

CP3150

Series

CHLORIDE POWER PROTECTION

THREE-PHASE Uninterruptible Power System

Owner's Manual

P/N 913-576 Rev A

User and Operating Manual

© Chloride Power Protection
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DECLARATION OF CONFORMITY

The manufacturer: CHLORIDE POWER PROTECTION

Head office at:
28430 North Ballard Drive
Lake Forest, IL 60045
USA

HEREBY DECLARES THAT THE PRODUCT: CP3000

CONFORMS TO THE FOLLOWING REGULATIONS:



UL1778
FCC PART 15

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS FOR THE CP3000 SERIES THAT SHOULD BE FOLLOWED DURING INSTALLATION AND MAINTANANCE OF THE UPS, BATTERIES, OPTIONS AND ACCESSERIES

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Safety (English)



WARNING:

This equipment services power from more than one source. UPS present a different safety issue than most electrical equipment because removing input power from the UPS puts it into backup mode. Removing the input power from the UPS does not remove the electrical charge. To ensure that the UPS is off, turn the inverter OFF before removing the input power from the UPS.



CAUTION:

Operating this equipment without proper grounding may present a risk of electrical shock.



WARNING:

Dangerous voltages are present within this unit! There are no user-serviceable parts inside. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical code. Do not remove the cover. All repairs should be done by qualified service personnel. Voltages inside the UPS may be lethal. Internal components are powered even when the power switch is in the OFF position. Even with the battery disconnected and the unit unplugged, energy is stored in high voltage capacitors and represents a severe shock hazard.

Other Safety Considerations:

The system is not intended for outdoor use. The operating environment should be maintained within the parameters stated in the manual. Keep the cabinet doors closed and locked to ensure proper cooling airflow and to protect personnel from dangerous voltages inside the unit. The UPS system contains its own power source. Lethal voltages are present even when the UPS is disconnected from utility power.

If service or routine maintenance is required:

Ensure all power is disconnected before performing installation or service. Ensure the area around the UPS system is clean and uncluttered. Battery maintenance or battery replacement should be performed only by authorized service personnel.

Observe all DANGER, CAUTION and WARNING notices affixed to the inside and outside of the equipment.

Battery Disposal UPS batteries contain toxic and acidic materials. Disposal method must adhere to local/national recycling laws. Dispose of the battery in one of three ways: WHAT WAYS?



ATTENTION: The batteries in this UPS are recyclable. Dispose of the batteries properly.



CAUTION: DO NOT dispose of batteries in a fire. The battery may explode. Do not open or mutilate the battery or battery cabinet. Released electrolyte is harmful to the skin and eyes and is toxic.



WARNING:

Only **AUTHORIZED SERVICE PERSONNEL** should perform maintenance on or service the UPS system.

Grounding the Unit



CAUTION:

Interruption of the protective grounding conductor or disconnection of the protective earth terminal presents a potential shock hazard that could result in personal injury and damage to the equipment.



WARNING:

- 1) An insulated grounding conductor that is identical in size, insulation material, and thickness to the grounded and ungrounded branch circuit conductors except that it is green with or without one or more yellow stripes is to be installed as part of the branch circuit that supplies the unit or system.
- 2) The grounding conductor supplied in 1) is to be grounded to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor-generator set.
- 3) The attachment-plug receptacles in the vicinity of the unit or system are all to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment.

FCC Compliance



ATTENTION:

Changes or modifications to this unit not expressly approved by the party responsible or in FCC compliance could void the user's authority to operate the equipment. This equipment was tested and complies with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the UPS is operating in a commercial environment. The UPS generates, uses, and can radiate radio frequency energy. If installation and use is not in accordance with the instruction manual, it may cause harmful interference to radio communications.



ATTENTION:

Operation of this equipment in a residential area may cause harmful radio communications interference. The user is responsible for correcting the interference.

The basic environmental requirements of the UPS system are:

Ambient Temperature Range: 32 – 104°F (0-40°C)

Recommended Operating Range: 68 – 77°F (20-25°C)

Maximum Relative Humidity: 95% (non-condensing)

DELIVERY AND STORAGE

DELIVERY

Immediately inspect upon receipt of goods to ensure that the contents are undamaged. A **SHOCKWATCH** label has been affixed to the packaging. The purpose of this **SHOCKWATCH** is to give the receiving clerk an immediate indication if the goods had experienced rough handling. If red, note on bill of lading and report immediately to the freight forwarder. If damage is found, keep all packaging materials and shipping documentation.

UNPACKING

Care should be taken when removing the packaging in order to avoid damaging the equipment. Remove the outer packaging and inspect for damage. Shipping brackets are used to attach the UPS and battery cabinets to the skid. Remove these brackets by removing the shipping bolts attached to the skid and the bolts attached to the cabinet. Use a fork lift to lift up the cabinet from the skid and remove the skid. Lower the cabinet on its casters. Refer to *Figure 1 – Unpacking*

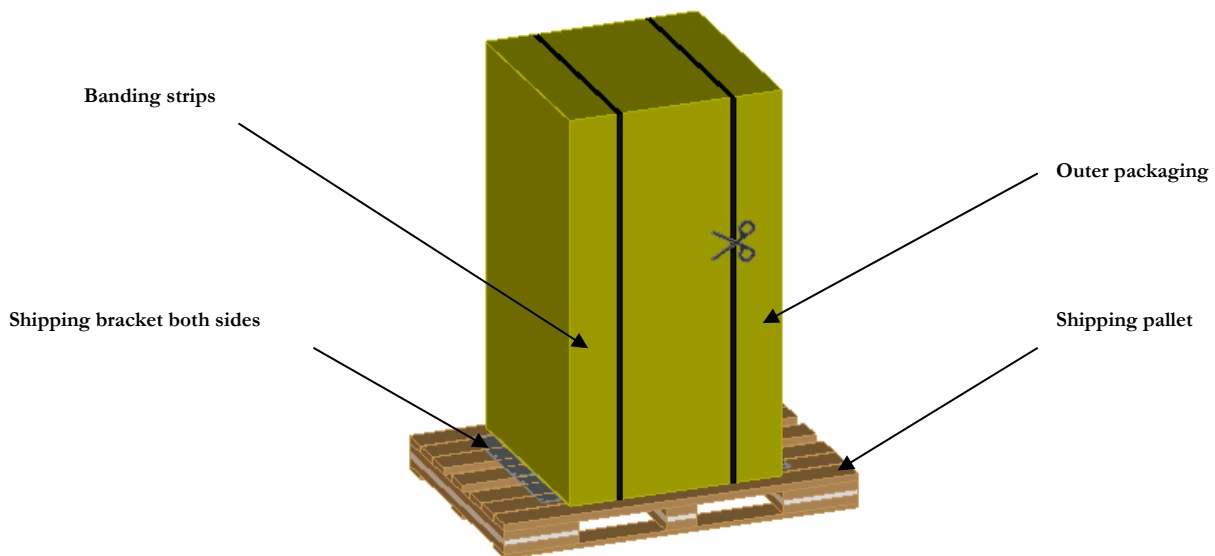


Figure 1 – Unpacking

HANDLING

The equipment must be kept upright at all times and handled with care. Damage may be caused if subjected to severe impact. The UPS and battery cabinet has been fitted with casters to allow ease of installation near the final location. It is recommended that the UPS and battery cabinets be moved with a pallet jack or fork lift over long distances. The lower side skirts have been intentionally left off to allow fork access under the UPS or battery cabinets. **Refer to Figure 2 – Handling**

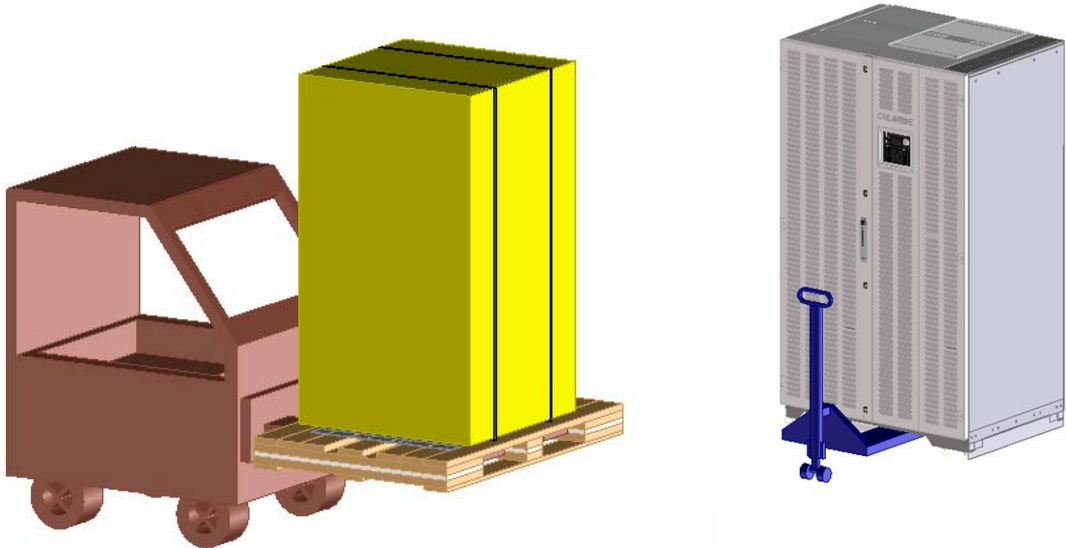


Figure 2 – Handling

STORAGE

When the UPS is not used within seven days of delivery, please pay special attention to the storage requirements.

If the batteries or the equipment is to be stored, they must be kept in a **clean, dry environment and away from extremes of temperature.**

STORAGE DATA

Storage temperature range: -4°F (-20°C) to 140°F (60°C); however, batteries should not be exposed to temperature above 77°F (25°C). Each increment of 15°F (8°C) above 77°F (25°C) reduces the expected battery life by 50%. See battery manufacturer's recommendations.

The ideal environmental temperature range is 59° F to 77° F due to the battery life design at 77 F. Each increment of 15 °F above 77 °F reduces the expected battery life by 50%. *See battery manufacturer's recommendations.*

UPS without batteries -4°F to 140°F (-20°C to 60°C)

Relative humidity from 0% to 95%

UNLESS BATTERY MANUFACTURER'S SPECIFICATION STATES OTHERWISE

PREPARING FOR INSTALLATION

ENVIRONMENTAL CONDITIONS

The UPS and battery cabinets must be installed vertically, on a level and even surface. The UPS and battery cabinets should be protected from extremes temperatures, water, humidity, and the presence of conductive powder or dust. Do not stack units and do not place any objects on top of the unit. Although the functional temperature range of the UPS is 32°F to 104°F (0°C to 40°C). The ideal environmental temperature range is 59°F to 77°F (15°C to 25°C) due to the battery life design at 77°F (25°C). Each increment of 15°F above 77°F reduces the expected battery life by 50%. See *battery manufacturer's recommendations*.

MECHANICAL DIMENSIONS

The area must have sufficient space for the installation to be carried out. Access doors must be sufficiently large to permit passage of the unit. The UPS has been designed to provide front or top access for maintenance purposes. **Refer to appendix A for UPS and Battery Cabinet dimensional drawings.**

FLOOR LOADING

It is necessary that the floor in the chosen location be capable of supporting the weight of the UPS and battery cabinets. *Refer to appendix A for weights of the UPS and Battery Cabinet.* To ease movement over short distances the UPS and battery cabinet is fitted with casters. **Refer to Figure 3 – Bottom View**

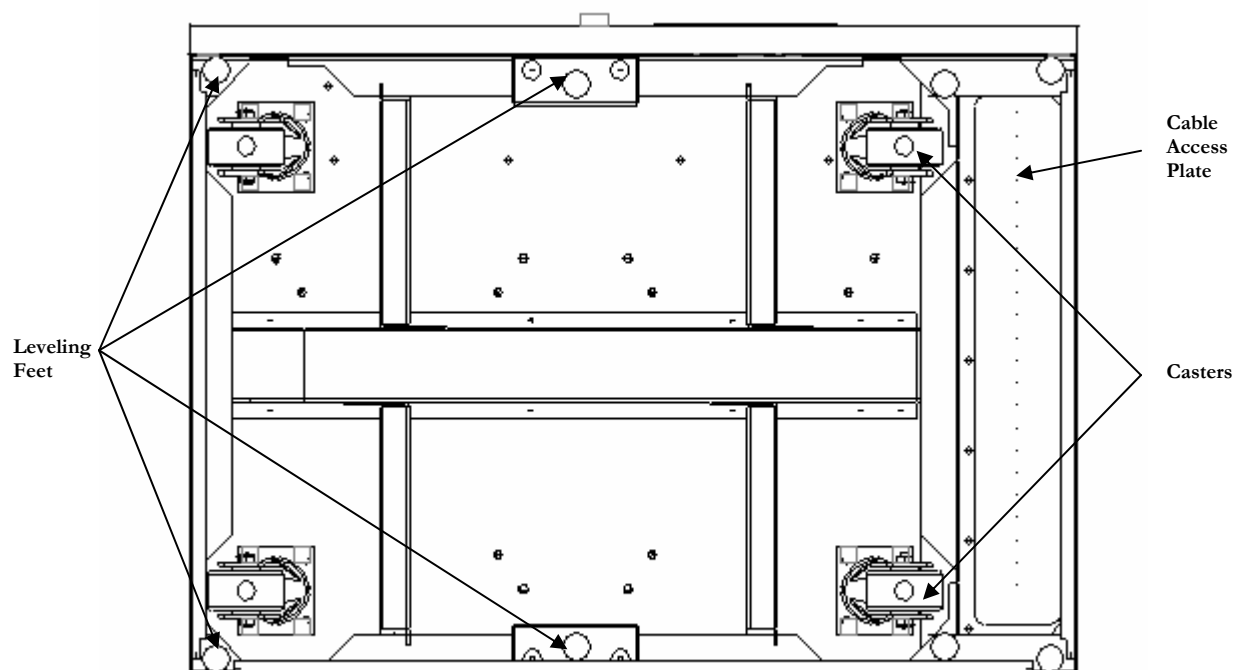


Figure 3 – Bottom View

UPS INSTALLATION

**WARNING:**

Dangerous voltages are present within this unit! There are no user-serviceable parts inside. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical code. Do not remove the cover. All repairs should be done by qualified service personnel. Voltages inside the UPS may be lethal. Internal components are powered even when the power switch is in the OFF position. Even with the battery disconnected and the unit unplugged, energy is stored in high voltage capacitors and represents a severe shock hazard.

UNLESS MANUFACTURER'S SPECIFICATION STATES OTHERWISE**INSTALLATION DATA**

Ambient temperature	32°F to 104°F (0°C to 40°C)
Relative humidity (w/o condensing)	0 – 95%
Max. Altitude (w/o de-rating)	5000 ft a.s.l.
Cable entry	top or bottom
Air inlet	front
Air outlet	top

UPS ELECTRICAL CONNECTIONS

In order to gain access to the electrical connections *Refer to Figure 5 & 6 – Electrical Terminations*, it will be necessary to remove the protection panel located on the front of the UPS behind the front doors. On the UPS and Transformer cabinet, power cables can be brought in from the top or bottom through the access plates and routed through the cable raceway. *Refer to Figure 4 – Front View UPS*

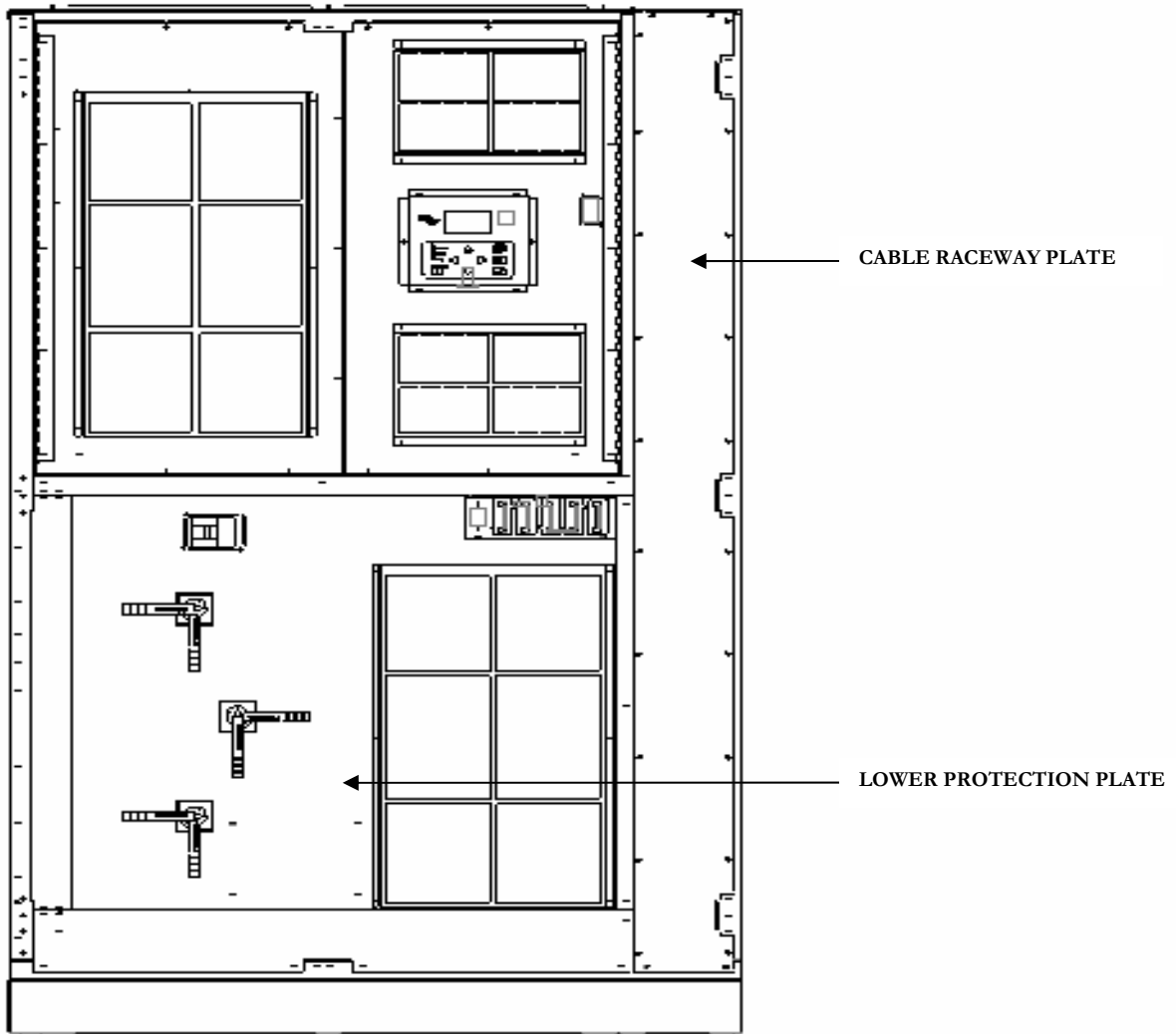


Figure 4 – Front View UPS

UPS ELECTRICAL TERMINATIONS

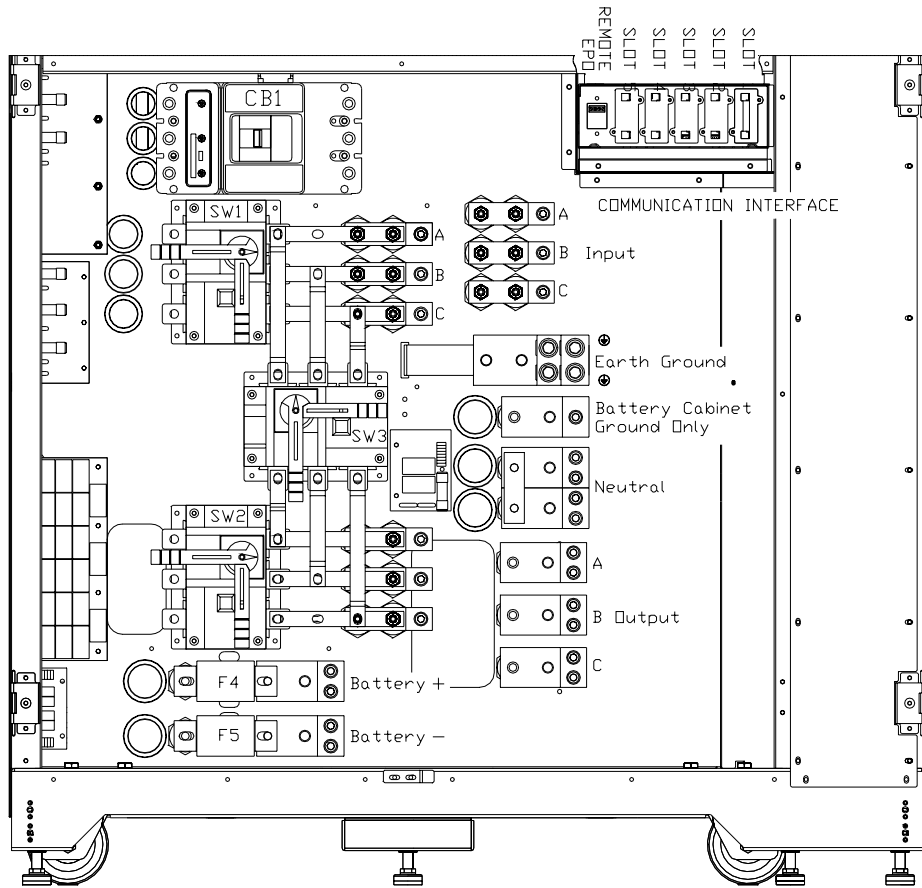


Figure 5 – UPS Electrical Terminations

Electrical connections

1. Connect the ground wire to the GND terminal.
2. For dual input connect the MAIN AC wires to the INPUT A,B,C, and BY-PASS AC wires to BY-PASS A, B ,C, and N
3. For single input the mains input and bypass will be supplied with jumpers between them.
4. Connect the output AC wires to the output A,B,C, and N
5. Connect the optional battery cabinet positive (+) terminal to the positive (+) terminal in the UPS. Connect the optional battery cabinet positive (-) terminal to the positive (-) terminal in the UPS.
6. Connect the external battery cabinet ground to the BATT GND terminal.

Note: This UPS may be considered a separately derived source. If this is the case, a jumper will be provided and connected between ground and the neutral terminations. Therefore, in this configuration an input neutral will not be required. The BY-PASS is phase rotation sensitive. Clockwise phase rotation is required for the input and bypass. The neutral requirements for the By-Pass input are solely dependent on the load requirements. If the load requires a Neutral then the Bypass must be supplied with a neutral regardless of a single input or dual input configuration. This neutral should be sized for three phase unbalanced load conditions. Therefore it is recommended that the neutral be sized for at least 1.7 times that of the phase conductors. If there is a question concerning this option, please contact Chloride technical support.

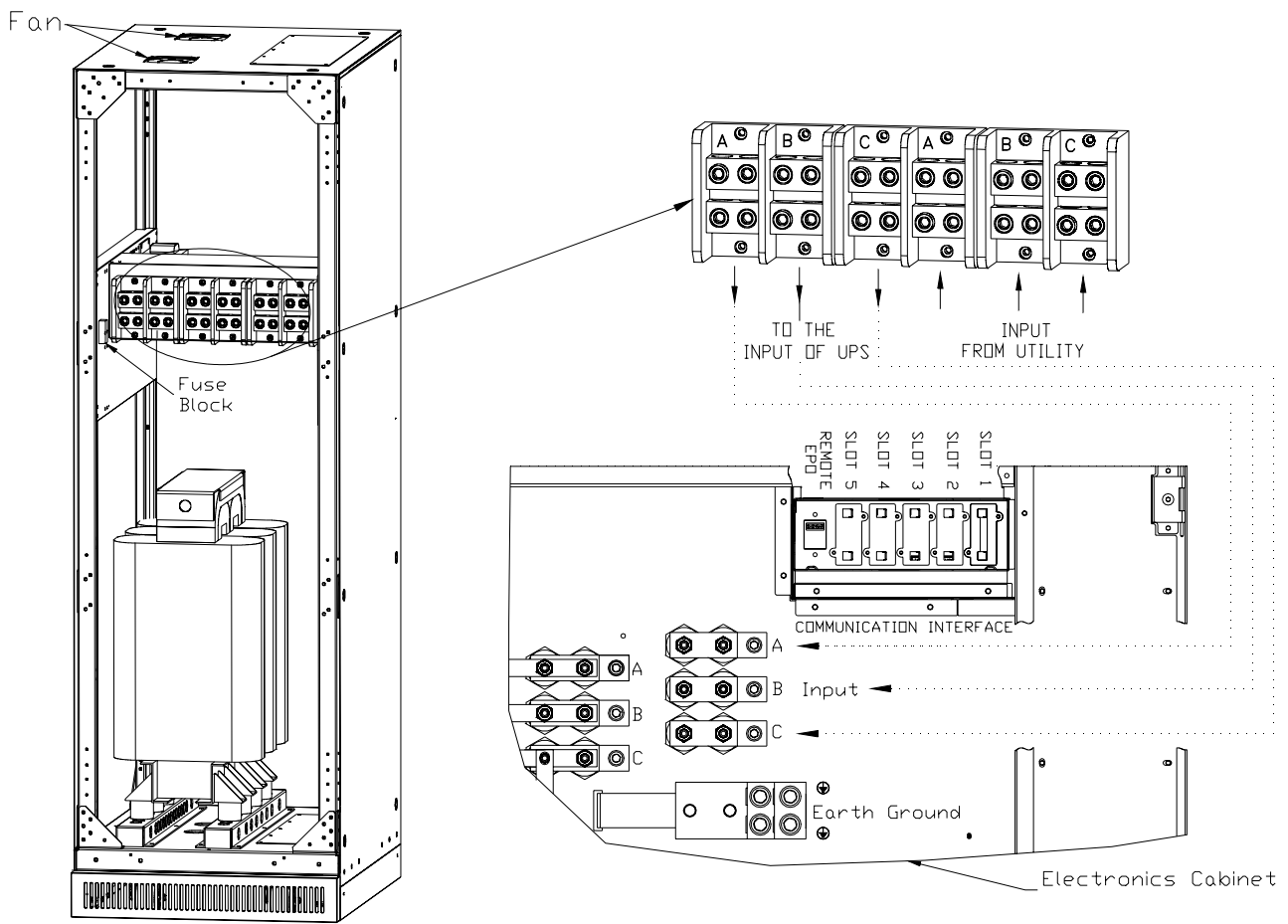


Figure 6 – Input Transformer Cabinet 208/480V

BATTERY CABINET INSTALLATION

BATTERY CONNECTIONS



Connections must be carried out only by qualified electricians and in conformity with the applicable safety standards.

Both the UPS and battery cabinet are similar in appearance. However the battery cabinet houses the backup power required to provide the energy needed during a power disturbance or outage. The batteries in the battery cabinet have been pre-wired on each shelf. The battery tray interconnects should only be connected by a factory trained and authorized service representative. It is recommended that the battery cabinet be located adjacent to the UPS or additional battery cabinets. Battery cabinet cables have been provided for layouts where the UPS and Battery cabinets are adjacent to each other. Optional extended run-time cabinets can be added for additional run-times. See **Appendix A** for recommended protection devices and interconnect cables.

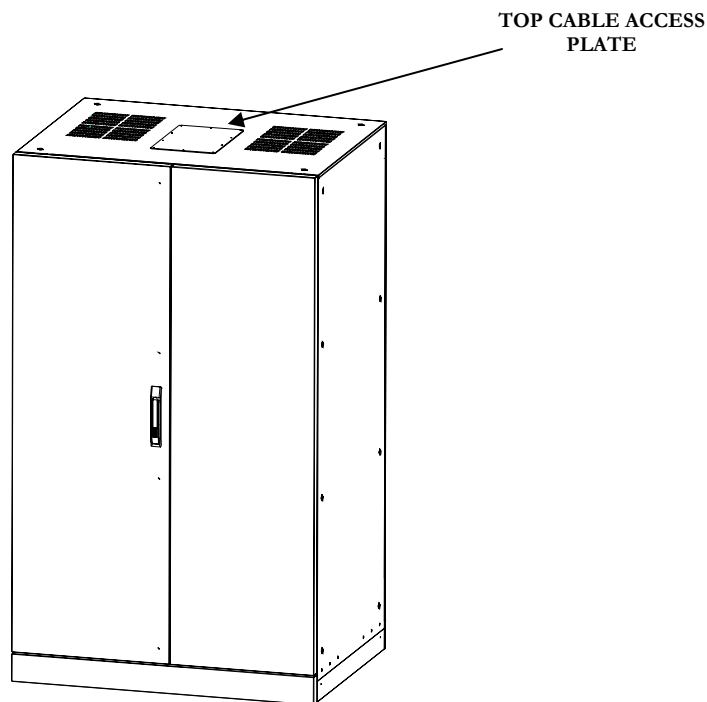


Figure 7 – Battery Cabinet Top Cable Access Plate

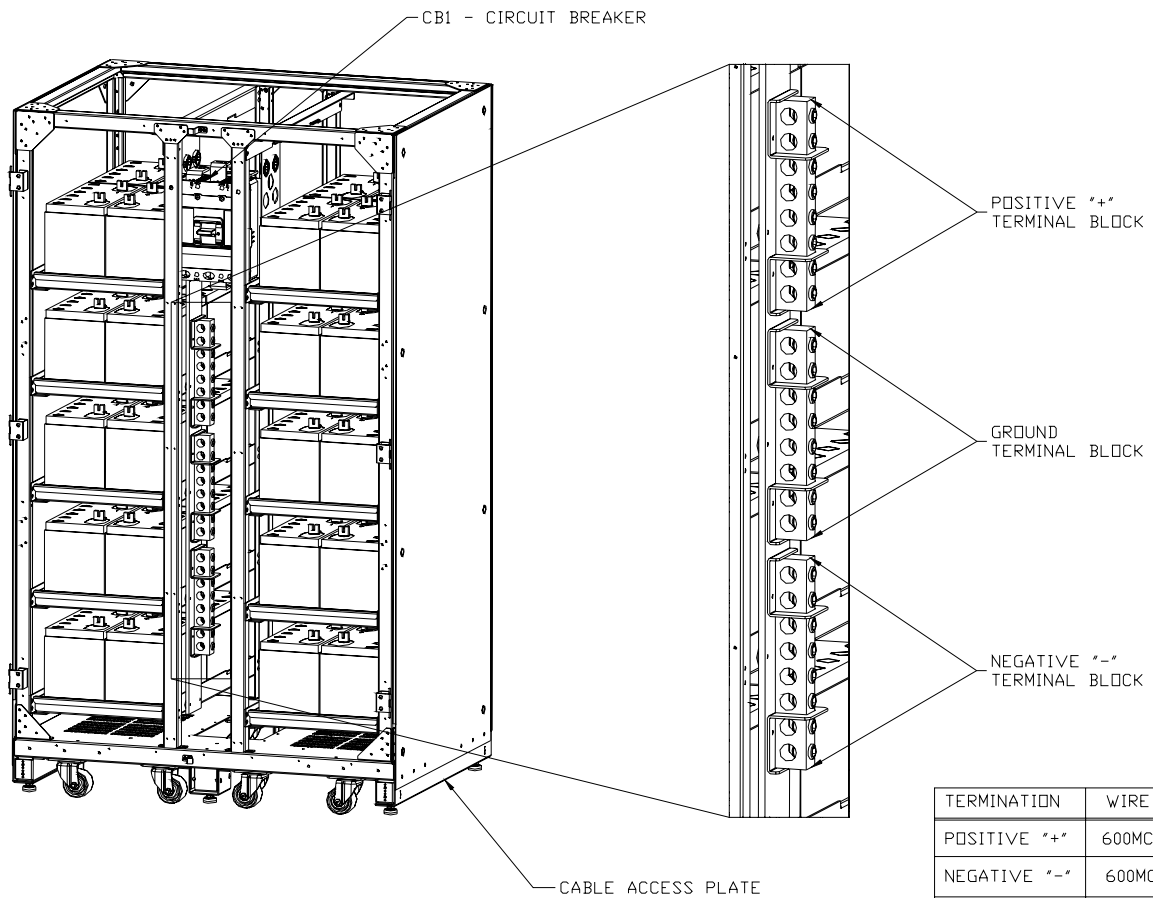


Figure 8 – Battery Cabinet Electrical Connections

Additional Cabinets if required:

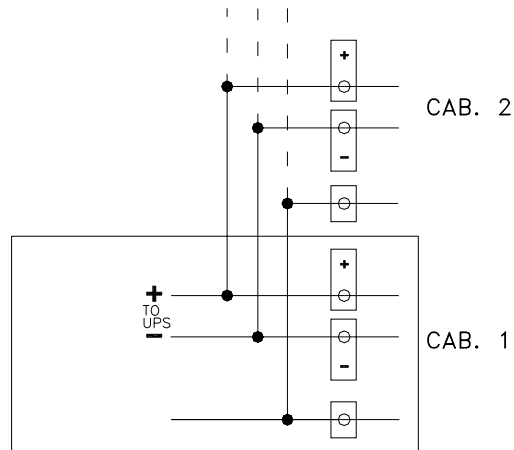


Figure 9 – Multiple Cabinet Connections

As can be seen in **Figure 9 – Multiple Cabinet Connections** each cabinet will be connected in parallel. The DC connections between the UPS and battery cabinet must be connected with the most positive of the battery cabinet connected to the positive termination in the UPS. The most negative of the battery cabinet must be connected to the negative termination of the UPS. See **Figure 6 – UPS Electrical Connections** for DC connection within the UPS.

CONTROL PANEL

The control panel serves as the interface to the UPS allowing the user to obtain the status of the system and to control as needed. LED's (Light Emitting Diode) inform the user about three operating parameters of the UPS (1, 2 & 3 below). The LCD (Liquid Crystal Display) will provide detail on messages, alarms, values and operating conditions of the UPS. And finally buttons that control the inverter and shutdown the entire system.

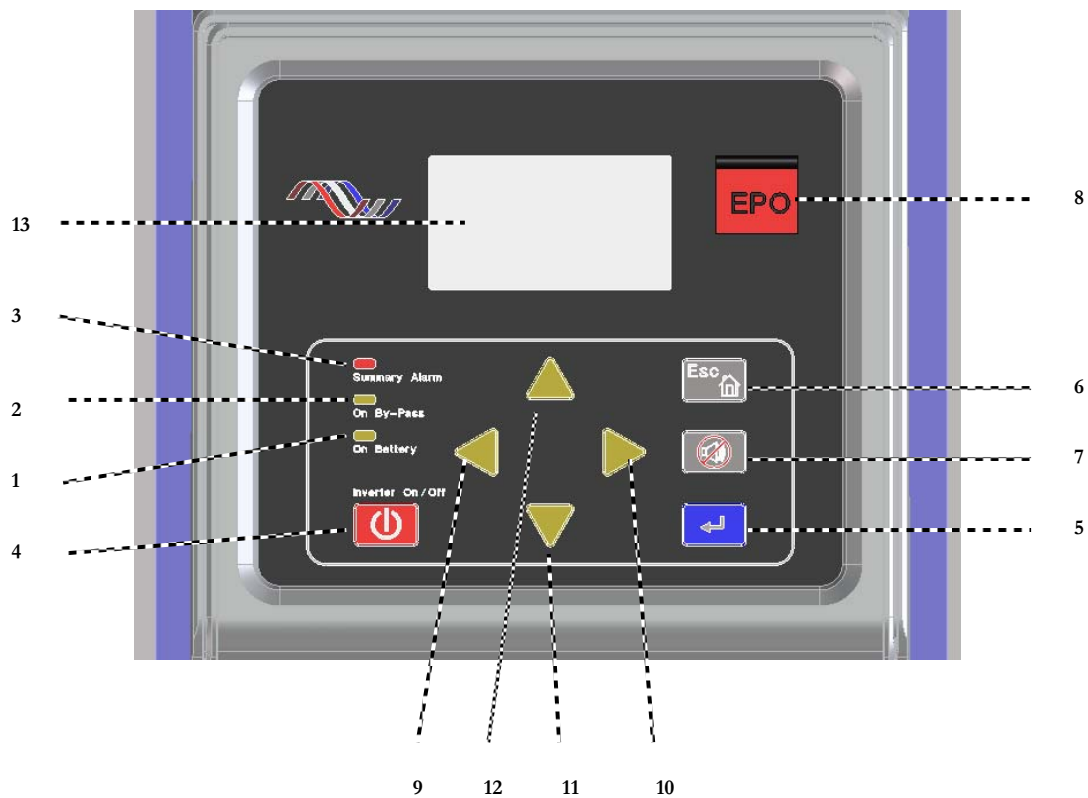

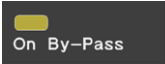

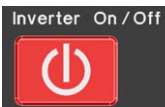






Figure 10 – Control Panel

INDICATORS AND BUTTONS

- 1  ON BATTERY - when this LED is illuminated, the battery supplies the inverter
- 2  ON BY-PASS - When this LED is illuminated, the load is supplied by the By-pass AC power
- 3  SUMMARY ALARM - When this LED is solid, the UPS is operating with a fault condition. When blinking, it indicates a warning condition.
- 4  INVERTER ON/OFF - When this button is pushed, the Inverter is turned either on or off
- 5  ENTER - This button allows access to menus on the LCD display
- 6  ESCAPE - This button escapes from any menu on the LCD display
- 7  CANCEL AUDIBLE ALARM - This button silences current alarm
- 8  EQUIPMENT POWER OFF - This button turns off the entire UPS in 0 seconds.

9



LEFT ARROW - This button allows the user to scroll left on the LCD

10



RIGHT ARROW - This button allows the user to scroll right on the LCD

11



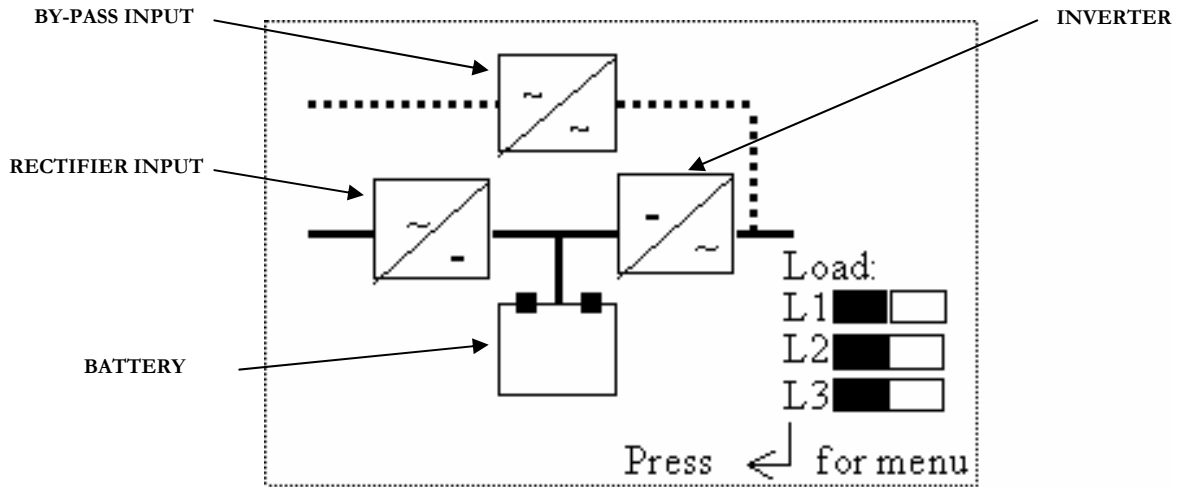
DOWN ARROW - This button allows the user to scroll down on the LCD

12



UP ARROW - This button allows the user to scroll up on the LCD

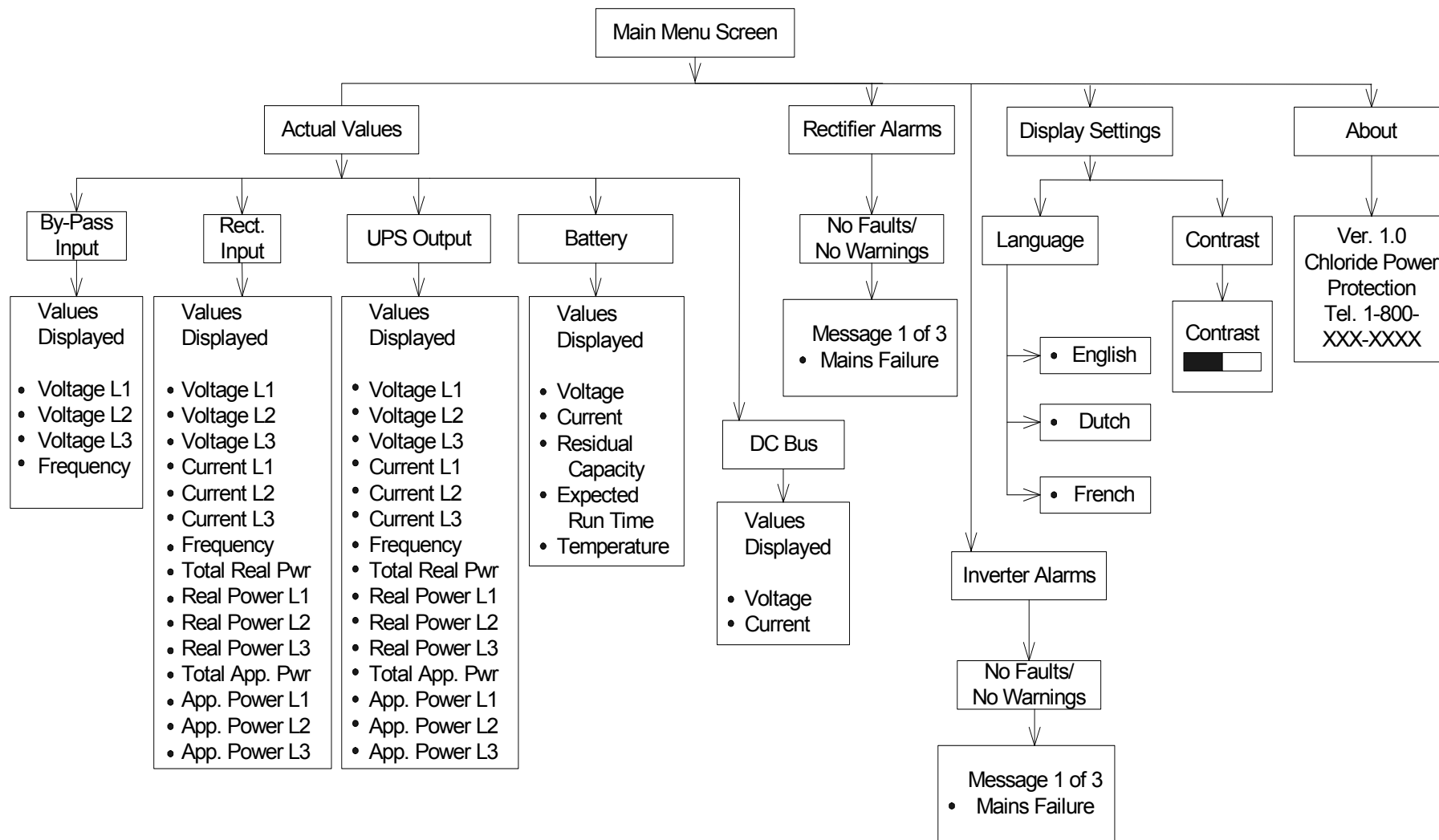
Using the Liquid Crystal Display



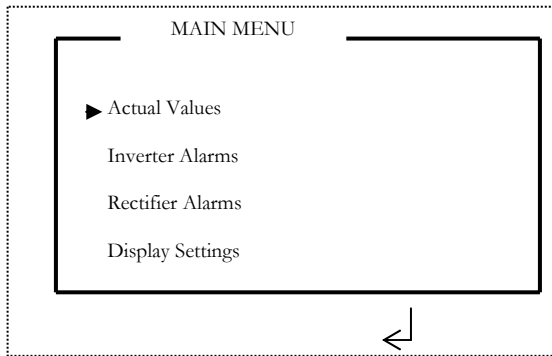
13 LCD Screen – Shows graphical and functional parameters

The LCD provides a graphical user interface providing power blocks representing the Rectifier, Battery, Inverter and By-Pass. The power path will be highlighted providing the user with an understanding of which power blocks are active and that which is supplying the critical load.

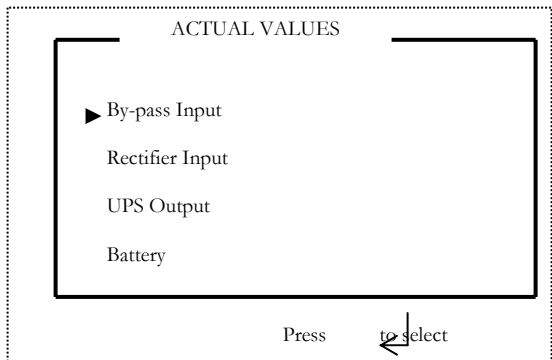
Menu Structure



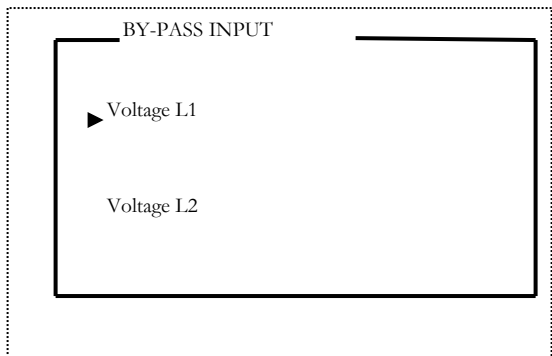
MENUS



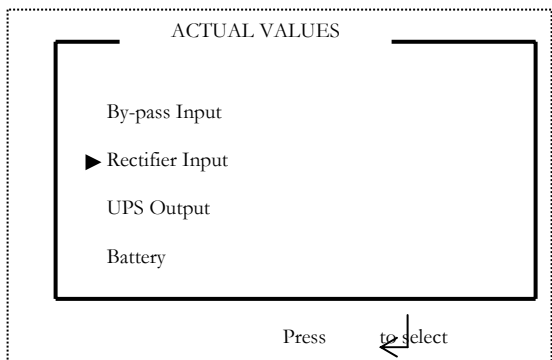
- 1 The **Main Menu** screen's function is to provide the user the selection options for viewing various information about the UPS. This is the highest level for menu. To return to previous screen, press ESC button. Parameters displayed are: *Actual Values, Inverter Alarms, and Rectifier Alarms Display Settings and About*. Press the ENTER button to select screen. Use the UP and DOWN arrows to toggle through current screen.



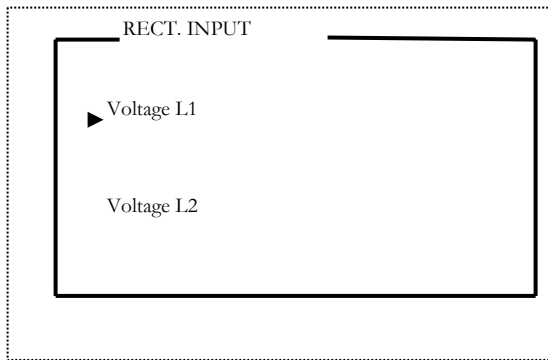
- 2 The **Actual Values** screen's function is to allow access to various parameters at different locations of the UPS. Parameters displayed are: *By-pass Input, Rectifier Input UPS Output, Battery, and DC Bus*. (Shown for By-pass input)



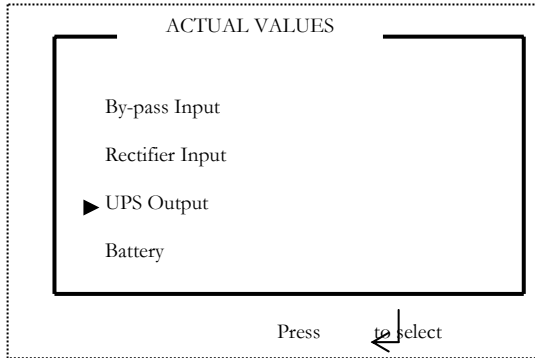
- 3 The **By-pass Input** screen displays parameters regarding the By-pass input. Parameters displayed are: *Voltage L1, Voltage L2, Voltage L3, and Frequency*. Press down or up arrows to view other entries. Press ESC to exit.



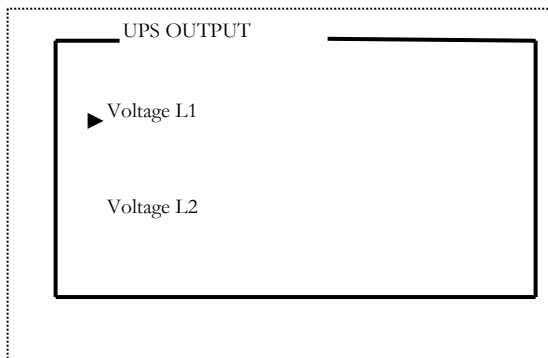
- 4 The **Actual Values** screen's function is to allow access to various parameters at different locations of the UPS. Parameters displayed are: *By-pass Input, Rectifier Input UPS Output, Battery, and DC Bus*. (Shown for Rectifier input)



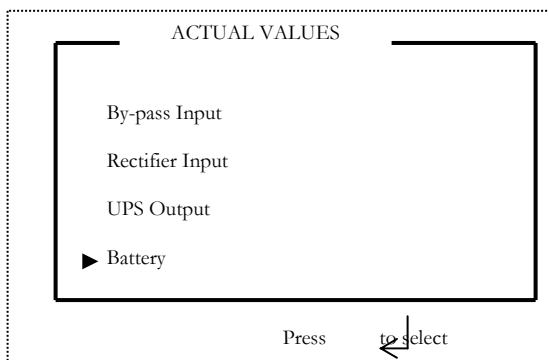
- 5 The **Rectifier Input** screen displays parameters regarding the Main Input. Parameters displayed are: *Voltage L1, Voltage L2, Voltage L3, Current L1, Current L2, Current L3, Frequency, Total Real Power, Real Power L1, Real Power L2, Real Power L3, Total App. Power, App. Power L1, App. Power L2, App. Power L3*. Press down or up arrows to view other entries. Press ESC to exit.



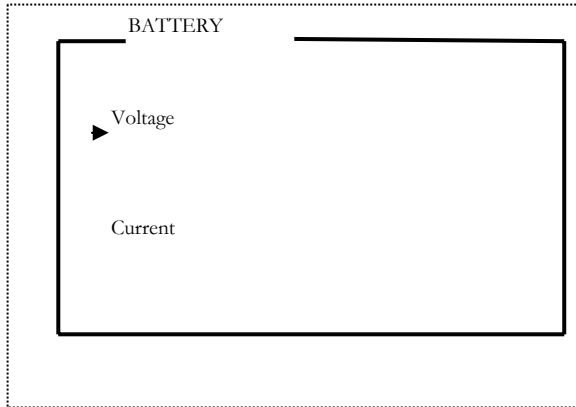
- 6 The **Actual Values** screen's function is to allow access to various parameters at different locations of the UPS. Parameters displayed are: *By-pass Input, Rectifier Input UPS Output, Battery, and DC Bus*. (Shown for UPS Output)



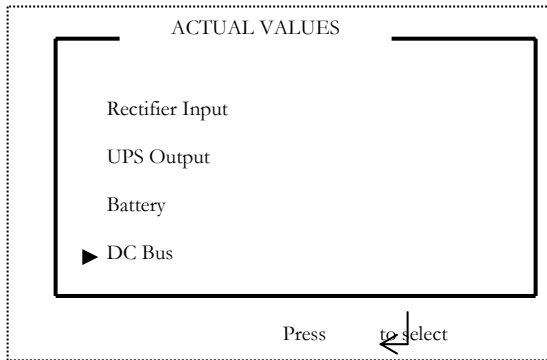
- 7 The **UPS Output** screen displays parameters regarding the UPS Output. Parameters displayed are: *Voltage L1, Voltage L2, Voltage L3, Current L1, Current L2, Current L3, Frequency, Total Real Power, Real Power L1, Real Power L2, Real Power L3, Total App. Power, App. Power L1, App. Power L2, App. Power L3*. Press down or up arrows to view other entries. Press ESC to exit.



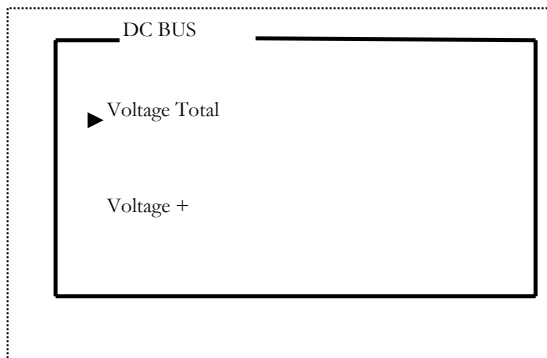
- 8 The **Actual Values** screen's function is to allow access to various parameters at different locations of the UPS. Parameters displayed are: *By-pass Input, Rectifier Input UPS Output, Battery, and DC Bus*. (Shown for Battery)



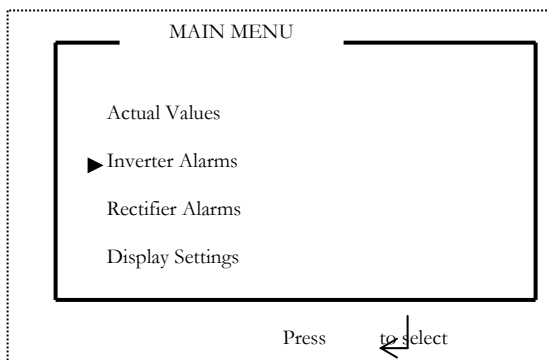
- 9 The **Battery** screen displays parameters regarding the inverter's DC bus. Parameters displayed are: *Voltage*, *Current*, *Residual Capacity*, *Expected RUN Time*, and *Temperature °C*. Press down or up arrows to view other entries. Press ESC to exit.



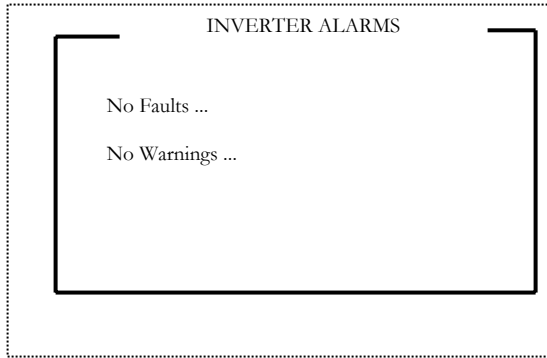
- 10 The Actual Values screen's function is to allow access to various parameters at different locations of the UPS. Parameters displayed are: By-pass Input, Rectifier Input UPS Output, Battery, and DC Bus. (Shown for DC Bus)



- 11 The **DC Bus** screen displays parameters regarding the inverter's DC bus. Parameters displayed are: *Voltage Total*, *Voltage +*, and *Voltage -*. Press down or up arrows to view other entries. Press ESC to exit.

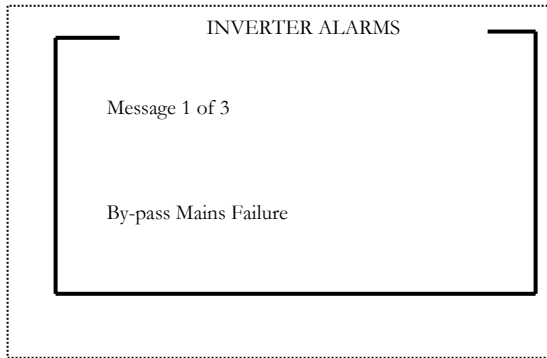


- 12 The **Main Menu** screen's function is to provide the user the selection options for viewing various information about the UPS. This is the highest level for menu. To return to previous screen, press ESC button. Press the ENTER button to select screen. Use the UP and DOWN arrows to toggle through current screen. (Shown for Inverter Alarms)

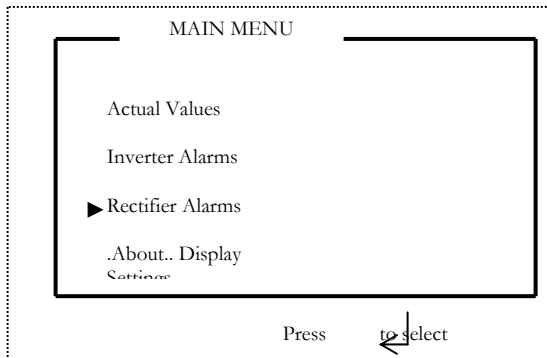


13 The **Inverter Alarms** information screen displays parameters regarding the alarms. (Shown for No Faults and No Warnings) To return to previous screen, press ESC button.

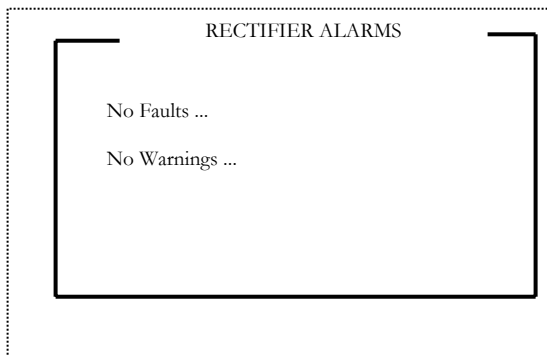
OR -



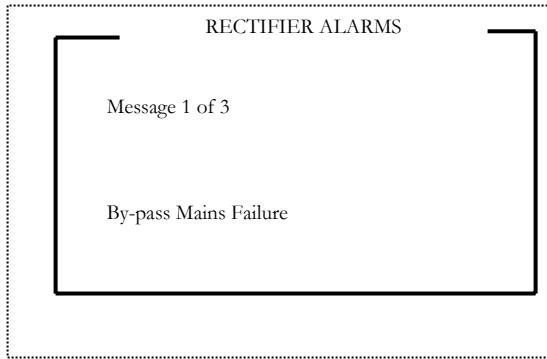
14 The **Inverter Alarms** Information screen is showing message 1 of 3 and specific information on alarm. Using the cursor will display any active alarm messages. To return to previous screen, press ESC button.



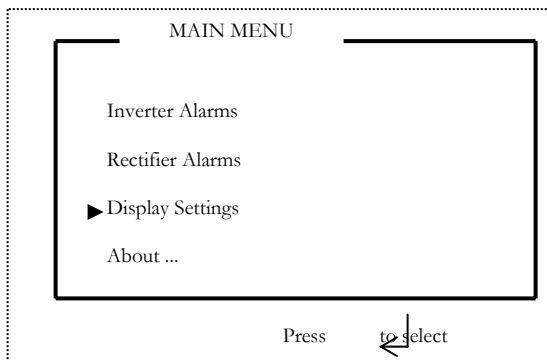
15 The **Main Menu** screen's function is to provide the user the selection options for viewing various information about the UPS. This is the highest level for menu. To return to previous screen, press ESC button. Press the ENTER button to select screen. Use the UP and DOWN arrows to toggle through current screen. (Shown for Rectifier Alarms)



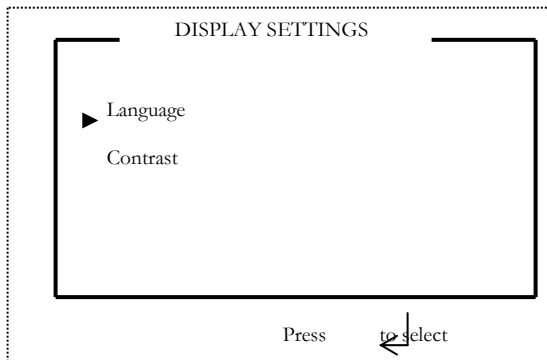
16 The **Rectifier Alarms** information screen displays parameters regarding the alarms. (Shown for No Faults and No Warnings) To return to previous screen, press ESC button.



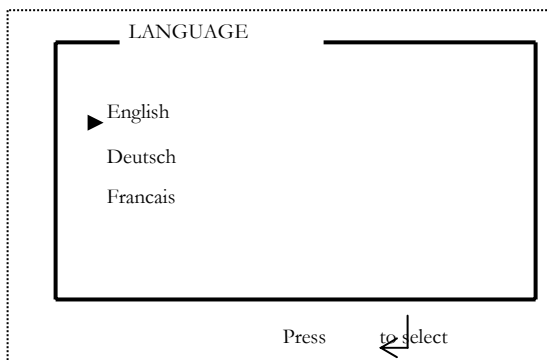
- 17 The **Rectifier Alarms** Information screen is showing message 1 of 3 and specific information on alarm. Using the cursor will display any active alarm messages. To return to previous screen, press ESC button.



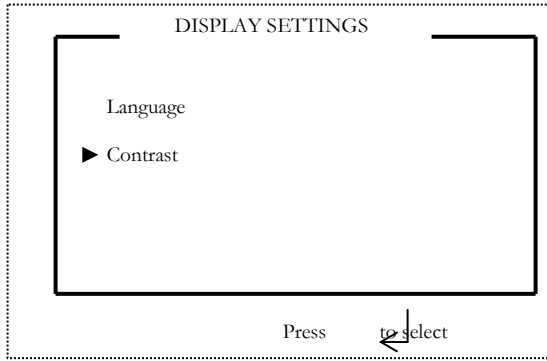
- 18 The **Main Menu** screen's function is to provide the user the selection options for viewing various information about the UPS. This is the highest level for menu. To return to previous screen, press ESC button. Press the ENTER button to select screen. Use the UP and DOWN arrows to toggle through current screen. (Shown for Display Settings)



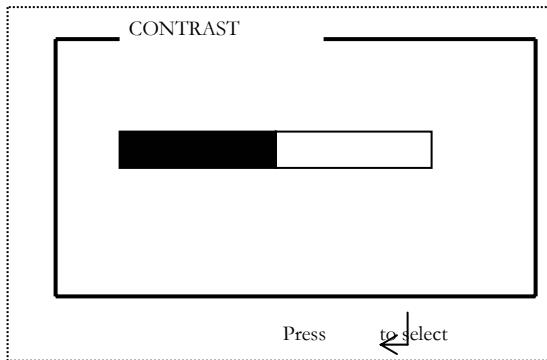
- 19 The **Display Settings** screen displays a sub menu regarding the display. Sub menus displayed are: *Language and Contrast*. (Shown for Language sub menu.) To return to previous screen, press ESC button.



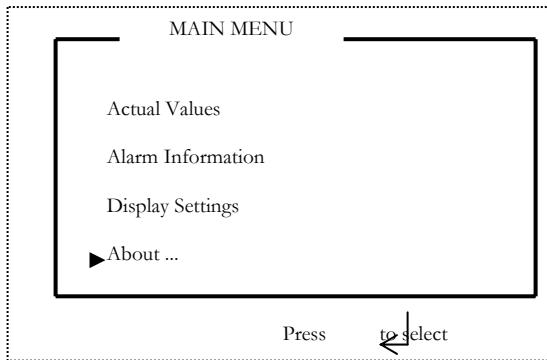
- 20 The **Language** screen will display a selection of multiple languages in which will change the text of the display LCD to the appropriate language desired. Press Down or UP arrow to desired language. To return to previous screen, press ESC button.



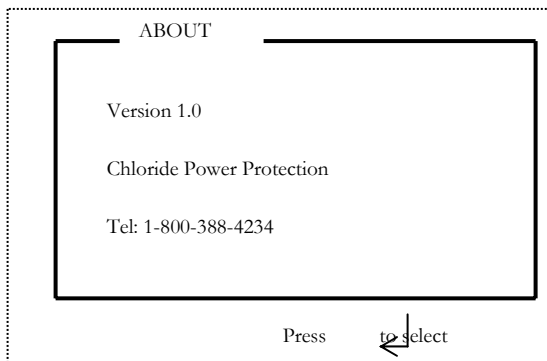
21 The **Display Settings** screen displays sub menus regarding display settings. The display sub menus displayed are: *Language and Contrast*. To return to previous screen, press ESC button. (Shown for the Contrast sub menu)



22 The **Contrast** screen is used to adjust the contrast of the display for ease of readability. Use the left and right arrow to adjust the contrast of the screen. To return to previous screen, press ESC button.



23 The **Main Menu** screen's function is to provide the user the selection options for viewing various information about the UPS. This is the highest level for menu. To return to previous screen, press ESC button. Press the ENTER button to select screen. Use the UP and DOWN arrows to toggle through current screen. (Shown for About sub menu)



24 The **About** screen shows the software revision, manufacturer and support information including the hotline. To return to previous screen, press ESC button.

TABLE OF WARNINGS AND FAULTS

Warnings

Over-temperature inverter
By-pass mains failure
Rectifier mains failure
Load too high
Under-voltage VDC
Overload
False By-pass Phase Sequence
Service By-pass is on
Battery Operation
Battery Rest time Exceeded
Battery Under-Voltage
Commissioning or Test Mode
Battery Switch not Engaged
Ventilator Lifetime Exceeded
Connection to charger lost
Battery Charge Inhibit
Battery Temperature
Output Switch Open

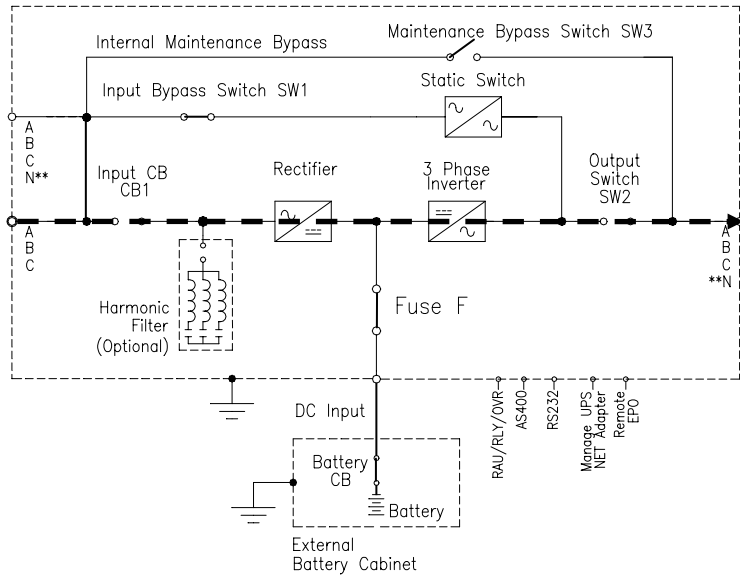
Faults

Over temperature Converter
Internal fault
Incorrect Power Class (Configuration)
Inverter Contactor Defective
Multiple inverter cut off as a result of over current
Over-Voltage VDC
Failure power supply electronics
External Quick Shutdown
DSP Not OK (signal processor defective)
Rectifier Precharge not OK
Inverter Desaturation
Over current cutoff
UPS Out of Tolerance
Output Overload
Backfeed Fault
Bypass Defective
Bypass Hardware Fault
By-pass Overload
Electronic (EEPROM)
UART Communication Fail
Checksum EPROM
Parallel Bypass Fault
Parallel Bypass Fault
DC H/W Control Fault
DC feedback Fault
DC SW Control Fault
Battery Fault
Test LEDs

OPERATING MODES

On-Line Operation

CB1, SW1, SW2 and the Battery CB are in the on position and SW3 is in the off position. The loads are supplied by the mains through the inverter. The batteries are charged by the rectifier as necessary. The Inverter filters mains interruptions, disturbances and provides a stable, interference-free supply to the load.

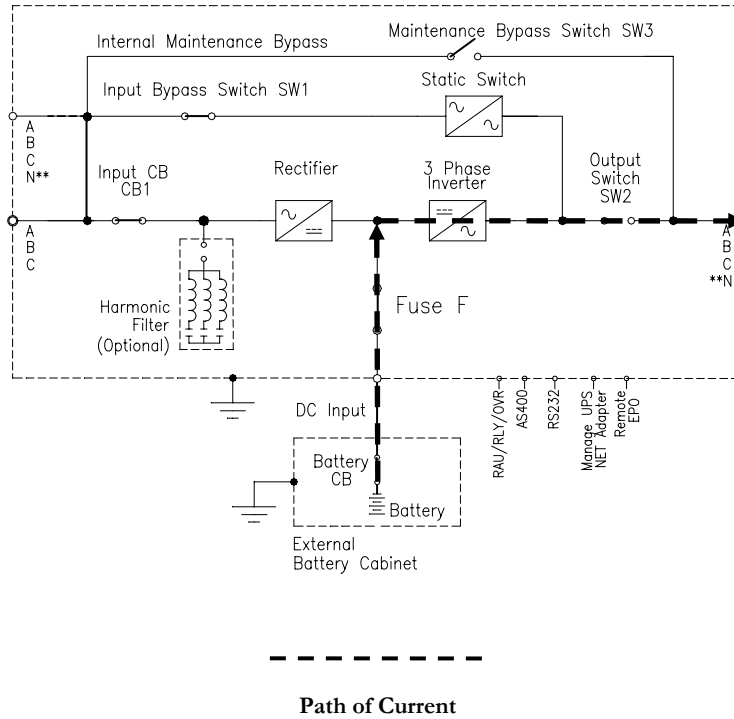


Path of Current

The summary alarm LED on the control panel is not illuminated in this mode. If a mains failure occurs while in On-Line operation, the UPS switches to Battery Operation. The On Battery and Summary Alarm LEDs are illuminated. If an overload condition occurs at the output, the UPS switches to By-pass operation, if available.

Battery Operation

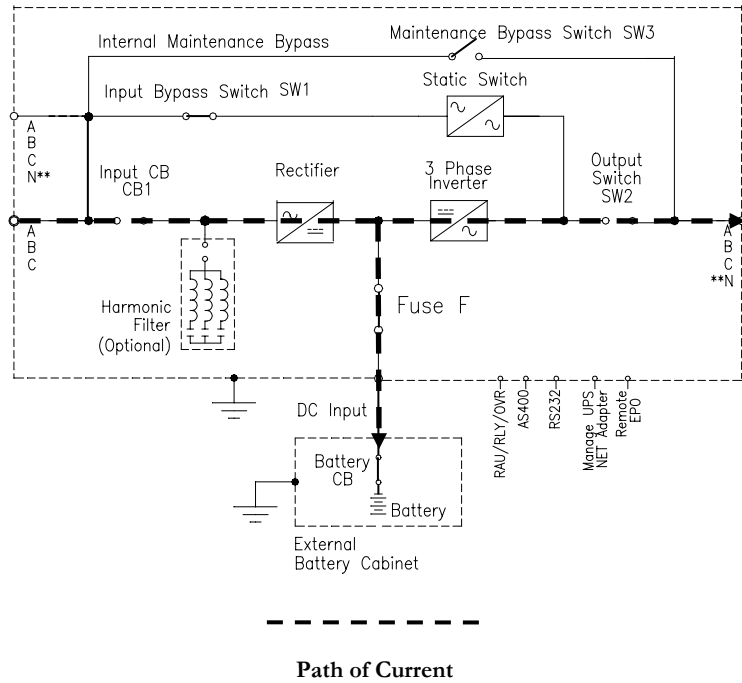
CB1, SW1, SW2 and the Battery CB are in the on position and SW3 is in the off position. In the event of a mains power failure the load is automatically transferred to the batteries, without interruption. In this mode, the load is supplied entirely by the batteries, via the inverter. If the power fails, the UPS indicates a fault condition.



In Battery operation, the On Battery and Summary Alarm LEDs on the control panel are illuminated. If an overload condition occurs at the output, the UPS switches to By-pass operation, if available.

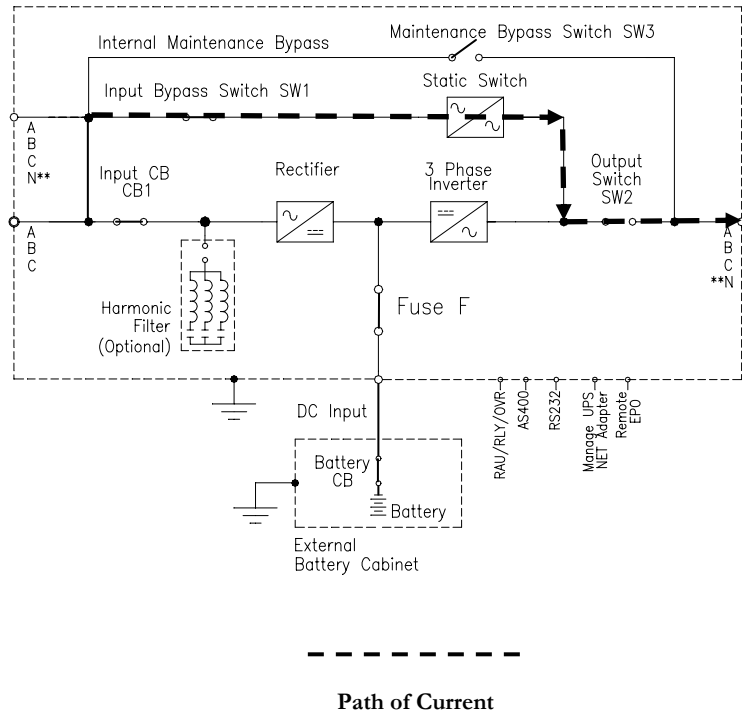
Battery Recharge Operation

CB1, SW1, SW2 and the Battery CB are in the on position and SW3 is in the off position. The UPS returns automatically to On-Line operation once the mains supply has been restored. The batteries are charged according to the specific battery model provided by the battery manufacturer's specifications. Within the battery autonomy period, the UPS provides information regarding the remaining battery autonomy via the Liquid Crystal Display. At the same time that the batteries are being recharged, the inverter continues to supply the load.



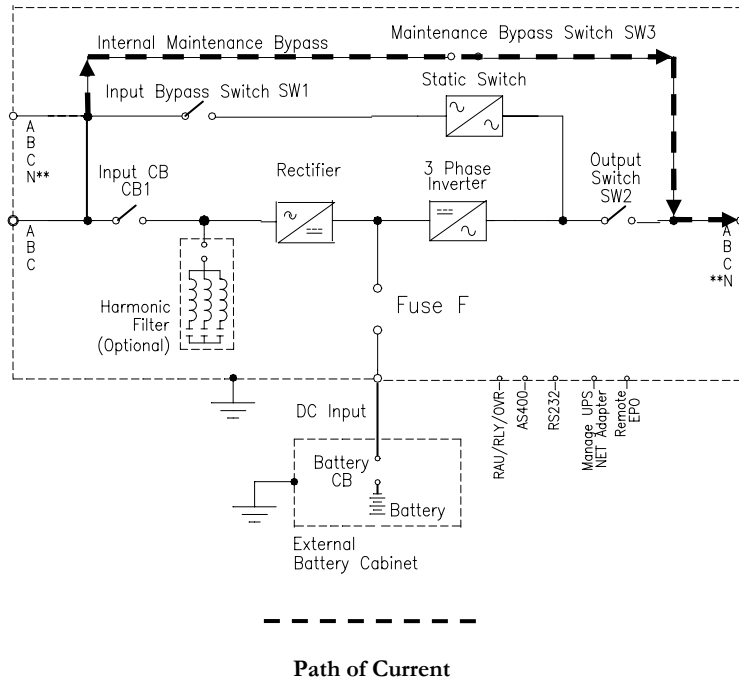
By-pass Operation

CB1, SW1, SW2 and the Battery CB are in the on position and SW3 is in the off position. In this mode, the load is supplied by the mains through the static switch. This mode of operation does not condition the incoming power. The by-pass further ensures the supply to the load in the event of an overload condition, manual inverter shut off or the unlikely event that the inverter should fail. The by-pass is automatically activated in order to ensure that there is no interruption in the load supply.



Maintenance By-pass Operation

CB1, SW1, SW2 and the Battery CB are in the off position and SW3 is in the on position. The load is supplied directly by the mains supply. The Maintenance Bypass is used to supply the load during maintenance operations. CB1 and SW1 can be used to supply power to the UPS for testing or startup without affecting the output. In the Maintenance By-pass Position, all power is removed except for the fans and power transformers in some models.



Note: In Maintenance By-pass operation, the Display and LED's do not illuminate.

OPERATIONAL PROCEDURES

STARTUP PROCEDURE

1. With main and By-pass disconnects on wall, CB1, SW1-3 and the Battery Cabinet circuit breaker all off, turn on the main disconnect and the By-pass disconnect if present.
2. Turn on SW3 to supply the output with power.
3. Turn on CB1, SW1, SW2 and the Battery Cabinet circuit breaker.
4. Check for alarms.
5. Turn off SW3.
6. Press and hold for more than three seconds the "INVERTER ON" button on the display.
7. Check display to insure the rectifier and inverter are on.
8. The UPS is now supplying the load via the inverter.
***Note:** The order is important so that the output is not interrupted.

MAINTENANCE BY-PASS PROCEDURE

1. Press "INVERTER OFF" for 3 seconds or until the audible alarm is heard and Inverter mimic shows the inverter section is off.
2. Switch SW3 on. Turn off CB1, SW1, SW2 and the Battery Cabinet circuit breaker.

Note: The order is important so that the output is not interrupted.

Note: For the 208VAC output UPS (4X2), SW2 can remain on to energize the fans.

Note: For 4X2 units, fans and fuse block remain energized with SW2 on. Use insulated fuse puller for service.)

SHUTDOWN PROCEDURE

1. Press "INVERTER OFF" for 3 seconds or until beep is heard and Inverter mimic shows the inverter section is off.
2. Switch SW3 on and SW2 off.
3. Turn off CB1 and SW1.
4. Open Battery Cabinet circuit breakers.
5. Turn off main disconnect (and By-pass disconnect, if required)

PARALLEL OPTION



The parallel UPS is connected to an AC main power source and contains high current batteries for back up. Therefore safety precautions must be followed to prevent electrical hazards when operating the parallel UPS system.

Introduction

The CP3150 UPS system can be connected in parallel to increase power capacity or redundancy to the load. Up to 8 units of the same kVA rating may be configured in parallel.

This feature is an available option and thus can be installed at a later date. Field upgrading should only be installed by a factory trained and authorized service representative. Information contained in this manual includes: Theory of Operation, Planning and basic electrical installation.

Theory of Operation

The parallel UPS system is automatically regulated by the controllers of the individual UPS modules. The UPS conditions the raw main power and supplies continuous, clean three-phase power to the critical load/ loads. The UPS will continue to supply clean power without interruption at the output when the utility power fails. In the event of a main power failure, the UPS will continue to supply clean power, from the batteries, without interruption.

The UPS modules have cable connections between them to communicate the phase synchronization of the bypass voltages and shared load current. Phase synchronization is necessary in order to transfer the critical load between the bypass line and inverters. The transfer from inverters and bypass line functions independently within each individual module in the case of an overload condition.

A functional block diagram of a multiple module system is shown in **Figure 11 – Parallel configuration**.

Multiple Module Block Diagram

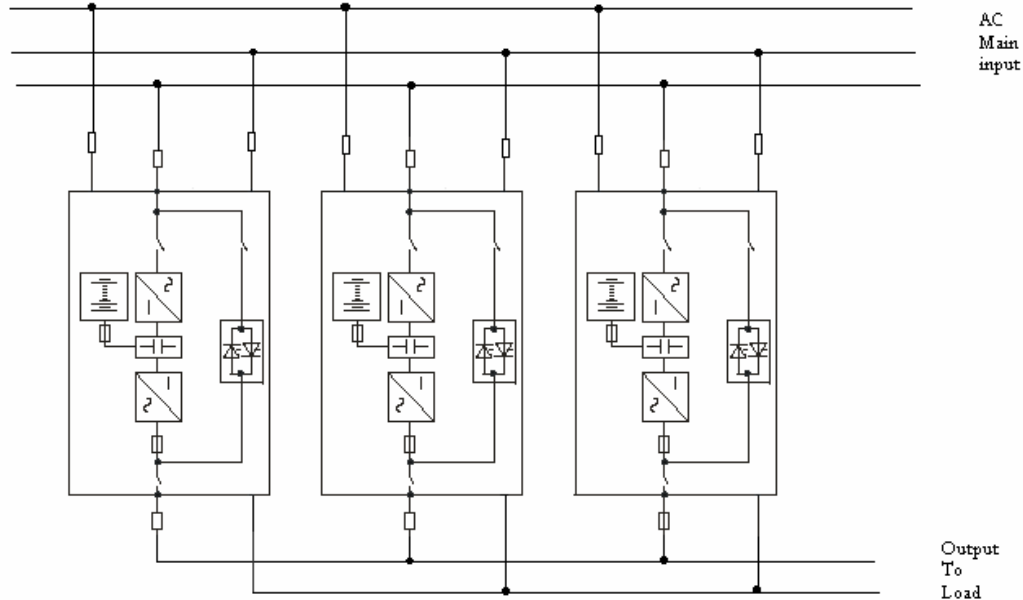


Fig 11- Parallel Configuration

Planning

Special attention must be taken when planning for parallel system installation. The system power cables (input and output) should be the same length. Differences in cable length of 20% are permitted for cables up to 60ft, but for longer cables differences must not exceed 10%.

Another important factor to consider is the total size of the parallel UPS configuration. The output power rating of the UPS should be specified according to the power demand of the protected loads. Some margin of error should be allowed for potential expansion, and possible inaccuracy in calculations or measuring the actual load requirements.

The battery should be sized according to the desired backup time. Note that the backup time is longer if the load is less than the nominal power rating of the parallel UPS system.

Installation

Input / Output connections

When installing a multiple block parallel system, the input and output connections procedures for each module use the same terminals as those for a single UPS. For more information refer to Chapter 3 of Owners Manual.

Parallel Communications

The individual UPS blocks communicate with each other via a 25-conductor cable. The communication cables are shielded and must be routed separately from the power cables.

Each unit is equipped with a cable channel located in the right front of the UPS. Access to this channel is from the top or bottom depending on the type of installation. (See chapter 3 figure 5). Route the communication cables through the cable channel to the terminal blocks X130 and X140. The cable is exiting module from terminal X130 of UPS1 and connected to terminal X140 of the next module (UPS2). See figure 2 for correct closed loop connection of the communication bus.

Figure 2 shows the basic communication wiring for a multiple block system. Note the closed loop configuration. (X130 of UPSn connected to X140 of UPS1).

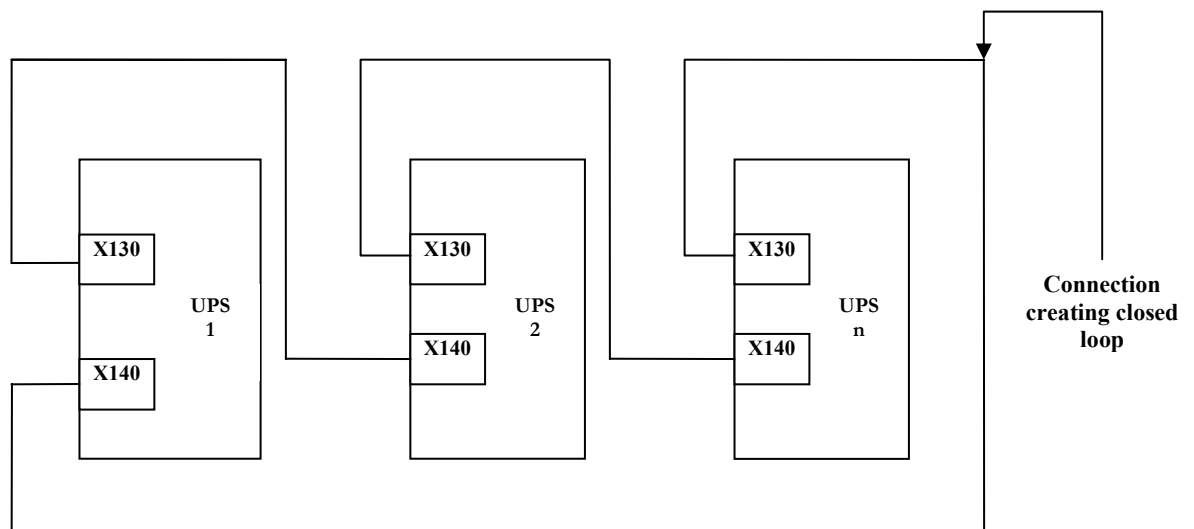


Fig 12 - Parallel Communication Block Diagram. (Closed loop configuration)

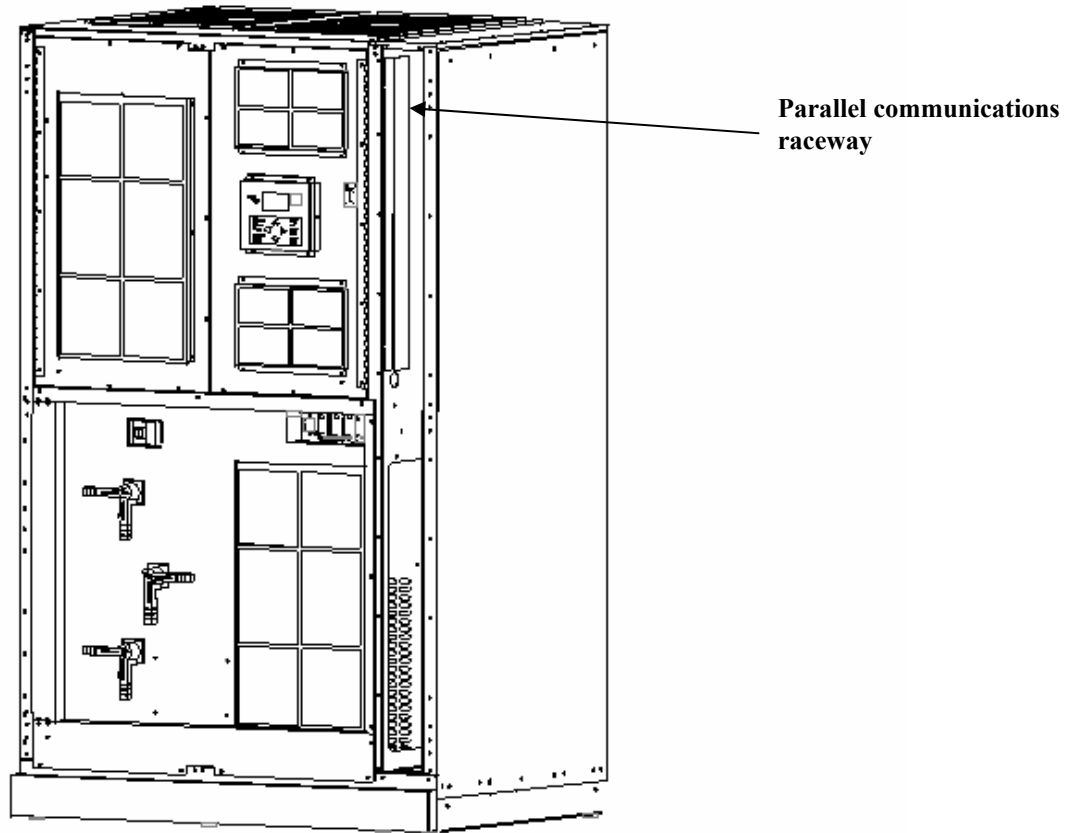


Figure 13 – Raceway for Parallel Communication Wires

Note: When connecting the communication bus, the shield of the communication cable must be grounded to the UPS on each end of the cables.

The Parallel communication terminal blocks (X130 and X140) are located at the upper right front of the UPS, behind the front door and dead plates.

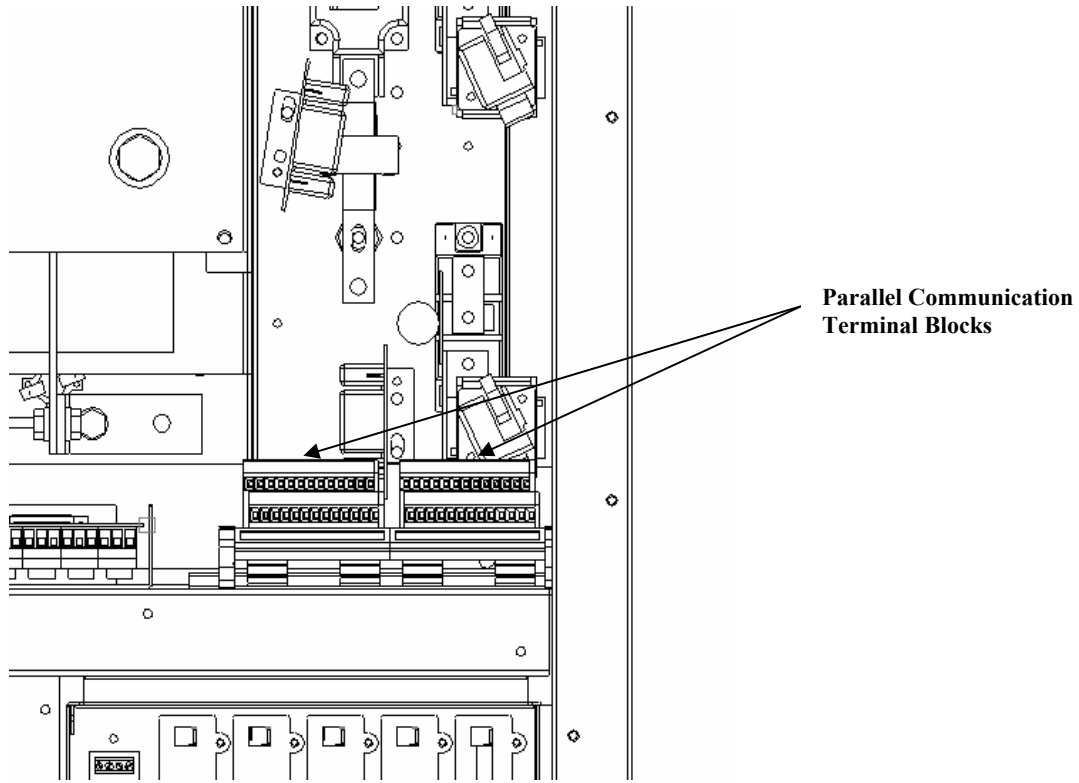


Fig 14- Parallel Communication Terminal Blocks Location

NOTE: Installation of the parallel kit must be completed by Authorized Technical Personnel.

CONNECTIVITY

Installation of communication card(s)

The CP3000 series can be equipped with a variety of connectivity options. Five interface slots have been designed to allow installation of the AS400 card, LIFE 2000 card, R.A.U. card (Remote Alarm Unit), RS232 card and Manage UPS Net adapter card. These interface slots are located behind the front panel located in the middle right section. See **Figure 5 –UPS Electrical Terminations**.

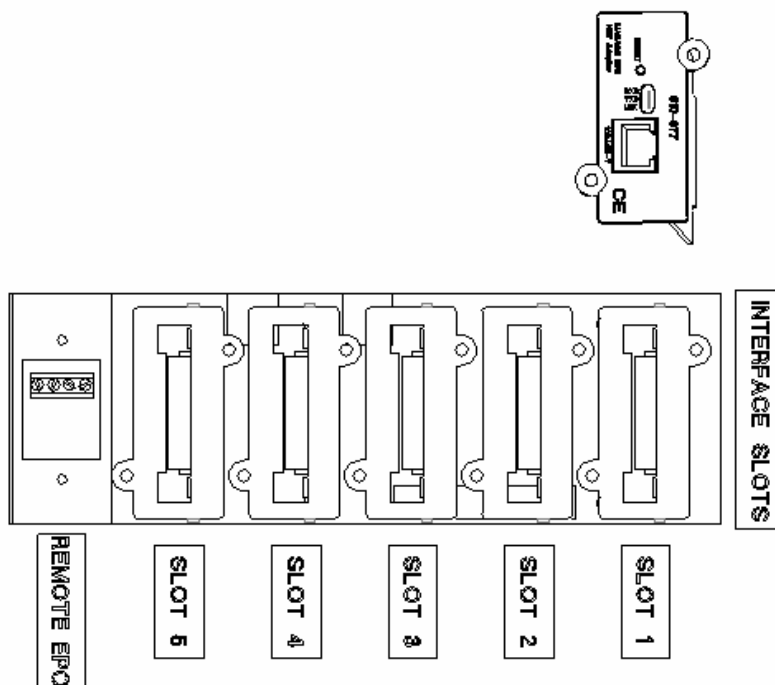


Figure –15 - Interface Slots

Recommended Communication configuration

Shown in **Figure 16 – Communication Card Configuration** are the recommendations of those communication options and were to insert them.

	ManageUPS Net Card	Mop UPS RS232 Card	LIFE 2000 Modem Card	AS400 Card	Remote Alarm Unit Card or Industrial Contact Driver Card
Slot 1	●			○	○
Slot 2		●		○	○
Slot 3			●	○	○
Slot 4				●	○
Slot 5				○	●

● Preferred position

○ Optional position

Figure 16 - Communication Card

RAU/RLY/DVR CARD

This card allows connection to the Remote Alarm Unit option. It also can be used to drive the Industrial Contact Card as seen in **Figure 17 – RAU (Remote Alarm Unit) or Relay Card or Driver Card**. The voltage-free contacts are rated at 30V .5A max.

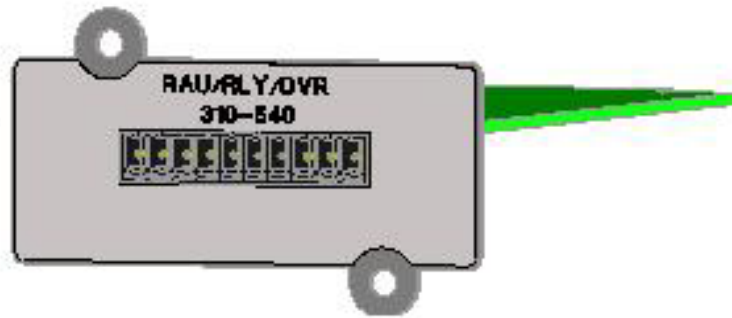


Figure 17 - RAU (Remote Alarm Unit) or Relay or Driver Card

The RAU/RLY/DVR PCB terminal layout is as follows:

- Pin 1 is AC Fail *
- Pin 2 is Low Batt *
- Pin 3 is On Bypass *
- Pin 4 is Inv Fail *
- Pin 5 is Sum Alarm *
- Pin 6 is Common (Return)
- Pin 7 is +16V (RAU)
- Pin 8 is +24V ISO
- Pin 9 is +24V Ret
- Pin 10 is +24V Ret

* Note: These outputs can be changed from N/O to N/C directly on the card.

AS400 CARD

The AS400 (Relay) card is equipped with a "D"-type female 9-pin connector comprising voltage-free contacts and conforming to the requirements of IBM AS/400 and other computing systems.

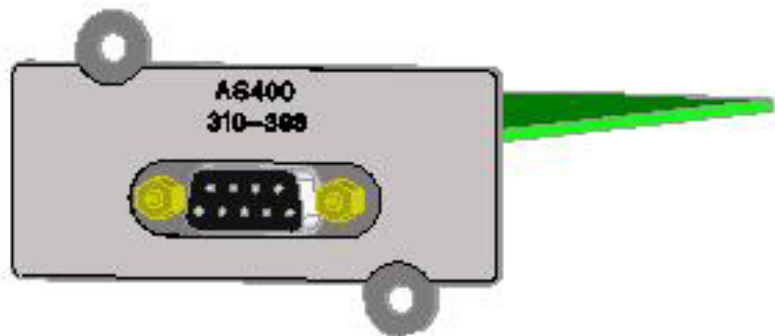


Figure 18 - AS400 (Relay) card

The interface communication pin layout is as follows

- Pin 1 is Bypass
- Pin 2 is Summary Alarm
- Pin 3 is Shutdown (+)
- Pin 4 is Shutdown (-)
- Pin 5 is the common for all contact on internal relays.
- Pin 6 is Low Battery (N/C)
- Pin 7 is Low Battery (N/O)
- Pin 8 is AC Fail (N/C)
- Pin 9 is AC Fail (N/O)

RS232 CARD

The male 9-pos. SUB-D connector contains the RS 232 signals.



Figure 19 - RS232 Card

The interface COM is isolated from all power circuits.

- Pin 5 GND
This connection point serves as a reference for all signals.
- Pin 2 RXD
Standard configuration of an RS 232 interface.
- Pin 3 TXD
Standard configuration of an RS 232 interface.

ManageUPS_{NET} CARD

ManageUPS_{NET} (formerly known as the SNMP adapter) includes a complete package allowing CP3000 SERIES to be monitored and controlled over a network using TCP/IP protocol. The adapter allows:

- UPS monitoring from an NMS station using SNMP
- UPS monitoring from a pc using a Web Browser
- SHUTDOWN AND MONITORING SOFTWARE
- The primary function of MopUPS^{PROFESSIONAL} for Windows is to shut down the operating system of an unattended computer, safely, in the event of a power failure. All files are closed and directory pointers are written to disk while the system is supplied from UPS battery power.

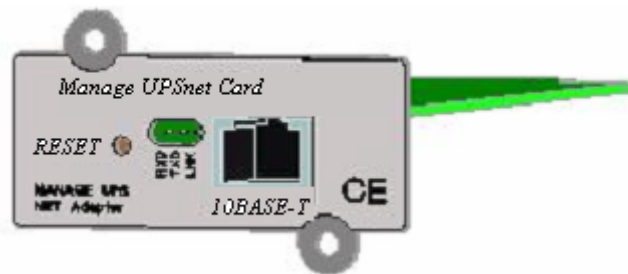


Figure 20 - Manage UPS Net Adapter

MopUPS^{PROFESSIONAL} for Windows provides this function and offers other features, useful to network administrators, including:

- Automated responses to a variety of events – email, messaging, paging, running script files, etc.
- Logging of various events and UPS status information to files
- Real time viewing of site power and UPS status information
- Administrative shutdown for scheduling planned system shutdowns
- Control of UPS performance features - set restart to manual, silence alarms.
- Remote access and monitoring of UPS connected to remote servers on the network using Named Pipes or TCP/IP
- Notification of events via email

LIFE2000 MODEM CARD

This option provides remote monitoring of the UPS, via a dedicated analog telephone line, to ensure maximum reliability for the duration of its operational life. The UPS automatically telephones the service center at predefined intervals, to provide detailed information, which is analyzed in order to predict any short-term failures. In addition it is possible to control the UPS remotely. Transmission of UPS data to the CHLORIDE service center is by modem and can be:

- ROUTINE: typically once a week
- EMERGENCY: when something goes wrong or when parameters are out of tolerance.
- MANUAL: when requested by the Customer
- BIDIRECTIONAL: when requested by the service center

During the calls, the service center shall:

- Identify the connected UPS
- Recognize the kind of call
- Request the data stored in the UPS since the previous connection
- Request information from the UPS on line (selectable).

The storage of the data, and their subsequent analysis, permits the service engineer to compile a detailed report that will be forwarded to the Customer periodically, with the aim of informing her/him of the condition of the UPS and of preventing potentially critical situations

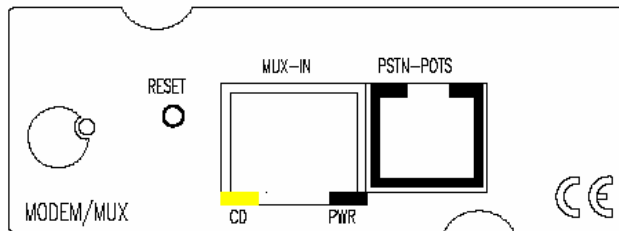


Figure 21 - LIFE 2000 Card

INDUSTRIAL CONTACT CARD

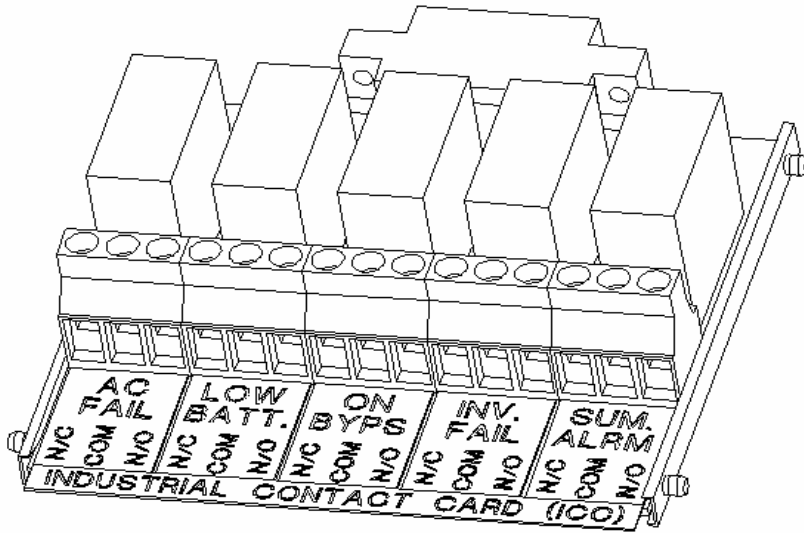


Figure - 22 Industrial Contact Card and Bracket

The contacts are rated at 120VAC, 2A.

REMOTE EQUIPMENT POWER OFF

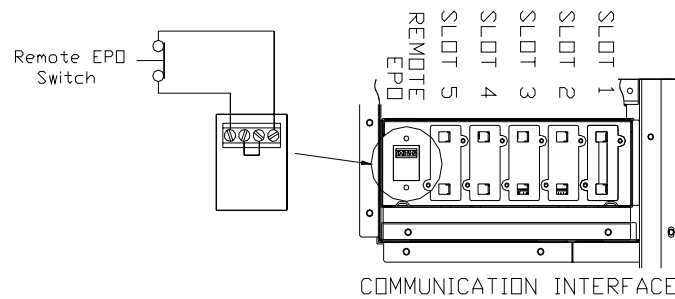


Figure - 24 Remote Equipment Power Off (REPO)

To wire the external EPO circuit, connect a normally closed (N/C) emergency switch, which opens when activated and is held open mechanically when operated. Make sure switch is de-activated (closed) before connecting to the outer terminals of the EPO terminal block (REPO Hi and REPO Low). Remove the jumper wire between the inner terminals (Disable). It is recommended to use twisted wires for this low voltage connection.

MAINTENANCE

The UPS only requires that the air filters be cleaned on periodical bases and that the area around the UPS is clean and free from dust and debris. When the batteries expire, these must be replaced by the appropriate battery specifications. Exhausted accumulator batteries are classified as "harmful toxic waste" and as such, the law demands that they be disposed of by an authorized recycling center.

Periodic maintenance should be performed on the UPS and batteries. Chloride Power Protection recommends the UPS be maintenance at least two time per year and batteries up to four times per year.

CHLORIDE POWER PROTECTION Customer Service Center is fully equipped to deal with such batteries, in accordance with the Law and with the greatest respect for the environment.

The typical battery life cycle is 3 to 5 years, at an ambient temperature of 77 F, but is also dependent on the frequency and duration of mains failures.

A battery test should be carried out periodically (6 to 12 months) in order to ascertain the general condition of the batteries.



PRECAUTIONS

During maintenance, disconnect the battery trays so that no more than eight batteries are connected in series.

All safety and handling instructions shall be carefully observed.

Qualified personnel may only remove the access panels.

Watches, rings, chains and any other metal objects must be removed before working on the batteries

Rubber gloves **must** be used.

Insulated tools **only** must be used.

An insulated mat must be placed in front of the battery cabinet before any operation is carried out thereon.

Never work alone. Ensure the presence of a person able to give assistance in case of accident.

STORAGE

For extended storage at ambient temperature $\leq 77^{\circ}\text{F}$, the batteries should be charged for 5 hours once every 4 months; at higher storage temperatures, it is advised that this period be reduced to two months.

Make sure the Power Control Unit Breaker is in the OFF position before continuing. Follow the electrical installation procedure in Chapter 3. Connect the positive and negative External Battery Cabinet Connections. See chapter 4 for battery information. Switch the Main Circuit Breaker (CB1) from OFF to ON. After 5 hours, turn OFF the Power Control Unit. For additional external cabinets, charge for a minimum of 5 hours per battery cabinet. Then remove the UPS connections in the opposite sequence described in Chapter 3.

Note the date recharging was carried out on the Battery Cabinet or on its packaging.



CLEANING

Switch off the UPS by pressing the Inverter OFF button and disconnect from the mains supply.

Do not use scouring powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to get inside the UPS.

Make sure that the air vents on the UPS are not obstructed.

Clean air filters as necessary.

Clean the outside of the UPS housing by wiping with a dry or a slightly damp cloth.



INSTALLATION TABLES AND ILLUSTRATIONS

The information in the appendix will provide you with the necessary data to install the UPS and Battery Cabinet. Following is a list of tables and drawings.

- Table 1 - Input/ Output Ratings & External Wiring Recommendations
- Table 2 - Input/Output and Battery Cabinet Wire Terminations for Single Input
- Table 3 - Input/Output and Battery Cabinet Wire Terminations for Dual Input
- Table 4 - Full Load Heat Rejection
- Table 5 - Weight Specifications
- Illustration A - UPS Dimensions
- Illustration B - Battery Cabinet Dimensions
- Illustration C - Battery Cabinet Top Dimensions

Table 1 - Input/ Output Ratings & External Wiring Recommendations

Model CP3150/150kVA/125kVA					
Details			Units	Rating for 60Hz	
Terminal Function	Voltage Configurations	Input/ Output current, Conductor size & Circuit Breaker rating	kVA	125	150
			kW@ .9PF	112	135
AC Input To UPS Rectifier	208V-208Y/120	Max input current (3Ph, 1 gnd)	A AC	542	630
		Nom input current (3Ph, 1 gnd)	A AC	388	458
		Minimum conductor size (number per phase)	AWG or kcmil	350(2)	500(2)
		Recommended input circuit breaker ratings	3 Pole, A AC	600	700
	480V-208Y/120	Max input current (3Ph, 1 gnd)	A AC	230	275
		Nom input current (3Ph, 1 gnd)	A AC	165	194
		Minimum conductor size (number per phase)	AWG or kcmil	1/0(2)	2/0(2)
		Recommended input circuit breaker ratings	3 Pole, A AC	250	300
	480V - 480V	Max input current (3Ph, 1 gnd)	A AC	224	270
		Nom input current (3Ph, 1 gnd)	A AC	161	190
		Minimum conductor size (number per phase)	AWG or kcmil	1(2)	2/0(2)
		Recommended input circuit breaker ratings	3 Pole, A AC	250	300
AC Input To Bypass (contact Factory)	208V-208Y/120	Nom input current (3Ph, 1 gnd)	A AC	N/A	N/A
		Minimum conductor size (number per phase)	AWG or kcmil		
		Recommended input circuit breaker ratings	3 Pole, A AC		
	480V-208Y/120	Nom input current (3Ph, 1 gnd)	A AC	150	180
		Minimum conductor size (number per phase)	AWG or kcmil	4/0	300
		Recommended input circuit breaker ratings	3 Pole, A AC	200	225
	480V - 480V	Nom input current (3Ph, 1 Neutral*, 1 gnd)	A AC	150	180
		Minimum conductor size (number per phase)	AWG or kcmil	4/0	300
		Recommended input circuit breaker ratings	3 Pole, A AC	200	225

Table 1 Continued - Input/ Output Ratings & External Wiring Recommendations

AC Output to Critical Load	208V-208Y/120	Nom output current (3Ph, 1 Neutral, 1 gnd)	A AC	347	416
		Minimum conductor size (number per phase)	AWG or kcmil	250(2)	350(2)
		Recommended output circuit breaker ratings	3 Pole, A AC	450	600
	480V-208Y/120	Nom output current (3Ph, 1 Neutral, 1 gnd)	A AC	347	416
		Minimum conductor size (number per phase)	AWG or kcmil	250(2)	350(2)
		Recommended output circuit breaker ratings	3 Pole, A AC	450	600
	480V - 480V	Nom output current (3Ph, 1 Neutral*, 1 gnd)	A AC	150	180
		Minimum conductor size (number per phase)	AWG or kcmil	4/0	300
		Recommended output circuit breaker ratings	3 Pole, A AC	200	225
DC Input	480V DC	Battery Current at end of discharge	A DC @ 396V	309	370
		Minimum conductor size (number per pole)	AWG or kcmil	3/0(2)	4/0(2)

Refer to the following notes when planning your installation.

- 1) Wire sizes, ratings and circuit breaker sizes are recommended, always consult NEC codes.
- 2) Consult Local and National electrical codes for acceptable wiring practices.
- 3) Wires specified are Copper type 75 Deg C / 167 Deg F rated, based on ambient temperature of 104 Deg F.
- 4) Neutral conductors are considered to be current carrying conductors. Refer to the NEC tables and notes for neutral conductors, And grounding system requirements. Chloride recommends neutral to be 2x phase conductor.
- 5) We recommend that the wire size, ratings and circuit breakers be sized to the maximum kVA rating to allow for future up-grades.
- 6) *AC Input to Bypass requires Neutral if Load requires Neutral.
- 7) Max currents include Nominal currents plus battery recharge and are not considered continuous.

Table 2 – Input/Output and Battery Cabinet Wire Terminations for Single Input

Power Cable Terminations - Single Input				
Termination	Terminal	Wire Size of Clamp Termination	Tightening Torque In.-lbs	Type Screw
AC Input	A	6AWG-350MCM (2)	375	3/8 Hex
	B	6AWG-350MCM (2)	375	3/8 Hex
	C	6AWG-350MCM (2)	375	3/8 Hex
AC Input to UPS Input Transformer	A	4AWG-500MCM (2)	375	1/2 Hex
	B	4AWG-500MCM (2)	375	1/2 Hex
	C	4AWG-500MCM (2)	375	1/2 Hex
AC Output to Critical Load	A	6AWG-350MCM *	375	3/8 Hex
	B	6AWG-350MCM *	375	3/8 Hex
	C	6AWG-350MCM *	375	3/8 Hex
		* (2 for 208V Output)		
Neutral	N	6AWG-350MCM (4)	275	5/16 Hex
Battery	Positive (+)	6AWG-350MCM (2)	375	3/8 Hex
	Negative (-)	6AWG-350MCM (2)	375	3/8 Hex
Battery Cabinet Ground Only	Battery Cabinet Ground	6AWG-350MCM	375	3/8 Hex
Customer Ground	Ground (Earth)	2AWG-600MCM (4)	500	1/2 Hex

Table 3 – Input/Output and Battery Cabinet Wire Terminations for Dual Input

Power Cable Terminations - Dual Input				
Termination	Terminal	Wire Size of Clamp Termination	Tightening Torque In.-lbs	Type Screw
AC Input to UPS Rectifier	A	3/0-250MCM (2)	275	5/16 Hex
	B	3/0-250MCM (2)	275	5/16 Hex
	C	3/0-250MCM (2)	275	5/16 Hex
AC Input to UPS Input Transformer	A	4AWG-500MCM (2)	375	1/2 Hex
	B	4AWG-500MCM (2)	375	1/2 Hex
	C	4AWG-500MCM (2)	375	1/2 Hex
AC Input to Bypass	A	6AWG-350MCM	375	3/8 Hex
	B	6AWG-350MCM	375	3/8 Hex
	C	6AWG-350MCM	375	3/8 Hex
AC Output to Critical Load	A	6AWG-350MCM *	375	3/8 Hex
	B	6AWG-350MCM *	375	3/8 Hex
	C	6AWG-350MCM *	375	3/8 Hex
		* (2 for 208V Output)		
Neutral	N	6AWG-350MCM (4)	275	5/16 Hex
Battery	Positive (+)	6AWG-350MCM (2)	375	3/8 Hex
	Negative (-)	6AWG-350MCM (2)	375	3/8 Hex
Battery Cabinet Ground Only	Battery Cabinet Ground	6AWG-350MCM	375	3/8 Hex
Customer Ground	Ground (Earth)	2AWG-600MCM (4)	500	1/2 Hex

Note:

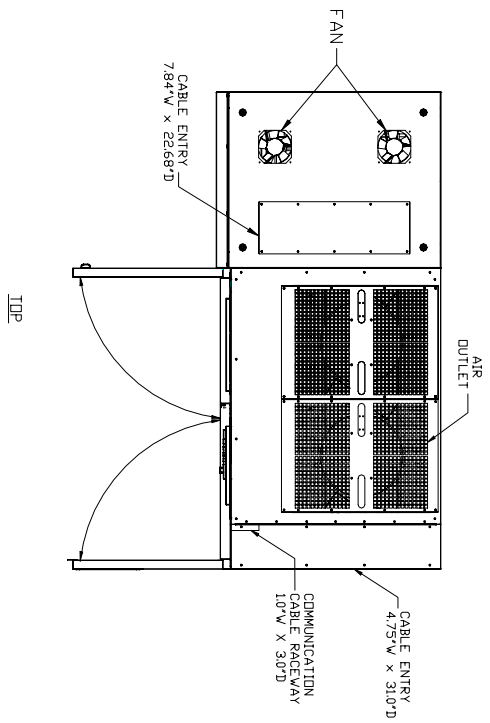
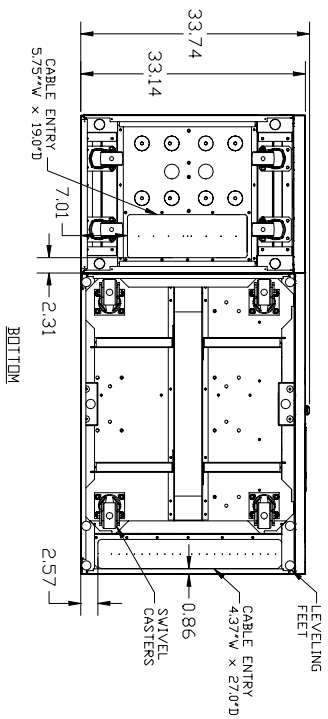
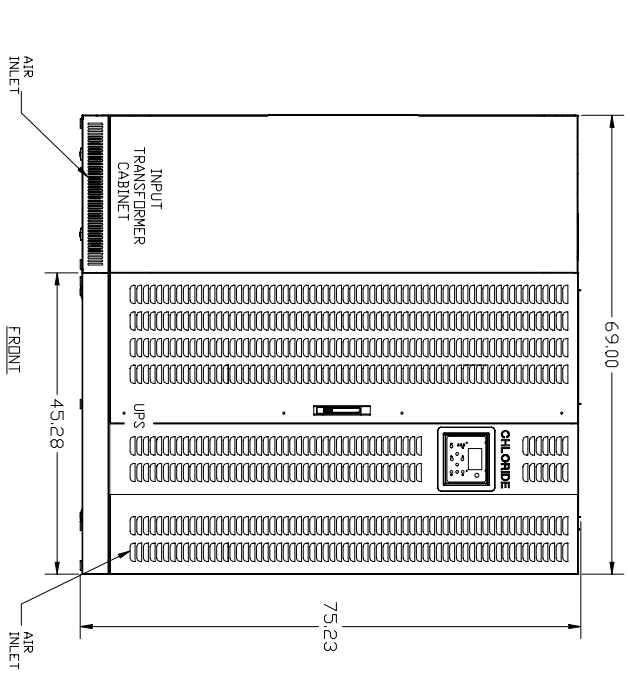
- The cable sizes are defined as minimum cable sizes
- Input and output conductors are based on NEC 310-16 for insulated copper conductors rated at 75°C in ambient temperature of 40°C (104°F).
- Grounding conductors are based on NEC 250-95 for copper wire.
- UPS input and output cables should be run in separate conduits.
- It is recommended that the external cables and protection be selected for the highest possible rating of UPS kVA.
- For dual input, connect the mains supply cables to the UPS input terminals A, B, C. Connect the Bypass input to input terminals A, B, C, N. For single input, connect main input and bypass to the same input source. Connect the load to UPS output terminals A, B, C, and N. The minimum conductor cross sections apply for maximum currents.
- Should there be any variation in the conditions it will be necessary to verify whether the cable dimensions satisfy the requirements of NEC. In cases where the cables are so long that they cause a drop in voltage of >3%, a larger dimension shall be selected.

Table 4 – Full Load Heat Rejection

Full Load Heat Rejection (BTU/Hr)			
Model	Configuration		
	2X2	4X2	4X4
CP3150-150kVA	56,931	45,556	34,670
CP3150-125kVA	47,442	37,963	28,892

Table 5 – Weight Specifications

Weight Specifications		
CP3150-150kVA/125kVA	Weight (lbs)	Floor Loading (lbs)
480in/480out	2564	4 at 641
480in/208out	3675	4 at 919
208in/208out	3675	4 at 919
"K" Battery Cabinet	3900	8 at 488
Input Transformer Cabinet	1300	4 at 325

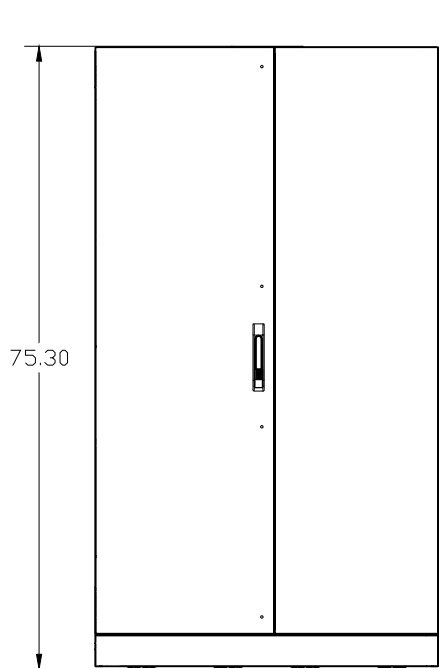


- NOTES:**
1. UPS CABINET SHIPPED ON 44"x64"x6.88" PALLET.
 2. MAXIMUM WEIGHT OF CABINET (LESS PALLET AND INPUT FILTER) IS APPROXIMATELY 2564 LBS.
 3. TRANSFORMER CABINET SHIPPED ON 44"x48"x6.88" PALLET.
 4. MAXIMUM WEIGHT OF TRANSFORMER CABINET (LESS PALLET) IS APPROXIMATELY 1300 LBS.

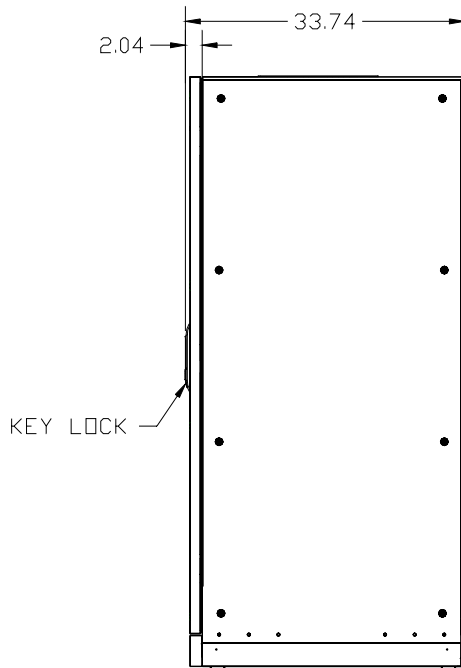
HANDLING INSTRUCTIONS:

1. REMOVE PACKING MATERIAL FROM CABINET.
2. DETACH CABINET RESTRAINING BRACKETS FROM PALLET, BY REMOVING HEX HEAD SCREWS.
3. REMOVE CABINET FROM PALLET WITH FORK LIFT. LIFT FORKS SHOULD BE INSERTED COMPLETELY THROUGH THE LOWER FRONT OF THE CABINET, WITH WEIGHT EVENLY DISTRIBUTED FRONT TO REAR.
4. MOVE CABINET, WITH FORK LIFT, AS CLOSE TO FINAL POSITION AS POSSIBLE. CASTERS ARE PROVIDED FOR FINAL POSITIONING OF CABINET ONLY. EXTREME CAUTION MUST BE USED WHEN MOVING CABINET AROUND WITH A FORK LIFT. AVOID EXCESSIVE SPEED, SHARP TURNING RADIUS AND LOWERING THE UNIT TOO QUICKLY.
5. ROLL CABINET INTO FINAL POSITION. SCREW LEVELING FEET DOWN AND TIGHTEN LOCKING NUT. LEVELING FEET ARE PROVIDED IN ORDER TO DISABLE THE CASTERS NOT TO LIFT THE UNIT OFF THE GROUND.

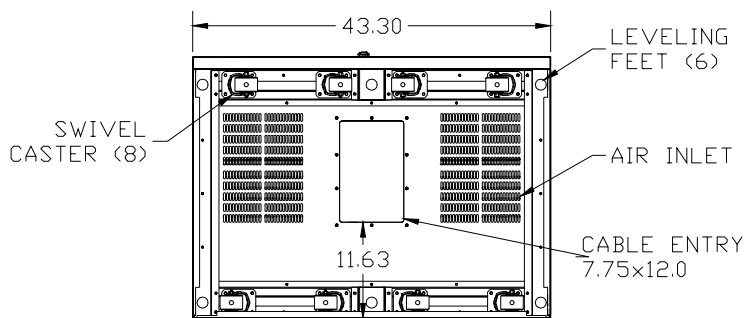
Illustration A



FRONT VIEW



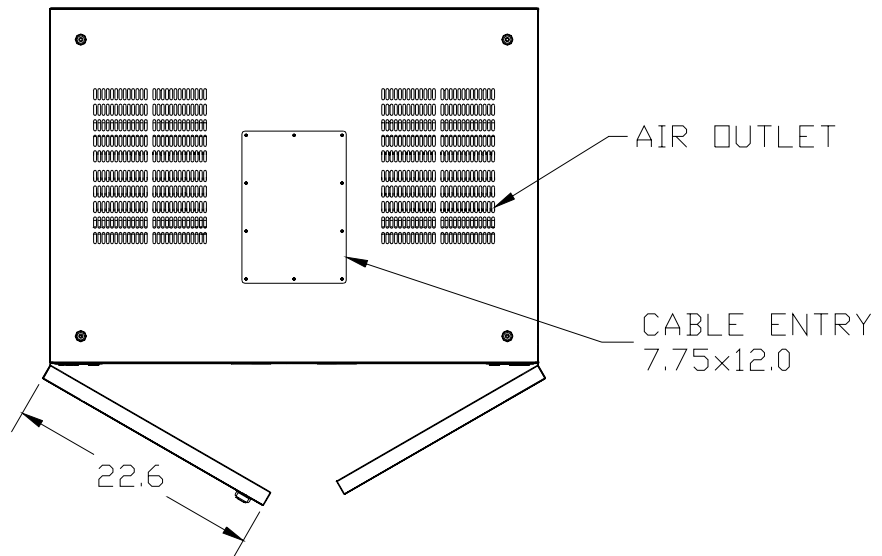
SIDE VIEW



BOTTOM VIEW

Illustration B

TOP VIEW



**BATTERY CABINET TOP
DIMENSIONS**

Illustration C

For a number of years CHLORIDE POWER PROTECTION has been committed to a policy of Total Quality and today devotes a great deal of resources and energy to providing the best possible after-sales service.

Therefore, we value any suggestion you might make and consider it an inspiration for our continued improvement.

We thank you in advance for any such suggestions that may be forwarded to the addresses listed in the last page.

This document is for information only. It is the policy of this company that its products are continually improved therefore CHLORIDE POWER PROTECTION reserves the right to alter any or all of the information contained herein without prior notice.

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