

Graphical Command Center

User Manual



IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS – This manual contains important instructions for all GCC's that must be followed during operation of the equipment.



WARNING: Opening enclosures expose hazardous voltages. Always refer service to qualified personnel only.

ATTENTION: L'ouverture des cabinets expose des tensions dangereuses. Assurez-vous toujours que le service ne soit fait que par des personnes qualifiées.

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ATTENTION: Comme les normes, spécifications et produits peuvent changer, veuillez demander confirmation des informations contenues dans cette publication.

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Graphical Command Center User Manual

For service call
1-800-438-7373

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Graphical Command Center User Manual

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Graphical Command Center, User Manual

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How To Use This Manual:

This manual is designed for ease of use and easy location of information.

To quickly find the meaning of terms used within the text, look to the Glossary.

To quickly find a specific topic, look at the Table of Contents.

This manual uses icons with text to convey important information.

The icons come in four varieties.

**WARNING:**

Indicates information provided to protect the User and service personnel against safety hazards and possible equipment damage.

**CAUTION:**

Indicates information provided to protect the User and service personnel against possible equipment damage.

**NOTE:**

Indicates information provided as an operating tip or an equipment feature.

**IMPORTANT:**

Indicates information provided as an operating instruction or as a tip.

**NOTE:**

A version of this manual is available in color on the MGE website, www.mgeups.com.

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Introduction

1.0 Scope

This section is a general introduction and overview of the MGE Graphical Command Center (GCC).

1.1 Reference Manuals

86-132203-00	EPS 8000 625-800kVA User Manual, Single-Module
86-132202-00	EPS 8000 625-800kVA User Manual, Parallel System
86-132201-55	EPS 8000 625-800kVA Installation Manual, Single and Parallel Systems, 50/60 Hz
86-130033-00	EPS 6000 User Manual, 150-750kVA Single-Module
86-130034-00	EPS 6000 User Manual, 150-750kVA Multi-Module
86-131107-00	EPS 6000 User Manual, Parallel-Connected Single UPS Units
6739390XU	EPS 6000 Communication Manual, 50/60 Hz

1.2 Section Descriptions

This manual is divided into six sections:

Section 1 — Introduction

This section is a general introduction and overview of the MGE Graphical Command Center (GCC).

Section 2— GCC Setup

This section guides the User through the GCC login and custom configuration screens.

Section 3 — GCC Screens

This section describes each screen, the menu buttons, and how to navigate from screen to screen.

Section 4— GCC Mimic Diagrams

This section provides GCC mimic diagrams representing the common status and fault modes.

Section 5 — GCC Alarms

This section describes the captured alarms and events, including how to acknowledge and clear the alarm history log.

Section 6 — GCC Troubleshooting

This section contains a troubleshooting guide to assist the User with any communication and configuration problems.

A Glossary in the rear of this manual provides definitions of terms used within the text.

1.3 GCC System Overview

The GCC functions as the monitoring program for your system. The intention of the GCC is to operate only as an aid to the existing indicators and controls. It is only intended as a display device and will not be used for any control purposes. The GCC is factory installed and tested before shipment, therefore, it is ready to use upon receipt.

When powering up the display a boot screen similar to what you see in starting a “Windows PC” appears. The display will proceed with a memory test and other prerequisites, then load the operating system, and finally the UPS monitoring software. The GCC is ready when showing the mimic diagram with the menu selection buttons.

The GCC uses a color liquid crystal display (LCD) with a touch sensitive screen. Touching the screen a single time will enable the User to enter the menu selection buttons or the icons on the mimic diagram. Double-clicking or touching the screen in two quick successions in a text box will enable the User to enter the Keypad of alphanumeric characters. Use of the keypad is required to enter or change the password.



WARNING:

The touch screen can be damaged by sharp objects. Always use a soft object or the pad of your finger to navigate through the screens.

1.4 Keypad

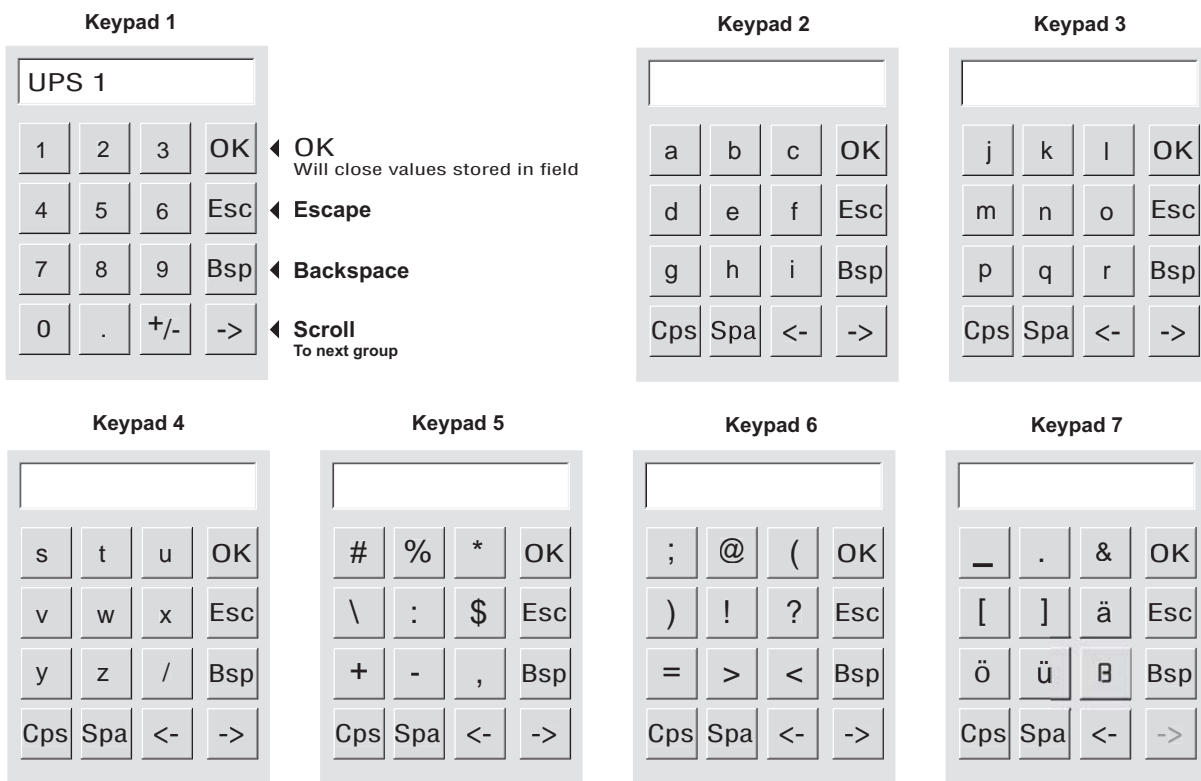
The **Keypad** opens by double-clicking inside any text box.

The alphanumeric **Keypad** provides access to normal keyboard characters, Decimal Point (.), Backspace (Bsp), Space (Spa), Caps (Cps) and other characters.

Use the “<-” and “->” keys to scroll to next group of keys. See Figure 1-1 for all the available keypads.

Press the “OK” key when done entering information. Use the “Esc” key to exit the keypad without saving information.

Figure 1-1: Keypad Alphanumeric Characters.



1.5 GCC Configurations

Three separate series of mimic diagrams are available:

1. Single-Module (S-M)
2. Multi-Module (M-M)
3. Static Switch Cabinet (SSC)

The GCC is located on the UPS Module, the Static Switch Cabinet or both. A Single-Module UPS configuration is shown in Figure 1-2. A Multi-Module UPS and SSC with a GCC on each UPS is shown in Figure 1-3. A Multi-Module UPS and SSC with one GCC on the SSC is shown in Figure 1-4.

Figure 1-2: S-M Configuration, 1 GCC per Module. (800kVA UPS system shown)



Figure 1-3: M-M Configuration, 1 GCC per each Module and the SSC. (800kVA UPS system shown)



Figure 1-4: M-M Configuration, 1 GCC per system located on the SSC. (800kVA UPS system shown)



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GCC Setup

2.0 Scope

This section guides the User through the GCC login and custom configuration screens.

2.1 GCC Setup Screens

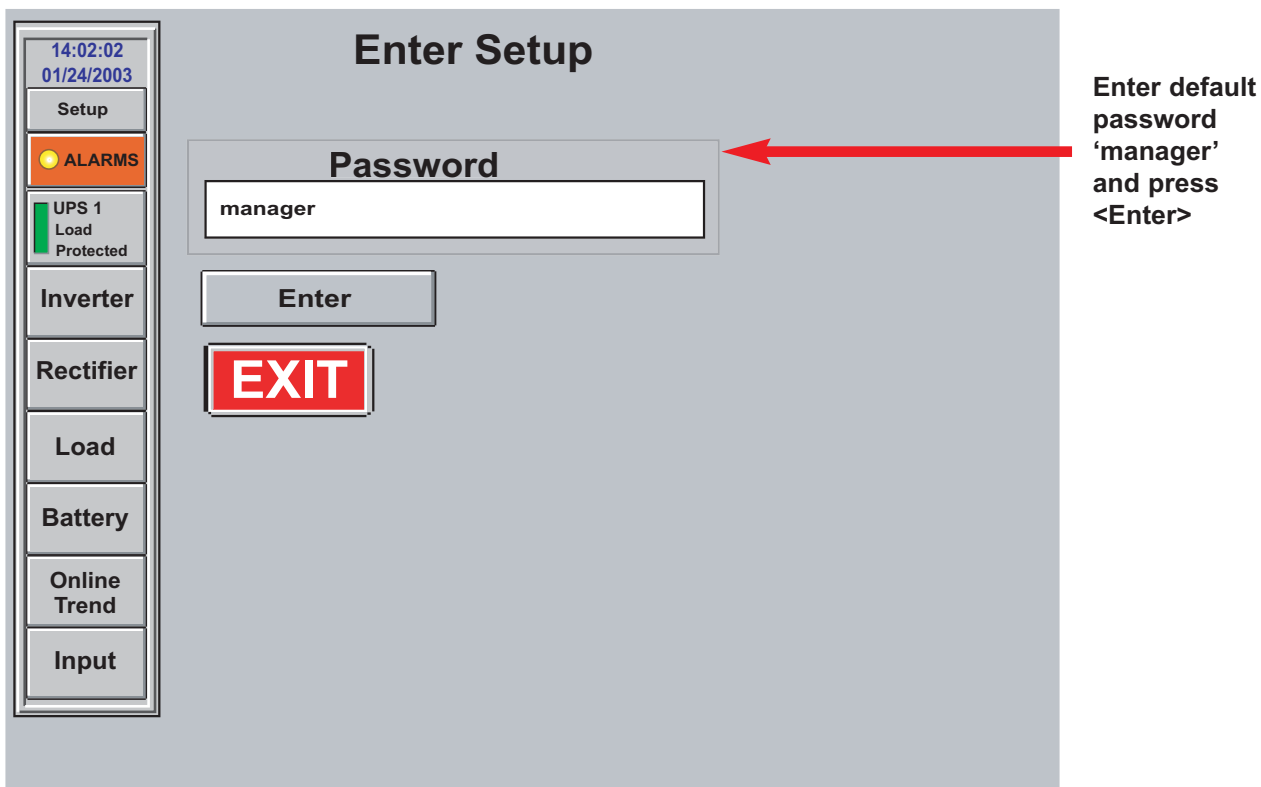
The following GCC **Setup** screens are described in this section:

- ▶ Enter Setup
- ▶ Identification Setup, Single-Module
- ▶ Identification Setup, Multi-Module
- ▶ System Configuration, Multi-Module
- ▶ Change Password
- ▶ Control Panel

2.1.1 Enter Setup Screen

From the menu button click the "Setup" button to open the **Enter Setup** screen. Type the default password, 'manager', as shown in Figure 2-1. When the password is accepted, the **Identification Setup** screen opens and the User may change the password at that time or continue with the setup. Refer to section 1.4 Keypad for instructions to use the keypad.








Figure 2-1: Enter Setup Screen.



2.1.2 Identification Setup Screen

The **Identification Setup** screen is accessed from the **Enter Setup** screen when the password is entered. For a Single-Module the **Identification Setup** allows the User to modify the naming conventions for the UPS's, circuit breakers, and inputs of the unit. For Multi-Module system the **Identification Setup** and **System Configuration** screens allow the User to modify the naming conventions. See Figure 2-2 for the **Identification Setup** for a Single-Module, and Figure 2-3 for a Multi-Module. See Figure 2-4 for the **System Configuration** screen for the Multi-Module.

The following is a description of the screen buttons.

-  **1 Default names** These are the text fields that appear on the mimic diagram. Change these text fields by double-clicking inside the box, and the keypad will appear allowing you to enter text. The default name (UPS Name = UPS 1) can be changed by double-clicking in the first text field and entering the UPS name. For instructions to use the keypad, see section 1.4 Keypad.
-  **2 Show CB's/System CB Configuration** Enable or disable circuit breakers in the system configuration. Green is enabled, and gray is disabled. If disabled, the breaker will not be shown in the mimic diagram.
-  **3 Battery Temp. Sensor present** Enable battery temperature monitoring (if that option was installed). Green is enabled, and gray is disabled.
-  **4 Show battery Backup Time** Shows the UPS battery backup time. The UPS needs to have battery parameters programmed in order for this to work correctly. Refer to the UPS Manual, or contact Customer Service Support at 1-800-438-7373.
-  **5 Alarm Pop-up Screen** When enabled this button will set the **Alarm/Event Present** screen to open every time there is an unacknowledged alarm. Once enabled, the **Alarm/Event Present** screen will not close until all alarms/events are acknowledged. This may also be enabled in the **Alarm/Event Present** screen.
-  **6 Select if UPS is a 225, 300, 375 or 500KVA** Disabling will filter alarms specific to 800 kVA class UPS's.
-  **7 Change Password** Selecting this menu button will open the **Change Password** screen. Refer to section 2.1.3 Change Password for the procedure.



WARNING:

A Password for the Control Panel and clearing the alarm history is required. User should note password and keep in a secure location.

-  **8 Control Panel**

Selecting this menu button will open the **Control Panel** screen. Refer to section 2.1.4 Control Panel to change the settings.



CAUTION:

Use Caution in this menu as some settings can have adverse affects on the GCC operation.

-  **9 UPS's Present**

Selects number of UPS's in a Multi-Module System. Green is enabled and gray is disabled.

Figure 2-2: S-M Identification Setup Screen.

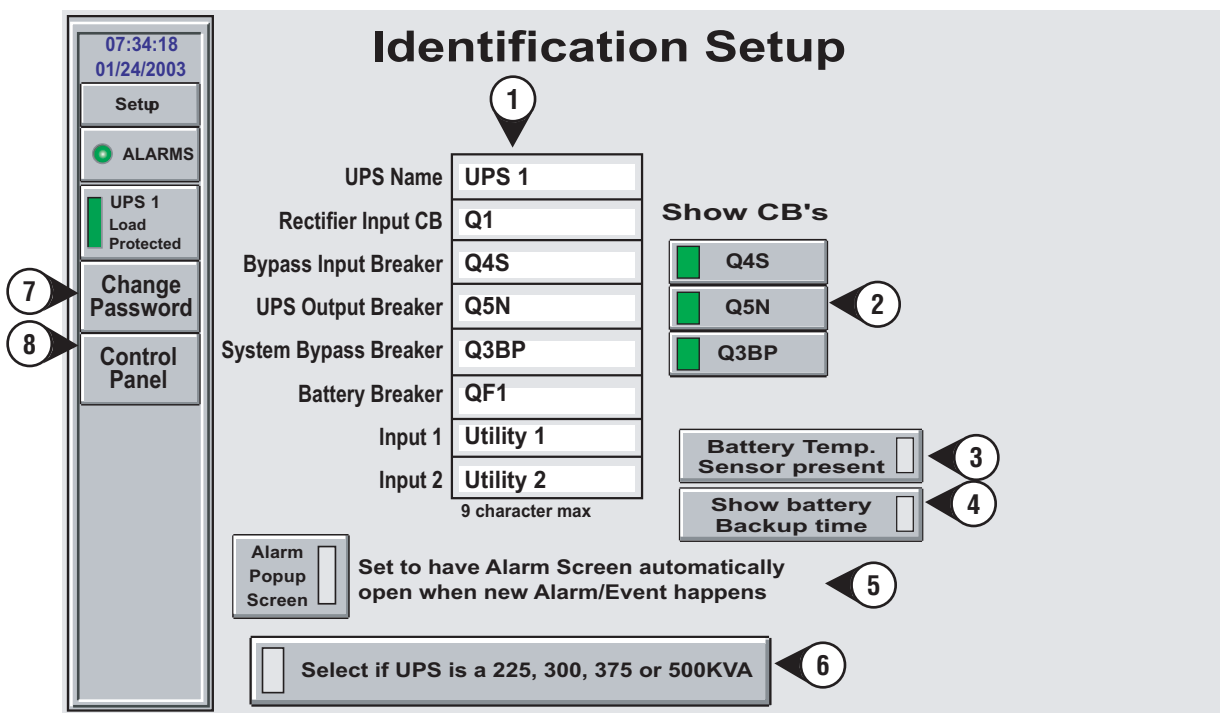
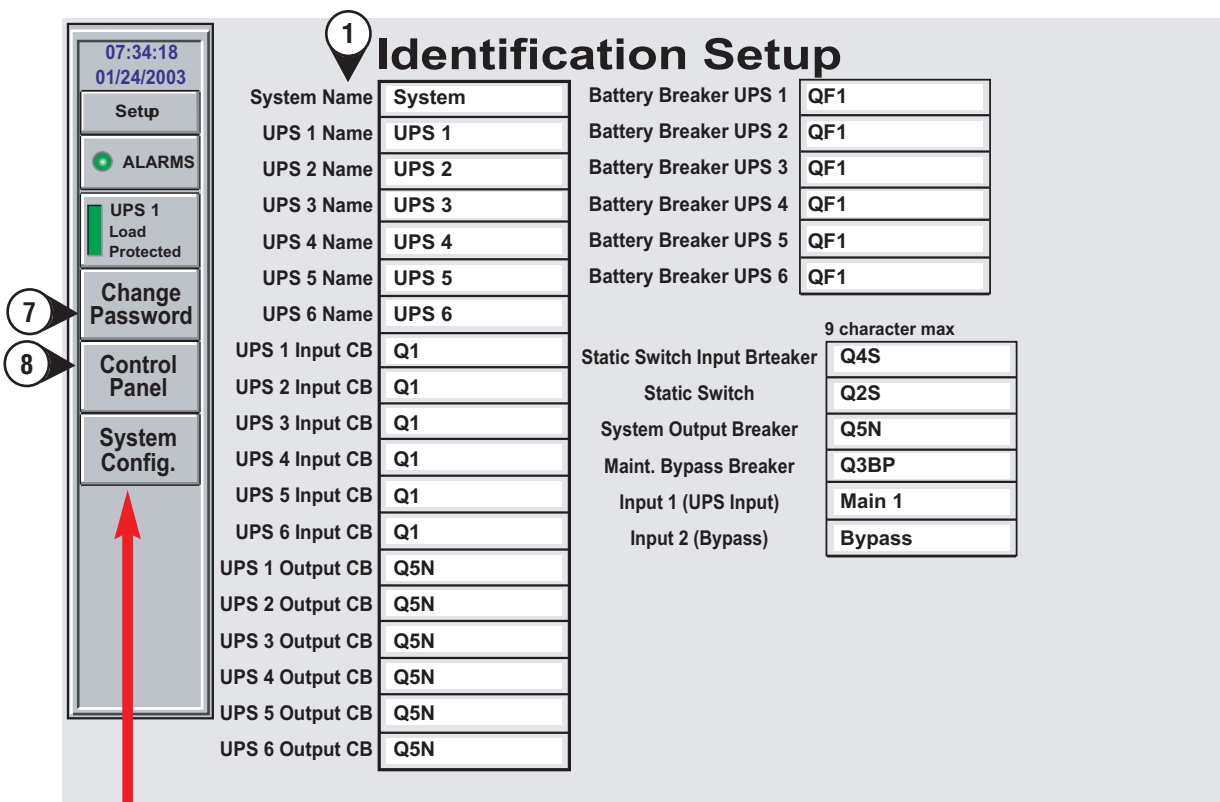
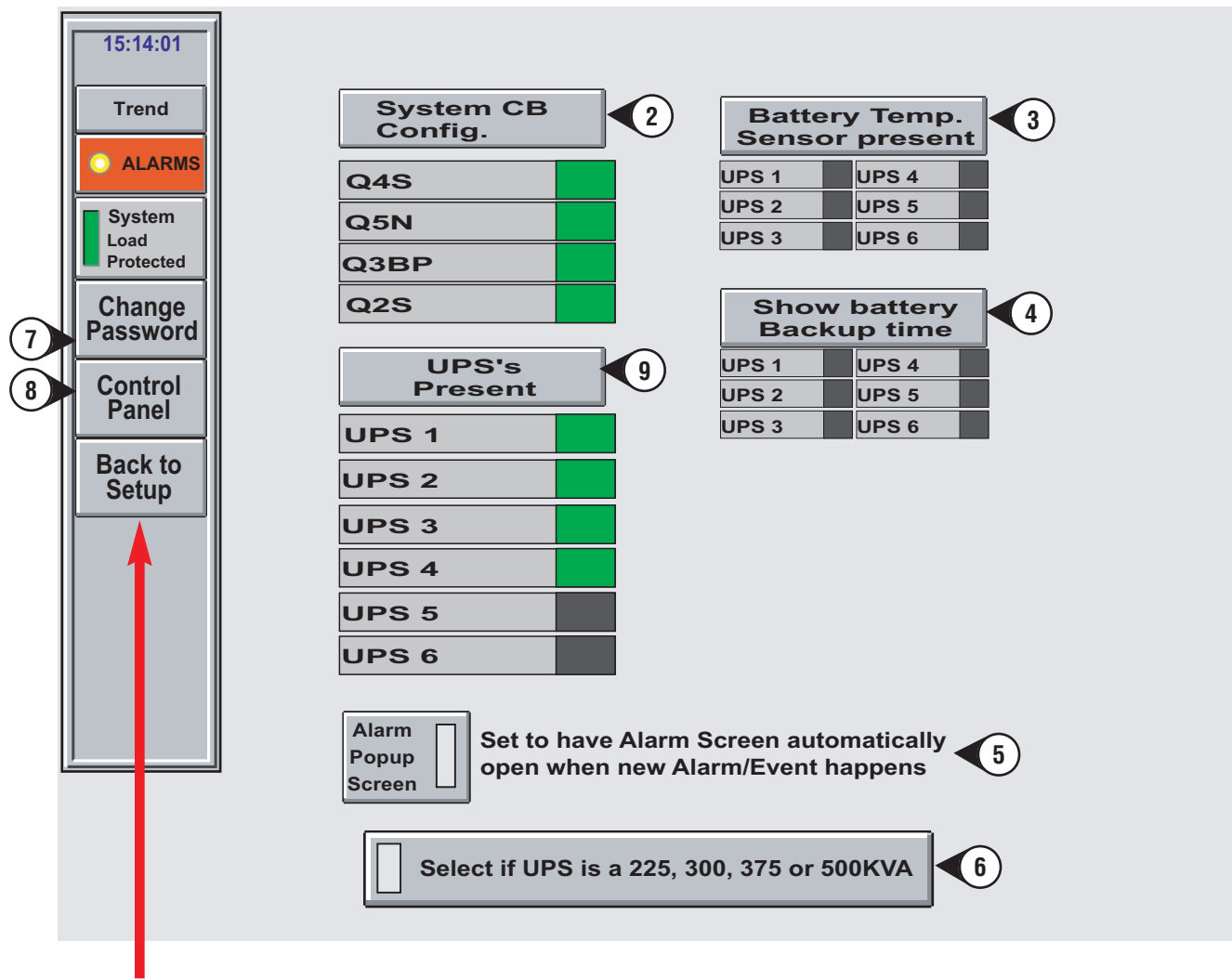


Figure 2-3: M-M Identification Setup Screen.



Opens the System Configuration Screen.

Figure 2-4: M-M System Configuration Screen.



Returns to the Identification Setup Screen.

2.1.3 Change Password

Change Password will allow the User to change the default password 'manager' to a new User password.

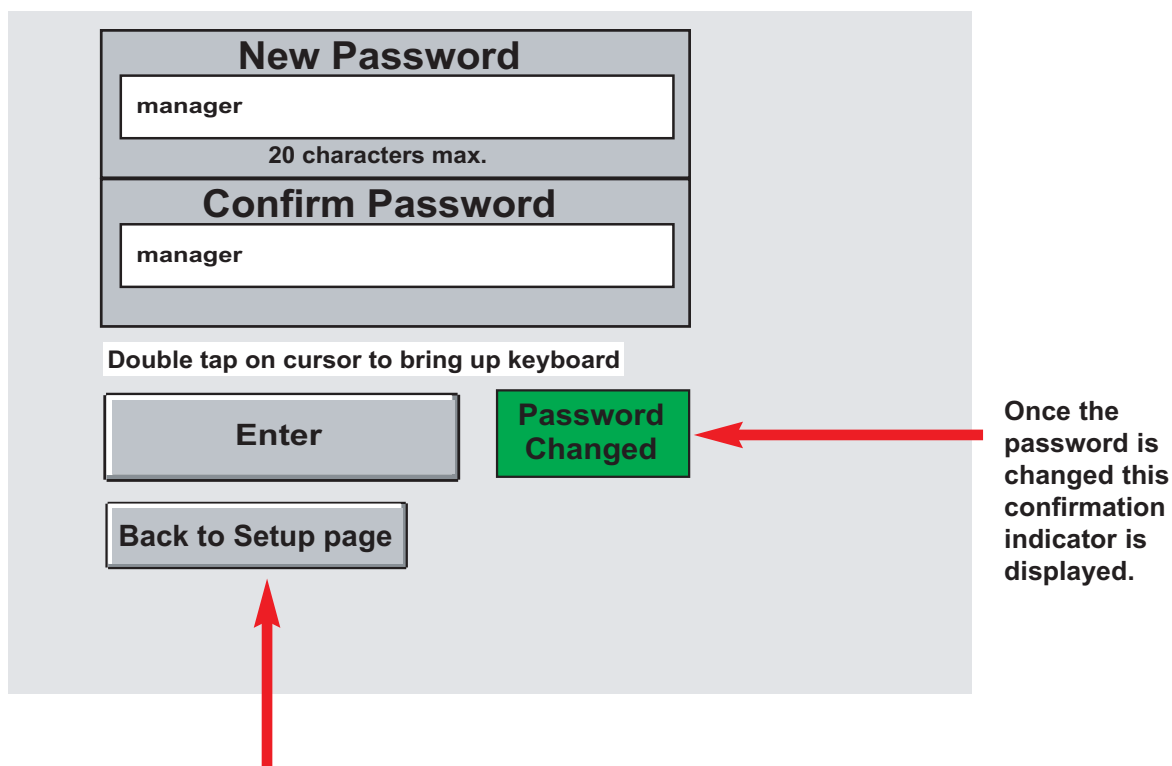
**NOTE:**

Must be in the Setup Screen to change password. See section 2.1.1 Enter Setup Screen for instructions.

Proceed as follows: (Lower case and 20 characters maximum)

1. From the menu button click the **Change Password** button.
2. In the “New Password” text field type a new password. (up to 20 characters maximum, lower case) Refer to Figure 2-5. For instructions to use the keypad, see section 1.4 Keypad.
3. In the “Confirm Password” field enter the new password a second time to confirm the change, and press “Enter”. When the new password is changed a confirmation box will appear to verify password is saved.

Figure 2-5: Change Password Screen.



To exit the screen without changes click “Back to Setup page” button.

2.1.4 Control Panel

The **Control Panel** is available to modify computer settings similar to a PC windows control panel. The date and time can be changed by double-clicking the Date/Time icon as shown in Figure 2-6.



NOTE:

Must be in the Setup Screen to change password. See section 2.1.1 Enter Setup Screen for instructions.

Figure 2-6: Date and Time Icon.



GCC Screens

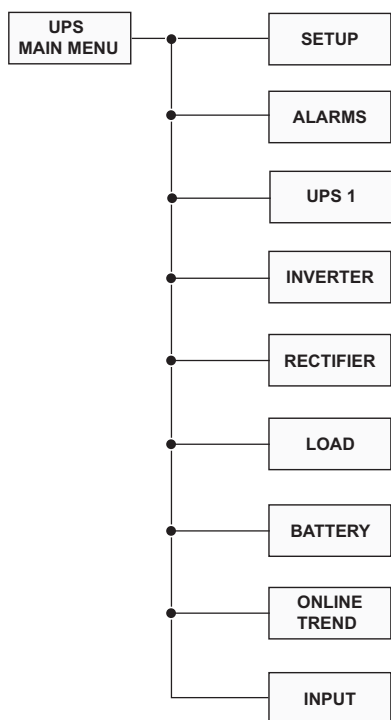
3.0 Scope

This section describes the menu buttons, and how to navigate from screen to screen.

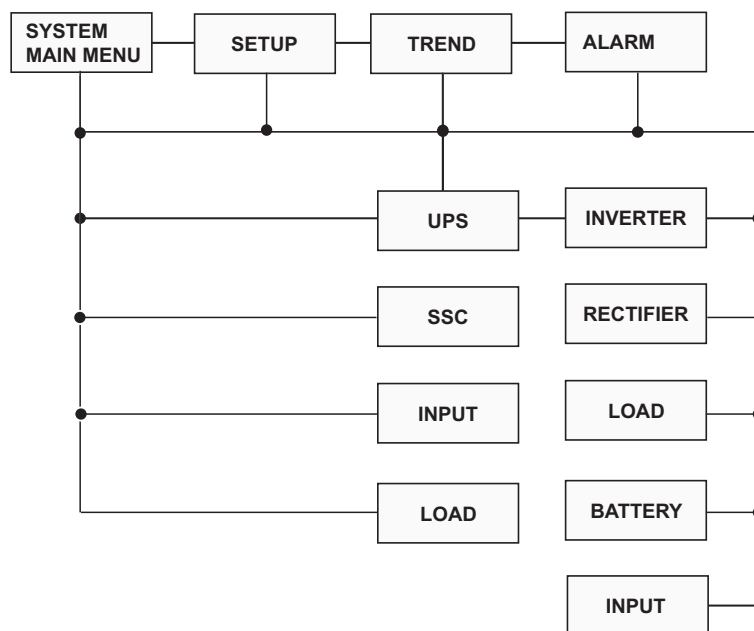
Progressing through each section will enable more to be learned and expected from the GCC screens, Users will become more proficient at navigating and monitoring the System.

3.1 GCC Menu Structure

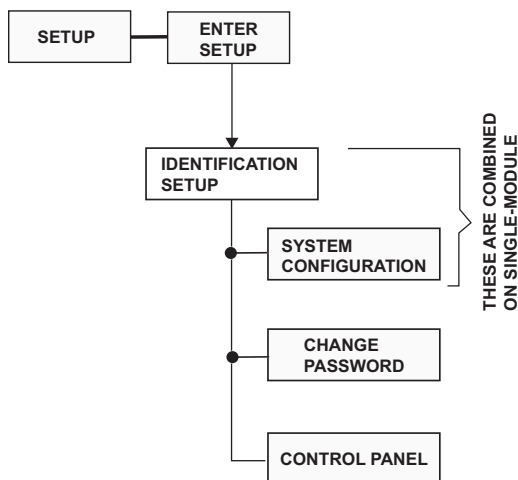
SINGLE-MODULE



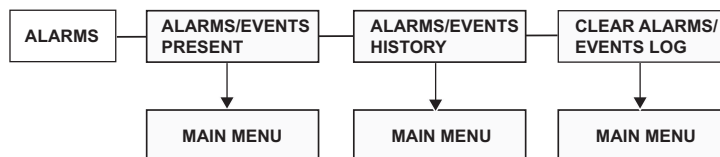
MULTI-MODULE



SETUP



ALARMS/EVENTS



3.2 Main Menu Screen

The **Main Menu** Screen consists of three major components: the menu buttons, UPS status panel, mimic diagram. For Mimic Diagram, see section 4.0.

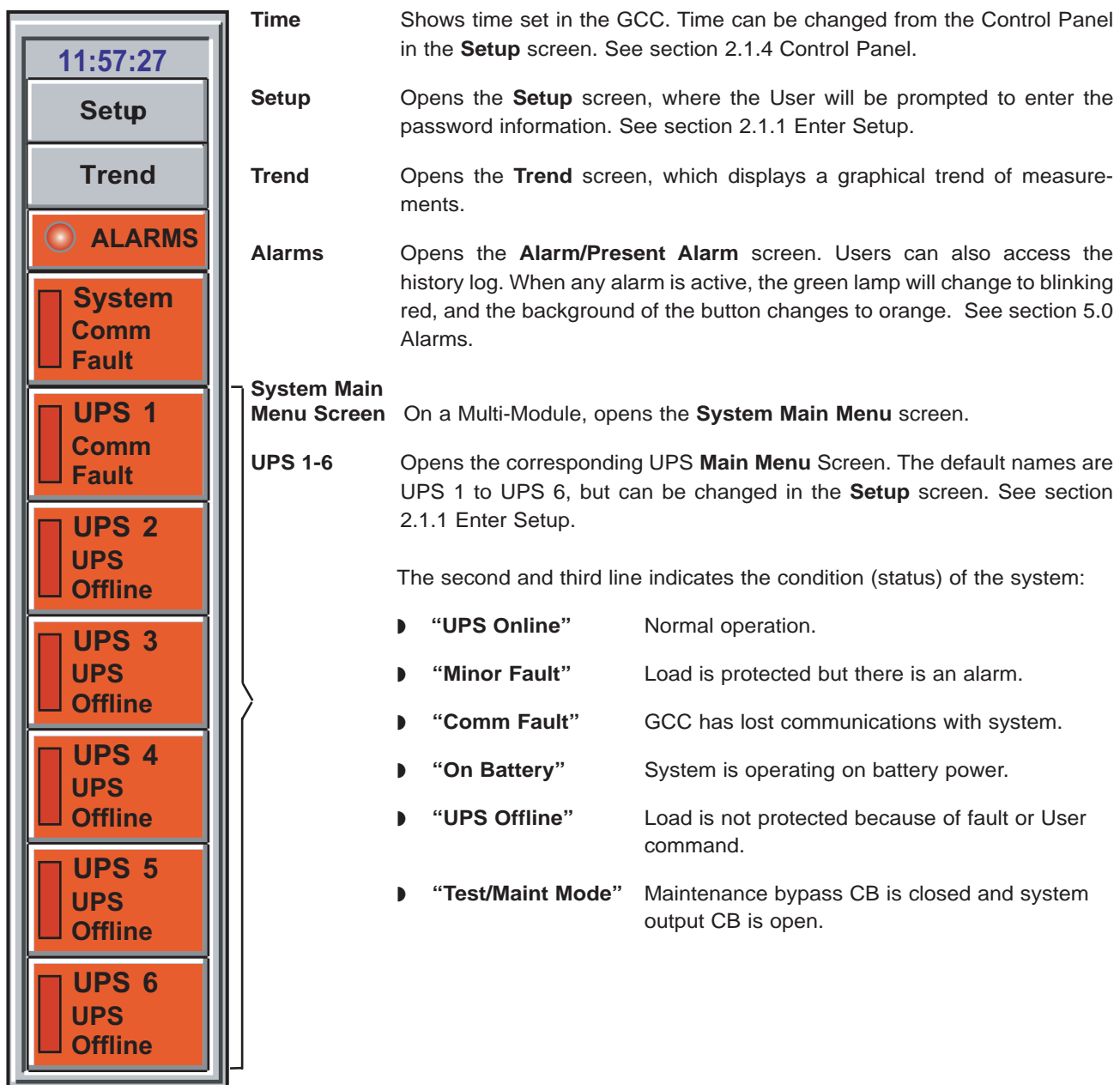
3.2.1 Menu Buttons

The GCC uses menu button selections on the left side of each screen. For Single-Module selections see Figure 3-1a. For Multi-Module selections see Figure 3-1b.

Figure 3-1a: S-M Menu Buttons.

13:43:42 01/24/2003	Date & Time	Shows date and time set in the GCC. Date and time can be changed from the Control Panel in the Setup screen. See section 2.1.4 Control Panel.
Setup	Setup	Opens the Setup screen, where the User will be prompted to enter the password information. See section 2.1.1 Enter Setup.
● ALARMS	Alarms	Opens the Alarm/Event Present screen. Users can also access the History log. When any alarm is active, the green lamp will change to blinking red, and the background of the button changes to orange. See section 5.0 Alarms.
UPS 1 Online	UPS 1 Main Menu Screen	Opens the UPS Main Menu screen. The default name is UPS 1, but can be changed in the Setup screen. See section 2.1.1 Enter Setup.
Inverter		The second and third line indicates the condition (status) of the system:
Rectifier		<ul style="list-style-type: none"> ▶ “UPS Online” Normal operation. ▶ “Minor Fault” Load is protected but there is an alarm. ▶ “Comm Fault” GCC has lost communications with system. ▶ “On Battery” System is operating on battery power. ▶ “UPS Offline” Load is not protected because of fault or User command. ▶ “Test/Maint Mode” Maintenance bypass CV is closed and system output CB is open.
Load		
Battery	Inverter	Opens the Inverter screen, which displays inverter status and measurements.
Online Trend	Rectifier	Opens the Rectifier screen, which displays rectifier status and measurements.
Input	Load	Opens the Load screen, which displays system load status and measurements.
	Battery	Opens the Battery screen, which displays all UPS's battery information.
	Trend	Opens the Trend screen, which displays a graphical trend of measurement
	Input	Opens the Input screen, which displays measurement of the incoming Utility of each UPS.

Figure 3-1b: M-M Menu Buttons.

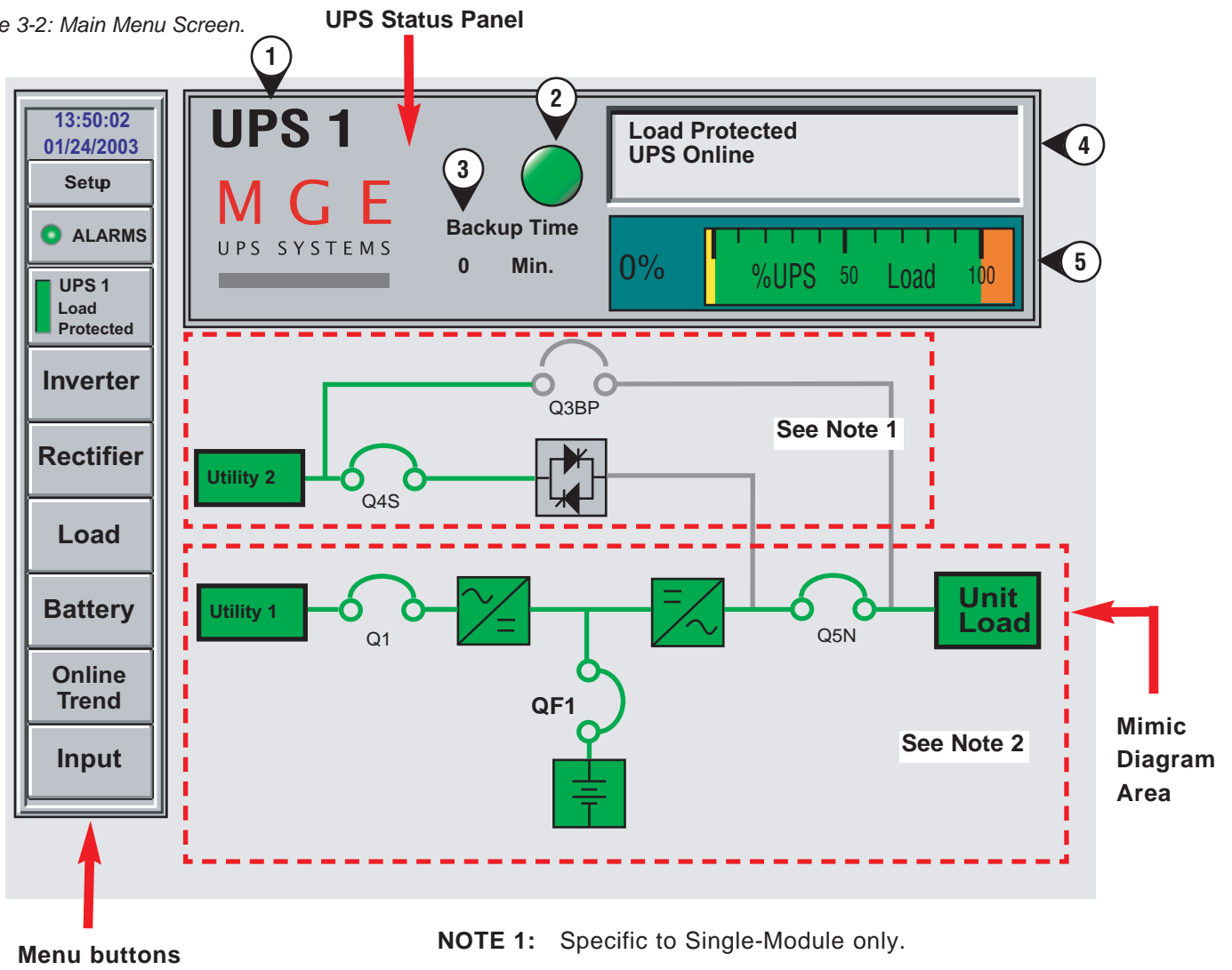


3.2.2 UPS Status Panel

The UPS Status Panel is located at the top of the Main Menu screen. It consists of five items that give the User current information, such as, % load, alarms, battery backup time, name of UPS, and load status pertaining to the selected Single or Multi-Module UPS. See Figure 3-2.

- ① **Name of UPS** Name of UPS in configuration. To modify refer to the **Setup** screen menu.
- ② **Load Status Lamp** Circle icon indicates if load is protected. When green it is protected, when red it is not protected.
- ③ **Backup Time** Shows battery backup time in minutes. Must be selected in the **Setup** screen to be displayed.
- ④ **Status Window** Displays the UPS status and various alarms.
- ⑤ **% Load** Shows the % (percentage) of the UPS kW load.

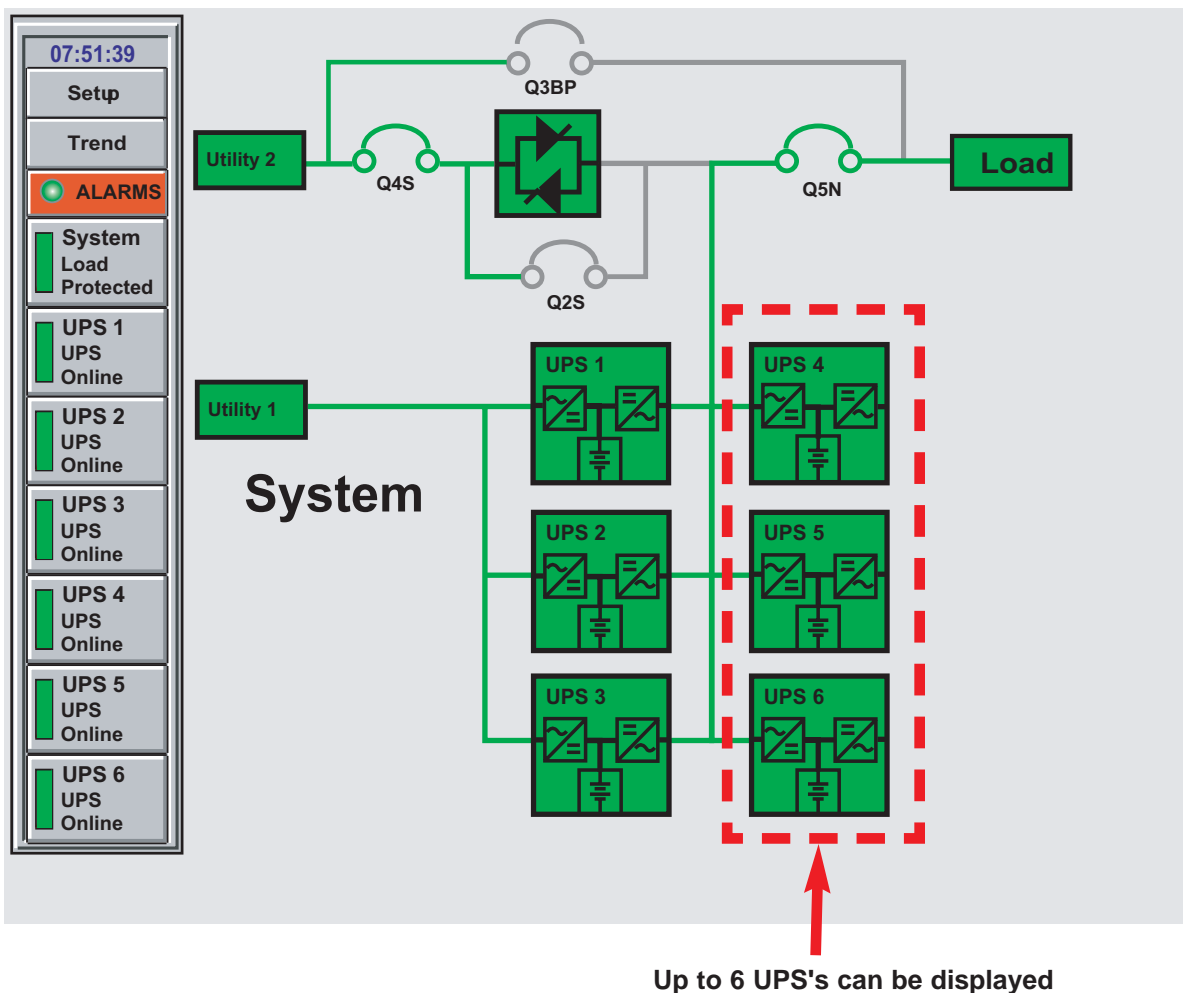
Figure 3-2: Main Menu Screen.



3.3 System Main Menu Screen

The **System Main Menu** screen is shown for a three UPS Multi-Module system configuration in Figure 3-3. Up to 6 UPS modules can be displayed.

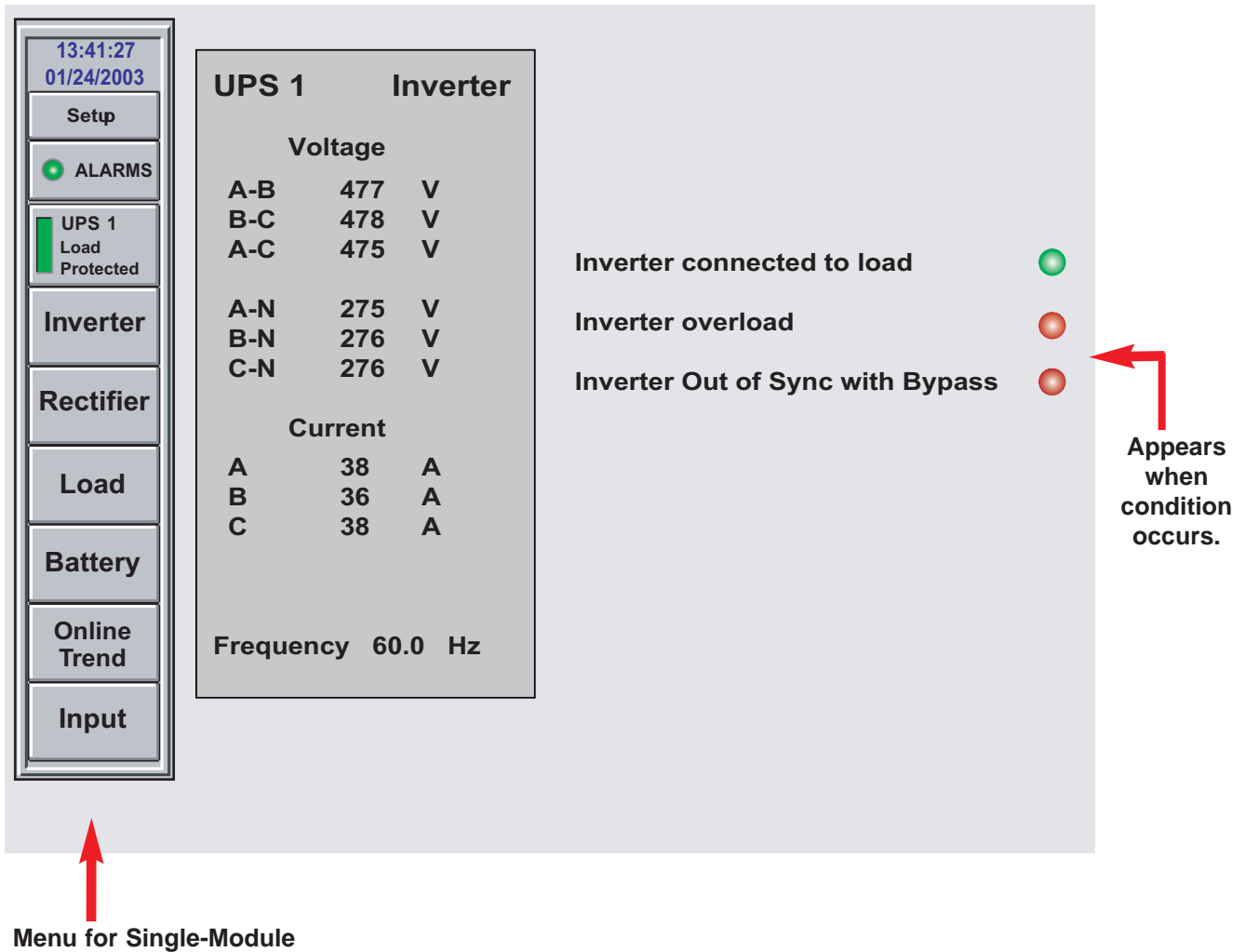
Figure 3-3: M-M System Main Menu Screen.



3.4 Inverter Screen

The **Inverter** screen in Figure 3-4 displays inverter information such as voltage L-L and L-N, current and frequency. Three indicators are present to show inverter is connected to load, overload and out of synchronization with bypass status. The inverter indicators are displayed only when conditions are present.

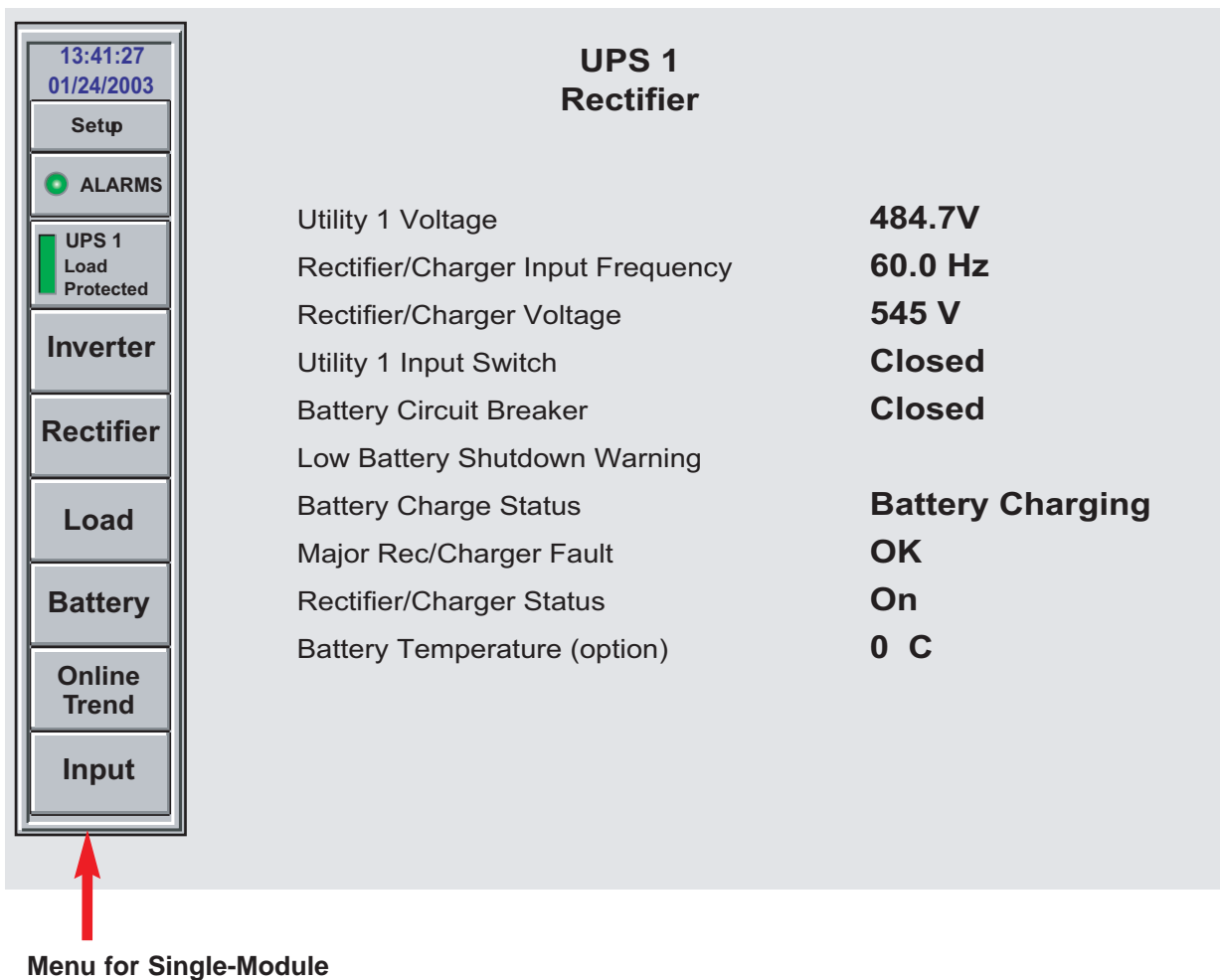
Figure 3-4: Inverter Screen.



3.5 Rectifier Screen

The **Rectifier** screen displays information such as input voltage, DC bus voltage, the status of the input device, battery, circuit breaker, and other conditions common to the Rectifier/Charger. See Figure 3-5.

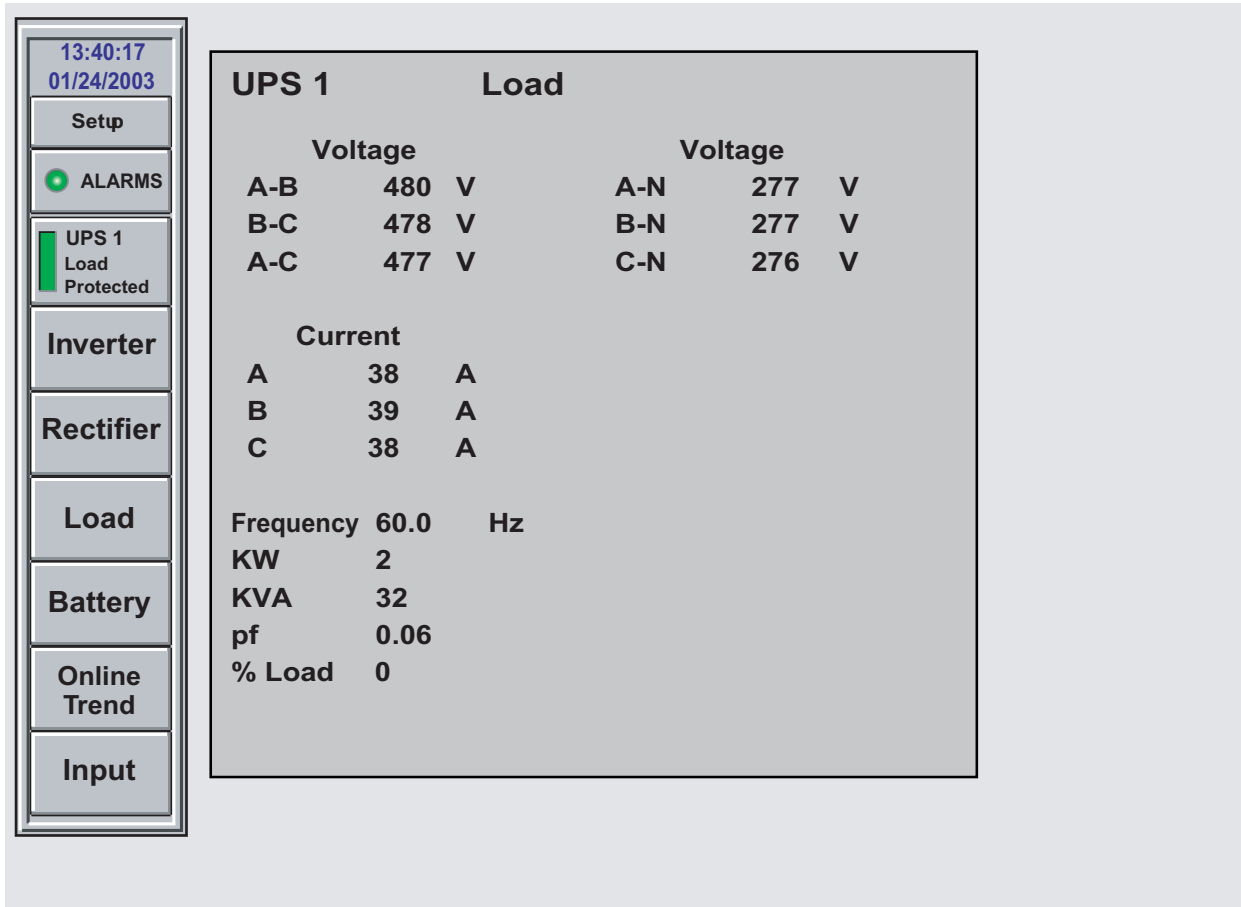
Figure 3-5: Rectifier Screen.



3.6 Single-Module Load Screen

The **Single-Module Load** screen displays information such as voltage L-L and L-N, current, frequency, kW, kVA, pf, and % load. See Figure 3-6.

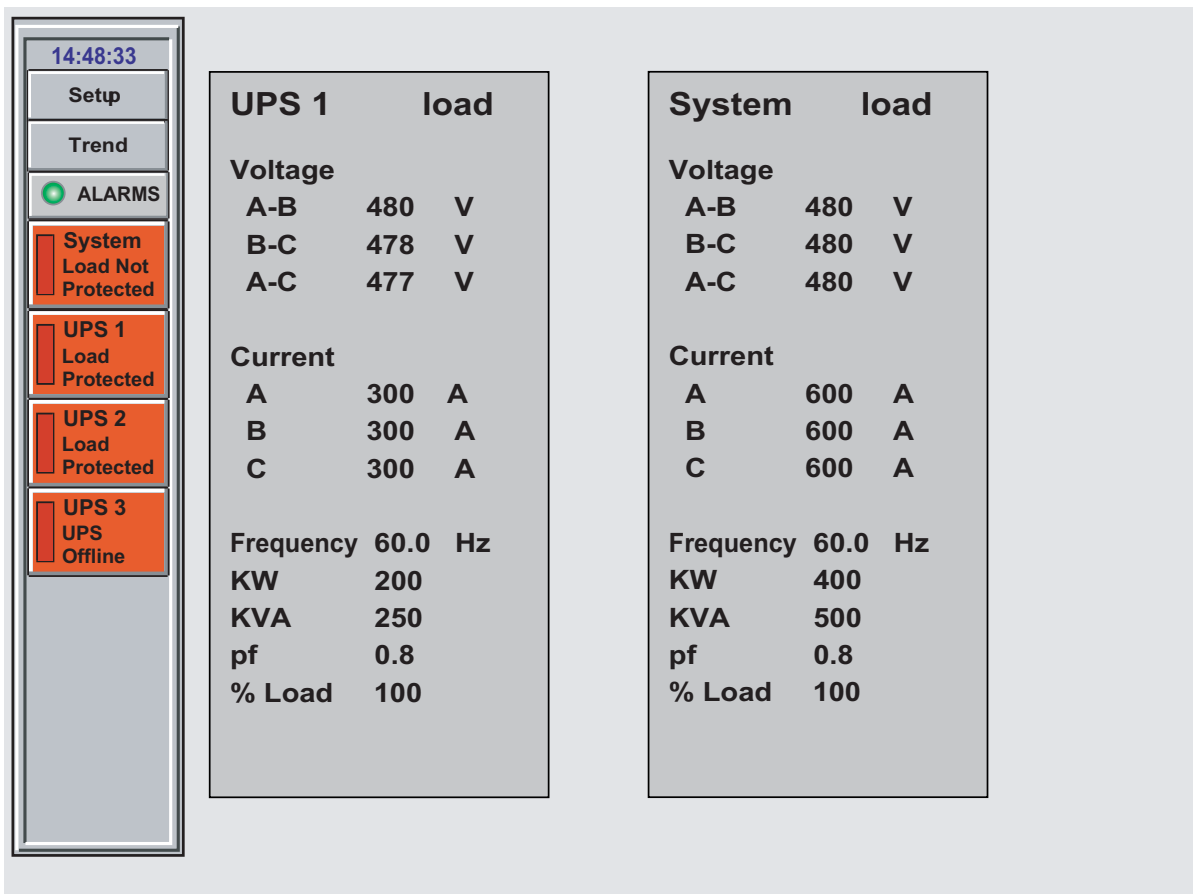
Figure 3-6: S-M Load Screen.



3.7 Multi-Module Load UPS Screen

The **Multi-Module Load UPS** screen is accessed from the UPS mimic diagram. The screen displays information of the selected UPS and overall system status, such as voltage, current, frequency, kW and kVA, pf, and % load. See Figure 3-7.

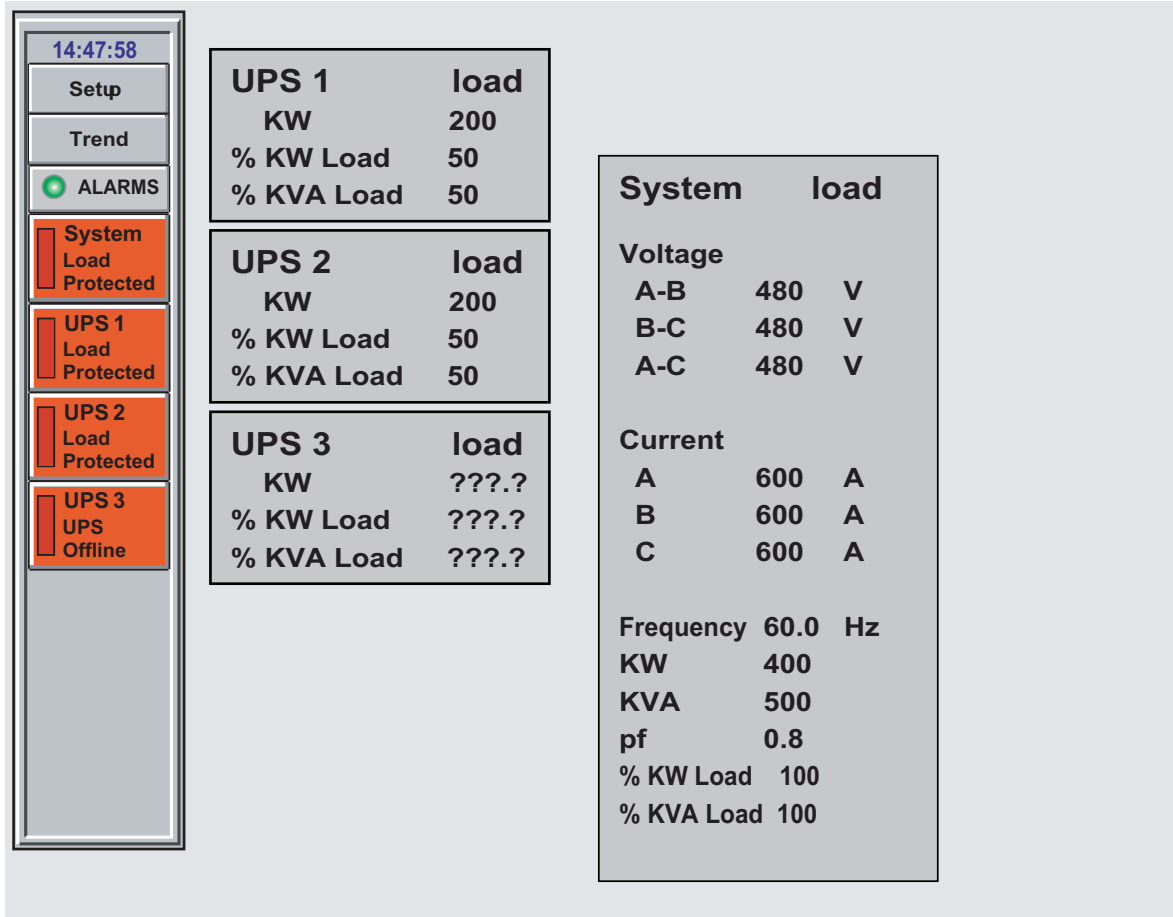
Figure 3-7: M-M Load UPS Screen.



3.8 Multi-Module System Load Screen

The **Multi-Module System Load** screen is accessed from the system mimic diagram. The screen displays information on kW, %kW and %kVA of all the UPS's configured, and the overall system measurements. See Figure 3-8.

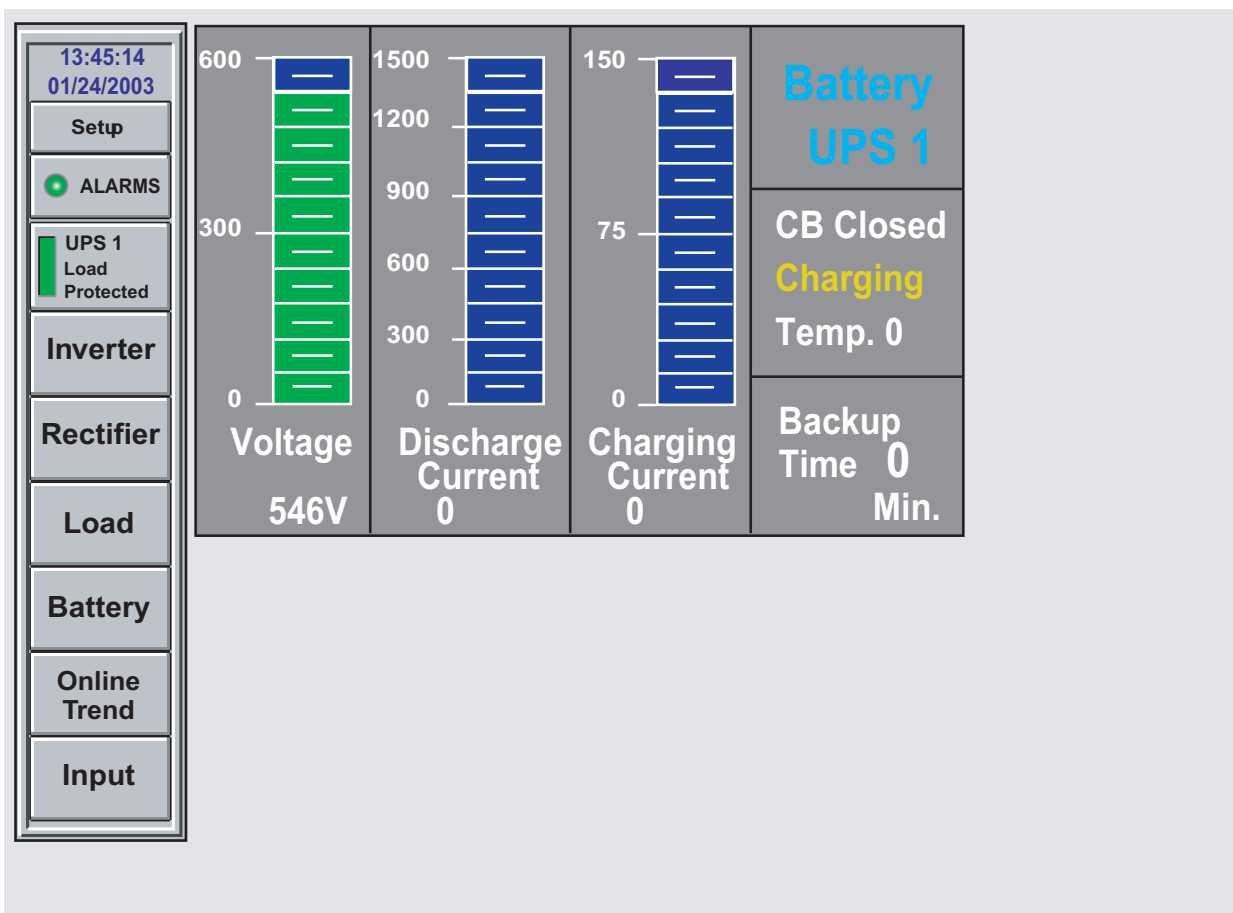
Figure 3-8: M-M System Load Screen.



3.9 Single-Module Battery Screen

The **Single-Module Battery** screen displays information such as DC voltage, discharge and charging current, and battery CB status. When enabled at the UPS, battery temperature and backup time are also available. Refer to Section 2.0 for Setup information. See Figure 3-9.

Figure 3.9: S-M Battery Screen.



3.10 Multi-Module Battery Screen

The **Multi-Module Battery** screen displays Information such as DC Voltage, discharge and charging current, and battery CB status. When enabled at the UPS, battery temperature and backup are also available. See Section 2.0 for Setup information. See Figure 3-10.

Figure 3.10: M-M Battery Screen.



3.11 Online Trending Screen

The **Online Trending** screen displays voltage, current, kW and kVA information in graphical format. The GCC includes scroll arrows, on the vertical scale, to adjust the volts, amps and kVA/kW. On the horizontal scale use the scroll arrows to adjust the time in minutes. See Figure 3-11.

Online trending accounts for present time only, and does not do historical trending for past measurements.

3.11.1 Online Trending Selection Menu

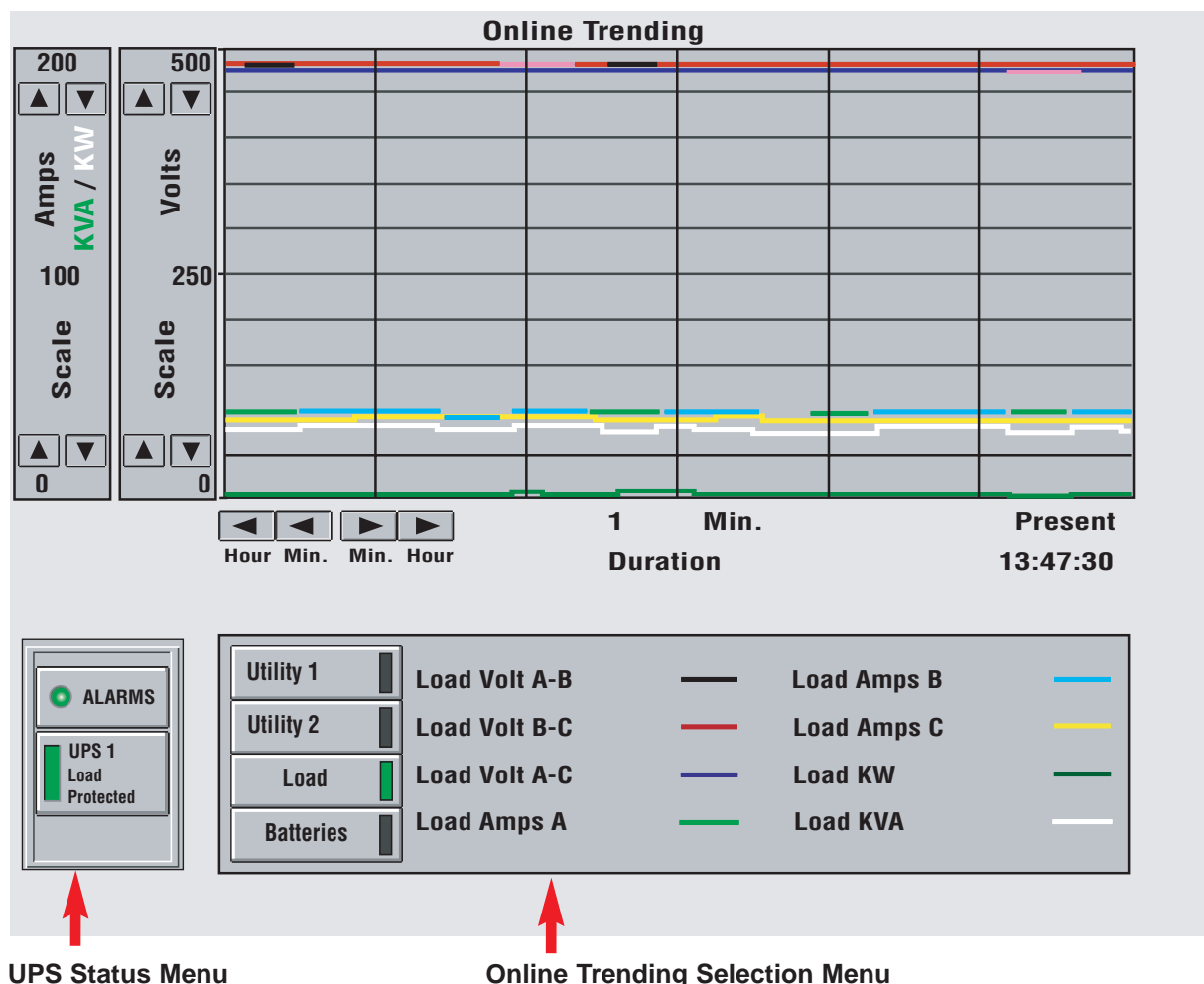
There are 4 selections to trend: Utility 1, Utility 2, Load, and Batteries. Click on an item in the selection menu to start trending. See Figure 3-11. Utility 1 and 2 can be renamed through the **Setup** screen.

3.11.2 UPS Status Menu

Displays UPS status and alarm indications. If an alarm becomes active the alarm LED will start to blink. Clicking on the alarm button will allow the user to enter the **Alarm/Event Present** screen. See Alarms section 5.0 Alarms for more details.

Clicking on the UPS 1 button will allow the User to enter the **Main Menu** screen. UPS 1 is the selected UPS module to be trended, but other UPS Modules can be selected from the **Main Menu** screen.

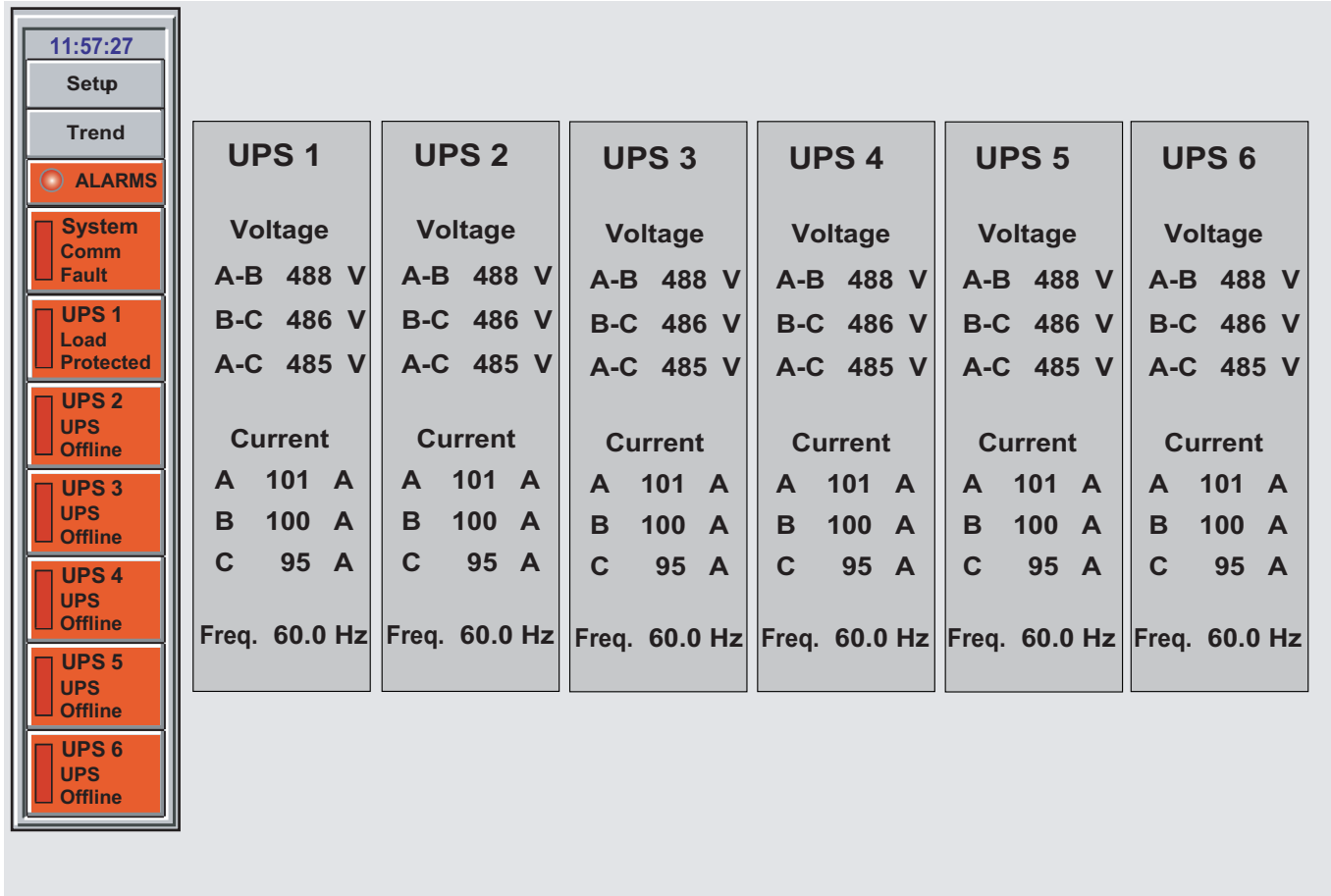
Figure 3-11: Online Trending Screen.



3.12 Input Screen

The **Input** screen allows the User to view all the input measurements such as voltage, current and frequency of the UPS's configured. See Figure 3-12.

Figure 3-12: Input Screen.



GCC Mimic Diagrams

4.0 Scope

This section provides GCC mimic diagrams representing the common status and fault modes.

4.1 Color Status Indicators

A color standard has been established to indicate the status of the UPS or SSC operation as follows:

Green = Normal / Power Flow.

Yellow = On Battery, (for Multi-Module only).

Red = Major Alarms / Fault.

Blue = Test Mode / Power Flow.

Grey = OFF & No Faults.

4.2 Power Flow Indicators

The mimic diagram representing the system configuration displays the power flow and breaker positions. Active power flow paths are shown with colored lines, and non-active or broken paths use gray lines (except input will be green). Breaker positions are recognizable as open or closed. Active components on the diagram are labeled. Active components include the inverter, rectifier, load, and input (such as Utility 1 and Utility 2).

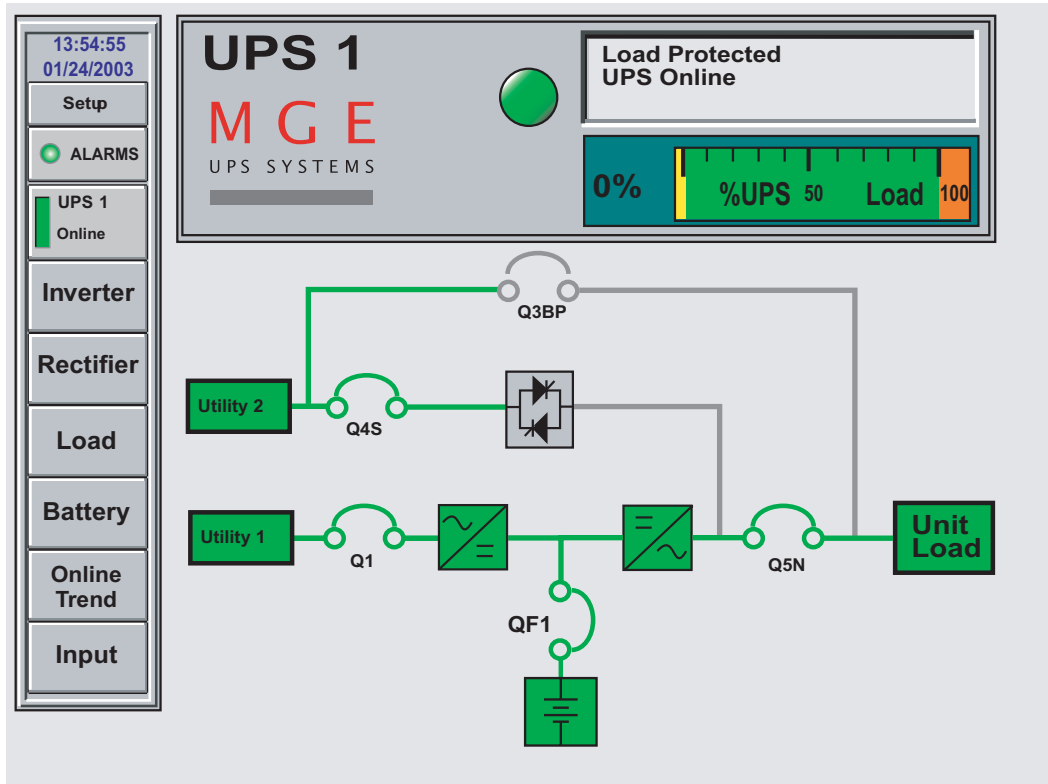
**NOTE:**

An active component on the mimic diagram causes the display to open to the screen for that component.

4.3 Single-Module UPS Online

In normal online operation the path of power will show green from utility to unit load, as shown in Figure 4-1.

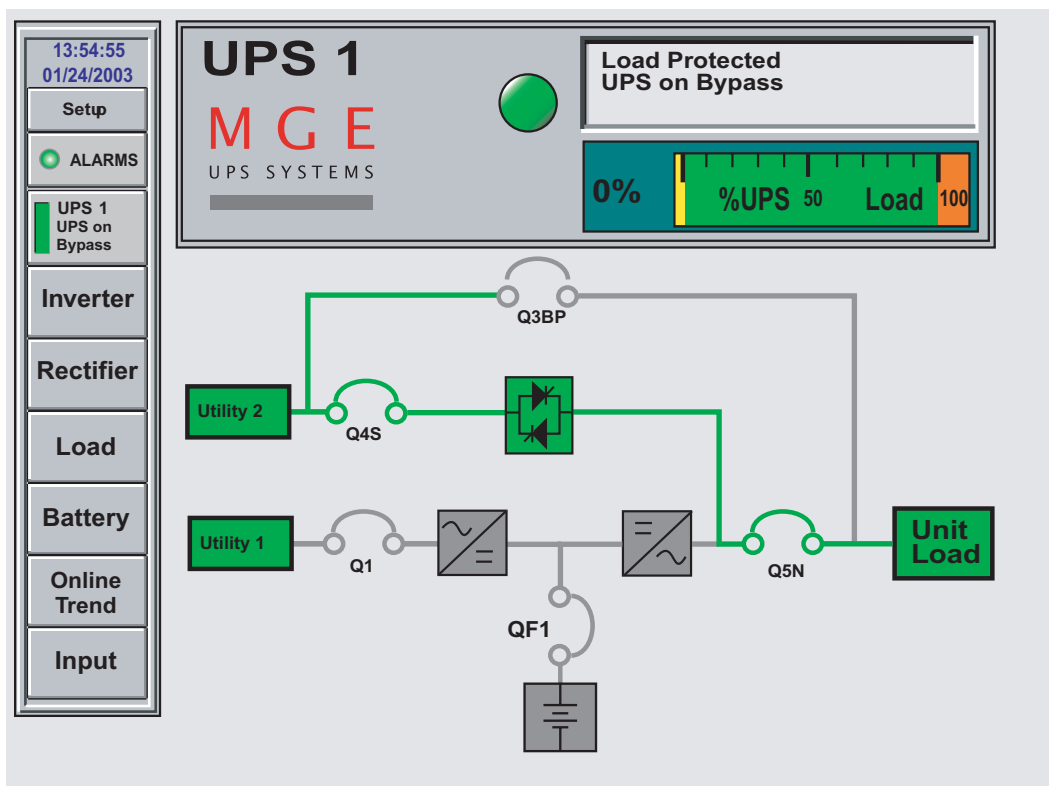
Figure 4-1: S-M UPS On-Line.



4.4 Single-Module UPS On Bypass

If there is a major fault in the UPS it will transfer to bypass. The power flow will show green from Utility 2 to the load. The section that had the fault will show red to draw attention to the fault. If the User shuts down the inverter without a major fault, then the inverter will show gray and the rectifier will show green, as shown in Figure 4-2.

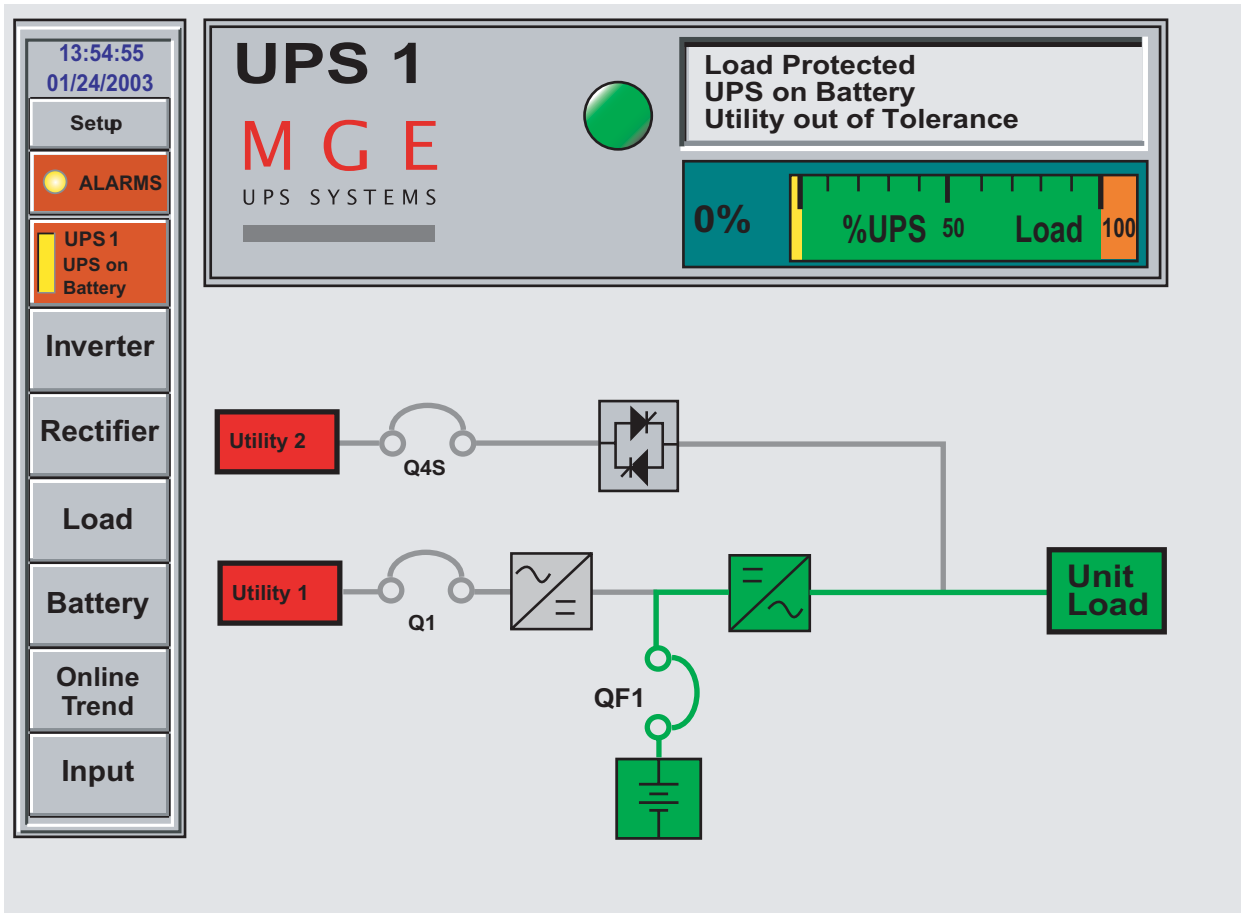
Figure 4-2: S-M UPS On Bypass.



4.5 Single-Module UPS On Battery

In battery operation the path of power will show green from the battery to unit load, and Utility 1 and Utility 2 will show red, as shown in Figure 4-3.

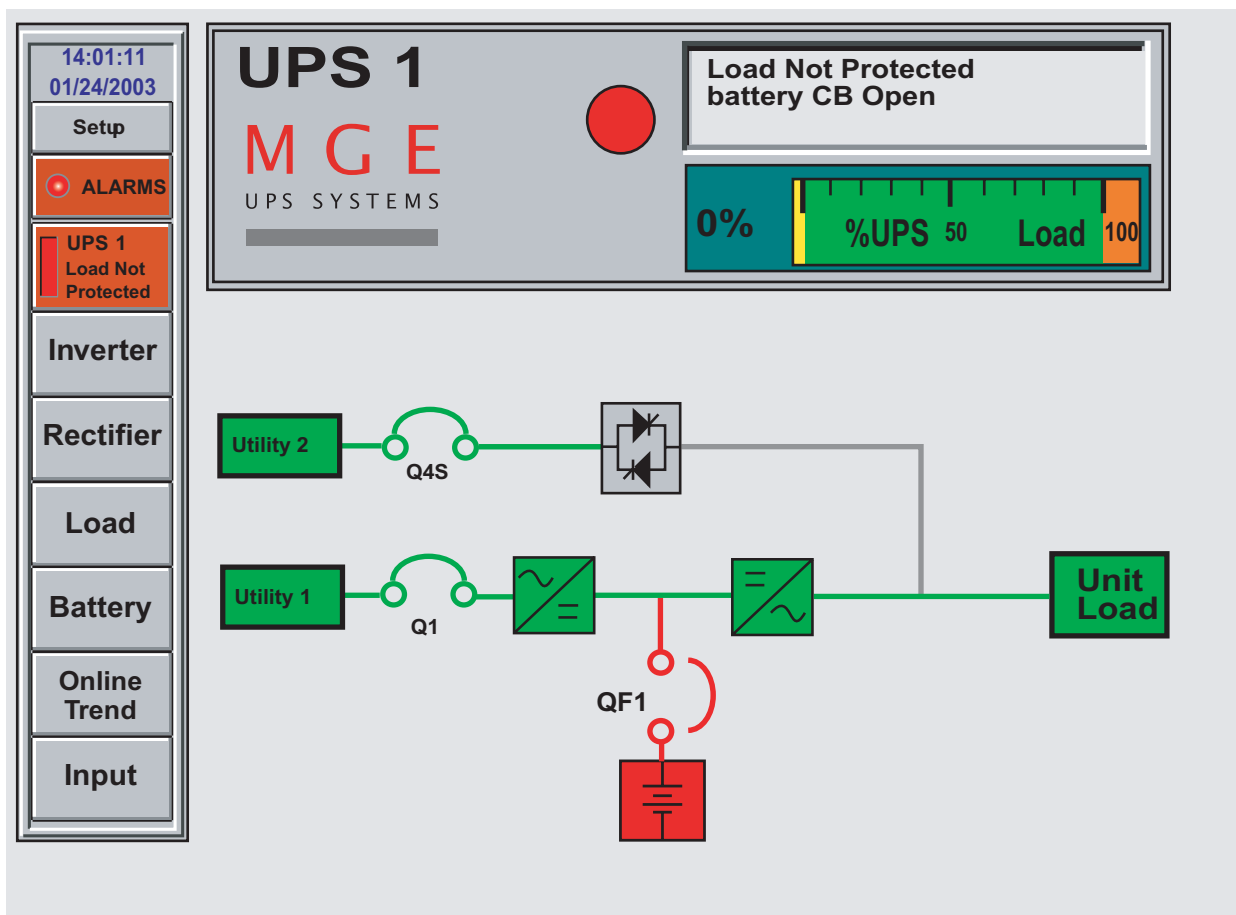
Figure 4-3: S-M UPS on Battery.



4.6 Single-Module UPS Battery CB Open

Battery CB open shows the battery circuit breaker QF1 in the open state. The battery and lines to the battery show red to indicate and draw attention to the fault condition, as shown in Figure 4-4.

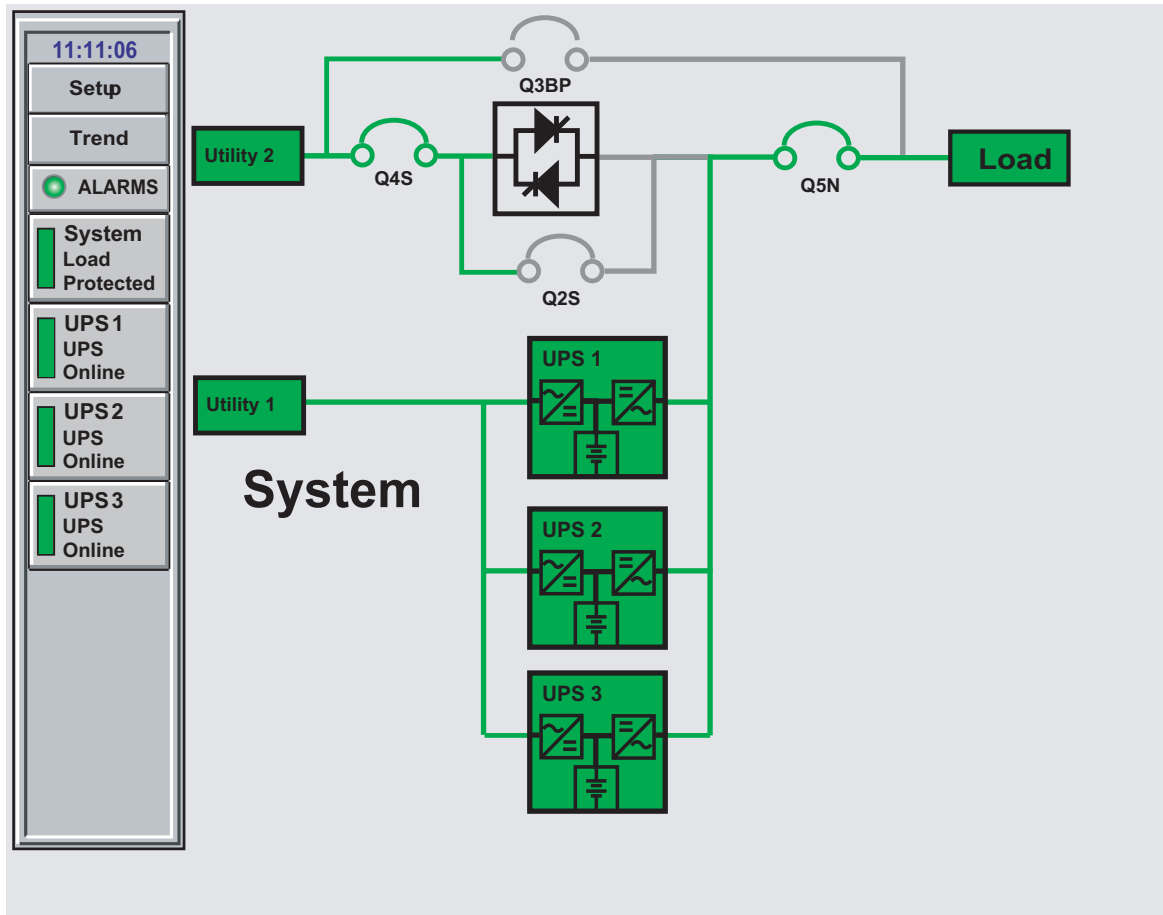
Figure 4-4: S-M Battery CB Open.



4.7 Multi-Module Online

In normal online operation the path of power will show green from utility to unit load, as shown in Figure 4-5.

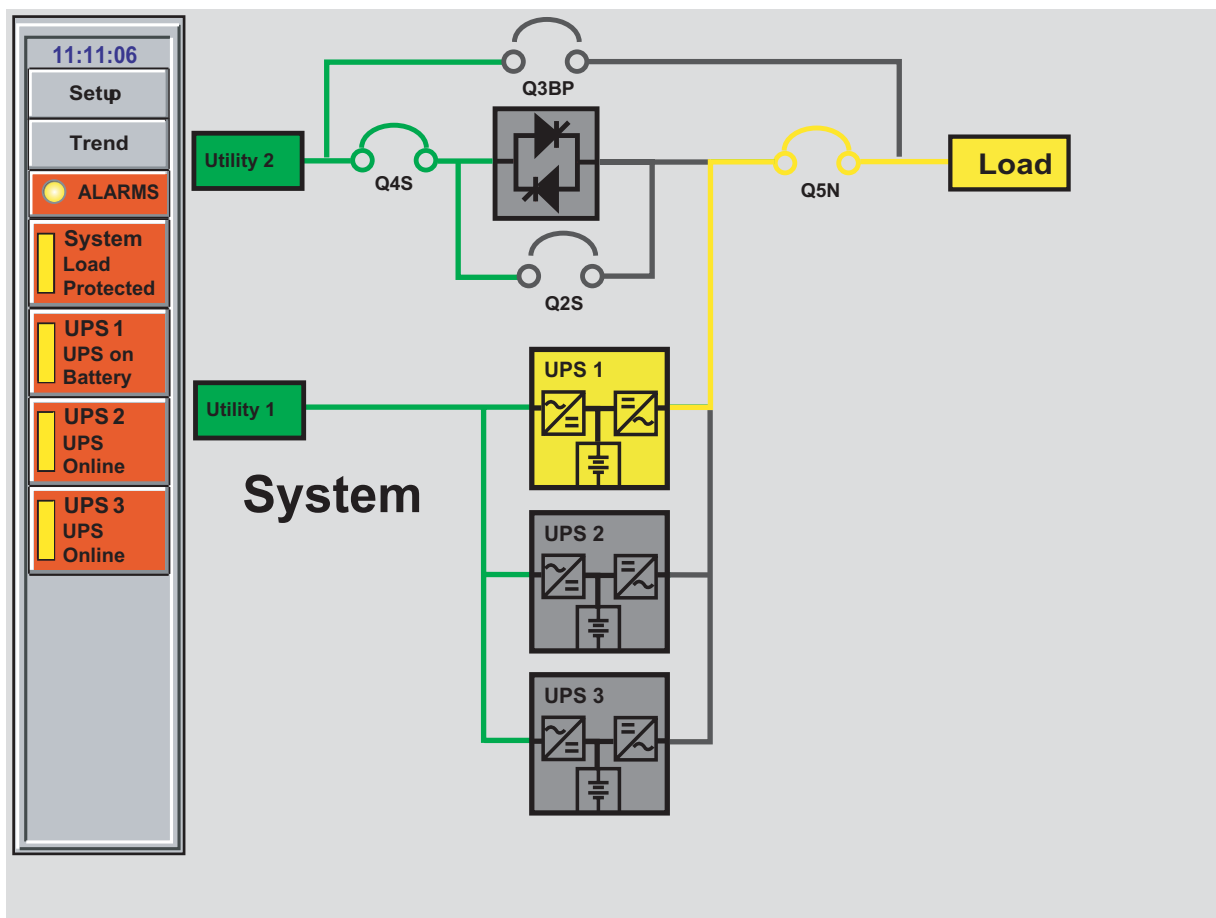
Figure 4-5: M-M Online.



4.8 Multi-Module 1 UPS on Battery

When a Multi-Module UPS is in battery mode the UPS icon will display in yellow. If all UPS's that are online are in battery mode, then the line to the load will be yellow, as shown in Figure 4-6.

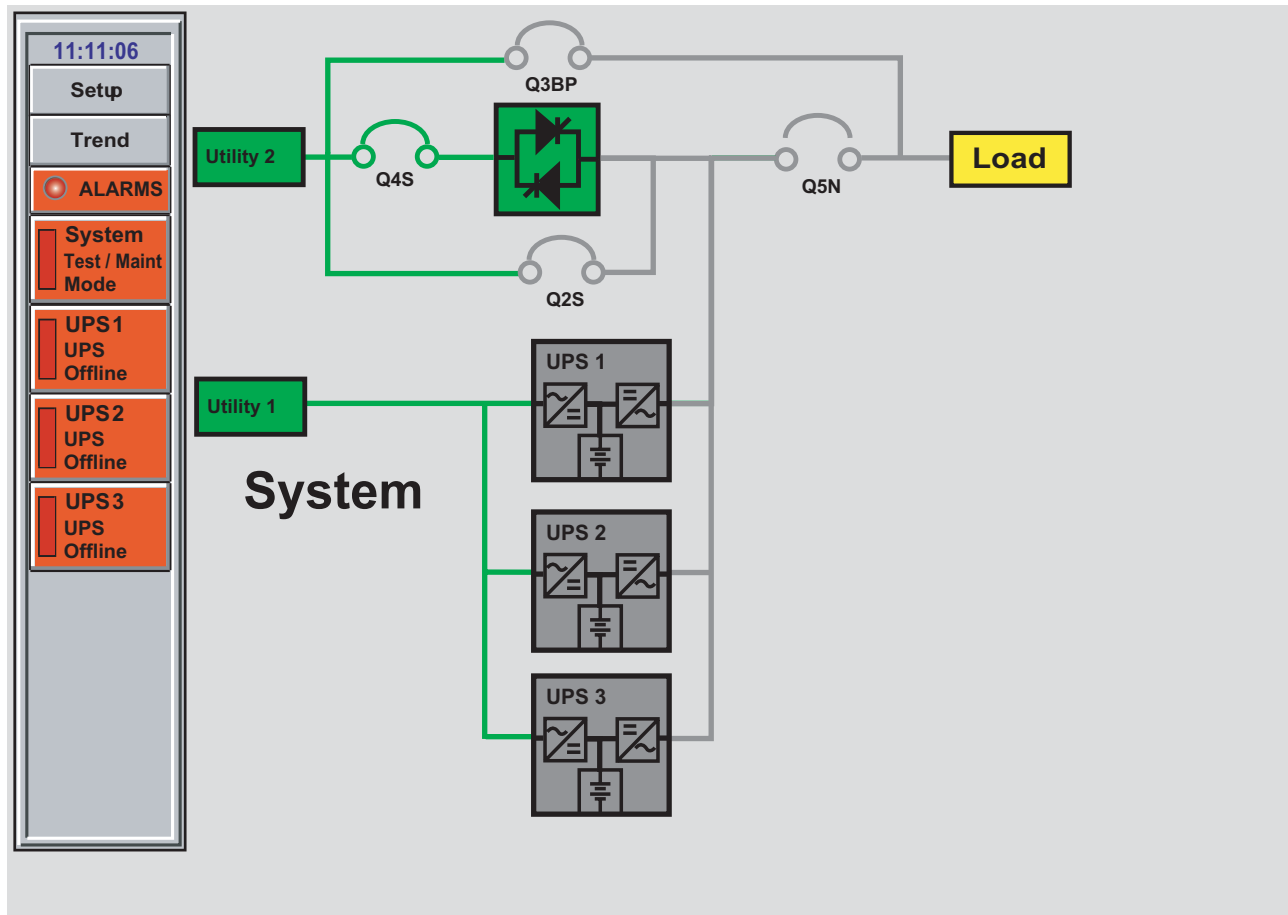
Figure 4-6: M-M UPS on Battery.



4.9 Multi-Module on Bypass

If all UPS's are faulted or offline then the system will transfer to bypass. The power flow will show green from Utility 2 to the load. UPS's that are faulted will show red. If they are shutdown without fault then they will show gray.

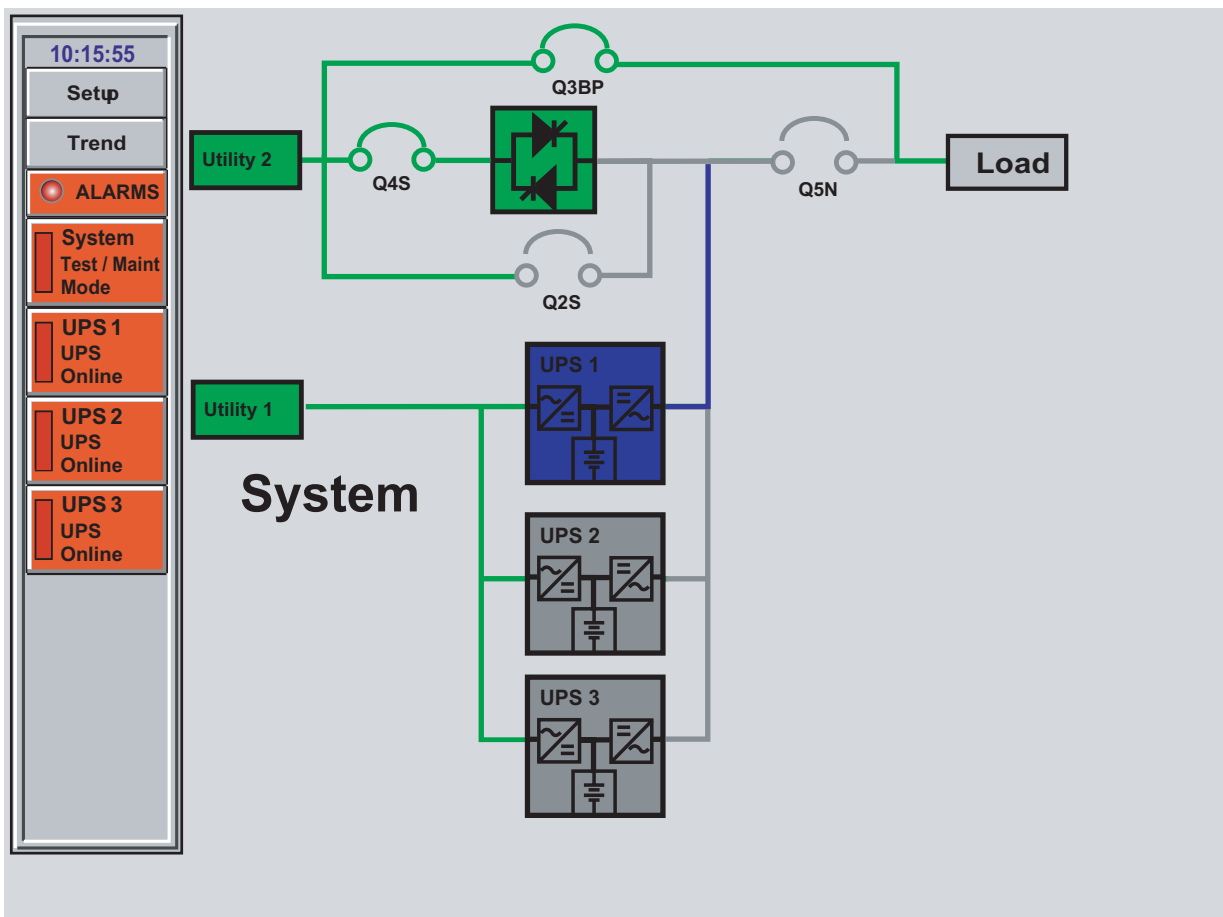
Figure 4-7: M-M UPS on Bypass.



4.10 Multi-Module Test and Maintenance Mode on UPS

When Q3BP is closed and Q5N is open, the system is in Test and Maintenance Mode. The customer's load is being supplied by Utility 2. In this condition, UPS's can be turned on and off without affecting the customer's load. When a UPS is online in this mode, it will show as blue instead of its normal green, as shown in Figure 4-8.

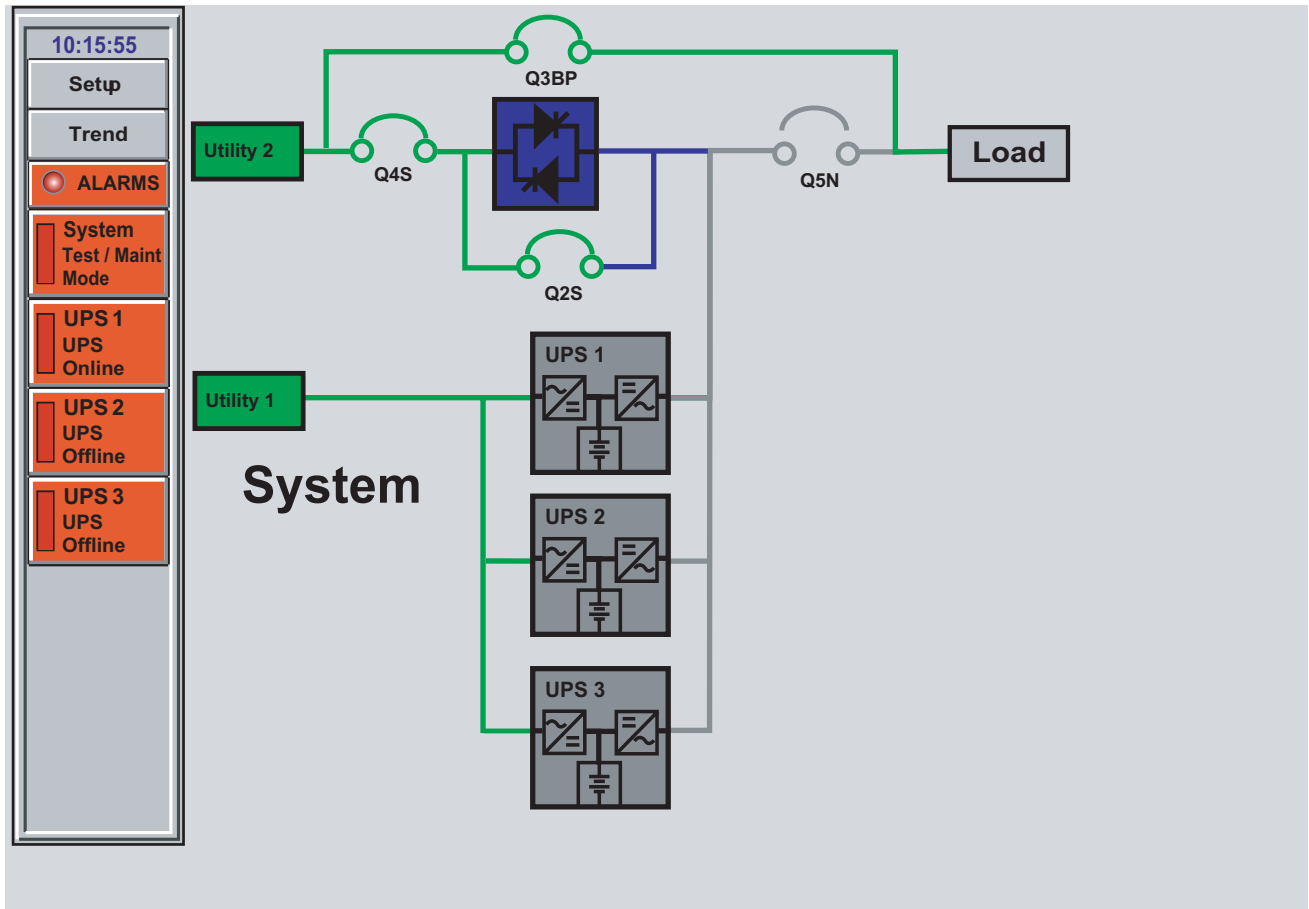
Figure 4-8: M-M Test and Maintenance Mode on UPS.



4.11 Multi-Module Test and Maintenance Mode on Bypass

When Q3BP and the static switch (Q2S) are closed and Q5N is open, the system is in Test and Maintenance Mode on bypass. The customer's load is being supplied by Utility 2. In this condition, UPS's can be turned on and off without affecting the customer's load. When the bypass is online in this mode, it will show as blue instead of its normal green, as shown in Figure 4-9.

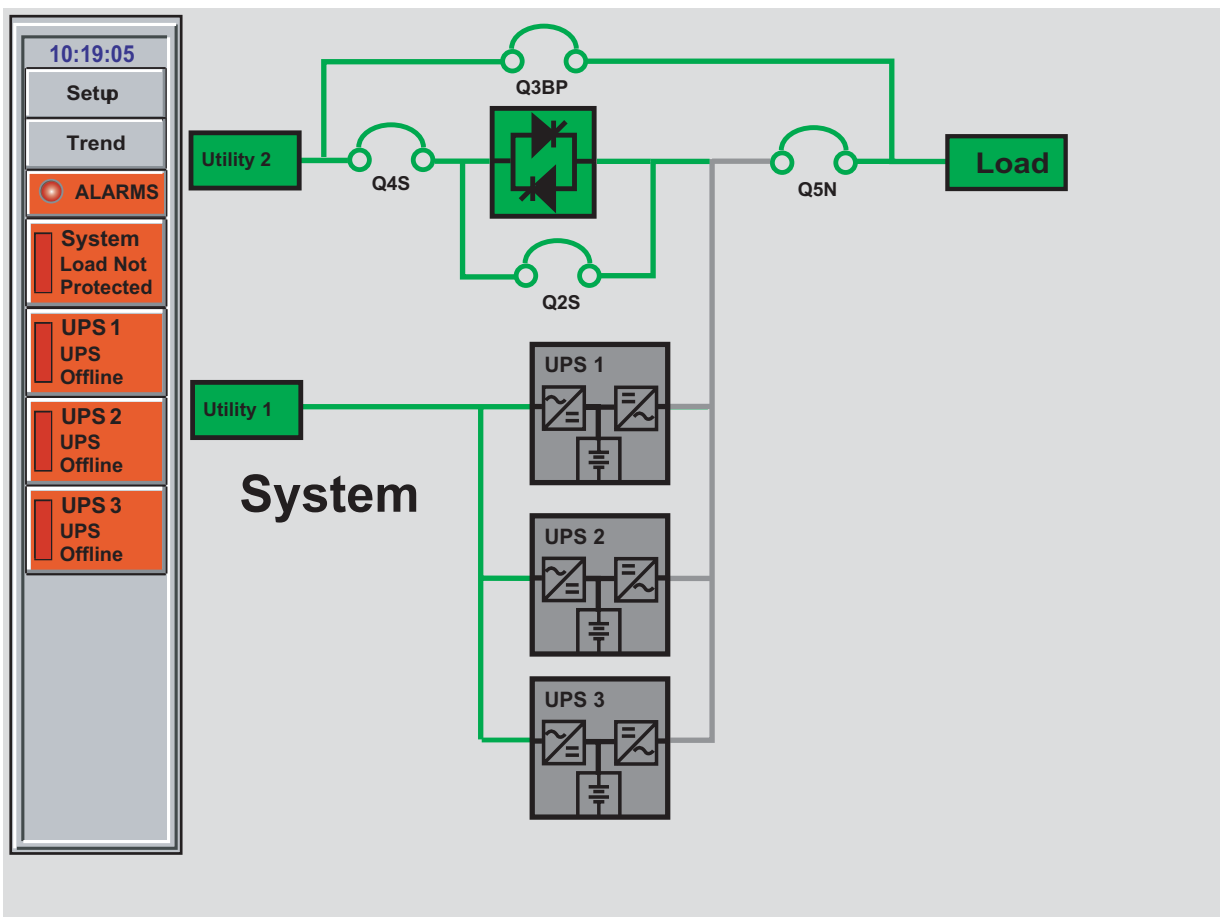
Figure 4-9: M-M Test and Maintenance Mode on Bypass.



4.12 Multi-Module Transfer Mode

Transfer mode is when bypass is on and Q3BP is closed. The load is being shared by both. The system will enter this condition when going to or coming from test and maintenance mode, as shown in Figure 4-10.

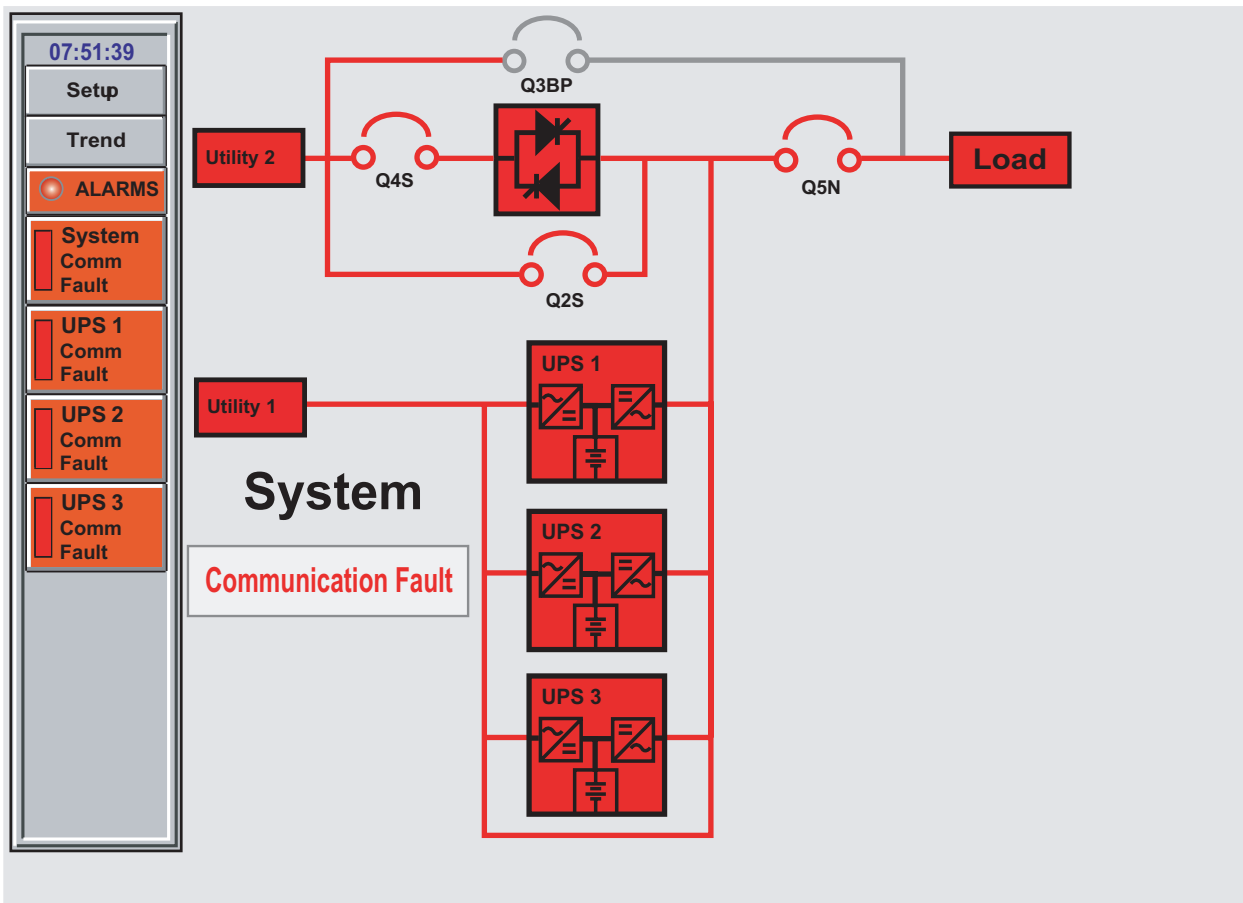
Figure 4-10: M-M Transfer Mode.



4.13 Multi-Module Communication Fault

Communication fault indicates a loss of proper communications to one or more UPS's in the system. The fault can be caused by two problems, the unit has powered down and is no longer responding or there has been a break in the communication cable. See Figure 4-11.

Figure 4-11: M-M Communication Fault .



IMPORTANT:

Refer to section 6.0 Troubleshooting for assistance.

GCC Alarms

5.0 Scope

This section describes the captured alarms and events, including how to acknowledge and clear the alarm history log.

5.1 Alarm and Event System

The alarm and event system gives the User a visual source for alarms and events that occur within each system.

An alarm is a warning that a fault or major status change condition has occurred.

An event is an indication of a status change condition resulting from an alarm.

There are two GCC screens to handle the alarm systems:

- ▶ Alarm/Event Present
- ▶ Alarm/Event History

The alarm file capacity is 120 days First In - First Out (FIFO) stored in non-volatile memory.

5.2 Alarms and Events List

The alarms list below is for a Single-Module UPS and Static Switch Cabinet. For a Multi-Module System, the UPS module number (from 1 to 6), with the alarm will be displayed.

Alarms - UPS Modules

Module 1 Battery CB Open	Module 1 Inverter Overtemp
Module 1 Battery Discharging	Module 1 Inverter Overload Activated
Module 1 Low Battery Shutdown Imminent	Module 1 UPS Overloaded
Module 1 End of Battery Backup Time	Module 1 Output Current Limit
Module 1 Battery Temperature Outside Tolerance	Module 1 Out of Sync with Bypass
Module 1 End of Battery Life	Module 1 Summary Alarm
Module 1 UPS on Battery	Module 1 EPO Activated
Module 1 Rectifier/Charger Off	Module 1 Harmonic Filter Fault
Module 1 Input CB Open	Module 1 Transfer Fault
Module 1 Input Voltage Outside of Tolerance	Module 1 Fan Failure
Module 1 Input Rec. Voltage Out of Tolerance	Module 1 Rec/Charge Fault
Module 1 Input Frequency Out of Tolerance	Module 1 Acquisition Fault
Module 1 Load Not Protected	Module 1 Communication Fault
Module 1 Inverter Fault	

Alarms - Static Switch Cabinet

Load on Bypass	SSC Static Bypass Overload
Static Switch Input CB Open	Maintenance Bypass Closed
Phase Out of Tolerance	SSC Summary Alarm
Static Switch Disabled	SSC Aux Cabinet Fault
Transfer Lockout	SSC Communications Fault
SSC Utility 2 Voltage Out of Tolerance	SSC Fan Failure
SSC Utility 2 Frequency Out of Tolerance	

The event list is for a Single-Module UPS. For a Multi-Module System, the UPS module number (from 1 to 6), with the event will be displayed.

Events - UPS Modules

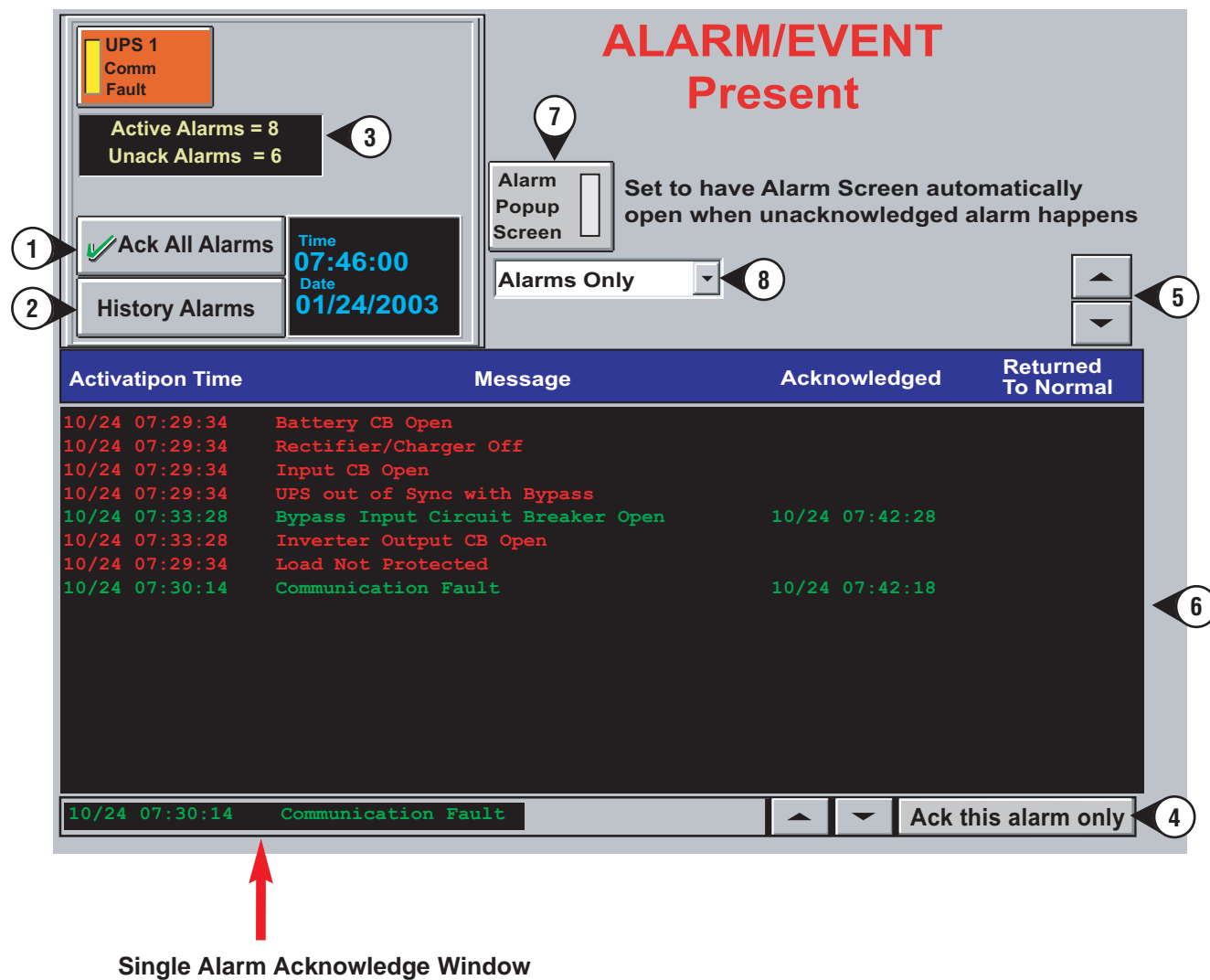
Module 1 Low Battery Shutdown	Module 1 UPS Off-Line
Module 1 Battery Charging	Module 1 UPS On-Line
Module 1 Battery Current Limiting activated	Module 1 Inverter Output Switch Open
Module 1 Battery Equalization activated	Module 1 Free Running Frequency activated
Module 1 Gradual Rec/Charger Shutdown activated	Module 1 Xfer Ut. 2w/inter. prohibited activated
Module 1 2nd Step Input Current Limit activated	Module 1 Transfer Lockout activated
Module 1 Forced Inverter Shutdown	

5.3 Alarm/Event Present Screen

The **Alarm/Event Present** screen lists all active alarms and events occurring in present time. Refer to Figure 5-1 for the screen selections.

- ① **Ack all Alarms** Acknowledges all alarms/events. Adds the date and time stamp of acknowledgement, and changes the line color to green.
- ② **History Alarms** Opens the **Alarm/Event History** screen. When an alarm/event is acknowledged, it disappears from the present log and enters into the history log.
- ③ **Active/Unack Alarms** Shows how many alarms are active and unacknowledged.
- ④ **Ack this alarm only** Acknowledges one alarm/event at a time, in the single-alarm acknowledge window. Use the up and down arrows for selection.
- ⑤ **Up/Down Arrows** Scrolls through the list of alarms/events.
- ⑥ **Alarm/Event List** Shows a list of all present alarms/events with activation date/time, message, date/time of acknowledgement and date/time when returned to normal. Line colors are as follows:
 - Red** Activated (Unacknowledged)
 - Green** Acknowledged
 - Blue** Returned to Normal
- ⑦ **Alarm Pop-up Screen** If selected, the **Alarm/Event Present** screen automatically opens when an unacknowledged alarm occurs. Once enabled, the **Alarm/Event Present** screen will not close until all alarms/events are acknowledged.
- ⑧ **Alarm/Event Filter** User can filter alarms and events to be viewed as follows: alarms only, events only, or alarms and events.

Figure 5-1: Alarm/Event Present Screen.



5.4 Alarm/Event History Screen

The **Alarm/Event History** screen lists all present and stored information on all alarms and events.

Refer to Figure 5-2 for screen selections.

- ① **Clear Log** Selecting “Clear Log” will delete all history files. A password is required and the **Clear Alarm Event Log Password** screen will be displayed, see Figure 5-3. Once the password is entered, the **Clear Log** screen section 5.4, will appear. Selecting “Clear Log” will clear the history. If “Back to Alarms” is selected, there is no change to the history files.
- ② **Present Alarms** Opens the **Alarm/Event Present** screen. Alarms or events may or may not be acknowledged.
- ③ **Active/Unack Alarms** Shows how many alarms are active and unacknowledged.
- ④ **Year/Month/Type Filter** User can filter alarms and events to be viewed as follows: calendar year, specific month, specific start and end dates, and by type - alarms only, events only, or alarms and events.
- ⑤ **Up/Down Arrows** Scrolls through the alarms and events list.
- ⑥ **Alarm/Event List** Shows a list of all present alarms/events with activation date/time, message, date/time of acknowledgement and date/time when returned to normal. Line colors are as follows:

Red	Activated (Unacknowledged)
Green	Acknowledged
Blue	Returned to Normal



IMPORTANT:

The alarm file capacity is 120 days FIFO. Information past 120 days will be removed from memory.

Figure 5-2: Alarm/Event History Screen.

UPS 1
Load Protected

Active Alarms = 12
Unack Alarms = 11

1 Clear Log

2 Present Alarms

Time 07:39:48
Date 01/24/2003

4 2003 Start date 14
January End date 16
Alarms Only

5

Activatipon Time	Message	Acknowledged	Returned To Normal
10/14 12:02:58	Communication Fault		
10/14 12:02:58	Communication Fault		10/14 12:03:08
10/14 12:02:24	Bypass Input Circuit Breaker Open		
10/14 12:02:24	Bypass Input Circuit Breaker Open	10/14 12:04:15	
10/14 12:02:58	Communication Fault	10/14 12:04:15	10/14 12:03:08
10/14 12:02:55	Load Not Protected	10/14 12:04:15	10/14 12:03:15
10/14 12:02:12	Communication Fault		
10/14 12:02:16	Battery CB Open		
10/14 12:02:16	Rectifier/Charger Off		
10/14 12:02:16	Input CB Open		
10/14 12:02:16	UPS out of Sync with Bypass		
10/14 12:02:16	Bypass Input Circuit Breaker Open		
10/14 12:02:16	Inverter Output CB Open		
10/14 12:02:16	Load Not Protected		
10/14 12:02:16	Communication Fault		
10/14 12:02:35	Bypass Input Circuit Breaker Open		10/14 14:07:19

6

Figure 5-3: Clear Alarm/Event Log Password Screen.

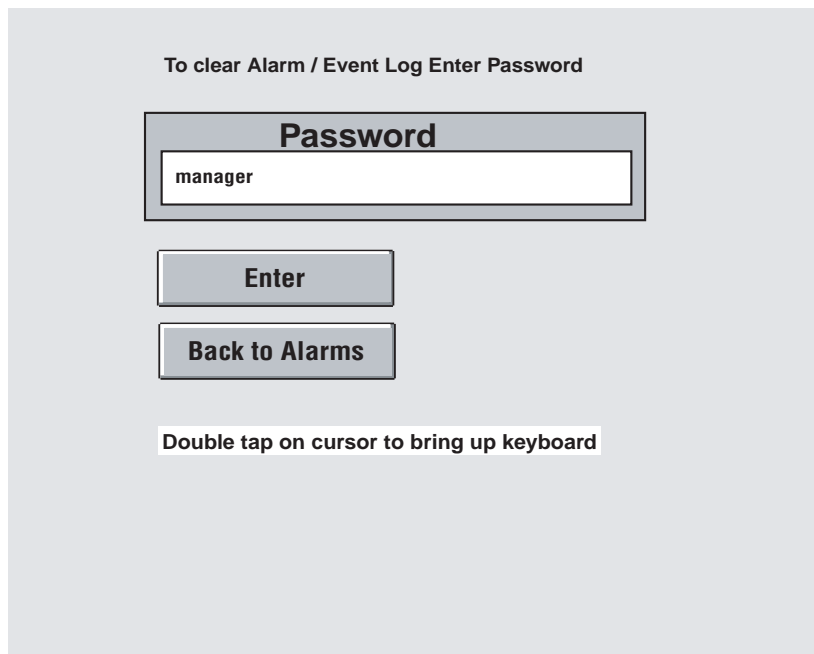
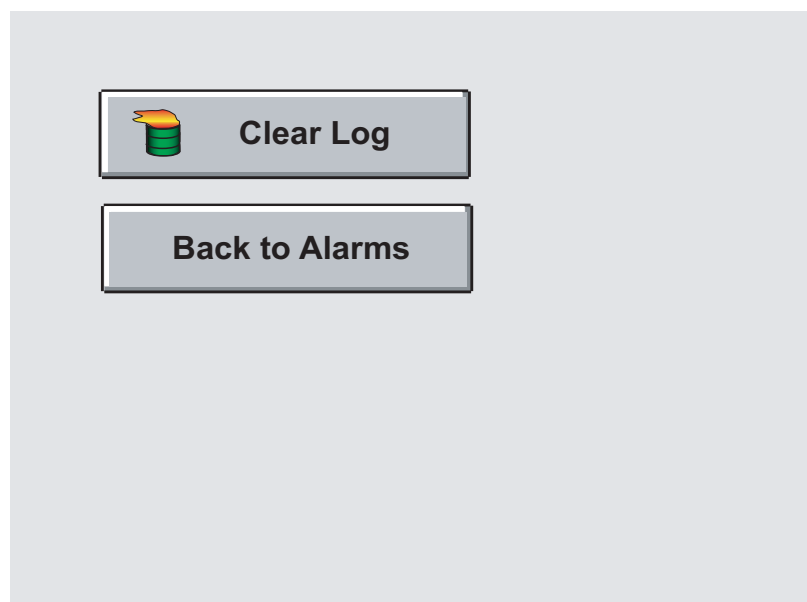


Figure 5-4: Clear Log Screen.



GCC Troubleshooting

6.0 Scope

This section contains a troubleshooting guide to assist the User with any communication and configuration problems.

6.1 Communication and Configuration

The GCC is factory tested and ready to use upon receipt. Proper hardware connections, personalization and Dip switch settings are necessary for operation.

The following sections may provide assistance for any communications fault and GCC start-up issues. If support is required, contact MGE Customer Support Services at 1-800-438-7373.

- ▶ RS485 Interface Connections.
- ▶ Communications Port Switch Settings.
- ▶ Communications Port 2 Personalization.
- ▶ GCC Port Connections.
- ▶ RS232/RS485 Interface Converter.
- ▶ Auto Start.
- ▶ Rebooting.
- ▶ GCC Identification Label.

6.2 RS485 Interface Connections

The RS485 connects multiple items that have unique addresses on a common bus. Each item is referred to as a Cubicle (or slave). MGE's addressing method increments each cubicle in 10's hexadecimal.

Depending upon your GCC configuration, the RS485 interface connections are either connected as a Single-Module or Multi-Module. The diagrams below show how the cables are connected; Figure 6-1 is for a Single-Module, Figure 6-2 is for a Multi-Module.

6.2.1 Twisted Pair Connection Using Terminal Blocks

To function properly, the RS232/RS485 converter needs two twisted pairs of metallic wire. These pairs must be between 19 and 26 AWG (the higher number gauges may limit distance).

Figure 6-1: S-M RS485 Interface Connections with GCC.

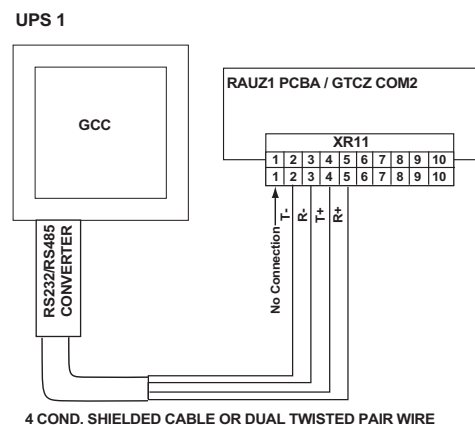
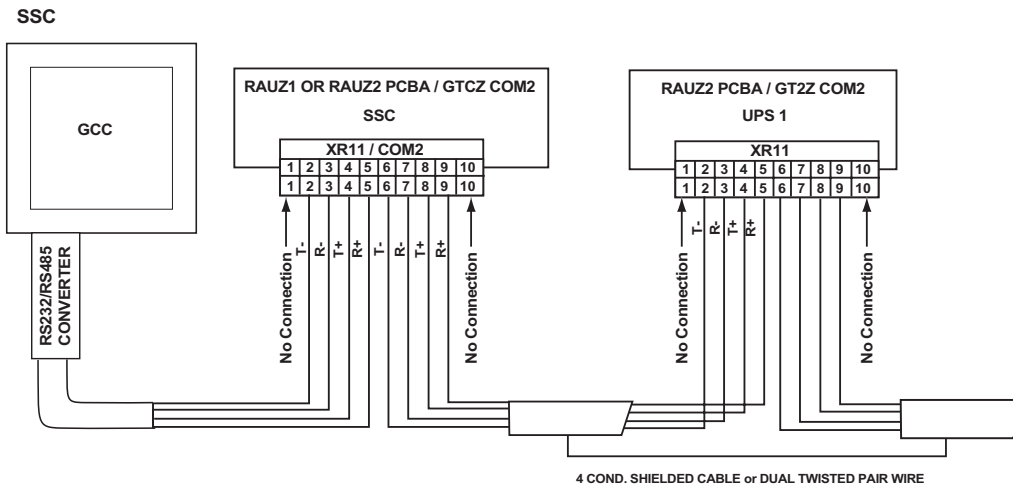


Figure 6-2: M-M RS232/RS485 Interface Connections with GCC.



6.3 Communications Port Switch Settings

Communications port toggle switches are set to open or closed positions for proper transfer of data.

To set dip switches on RAU1 and RAU2 PCB's proceed as follows:

All cubicles must have the switches "O" and "P" set in the open position for a 4 wire link. See Figure 6-3.

Cubicle #1 = Switch "N" must be in the open position. Switches "M", "K", "L", and "J" must be in the closed position. All other cubicles must have switches "M", "K", "L", and "J" in the open position.

Cubicle #2 = If cubicle #2 is the end-of-line, then switch "N" must be in the closed position. If cubicle #2 is not the end-of-line (there are more than 2 cubicles), then switch "N" must be in the open position.

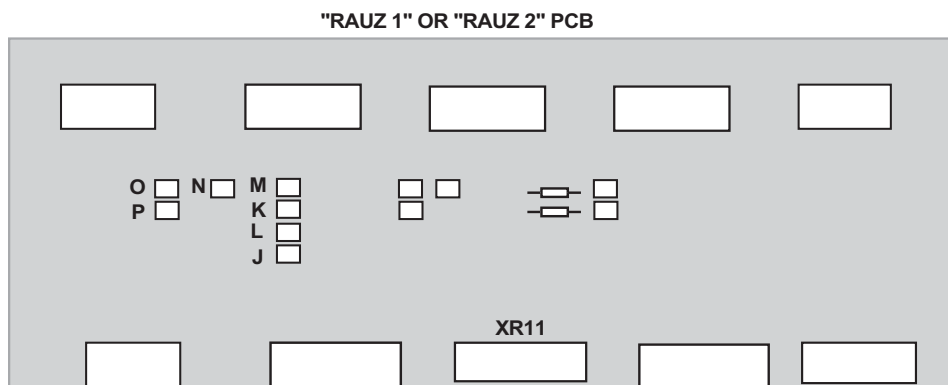


NOTE:

Only the end-of-line cubicle will have the "N" switch in the closed position. All other cubicles will have the "N" switch in the open position.

For an example of two module system settings, see Figure 6-4.

Figure 6-3: "GTCZ/RAUZ1" and "GT2Z/RAUZ2" PCB Configuration Switches.

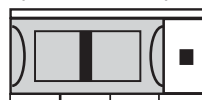


SWITCHES:

CLOSED POSITION
(two dots visible)



OPEN POSITION
(one dot visible)



4 WIRE LINK:



Termination for
end-of-line cubicle



Termination for
intermediate cubicle(s)



IN A CUBICLE THAT SETS POLARITY:

4 WIRE LINK



OTHER CUBICLE

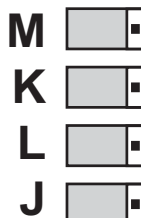


Table 6-1: Two-Module Communications Port Switch Settings.

<u>CUBICLE #1 - SSC</u>			<u>CUBICLE #2 - UPS 1</u>			<u>CUBICLE #3 - UPS 2</u>		
GTCZ / RAUZ1			UPS 1 GTCZ / RAUZ1 COM 2			UPS 2 GTCZ / RAUZ1 COM 2		
Dip Switch	"O"	OPEN	Dip Switch	"O"	OPEN	Dip Switch	"O"	OPEN
Dip Switch	"P"	OPEN	Dip Switch	"P"	OPEN	Dip Switch	"P"	OPEN
Dip Switch	"N"	OPEN	Dip Switch	"N"	OPEN	Dip Switch	"N"	CLOSED
Dip Switch	"M"	CLOSED	Dip Switch	"M"	OPEN	Dip Switch	"M"	OPEN
Dip Switch	"K"	CLOSED	Dip Switch	"K"	OPEN	Dip Switch	"K"	OPEN
Dip Switch	"L"	CLOSED	Dip Switch	"L"	OPEN	Dip Switch	"L"	OPEN
Dip Switch	"J"	CLOSED	Dip Switch	"J"	OPEN	Dip Switch	"J"	OPEN

6.4 Communications Port 2 Personalization

Each cubicle must be personalized for its own communication port address. Personalization of each cubicle is set at the time of order. Changing of personalization requires qualified personnel. Contact MGE Customer Support Services at 1-800-438-7373.

Data for each configuration:

Data Rate: 9600 Baud

Data Bits: 8 (always)

Parity: None

Stop Bits: 1

Slave Address: (Hexadecimal)

- For Single-Module see section 6.4.1

- For Multi-Module see sections 6.4.2 and 6.4.3.

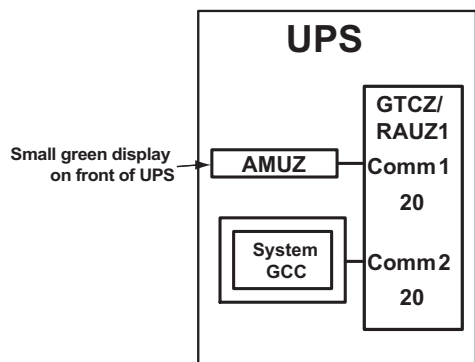
Interface: RS485

6.4.1 Slave Address for Single-Module

For a Single-Module UPS, the slave address settings are shown. Also see Figure 6-4.

GTCZ / RAUZ1	UPS 1
COM 1	20 H
COM 2	20 H

Figure 6-4: S-M Slave Address Settings.

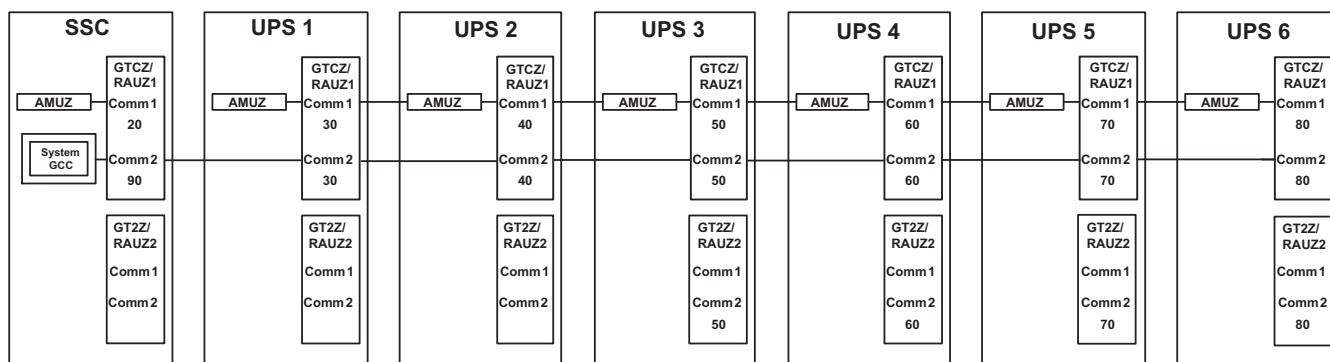


6.4.2 Slave Address for Multi-Module with GCC in SSC

For a Multi-Module with 1 GCC in the SSC, the slave address settings are shown. Also see Figure 6-5.

GTCZ / RAUZ1	SSC	UPS 1	UPS 2	UPS 3	UPS 4	UPS 5	UPS 6
COM 1	20 H	30 H	40 H	50 H	60 H	70 H	80 H
COM 2	90 H	30 H	40 H	50 H	60 H	70 H	80 H

Figure 6-5: M-M with GCC in SSC Slave Address Settings.

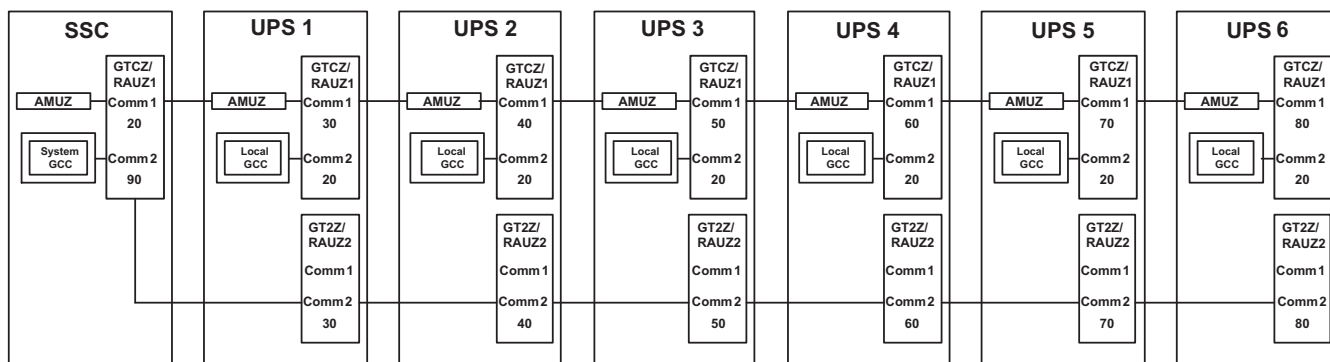


6.4.3 Slave Address for Multi-Module with GCC in Each Cabinet

Table 6-2: Multi-Module with 1 GCC in each cabinet, the slave address settings are shown. Also see Figure 6-6.

<u>GTCZ / RAUZ1</u>	<u>SSC</u>	<u>UPS 1</u>	<u>UPS 2</u>	<u>UPS 3</u>	<u>UPS 4</u>	<u>UPS 5</u>	<u>UPS 6</u>
COM 1	20 H	30 H	40 H	50 H	60 H	70 H	80 H
COM 2	90 H	20 H	20 H	20 H	20 H	20 H	20 H
<u>GT2Z / RAUZ2</u>	<u>SSC</u>	<u>UPS 1</u>	<u>UPS 2</u>	<u>UPS 3</u>	<u>UPS 4</u>	<u>UPS 5</u>	<u>UPS 6</u>
COM 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
COM 2	N/A	30 H	40 H	50 H	60 H	70 H	80 H

Figure 6-6: M-M with GCC in Each Cabinet Slave Address Settings.



6.5 GCC Port Connections

GCC port connections are located in the rear of the unit and accommodate power and DB-9 RS232 connectors. The remaining connectors are not used.

Future product features may utilize some of these items:

- ▶ 24VDC Power Supply
- ▶ RS232 (for MGE's RS485 converter.)
- ▶ PS2 & Keyboard
- ▶ Video Out (VGA/SVGA)
- ▶ 10/100 ethernet (future application upload & networking.)
- ▶ Parallel Port

6.6 RS232/RS485 Interface Converter

The Patton Model 2089 RS232 to RS485 interface converter requires no AC power or batteries for operation, as it is powered by the computer.

6.6.1 Switch Setting

This section shows how to access the Dip switches, and describes how to set the configuration.

The Model 2089 is configured using two PC board mounted 4-position Dip switches. There is a main PC board and a daughter board. Dip switch S1 is located on the underside of the main PC board see Figure 6-7. Dip switch S2 is located on the top of the daughter board, see Figure 6-8.

Figure 6-7: Converters Location Dip Switch S1.

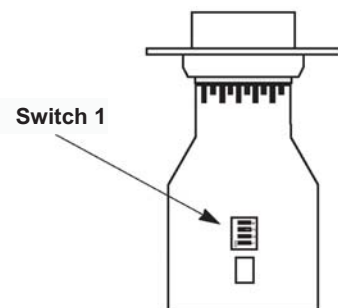
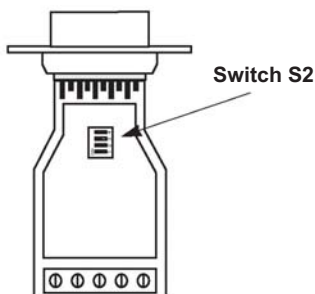


Figure 6-8: Connections Location Dip Switch S2.



To access the Model 2089's internal PC boards, insert a small flat-blade screwdriver between the connector and the lip of the case and twist gently as shown in Figure 6-9.

Both Dip switches S1 and S2 are marked with individual switch numbers 1 through 4. Use these numbers, as well as the "ON" designation to orient the switch properly, see Figure 6-10. Use a small screwdriver or similar instrument to set each individual switch. Refer to Table 6-3 to set the Dip switches.

Figure 6-9: Converter Switch Access.

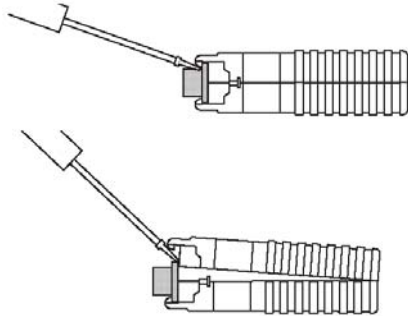


Figure 6-10: Converter Dip Switches.

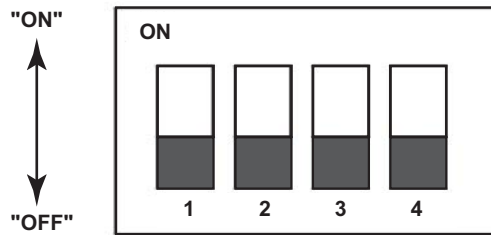


Table 6-3: Converter Dip Switch Settings.

Switch S1	Position	Switch S2	Position
S1-1	ON	S2-1	OFF
S1-2	OFF	S2-2	OFF
S1-3	OFF	S2-3	OFF
S1-4	OFF	S2-4	OFF

6.7 Auto Start

If the monitoring software does not automatically start when the GCC is turned on, then perform the following procedure:

1. In the Remote Agent window, click on the Setup button.
2. Select the "Run CE View on Startup" box.
3. Click OK.
4. Go to the windows task bar start menu and select run.
 - ▶ If 'regsave' appears in the box, then click OK.
 - ▶ If 'regsave' does not appear, then manually type it in and click OK.
5. In the Remote Agent window, click on the Start button. The monitoring software should startup.

6.8 Rebooting

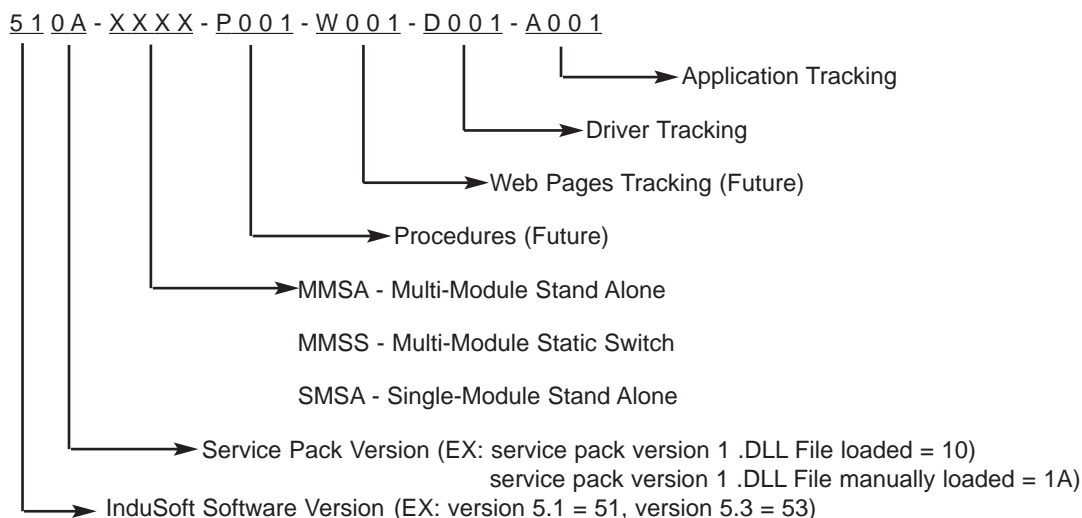
If the GCC requires rebooting, a push button switch is provided to momentarily remove power and restarts. On a UPS the switch is located behind the GCC door.

In an SSC the switch is located on the component panel assembly near the GCC power supplies.

Another way to reboot is to momentarily disconnect the green power supply connector located on the underside of the GCC.

6.9 GCC Identification label

The GCC identification label is located on the rear panel of the GCC. The label is used to identify all characteristics of the GCC. It has six fields that give information on software and service pack version, UPS type, procedures (future), web pages (future), driver tracking, and application tracking.



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Glossary

Symbols	Definition / Meaning
/	And/or.
%	Percentage.
+/-	Plus or Minus.
#	Number.
°C	Degree Celsius.
°F	Degree Fahrenheit.
∅	Phase.
®	Trade Mark.
ABC	Normal sequence of phase (clockwise) in three-phase power.
AC or ac	Alternating current, also implies root-mean-square (rms).
Alarm	Warning of a fault or major status change condition.
ANSI	American National Standard Institute.
BAT. or BATT	Battery
Breaker	Electrical circuit interrupter.
Bypass	Maintenance bypass; wrap-around manual maintenance bypass using the optional bypass circuit breaker Q3BP in conjunction with circuit breaker Q4S and isolation circuit breaker Q5N.
Bypass AC Input	Mains 2.
Bypass mode	See “offline” mode.
CB	Circuit breaker.
Comm.	Communication.
CSS	Customer Support Service.
Current rating	The maximum current that a conductor or electrical equipment is designed to carry.
DC or dc	Direct current.
Digital Meter	The LCD display on the front panel of inverter system.
Earth ground	A ground circuit that has contact with the earth.
Electrician	Refers to an installation electrician qualified to install high energy electrical components in accordance with national and local codes and regulations. Not necessarily qualified to maintain or repair electrical or electronic equipment.

Event	Indication of a status change condition resulting from an alarm.
Fault	Informs the User that the UPS is defective and may require intervention of CSS.
Freq.	Frequency.
GCC	Graphical Command Center (i.e., GUI, Graphical User Interface).
GND	Electrical ground.
Hz	Hertz, frequency measurement unit, 1Hz is one cycle per second.
Input	Main AC input source.
Inverter	An electrical circuit that generates an AC sinewave output from a DC input.
Inverter mode	See “on-line” mode.
kVA	KiloVolt-Ampere; a measure of apparent power, is equal to 1000 Volt-Ampere.
kVAR	KiloVolt-Amperes reactive.
kW	KiloWatt; a measure of real power, equal to 1000 watts.
L	Line.
LCD	Liquid Crystal Display.
LED	Light Emitting Diode.
Load	Connected to the UPS output, such as computer systems or critical devices.
Load protected	The attached load is being supplied by the UPS module inverter output, and the battery is available in the event that incoming (utility) power is lost.
Load not protected	The attached load is being supplied, but the battery system is unavailable.
Low battery shutdown	The battery has reached the lowest permitted operating voltage, and the inverter has shutdown (disconnecting the load) to protect the battery from damage due to further discharge.
Mains or Mains 1	Main AC input source.
Mains 2	Bypass AC input source.
MBC	Optional maintenance bypass cabinet that attaches to the SSC (in shared systems).
MGE	MGE UPS Systems, Inc.
M-M	Multi-Module.
Module	Refers to an UPS module. (Rectifier/battery charger, inverter, and attached battery cabinet.)
N	Neutral.
NC	Normally close.
NEC	National Electrical Code.
NFPA	National Fire Protection Association.

NO	Normally open.
On-battery operation	The attached load is being supplied by the stored energy in the battery system.
On-line mode	Inverter output power is the primary energy source to load.
Off-line mode	Inverter output is off, and the load connected at the inverter output receives power from utility line via a static transfer switch or maintenance bypass relay.
OSHA	Occupational Safety and Health Agency.
P.F.	Power Factor.
PCB	Printed circuit board.
Q1	UPS input isolation circuit breaker.
Q3BP	Optional maintenance bypass circuit breaker (in single-module UPS system); optional maintenance bypass circuit breaker in MBC cabinet (shared systems).
Q4S	Control or bypass circuit breaker (in single-module UPS systems); user-supplied bypass AC input circuit breaker supplying the SSC (in shared systems).
Q5N	Optional UPS isolation circuit breaker.
QF1	Battery disconnect circuit breaker.
Rectifier/Charger	Converts the AC input voltage from the utility source into DC voltage, supplying the inverter and regulating the charge of the battery system.
RS232/RS485 Converter	Supports RS232 interface on one side, and RS485 on the other. The converter allows the GCC to communicate with RS485 MGE equipment.
S-M	Single-Module.
SSC	Static Switch Cabinet (in shared systems).
Static Transfer Switch	A solid state switching mechanism electronically controlled to pass AC power directly from the utility to an output load.
Sync or synch	Synchronization.
Technician	Refers to an electronic technician qualified to maintain and repair electronic equipment. Not necessarily qualified to install electrical wiring.
Test/Maintenance Mode	Maintenance bypass circuit breaker is closed and system output circuit breaker is open.
UL	Underwriters Laboratories, Inc.
UPS	Uninterruptible power system.
VAC or Vac	Volts alternating current.
VDC or Vdc	Volts direct current.

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