



## Sentry IT Controller System – Instruction Manual

**SENTRY IT**  
**GAS MONITORING SYSTEM**  
Version 0.12F



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## 1 Introduction

This manual is provided with the Sierra Monitor **Sentry IT** Controller. The purpose of this manual is to explain how to operate, and maintain the **Sentry IT** Controller system. The other manuals in the Sentry IT Controller documentation suite include:

- Gas Sensor Module Instruction Manuals provide detailed information on installation, operation, and maintenance of all supports gas sensor modules.
- Third-party manuals describe the installation, operation, and maintenance of all other system components.

This manual assumes that the installation and commissioning team has completed their tasks and verified that the system is working properly. Your responsibility is to maintain day-to-day operation of the system, respond to alarms, and assist in troubleshooting any problems that might arise. This guide explains how to perform your responsibilities.

## **2 Power Requirements**

Sentry IT operates from 24V DC power. The 24V DC may be sourced from an optional internal AC/DC power supply or from an external battery backup system. If AC power is used, a commercial type UPS is required. The optional internal 24V DC unit has the following marking for 110 AC wiring. Terminals marked as H (Hot), N (Neutral) and G (Ground). It is recommended that gas monitoring system not be installed with an easily accessible on/off switch. A method should be provided for safely removing power to service activities.

### **2.1 Wiring and Cables**

All electrical connections and interface cables between the Sentry IT connectors, and alarm wiring connected to output relays must be installed in a fashion which meets NEC and other local electrical codes, and avoids loose connections, poor workmanship or contamination.

## **3 General**

Sentry IT is designed and constructed for installation in industrial applications such as control rooms and instrument panels. Care should be taken to provide protection from hostile conditions which would normally be hazardous for computer based instrumentation.

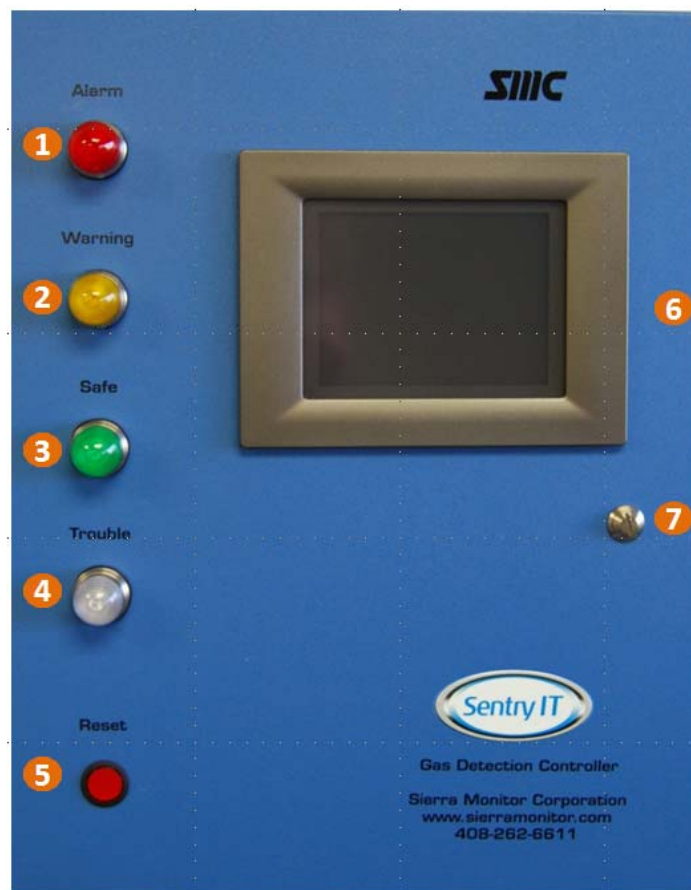
### **3.1 Sentry IT LCD Display Panel**

Avoid placing Sentry IT in a location which will expose the face panel to excessive direct sunlight, or to any liquid contamination. Sentry IT should be treated as a computer terminal and not subjected to excessive vibration, bumping or damage by work tools.

## 4 User Interface

### 4.1 Description

The **Sentry IT** Controller is a microprocessor-based computer which performs functions including management of the sensor modules, management of alarm relays, and interfacing with the user via a graphical touch panel.



**Figure 4-1 Front Panel**

- |                |                 |                |
|----------------|-----------------|----------------|
| 1: Alarm LED   | 2: Warning LED  | 3: Safe LED    |
| 4: Trouble LED | 5: Reset Switch | 6: Touch Panel |
|                | 7: Door Lock    |                |

### 4.2 Touch Panel

The integrated touch panel is the primary operator interface. It provides critical data displays and access to various configuration, historical, and diagnostic functions.

### 4.3 Indicators

The front panel includes four high intensity LED indicators:

**Red:**

- Flashing indicates a high alarm condition has occurred.
- Solid indicates the alarm condition continues and has been acknowledged.

**Amber:**

- Solid indicates a warning condition

**Green:**

- Solid indicates safe condition

**Blue:**

- Flashing after power-up indicates system power up in process.
- Flashing during operation indicates a trouble condition has occurred.
- Solid indicates the trouble condition still exists but has been acknowledged.

When the Controller is powered, at least one LED will be illuminated at all times. During safe normal operation only the Green LED will be illuminated.

### 4.4 Reset Switch

The reset switch is used to **Reset** or **Acknowledge** an alarm or trouble condition.

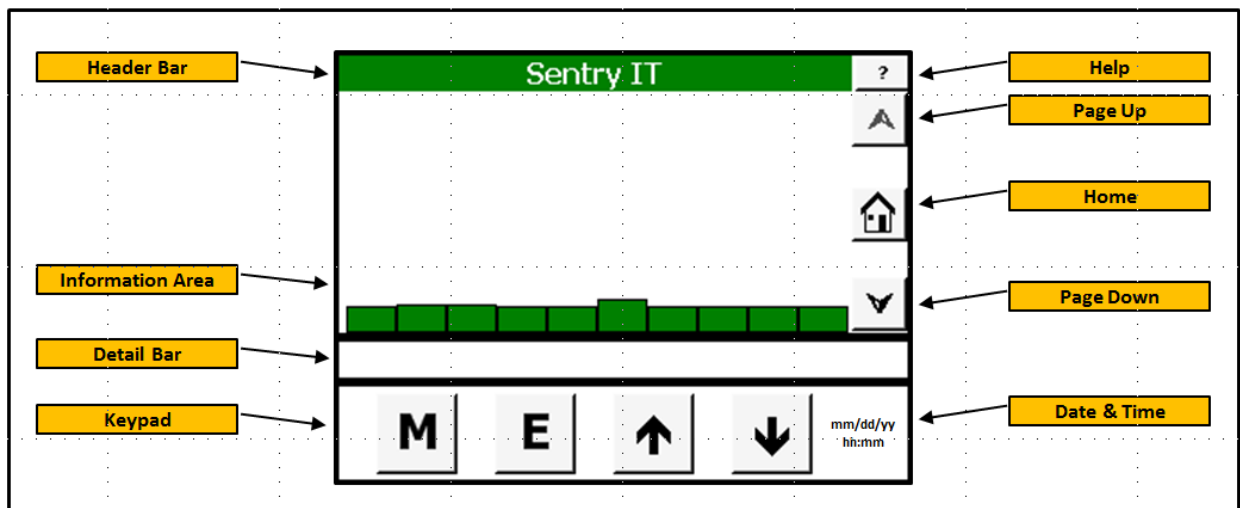
Acknowledging the alarm condition will immediately stop the alert flashing on the touch panel. It will also reset relays configured for alarm acknowledge.

## 4.5 Sentry IT Screens









The operator interface screens utilize a common layout structure as illustrated in Figure 4-2  
Navigation Module, Layouts include:

### 4.5.1 Home page:

- Bar Graph: Provides bar graph view of up to 8 inputs per page, with multiple pages available. This is the default home page when no zones are configured.
- Zone Text: Provides a dashboard view of Zone status. This is the default home page when zones are configured.
- Various menu pages provide the ability to navigate, access information, and change configuration settings.
- Menu pages:



**Figure 4-2 Navigation Module**

Mode Sections	
Section	Explanation
<b>Header Bar</b>	<p>Displays the system tag. User configurable. The background color represents the system Safe or highest Alarm status.</p> <p> The Help key on the right side of the Header Bar provides access to help topics.</p>
<b>Information Area</b>	<p>Displays extensive detail information based upon selected screen. The Page Navigation keys appear when necessary in the right-hand portion of the information area.</p> <p> Page Up key displays the previous seven lines if present with the current first line being displayed as the last line.</p> <p> Home navigation key displays the home screen.</p> <p> Page Down navigation key displays the next seven lines if present, with the current last line being displayed as the first line.</p>
<b>Detail Bar</b>	<p>Displays a message based on a touch of the screen. The message provides either the next action to be implemented or the data about the selected item.</p>
<b>Keypad</b>	<p>Allows navigation.</p> <p> Mode key advances within menus</p> <p> Enter key implements selection</p> <p> Up key scrolls up within the menu</p> <p> Down key scrolls down within the menu</p> <p>The Controller current date and the time are displayed on the right-hand side of the keypad. The format is mm/dd/yy, HH:MM.</p>
Screen Colors	
Color	Representation
<b>Red blinking</b>	At least one of the sensor modules has an Alarm that has not been acknowledged.
<b>Red solid</b>	Alarms have been acknowledged and at least one of the sensor modules continues to be in Alarm state.
<b>Amber</b>	At least one of the sensor modules is in Warning state.
<b>Gray</b>	At least one of the sensor modules is in trouble state.

**Table 4-1 Mode Selections**



## 4.6 Navigation

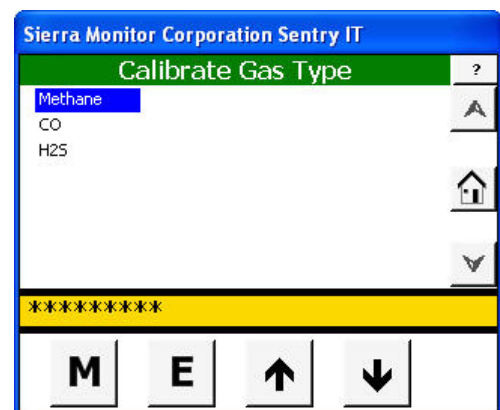
This section discusses the areas of the display that can be touched to make a selection. Navigation areas highlight when selected.

The following navigation rules apply to all screens unless otherwise indicated.

- All menu page navigation begins by touching the Mode key **M**.
- Sub-menu navigation may be scrolled by touching the Mode key **M** repeatedly  
Or the **↑** or Down **↓** keys.
- The primary menu screens include:
  - Alarm Management
  - Calibration Management
  - Access Management
  - History Management
  - System Management
  - Module Summary
- To access a menu screen, displayed in the Detail Bar, touch the Enter key **E**.
- To access an item selected in the Information Area, touch the Enter key **E**.

*Do not use metal objects to touch the surface of the Touch Panel screen as these object may damage the screen surface. A fingertip, a plastic stylus or a pencil eraser work well to input data on the Touch Panel and will not damage the surface.*

The touch panel indicates that the system is processing information by displaying a series of asterisks (\*\*\*\*\*) in the detail bar. When the system is processing information (see Figure 4-3 Processing Mode), user input is ignored.



**Figure 4-3 Processing Mode**

## 5 Mode Pages

Menu pages provide the ability to navigate, access information, and change configuration.

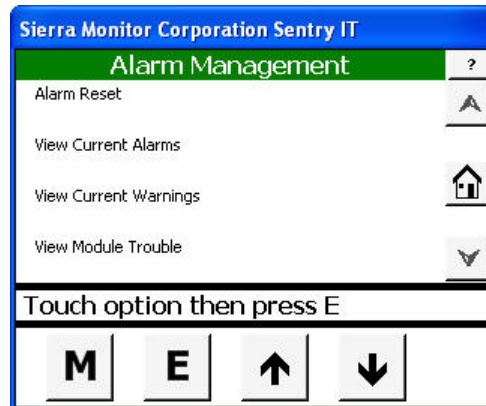
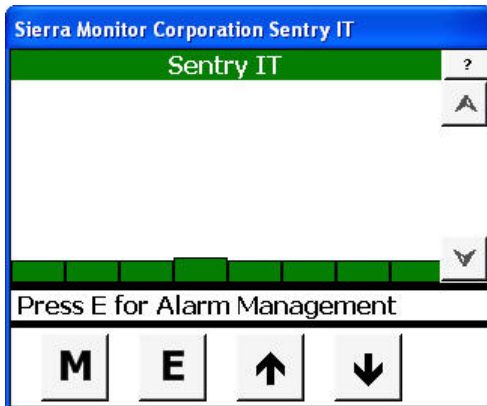
Master Mode Structure	
M (Mode)	E (Enter)
Home Screen	
Alarm Management	
	Alarm Reset
	View Current Alarms
	View Current Warnings
	View Module Trouble
Calibration Management	
	Calibrate All
	Calibrate Gas Type
	Calibrate Selected Modules
	Calibrate Select Zones
	Confirm Remote Calibration
Access Management	
	Unprotected
History Management	
	View History Report
	Clear History Report
System Management	
	Configuration
	Maintenance
	View System Trouble Conditions
Module Summary	
	Module listing
About System	
	Touch Panel Version
	Controller Version
Home Screen	

**Table 5-1 Master Mode Structure**

## 5.1 Alarm Management

The Alarm Management page allows the user to execute the global alarm reset command. Users can also view Current Alarms, Current Warnings of Module Trouble Conditions.

- From the Home page press Touch Mode (**M**) key to sequence through the modes.
- Select **Alarm Management** module.
- Touch Enter (**E**) key to confirm the selection.



**Figure 5-1 Alarm Management Module      Figure 5-2 Alarm Management Menu**

Selection can be made by touching the LCD screen followed by Enter (**E**) key.

The Alarm Reset command executes the horn silence function when alarm acknowledges is configured.

### 5.1.1 Alarm Reset

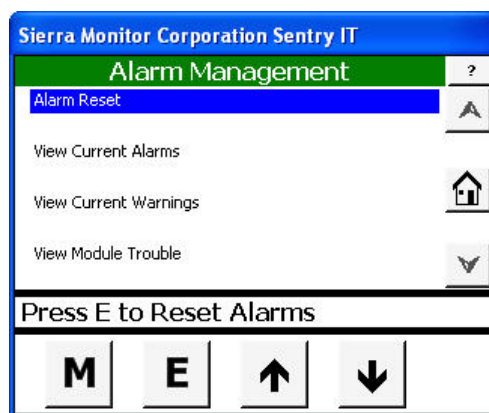
The **Alarm Reset** activity allows onscreen global acknowledge or reset of all applicable alarms. To reset specific alarms, use the **View Current Alarms** activity.

*Typically global alarm reset is executed via the front panel Reset Switch. (See Section 4.4 Reset Switch.)*

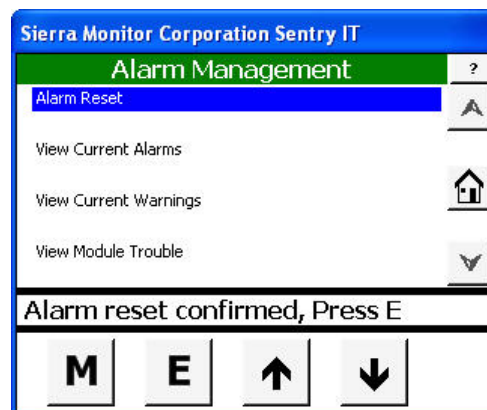
The Alarm Reset function causes different results based on conditions including the configuration of the system (latch/non-latch/acknowledge) and the current state of the value that caused the alarm. An alarm reset impacts the status of the Controller Screen, LEDs, and Relays. System operators must be familiar with the conditions shown in Table 5-2 Alarm Condition Table.

To perform a global reset of all applicable alarm conditions:

- Select **Alarm Reset**.
- Touch Enter (**E**) key to select the option.
- The Detail bar will display “Alarm reset confirmed, Press (**E**)”.
- Touch Enter (**E**) key again.



**Figure 5-3 Alarm Reset**



**Figure 5-4 Reset Confirmed**

### 5.1.2 View Current Alarms

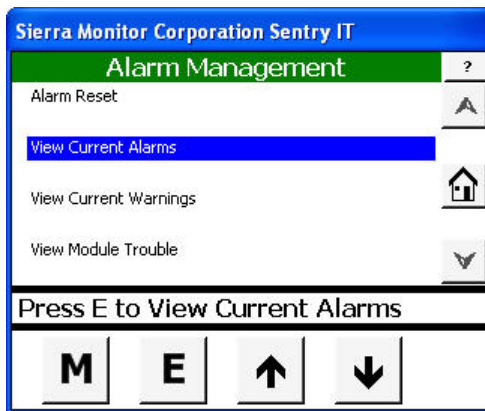
This activity in Alarm Management allows access to view or reset specific alarms.

To view or reset current alarms:

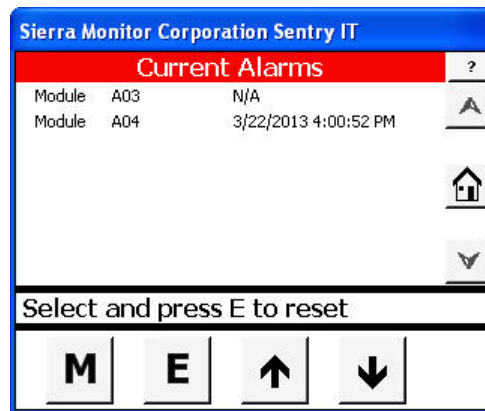
- Select **View Current Alarms**.
- Touch Enter (**E**) key to select the option.

To reset the specific alarm:

- Select the Alarm.
- Touch Enter (**E**) key to select the option.
- Acknowledged alarms change from flashing to solid. Cleared alarms disappear.
- The Detail bar will display “Alarm reset confirmed, press (**E**)”.
- Touch Enter (**E**) key.
- To return to the Alarm Management page, Touch Mode (**M**) key.



**Figure 5-5 View Current Alarm**



**Figure 5-6 Current Alarm**

*All data that is cleared on this page is archived. See section 5.4 History Management for a record of all events.*

### 5.1.3 View Current Warnings

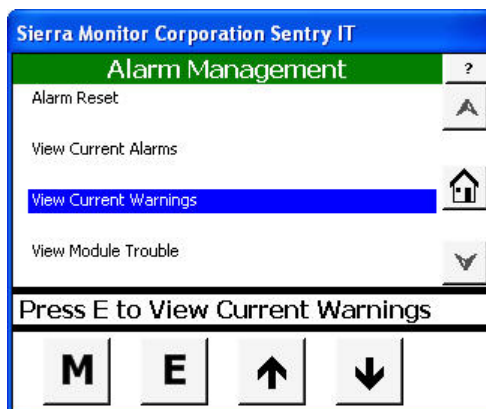
This activity in Alarm Management allows access to view or reset specific warnings.

To view and manage current warnings:

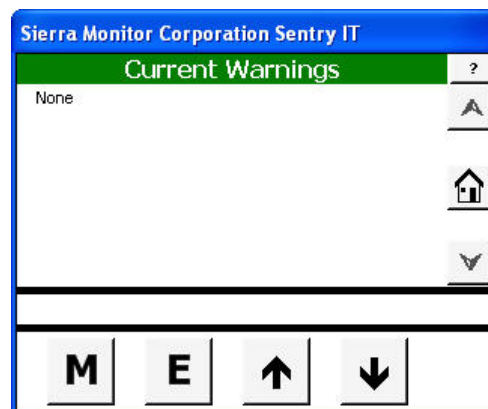
- Select **View Current Warnings**.
- Touch Enter (**E**) key to select the option.

To reset a specific warning:

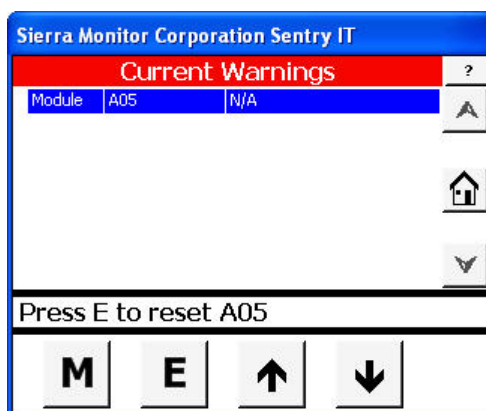
- Select the warning and touch Enter (**E**) key. (See Figure 5-9 Current Warning)
- Acknowledged warnings change from flashing to solid. Cleared warnings disappear.
- The Detail bar will display “Alarm reset confirmed, Press (**E**)”.
- To return to the Alarm Management page, Touch Mode (**M**) key.



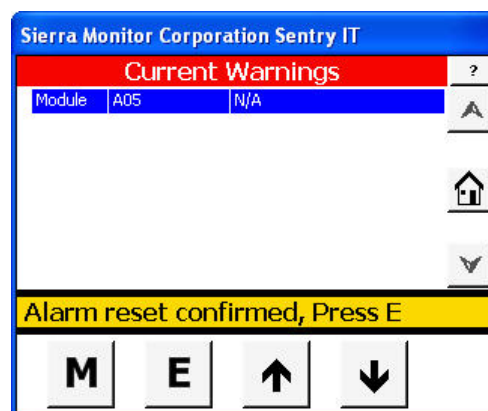
**Figure 5-7 Current View Warning**



**Figure 5-8 Normal Warnings**



**Figure 5-9 Current Warning**



**Figure 5-10 Reset Confirmed**

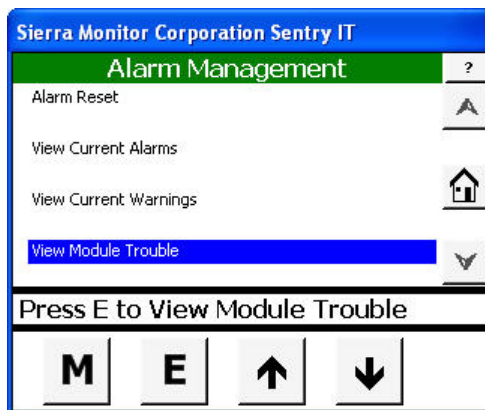
### 5.1.4 View Module Trouble

This activity in Alarm Management allows access to view or reset specific trouble conditions.

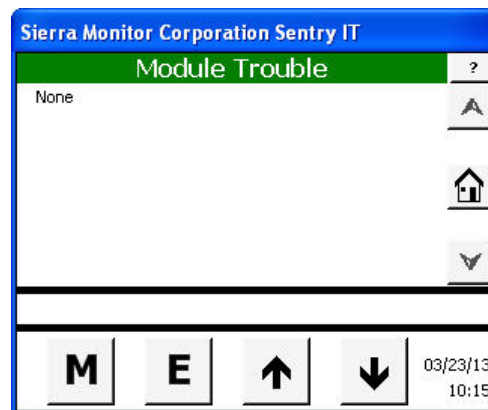
To view and manage current troubles:

- Select **View Module Trouble**.
- Touch Enter (**E**) key to select the option.

Figure below shows the normal condition.



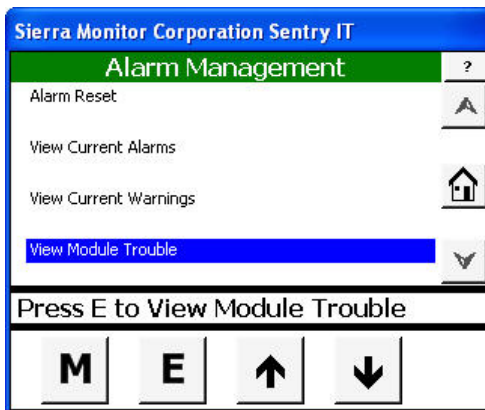
**Figure 5-11 View Module Trouble**



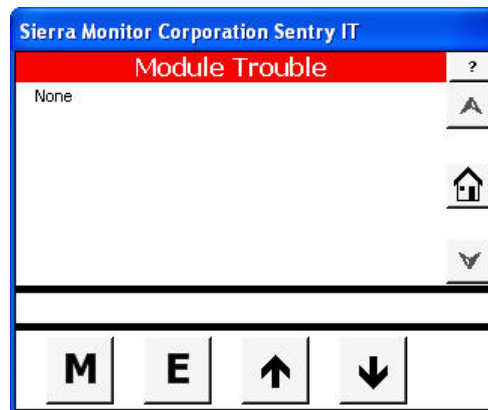
**Figure 5-12 Normal, No Warnings**

*All data that is cleared on this page is archived. See section 5.4 History Management for a record of all events.*

Figure below shows Module the trouble condition:



**Figure 5-13 View Module Trouble**



**Figure 5-14 Module with trouble**

Condition		Result			
Configuration	Status	Action	Screen	LED	Relay
<b>Alarm Latch</b>	Alarm	-	Flash	Flash	On
	Alarm	Reset *	Solid	Solid	On
	Alarm Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Alarm	-	Flash	Flash	On
	Alarm Clears	-	Flash	Flash	On
	Clear	Reset *	-	-	Off
<b>Non Latch</b>	Alarm	-	Flash	Flash	On
	Alarm	Reset *	Solid	Solid	On
	Alarm Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Alarm	-	Flash	Flash	On
	Alarm Clears	-	-	-	Off
<b>Alarm Acknowledge</b>	Alarm	-	Flash	Flash	On
	Alarm	Reset *	Solid	Solid	Off
	Alarm Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Alarm	-	Flash	Flash	On
	Alarm Clears	-	Flash	Flash	On
	Clear	Reset *	-	-	Off
<b>Warning Latch</b>	Warning	-	Solid	Solid	On
	Warning	Reset *	Solid	Solid	On
	Warning Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Warning	-	Solid	Solid	On
	Warning Clears	-	Solid	Solid	On
	Clear	Reset *	-	-	Off
<b>Warning Non Latch</b>	Warning	-	Solid	Solid	On
	Warning	Reset *	Solid	Solid	On
	Warning Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Warning	-	Solid	Solid	On
	Warning Clears	-	-	-	Off
<b>Warning Acknowledge</b>	Warning	-	Solid	Solid	On
	Warning	Reset *	Solid	Solid	Off
	Warning Clears	-	-	-	Off
<b>Condition clears before Reset touched</b>	Warning	-	Solid	Solid	On
	Warning Clears	-	Solid	Solid	On
	Clear	Reset *	-	-	Off

**Table 5-2 Alarm Condition Table**

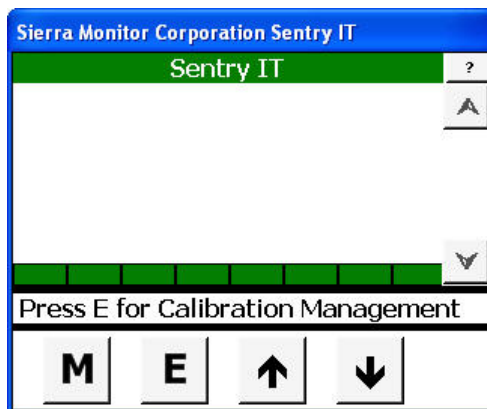
*\* Reset - input by integral switch, remote switch, or Modbus command.*



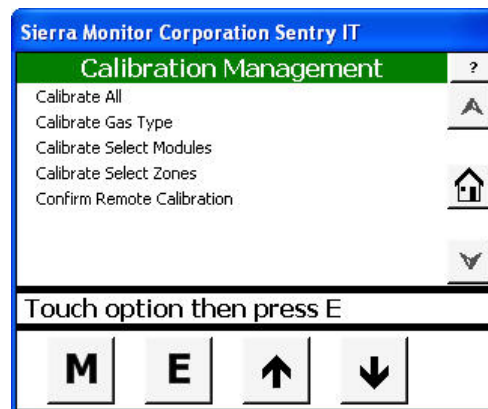
### 5.2 Calibration Management

The Calibration Management page allows the user to implement calibration processes that require the Controller. In most cases Sensor Modules are locally calibrated. The Controller-level calibration is used in the case where Sensor Module accessibility is limited.

- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select **Calibration Management** module.
- Touch Enter **(E)** key to confirm the selection.



**Figure 5-15 Calibration Module**

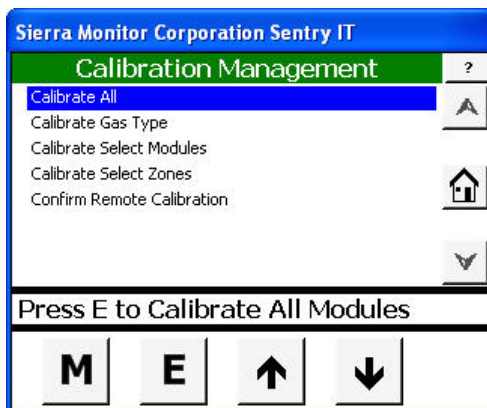


**Figure 5-16 Calibration Menu**

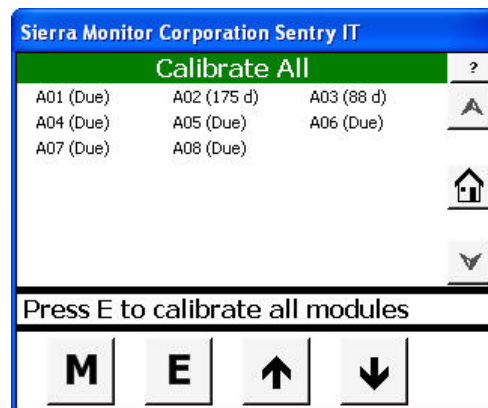
#### 5.2.1 Calibrate All Sensor Modules

To calibrate all the sensors in the system use the Touch Panel to perform these steps:

- Select **Calibrate All**.
- Touch Enter **(E)** key to select the option.



**Figure 5-17 Calibration All**



**Figure 5-18 Calibrate Select Module**

The touch panel indicates that the system is processing information by displaying a series of asterisks (\*\*\*\*\*) in the detail bar.

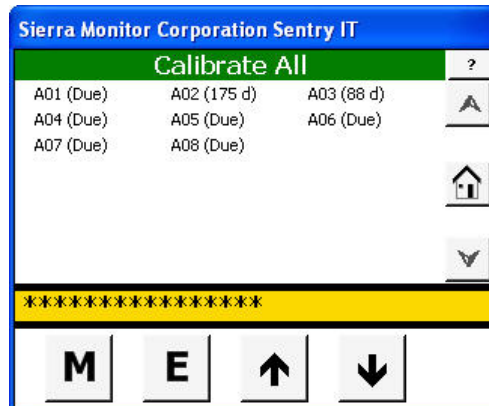


Figure 5-19 Calibration In Progress

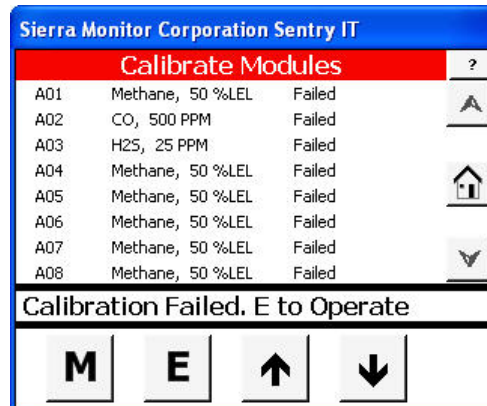


Figure 5-20 Calibration Result

Figure above shows sensors are out of calibration:

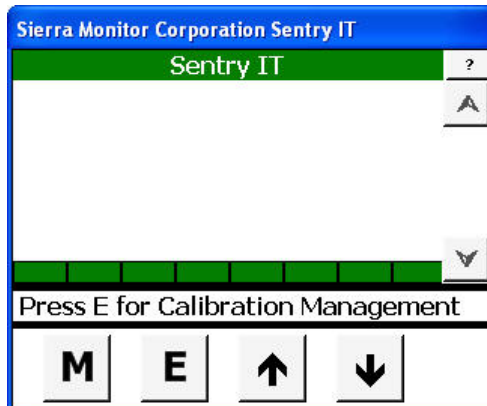
### 5.2.2 Calibrate by Sensor Module Gas Type

To calibrate sensors by the gas type, use the Touch Panel to perform these steps:

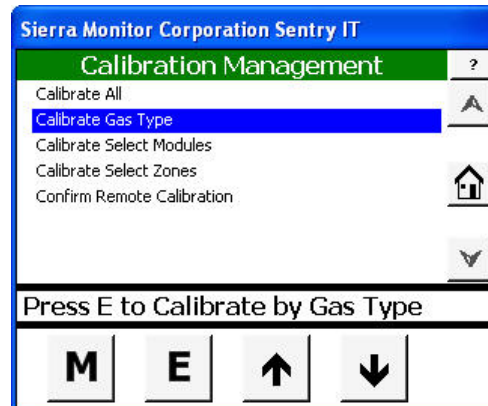
- Select **Calibrate Gas Type**.
- Touch the Enter (**E**).key
- Select the gas type.
- Touch the Enter (**E**) key.

*System is processing information by displaying a series of asterisks (\*\*\*\*\*) in the detail bar.*

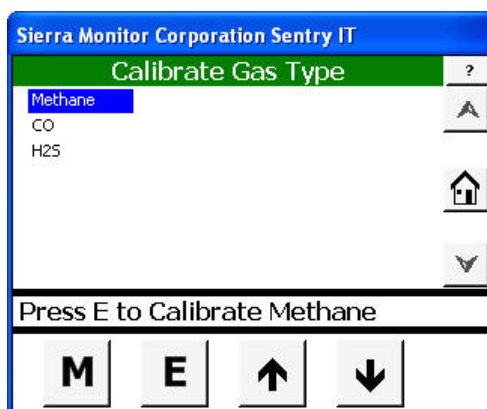
- Depending on the sensor functionality, Pass or Fail condition will be displayed.



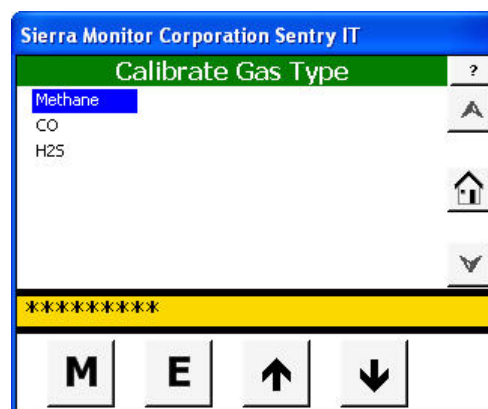
**Figure 5-21 Calibration Module**



**Figure 5-22 Calibrate Gas Type**



**Figure 5-23 Gas Selection**



**Figure 5-24 Calibration in Process**

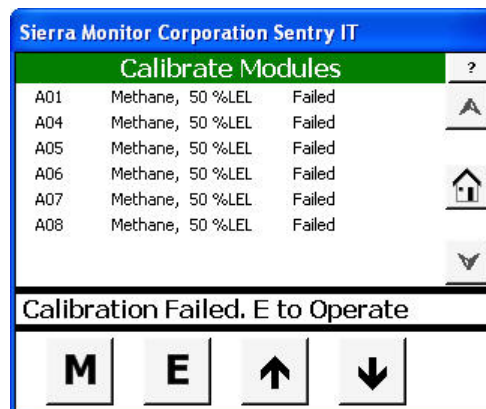


Figure 5-25 Calibration Status

### 5.2.3 Calibrate by Selected Sensor Modules

Each sensor can be calibrated individually. To calibrate a specified sensor use the Touch Panel to perform these steps:

- Select **Calibrate Select Modules**.
- Touch the Enter (**E**) key.
- Select the sensor module to be calibrated.
- Touch the Enter (**E**) key.

*System is processing information by displaying a series of asterisks (\*\*\*\*\*) in the detail bar.*

Depending on the sensor functionality, Pass or Fail condition will be displayed.

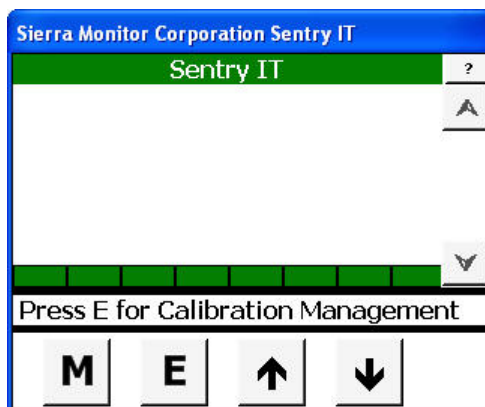


Figure 5-26 Calibration Module

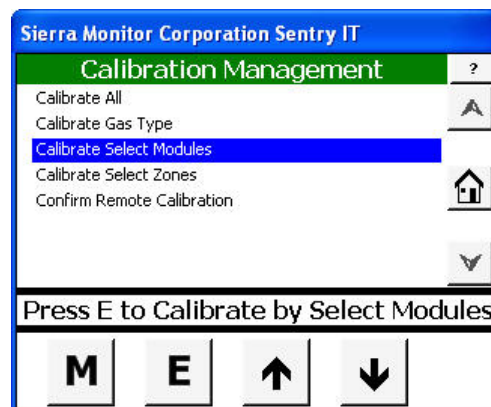


Figure 5-27 Selected Module

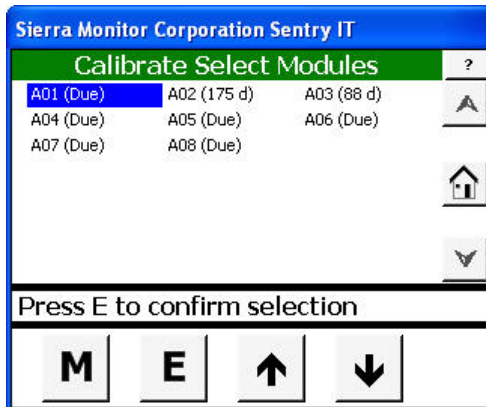


Figure 5-28 Selected Sensor

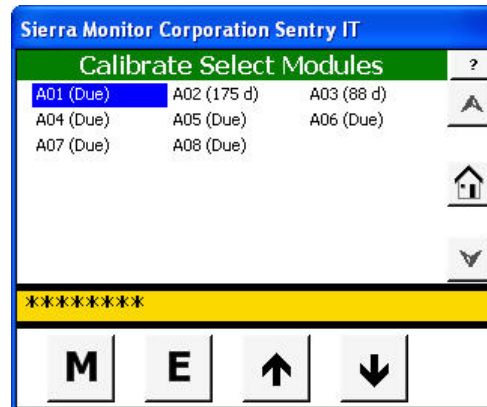


Figure 5-29 Calibration in Progress

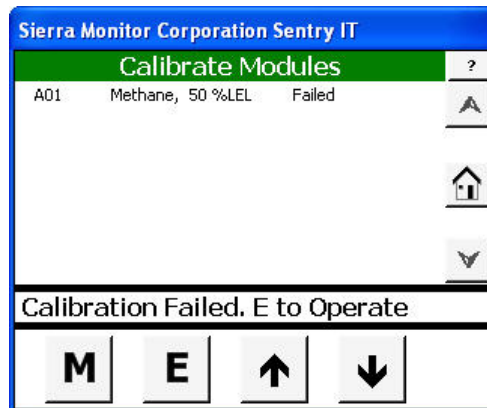


Figure 5-30 Calibration Message

#### 5.2.4 Calibrate by Zone

To calibrate sensor modules in a zone, use the Touch Panel to perform these steps:

- Select **Calibrate Select Zones**.
- Touch the Enter (**E**) key.
- Select the zone to be calibrated.
- Touch the Enter (**E**) key.

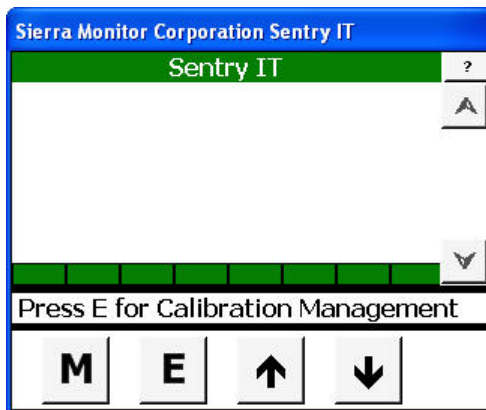


Figure 5-31 Calibration Management

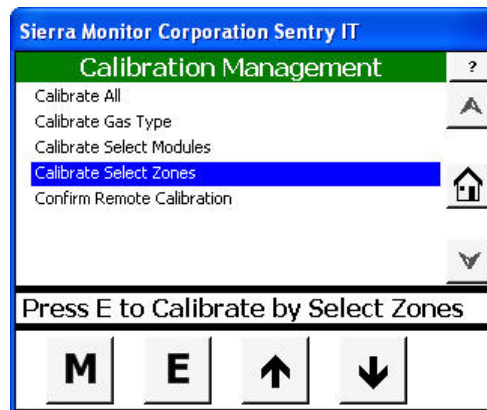
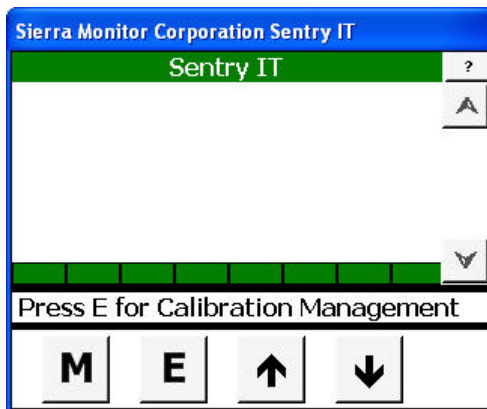


Figure 5-32 Calibrate Zones

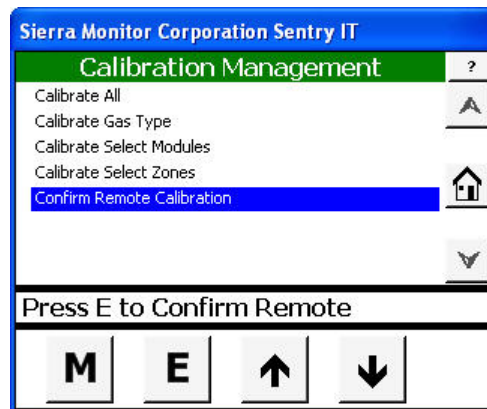
### 5.2.5 Confirm Remote Calibration

To calibrate remote sensor operation, use the Touch Panel to perform these steps:

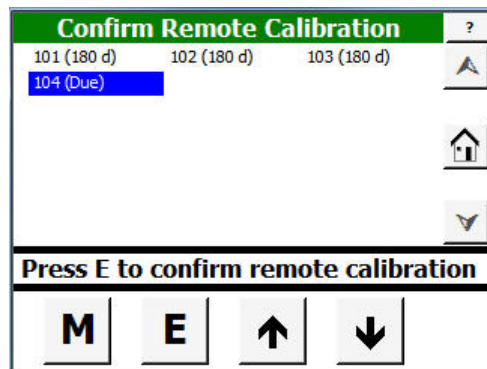
- Select **Confirm Remote Calibration**.
- Touch the Enter (**E**) key.
  - System will display available remote modules.
  - Touch and select the module and touch the Enter (**E**) key to select..
  - Calibration value of the module will be displayed.



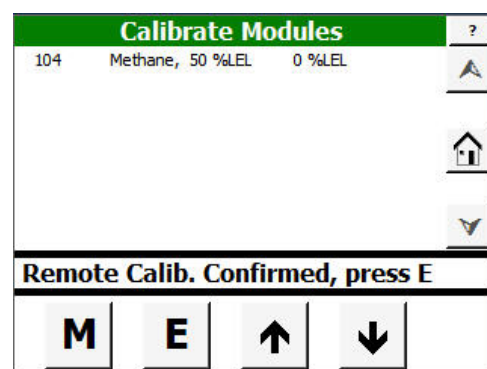
**Figure 5-33 Calibration Module**



**Figure 5-34 Confirm Remote Calibration**



**Figure 5-35 Select Module**

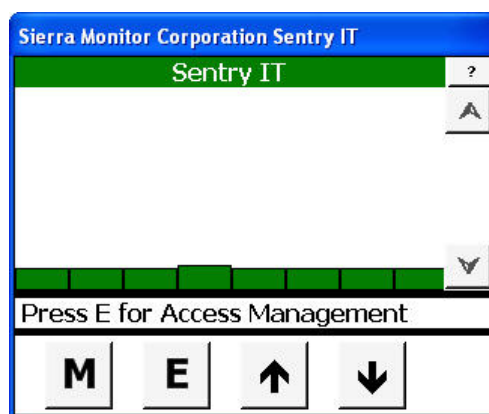


**Figure 5-36 Remote Calibration Value**

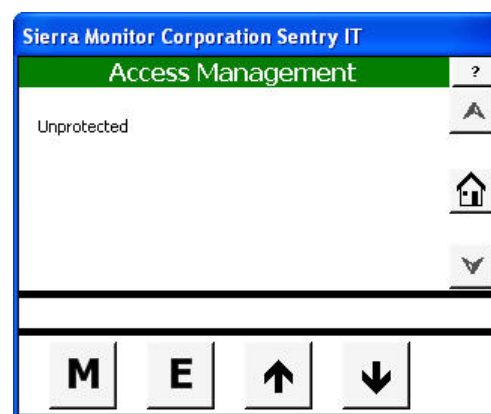
### 5.3 Access Management

Access management for the Sentry IT Controller employs the following concepts:

- **Protected** – requires password for access to protected functions. A system is considered to be protected when a password has been configured.
- **Unprotected** – allows full access without password. The system is always unsecure.
- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select **Access Management** module.
- Touch Enter **(E)** key to confirm the selection.



**Figure 5-37 Access Management Module**



**Figure 5-38 Access Status**

*A system is considered to be unprotected if there is no password configured. Access Management can be ignored for unprotected systems. Users have access to all system functions.*

*When the system is protected, secure user access is limited to viewing and resetting alarms, and viewing submenus. Only users with the system password can access protected activities.*

If unprotected message appears on the screen, it means password has not been set and system Log in is not required.

To setup password protection to the system, please see System Password setup section (5.5.1.3).

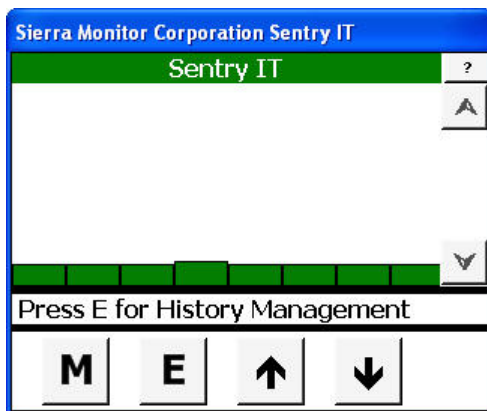


## 5.4 History Management

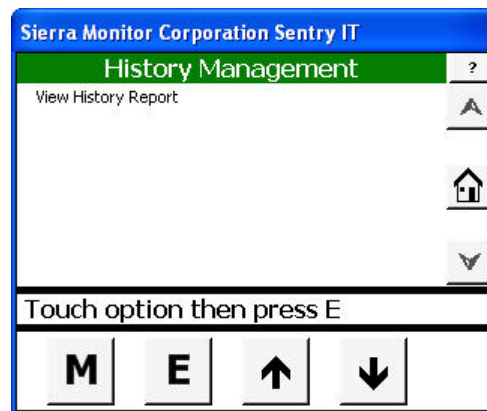
Sentry IT maintains system history for all events. History can be viewed on the display with date, time of the event, and description of the event. History can be saved or cleared. Clear function will clear entire history report.

To access the History Management module:

- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select **History Management** module.
- Touch Enter **(E)** key to confirm the selection.



**Figure 5-39 History Management Module**



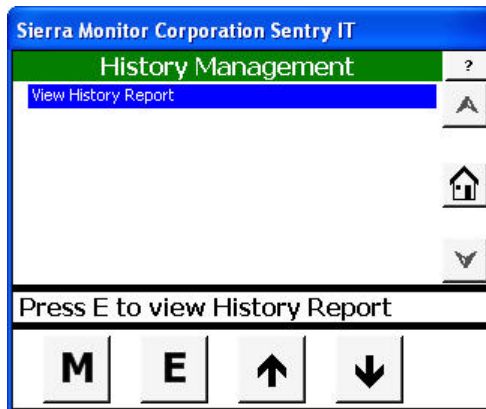
**Figure 5-40 View History Report**

### 5.4.1 View history report

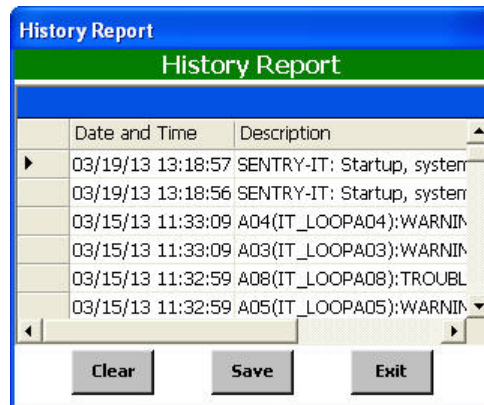
- Select **View History Report**
- Touch Enter **(E)** key to select report view.

Display information about current alarms.  
Examine recorded events.

Screen can be scrolled up or down to view more report history by touching navigators located at the right side of the screen window.



**Figure 5-41 Report Selection**



**Figure 5-42 History Report Display**

### 5.4.2 Clear history report.

Content of the history report can be saved or cleared.

- Touch **Save** button to save History Report (See Figure 5-42 History Report Display).
- Touch **Clear** button to clear History report. Clear function will clear the LCD Display and entire saved report.
- Touch Exit after Save / Clear function execution.

## 5.5 System Management

The System Management menu allows users to configure, maintain, and troubleshoot the system.

To access the System Management module:

- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select **System Management** module.
- Touch Enter **(E)** key to confirm the selection.

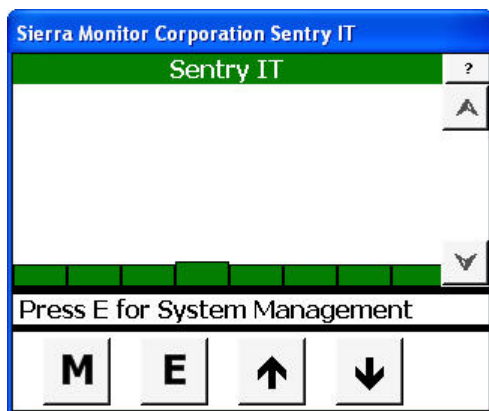


Figure 5-43 System Management Module

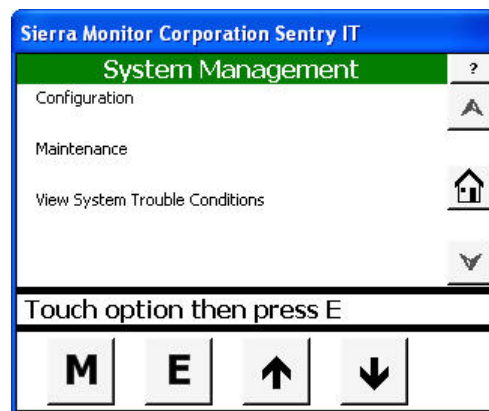


Figure 5-44 System Management Menu

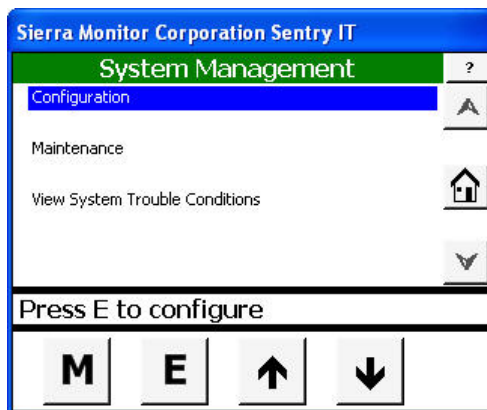
### 5.5.1 Configuration

Configuration menu contains following sub menus.

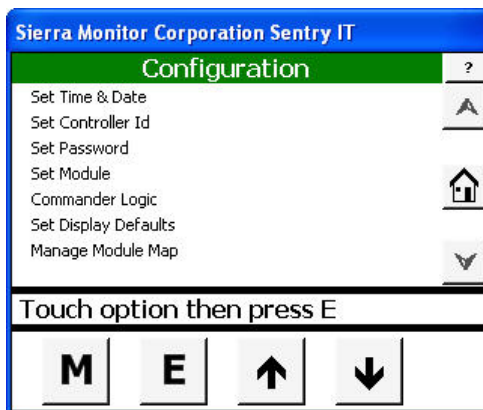
- Set Time & Date
- Set Controller Id
- Set Password
- Set Module
- Set Commander Logic
- Set Display Defaults
- Manage Module Map

To access the **Configuration** menu:

- Touch **Configuration**.
- Touch Enter (**E**) key to select the option.



**Figure 5-45 Configuration Menu**



**Figure 5-46 Configuration Sub-Menu**

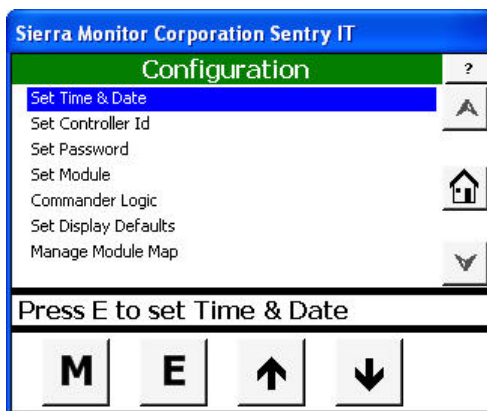
*Note: After all changes have been made, you must select "Save Configuration" to save any changes.*

### 5.5.1.1 Set Date & Time

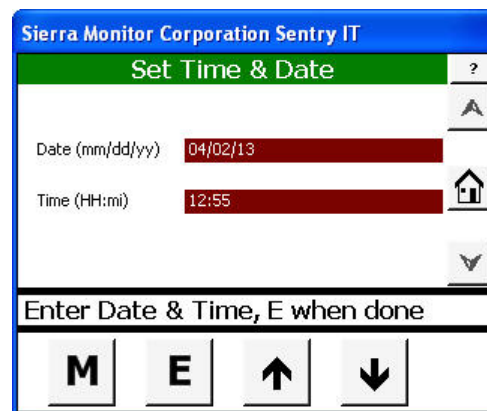
The date and time displayed on the lower right side of the screen to timestamps all events and activities. The time can be set manually or synchronized to system clock.

To set (or change) the system date and time:

- Touch **Set Date & Time**.
- Touch Enter (**E**) key to select.
- Touch the **Date** field to display the screen keyboard.
- Enter the system date as MM/DD/YY followed by Return key to complete the Date setting.
- Touch the **Time** field to display the keyboard again.
- Enter the current time of day as HH:MM (24-Hour time notation) followed by Keyboard Return key to complete the Time setting.
- Touch Enter (**E**) key to save the updates.
- After Date and Time update is complete, touch Enter (**E**) to return to the Configuration Menu.



**Figure 5-47 Set Time and Date**



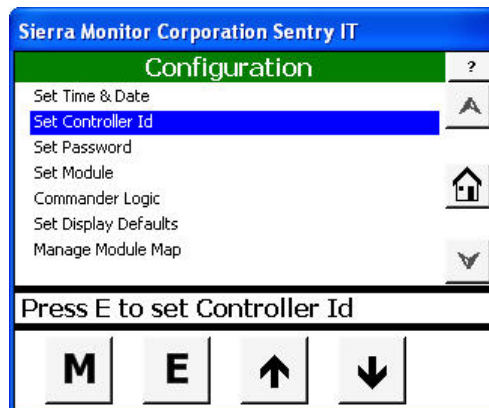
**Figure 5-48 Time & Date Menu**

### 5.5.1.2 Set Controller ID

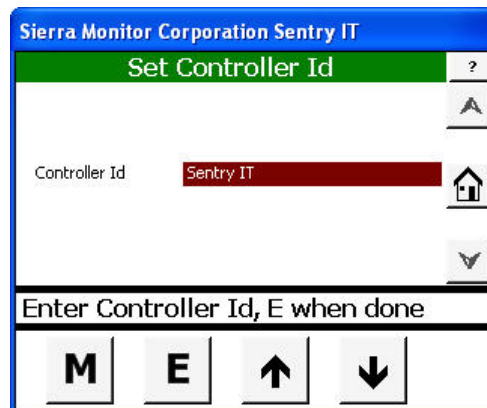
The Controller ID is a user-defined string that identifies the Controller.

To assign an identifier label for this Controller:

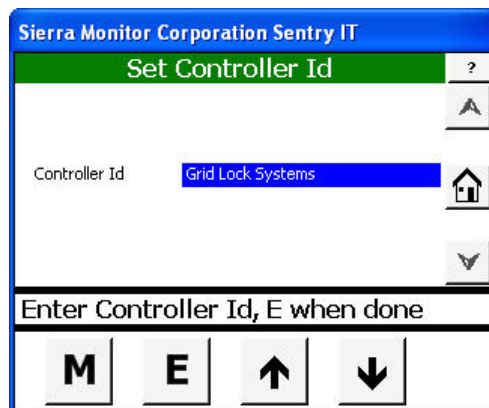
- Touch **Set Controller ID**.
- Touch the Enter (**E**) key to select the option.
- Touch the Controller ID field to display the keyboard.
- Enter an identifier string of up to 17 characters and touch Keyboard Return key.
- Touch Enter (**E**) key to save updates.
- After Controller ID update is complete, Touch Enter (**E**) key to return to the Configuration Menu.



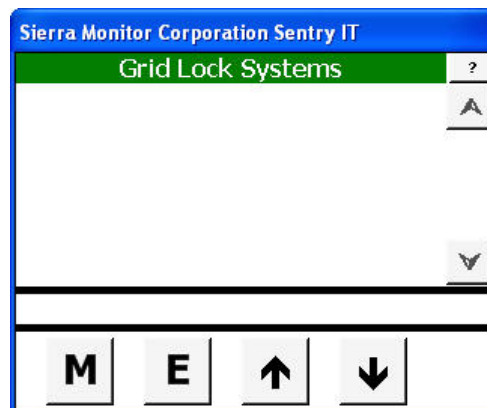
**Figure 5-49 Controller ID Menu**



**Figure 5-50 Default Controller ID**



**Figure 5-51 New ID Name**



**Figure 5-52 New Controller Name**

### 5.5.1.3 Set Password

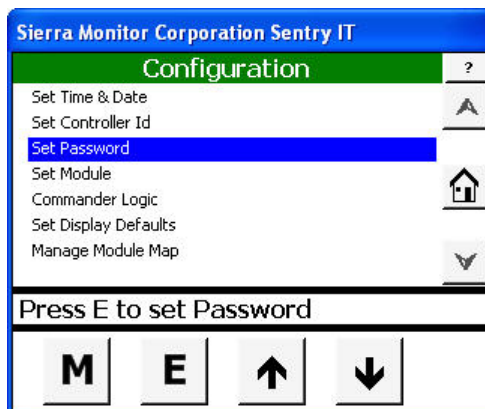
To create or change the system password:

- Touch **Set Password**.
- Touch Enter (**E**) key to select the option.
- Touch the Password field to display the keyboard.
- Enter a Password string of up to 4 characters and press Keyboard Return key.
- Touch Enter (**E**) key to save updates.
- After Password update is complete
- Touch Enter (**E**) key to return to the Configuration Menu.

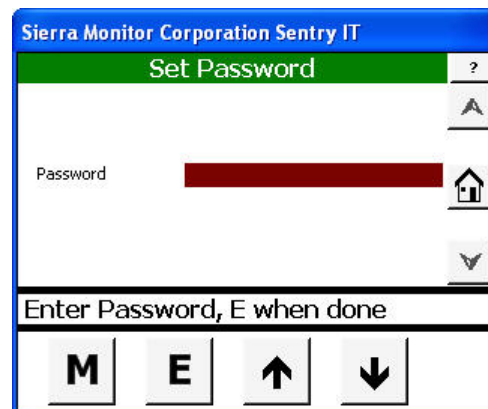
To remove the password, delete password characters starting from last character to the first character.

- Touch Enter (**E**) key to return to the Configuration Menu.

*Note that this clears the password and renders the system unprotected.*



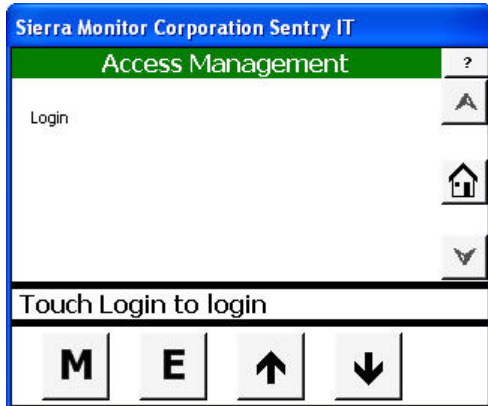
**Figure 5-53 Password menu**



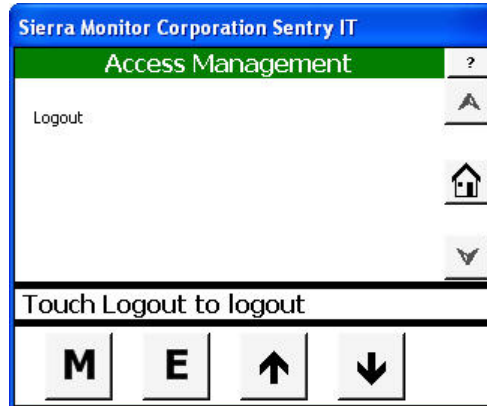
**Figure 5-54 Password setup**

### 5.5.1.3.1 Log in

Log in is required to access the protected functions. The Login page is automatically displayed when it is required. Alternately, user can navigate to the Access Management page for logging in. When the log in is complete, the system is considered to be unsecured.



**Figure 5-55 Login Access**



**Figure 5-56 Logout**

### 5.5.1.3.2 Log out

- To secure a protected system:
- Navigate to Access Management.
- The Detail Bar will display “Touch Logout to logout”.
- Touch Enter (**E**) key.
- 

### 5.5.1.3.3 Timeout

An unsecured protected system will automatically return to secure mode after a factory preset timeout of 90 minutes.

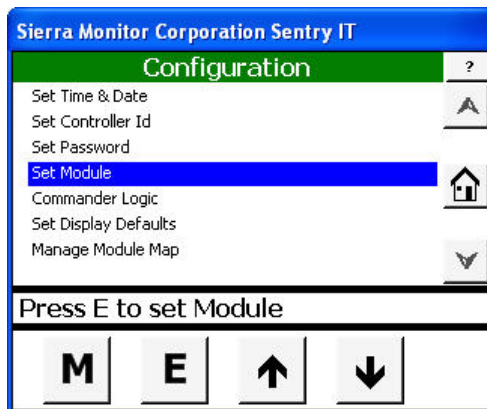


#### 5.5.1.4 Set Module

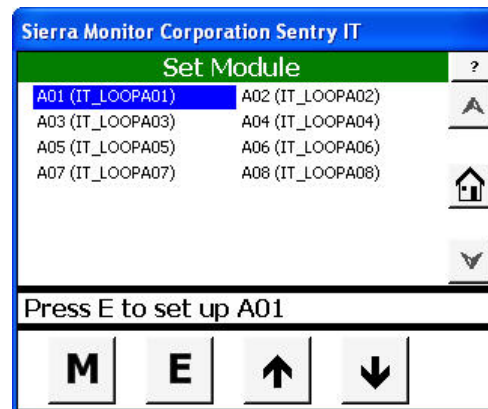
The Set Module option defines two sensor module attributes: the sensor module number and the sensor module tag.

To select a sensor module after full module discovery:

- Select **Set Module**.
- Touch Enter (**E**) key to select the option.
- System will display set of available modules.
- Select a module number.
- Touch Enter (**E**) key to select the function.



**Figure 5-57 Set Module**



**Figure 5-58 Select a Module**

After selecting a module number, system will display set of parameters for individual sensor to be set.

*Please note: Module discovery needs to be completed in order to set individual module. All fields are populated by Module discovery for modules connected to the Modbus, editing is optional. Analog module does not provide any information about the device so all fields need to be populated by user. See section (5.5.1.7.1) for module discovery process.*

To define the sensor module attributes:

- **Fields with gray area are not selectable or programmable.**
- Touch and select **Module type** from drop down menu.
- Touch the **Alarm Level** field to display the Keyboard.
  - Type the alarm level and touch the keyboard return key.
- Touch the **Latch on Alarm** field (Y or N ) from drop down menu.
- Touch and select **Gas Type** from drop down menu.
- Touch the **Warning Level** field to redisplay the keyboard.
  - Type the warning level and touch the keyboard return key.
- Touch the **Latch on Warning** field (Y or N ) from drop down menu.
- Touch and select **Calibration Gas** field from drop down menu.
- Touch the **Calibration Span** field to display the Keyboard.
  - Type the calibration span and touch the keyboard return key.
- Touch the **Module Tag** field to display the Keyboard.
  - Type the Module name and touch the keyboard return key.
- Touch the **Module #** field to display the Keyboard.
  - Type the module number and touch the keyboard return key.
- Touch and select **Unites** from drop down menu.
- Touch **Commit** to save the parameter information. System will display sequence of “\*\*\*\*” characters to indicate save function.
- Touch Enter (**E**) when finished.



**Figure 5-59 Modify Settings**



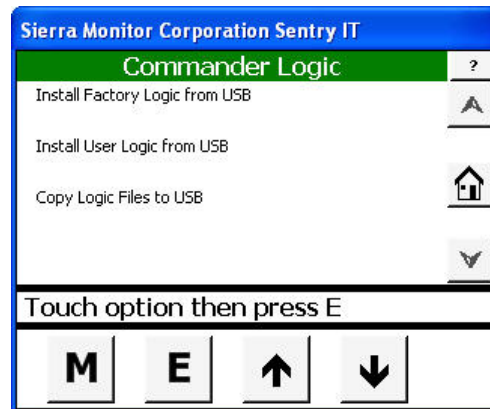
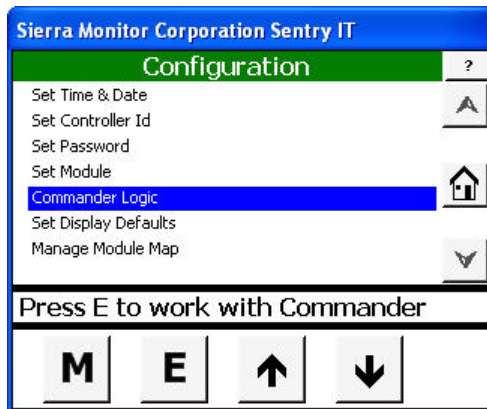
**Figure 5-60 Commit to Save**

*When module set up is complete, select the next module number and continue above steps.*

### 5.5.1.6 Commander Logic

Sentry IT provides USB interface option to program or change some of the functions.

- Select **Commander Logic**.
- Touch Enter (**E**) to select the option.



**Figure 5-61 Commander Logic Module**      **Figure 5-62 Commander Logic Sub-Menu**

Set Commander Logic provides the following sub menu.

- Install Factory default Logic from USB.
- Install User Logic from USB.
- Copy Logic File to USB.

Sentry IT looks for the following directories and file names.

Main Directory:	Commander
Factory Default File Name:	factorylogic.csv (Commander\factorylogic.csv)
User Logic Files Name:	userlogic.csv (Commander\userlogic.csv)
Copy Logic file to USB:	Main sub-directory Snapshot (Commander\snapshot)
Copied Logic File Name:	userlogic.csv (Commander\snapshot\userlogic.csv)

*Please note: Factory provides firmware upgrade in compressed (zip) file format. After decompressing the file, system will create the above directories and file names on the USB memory Stick.*

Please note: Changes will take effect after following process.

- Power down the system
- Plug in the USB memory stick. Power up the system, Sentry IT will detect the USB Memory Stick and upload the files.
- Remove the USB memory stick after confirmation is displayed.

#### **5.5.1.6.1 Install factory Logic from USB**

Sentry IT is shipped with standard configuration to suit most of the applications. Standard configuration logic can be loaded using external USB memory stick. See index for file format and samples.

#### **5.5.1.6.2 Install User Logic from USB**

User modified Commander logic file can be loaded using external USB memory stick to reprogram some functions. See index for file format. It is strongly recommended to “Copy logic file to USB” operation before loading new file.

#### **5.5.1.6.3 Copy Logic file to USB**

This function provides back up copy of the programmed Commander logic to be saved on external USB memory stick.

### 5.5.1.7 Manage Module Map

Functionality and managing of the all modules are controlled in is this section.

- Select **Manage Module Map**
- Touch Enter (**E**) key to select the option

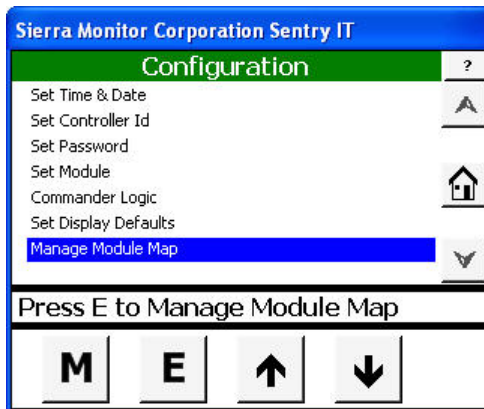


Figure 5-63 Manage Module Map

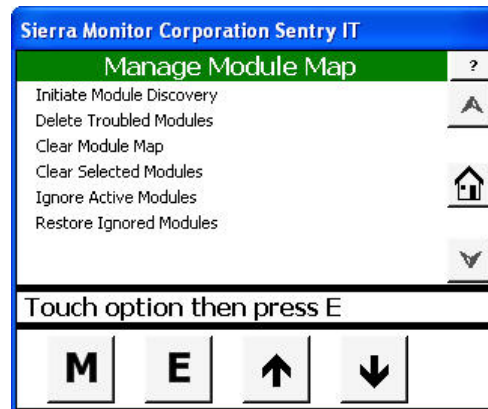


Figure 5-64 Module Sub Menu

After selecting Manage Module Map, following sub menus will be displayed:

- Initiate Module Discovery.
- Delete Trouble Module.
- Clear Module Map.
- Clear Selected Module.
- Ignore Active Modules
- Restore Ignored Modules

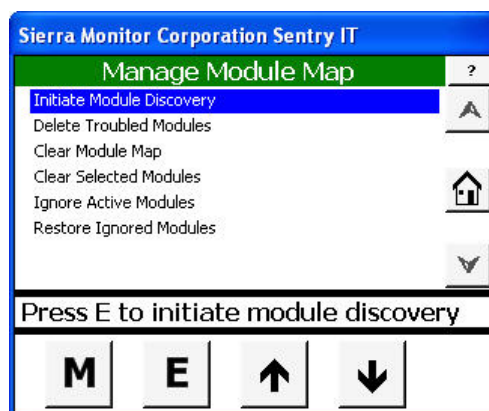
### 5.5.1.7.1 Initiate Module Discovery

Module discovery is used to detect existing and newly installed modules.

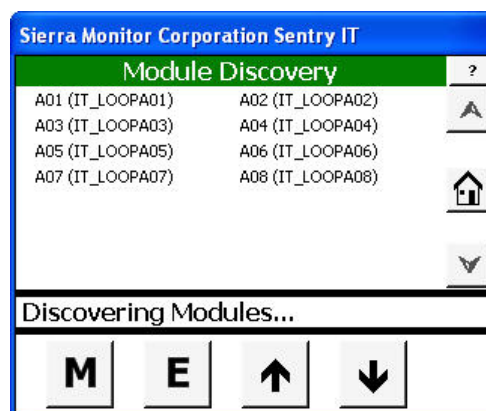
- Select **Initiate Module Discovery**
- Touch Enter (**E**) key to start the discovery.

Discovery module will start scanning all ports to identify existing and newly installed sensors. Once this process is completed, "Module discovery done press E" will be displayed at the bottom banner section.

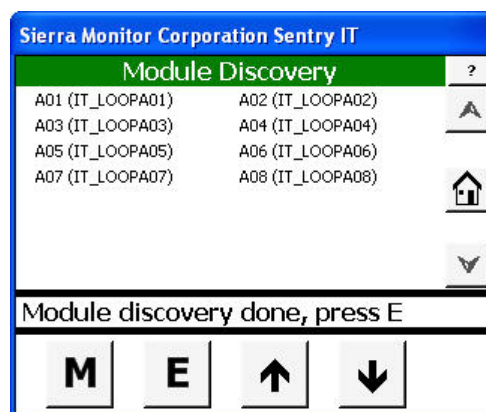
- Enter (**E**) key to finish the process.



**Figure 5-65 Module Discovery**



**Figure 5-66 Available Modules**



**Figure 5-67 End of Process**

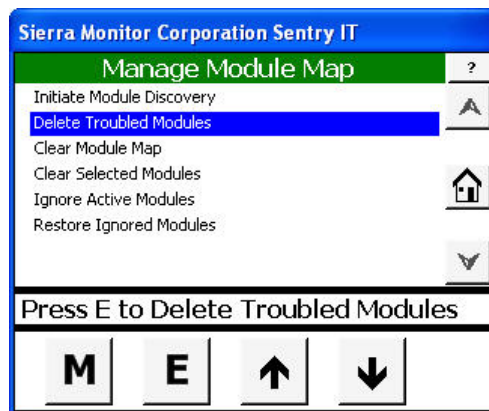
*Please note: After module discovery process, Module setup is required for all analog devices. See Section (5.5.1.4).*

#### 5.5.1.7.2 Delete Trouble Module

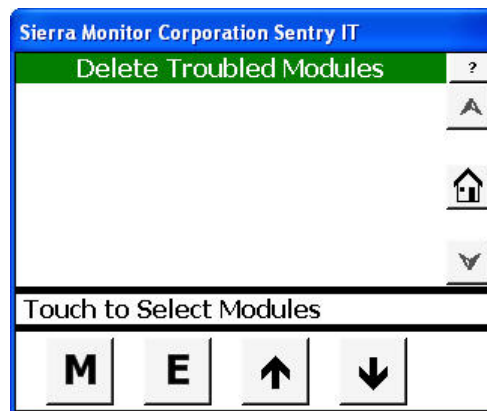
Identified troubled modules can be removed from the Map list.

- Select **Delete Troubled Modules**.
- Touch Enter (**E**) key to select the option.

Troubled modules will be listed if any have been discovered.



**Figure 5-68 Delete Trouble Module**

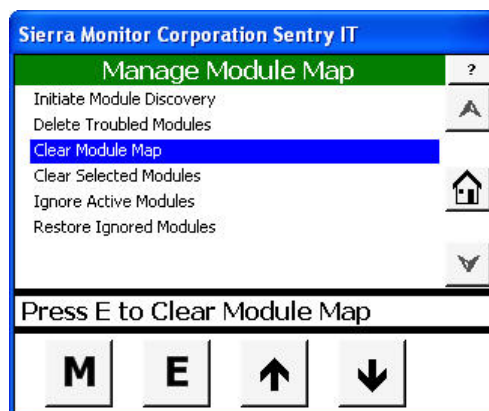


**Figure 5-69 Troubled Module List**

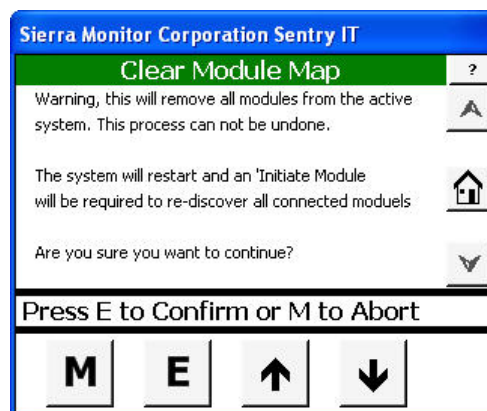
#### 5.5.1.7.3 Clear Module Map

Clear Module Map function will clear modules from active list.

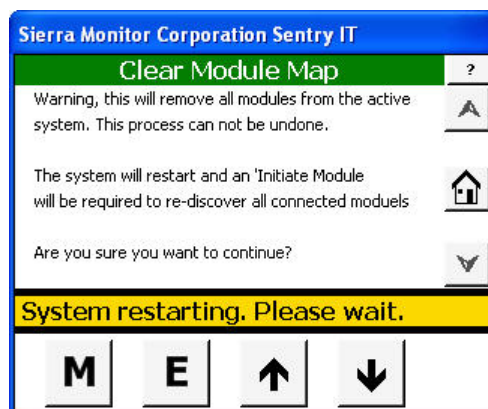
*Warning, this will remove all modules from active system. Once modules are cleared, system will restart.*



**Figure 5-70 Clear Module Map**



**Figure 5-71 Clear Module Warning**



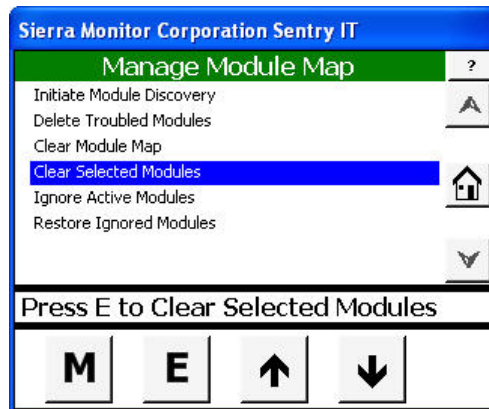
**Figure 5-72 System Restart**



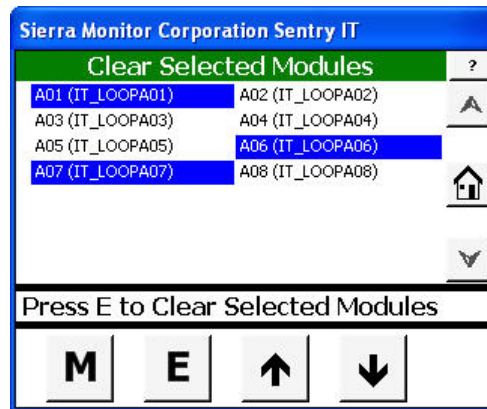
#### 5.5.1.7.4 Clear Selected Module

Clear selected Module will remove modules from active list.

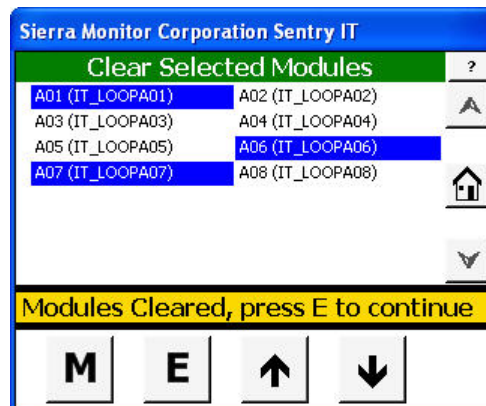
- Select Clear Selected Modules.
- Touch Enter (**E**) key to select the function.
- Select Desire Modules to be removed.
- Touch Enter (**E**) key to clear the modules.



**Figure 5-73 Clear Selected Module**



**Figure 5-74 Selected Modules**



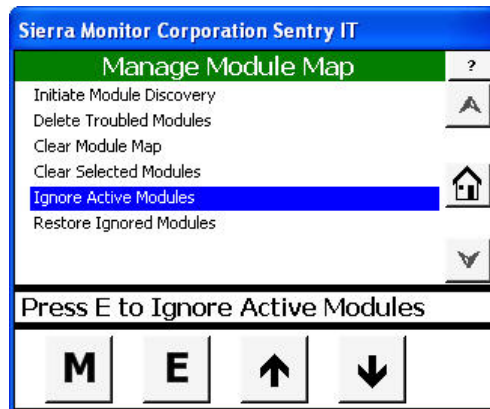
**Figure 5-75 End of Process**

- Touch Enter (**E**) to go back to Managed Module Map after “Modules Cleared, press E to continue” is displayed

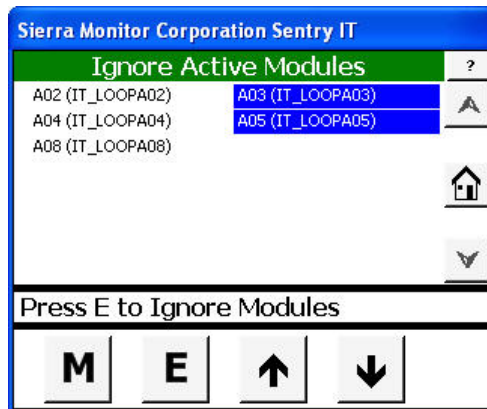
### 5.5.1.7.5 Ignore Active Module

Installed active module menu offers an option to ignore some module(s) for monitoring purposes. One to all modules can be ignored.

- Select **Ignore Active Module**.
- Touch Enter (**E**) key to activate the process.
- Touch Enter (**E**) key again to go back to Managed Module Map Menu



**Figure 5-76 Ignore Active Module**



**Figure 5-77 Select Modules to Ignore**

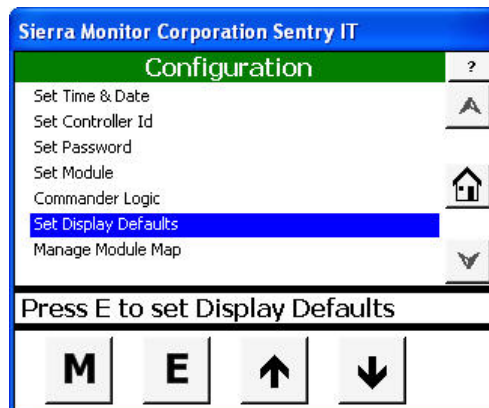
#### 5.5.1.7.6 Set Display Defaults

The Default Display for the Information Area can be user configured in any of four screen formats:

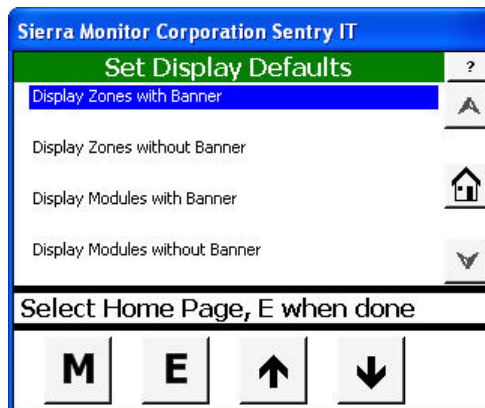
- Select **Set Display Defaults**.
- Touch Enter (**E**) key to select the option.

Set Display Default will display the following option:

- Display Zones with Banner
- Display Zones without Banner
- Display Modules with Banner (Bar Graph)
- Display Modules without Banner (Bar Graph)



**Figure 5-78 Default Display Module**



**Figure 5-79 Banner Selection**

The Banner is a larger box with the words “Gas Detection System Condition: Safe” (See Figure 5-80 Module Banner On)

When Zones are displayed as default any zone can be selected and the Bar Graph for that Zone will be displayed.

When the Bar Graph is displayed vertical bars represent gas concentrations and change color based on alarm status. The vertical scale of the bar is always 100% of the full scale for the specific sensor module. When more than 10 sensor modules are connected to the Controller page navigation keys allow access to successive Bar Graph screens.

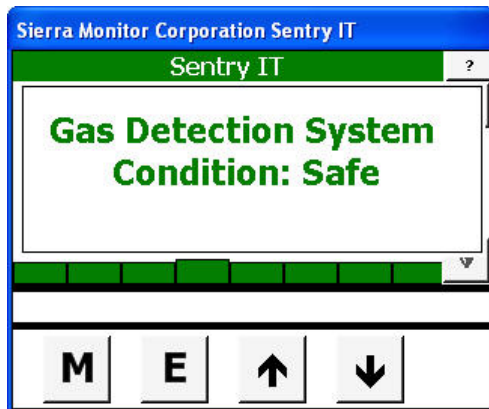


Figure 5-80 Module Banner On

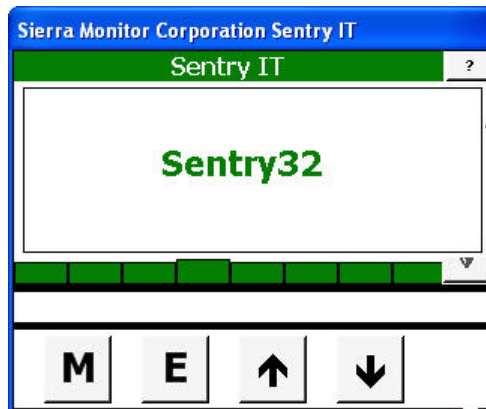


Figure 5-81 Module Banner On

The bars display colors to indicate that a sensor module has one of the following conditions:

- **Flashing Red** - unacknowledged alarm.
- **Red** - acknowledged alarm.
- **Amber** – warning
- **Green** – normal (See Figure 5-82 Normal Display).

The Condition Safe Banner disappears upon alarm or touching the screen.

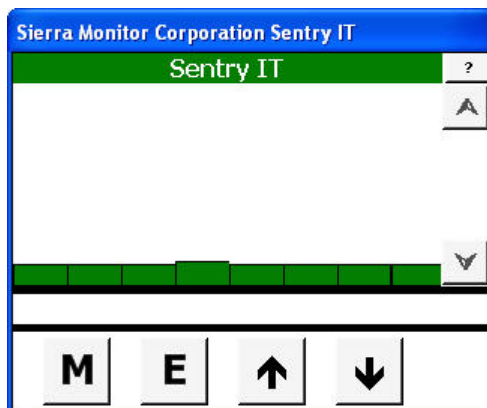


Figure 5-82 Normal Display

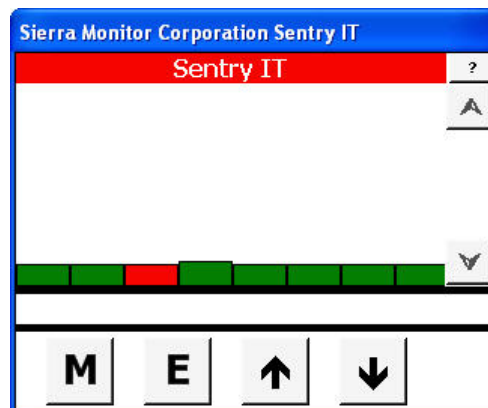
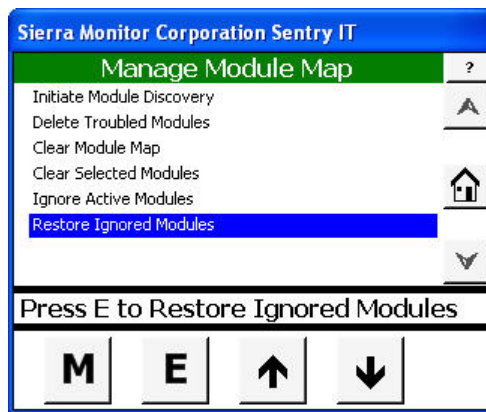


Figure 5-83 Alarm Condition

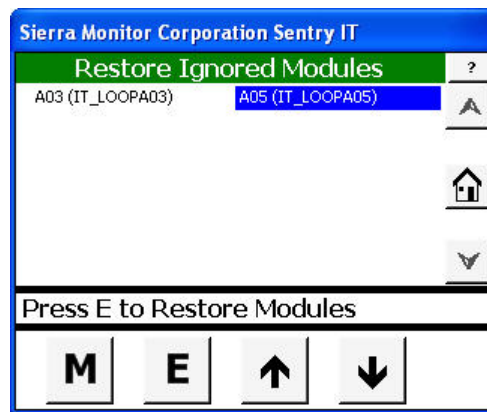
#### 5.5.1.7.7 Restore Ignore Modules

Restore Ignore Module function restores previously ignored module (s) to active mode. List of previously ignored module(s) is provided for restore operation.

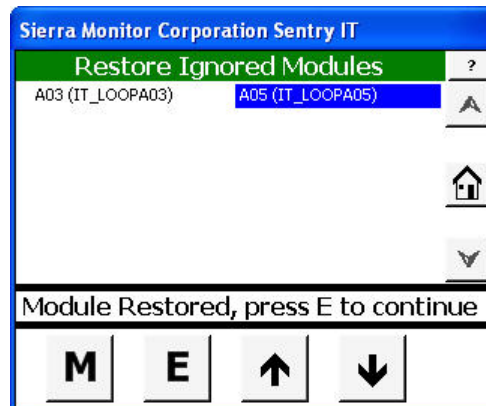
- Select **Restore Ignore Modules**
- Touch Enter (**E**) key to display the ignore modules list.
- Select Module(s) to be restored.
- Touch Enter (**E**) to restore.
- Touch Enter (**E**) key again after “Module Restored, press E to continue” message. appears



**Figure 5-84 Restore Ignored Modules**



**Figure 5-85 Selected Modules**



**Figure 5-86 Restored**

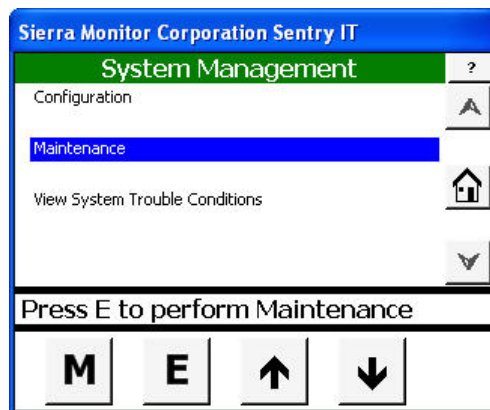
### 5.5.2 Maintenance

System maintenance allows users to define sensor module parameters, manually control the Sentry IT, and manage the data files.

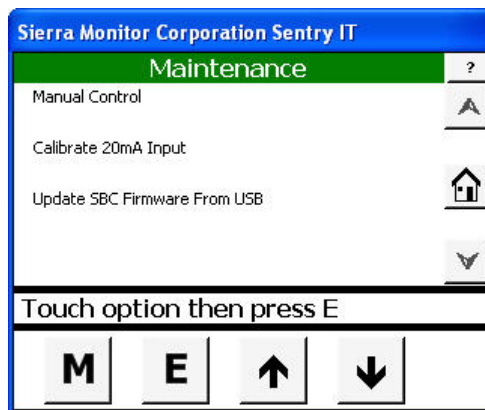
- Select **Maintenance** module.
- Touch Enter (**E**) key to select the module.

Maintenance Module provides, following sub menus.

- Manual Control
- Calibrate 20mA Input
- Update SBC Firmware from USB



**Figure 5-87 Maintenance Menu**

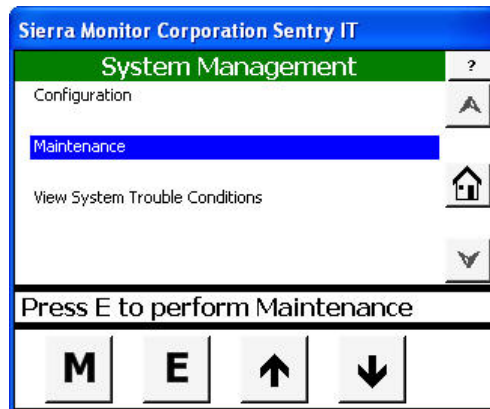


**Figure 5-88 Maintenance Sub Menu**

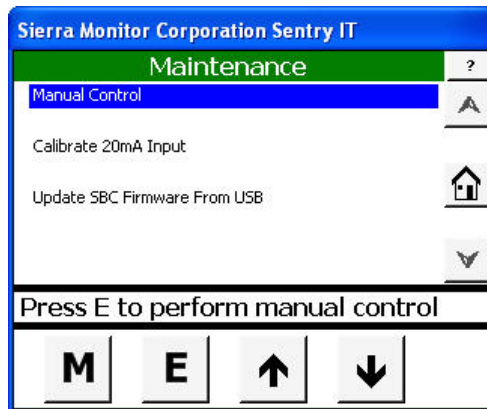
### 5.5.2.1 Manual Control

Module(s) can be set to different states by forcing module values manually.

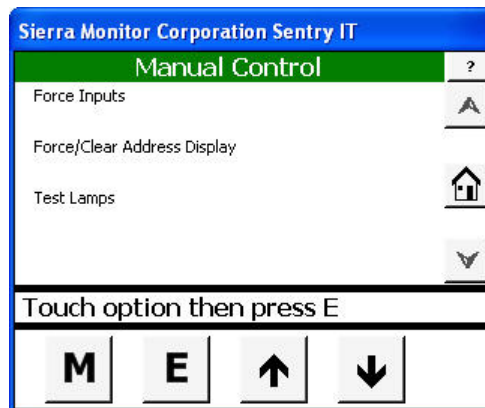
- Select **Maintenance** Module.
- Touch Enter (**E**) to select the module.
- Select **Manual Control** Menu.
- Touch Enter (**E**) to select the Manual Control Module.



**Figure 5-89 Maintenance Module**



**Figure 5-90 Manual Control Module**



**Figure 5-91 Manual Control Options**

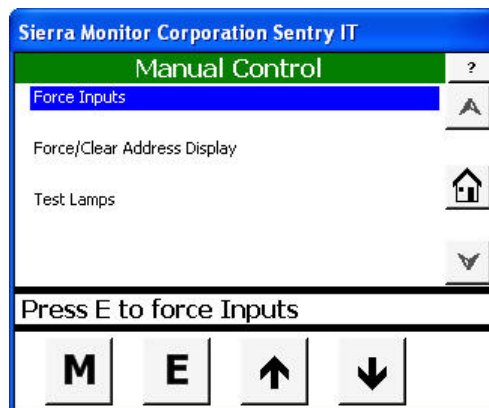
Manual control Module contains the following sub functions:

- Forced Inputs
- Force/clear Address Display
- Test Lamps

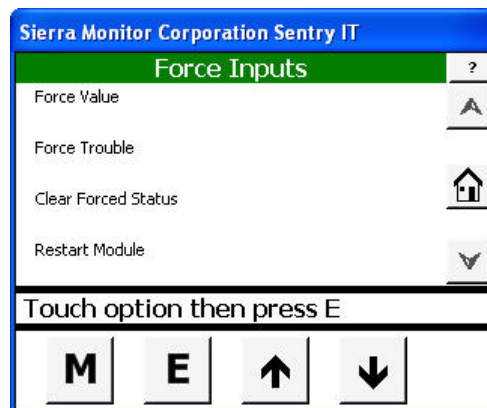
### 5.5.2.1.1 Force Inputs

Module(s) can be set to different states by forcing values manually.  
Forced Input Module provides following sub functions.

- Force Value
- Force Trouble
- Clear Forced Status
- Restart Module
- Select **Force Inputs** option
- Touch Enter (**E**) key.



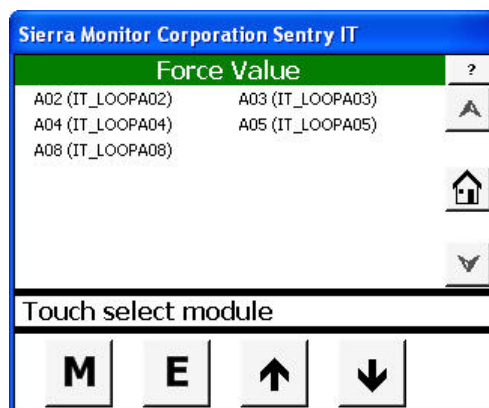
**Figure 5-92 Force Inputs**



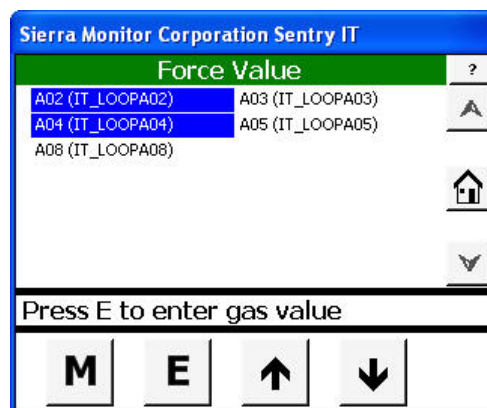
**Figure 5-93 Force Value**

System will display available module(s) for selection.

- Make a selection from the list, by touching the available module(s).
- Touch Enter (**E**) key to accept the selection.



**Figure 5-94 Module Selection**



**Figure 5-95 Selected Modules**



- Touch Enter (**E**) again to enter gas value.
- Touch Gas Value Field to activate Keyboard
- Enter forced value and touch Keyboard Return key to complete the entry (see Figure 5-100 Force Address Display).

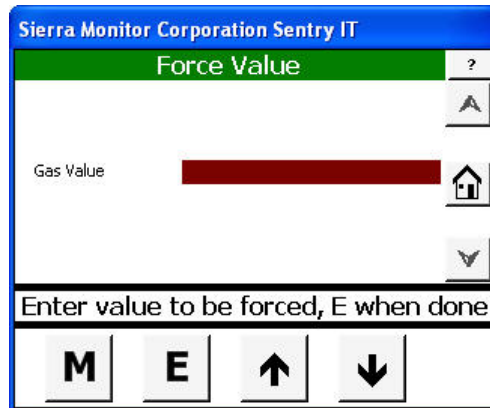


Figure 5-96 Gas Value

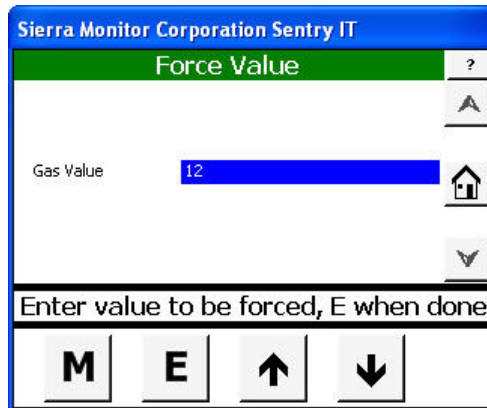


Figure 5-97 New Gas Value

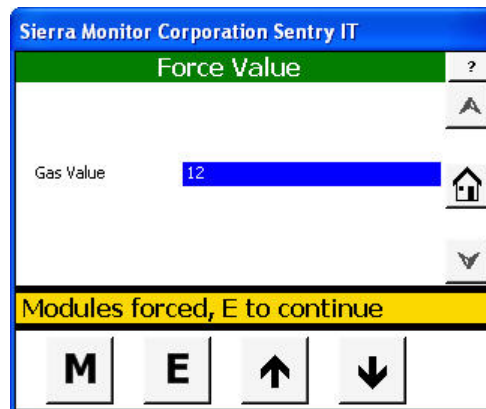
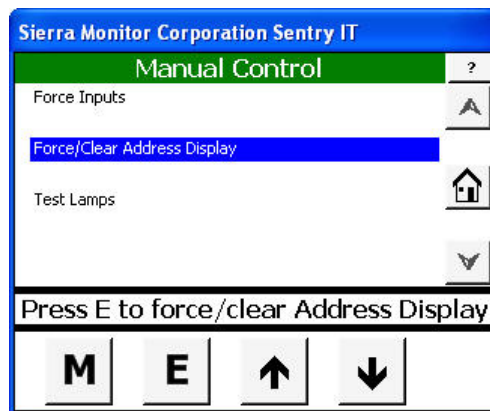


Figure 5-98 Process Completed

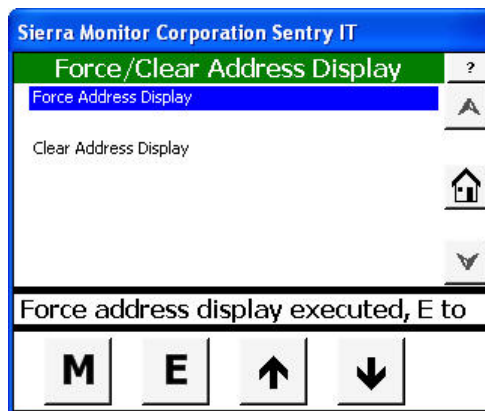
- Touch Enter (**E**) key to complete the process after display prompt sign.

### 5.5.2.1.2 Force Address Display

- Select Force Address Display.
- Enter **(E)** key to active the module.
- Enter **(E)** again after system prompts “Force address display executed, E to continue”.



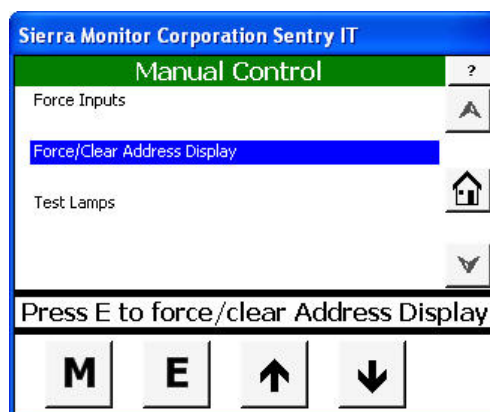
**Figure 5-99 Force /Clear Address**



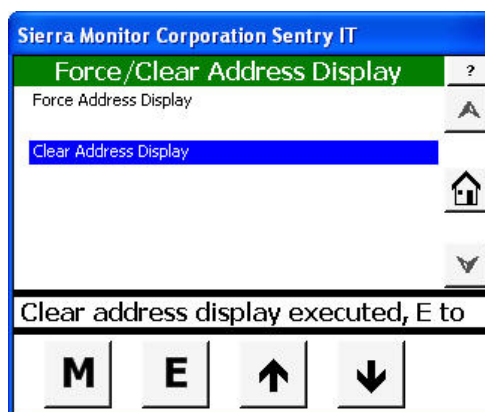
**Figure 5-100 Force Address Display**

### 5.5.2.1.3 Clear Address Display

- Select Force/Clear Address Display Module
- Enter **(E)** Key to active the module.
- Enter **(E)** key again after system prompt “Clear address display executed, E to continue”



**Figure 5-101 Force Clear**

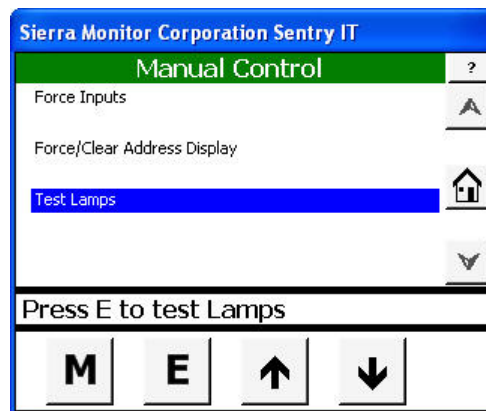


**Figure 5-102 Clear Display**

#### 5.5.2.1.4 Test Lamps

Test lamp function tests front panel LED lamps. Once this function is activated, LED lamps sequentially will turn on and off. Sequence starts from Blue Lamp and moves upwards to Green, Amber, Red and back to Green to complete the test cycle.

- Select Test lamp module
- Touch Enter (**E**) key to activate the test function



**Figure 5-103 Test Lamps**

### 5.5.2.2 Calibrate 20mA Input

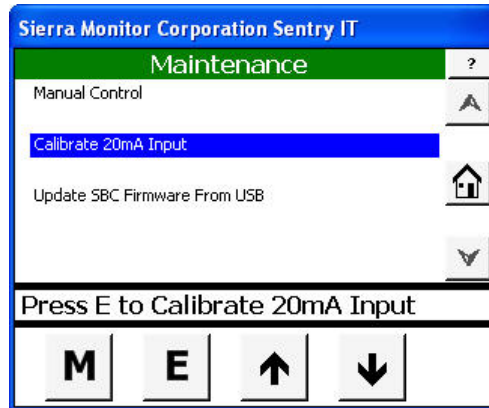


Figure 5-104 Calibrate 20mA Input

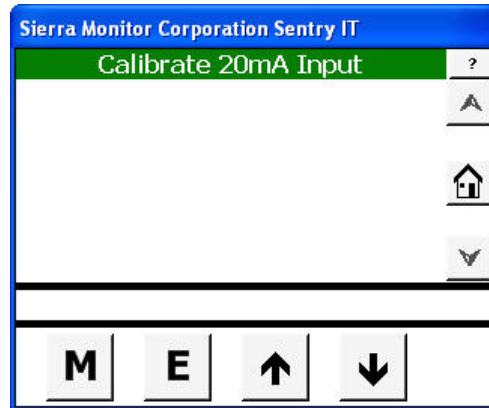


Figure 5-105 20mA Calibration

### 5.5.2.3 Update SBC Firmware from USB

Reserved for future expansion, currently not available to user.

- Select **Update SBC Firmware from USB**.
- Touch Enter (**E**) key.

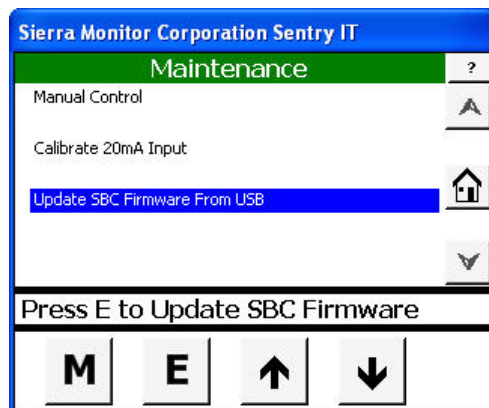


Figure 5-106 SBC Firmware Update

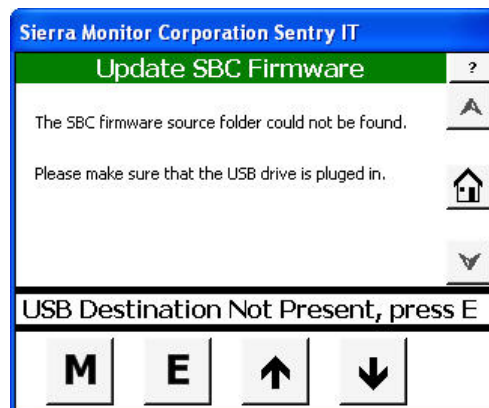


Figure 5-107 No USB Firmware

### 5.5.3 View System Trouble Conditions

Troubled condition(s) of modules can be viewed using view system trouble conditions module.

- Select **View System Troubled Conditions** option.
- Touch Enter (**E**) key to select.

Status of any troubled module(s) will be displayed as noted below.

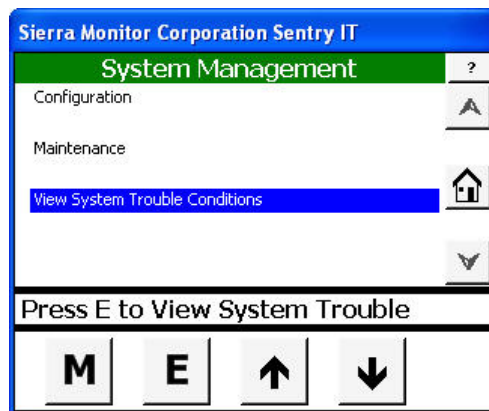


Figure 5-108 View System Trouble

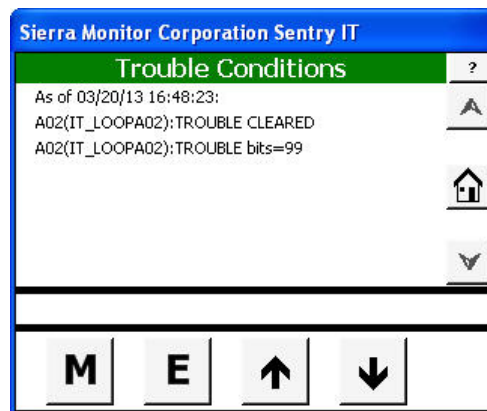


Figure 5-109 Trouble Conditions

### 5.6 Module Summary

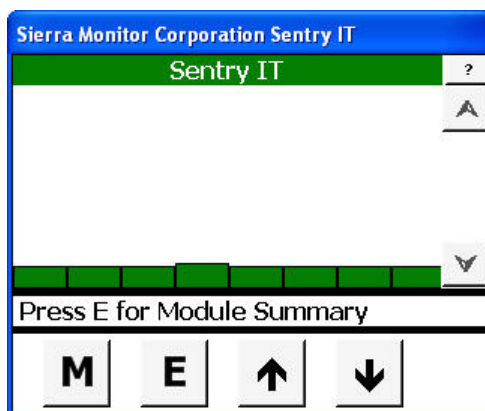
The Module Summary page allows the user to select a module for the purpose of viewing module details. The information includes physical address, module number, module tag, and gas tag.

- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select the **Module Summary** module.
- Touch Enter **(E)** key.

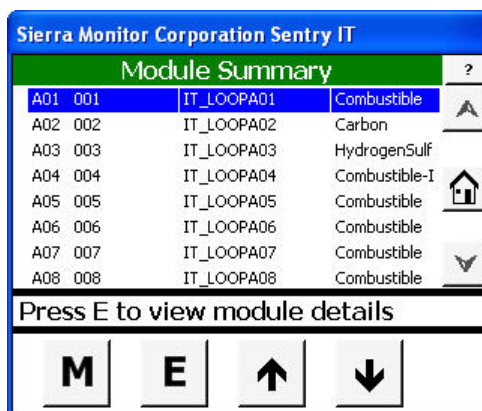
Display will show the sensor modules in numerical order. Touch the Down Navigator key as necessary to locate the module of interest.

- Select the module of interest
- Touch Enter **(E)** key to display the module parameters.
- 

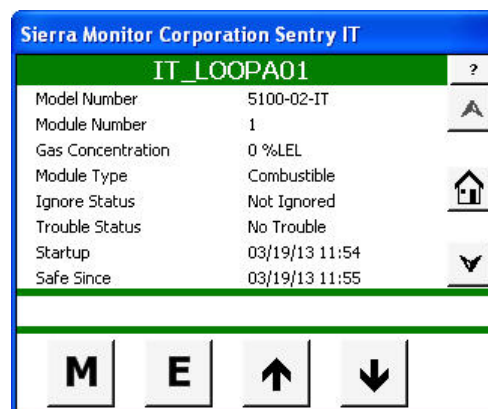
When the module parameters are displayed three screens of data can be scrolled Up and Down using the Navigators key.



**Figure 5-110 Module Summary Mode**



**Figure 5-111 Module Summary**



**Figure 5-112 Module Summary Cont.**

Module summary parameters are listed below:

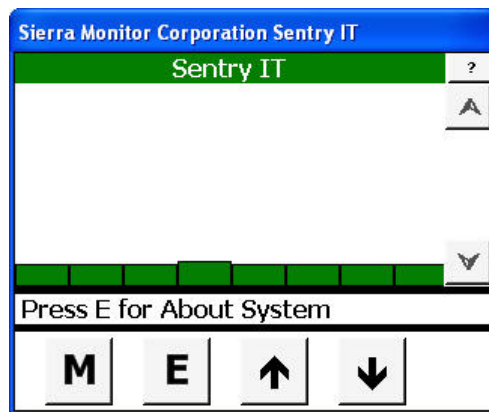
<b>Model Number</b>	Model number of the selected module
<b>Module Number</b>	System Module Number
<b>Gas Concentration</b>	Current gas reading
<b>Module Type</b>	Combustible, Toxic or Oxygen module
<b>Ignore Status</b>	Ignored for alarm processing
<b>Trouble Status</b>	If module is in a Trouble state
<b>Startup</b>	Latest date and time of module power up
<b>Safe Since</b>	
<b>Days to Next Calibration</b>	Calibration countdown in days
<b>Calibration Gas Type</b>	Gas to be used for calibration
<b>Calibration Level</b>	Gas concentration for calibration
<b>Gas Range</b>	Measuring range of the module
<b>Display Gas Type</b>	Gas name for controller displays
<b>Warning Relay</b>	Warning level & latch/non latch setting
<b>Last Warning Occurrence</b>	Date & time of last Warning
<b>Alarm Relay</b>	Alarm level & latch/non latch setting
<b>Last Alarm Occurrence</b>	Date & time of last Alarm
<b>Min Occurrence</b>	Date & time of lowest reading
<b>Min Gas</b>	Lowest gas reading – generally zero
<b>Max Occurrence</b>	Date & time of highest reading
<b>Max Gas</b>	Highest gas reading
<b>IT Code Level</b>	Version control number
<b>IT Code Version</b>	Software release number

**Table 5-3 Module Summary Contents**

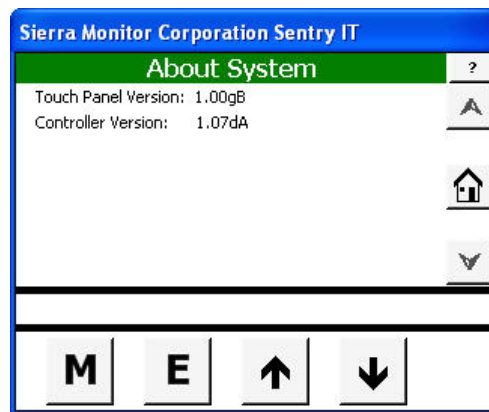
## 5.7 About System

About system module provides the latest operating system and LCD Touch panel firmware revision.

- From the Home page press Touch Mode **(M)** key to sequence through the modes.
- Select the **About System** module.
- Touch Enter **(E)** key.



**Figure 5-113 About System**



**Figure 5-114 Firmware Versions**

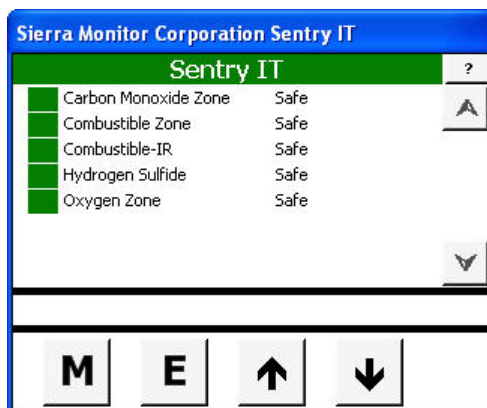
## 5.8 Zone Assignment

Modules can be assigned (grouped) into single or multiple zones. Zones also can be group into following categories:

- Zones for display
- Zones for Alarm Logic

Zone assignments are done via Commander Logic Program file. View section 5.5.1.6 for programming requirement.





**Figure 5-115 Zone Example**

## 6 Appendix

### 6.1 Customizing Commander Logic

## 7 Troubleshooting

### 7.1 Description of problem

### 7.2 Collect the data

### 7.3 Module Detail

#### 7.3.1 Select Module by Number (in progress)

#### 7.3.2 Determine cause

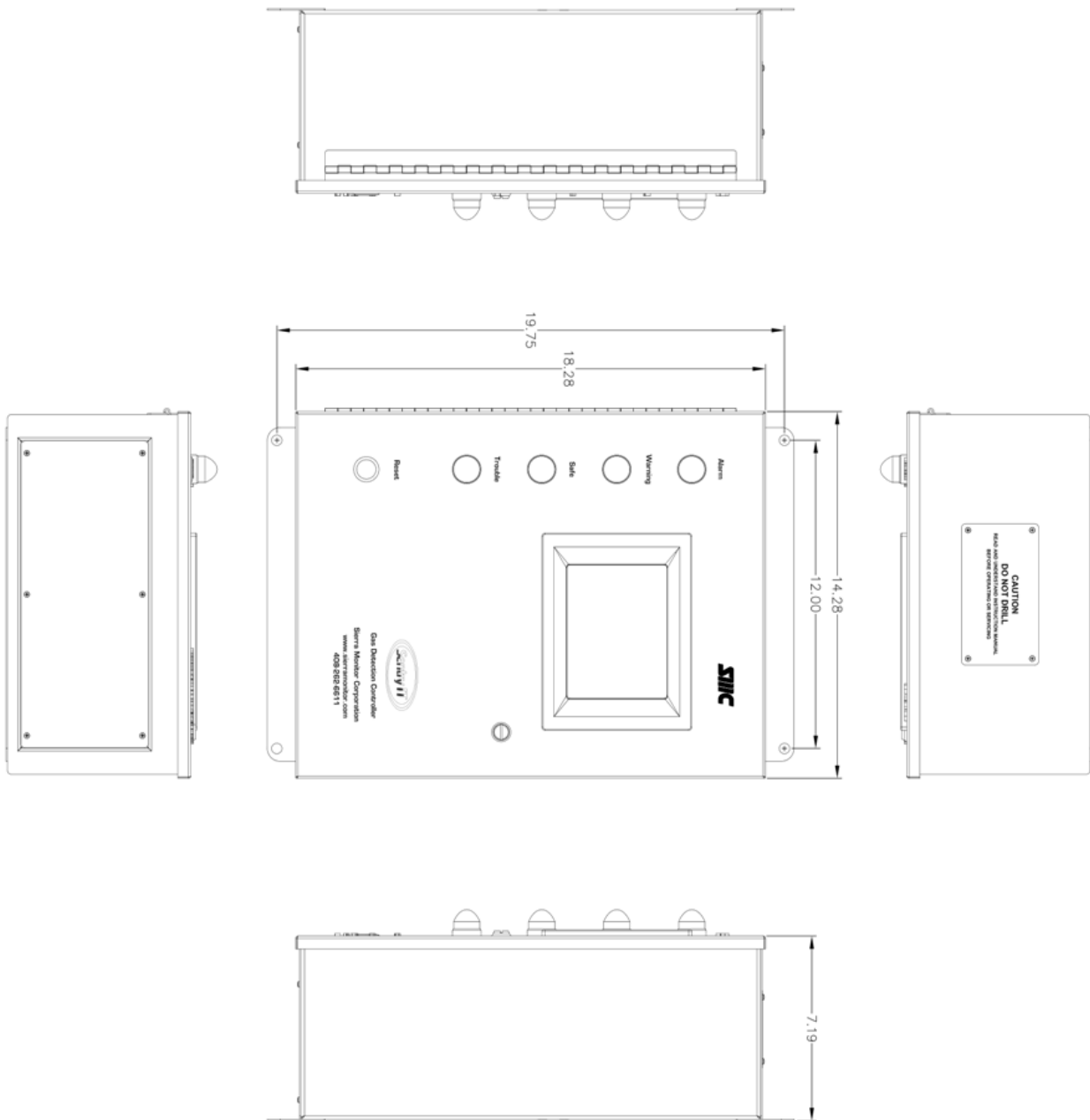
#### 7.3.3 Diagnostic

### 7.4 Fix it

## 8 APPENDICES

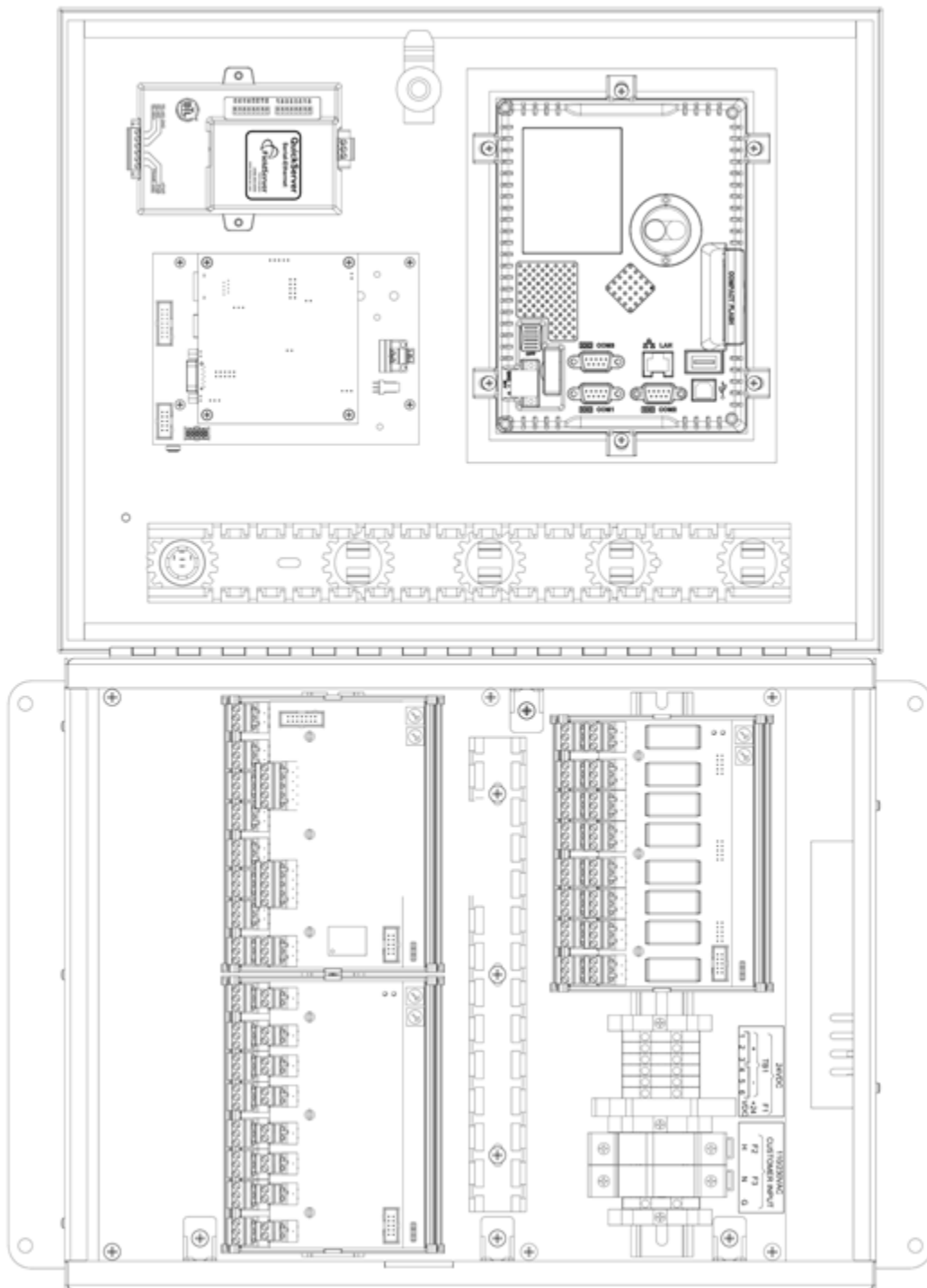
## 9 Drawings

### 9.1 Enclosure (Front panel)



**Drawing 1 Font panel**

## 9.2 Enclosure (Inside)



**Drawing 2 Inside the Enclosure**