ZincFive's Support Department.
- ☐ Carefully unpack the components. Report any shipping or other damage at once.
- ☐ Never let live battery wires touch the UPS, the enclosure, or any other metal objects.
- ☐ Use proper lifting techniques when lifting or moving the UPS or its components.
- ☐ At high ambient temperature conditions, the UPS' surface can be very hot to the touch when operating.
- ☐ Ensure ventilation to the left and right sides of the UPS enclosure.
- ☐ To be installed and/or used in accordance with electrical codes and regulations.
- ☐ Before installation, verify the input voltage and current requirements of the load are met by the UPS' output. Verify the line voltage and current meet the UPS input requirements.
- ☐ To avoid electric overload, do not exceed output rating.

UPS Input & Output Values

Input Power	
Input Voltage Range	120Vac Nominal 85-140Vac User Programable
Input Current	15A max
Input Frequency	60Hz nominal +/-10% (54 - 66Hz)
Output	
Output Voltage	120Vac +/-3%
Output Current	8.3A Typical
Output Power	1,000VA Typical
Output Frequency	60Hz +/-0.5Hz
Output Waveform	Pure Sinewave
UPS Efficiency	0.97
Environmental	
ZincBlue2 UPS 1000W operating temperature range	-37°C to 74°C (-34°F to 165°F)
Regulatory Compliance	
ZincBlue2 UPS 1000W	UL 1778 and CSA C22.2 No. 107.3 compliant in a maximum ambient environment of 40°C

Battery Panel / Module

- ☐ Battery installation and servicing should be done or supervised by personnel knowledgeable about batteries and the required precautions.
- ☐ Battery Panel / Module must not be installed in a sealed enclosure, ventilation must be provided.
- ☐ Use proper lifting techniques when lifting or moving the batteries.
- ☐ Never dispose of batteries in a fire.
- ☐ Never open or damage the batteries.
- ☐ A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
  - ☐ Remove watches, rings, or other metal objects.
  - ☐ Use tools with insulated handles.
  - ☐ Disconnect the AC input to the Battery prior to connecting or disconnecting battery terminals.
  - ☐ Ensure that the Battery is OFF before connecting or disconnecting battery interconnect cables. The Battery Panel / Module indicator LED will be OFF.
  - ☐ Never short pins inside battery cable connectors.

Sécurité

Symboles de sécurité

Les alimentations sans coupure ZincBlue2 de Econolite sont soigneusement conçues et testées pour garantir qu'il s'agit de produits sûrs et fiables lorsqu'ils sont utilisés correctement. Pour garantir une utilisation sûre et correcte de l'ZincBlue2 de Econolite, les symboles suivants sont utilisés sur le produit et tout au long de ce manuel. Les opérateurs, les acheteurs et les techniciens doivent observer chaque occurrence de ces symboles tels qu'ils apparaissent dans le document. Seul un personnel qualifié doit exécuter les instructions accompagnées de ces symboles.

Symbole de danger

Danger :
Un danger électrique existe dans cette zone. Faire preuve d'une extrême prudence à tout moment.

Symbole de mise en garde

Attention :
Renseignements importants ou instructions d'utilisation. Suivre avec exactitude.

Alimentation sans coupure (ASC) et sécurité des batteries

Cette alimentation sans coupure (ASC) et ses batteries doivent être installées dans une armoire homologuée par UL ou une tierce partie par un personnel formé et qualifié dans l'utilisation sûre des alimentations haute énergie et de leurs batteries. Il est également supposé connaître le(s) code(s) électrique(s) local(aux) et leur application en toute sécurité.

Pour éviter tout court-circuit, choc ou électrocution accidentels, ne jamais laisser de l'eau ou toute forme de liquide pénétrer dans l'ASC et les batteries.

Ne pas faire fonctionner l'ASC et les batteries avec des câbles et des fils endommagés. Les câbles et fils dé fectueux doivent être remplacés avant l'installation du système. Avant l'installation du système, vérifier que tous les câbles et fils sont correctement fixés et connectés. Des connexions défectueuses peuvent interrompre le fonctionnement et causer des dommages irréparables à ce produit.

Le démontage ou l'ouverture des boîtiers de l'équipement annulera la garantie du produit et créera un risque de choc électrique. Les boîtiers des équipements ne doivent être ouverts que par un représentant de Econolite ou un professionnel qualifié.

Ne pas laisser les câbles d'interconnexion branchés sur des batteries lorsqu'ils ne sont pas utilisés.

Ce système ZincBlue2 est conçu pour fonctionner en toute sécurité. En cas de panne de l'ASC ZincBlue2 de 1000W/1500W, le MIA (module d'interface d'alimentation) sera automatiquement contourné afin de fournir une alimentation électrique à la charge de l'armoire. Le commutateur de transfert interne à l'ASC ZincBlue2 de 1000W/1500W est un contact de relais normalement fermé qui correspond par défaut à l'entrée CA Le commutateur de transfert interne à l'ZincBlue2 ASC 1000W/1500W est un contact de relais normalement fermé qui est relié par défaut à l'entrée CA connectée à la sortie CA.

Avertissements et mises en garde

ASC

- ☐ Pour éviter un incendie, un choc ou la mort, couper le courant au niveau du disjoncteur ou du fusible et vérifier que l'alimentation est coupée avant de procéder au câblage, à l'entretien ou au démontage.
- ☐ Lire ce manuel avant l'installation et l'utilisation. Si vous avez des questions concernant l'installation, le fonctionnement ou l'entretien en toute sécurité, contacter le service d'assistance de ZincFive.
- ☐ Déballer soigneusement les composants. Signaler immédiatement tout dommage lié au transport ou autre.
- ☐ Ne jamais laisser des fils de batteries sous tension toucher l'ASC, le boîtier ou tout autre objet métallique.
- ☐ Utiliser des techniques de levage appropriées lorsque l'ASC ou ses composants sont soulevés ou déplacés.
- ☐ Dans des conditions de température ambiante élevée, la surface de l'ASC peut être très chaude au toucher lors de son fonctionnement.
- ☐ Veiller à ce que la ventilation soit assurée sur les côtés gauche et droit du boîtier de l'ASC.
- ☐ Être installé et/ou utilisé conformément aux codes et réglementations électriques.
- ☐ Avant l'installation, vérifiez que la tension d'entrée et les besoins en courant de la charge sont satisfaits par la sortie de l'ASC. Vérifier que la tension et le courant de ligne répondent aux exigences d'entrée de l'ASC.
- ☐ Pour éviter toute surcharge électrique, ne pas dépasser la puissance nominale.

UPS Input & Output Values

Input Power	
Input Voltage Range	120Vac Nominal 85-140Vac User Programable
Input Current	15A max
Input Frequency	60Hz nominal +/-10% (54 - 66Hz)
Output	
Output Voltage	120Vac +/-3%
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Regulatory Compliance	
ZincBlue2 UPS 1000W	UL 1778 and CSA C22.2 No. 107.3 compliant in a maximum ambient environment of 40°C

Panneau / module de batteries

- ☐ L'installation et l'entretien des batteries doivent être effectués ou supervisés par un personnel connaissant les batteries et les précautions requises.
- ☐ Le panneau / module de batteries ne doit pas être installé dans une enceinte étanche, une ventilation doit être prévue.
- ☐ Utilisez des techniques de levage appropriées lorsque vous soulevez ou déplacez les batteries.
- ☐ Ne jamais jeter de batteries dans un feu.
- ☐ Ne jamais ouvrir ou endommager les batteries.
- ☐ Une batterie peut présenter un risque de choc électrique et de courant de court-circuit élevé. Les précautions suivantes doivent être observées lorsque vous travaillez sur des batteries
  - ☐ Retirer toutes montres, bagues ou autres objets métalliques.
  - ☐ Utiliser des outils avec des poignées isolées.
  - ☐ Débrancher l'entrée CA de la batterie avant de connecter ou de déconnecter les bornes de la batterie.
  - ☐ S'assurer que la batterie est éteinte avant de connecter ou de déconnecter les câbles d'interconnexion de la batterie. Le voyant du panneau/module de la batterie sera éteint.
  - ☐ Ne jamais court-circuiter les broches à l'intérieur des connecteurs des câbles de la batterie.

UPS

UPS Introduction

The ZincBlue2 UPS 1000W and ZincBlue2 UPS 1500W (ZincBlue2 UPS 1000W/1500W) are 1000 Watt and 1500 Watt UPS systems that utilizes an Intelligent Two Stage Operation with an oscilloscope function and is developed to operate with nickel-zinc batteries. It is designed for installation in all signalized and ITS cabinets and can be rack mounted in 2U - 19" EIA racks or shelf mounted.

ZincBlue2 UPS 1000W/1500W (Front)

ZincBlue2 UPS 1000W (Back)

ZincBlue2 UPS 1000W/1500W functions using an Intelligent Two Stage operation.

Stage 1: This stage includes Line Conditioner, Waveform Monitoring and Switchover to battery backup functions. The line conditioner function attenuates surges and spikes on incoming utility power. Oscilloscope functionality continuously measures the incoming AC waveform and monitors for voltage, frequency and waveform anomalies outside of user programmed thresholds. When any voltage, waveform or frequency threshold is exceeded, transfer time to battery backup is a rapid <33ms (typical). The triggering event waveform is 500ms in length captured with 250ms pre-event and 250ms post event sine cycles, along with a day/date time stamp in the event log. Up to 1000 events with waveforms can be stored in the event log and accessed through the browser-based ZincBlue2 Software. When any of these thresholds are exceeded, transfer time to battery backup is <33ms.

Stage 2: This stage includes Waveform Monitoring and Return to AC Power functions. Continued vigilance by the oscilloscope function in Stage 1 monitors the incoming utility AC line for recovery within the user-defined thresholds. The voltage, waveform anomalies and frequency must all be within their threshold limits prior to returning to utility AC power. If any one of the three parameters exceed their thresholds within the line qualify time of 3, 10 or 30 second windows, then the time window restarts once all parameters are again within their proper ranges.

UPS Overview

(The numbering system below correlates with the above product photos)

1. **Display**
   4 line X 20 character LCD with white LED backlight. 128 X 64 pixel monochrome LCD screen.

2. **UPS FAULT (Solid Red)**
   The solid red LED will be ON any time the UPS cannot provide battery backup.
   The red LED will be ON when:

- The UPS input voltage is out of spec
- The UPS inverter is not operational
- The load is too high for the UPS
- The ambient temperature is outside the operational requirement of the UPS
- The battery voltage is too low
- No batteries are attached or available
- The tilt switch is activated while the UPS is in backup mode

3. **BACKUP MODE ON (Solid Green)**
   The solid green LED will be ON any time the UPS is supplying backup power from the batteries.

   BACKUP MODE ON (Flashing Green)
   The flashing green LED will be ON any time the UPS is supplying backup power and the batteries are below 10% capacity. The green LED will flash at a frequency of twice per second.

4. **RELAY TRIGGERED (Solid Yellow)**
   The solid yellow LED will be ON when any of the user configurable relays are activated.

5. **ETHERNET**
   If your ZincBlue2 is connected to a network, direct connection to the ethernet port will allow access to the ZincBlue2 Software web application. The Ethernet port can also be used for local firmware updates.

6. **BACK**
   The push button changes the display to the previous menu or screen and serves as a BACK button and SAVE funtion.

7. **NAVIGATION DIAL**
   Rotating navigation dial for control of the LCD screen cursor. Pushing the dial functions as a Select button.

8. **BATTERY INPUTS**
   Six (6) battery inputs for connecting battery panels/module to the UPS via the provided Digital and DC Power Interconnect Cable. UPS is certified for use with only the following Econolite batteries.

The following Batteries are compatible:			
Manuf. Name	**Part Number**	**Nominal Voltage**	**Battery Capacity**
Econolite	00100-1089-202 Panel 500W	48Vdc	500W
Econolite	00100-1089-204 Module 500W	48Vdc	500W
Econolite	00100-1089-210 XRT 3600W	48Vdc	3600W
The following Battery Module shown below has been **UL certified** and must be used to maintain UL system certification for the ZincBlue2 UPS 1000W			
Econolite	00100-00200-00504 Module 500W	48Vdc	500W

   Note: When using a UPStealth 2 UPS 1500W it is a system requirement that two UPStealth 2 Battery Panels or Battery Modules be used or a single UPStealth 2 XRT Battery 3600Wh. If not configured with the mentioned batteries, the UPStealth 2 UPS 1500W will be in "BACKUP UNAVAILABLE" mode until the correct configuration is in place.

9. **RELAY CONTACT TERMINALS**
   8 independent programmable relays with NO (normally open) and NC (normally closed) contacts. Relays can be programmed for the following: Power Failure, Power Resume, System Faults, Time of Day, Battery capacity %.

10. **UPS AC OUTPUT TO PIM**
    Connection between UPS AC Output to PIM via the provided Locking AC Power Interconnect Cable.

11. **UPS AC INPUT FROM PIM**
    Connection between UPS AC Input from PIM via the provided Locking AC Power Interconnect Cable.

Physical Characteristics

ZincBlue2 UPS 1000W……3.7”H x 17”W (19” w/ mounting) x 11.6”D Weight 12 lbs.
ZincBlue2 UPS 1500W……4.6”H x 17”W (19” w/ mounting) x 11.6”D Weight 14 lbs.

Batteries

ZincBlue2 Battery Panel & Battery Module Introduction

The ZincBlue2 Batteries are available in two form factors, the ZincBlue2 Battery Panel and ZincBlue2 Battery Module. Both are 500W form factors operating with nickel-zinc batteries and an intelligent battery management system. The batteries can be charged with either the ZincBlue2 UPS 1000W/1500W or the Wall Charging Adapter.

ZincBlue2 Battery Panel 500W

ZincBlue2 Battery Module 500W

ZincBlue2 Battery Panel & Battery Module Overview

1. **COLD START**
   Manually cold start the ZincBlue2 using the batteries to enable quick startup of an intersection. With a battery panel or module connected to a UPS, push and hold for 5 seconds for immediate system cold startup. Hold for 10 seconds to turn off.

2. **BATTERY OUTPUT**
   The connection point between the Battery and UPS via the provided Digital and DC Power Interconnect Cable.

3. **AC INPUT**
   The connection point between the Battery and PIM. Use the provided Locking AC Power Interconnect Cable.

4. **HANDLE**
   Used for lifting the battery panel.

5. **STATUS**
   A multi-color LED indicators that provides battery status
   - Green = Backup Mode
   - Blue = Charging Mode
   - Red = Battery Fault
   - White Blinking = Charged, battery at rest

FORCE OFF
Press and hold the Cold Start button for 10 seconds to turn off the Battery Panel/Module.

Hot Swapping when in discharge mode, you should do/see the following:

1. Connect the new battery to the controller via the DC interconnect cable. New battery LED should turn on (Green), and be recognized by the controller.
2. Disconnect DC and AC cable from depleted battery and remove.
3. Connect the AC cable to the new battery. Disconnecting the depleted batteries before connecting fresh batteries may cause premature system shutoff when in discharge mode.

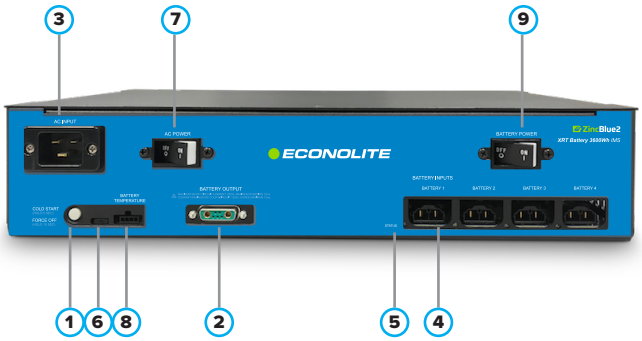
When the system is in Normal/AC mode, the AC and the DC cables will both need to be connected to the battery to turn it on and have it be recognized by the controller.

Physical Characteristics

ZincBlue2 Battery Panel 500W.....1.1"H x 19"W x 24.4"D 24.4 lbs.
ZincBlue2 Battery Module 500W.....2.3"H x 17"W (19" w/ mounting) x 12.1"D 21.1lbs.

ZIncBlue2 XRT Battery Introduction

The Econolite ZincBlue2 XRT Battery 3600Wh (ZincBlue2 XRT) is available in one form factor and comes with the ZincBlue2 XRT Battery 3600Wh IMS and four monobloc nickel-zinc batteries.



ZincBlue2 XRT Battery 3600Wh IMS

Z5 13-80 H S F
1kW Monobloc Nickel-Zinc Battery

ZincBlue2 XRT comes with a 3600Wh intelligent management system that connects to four 1kW monobloc nickel-zinc batteries. For full operation, the system must include the ZincBlue2 UPS and PIM.

ZincBlue2 XRT Overview

1. **COLD START/FORCE OFF**
   Manually cold start the ZincBlue2 XRT to enable quick startup of an intersection. With the monobloc nickel-zinc batteries connected, push and hold for 5-8 seconds for immediate system cold startup. Hold for 10-20 seconds to turn off.

2. **BATTERY OUTPUT**
   The connection point between the ZincBlue2 XRT and ZincBlue2 UPS 1000W/1500W via the provided Digital and DC Power Interconnect Cable.

3. **AC INPUT**
   The connection point between the ZincBlue2 XRT and PIM via the provided Locking AC Power Interconnect Cable.

   Note: If installing multiple ZincBlue2 XRT Battery 3600Wh units, each additional unit will need to be independently connected to a 20Amp protected AC circuit via the AC INPUT port on the front of the ZincBlue2 XRT Battery 3600Wh IMS with the XRT AC Power Cable. Additional ZincBlue2 XRT Battery 3600Wh units cannot be daisy-chain connected to the PIM.

4. BATTERY INPUTS

Four individual connection points between the monobloc nickel-zinc batteries and ZincBlue2 XRT via the provided DC Power Interconnect Cable.

5. BATTERY STATUS

Four multi-color LED indicators that provide individual monobloc nickel-zinc battery status:

- Green (Solid) - Backup Mode
- Blue (Solid) - Charging Mode
- White (Blinking) - Charged, battery at rest
- Red (Solid) - Battery Missing/Miswired
- Red (Blinking) - Battery Fault. Call your representative for assistance
- Red / Blue (Alternating) - Weak battery detected, charge mode.
- Red / Green (Alternating) - Weak battery detected, discharge mode.

6. MICRO USB PORT

Reserved for manufacturer use.

7. AC POWER

A 20Amp Breaker to turn AC ON/OFF.

8. BATTERY TEMPERATURE

Battery Temperature Sensor is necessary for proper temperature compensated charging of the monobloc nickel-zinc batteries. Connect the battery temperature sensor cable to the port on the ZincBlue2 XRT and connect the ringed end to any battery terminal. This cable is required for system operation.

9. BATTERY POWER

A 50Amp Breaker to turn the Battery DC Bus ON/OFF.

Physical Characteristics

ZincBlue2 XRT Battery 3600Wh IMS.....3.4"H x 16.7"W (19" w/ mounting) x 10.2"D 11 lbs.
Z5 13-80 H S (1kW Monobloc Nickel-Zinc Battery).....7.4"H x 6.9"W x 10.9"D 33 lbs.

Batteries

Présentation du panneau et du module de la batterie du l'ZincBlue2

Les batteries de l'ZincBlue2 sont disponibles sous deux formes, le panneau de batteries de l'ZincBlue2 et le module de batteries de l'ZincBlue2. Tous deux sont des facteurs de forme de 500W fonctionnant avec des batteries nickel-zinc et un système intelligent de gestion de batteries. Les batteries peuvent être chargées avec l'ASC ZincBlue2 de 1000W/1500W ou avec l'adaptateur de charge mural.

ZincBlue2 Battery Panel 500W

ZincBlue2 Battery Module 500W

Vue d'ensemble du panneau et du module de batterie de l'ZincBlue2

1. **MARRAGE À FROID**
   Démarrer manuellement à froid l'ZincBlue2 en utilisant les batteries pour permettre le démarrage rapide d'une intersection. Avec un panneau ou un module de batterie connecté à l'ASC, appuyer et maintenir pendant 5 secondes pour un démarrage à froid immédiat du système. Maintenir pendant 10 secondes pour l'éteindre.
2. **SORTIE DE LA BATTERIE**
   Le point de connexion entre la batterie et l'ASC via le câble d'interconnexion numérique et d'alimentation en courant continu fourni.
3. **ENTRÉE CA**
   Le point de connexion entre la batterie et le MIA Utiliser le câble d'interconnexion d'alimentation CA à verrouillage fourni.
4. **POIGNÉE**
   Utilisée pour le levage du panneau de batterie.
5. **ÉTAT**
   Un indicateur DEL multicolore qui indique l'état de la batterie
   - Vert= Mode de sauvegarde
   - Bleu = Mode de chargement
   - Rouge = Défaillance de la batterie
   - Blanc clignotant = Chargé, batterie au repos

FORCE OFF
Appuyer sur le bouton de démarrage à froid et le maintenir enfoncé pendant 10 secondes pour éteindre le panneau/module de la batterie.

Pour l'échange à chaud en mode de décharge, vous devez faire/voir ce qui suit:

1. Connecter la nouvelle batterie au contrôleur via le câble d'interconnexion CC. Le voyant de la nouvelle batterie devrait s'allumer (vert) et être reconnu par le contrôleur.
2. Débrancher les câbles CC et CA de la batterie épuisée et les retirer.
3. Connecter le câble CA à la nouvelle batterie. Le débranchement des piles épuisées avant de brancher des piles neuves peut entraîner l'arrêt prématuré du système lorsqu'il est en mode de décharge.
Lorsque le système est en mode Normal/CA, les câbles CA et CC devront tous deux être connectés à la batterie pour la mettre en marche et la faire reconnaître par le contrôleur.

Caractéristiques physiques

ZincBlue2 Battery Panel 500W……1,1po H x 19 po L x 24,4 po P 24,4 lb.
ZincBlue2 Battery Module 500W……2,3 po H x 17 po L (19 po avec montage) x 12,1 po P 21,1lb.

Power Interface Module (PIM)

PIM Introduction

The Power Interface Module (PIM) provides an easy-to-connect interface for incoming utility AC connecting to the UPS and the load.

The PIM provides an auto bypass function that enables the technician to remove and service the UPS without shutting down utility power. If, for any reason, the ouput of the ZincBlue2 UPS 1000W/1500W is not available, then the PIM will automatically connect the load to the utility line voltage.

PIM

PIM Overview

1. **TO UPS AC IN**
   AC Input from PIM to UPS via the provided Locking AC Power Interconnect Cable.
2. **FROM UPS AC OUT**
   AC Output from UPS to PIM via the provided Locking AC Power Interconnect Cable.
3. **UPS TEST OUTPUT**
   Test output for the UPS. This output is always connected to the UPS output, regardless of Bypass Switch position.
4. **CABINET LOAD**
   Connection points of the cabinet load to the PIM.
5. **UTILITY INPUT**
   Connection points of AC power from the utility line to the PIM.
6. **LOAD**
   20A breaker protection for the load.
7. **UPS TEST**
   15A breaker/switch on incoming utility AC power.
   - In the ON position the AC from utility input is connected to the ZincBlue2 UPS 1000W/1500W providing power. The ZincBlue2 UPS 1000W/1500W is passing utility Input power through to the CABINET LOAD as well as the UPS TEST OUPUT on the PIM. No Battery backup is used (assuming AC Utility power is present).
   - In the OFF position the AC from utility input is removed from the ZincBlue2 UPS 1000W/1500W and backup mode will be active.

Note: The UPS TEST switch is NOT used to check runtime as it does not disconnect AC POWER from the Battery Panel/Module.

8. **BYPASS LIGHT**
   Will be lit when utility is directly connected to cabinet load.
9. **TO BATTERY AC IN**
   ZincBlue2 Battery Panel/Module: The connection between the PIM and Battery AC Input on the ZincBlue2 Battery Panel or Module via the provided Locking AC Power Interconnect Cable.
   ZincBlue2 XRT Battery 3600Wh: The connection between the PIM and Battery AC INPUT on the ZincBlue2 XRT Battery 3600Wh IMS via the provided Locking AC Power Interconnect Cable.

Physical Characteristics

PIM……6”H x 10”W x 4”D 3.7 lbs.

Installation

Installation Safety

A battery can weigh up to 33 lbs. To avoid injury, use proper lifting techniques when unboxing and installing.

UPS or battery(s) installation on a cabinet shelf or rack mount above your head is not recommended without the use of properly staged ladders and assistance in lifting and placing the equipment.

Save the packaging material in the event a return is needed. Econolite does not warrant against product damage from return shipping unless it is shipped in the original packaging.

The ZincBlue2 system should be installed in a restricted access environment and only installed and serviced by authorized personnel.

Tools Needed

- **Slotted screwdriver** - (1/8" and 3/16") 1/8" used for relay contact terminals. 3/16" used for utility and load connections to PIM.
- **Phillips screwdriver** - (#2) used for mounting the product.
- **Flat head screwdriver -** Used for connecting the PIM terminals.
- **Wire stripper** - Used for proper stripping of wires.
- **Crimp tool** - Used for terminating ring lugs (not included) Termination to utility input and cabinet load are #8 screws.
- **Voltage meter** - Used to check for voltage and to ensure proper connections.
- **Socket wrench (10mm)** - Used to attach the DC Power Interconnect Cable to the monobloc nickel-zinc batteries.

Installing the UPS

The ZincBlue2 UPS 1000W/1500W is designed to be installed inside primary traffic cabinets and is compatible with 170/2070 33X series and NEMA traffic cabinets.

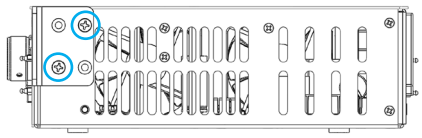
The ZincBlue2 UPS 1000W/1500W has a TILT SWITCH function which comes disabled and is a feature that can be enabled in the field via the UPS or ZincBlue2 Software web application. The ZincBlue2 UPS 1000W/1500W must be mounted horizontally for proper TILT SWITCH functionality. If the ZincBlue2 UPS 1000W/1500W exceeds 15 degrees from level, the devices TILT SWITCH will become active and will disable the battery bus. The ZincBlue2 UPS 1000W/1500W status screen will read TILT ERROR and the red UPS FAULT status light will be on. Disconnect the ZincBlue2 UPS 1000W/1500W from AC Power and adjust the rack or shelf mounting so that the device does not tilt in excess of 15 degrees from level. Then connect AC Power back to the ZincBlue2 UPS 1000W/1500W. The status screen will read NORMAL and have no status lights on. The About page on your ZincBlue2 UPS 1000W/1500W & ZincBlue2 Software will indicate "TILT SWITCH AVAILABLE" when the function is enabled.

Installing ZincBlue2 UPS 1000W/1500W

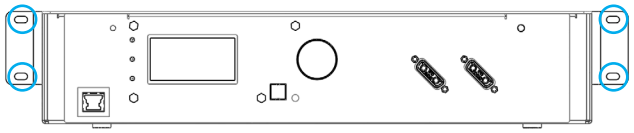
Installation of the ZincBlue2 UPS 1000W/1500W can be done either by shelf or rack mounting. For shelf installation, no other hardware is needed. For rack mounting installations, use the provided brackets (2) and screws (8) as shown in the figures below.

UPS Rack Mount Bracket Installation

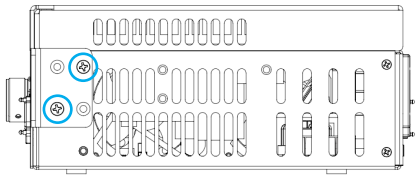
(4QTY) Screw 10-32 x 5/16" Phil, FH 18-8 Black Oxide SS



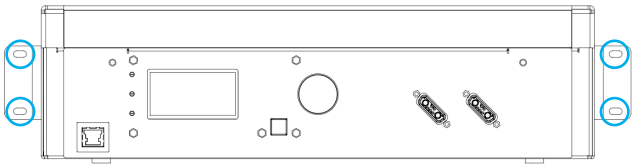
1000W



1000W



1500W



1500W

Installing ZincBlue2 UPS 1000W/1500W

Installing the Batteries

The ZincBlue2 Battery Panel 500W and ZincBlue2 Battery Module 500W are designed to be installed inside primary traffic cabinets. The ZincBlue2 Battery Panel 500W is compatible with 170/2070 33X series traffic cabinets. ZincBlue2 Battery Module is compatible with 170/2070 33X series and NEMA traffic cabinets.

Installing ZincBlue2 Battery Panel 500W

The ZincBlue2 Battery Panel 500W is not designed to be rack or shelf mounted. The flex design allows it to bend into the unused space between the rack and cabinet wall of 33X series cabinets as shown in the below figures. The space bar and speedy sleeve will assist with installation, use the provided figures and steps to install the ZincBlue2 Battery Panel.

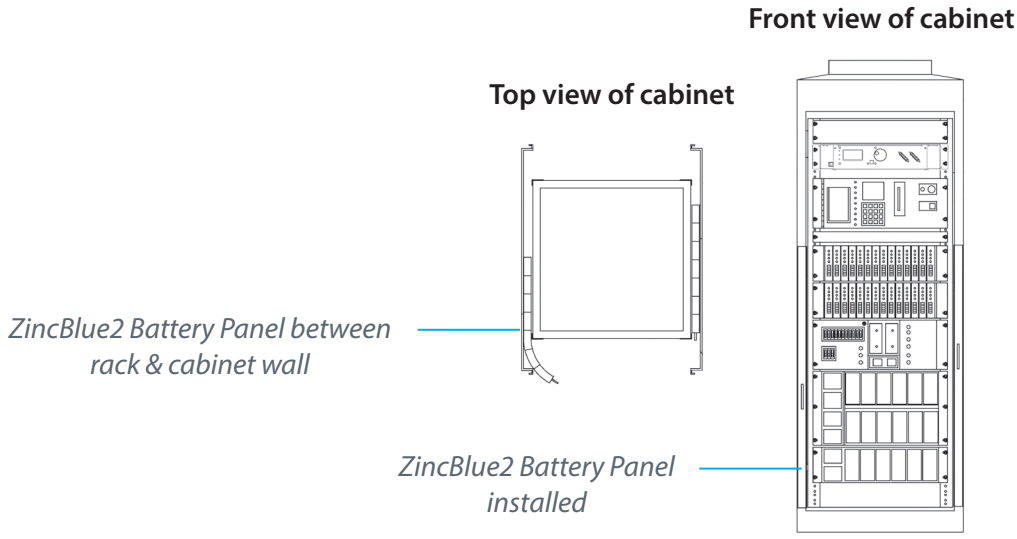
Spacer Bar

Step 1: Spacer Bar
Insert the spacer bar between the rack and cabinet wall at the bottom of the cabinet. This will support the bottom of the battery panel when installed.

Speedy Sleeve

Step 2: Speedy Sleeve
Insert the speedy sleeve between the rack and cabinet wall.

Insert the ZincBlue2 Battery Panel between the cabinet wall and speedy sleeve which is up against the rack. When installing the ZincBlue2 Battery Panel, start inserting with the end opposite of the handle going into the cabinet first.

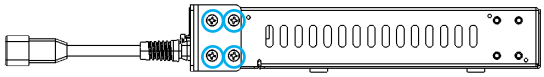


Installing ZincBlue2 Battery Module 500W

The ZincBlue2 Battery Module is installed by shelf mounting or rack mounting. For shelf installation, no other hardware is needed. For rack installation use the provided brackets (2) and screws (12) as shown in the figure below.

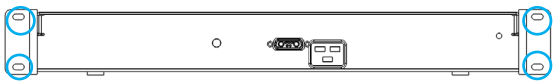
Battery Module Rack Mount Bracket Installation

(8QTY) Screw 10-32 x 5/16" Phil, FH 18-8 Black Oxide SS



Battery Module Rack Mount Installation

(4QTY) Screw 10-32 x 3/8" Square Cone Sems



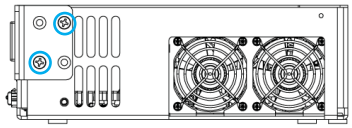
Installing ZincBlue2 Battery Module 500W

Installing the ZincBlue2 XRT Battery 3600Wh IMS

The ZincBlue2 XRT Battery 3600Wh is installed by shelf mounting or rack mounting. For shelf installation, no other hardware is needed. For rack installation use the provided brackets (2) and screws (8) as shown in the figure below.

ZincBlue2 XRT Battery 3600Wh IMS Rack Mount Bracket Installation

(4QTY) Screw 10-32 x 5/16" Phil, FH 18-8 Black Oxide SS



ZincBlue2 XRT Battery 3600Wh IMS Rack Mount Installation

(4QTY) Screw 10-32 x 5/16" Phil, FH 18-8 Black Oxide SS

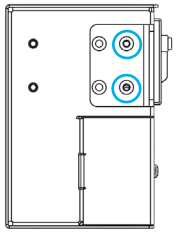
Installing ZincBlue2 XRT Battery 3600Wh IMS

Installing the PIM

The PIM can be either rack mounted (19" EIA standard) or placed on a shelf. For shelf installations, no other hardware is needed. For rack installation use the provided bracket (1) and screws (4) as shown in the figure below.

PIM Rack Mount Bracket Installation

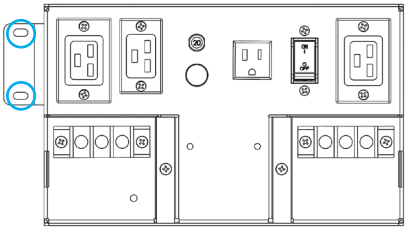
(2QTY) Screw 10-32 x 5/16" Phil, FH 18-8 Black Oxide SS



Installing ZincBlue2 PIM

PIM Rack Mount Installation

(2QTY) Screw 10-32 x 3/8" Square Cone Sems



Installation

Sécurité de l'installation

Une batterie peut peser jusqu'à 33 livres. Pour éviter les blessures, utiliser des techniques de levage appropriées lors du déballage et de l'installation.

Il n'est pas recommandé d'installer une ASC ou une ou plusieurs batteries sur une étagère d'armoire ou un support de montage au-dessus de votre tête sans utiliser des échelles correctement mises en place et sans vous aider à soulever et à placer l'équipement.

Conserver le matériel d'emballage au cas où un retour serait nécessaire. Econolite n'offre aucune garantie contre les dommages causés par le retour du produit, sauf s'il est expédié dans son emballage d'origine.

Le système ZincBlue2 doit être installé dans un environnement à accès restreint et ne doit être installé et entretenu que par du personnel autorisé.

Outils requis

- **Tournevis à fente -** (1/8 po et 3/16 po) 1/8 po utilisé pour les bornes de contact de relais. 3/16 po utilisé pour les connexions des services publics et des charges au MIA.
- **Tournevis Phillips** - (#2) Utilisé pour le montage du produit.
- **Tournevis à tête plate -** Utilisé pour connecter les terminaux du MIA.
- **Pince à dénuder** - Utilisée pour le dénudage correct des fils.
- **Outil de sertissage** - Utilisé pour terminer les cosses annulaires (non incluses) Les terminaisons vers l'entrée du service public et la charge de l'armoire sont des vis n°8.
- **Compteur de tension** - Utilisé pour vérifier la tension et pour assurer des connexions correctes.
- **Clé à douille (10 mm)** - Utilisée pour fixer le câble d'interconnexion de l'alimentation en courant continu aux batteries monobloc nickel-zinc.

Installer les batteries

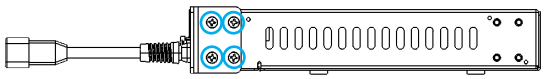
Le panneau de batterie ZincBlue2 500W et le module de batterie ZincBlue2 500W sont conçus pour être installés dans des armoires de circulation primaires. Le panneau de batterie UPStealth 2 500W est compatible avec les armoires de circulation de la série 170/2070 33X.

Installer le module de batterie ZincBlue2 500 W

Le module de batterie ZincBlue2 est installé par montage en étagère ou en rack. Pour une installation d'étagère, aucun autre matériel n'est nécessaire. Pour l'installation en rack, utiliser les supports (2) et les vis (12) fournis, comme indiqué dans la figure ci-dessous.

Installation du support de montage en rack des modules de batterie

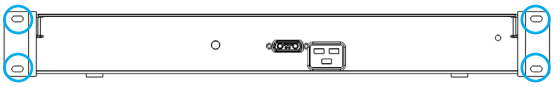
(8QTY) Vis 10-32 x 5/16 po Phil, FH 18-8 Black Oxide SS



Installation d'un module de batterie ZincBlue2 de 500W

Installation de montage en rack du module de batterie

(4QTÉ) Vis 10-32 x 3/8 po cône carré Sems



Wiring the System

Wiring Safety

Make sure the incoming utility line power is disconnected before making any wiring connections to the PIM.

Throughout installation, proper cable management is necessary for a clean install.

ZincBlue2 Cables

Locking AC Power Interconnect Cable

QTY: 3 | Length: 6ft
Locking cable used for all AC Power interconnects from UPS and PIM, and between PIM and Battery.

AC Power Adapter

QTY: 1 | Length: 1ft
Adapter for Locking AC Power Interconnect Cable to allow wall outlet charging of Battery Panel and Module.

AC Power Daisy Chain Cable

QTY: 1 | Length: 48" to 6"/10" split
Cable used to daisy chain AC Power between batteries.

Digital and DC Power Interconnect Cable

QTY: 1 | Length: 6ft
Cable used to interconnect Battery Output and Battery Input.

ZincBlue2 XRT Battery 3600Wh Cables

DC Power Interconnect Cable

QTY: 4 | Length: 8ft
DC Power Interconnect Cable for connecting ZincBlue2 XRT to the monobloc nickel-zinc batteries.

Digital & DC Power Interconnect Cable

QTY: 1 | Length: 6ft
Cable used to interconnect Battery Output on the ZincBlue2 XRT Battery 3600Wh IMS and Battery Input on the ZincBlue2 UPS 1000W/1500W.

Locking AC Power Interconnect Cable

QTY: 1 | Length: 6ft
Locking cable used for the connection between the PIM and Battery AC INPUT on the ZincBlue2 XRT Battery 3600Wh IMS.

XRT AC Power Cable

QTY: 1 | Length: 6ft
Cable used to charge ZincBlue2 XRT via wall outlet (20Amp). Allows charging without PIM and ZincBlue2 UPS 1000W/1500W. Also required when more than one ZincBlue2 XRT is being used.

Battery Temperature Sensor Cable

QTY: 1 | Length: 6ft
Battery Temperature Sensor for measuring temperature of the monobloc nickel-zinc batteries.

Wiring the UPS with PIM

To electrically connnect the UPS and PIM unit, follow these steps with the utility power supply shut off at the time of installation:

1. The PIM incorporates ½" conduit connection points to facilitate CABINET LOAD and UTILITY INPUT conduit connections.

For non-conduit wiring, use the provided knockout bushing to protect the wires.

2. Connect the load to the PIM "CABINET LOAD" with 10 to 12 AWG wires and #8 size ring terminals properly attached to the wires. The correct torque for the terminals is 16 in. lbs.
   - Ensure that ONLY the items requiring UPS support are connected to the CABINET LOAD.
   - Ensure the CABINET LOAD, UTILITY INPUT, line and neutral are completely isolated from each other.
   - Ensure that the maximum peak load does not exceed the rating of the ZincBlue2 UPS 1000W/1500W.

To prevent accidental shocks to personnel or damage to equipment, verify that the line, neutral, and ground wires to and from the PIM are going to the correct locations.

"CAUTION" To reduce the risk of fire, connect the UTILITY INPUT only to a circuit provided with 30 A maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70 and the Canadian Electrical Code, Part I, C22.1

Connect the utility line power to the PIM "UTILITY INPUT" with 10 to 12 AWG wires and #8 size ring terminals properly attached to the wires. The correct torque for the terminals is 16 in. lbs.

Note: A Listed Type 1 or Type 2 Surge Protective Device having a VPR rating maximum 1500 Vpk transient voltage shall be provided external to the equipment at the AC input. Required to maintain UPS1000 system compliance to UL 1778 and CSA 107.3.

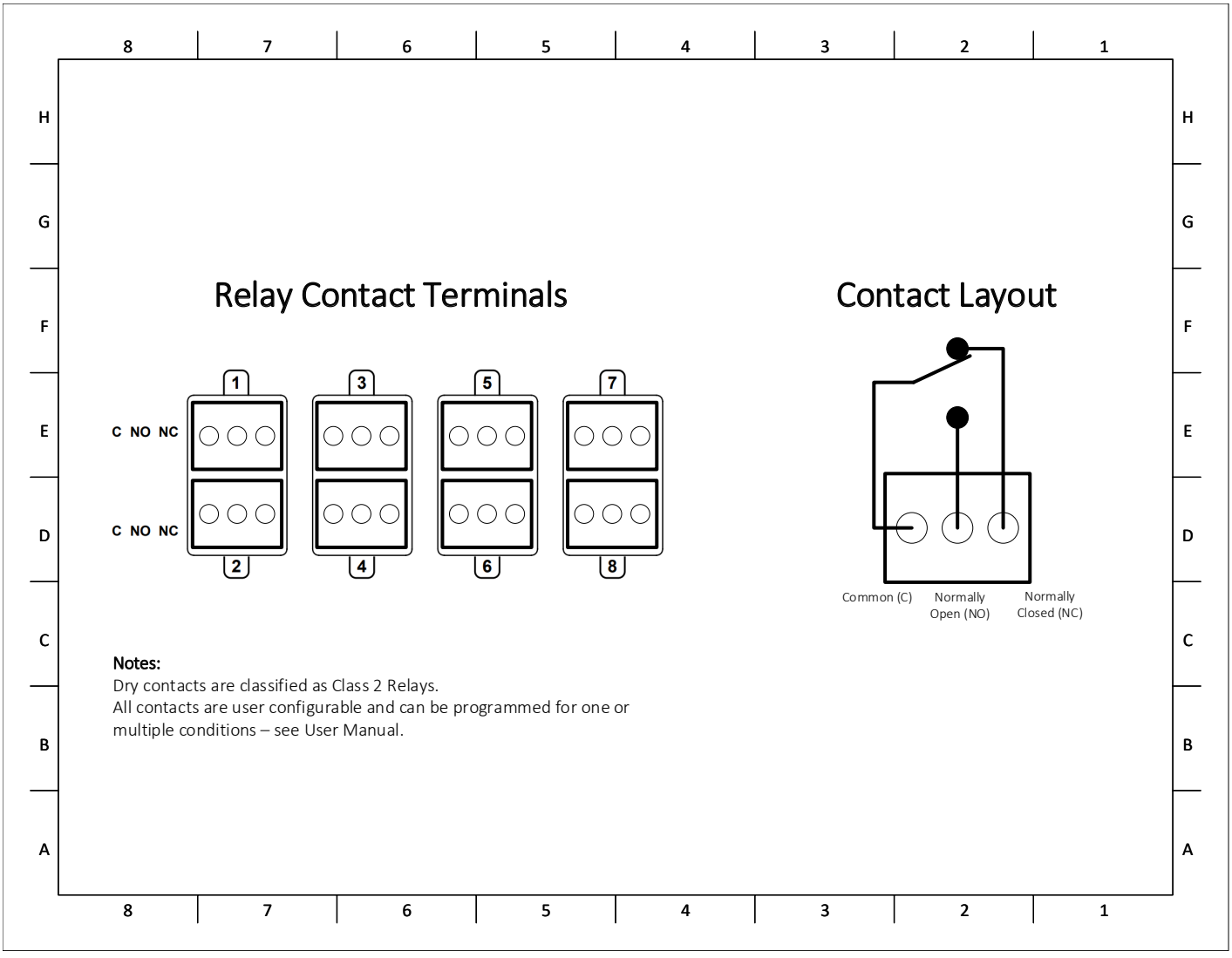
3. With only the UTILITY INPUT and CABINET LOAD connected.
   - Verify proper Line Neutral and Ground connections at the PIM, UTILITY INPUT and CABINET LOAD.
   - Close the 30 Amp branch circuit protection device supplying the PIM and measure for the correct voltage and polarization at the PIM
     - Check for 120VAC and correct polarization at the Female EC320 connector for the; TO BATTERY AC IN.
     - Check to ensure that NO voltage is present at the FROM UPS AC OUT Male IEC320 connector or the UPS TEST OUTPUT NEMA 5-15R connector.
     - The PIM BYPASS indicator light on the PIM should be illuminated.

4. Connect the UPS AC OUTPUT TO PIM to the FROM UPS AC OUT via the provided Locking AC Power Interconnect Cables. Connect the TO UPS AC IN to the UPS AC INPUT FROM PIM via the provided Locking AC Power Interconnect Cables.
   - With UPS connected, the PIM will automatically switch out of bypass

When UPS is powered on, the following LEDS will be active on the UPS:
No LEDs are On: UPS powered On with Utility AC and charged batteries attached.
Red LED is On: UPS powered On with Utility AC and no batteries attached.
Green LED is On: UPS powered On with Cold Start from battery(s).
Red LED (Flashing): Utility AC is applied with a cabinet miswire of swapped Hot and Neutral.

Communications and I/O

1. Connect to the ethernet port of the UPS (If being used. Ethernet cable is not provided by Econolite).
2. Connect to the desired RELAY CONTACT TERMINAL(S) on the UPS (If being used. Wiring is not provided by Econolite). The relay connection are CLASS 2.



Connecting Battery Panel or Battery Module to UPS and PIM

⚠ ONLY ZincFive batteries may be used with the UPS. Please refer to the UPS Overview for certified batteries. To connect the battery to the UPS, follow these steps:

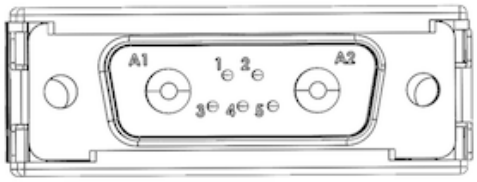
1. Connect the UPStealth 2 Battery Panel or Battery Module BATTERY OUTPUT to the BATTERY INPUT of the UPStealth 2 UPS 1000W/1500W via the provided Digital and DC Power Interconnect Cable.

   Note: If the Cold Start button is pressed upon connecting the Battery to the UPS, do not connect or disconnect the Battery to or from the UPS until the green LED is off and Cold Start has expired. Press the Cold Start button for 10 seconds to turn off the system.

A1 - GND
A2 - Battery +] ~ 48Vdc

Pins:
1. Can Bus (H)
2. Isolated CAN Bus GND
3. Can Bus (L)
4. 5V
5. Power Fail

Digital and DC Power Interconnect Cable

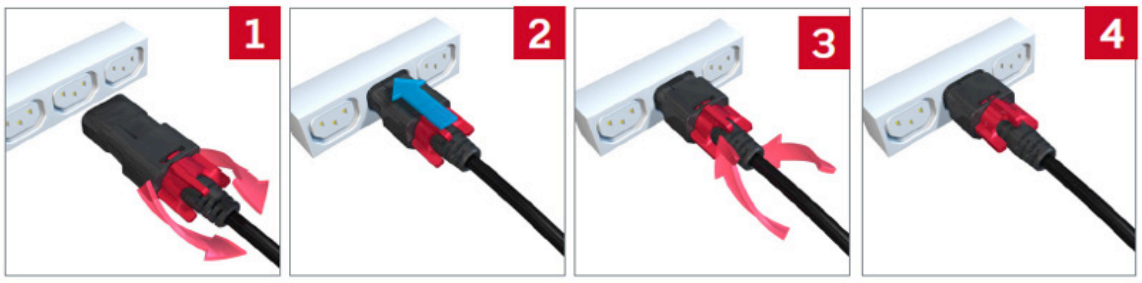


2. Connect the UPStealth 2 Battery Panel or Battery Module AC INPUT to the TO BATTERY AC IN on the PIM using the supplied Locking AC Power Interconnect Cable and AC Power Daisy Chain Cable as needed. When the battery unit is connected to AC the battery unit LED should:
   - White Blinking = Battery at rest
   - Blue = Charging Mode

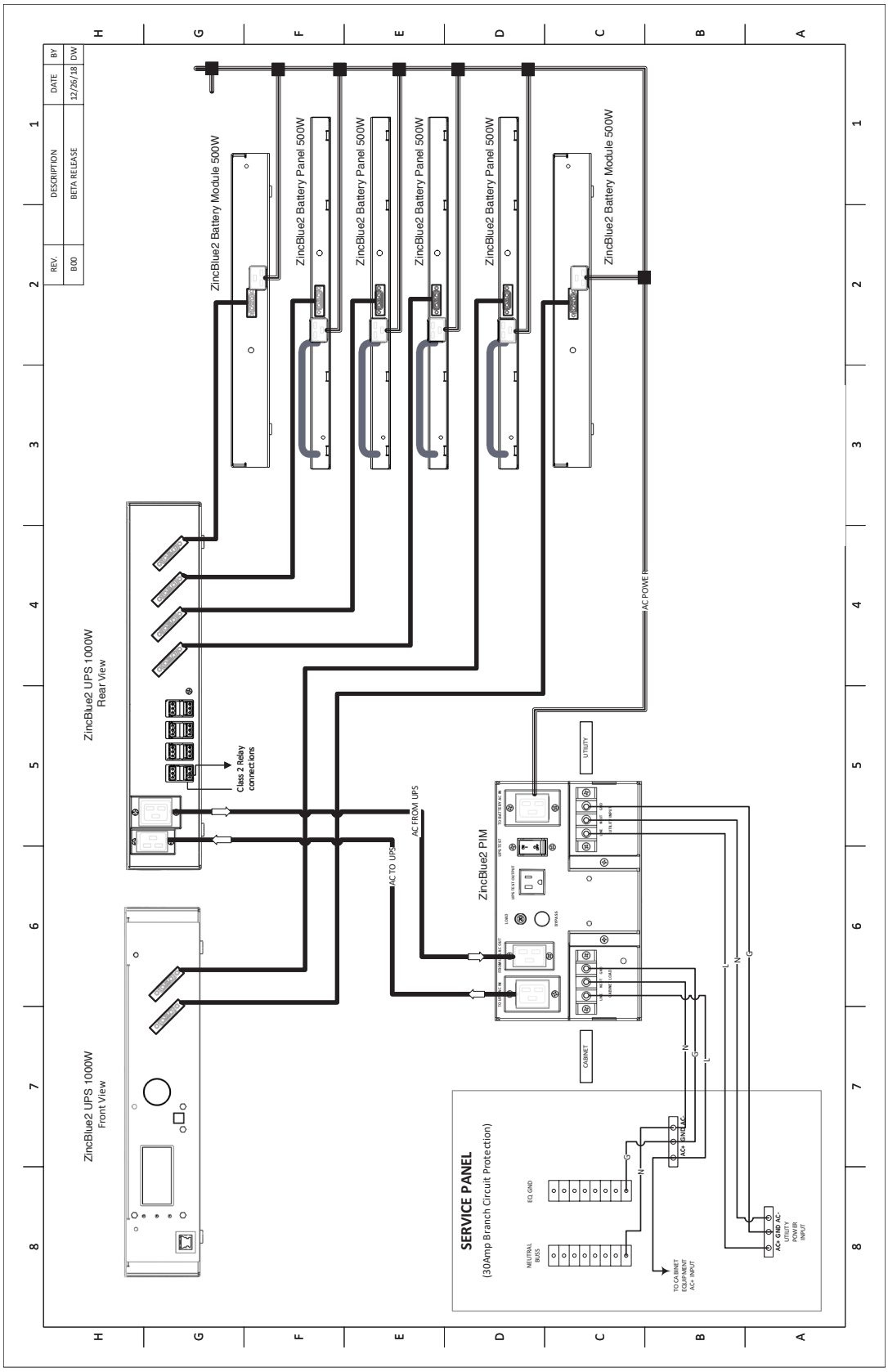
⚠ ONLY use the ZincFive provided interconnect cable

Note: When using a UPStealth 2 UPS 1500W it is a system requirement that two UPStealth 2 Battery Panels or Battery Modules be used or a single UPStealth 2 XRT Battery 3600Wh. If not configured with the mentioned batteries, the UPStealth 2 UPS 1500W will be in "BACKUP UNAVAILABLE" mode until the correct configuration is in place.

Overtightening of these red twist locks may/can result in the cable being backed out of the connector.
Please pay specific attention to the installation instructions in the UPStealth 2 UPS User manual.



ZincBlue2 Wiring Diagram



ZincBlue2 Wiring Diagram

Câblage du système

Sécurité du câblage

S'assurer que l'alimentation électrique de la ligne d'arrivée est déconnectée avant d'effectuer tout branchement sur le MIA.

Tout au long de l'installation, une bonne gestion des câbles est nécessaire pour une installation propre.

Câbles ZincBlue2

Verrouillage du câble d'interconnexion d'alimentation en courant alternatif
QTÉ : 3 | Longueur : 6 pi.
Câble de verrouillage utilisé pour toutes les interconnexions d'alimentation en courant alternatif entre l'ASC et le MIA, et entre le MIA et la batterie.

Adaptateur d'alimentation CA
QTÉ : 1 Longueur : 1 pi.
Adaptateur pour le verrouillage du câble d'interconnexion d'alimentation en courant alternatif afin de permettre le chargement du panneau et du module de batterie à partir d'une prise murale.

Câble d'alimentation en courant alternatif Daisy
QTÉ : 1 | Longueur : Séparation 48 po à 6 po / 10 po
Câble utilisé pour enchaîner le courant alternatif entre les batteries.

Câble d'interconnexion numérique et d'alimentation en courant continu
QTÉ : 1 | Longueur : 6 pi.
Câble utilisé pour interconnecter la sortie de la batterie et l'entrée de la batterie.

Câbles de batteries 3600WH ZincBlue2

Câble d'interconnexion pour l'alimentation en courant continu
QTÉ : 4 | Longueur : 8 pi.
Câble d'interconnexion d'alimentation en courant continu pour connecter l'ZincBlue2 XRT aux batteries monobloc nickel-zinc.

Câble d'interconnexion numérique et d'alimentation en courant continu
QTÉ : 1 | Longueur : 6 pi.
Câble utilisé pour interconnecter la sortie de la batterie de l'ZincBlue2 XRT Battery 3600Wh IMS et l'entrée de la batterie de l'ZincBlue2 UPS 1000W/1500W.

Verrouillage du câble d'interconnexion d'alimentation en courant alternatif
QTÉ :1 | Longueur : 6 pi.
Câble de verrouillage utilisé pour la connexion entre le MIA et L'ENTRÉE CA de la batterie sur l'ZincBlue2 XRT Batterie 3600Wh IMS.

Câble d'alimentation XRT CA
QTÉ : 1 | Longueur : 6 pi.
Câble utilisé pour charger ZincBlue2 XRT via une prise murale (20Amp). Permet de charger sans MIA et ZincBlue2 UPS 1000W/1500W. Également requis lorsque plus d'un ZincBlue2 XRT est utilisé.

Câble du capteur de température de la batterie
QTÉ : 1 | Longueur : 6 pi.
Capteur de température de batterie pour mesurer la température des batteries monobloc nickel-zinc.

Câblage de l'ASC avec le MIA

Pour brancher électriquement l'ASC et l'unité MIA, suivre ces étapes en coupant l'alimentation électrique au moment de l'installation :

1. Le MIA incorpore les points de connexion des conduits ½ po pour faciliter les connexions des conduits de CHARGE DE CABINET et d'ENTRÉE UTILITAIRE.

⚠ Pour les câbles non conducteurs, utiliser la douille de déblocage fournie pour protéger les fils.

2. Connecter la charge au MIA « CHARGE DE L'ARMOIRE » avec des fils de 10 à 12 AWG et des bornes à anneau de taille 8 correctement fixées aux fils. Le couple correct pour les terminaux est de 16 in. lb.
   - S'assurer que SEULS les items nécessitant une assistance d'ASC sont connectés à la CHARGE DE L'ARMOIRE.
   - Veiller à ce que la CHARGE DE L'ARMOIRE, l'ENTRÉE UTILITAIRE, la ligne et le neutre soient complètement isolés les uns des autres.
   - Veiller à ce que la charge de pointe maximale ne dépasse pas la puissance nominale de l'ASC ZincBlue2 de 1000W/1500W.

⚠ Pour éviter des chocs accidentels au personnel ou des dommages à l'équipement, vérifier que les fils de ligne, de neutre et de terre à destination et en provenance du MIA vont aux bons endroits.

« ATTENTION » - Pour réduire le risque d'incendie, connecter l'ENTRÉE UTILITAIRE uniquement à un circuit doté d'une protection contre les surintensités de 30 A maximum en dérivation, conformément au Code national de l'électricité, ANSI/NFPA 70 et au Code canadien de l'électricité, Partie I, C22.1

3. Connecter l'alimentation de la ligne d'utilité au MIA « ENTRÉE UTILITAIRE » avec des fils de 10 à 12 AWG et des bornes à anneaux de taille n°8 fixées aux fils. Le couple correct pour les terminaux est de 16 in. lb.

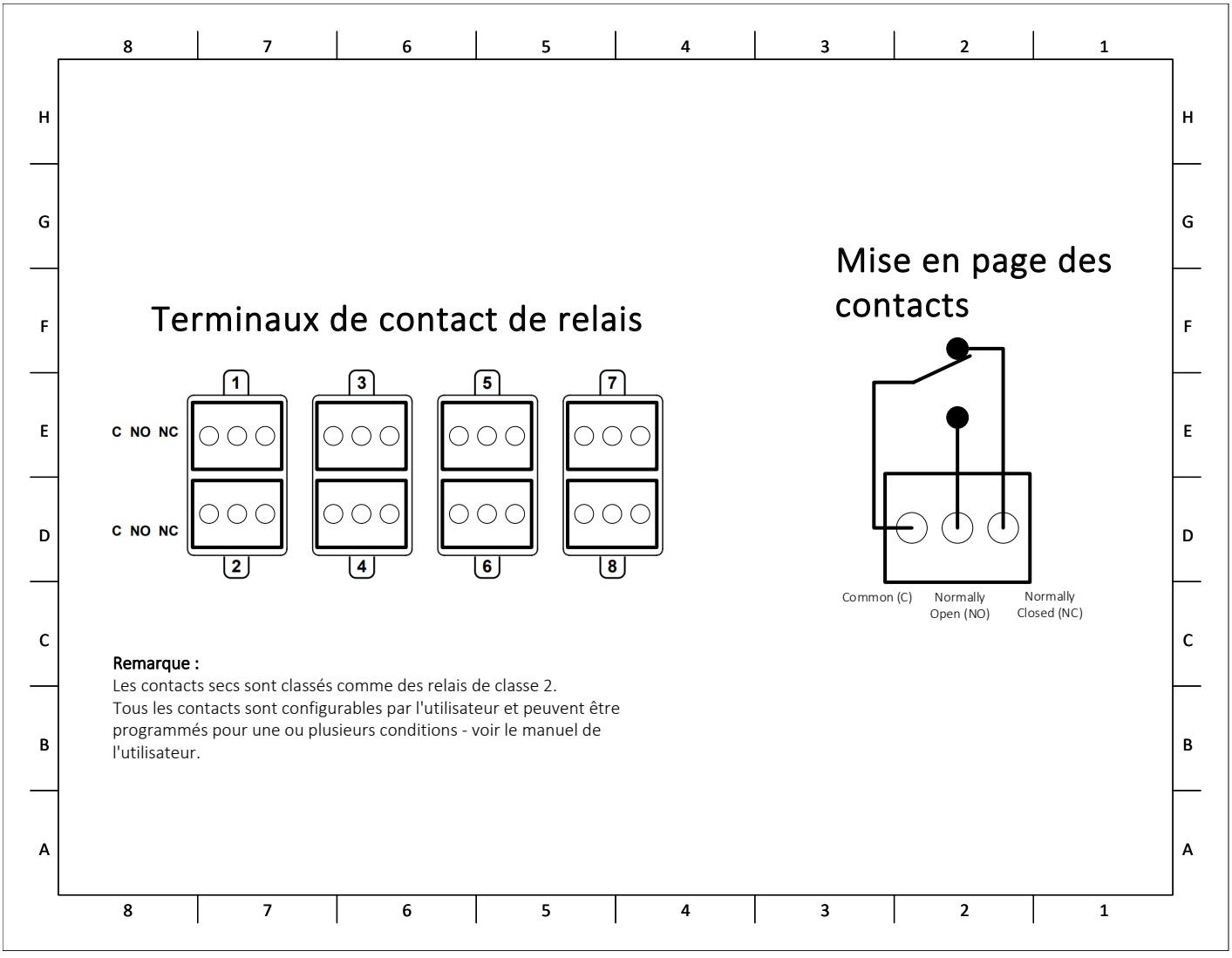
4. Avec seulement l'ENTRÉE UTILITAIRE et la CHARGE DE L'ARMOIRE connectées.
   - Vérifier les connexions correctes du neutre de la ligne et de la terre au MIA, à l'ENTRÉE UTILITAIRE et à la CHARGE DE L'ARMOIRE.
   - Fermer le dispositif de protection du circuit de dérivation de 30 A alimentant le MIA et mesurer la tension et la polarisation correctes au MIA
     - Vérifier la présence de 120VAC et la polarisation correcte au niveau du connecteur EC320 femelle pour l'entrée; À LA BATTERIE CA.
     - Vérifier qu'AUCUNE tension n'est présente sur le connecteur IEC320 mâle DE LA SORTIE CA DE L'ASC ou sur le connecteur NEMA 5-15R DE LA SORTIE TEST DE L'ASC.
     - Le témoin lumineux MIA BYPASS du MIA doit être allumé.

5. Connecter la SORTIE CA DE L'ASC AU MIA à la SORTIE CA DE L'ASC via les câbles d'interconnexion d'alimentation CA verrouillables fournis. Connectez l'ENTRÉE CA DE L'ASC à l'ENTRÉE CA DE L'ASC DU MIA via les câbles d'interconnexion d'alimentation CA à verrouillage fournis.
   - Lorsque l'ASC est connectée, le MIA se met automatiquement hors circuit.

Lorsque l'ASC est mise sous tension, les LED suivantes sont actives sur l'ASC:
Aucune DEL n'est allumée : ASC allumée avec courant alternatif et batteries chargées.
DEL rouge est allumée : ASC alimentée en courant alternatif et sans batterie.
DEL verte est allumée : ASC alimentée avec démarrage à froid à partir de la (des) batterie(s).
DEL roule (clignotement) : Le courant alternatif de service est appliqué avec un mauvais câblage de l'armoire de commutation Chaud et Neutre.

Communications et I/O

1. Se connecter au port ethernet de l'ASC (si c'est utilisé. Le câble Ethernet n'est pas fourni par Econolite).
2. Se connecter aux TERMINAUX de CONTACT RELAIS souhaité(s) sur l'ASC (si utilisé. Le câblage n'est pas fourni par Econolite). Les connexions de relais sont de CLASSE 2.



Connexion d'un panneau de batterie ou d'un module de batterie à une ASC et à un MIA

⚠ SEULEMENT les batteries Econolite peuvent être utilisées avec l'ASC. Se référer à l'aperçu de l'ASC pour les batteries certifiées. Pour connecter la batterie à l'onduleur, suivre les étapes suivantes :

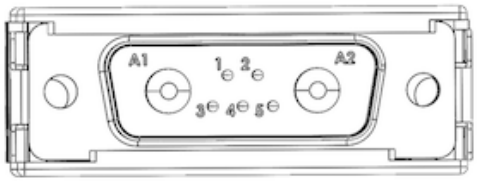
1. Connecter la SORTIE DE BATTERIE du panneau de batterie ou du module de batterie de l'ZincBlue2 à l'ENTRÉE DE BATTERIE de l'ZincBlue2 1000W/1500W via le câble d'interconnexion d'alimentation numérique et CC fourni.

   Remarque: Si le bouton de démarrage à froid est enfoncé lors de la connexion de la batterie à l'ASC, ne pas connecter ou déconnecter la batterie à l'ASC avant que le voyant vert soit éteint et que le démarrage à froid ait expiré. Appuyer sur le bouton de démarrage à froid pendant 10 secondes pour éteindre le système.

A1 - GND
A2 - Batterie +] ~ 48Vdc

Broches :
1. Can Bus (H)
2. Bus CAN GND isolé
3. Can Bus (L)
4. 5V
5. Panne de courant

Câble d'interconnexion numérique et d'alimentation en courant continu

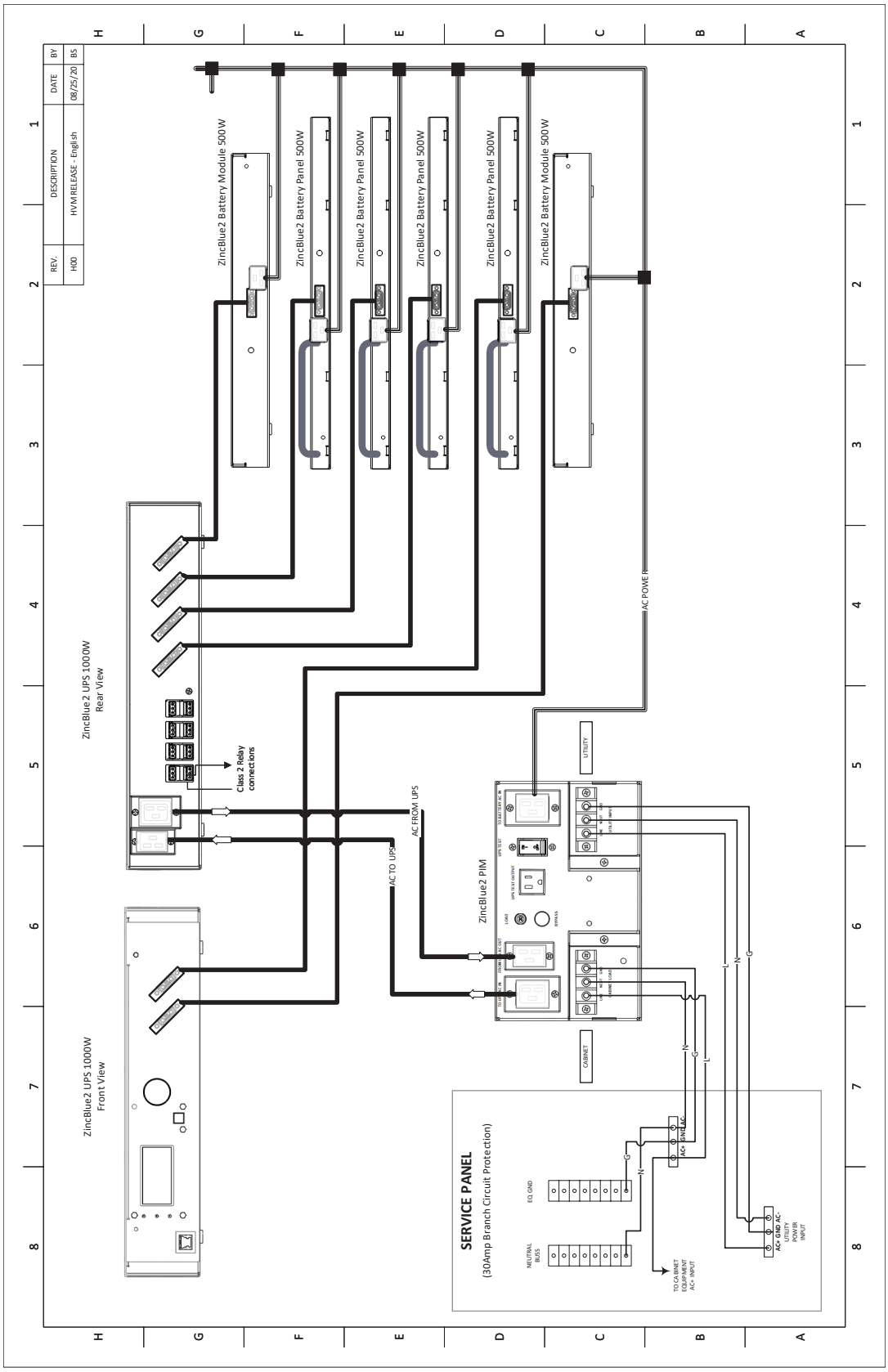


2. Connecter l'entrée CA du panneau de batterie ou du module de batterie de l'ZincBlue2 à l'entrée CA DE LA BATTERIE sur le MIA à l'aide du câble d'interconnexion d'alimentation CA à verrouillage et du câble Daisy CA fournis, selon les besoins. Lorsque l'unité de batterie est connectée au secteur, la DEL de l'unité de batterie doit être allumée:
   - Blanc clignotant = Batterie au repos
   - Bleu = Mode de chargement

⚠ Utiliser UNIQUEMENT le câble d'interconnexion fourni par Econolite.

Remarque: Lorsqu'on utilise un ZincBlue2 UPS 1500W, il est nécessaire d'utiliser deux panneaux de batterie ou modules de batterie ZincBlue2 ou une seule batterie ZincBlue2 XRT 3600Wh. S'il n'est pas configuré avec les batteries mentionnées, l'ZincBlue2 UPS 1500W sera en mode "SAUVEGARDE INDISPONIBLE" jusqu'à ce que la configuration correcte soit en place.

Schéma de câblage d'ZincBlue2



ZincBlue2 Wiring Diagram

Wiring the ZincBlue2 XRT

To electrically connect the ZincBlue2 XRT, refer to the "Wiring the UPS with PIM" section and then complete the following steps.

1. Connect the ZincBlue2 XRT to the four monobloc nickel-zinc batteries using the four provided DC Power Interconnect Cables. Each nickel-zinc battery has a dedicated DC Power Interconnect Cable. The DC Power Interconnect Cable has ring terminals on one end that connect to the battery terminals. Pay attention to the polarity (Red positive, Black negative). Use the provided screws (8), washers (8), lock washers (8). Connect the other end of the DC Power Interconnect Cable to the ZincBlue2 XRT BATTERY INPUTS.

   (8QTY) Screw M6X1.0mm, 16mm, Hex Head, Flanged, Class 8.8 Steel, Zinc Plated
   (8QTY) Washer, Split Lock, M6, Zinc Plated

2. Connect the Battery Temperature Sensor cable to any battery terminal.

Connecting ZincBlue2 XRT to UPS and PIM

⚠ ONLY ZincFive batteries may be used with the UPS. Please refer to the UPS Overview for certified batteries. To connect the ZincBlue2 XRT to the UPS and PIM, follow these steps:

1. Prior to connecting, turn off BATTERY POWER and AC POWER breakers on the ZincBlue2 XRT.

2. Connect the ZincBlue2 XRT BATTERY OUTPUT to the BATTERY INPUT of the ZincBlue2 UPS 1000W/1500W via the provided Digital and DC Power Interconnect Cable.

   Note: If the Cold Start button is pressed upon connecting the Battery to the UPS, do not connect or disconnect the Battery to or from the UPS until the green LED is off and Cold Start has expired. Press the Cold Start button for 10 seconds to turn off the system.

3. Connect the ZincBlue2 XRT unit's AC INPUT to the TO BATTERY AC IN on the PIM using the supplied Locking AC Power Interconnect Cable.

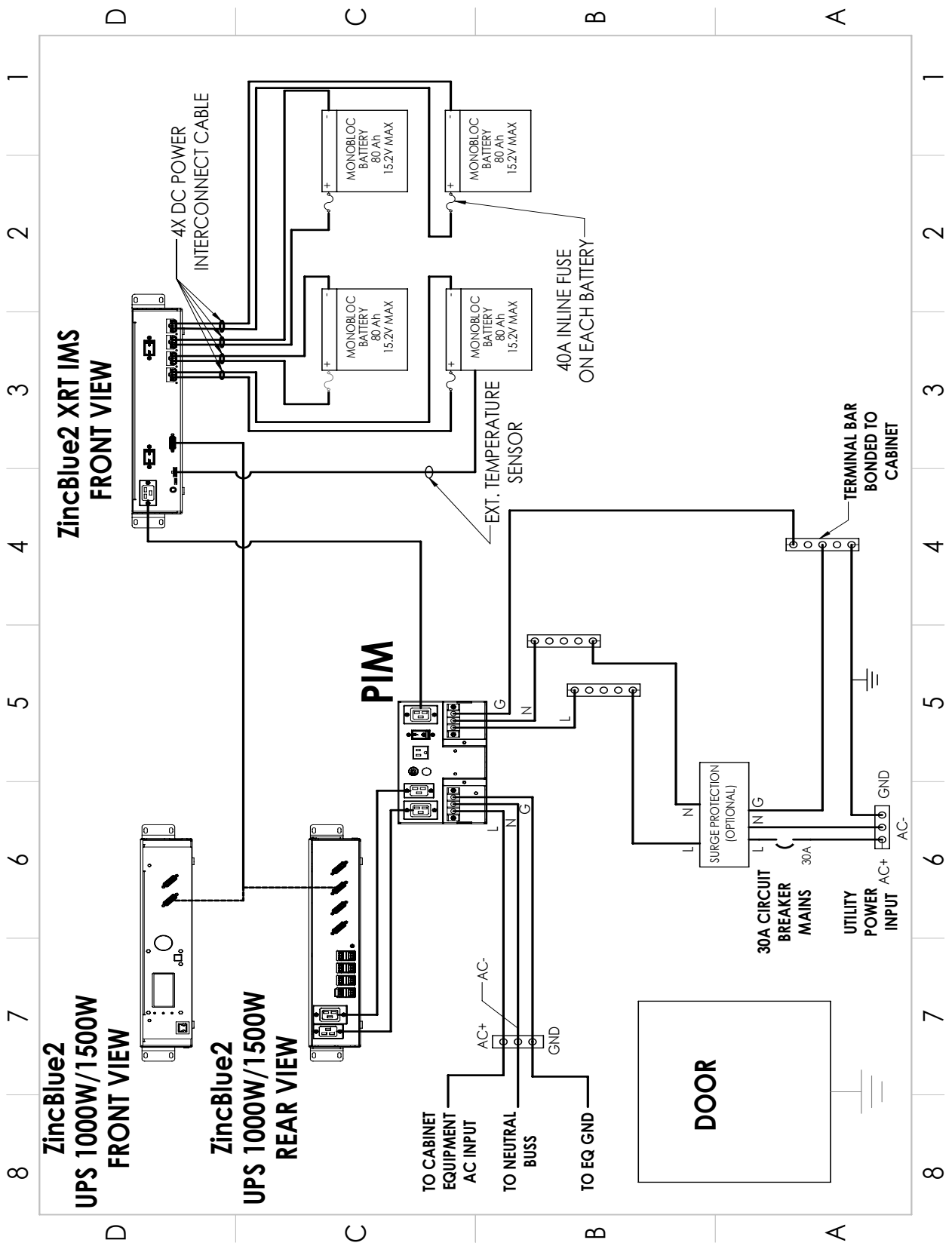
4. Turn on BATTERY POWER and AC POWER breakers onces all cable connections have been made.

Installing Additional ZincBlue2 XRT Battery 3600Wh

If installing multiple ZincBlue2 XRT Battery 3600Wh units, each additional unit will need to be independently connected to a 20Amp protected AC circuit via the AC INPUT port on the front of the ZincBlue2 XRT Battery 3600Wh IMS with the XRT AC Power Cable. Additional ZincBlue2 XRT Battery 3600Wh units cannot be daisy-chain connected to the PIM.

The ZincBlue2 UPS 1000W/1500W can support the connection of up to 6 ZincBlue2 XRT Battery 3600Wh units via the Digital and DC power Interconnect Cable. Only the AC power input to the ZincBlue2 XRT Battery 3600Wh requires separate protected 20A circuits.

ZincBlue2 XRT Wiring Diagram



ZincBlue2 XRT Wiring Diagram

ZincBlue2 Maintenance

Routine Maintenance

Description:

Routine maintenance or service of the Battery unit or the UPS system is not required.

UPS Operation

Front Panel Overview

Description:

The front panel of the ZincBlue2 UPS 1000W/1500W includes a 128x64 pixel monochrome LCD screen, a Navigation Dial, and a single push button.

(The numbering system below correlates with the UPS Front Panel Overview on the next page)

1. **Display**
   Displays system status and is used by the operator to select and set various control options for the UPS.

2. **Status Lights**
   UPS FAULT (Solid Red)
   The solid red LED will be ON any time the UPS cannot provide battery backup.

   BACKUP MODE ON (Solid Green)
   The solid green LED will be ON any time the UPS is supplying backup power from the batteries.

   BACKUP MODE ON (Flashing Green)
   The flashing green LED will be on any time the UPS is supplying backup power and the batteries are below 10% capacity. The green LED will flash at a frequency of twice per second.

   RELAY TRIGGERED (Solid Yellow)
   The solid yellow LED will be ON any time one of the user configurable relays is activated.

3. **ETHERNET**
   If your ZincBlue2 is connected to a network, direct connection to the ethernet port will allow access to the ZincBlue2 Software web application. The Ethernet port can also be used for local firmware updates.

4. **BACK**
   The push button changes the display to the previous menu or screen and functions as a BACK button.

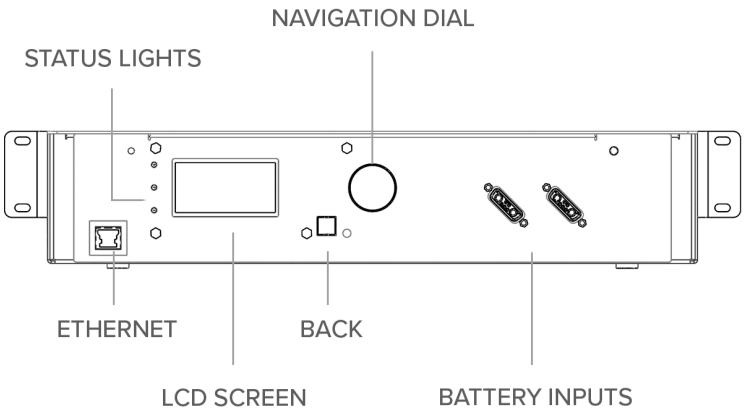
5. **NAVIGATION DIAL**
   The Navigation Dial is used to select (or highlight) various menu items displayed on the LCD screen. The dial can be rotated clockwise and counter clockwise, corresponding to vertical or horizontal cursor movement depending upon the items on the display. The dial may also be pushed to select a highlighted menu item or option, much like an ENTER key.

6. **BATTERY INPUTS**
   6 total battery inputs for connecting batteries to the UPS by utilizing the supplied Digital and DC Power Interconnect Cable.

Notes:

The ZincBlue2 UPS 1000W/1500W will issue a single beep each time you press the BACK button, rotate the Navigation Dial, and or press the Navigation Dial.

UPS Front Panel Overview



STATUS: NORMAL

Description:

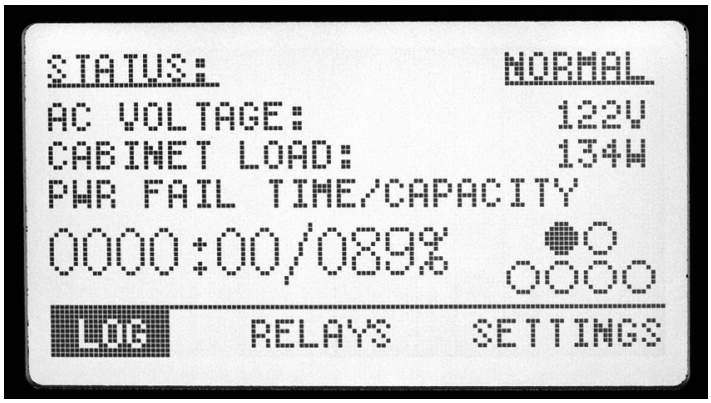
This is the ZincBlue2 UPS 1000W/1500W main status display, and the home screen for the UPS.

Display:

- **STATUS:** This displays the UPS backup status. NORMAL indicates use of utility power while BACKUP indicates battery backup mode.
- **AC VOLTAGE:** The True RMS AC voltage utility power.
- **CABINET LOAD:** Shows the overall power draw through the UPS, in Watts.
- **PWR FAIL TIME:** In BACKUP status, displays the amount of time in backup, in hours and minutes. Displays 0000:00 if in NORMAL status.
- **CAPACITY:** Total remaining capacity of all attached batteries, from 100% (completely charged) to 0% (completely discharged).
- **BATTERY ATTACHMENT DIAGRAM:** A series of six circles to indicate the six battery inputs on the UPS. (Two battery inputs are on the front of the UPS, four battery inputs are on the back of the UPS). Each solid colored circle represents a connected battery panel.
- **LOG, RELAYS, and SETTINGS:** Use the Navigation Dial to highlight and select one of these menu items for additional information:
  - **LOG:** Displays the system log screen containing system diagnostic information. Use the Navigation Dial to scroll up and down the log listings.
  - **RELAYS:** Displays the relay status screen showing the state (open or closed) of each system relay.
  - **SETTINGS:** Displays the settings screen where you can change system settings and configuration.

Notes:

The ZincBlue2 issues a single beep when the system goes from NORMAL to BACKUP mode and from BACKUP to NORMAL mode.

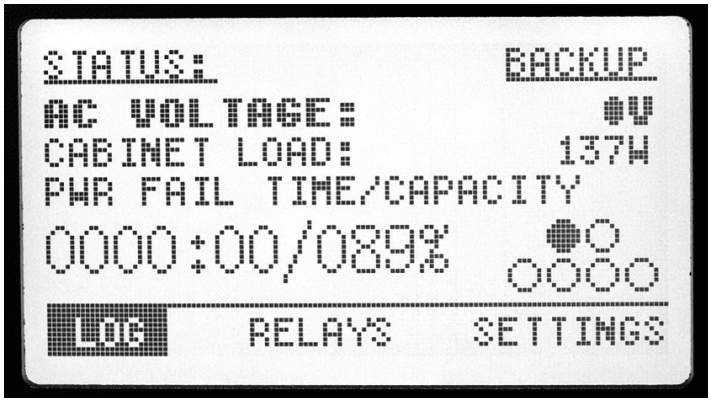


Status: Home Screen

STATUS: BACKUP

Description:

If the ZincBlue2 UPS 1000W/1500W switches from Utility power to Battery power, the top line of the main status display will be STATUS: BACKUP. This indicates that the ZincBlue2 is using battery power.



Power Failure: Backup Mode

Notes: STATUS: BACKUP UNAVAILABLE

The UPS can be in a BACKUP UNAVAILABLE status. This status will be present if the AC Power and UPS Output are out of specification.

STATUS → SYSTEM LOG

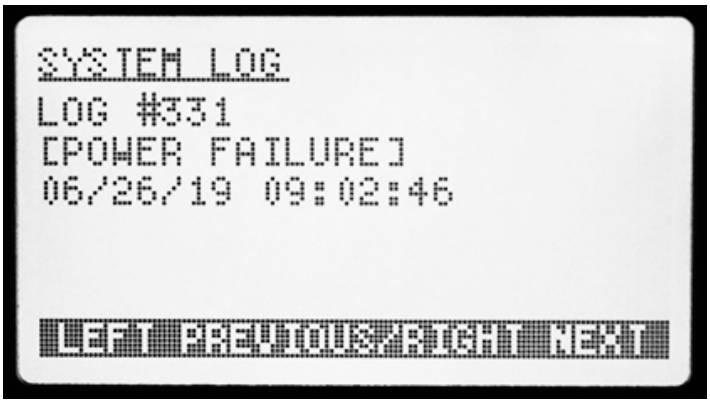
Description:

View the system logs, from newest to oldest. These are diagnostic logs that are automatically recorded by the ZincBlue2 UPS 1000W/1500W.

On The Display:

- **LOG #:** This displays the log number. Logs are numbered sequentially.
- **EVENT TYPE:** Shows the event that caused the log entry.
- **TIME STAMP:** Shows the date and time of the log entry. For POWER RESUME logs, the duration of elapsed time since the POWER FAILURE is also displayed.
- Use the Navigation Dial to scroll through the log entries.
- Press the dial to select the most recent entry.
- Press the BACK button to return to the main status screen.

System Log: No Logs Available



System Log: Logs Available

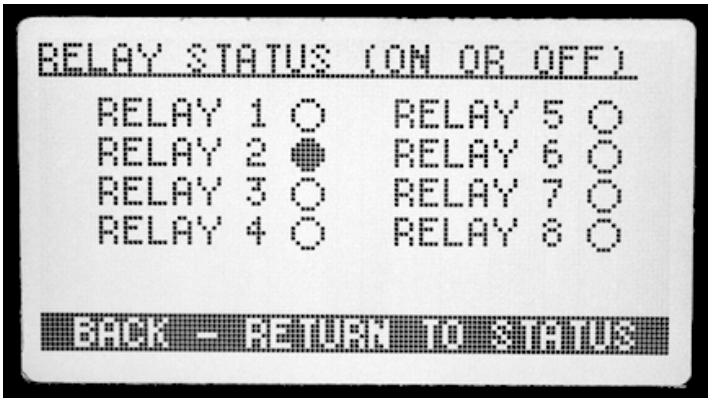
STATUS → RELAY STATUS

Description:

View the setting of all eight relays. An empty circle indicates that the relay is OFF. A filled-in circle to the right of a relay indicates that the relay is ON. The relay status will continually be updated as long as the screen is visible.

Press Back to return to the Status Screen.

Relay Status: No Relays Triggered



Relay Status: Relay Triggered

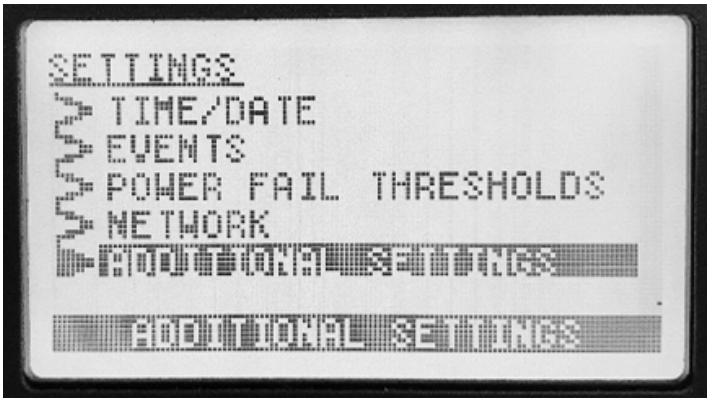
STATUS → SETTINGS

Description:

This is the main Settings Menu. All ZincBlue2 UPS 1000W/1500W configuration options can be reached from this display, except for access to system logs and the relay status. Those two items are accessible through the main status display.

On The Display:

- **TIME/DATE:** Allows you to set the UPS date and time clock. Also allows configuration of daylight saving-time.
- **EVENTS:** Allows you to define, edit, or delete events. Events are a collection of triggers and log events.
- **POWER FAIL THRESHOLDS:** Allows you to set or change high or low voltage thresholds, sensitivity, and line qualify time.
- **NETWORK:** Displays the current IP and MAC addresses, for the ZincBlue2. The IP address may be set only though the ZincBlue2 Software.
- **ADDITIONAL SETTINGS:** Access SYSTEM RESET, TILT ENABLE/DISABLE and ABOUT settings.



Settings

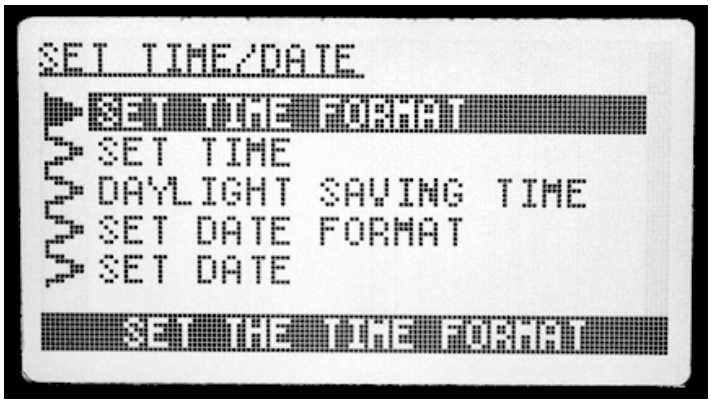
STATUS → SETTINGS → SET TIME/DATE

Description:

Use this screen to set or view the system time and date, as well as control daylight-saving time adjustment. All events and time-based relay triggers are time-stamped with the system time and date.

On The Display:

- **SET TIME FORMAT:** Allows you to choose 12-hour or 24-hour time display.
- **SET TIME:** Allows you to set the current time.
- **DAYLIGHT SAVING TIME:** Allows you to enable or disable automatic daylight saving-time adjustment.
-
- **SET DATE FORMAT:** Allows you to choose how dates are displayed: either MM-DD-YY or YY-MM-DD format.
- **SET DATE:** Allows you to set the current date.



Set Time/Date

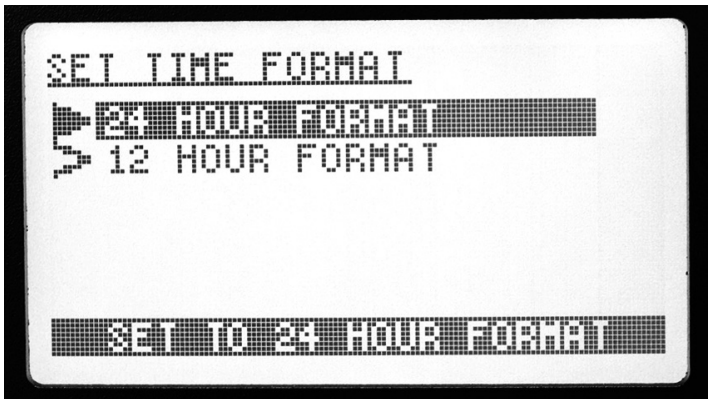
STATUS → SETTINGS → SET TIME/DATE → SET TIME FORMAT

Description:

Use this screen to choose if the system time is displayed in 12-hour or 24-hour format.

On The Display:

- **24 HOUR FORMAT:** Allows you to choose 24-hour time display. Select this option with the Navigation Dial and then press the dial.
- **12 HOUR FORMAT:** Allows you to choose 12-hour time display. Select this option with the Navigation Dial and then press the dial.



Set Time Format

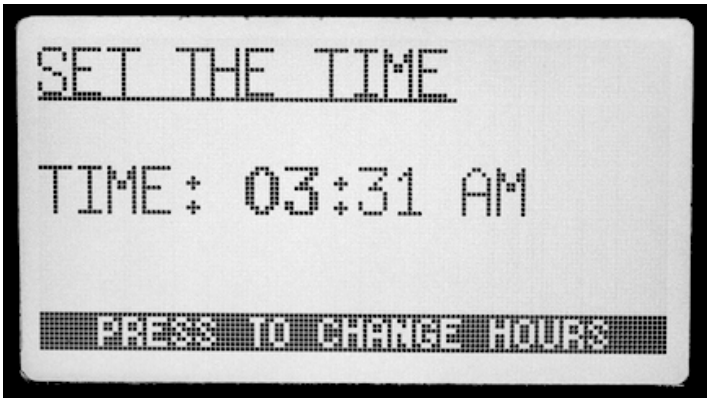
STATUS → SETTINGS → SET TIME/DATE → SET THE TIME

Description:

Use this screen to enter the time.

To Set the Time:

- Press the Navigation Dial to select hours, rotate the dial to increment or decrement the hours, and then press the dial to set the hours value and select the minutes.
- Rotate the dial to increment or decrement the minutes, and then press the dial to set the minutes value.
- If you are using 12-hour display format, select AM, PM, and press the dial to set that value.



Set the Time

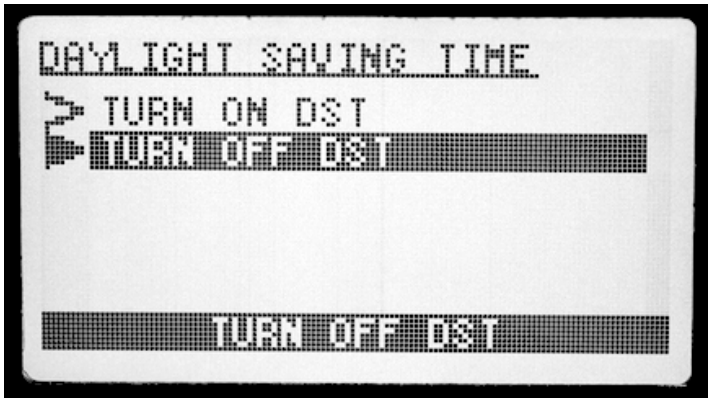
STATUS → SETTINGS → SET TIME/DATE → DAYLIGHT SAVING TIME

Description:

Use this screen to choose if system time automatically adjusts for daylight saving time.

On The Display:

- **TURN ON DST:** The system clock will automatically adjust for daylight saving time. Select this option with the Navigation Dial and then press the dial.
- **TURN OFF DST:** The system clock will not automatically adjust for daylight saving time. Select this option with the Navigation Dial and then press the dial.



Daylight Saving Time

STATUS → SETTINGS → SET TIME/DATE → SET DATE FORMAT

Description:

Use this screen to select the system date display format.

On The Display:

- **MM-DD-YY FORMAT:** Allows you to display the date using the month-day-year format. Select this option with the Navigation Dial and then press the dial.
- **YY-MM-DD FORMAT:** Allows you to display the date using the year-month-day format. Select this option with the Navigation Dial and then press the dial.

Set Date Format

STATUS → SETTINGS → SET TIME/DATE → SET DATE

Description:

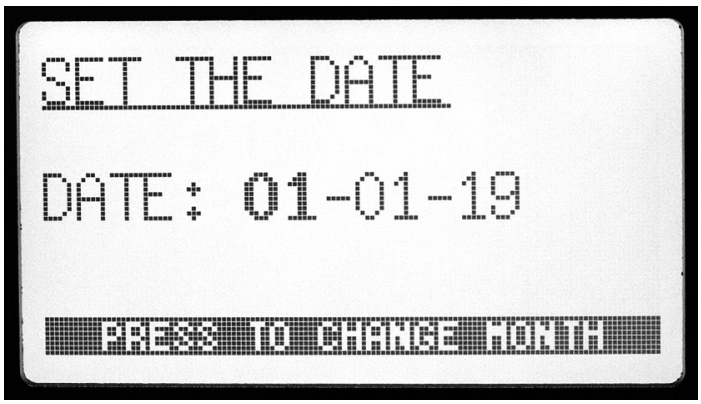
Use this screen to enter the date. The order that you enter the values depends upon your selected date format.

To Set the Date in MM-DD-YY Format:

- Press the Navigation Dial to select the month number, rotate the dial to increment or decrement the month (01-12), and then press the dial to set the month value and select the day.
- Press the Navigation Dial to select the day number, rotate the dial to increment or decrement the day (01-31), and then press the dial to set the day value and select the year.
- Rotate the dial to increment or decrement the year (00-99), and then press the dial to set the year value.

To Set the Date in YY-MM-DD Format:

- Press the Navigation Dial to select the year, rotate the dial to increment or decrement the year (00-99), and then press the dial to set the year value and select the month.
- Press the Navigation Dial to select the month number, rotate the dial to increment or decrement the month (01-12), and then press the dial to set the month value and select the day.
- Rotate the dial to increment or decrement the day number (01-31), and then press the dial to set the day value.



Set the Date

STATUS → SETTINGS → EVENTS LIST

Description:

Use this screen to create new events or display or edit existing events. The ZincBlue2 UPS 1000W/1500W relay setup and triggering includes the ability to program Boolean AND as well as OR functions using a single relay.

To program AND functions:
Set up an Event as shown in the section DEFINE EVENT and assign it multiple triggers (between 2 and 4 triggers). Then assign the Event to a Relay.

For example, Create Event 1 and assign the following 3 triggers including Power Fail, Time of Day and Battery Capacity %. Then, assign that Event 1 to Relay 5. During UPS operation, If all the assigned triggers in the event are TRUE, (Trigger 1 AND Trigger 2 AND Trigger 3) then Relay 5 will be triggered. If only one or two of the assigned Event triggers are TRUE, then Relay 5 will not be triggered.

To program OR functions:
Set up an Event as shown in the section DEFINE EVENT and assign it a single trigger. Then assign the Event to a Relay. Repeat this process using an additional Event with a different trigger, then assign the Event to the same relay.

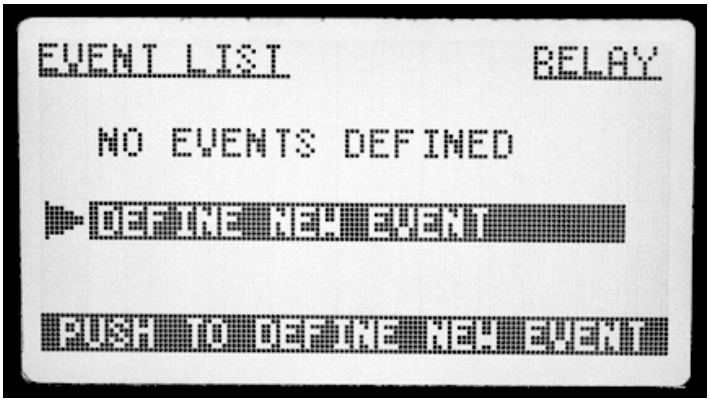
For example, Create Event 1 with a Power Fail trigger and assign that Event to Relay 4. Next, Create Event 2 with a Time Delay trigger and assign that Event to Relay 4. If either Event #1 Power Fail OR Event #2 Time of Day is TRUE, then Relay 4 will be triggered. If neither of the two Event triggers are TRUE, then Relay 4 will not be triggered.

On The Display:

- Existing events (if any) are listed. Use the Navigation Dial to highlight an existing event and then press the dial to open it for viewing or editing.
- For each existing event, the relay used for the outcome is also listed.
- **DEFINE NEW EVENT:** Allows you to create a new event.

Notes:

You must use the ZincBlue2 Software to configure SMTP or SNMP outcomes.



Event List: No Events Defined

Event List: Events Defined

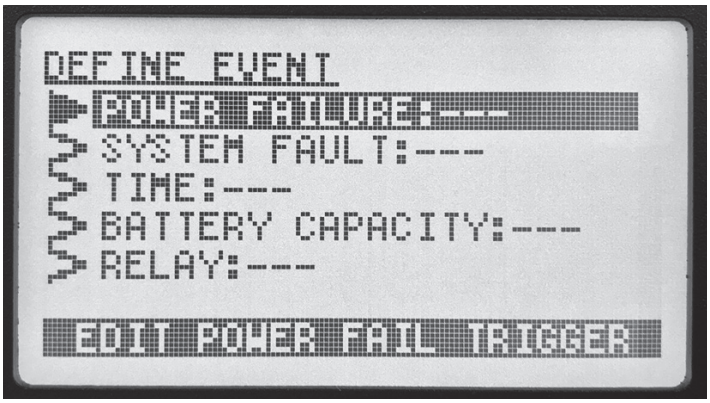
STATUS → SETTINGS → EVENTS LIST → DEFINE EVENT

Description:

Use this screen to modify or delete existing events.

On The Display:

- **POWER FAILURE:** Allows you to turn on or off the Power Fail trigger or set a Power Resume trigger for when AC is restored. Also allows you to adjust the delay time after a power failure before the trigger is activated.
- **SYSTEM FAULT:** Enable the System Fault trigger.
- **TIME:** Allows you to configure the time of day trigger.
- **BATTERY CAPACITY:** Allows you to configure the battery capacity trigger.
- **RELAY:** Allows you to select a relay.
- **DELETE EVENT:** Allows you to delete an existing event. After selecting this option, pressing the BACK button opens a dialog to confirm deletion of the event.



Define Event

Edit Event

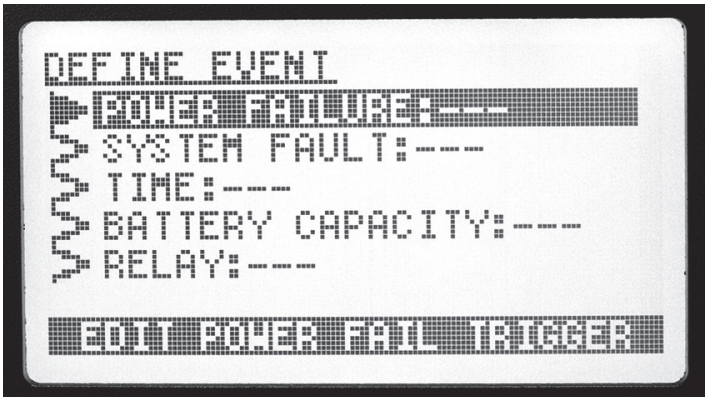
STATUS → SETTINGS → EVENTS LIST → DEFINE EVENT → POWER FAILURE

Description:

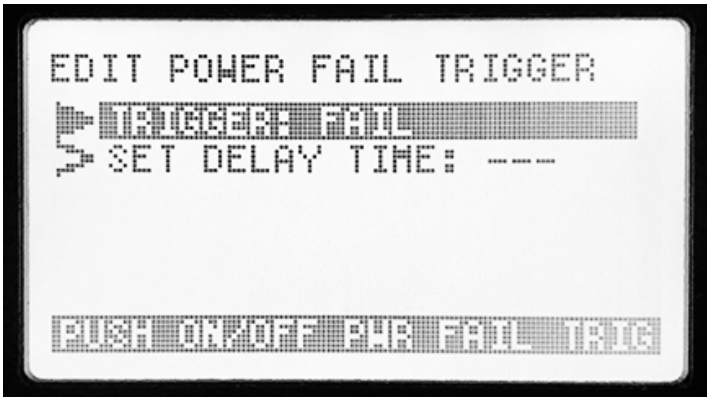
Use this screen to enable or disable the utility power fail trigger. You can also specify a delay time after the power failure event occurs before this event outcome is triggered.

On The Display:

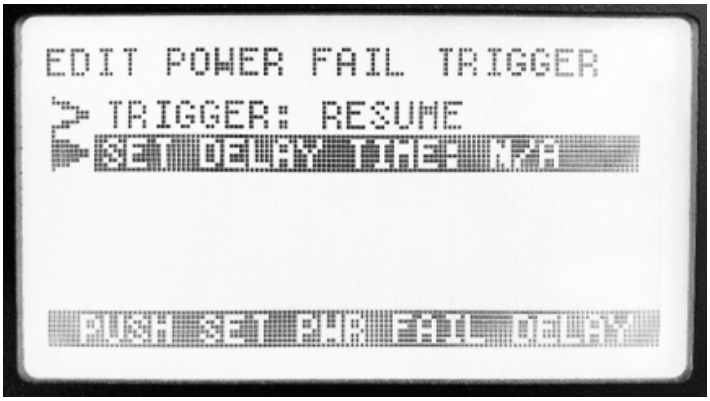
- **POWER FAIL TRIGGER**: Allows you to turn on or off the Power Fail trigger or set a Power Resume trigger for when AC is re-stored. Press the Navigation Dial to select an option, rotate the dial to select FAIL or RESUME or OFF and then press the dial to set the value. By default, this trigger is set to OFF.
- **SET DELAY TIME:** Allows you to define a delay time, in hours, after a power failure before this trigger becomes TRUE. The delay time is set in increments of 0.5 hours to a maximum of 8.0 hours. The default value, if none is specified, is 0.0 hours delay (that is, the event outcome is triggered immediately upon utility power failure.)
- Press the BACK button when you are finished configuring this trigger. You will be taken back to the DEFINE EVENT screen where you can configure additional triggers for this relay, or complete configuration of a Power Failure event by going to the RELAY screen to select a relay to perform that outcome and finalize the steps described in the EVENT SAVE CONFIRMATION section of this manual.



Define Event: Power Failure



Edit Power Fail Trigger: Power Fail



Edit Power Fail Trigger: Power Resume

Edit Power Fail Trigger: Set Delay Time

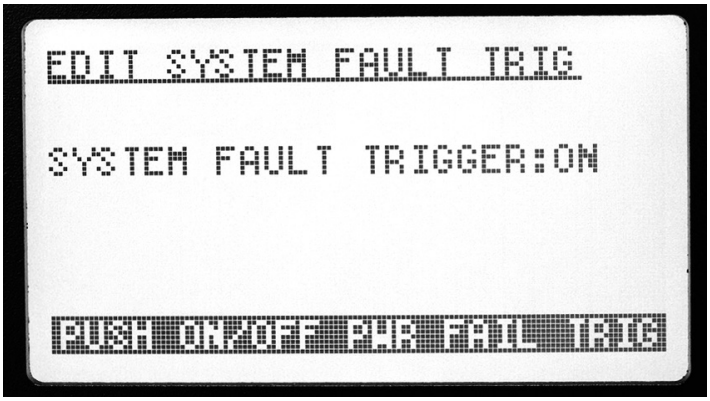
STATUS → SETTINGS → EVENTS LIST → DEFINE EVENT → SYSTEM FAULT

Description:

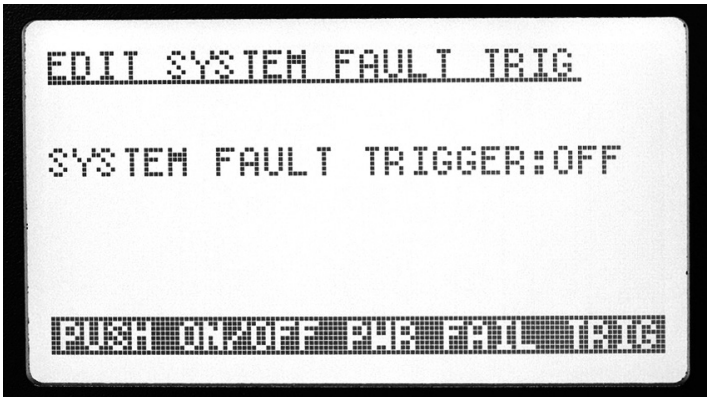
Enable the trigger which is armed whenever a System Fault is detect. System Faults turns on the Red LED on the UPS. Refer to the ZincBlue2 Software section of this manual for all possible events recorded by the ZincBlue2 Software.

On The Display:

- Press the BACK button when you are finished configuring this trigger. You will be taken back to the DEFINE EVENT screen where you can configure additional triggers for this relay, or, take the final steps of configuring a SYSTEM FAULT event by going to the RELAY screen to select a relay to perform that outcome and finalize the steps described in the EVENT SAVE CONFIRMATION section of this manual.



Edit System Fault Trig: ON



Edit System Fault Trig: OFF

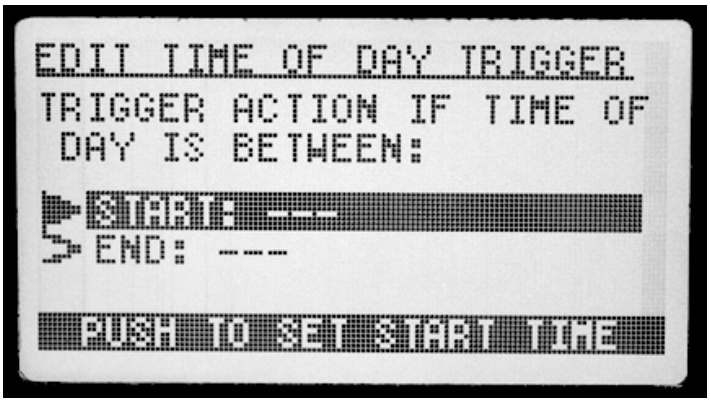
STATUS → SETTINGS → EVENTS LIST → DEFINE EVENT → TIME

Description:

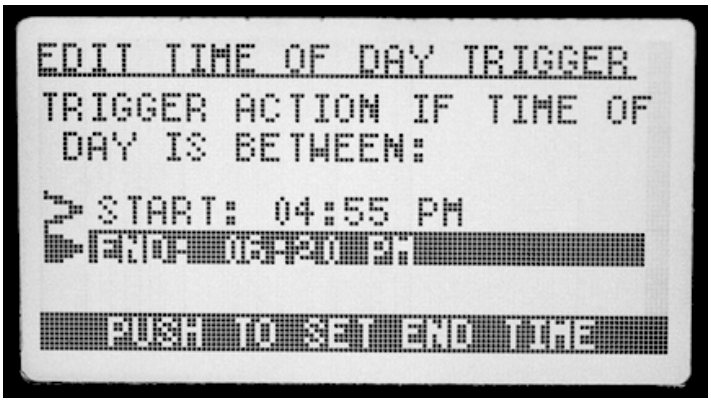
Use this screen to set a time-of-day range for which this event will be triggered.

On The Display:

- **START:** Allows you to specify the starting time, in 5-minute increments. Use the Navigation Dial to highlight START, rotate the dial to select the start time, and then press the dial to set the value.
- **END:** Allows you to specify the ending time, in 5-minute increments. Use the Navigation Dial to highlight END, rotate the dial to select the end time, and then press the dial to set the value.
- Press the BACK button when you are finished configuring this trigger. You will be taken back to the DEFINE EVENT screen where you can configure additional triggers for this relay, or, take the final steps of configuring a TIME event by going to the Relay screen to select a RELAY to perform that outcome and finalize the steps described in the EVENT SAVE CONFIRMATION section of this manual.



Edit Time of Day Trigger: Set Start Time



Edit Time of Day Trigger: Set End Time

STATUS → SETTINGS → EVENTS LIST → DEFINE EVENT → BATTERY CAPACTIY

Description:

Use this screen to set a battery capacity lower limit for which this event will be triggered.

On The Display:

- **BATTERY CAPACITY:** Allows you to specify the minimum battery capacity, from 0% to 100% in 10-percent (10%) increments, for which this trigger will be TRUE. Use the Navigation Dial to highlight BATTERY CAPACITY, rotate the dial to select the percentage, and then press the dial to set the value.
- Press the BACK button when you are finished configuring this trigger. You will be taken back to the DEFINE EVENT screen where you can configure additional triggers for this relay, or, take the final steps of configuring a BATTERY CAPACITY event by going to the RELAY screen to select a relay to perform that outcome.

Edit Battery Trigger

Edit Battery Trigger: Set Battery Capacity

STATUS → SETTINGS → EVENTS → DEFINE EVENT → RELAY

Description:

Use this screen to select a relay to activate if all configured triggers are TRUE. This is the only available outcome for an event created through the LCD interface on the ZincBlue2. You must use the ZincBlue2 Software to configure SMTP or SNMP notifications.

On The Display:

- Use the Navigation Dial to highlight the relay to use (numbered 1 through 8) and then press the dial to select the relay.
- Press the BACK button when you are finished selecting which relay will trigger.

Edit Relay to Trigger: Set Relay On/Off

Relay Status: On or Off

EVENT SAVE CONFIRMATION

Description:

Use this screen to save a newly defined or changed event. After pressing the BACK button from the DEFINE EVENT screen, the EVENT SAVE CONFIRMATION screen will prompt you to save your event.

On This Display:

- The system creates an event name consisting of one or more of the mnemonics listed in the table below:

MNEMONIC	DESCRIPTION
PF	Power Fail
PR	Power Resume
SFLT	System Fault
TOD	Time-of-day
BATT	Battery Capacity

- Press the Navigation Dial to save this event.
- Press the BACK button to discard this event.

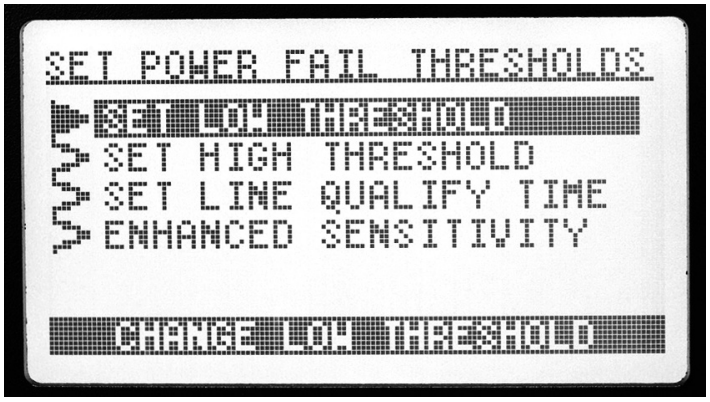
STATUS → SETTINGS → POWER FAIL THRESHOLDS

Description:

Use this screen to configure various power fail criteria, including minimum utility voltage, maximum utility voltage, sensitivity level to utility power fluctuations from ideal power, and the minimum length of time that utility power quality must be within acceptable power quality parameters before the ZincBlue2 UPS 1000W/1500W unit comes out of backup mode.

On The Display:

- **SET LOW THRESHOLD:** Allows you to specify the minimum utility AC voltage threshold. If utility voltage goes below this threshold, the ZincBlue2 will switch to battery power.
- **SET HIGH THRESHOLD:** Allows you to specify the maximum utility AC voltage threshold. If utility voltage goes above this threshold, the ZincBlue2 will switch to battery power.
- **ENHANCED SENSITIVITY:** When choosing this mode, the captured incoming utility AC waveform is compared to a reference true sine wave. The effect of this is an increased sensitivity of the oscilloscope function to deviations of the incoming utility AC waveform from programmed thresholds (user programmed and default thresholds).
- **SET LINE QUALIFY TIME:** Allows you to select the amount of time utility power must be within quality parameters before the ZincBlue2 switches from battery back to utility power. This protects your equipment from rapid power cycling, noisy power, or power frequency mismatches after a utility power failure.



Set Power Fail Thresholds

STATUS → SETTINGS → POWER FAIL THRESHOLDS → SET LOW THRESHOLD

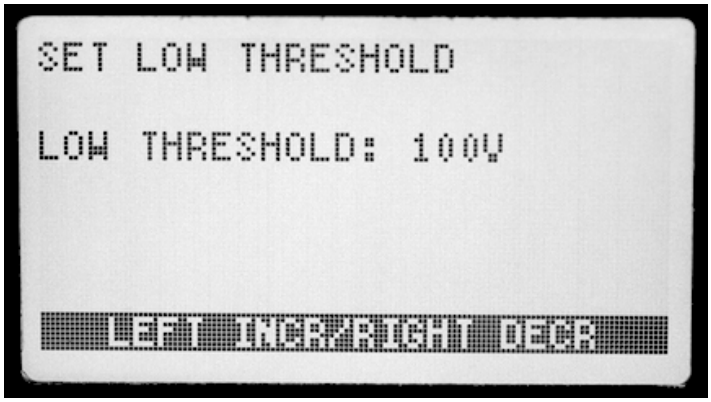
Description:

Use this screen to configure the minimum utility voltage before the ZincBlue2 UPS 1000W/1500W will switch to battery power.

On The Display:

- **LOW THRESHOLD:** Allows you to specify the minimum utility AC voltage before the ZincBlue2 will switch to battery power. Rotate the Navigation Dial to select the low voltage, from 85VAC to 120VAC, and then press the dial to set the value.

- Press the BACK button when you are finished configuring this value.



Set Low Threshold

STATUS → SETTINGS → POWER FAIL THRESHOLDS → SET HIGH THRESHOLD

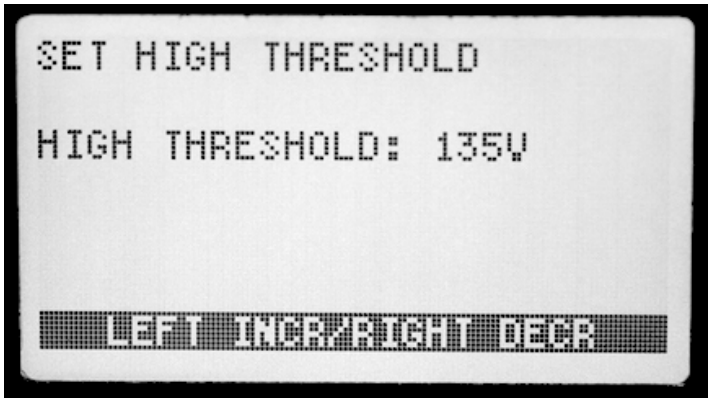
Description:

Use this screen to configure the maximum utility voltage before the ZincBlue2 UPS 1000W/1500W will switch to battery power.

On The Display:

- **HIGH THRESHOLD:** Allows you to specify the maximum utility AC voltage before the ZincBlue2 will switch to battery power. Rotate the Navigation Dial to select the high voltage, from 130VAC to 140VAC, and then press the dial to set the value.

- Press the BACK button when you are finished configuring this value.



Set High Threshold

STATUS → SETTINGS → POWER FAIL THRESHOLDS → SET ENHANCED SENSITIVITY

Description:

Use this screen to configure the sensitivity to utility power quality before the ZincBlue2 UPS 1000W/1500W will switch to battery power.

On The Display:

- **ENHANCED SENSITIVITY:** Allows you to increase the sensitivity to variance of the utility waveform before the ZincBlue2 will switch to battery power. Your choices are ON or OFF. Turn the Navigation Dial to turn ON or OFF enhanced sensitivity and then press the dial to set the value. OFF sensitivity is selected by default.
- Press the BACK button when you are finished configuring this value.

Notes:

- OFF allows the most variance from ideal waveforms and is most appropriate for situations where signal cabinets are located near known generators of utility power noise, such as large HVAC units or intersections under construction.
- Select ON if your signal equipment requires additional protection.
- Select OFF if your ZincBlue2 is switching to battery power more often than seems reasonable.

Set Sensitivity

STATUS → SETTINGS → POWER FAIL THRESHOLDS → LINE QUALIFY TIME

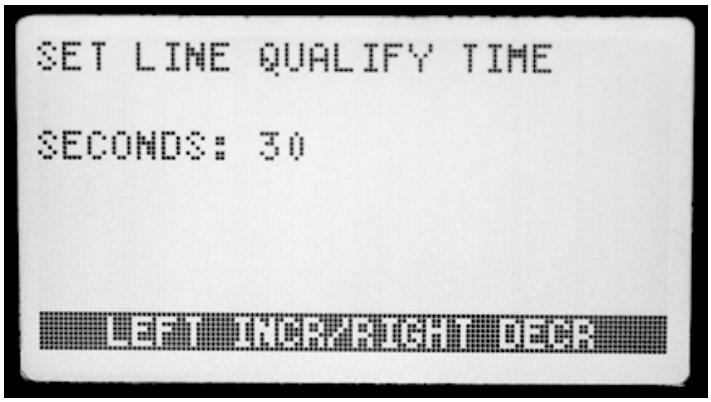
Description:

Use this screen to configure the amount of time that utility power must be within power quality parameters before the unit switches from battery power back to utility power. This time may protect your equipment from rapid power cycling, noisy power, or power frequency mismatches after a utility power failure.

On The Display:

- **SECONDS:** Allows you to select the time period, in seconds, that the utility power must be within quality parameters before the ZincBlue2 switches from battery power to utility power. Your choices are 3, 10, or 30 seconds. Turn the Navigation Dial to select the line qualify time and then press the dial to set the value. 30 seconds is selected by default.

- Press the BACK button when you have selected this value.



Set Line Qualify Time

STATUS → SETTINGS → NETWORK

Description:

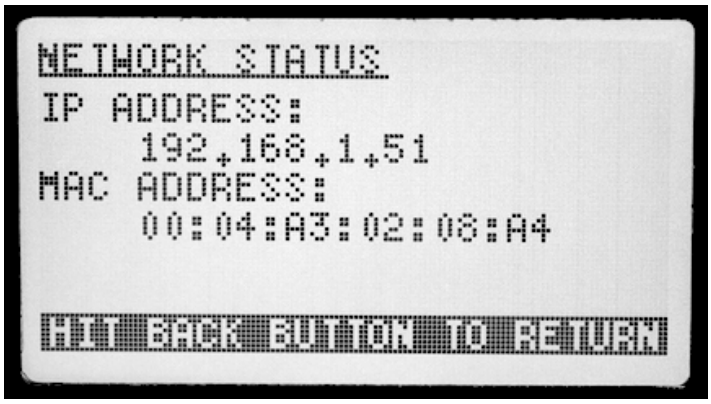
Use this screen to display the IP and MAC addresses of this ZincBlue2 UPS 1000W/1500W.

On The Display:

- **IP ADDRESS:** Displays the current IP address. The default IP address is 192.168.1.51 and may only be changed using the ZincBlue2 Software.
- **MAC ADDRESS:** Displays the MAC address of the ZincBlue2. This value is not user-changeable.
- Press the BACK button when you are finished.

Notes:

- For your security, Econolite strongly recommends that you change the default IP address to a value that is unique to your network.



Network Status

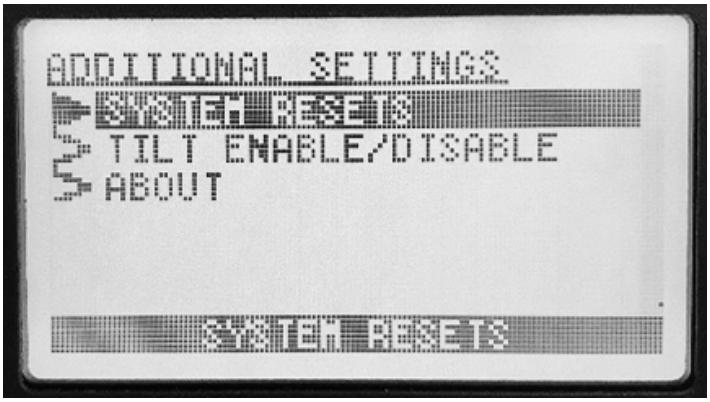
STATUS → SETTINGS → ADDITIONAL SETTINGS → SYSTEM RESETS

Description:

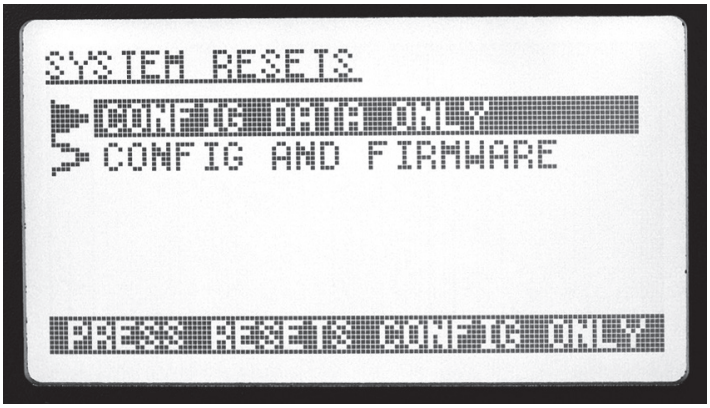
Use this screen to reset the ZincBlue2 UPS 1000W/1500W, its configuration data, and/or its firmware.

On The Display:

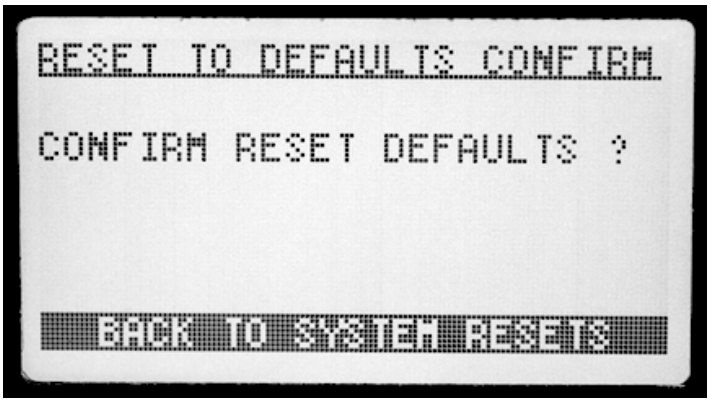
- **CONFIG DATA ONLY:** Resets the ZincBlue2 configuration data to factory default values and reboots the system. You will be presented with a confirmation screen after selecting this option. Press the Navigation Dial to confirm your request.
- **CONFIG AND FIRMWARE:** Resets the ZincBlue2 configuration data to factory default values, reloads the originally installed factory firmware, and reboots the system. You will be presented with a confirmation screen after selecting this option. Press the Navigation Dial to confirm your request.
- Press the BACK button when you are finished.



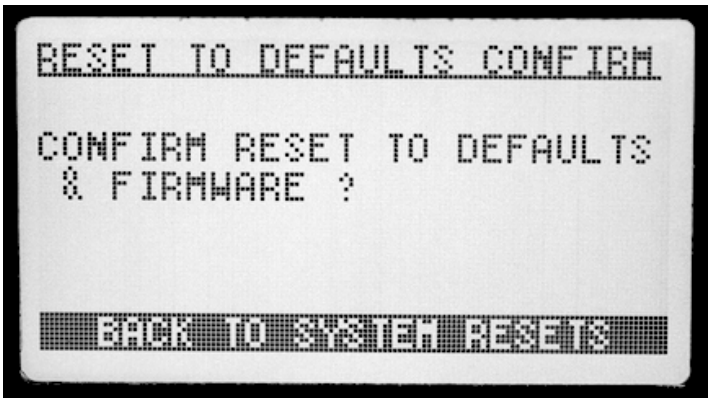
Additional Settings: System Reset



System Resets: Reset Inverter



System Resets: Confirm Configured Data Reset



System Resets: Confirm Firmware Reset

STATUS → SETTINGS → ADDITIONAL SETTINGS → TILT ENABLE/DISABLE

Description:

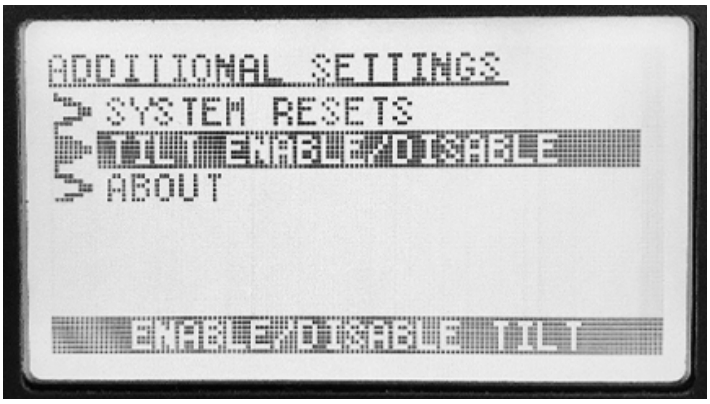
Use this screen to enable or disable the Tilt Switch function of the ZincBlue2 UPS 1000W/1500W.

On The Display:

TILT OFF: The system is factory programmed to have the Tilt Switch disabled(off), which is displayed on the screen.
TILT ON : Rotate the Navigational Dial left/right to enable the Tilt Switch function. Press the Navigational Dial to confirm.

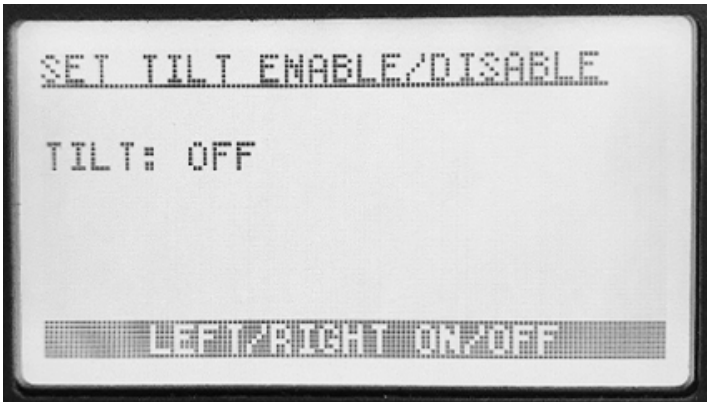
Notes:

- To clear a Tilt Switch fault, power cycling the system is required. Do so by flipping the PIM: TEST SWITCH ON then OFF.



Additional Settings: Tilt Enable/Disable

Additional Settings: Tilt On



Additional Settings: Tilt Off

STATUS → SETTINGS → ADDITIONAL SETTINGS → ABOUT

Description:

Use this screen to display the firmware version and whether the Tilt Switch function if avilable.

On The Display:

- **FW REVISION:** Displays the current firmware version.
- **TILT SWITCH AVAILABLE:** Displays on screen if enabled.
- POWER RATING: Indication of the UPS power rating (1000W or 1500W).
- Press the BACK button when you are finished.

ZincBlue2 Software

Introduction

The ZincBlue2 Software is used to remotely manage and monitor the status of an individual ZincBlue2 inside your network of traffic cabinets. You can access any ZincBlue2 UPS 1000W/1500W by entering its IP Address (see "Network Settings ") into the address field of an internet browser window. You must be on the same network as the ZincBlue2. Once you are logged in, the software will launch and display information on that ZincBlue2 unit.

ZincBlue2 Software

Features

(Items with an asterisk (*) can only be done via the ZincBlue2 Software, not via the controls on the unit itself.)

- View power status
- View the battery charge status and runtimes
- View real-time cabinet power consumption
- Configure Simple Network Management Protocol (SNMP) communication to be notified of system status*
- Assign a name to a ZincBlue2 unit, allowing users to quickly locate it and view its current status*
- View the System Log to help diagnose system power failures
- Set up the eight programmable relays to trigger on system configured events. (Event outcomes that require an SNMP or SMTP actions can only be set up via the ZincBlue2 Software.)
- View whether a system configured event has triggered
- View AC waveforms in the event log*
- View live AC waveforms*
- View and manage user-programmable system settings parameters such as system time, voltage thresholds, and power monitoring sensitivity levels.
- Configure SMTP*
- Configure Network Settings*
- Update Firmware*

Browsers

UPStealth 2 Software is compatible with these web browsers; Mozilla Firefox, Google Chrome and Mircosoft Edge.

Note: Firmware updates can not be completed using Firefox.

Network Configuration

To connect to the ZincBlue2 Software, you will need to configure your computers Network settings. Below are instructions on how to connect to the web server in the ZincBlue2 UPS 1000W/1500W with your Windows or Mac computer.

Windows Configuration

- Click on Settings
- Click on Network and Internet
- Click on Ethernet
- Change Adapter Options
- Select an ethernet port, right click and select Properties
- Find and select Internet Protocol Version 4 (TCP/IPv4)
- Click Properties
- Select the circle "Use the following IP Address"; then insert 192.168.1.52
- Insert Subnet Mask: 255.255.255.0
- Click on Okay
- Click on Close

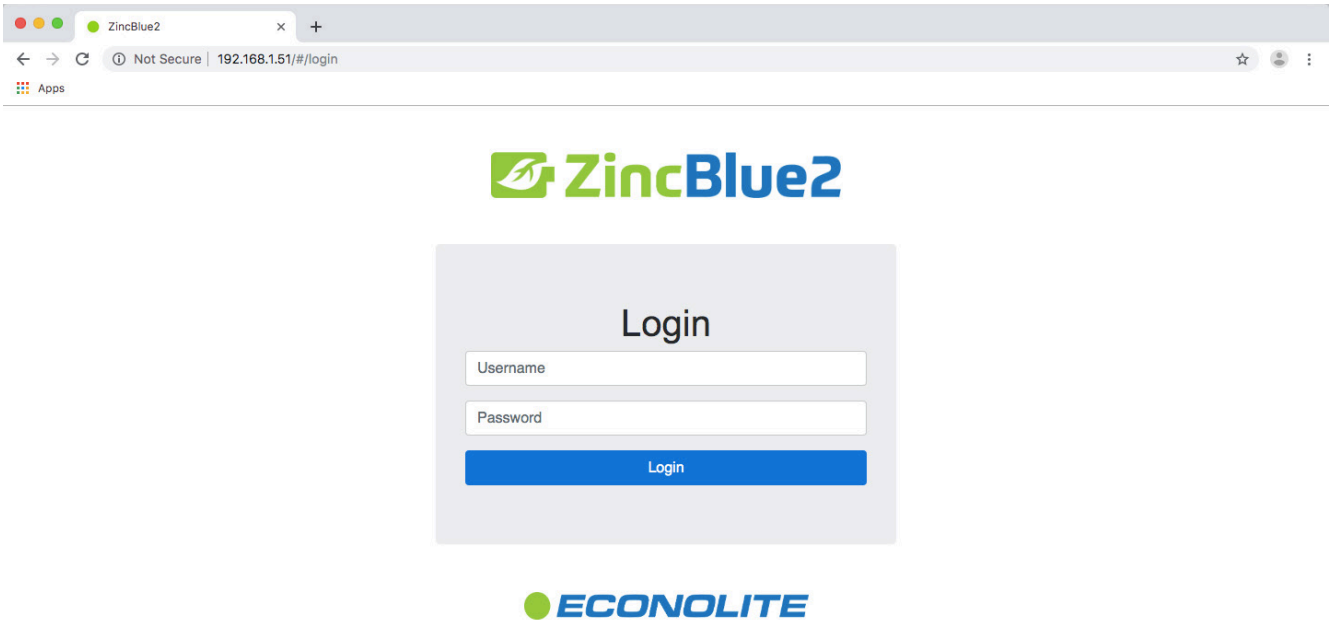
Mac Configuration

- Click on the Apple Icon in the top left and select System Preferences
- Click on Network
- Click on the Configure IPv4 dropdown and select Manually
- In the IP Address field, insert 192.168.1.52 (notice this is slightly different from your ZincBlue2 UPS 1000W/1500W IP Address of 192.168.1.51)
- In the Subnet Mask field, insert 255.255.255.0

Login

When you first connect to a ZincBlue2 unit by entering its IP address into an internet browser, the device launches the ZincBlue2 Software, which then displays a login screen. When this screen appears, enter your username and password and click the Login button.

IMPORTANT: Each ZincBlue2 comes with the preset username **admin** and the preset password **user.** System will force a password change on 1st login. When you are configuring your ZincBlue2 Software, Econolite recommends going into the User Settings page under the System tab to create a new password.



Login

Home Screen

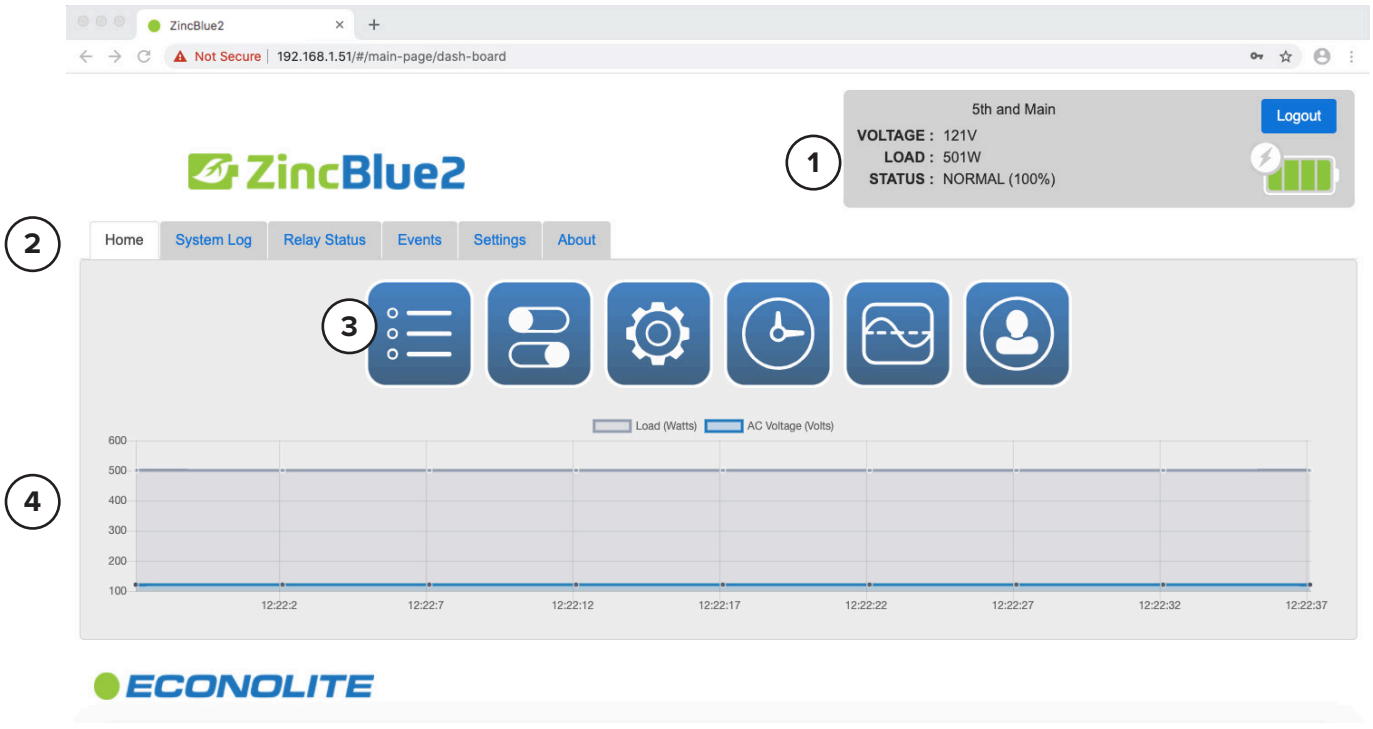
Once you are logged in and connected to a ZincBlue2, the software will bring up the Home screen. This is your navigation center for monitoring and managing the status of your ZincBlue2.

1. At the top right corner of the Home page is a status display with a real-time view of the system voltage, load, and battery status. A lightning bolt in the top left of the green battery icon indicates that the ZincBlue2 is in AC power mode. If there is no lightning bolt, a power fail has occurred and the ZincBlue2 is in battery backup mode. The Logout button is also in this area.

2. Below the status display are six tabs:
   - **HOME** - take you to the Home page.
   - **SYSTEM LOG** - opens a page used to view captured events.
   - **RELAY STATUS** - opens a summary page showing the 8 relays and whether they are triggered on or off.
   - **EVENTS** - opens a page used to configure or edit events that you want the ZincBlue2 unit to respond on.
   - **SETTINGS** - opens a page used to set or edit ZincBlue2 Software settings, including system, network, firmware, time, user password and messaging settings.
   - **ABOUT** - opens a page of information about your ZincBlue2 Software.

3. On the Home screen are six clickable icons that will help you navigate to important ZincBlue2 Software tabs and pages.

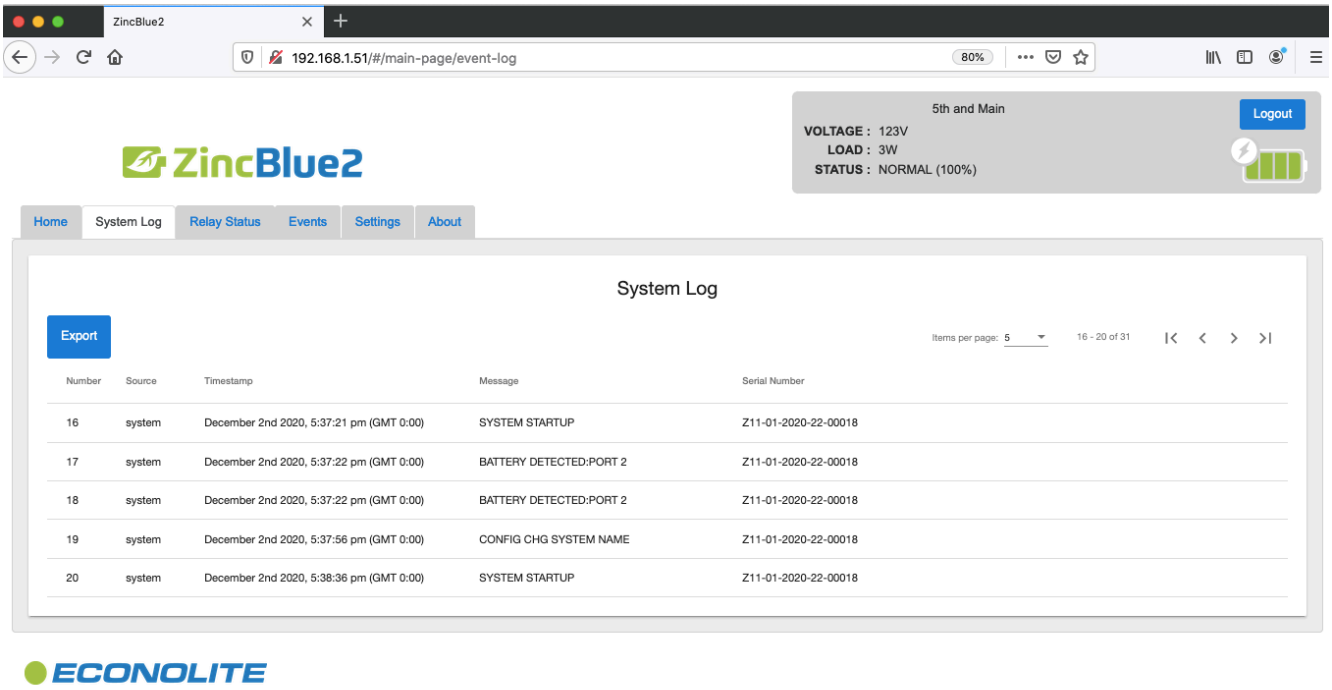
4. At the bottom of the Home page are two buttons and a graphical chart. The chart shows a real-time graphical view of the current load and AC voltage. By clicking on these buttons, you can remove the current load (amps) or AC voltage from the chart or add them back in if they are not showing.



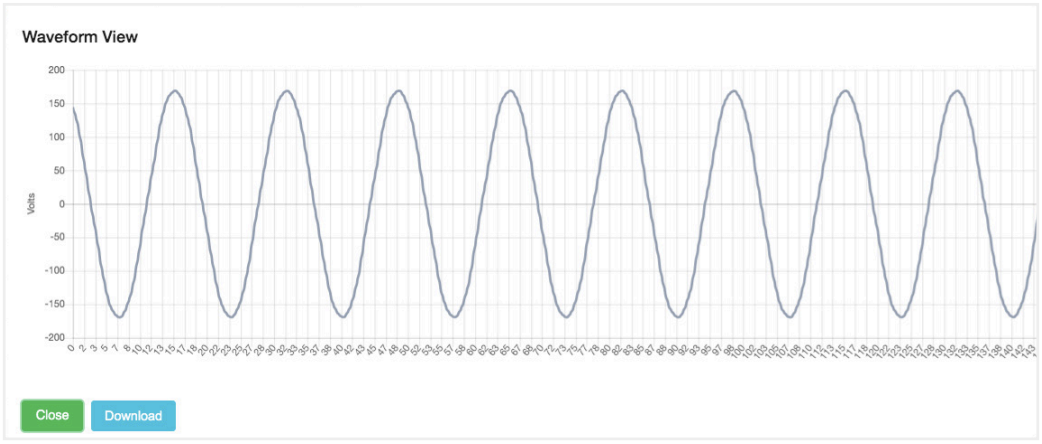
Home Screen

System Log Tab

The System Log tab presents a list of power events that have taken place in the traffic cabinet. For each event, the main view lists the event's log number, the event source, a time stamp showing when the event occurred, an error message, the system ID, and a link to a waveform view, if one exists.



System Log Tab



ZincBlue2 Troubleshooting Flowchart

- To download a copy of the system log, click on the Export button.
- To view the waveform at the time an event occurred, if available, select that event row and click on the View Waveform button that appears to the right of the system id column.

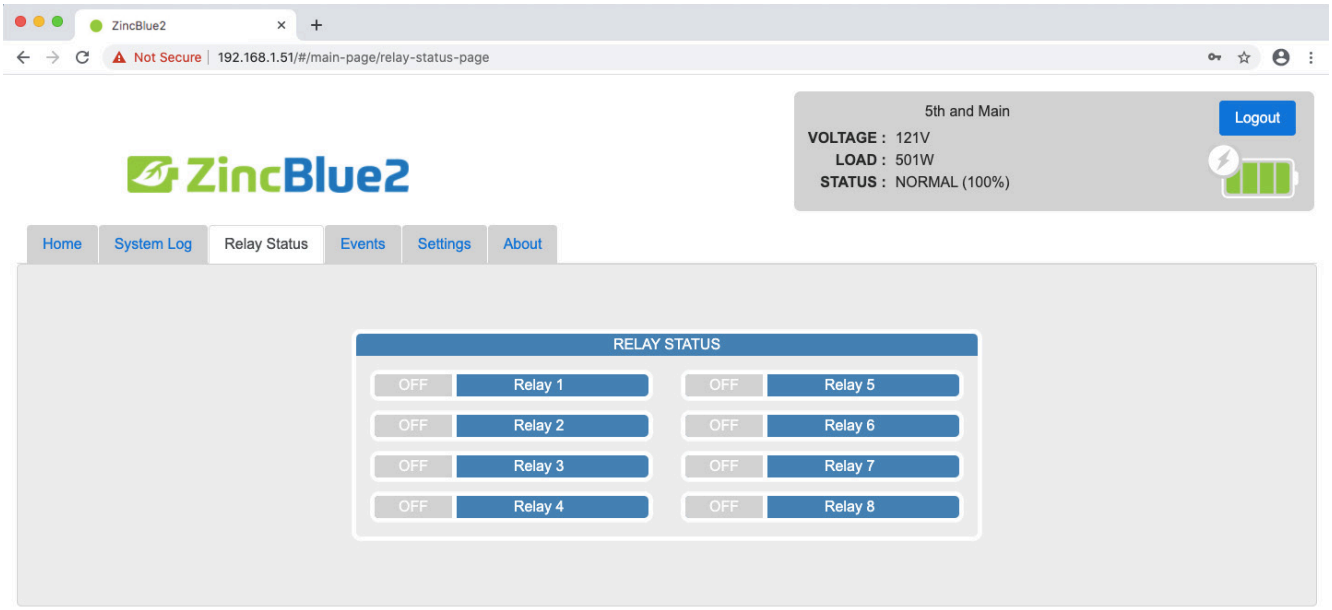
Below is a table outlining all possible events recorded by the ZincBlue2:

Category	Log Message
Power Fail	Less than 10% of Battery Capacity
	Power Resume
	Power Fail, VRMS Low
	Power Fail, VRMS High
	Power Fail, AC Off
	Power Fail, Frequency
	Power Fail, Enhanced
Error	Firmware Update Fail
	Inverter Out of Specification
Fault	AC Wiring Error
	Controller Temperature out of specification
	Inverter Locked out
	Excessive Load
	System Shutdown
Info	Battery Charger Firmware Updated
	System Config Change: Time Format
	System Config Change: Date Format
	System Config Change: Date
	System Config Change: Time
	System Config Change: Power Low Threshold
	System Config Change: Power High Threshold
	System Config Change: Power Sensitivity
	System Config Change: Line Qualify Time
	System Config Change: Daylight Savings Time On/Off
	System Config Change: Change/Delete Event
	System Config Change: Tilt Enable/Disable
	Config Change NTP
	Network Config Change
	Time Zone Config Change
	System Name Config Change
	Battery Attention (XRT Only)

List of Event Types

Relay Status Tab

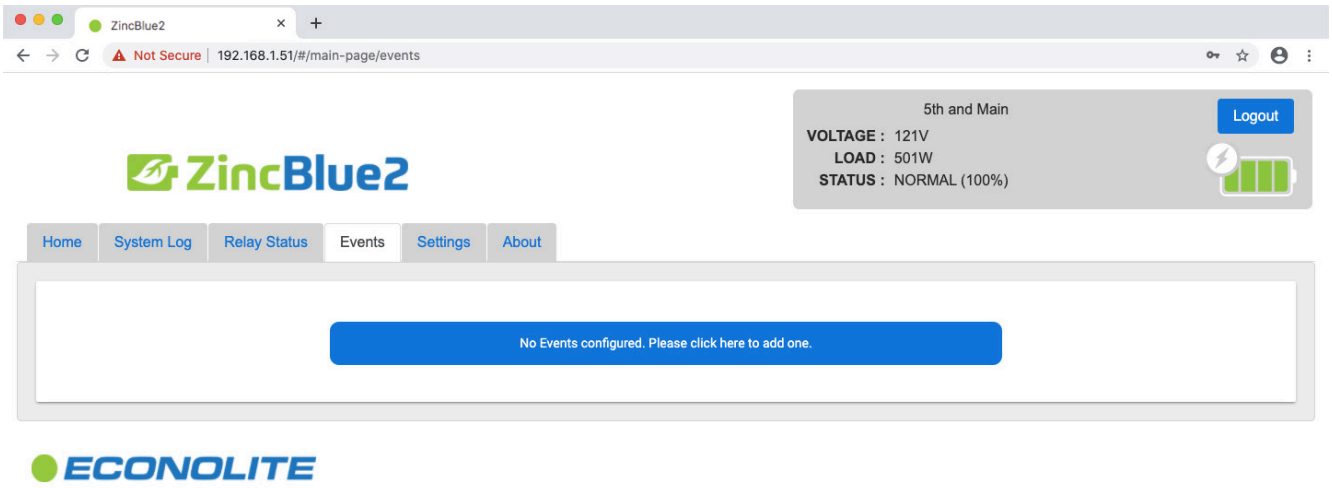
The Relay Status tab shows the status of the eight user programmable relays on the UPS, indicating whether each is on or off.



Relay Status Tab

Events Tab

The Events tab allows you to create, edit, or delete events that control operation of the ZincBlue2.

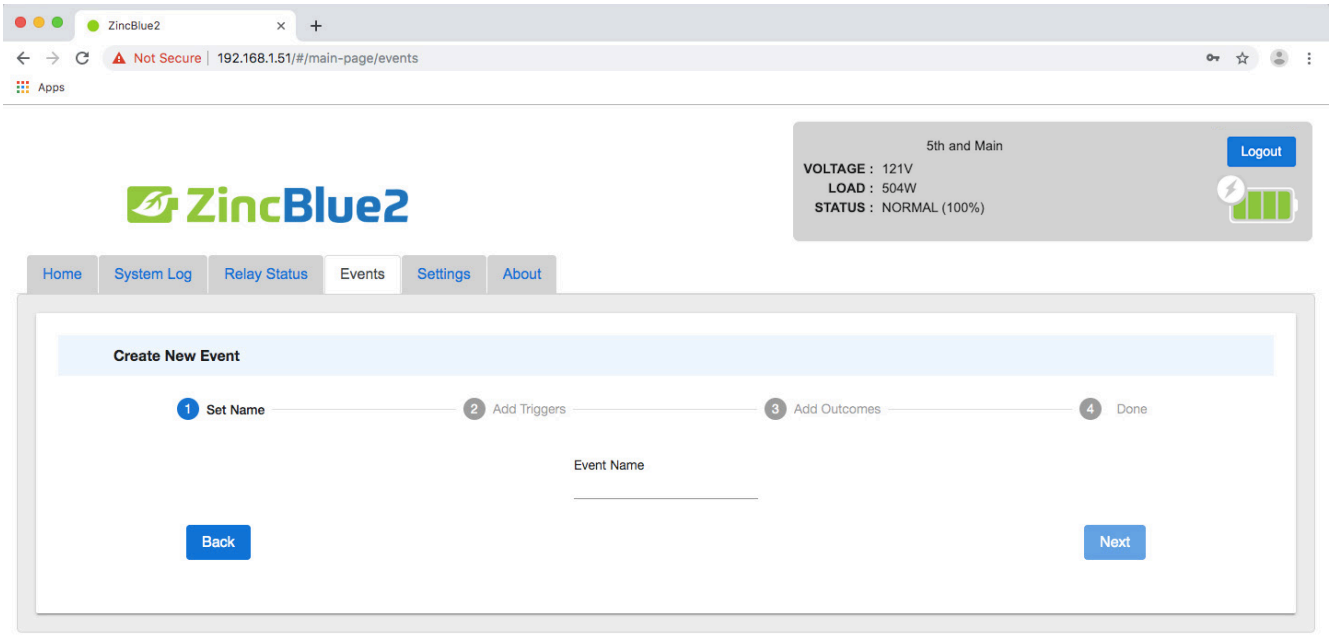


Event Tab

The tab displays a list of **Events** and clickable actions like **Add Event** and **Delete Event** buttons, and **No Event Configured. Please Click here to add one**.

To delete an existing event, select that event in the list and click on the Delete Event button. To edit an existing event, select that event in the list and double-click on it.

To create a new event, click on the Add Event button, which will open an event setup wizard:



Event Tab: Create New Event

1. First, you will be asked to enter a name for the event. Event names are limited to 25 characters, and there are no restrictions on which characters you can use.

2. You will be asked to choose preset and/or user-defined triggers for the event. Again, if no triggers have been defined for the event, there will be a button to click to add a trigger. This button will open the "Add new trigger to event" screen. On this screen you will choose the trigger type. Options include Power Fail, Power Resume, Battery Capacity, Time-of-day, and System Fault. All trigger types except Power Fail and UPS Fault require you to enter parameters (battery capacity threshold or a time) for that trigger. When you have filled in all the fields, click one of the buttons at the bottom of this dialog to either cancel or create the trigger.

   Once an event has at least one trigger defined, the event wizard will display a list of existing triggers with buttons allowing you to select and remove triggers or add new ones.

3. You will be asked to define an event outcome. If there are no outcomes defined for the event, there will be a button to click to add one. If there are outcomes, you will see a list of outcomes with buttons to remove or add an outcome. When you click to add an outcome, the "Add new outcome to event" dialog opens. In this dialog, you will be asked to select an outcome type and an action. Outcome options are "SNMP", "SMTP", or "Relay1" through "Relay8". When you have filled in all the fields, click one of the buttons at the bottom of this dialog to either cancel or create the outcome. Once you've finished defining outcomes for the event, click **Next** in the view that shows the outcome list or **Back** to go back and edit the triggers.

4. After you've defined one or more outcomes for your event and clicked **Next** in the Outcomes view, the event wizard will confirm that the event setup is done and display a **Back** button you can click to go back and edit the event and a **Done** button to exit the wizard.

   The ZincBlue2 relay setup and triggering includes the ability to program Boolean AND as well as OR functions using a single relay. For more information on relays, please see the Event List section of this manual.

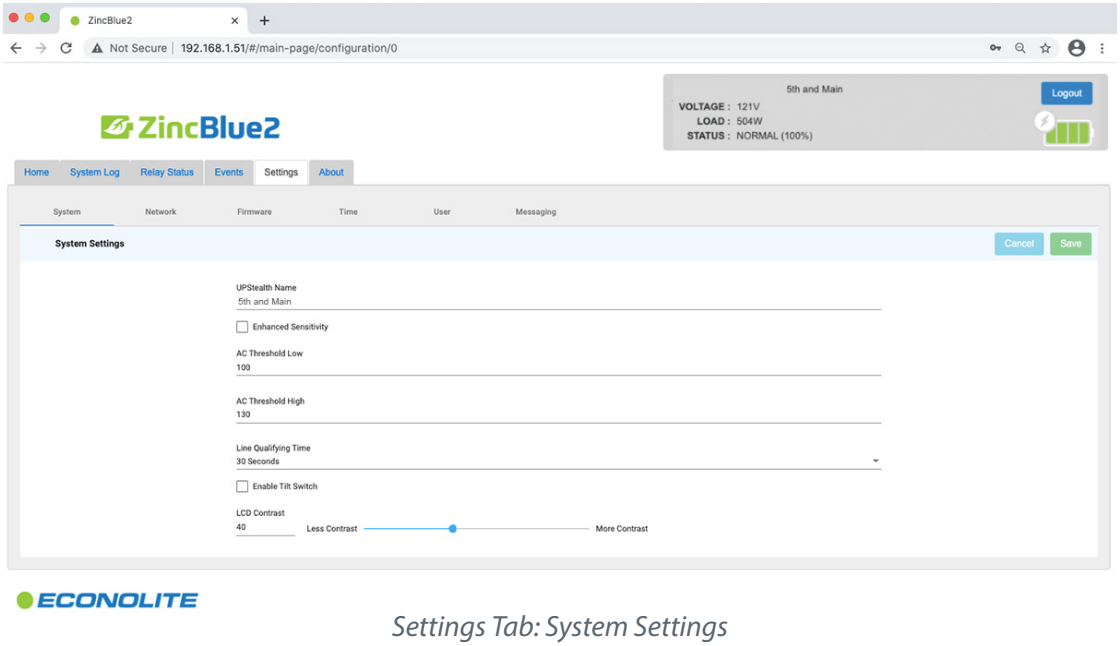
Settings Tab

The Settings tab has 6 subpages used to configure different aspects of a ZincBlue2.

Settings Tab

System Settings Page

The **System Settings** pages is used to configure several operating parameters of a ZincBlue2.



Settings Tab: System Settings

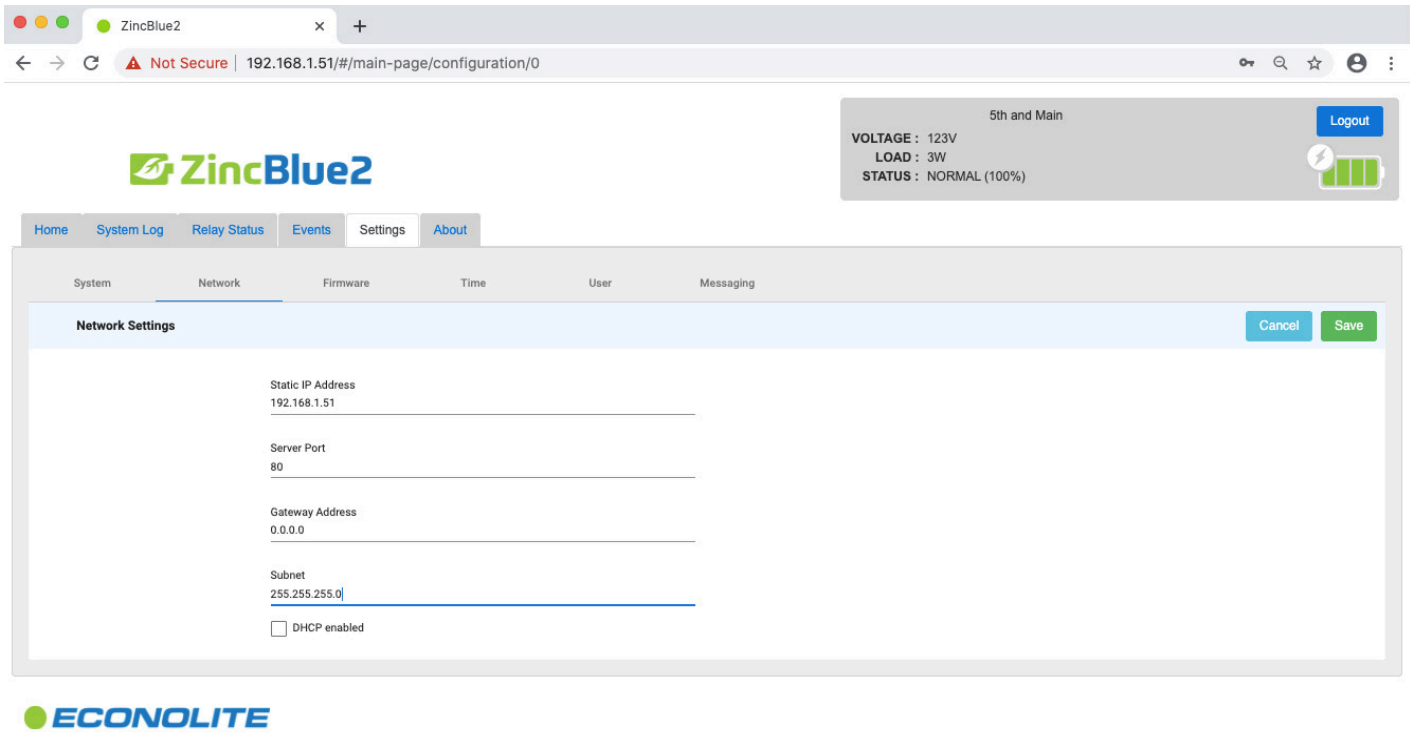
- **ZincBlue2 Name -** Customize the name of the ZincBlue2. Each ZincBlue2 UPS 1000W/1500W is identified by an IP Address. This dialog allows you to also create a name for the ZincBlue2 unit, such as a street address indicating geographical location (e.g., "5th and Main"). The name can be up to 50 characters long, and there are no limitations on the characters you can use.
- **AC Thresholds -** The high AC and low AC voltage thresholds set the upper and lower limits for acceptable input voltage to the system. The default high AC voltage threshold is 130 volts and the default low AC threshold is 100 volts. If input voltage falls outside of these limits, a power fail condition will be triggered, and the battery backup mode will be activated.
- **Line Qualifying Time -** This setting specifies the required length of time after a power fail that the incoming AC power signal must be within quality parameters before the system comes out of backup mode. The options for this setting are 3, 10, or 30 seconds. If the UPS detects unacceptable AC power quality within the line qualifying time period, the system will remain in power fail mode and the line qualifying period starts over. The system will continue in this mode until the incoming power quality is acceptable for the full line qualifying time.
- **Enable Tilt Switch -** If enabled and the ZincBlue2 UPS 1000W/1500W exceeds 15 degrees from level, the devices Tilt Switch will become active and will disable the battery bus. The ZincBlue2 UPS 1000W/1500W status screen will read TILT ERROR and the red UPS FAULT status light will be on.
- **LCD Contrast –** Adjust the contrast setting used for the front panel LCD of the UPS-1000W/1500W. The value is a percentage from 0-100. The factory setting is 40. Changing the slider to the right, increases the contrast and changing the slider to the left reduces the contrast. The SAVE button must be pressed in order for the new contrast value to be used. The saved contrast value will be reused in the future if the UPS-1000W/1500W is ever rebooted.

Click the **Save** button to save settings changes. Click the **Cancel** button to discard changes.

Settings Tab

Network Settings Page

The **Network Settings** page is used to view and specify the ZincBlue2 network address and other settings.



Settings Tab: Network Settings

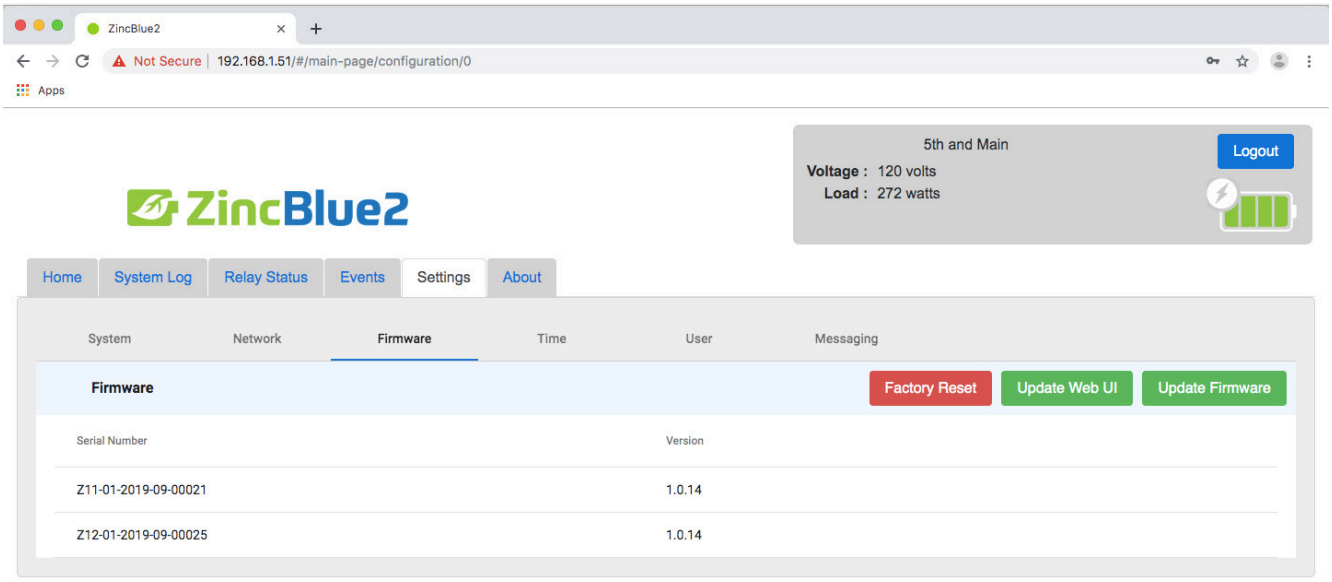
- **Static IP Address:** Sets the IP address for this ZincBlue2. The default IP address is 192.168.1.51. Typically, the system manager will set up a spreadsheet with live links to the unique IP Addresses for each ZincBlue2, making it easy for users to log in to a specific ZincBlue2.
- **Gateway Address:** Sets the IP address of the gateway that the ZincBlue2 will use.
- **Subnet:** Sets the subnet that the ZincBlue2 unit will be on.
- **DHCP enabled:** Check this box to use Dynamic Host Configuration Protocol (DHCP) instead of manually configuring network settings. This allows the ZincBlue2 to be assigned an IP address and supplied default network parameters from a DHCP service located on your network. This box is unchecked by default.

Click the **Save** button to save settings changes. Click the **Cancel** button to discard changes.

Settings Tab

Firmware Settings Page

The **Firmware Settings** page is used to view the information on the ZincBlue2 unit and update or reset its firmware.



Settings Tab: Firmware Settings

In the table view, the **Serial Number** column lists the unique identifier for the ZincBlue2 unit, and the **Version** column shows the current version of firmware installed.

The **Factory Reset** button restores the UPS to its factory settings. Before the system proceeds with the reset, the application pops up a dialog box where you must confirm or cancel.

Firmware & Software Updates

The **Update Firmware** and **Update Web UI** buttons will prompt you to upload a file. If you update your firmware, but then introduce a new battery to the configuration, you will need to update the battery firmware as well.

To update the Firmware and Software for ZincBlue2 visit the Econolite Support Page (One Stop Shop) at www.econolite.com/support. The update and other ZincBlue related documents are found under Cabinets in the Product Resource Library section.

Note: Firmware updates can not be completed using Firefox.

Updater Application

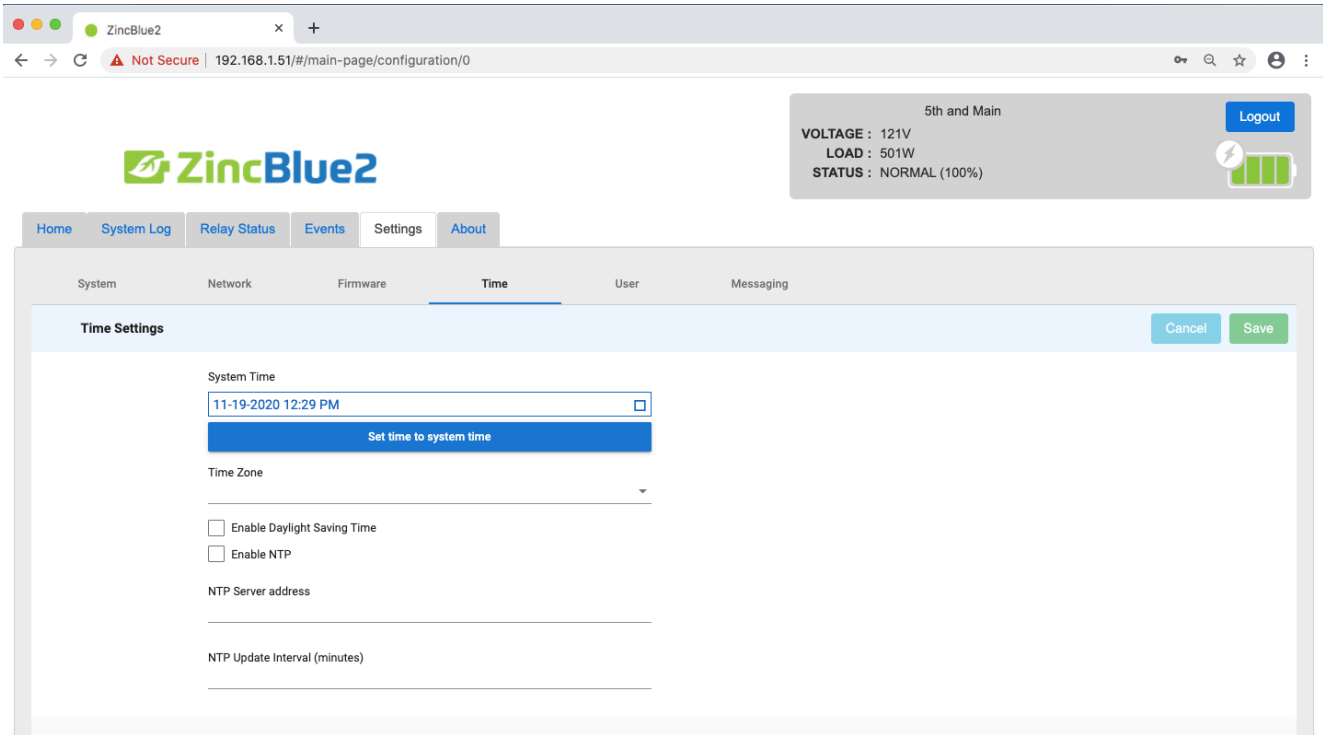
The ZincBlue2 Updater Application is a portable Windows application which remotely updates ZincBlue2 firmware and software and the firmware of connected batteries. This application requires no installation and supports Windows versions 7 and later.

To download the UPStealth 2 Updater Application, visit the link:
www.econolite.com/support

Settings Tab

Time Settings Page

The Time page is used to set the system time and date for a ZincBlue2. Time must be set to accurately record events.



Settings Tab: Time Settings

The UPS is set with a 24-hour clock.

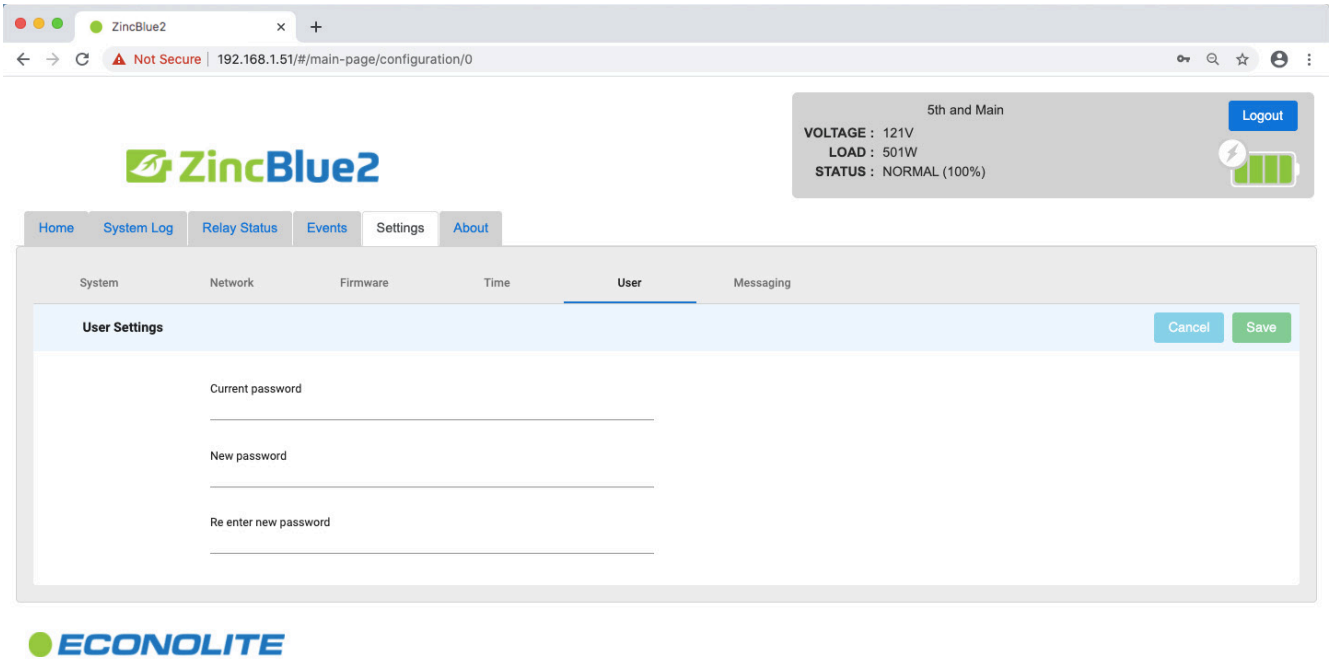
- The first field shows the current system time. Click in this field to display a dialog used to choose the date and set the system time.
- The **Set Time to System Time** button sets the ZincBlue2 unit's system time to the system time on your PC.
- Click in the **Time zone** field to display a dropdown menu of time zones. Once this is set, all dates displayed in exported log entries or in the ZincBlue2 application will be automatically adjusted to be consistent with the unit's local time.
- The **Enable Daylight Saving Time** checkbox sets the ZincBlue2 unit to automatically adjust system time when daylight saving time takes effect. This box is unchecked by default.
- NTP is a network protocal for clock synchronization and by checking the **Enable NTP** box it sets the ZincBlue2 to synchronize with the NTP server.
- The **NTP Server Address** is the IP Address of the NTP server that the ZincBlue2 synchronizes to.
- The **NTP Update Interval (minutes)** is how often the ZincBlue2 will synchronize with the NTP server and update the system clock.

Click the **Save** button to save settings changes. Click the **Cancel** button to discard changes.

Settings Tab

User Settings Page

The **User Settings** pages is used to set the system password.



Settings Tab: User Settings

All ZincBlue2 units come with the preset password **user.** To reset the password, you will be asked to enter the old password and the new password, then re-enter the new password to confirm. Passwords can be up to 32 characters long and contain any alphanumeric or special character.

Click the **Save** button to save settings changes. Click the **Cancel** button to discard changes.

Settings Tab

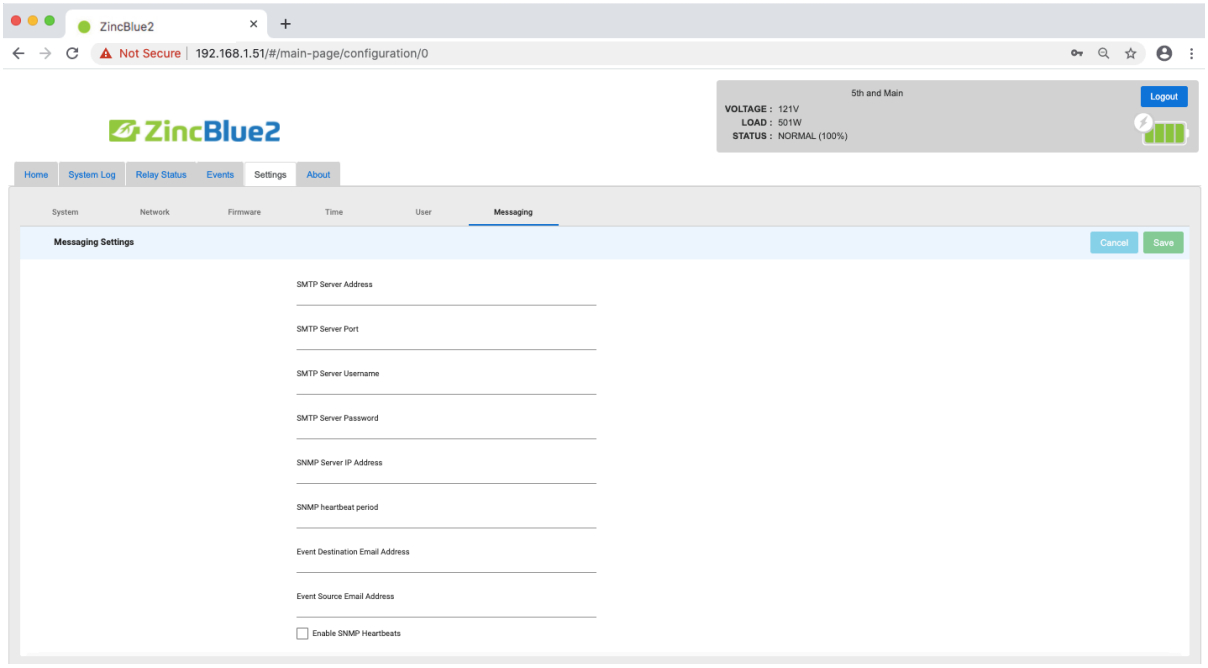
Messaging Settings Page

The Messaging page is used to set up delivery of messages triggered by system events. Message settings can only be set up via the ZincBlue2 web application.

Required message settings are:

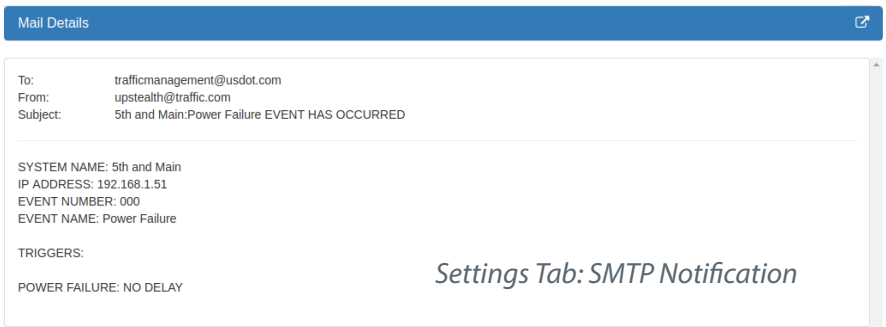
- **SMTP Server Address:** IP address of the SMTP server to which messages will be sent.
- **SMTP Server Port:** Port number to which messages will be sent.
- **SMTP Server Username:** Username to log into the SMTP server where messages will be sent.
- **SMTP Server Password:** Password to log into SMTP server where messages will be sent.
- **SNMP Server IP Address:** IP address of the SNMP server you want the ZincBlue2 unit to send event information to.
- **SNMP Heartbeat Period:** Configuration to send heartbeat messages to indicate the system is still powered on and able to notify the SNMP server that it is able to communicate.
- **Event Destination Email Address:** Email address where event messages will be sent. Or send an email as an SMS text message using your cellular providers SMS gateway domain.
- **Event Source Email Address:** Email address that will show as sender of the event messages.
- **Enable SNMP Heartbeat:** Selecting the **Enable SNMP Heartbeats** checkbox will cause the ZincBlue2 to send an SNMP Heatbeat message to the SNMP server. This heartbeat message will be sent at the interval specified in the **SNMP Heartbeat Period** field.

Click the **Save** button to save settings changes. Click the **Cancel** button to discard changes.



Settings Tab: Messaging Settings

Configuring the SMTP on the ZincBlue2 Software will allow email notifications. See the example of what you can expect to see in that email.



Settings Tab: SMTP Notification

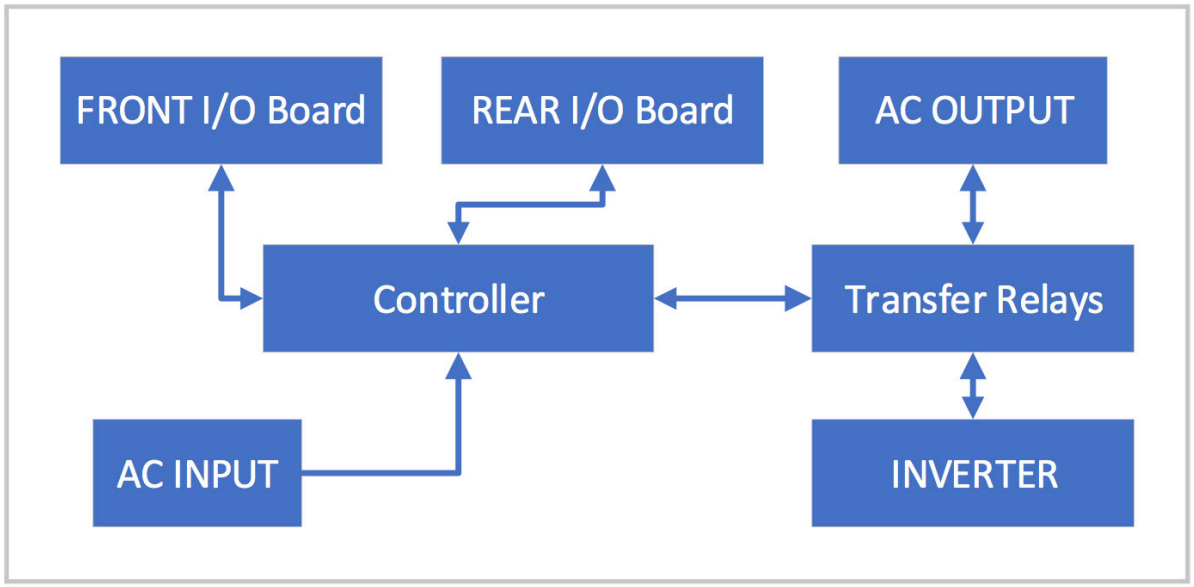
Theory of Operations

System Description

The ZincBlue2 consists of a 1000W/1500W uninterruptible power supply (UPS) inverter, Power Interface Module (PIM) and up to six (6) Battery Panel(s) or Module(s) used to provide backup power to traffic signal systems and ITS cabinets in the event of a power failure or interruption.

ZincBlue2 UPS 1000W

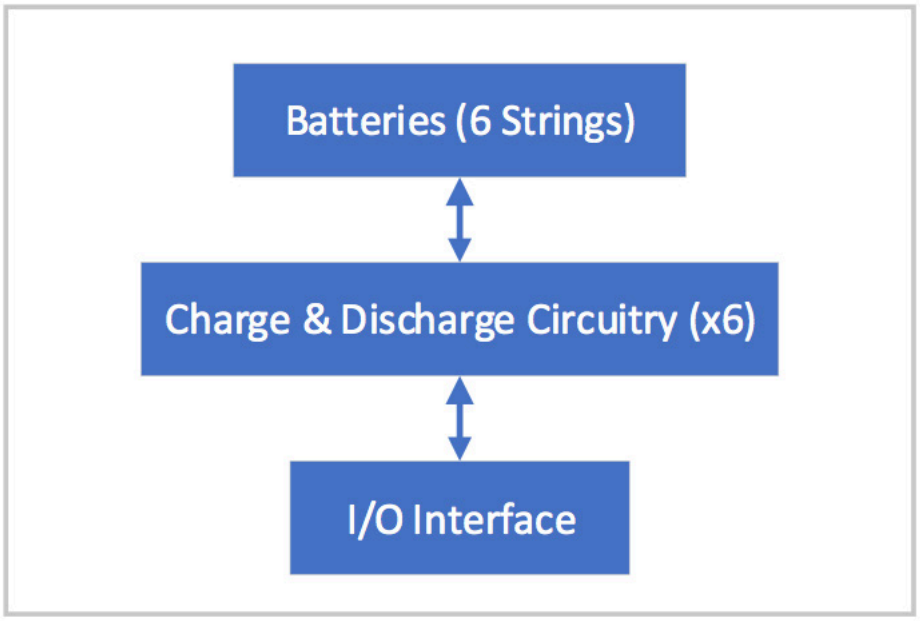
The ZincBlue2 UPS 1000W/1500W continuously monitors the incoming AC for voltage, frequency and waveform anomalies. When the pre-defined, or user defined AC thresholds are exceeded the ZincBlue2 UPS 1000W/1500W will transfer from AC Utility power to battery backup. The ZincBlue2 UPS 1000W/1500W will remain in battery backup and continue to supply power to the traffic signals/intersection until AC power is returned with a 3, 10, or 30 second delay (user defined) or the batteries are depleted. The ZincBlue2 UPS 1000W/1500W utilizes a 42-60Vdc to 120Vac, 60Hz 1000W inverter to perform this backup. It can be connected to as many as six (6) ZincBlue2 Battery Panels or Battery Modules.



ZincBlue2 UPS 1000W Block Diagram

ZincBlue2 Battery Panel & Battery Module

The Battery Panel and Battery Module are identical 500W battery packages with different form factors. These devices will continuously monitor the six internal nickel-zinc battery strings to make sure they are properly charged and discharged. The device will generally be in one of three states: Charging (Blue LED is ON), Discharging (Green LED is ON), or Monitoring the Batteries (White LED is blinking). A fault (Red LED is ON) can occur and will be in a state where it can neither charge or discharge. These devices communicate via CAN bus across the battery Digital and DC Power Interconnect Cable with the ZincBlue2 UPS 1000W/1500W. Upon loss of power the ZincBlue2 UPS 1000W/1500W will signal the Battery Panel/Battery Module to enable its battery DC bus to supply 57-43Vdc to the ZincBlue2 UPS 1000W/1500W which will convert the battery DC bus to 120Vac Pure Sine wave to support up to a 1000W load. When not charging or discharging the batteries will be in "monitor mode" with a self-discharge of approximately 3% per month (depending on temperature and state of charge). When battery voltage drops below a set threshold due to self-discharge, the batteries will perform a top off charge.



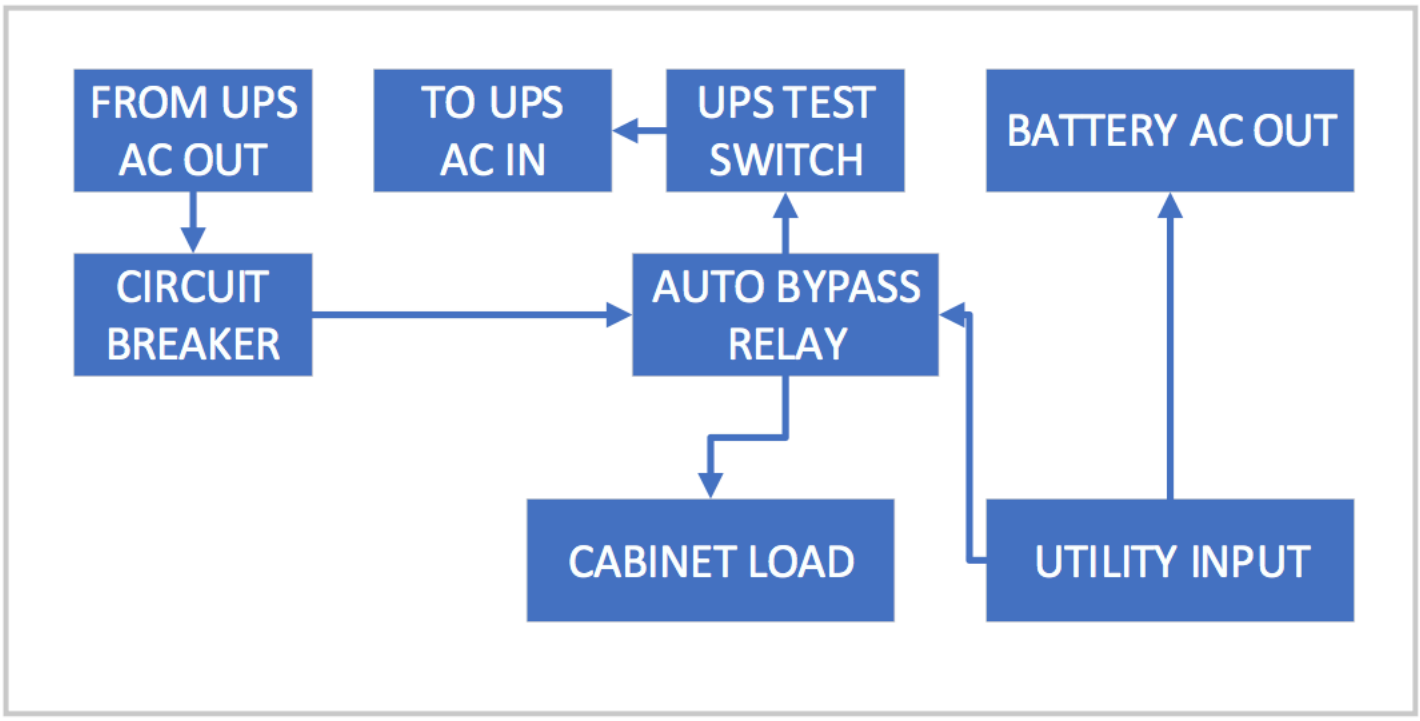
ZincBlue2 Battery Panel and Module Block Diagram

ZincBlue2 PIM

The PIM is the device that routes all the power in the system. It takes AC Power from the Utility and re-routes it through the AUTO BYPASS RELAY and 15Amp breaker (UPS TEST SWITCH) to the ZincBlue2 UPS 1000W. The PIM directly, without breaker, routes AC to the Battery Panel/Battery Module (BATTERY AC OUT). The ZincBlue2 UPS 1000W/1500W returns AC Power back to the PIM (FROM UPS AC OUT) and routes this through a 20Amp circuit breaker and AUTO BYPASS RELAY to the cabinet load. Terminal blocks for INPUT (from Utility) and OUTPUT (To Cabinet) are isolated via conduit input hole and cover. The terminal blocks can accept 10-12 AWG wire using a ring terminal or spade terminal.

The UPS TEST switch on the PIM can be utilized to test the ZincBlue2 UPS 1000W/1500W which will go into backup mode by turning the switch from ON (UPS Mode) to OFF (TEST Mode). Because Utility power goes directly to the Batteries (TO BATTERY AC IN) the UPS TEST switch should not be used for run-time testing. The UPS TEST OUTPUT can be used at any time to monitor AC Voltage coming from the ZincBlue2 UPS 1000W/1500W.

The BYPASS light will go ON anytime there is no ZincBlue2 UPS 1000W/1500W in the system (unplugged, damaged, etc.) The Auto BYPASS relay will route the incoming UTILITY INPUT directly to the CABINET LOAD output.

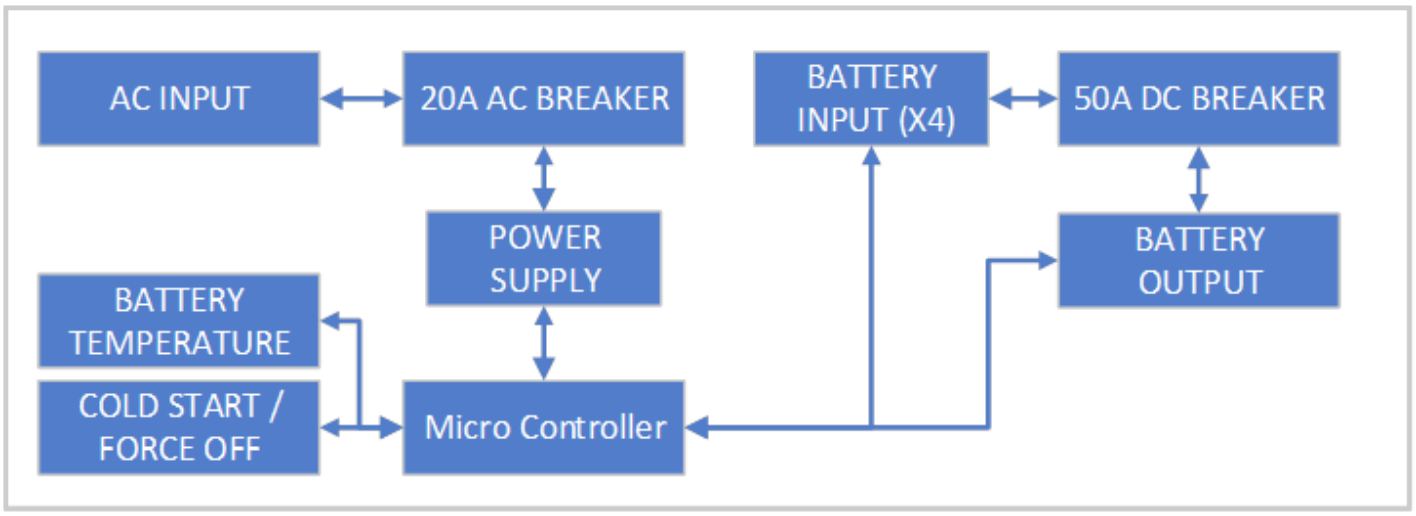


ZincBlue2 PIM Block Diagram

ZincBlue2 XRT Battery 3600Wh

The ZincBlue2 XRT Battery 3600Wh is a battery controller that continuously monitor four monobloc nickel-zinc batteries to make sure they are properly charged and balanced. The device has an AC (90-135Vac, 18Amp) input and 20Amp Breaker to turn ON/OFF the AC power. Likewise, the DC Battery Output has a 50Amp Breaker to turn ON/OFF the Battery Output port going to the UPS 1000W controller. The ZincBlue2 XRT will generally be in one of several states: Charging (Blue LED is ON), Discharging (Green LED is ON), or Fully Charged/Battery Monitor (White LED is blinking). A battery missing/miswired (Red LED is ON) condition can occur when one or more of the eight wires to the batteries are missing, miswired, or a fuse has opened/blown. A system fault (Red LED is blinking) condition means the system requires service or the battery temperature senor cable is unplugged . The ZincBlue2 XRT uses several different modes which include Constant Current and Constant Voltage to optimize charging and balancing the batteries. The LED's will be BLUE or OFF during the various modes of charging that take place. The ZincBlue2 XRT communicates via CAN bus across the battery interconnect cable with the controller. Upon loss of power, the controller will signal the ZincBlue2 XRT to enable its battery output DC bus to supply 57-43Vdc to the controller which will convert the battery DC bus to 120Vac Pure Sine wave supporting a 1000W or 1500W load the controller utilized. When not charging or discharging the batteries will be in rest mode. When battery voltage drops below a set threshold (14.1V) due to self-discharge, the batteries will be automatically recharged back to 100% State of Charge.

Note: In order to initiate a firmware update to the ZincBlue2 XRT, it must have all four nickel-zinc monobloc batteries connected.



ZincBlue2 XRT Battery 3600Wh Block Diagram

Troubleshooting

Trouble Analysis

Checking Process:

1) Check system to make sure everything is working properly:
   a.) PIM BYPASS (RED) light should be OFF: Power is going through ZincBlue2 UPS 1000W/1500W.
   b.) Battery Panel/Module LED should be: Blinking White (monitor), or Blue (Charge) or Green (Discharge).
   c.) ZincBlue2 UPS 1000W/1500W should not have any RED LIGHTS or warning notifications.
2) Check all AC (Power) connections from the PIM to the other devices. Confirm nothing is loose.
3) Check that Battery Interconnect Cables between batteries and ZincBlue2 UPS 1000W/1500W are all secure and attached.

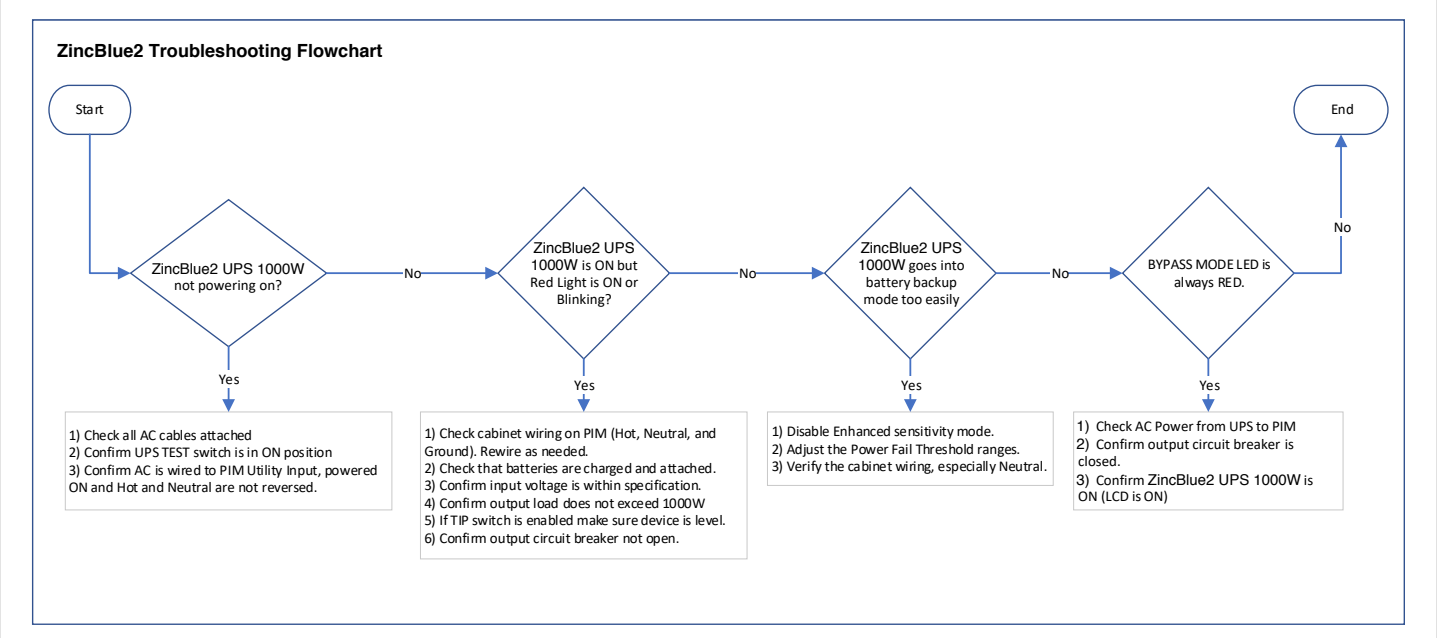
Test:

The UPS TEST switch can be utilized as needed to verify the ZincBlue2 UPS 1000W1500W is working properly.

1) Place the UPS TEST switch in the OFF position to remove utility input power going to the ZincBlue2 UPS 1000W/1500W. This will force the system into backup mode. The ZincBlue2 UPS 1000W/1500W will then provide power to the CABINET LOAD and the UPS TEST OUTPUT on the PIM.
2) Confirm the ZincBlue2 UPS 1000W/1500W is in BACKUP MODE:
   a.) ZincBlue2 UPS 1000W/1500W has BACKUP MODE ON – Solid Green LED.
   b.) The Battery Panel/Module LED – Solid Green LED.
3) If a RUN TIME test is desired it is best to leave the UPS TEST switch in the ON position and turn off the utility power off at the breaker going to the PIM. This will force the ZincBlue2 UPS 1000W/1500W into backup mode and keep the batteries from being charged.

Troubleshooting Sequence Chart

The Troubleshooting Sequence Chart applies to both the ZincBlue2 UPS 1000W and 1500W.



Problem	Solution
ZincBlue2 UPS 1000W/1500W not powering ON	
The ZincBlue2 UPS 1000W/1500W not getting AC Power	1) Check AC TO UPS cable from PIM is attached and supplying 120Vac. 2) Confirm UPS TEST switch on PIM is in the ON position.
The ZIncBlue2 UPS 1500W cold start is not working	With no AC power the system can be started from the battery cold start button. The ZincBlue2 UPS 1500W will enforce the minimum battery configuration: two 500W panels or modules orUPStealth 2 XRT Battery 3600W must be attached. If only one 500W panel/module is attached to the ZincBlue2 UPS 1500W a cold start will not work.
ZincBlue2 UPS 1000W/1500W RED LED Flashing	
Utility AC is applied with a cabinet miswire of swapped Hot and Neutral.	Check the cabinet wiring to the PIM (Hot, Neutral, Ground) terminal block and rewire as necessary.
ZIncBlue2 UPS 1000W/1500W is too sensitive in going into battery backup mode	
Enhanced Sensitivity is Enabled	Turn off Enhanced Sensitivity. This mode increase the ZincBlue2 UPS 1000W/1500W sensitivity to power failures and glitches and when it will switch from AC line power to backup mode.
Power Fail Thresholds range is too restricted	Change the LOW and HIGH Threshold to specify when the ZincBlue2 UPS 1000W/1500W should go into battery backup mode. A wider range will reduce sensitivity.
Poor cabinet neutral	Verify cabinet wiring.
Intermittent power connections from utility	Verify cabinet wiring--check for loose wires.
ZincBlue2 UPS 1000W/1500W stays in backup mode too long after power is restored	
Adjust the Line Qualify Time	By default the line qualify time is set to 30s. After power is restored the system will remain in backup for the Line Qualify time. This can be adjusted from 30s to 10s or 3s.
ZincBlue2 UPS 1000W/1500W cannot provide battery backup (UPS FAULT: Red LED ON)	
Batteries not attached or available	1) Check battery interconnect cable is connected between ZincBlue2 UPS 1000W/1500W and each battery. Confirm that when plugged in the UPStealth 2 UPS 1000W/1500W recognizes the batteries (a dot on the LCD will light up for each battery detected). 2) Confirm the batteries are also connected to the PIM via AC cable. 3) The 1500W requires a minimum of one ZincBlue2 XRT Battery 3600W or two 500W ZincBlue2 Battery modules/panels. Confirm the system meets this requirement. If the minimum configuration is not met, then the LCD will display: STATUS: BACKUP UNAVAILABLE
Batteries voltage is too low (not charged)	Batteries will blink the LED White when fully charged. If system has recently been through a discharge cycle the batteries may not be charged up sufficiently to provide backup power (voltage will be too low).
The UPS input voltage is out of spec	Check incoming AC voltage is present and within spec: 85-140Vac.
The UPS inverter is not operational	Contact technical support.
The load is too high for the UPS (Inverter Overload)	Confirm the total load on the PIM connected to UPS TEST OUTPUT and CABINET LOAD does not exceed the 1000W max rating of the ZincBlue2 UPS 1000W/1500W.
The temperature is outside the operational range of the UPS	Check system is within its operational temperature range: -37C to 74C.
The tip switch is activated while the UPS is in backup mode.	Device is out of level by > 15 degrees. Return to a level state. Power cycle the ZincBlue2 UPS 1000W/1500W as needed to clear fault.
Status screen states BACKUP UNAVAILABLE	This status will be present if the AC Power and UPS Output are out of specification (too high > 124V or too low < 116V). Also, an excessive loads on inverter can cause this.
Output Circuit Breaker maybe Open	The output circuit breaker is a 20Amp push button breaker. Make sure the white button is pressed in all the way (flush to the plastic). Confirm voltage at Cabinet load reads 120Vac.
The ZincBlue2 UPS 1000W/1500W emits an audible beep	
A single Beep is heard.	This is normal and represents: System going from NORMAL to BACKUP mode System going from BACKUP to NORMAL mode
Emits single beep and has RED LED on the UPS	The load is too high for the UPS (see "UPS 1000 cannot provide battery backup")
ZincBlue2 UPS 1000W/1500W emits a long beep, followed by a string of 6 short beeps	The inverter cannot detect batteries. Confirm all battery connectors are fully seated. Make sure battery LEDs are all on.
The ZincBlue2 system does not meet expected backup time	
Batteries are not completely charged or are near the end of their service life.	1) Make sure batteries are fully charged (White light blinking) and not in charge mode (Blue light) when doing run time testing. 2) Hot and cold extreme temperatures can impact runtime. Perform a run time test between 20C - 40C for best comparison testing.
Cabinet may have poor power factor.	Account for power factor as part of the load.
The ZincBlue2 other	
The batteries are not being charged.	The battery panels and modules will only charge between -37C to 50C, outside of this temperature range, as measured by the internal battery temperature sensors, the batteries will not attempt to charge.
The ZincBlue2 UPS 1500W inverter not working with 1 battery panel/module	The ZincBlue2 UPS 1500W requires two 500W UPStealth 2 Battery Panels or Modules or UPStealth 2 XRT Battery 3600Wh in order to work properly (allow discharge). If it doesn't meet this requirement an error will be noted.
The ZincBlue2 UPS 1500W inverter is making clicking noises	The ZincBlue2 UPS 1500W is going through initialization and startup of the inverter. If this continues check battery connection; batteries maybe missing.
An invalid Subnet Mask was entered making it impossible to connect with UPS 1000.	If an invalid Subnet Mask was entered it will require doing a "Config Data Only" reset from the LCD: STATUS > SETTINGS > ADDITIONAL SETTINGS > SYSTEM RESETS page.
System shows Backup unavailable and writes Inverter out of Spec Warning in the System Log	The 1500W controller output voltage is either less than 100V or greater than 130V. This device will not be able to go into backup when power is removed. Problem is likely a damaged or locked out inverter. Check to make sure the output load (<=1500W) and battery voltages (43-60VDC) supplying the unit are within range.
System writes Inverter out of Spec Warning in the System Log.	The 1500W controller output voltage is either less than 115V or greater than 124V. The BACKUP mode will still be operational. A high output load and/or low DC (battery) voltage can contribute to the inverter going slightly out of spec. Confirm load is <=1500W.
Battery Fault	
The LED on the Battery Panel/Module is RED	This can occur if there is a hardware failure or if the cold start button is pressed for over 10 seconds while the battery is powered by AC. Remove AC from the Battery Panel/Module. Force battery off by holding COLD START button down for 10S to turn RED LED OFF. Return AC power and perform a Power Loss test to confirm battery will go into backup mode (GREEN LED). If RED light remains on the battery panel/module contact technical support.
The LED on the Battery Panel/Module is ORANGE	Indicates a HW failure. Contact ZincFive technical support.
Power Interface Module (PIM)	
Always in BYPASS mode (BYPASS LIGHT IS RED)	1) System will go into BYPASS mode when the ZIncBlue2 UPS 1000W is not connected to the PIM or not operational. Make sure the AC power from the PIM is connected to the UPS 1000W; both input and output AC must be connected. Confirm UPStealth 2 UPS 1000W/1500W is active (LCD is ON). 2) Internal contactor maybe damaged.
ZincBlue2 XRT Battery 3600Wh	
Device not powering up	1) Check to make sure AC and DC breakers are in ON position (switch flat). 2) Confirm AC plugged in. 3) Confirm all battery cables attached to XRT and wired to their respective battery 4) Confirm the External Temperature Sensor is attached to battery lug and plugged in.
All four battery status LEDs are blinking red	This is a Hardware fault. Likely issues is the Temperature Sensor is not plugged in / missing or damaged. **Note:** The XRT system will shut down during backup or prevent the XRT from going into backup if the temperature sensor is missing.
All four battery status LEDs are solid red	This will occur when one or more of the batteries are unplugged or miswired. Check to make sure the battery cable is connected and properly wired to the battery (Red wire to positive terminal and Black wire to negative terminal). Check the fuse in each of the battery cables to make sure that none have opened.
XRT is not charging the batteries	The LN3 batteries will only be charged between -25C to 50C, outside of this temperature range, as measured by the external temperature sensor, the batteries will not attempt to charge. The system has a 5C hysteresis before returning to charging after exceeding the temperature limits.
XRT is not discharging the batteries at extreme temperatures	There is a low and high temperature limit on discharge. The Batteries will NOT discharge once the external temperature sensor attached to the battery terminal is less than -37C or greater than 74C. This is to preserve the life of the battery and system.
Battery cable removed during operation	Removal of any individual battery cable during backup mode will cause the XRT / UPS to power down. Removal during charge or monitor mode will cause all four battery status LEDs to be sold red notifying the user of an error.
One battery status LED is blinking red	This indicates a weak or bad battery conditions. The ZincBlue2 UPS 1000W/1500W will notify the user via Battery Attention warning. The red status LED will begin blinking for the corresponding bad battery. The blinking RED status LED will be cleared once the battery is removed and replaced.
Firmware update failure	Make sure there is nothing plugged into the micro-USB connector. Note: The micro-USB port is for factory/field service use only.
Battery Attention seen in the system log	The three conditions that will trigger a battery attention log are: 1) Temperature Sensor Failure, 2) Weak or bad battery detected, 3) Power supply failed to respond. Power should be recycled on unit and connections (including battery fuses) should be re-checked.

ZincBlue2 Troubleshooting Chart

Limited Warranty

Econolite takes pride in engineering and manufacturing products that meet our customers' needs for quality reliable uninterruptible power solutions. As part of that commitment, we are pleased to provide our customers with this limited warranty.

1. Econolite Control Products, Inc. ("Econolite") offers a Limited Warranty on all new products it sells against defects in material and workmanship under normal use and service for a period of two (“2”) years for electronic components and five (“5”) years for battery cells. The Limited Warranty commences the later of the date the product(s) is shipped from Econolite or the date product is shipped direct from an authorized Distributor (not to exceed 90 days from the original ship date from Econolite).

2. This Limited Warranty provides for replacement, repair, or refund (at Econolite's sole option) of Econolite products by Econolite or by a Econolite authorized repair service. This Limited Warranty shall not apply to products that have been repaired by service personnel other than those authorized by Econolite. Econolite's products that have been altered or modified without the express written consent of Econolite will void this Limited Warranty.

3. This is an exclusive warranty. Any remedies are restricted to repair or replacement of the effected product at Econolite sole discretion. Econolite is not liable for damages, which may include; uninterrupted or error free operation, loss of profits, loss of use, costs of installation or removal of defective equipment. Econolite is not responsible for any damage or injury directly or indirectly incurred due to design, operation or defect of its products. There are no warranties for loss of data. No other warranties are expressed or implied.

4. This Limited Warranty only applies to defects which may have arisen from system failures related to components or workmanship of Econolite product(s) and does not apply to any other defects which may have been due, but not limited to the following restrictions and exclusions:

a) Accidental damage caused by abuse, misuse, mistreatment, abnormal stress or strain or vehicular accident;

b) Damage as a result of misuse, exposure to harsh conditions, such as, temperatures below or above the operational limits outlined in the User's Manual, electrical power spikes, negligence, improper installation including but not limited to incorrect wiring or improper grounding, improper battery storage including exposure to corrosion, damage by vermin, damage relative to immersion in water or other liquids, lack of proper care and/or preventative maintenance;

c) Use or maintenance of Econolite products in any manner not approved or recommended by Econolite including unauthorized servicing, repair, and/or maintenance;

d) Alterations or repair of our products other than approved in writing by Econolite;

e) Alteration of serial numbers or identification marks; and

f) Acts of God, which may include earthquakes, storm damage, lightning strikes, flooding or any other cause beyond the range of intended use.

5. This limited warranty does not provide to the customer or other parties any remedies other than those outlined above. No representational warranty regarding product performance, whether expressed or implied, by any representative of Econolite or agent of Econolite, shall be binding upon Econolite.

6. Econolite reserves the right to inspect and render final decision on each limited warranty case. If it is deemed necessary to repair or replace a Econolite product the replacement product assumes the original warranty date.

Warranty decisions are solely at the discretion of Econolite.

7. Econolite reserves the right to improve or make product modifications without incurring obligation to update, retrofit or install such modifications on previously sold products. However, Econolite may make upgrades and product improvements available to end users free-of-charge or for an upgrade fee at Econolite's sole discretion.

8. Econolite will not cover the shipping costs of authorized returned goods, but will pay for return shipping if product is deemed to qualify under this Limited Warranty. Returned products must be shipped in authorized packaging materials. Any repairs required due to improperly packaged equipment will be the financial responsibility of the shipping party.

9. This Limited Warranty is only valid to original purchaser or to upon transfer to an original end user.

10. An extended warranty can be purchased at time of original purchase on a per year basis up to three additional (3) years.

11. Written authorization for the warranty return of merchandise (RMA) must be obtained from Econolite, at 1250 N Tustin Avenue, or emailing support@econolite.com or calling 800.225.6480.

12. Econolite will perform warranty repairs at its place of business, or designated repair facility per its standard warranty procedures. All communications with the end customer will be handled via Purchaser's representative. In the event that Product is returned and repairs are required or requested that are not covered as a warranty, Econolite will provide such repairs only after receiving written authorization from Purchaser. Econolite will then invoice Purchaser for such repair and Purchaser will make payment upon receipt of invoice.

THIS LIMITED WARRANTY SUPERCEDES ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. ECONOLITE NEITHER ASSUMES NOR AUTHORIZES ANY OTHER ENTITY TO ASSUME ANY OTHER LIABILITY OR LIMITED WARRANTY IN CONNECTION WITH THE SALE OR SERVICE OF ANY ECONOLITE PRODUCTS.

Glossary

AC
Utility power typically 120 VAC 60 Hz

AC-
AC Power grounded return

AWG
American Wire Gauge

ETHERNET
A system for connecting a number of computer systems to form a local area network to control the passing of information between them

F
Fahrenheit

Firmware
Computer Code that resides in a board level product.

Flash
Nonvolatile Memory

IP
Internet Protocol

KB
Kilobyte

LED
Light Emitting Diode

LCD
Liquid Crystal Display

MB
Megabyte

MS
Milli-seconds - one thousandth of a second

NC
Normally Closed Contact (circuit completed)

NEMA
National Electrical Manufacturers Association

Nickel-Zinc
Rechargeable battery chemistry that uses Nickel and Zinc (NiZn)

NO
Normally Open Contact (circuit not complete)

PIM
Power Interface Module

SMTP
Simple Mail Transfer Protocol - An Ethernet protocol for sending e-mail messages between servers

SNMP
Simple Network Management Protocol - An Ethernet protocol allowing a master computer to poll other computers in a local area network

SOFTWARE
Computer code that usually resides in a PC or higher-level computer

True RMS
True root mean square

UPS
Uninterruptible Power Supply

VAC
Volts Alternating Current

VDC
Volts Direct Current

Notes

ZincBlue2

This user manual provides the essential information you need in order to get the most from your ZincBlue2 Uninterruptible Power Supply & ZincBlue2 Software.

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www.econolite.com/support
01100-00200-00030, rev H07