



## Section 4 Operation

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This section explains common procedures performed from the panel, descriptions of top-level menu items, and alarm and trouble conditions.

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## Available User Interfaces

The MAAP can be operated from:

- **The on-board keypad** All functions are available from the keypad. However, because the configuration of the MAAP is typically extensive and complex, we recommend using the Monaco Addressable Planner software to configure your MAAP.
- **A terminal, or a computer running terminal-emulation software, connected to the MAAP** This is similar to using the on-board keypad except that you can display more information at a time, and the **Display Meters** feature is not available from the terminal.
- **A Remote Display** A subset of MAAP functions are available from the Monaco Remote Display. Functions include displaying and scrolling troubles and alarms, and clearing troubles and alarms from the MAAP. See the documentation provided with the Remote Display for more information.

This section describes how to operate the MAAP from the keypad and terminal.

Monaco recommends using the Monaco Addressable Planner for most configuration tasks. For information on using the Planner, see the Monaco Addressable Planner online help.

## Using the Keypad or Terminal Keyboard

Wake up the keypad on the MAAP or a terminal connected to the MAAP by pressing **[0]**. (For information on using HyperTerminal, see “[Using Terminal Mode](#)” on page 4-6.) When you are using a terminal, then the keypad on the MAAP cannot be used, and vice versa.

You can exit the displayed menu and return to display mode by choosing **[0] Exit Menu** from the main menu. When no user activity occurs for five minutes, the LCD returns to normal display mode, and the terminal displays `Menu Exited`.

## Display Modes

The information displayed on the MAAP LCD or terminal depends on current system status and user input. There are five display modes:

- **Normal display** Displays date/time (on LCD only).
- **Alarm/trouble silence pending** Automatically scrolls current alarms or troubles, while the MAAP awaits alarm/trouble acknowledgement.
- **Alarm/trouble display** Displays the quantity of alarms and the quantity of troubles.
- **Local menu** Displays menus on the LCD while processing input only from the local keypad. (The terminal is locked out of the panel while the keypad is in use, though there is no message on the terminal to indicate this.)
- **Terminal menu** Displays menus on the terminal while processing input from the terminal only. The panel LCD reports `TERMINAL IN USE`. The keypad is disabled.

At power up, if no alarm or trouble condition is found, the MAAP starts in normal display mode. Otherwise the MAAP starts in alarm/trouble silence pending display mode, scrolling current alarms or troubles. The alarm or trouble must be silenced at the panel before further



action can be taken. (Alarms and troubles cannot be silenced via a terminal.) If an alarm or trouble occurs while in normal display mode, or one of the menu modes, the LCD and terminal revert to alarm/trouble silence pending mode, displaying the alarm or trouble conditions.

### Normal Display Mode

In normal display mode, the LCD displays the status, date, and time (in 24-hour format). The terminal's normal display mode is a blank screen, though it displays `Panel in Normal Operation` if the panel is reset and passes its self test while the terminal is active.

### Alarm/Trouble Silence Pending Mode and Alarm/Trouble Display Mode

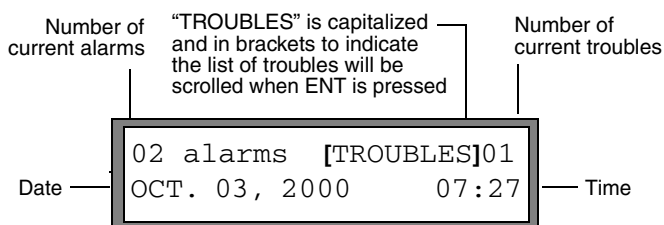
The terminal and the LCD revert to alarm/trouble silence pending mode when an alarm or trouble condition occurs. Once alarms and troubles have been silenced, a new alarm or trouble returns the displays to alarm/trouble silence pending mode. After all conditions have been silenced, you can select the menus from the keypad or terminal. When you end the menu entry session the keypad returns to alarm/trouble display mode. (The terminal does not return to this mode; instead it offers the standard `...Menu Exited...` message.)

The LCD and terminal display essentially the same information, but in different formats.

### LCD

In alarm/trouble silence pending mode, a list of current alarms or troubles scrolls automatically. The scrolling process first displays a two-line header, then automatically scrolls to an alarm/trouble condition every few seconds, looping back to the header after the last condition has been displayed, to start the process again. The MAAP maintains the current status of each device and zone, but the alarm and trouble lists display only the most recent 32 alarms and 32 troubles. If both alarms and troubles are occurring, only alarms scroll until **ALARM SILENCE** has been pressed, after which troubles scroll. When no additional conditions to silence remain, the LCD returns to alarm/trouble display mode, displaying the number of alarms (at top left), the number of troubles (at top right), and the date and time (on the second line). Capitalization and brackets indicate which type of list (alarms or troubles) is accessed by pressing **ENT**. If both troubles and alarms exist, pressing **CE** toggles between alarms and troubles.

**Figure 4-1**  
*LCD after all current alarms and troubles have been silenced*



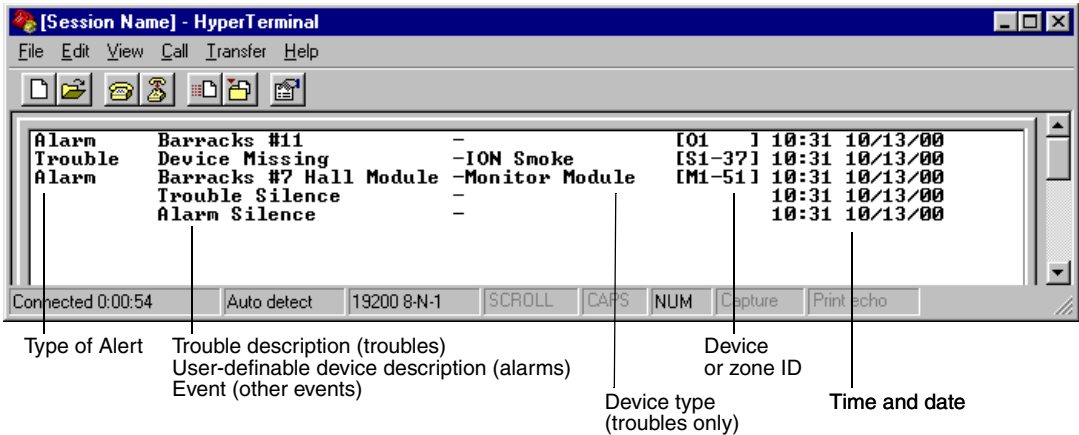
Pressing **ENT** for either Alarm Listing or Trouble Listing displays each alarm or trouble, one at a time, in the order in which they were received.



### Terminal

Each new alarm, trouble, or other event is displayed on the terminal as a one-time message. Alarms and troubles appear in the order in which they occur. You cannot access the panel via the terminal until alarms and troubles have been silenced at the panel. Once alarms have been silenced the terminal displays Alarm Silence. Once troubles have been silenced the terminal displays Trouble Silence. Each event is listed with the source, time, and date. The alert type is specified for alarms and troubles.

Figure 4-2  
Terminal screen showing troubles and alarms



## Planner Terminal Mode

The Planner terminal mode enables you to use a Windows computer as a terminal for the MAAP. The advantage of using terminal mode rather than a dumb terminal is that you can save data in a text file.

### Before Beginning

Before using the Planner in terminal mode, ensure that:

- You have the RS-232 communications cable supplied with the Planner software
- All alarms and troubles have been acknowledged on the MAAP
- HyperTerminal is installed on your computer

#### ≡ To verify HyperTerminal is installed

- 1 Using Windows Explorer, navigate to C:\Program Files\Accessories.
- 2 If you see a folder named HyperTerminal or Hypert~1, the application is installed. Go to "Using Terminal Mode" below.
- 3 If neither folder exists, contact Microsoft for information on installing HyperTerminal. (HyperTerminal is included with Microsoft Windows software but is not installed by default with "typical" installations of certain versions of Windows.)



## Using Terminal Mode

### ≡ To use the Planner in terminal mode

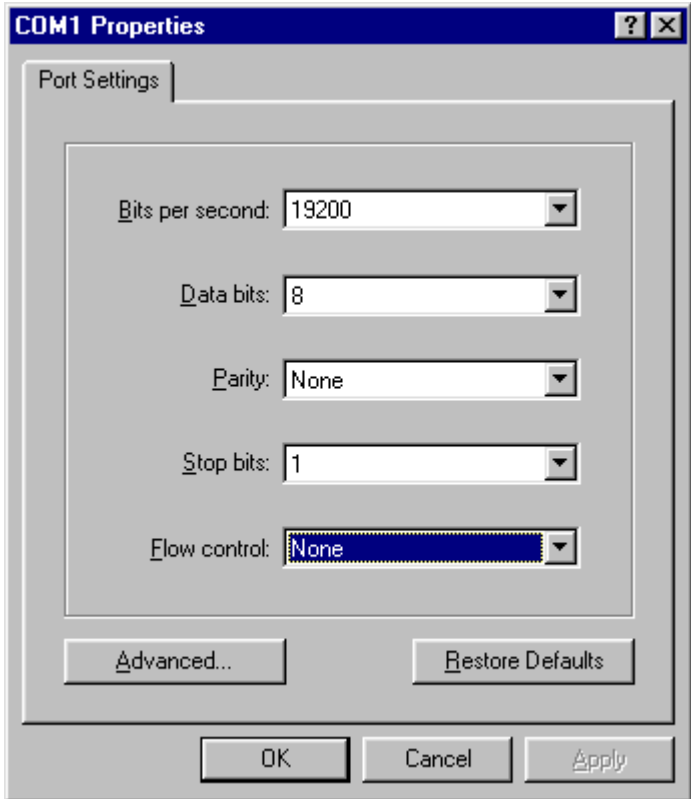
- 1 Connect the RS-232 communications cable to the PC and to the AAC:
  - Connect the RJ-45 end of the cable to the RS-232 A port on J13 of the AAC.
  - Connect the 9-pin end of the cable to the serial port specified by the Comm Port setting in the Planner. The Comm Port is located on the back of the PC running the Planner software.
- 2 Access Terminal mode in one of these ways:
  - Select **Utilities > Terminal mode**.
  - OR
  - Press **[Alt] [U]** then **[T]**.
- 3 If this is the first time you have run HyperTerminal, you will be asked if you want to set up a modem. Click **[NO]**. The following window appears:



- Enter a name for the connection and, if you wish, select an icon. (The icon provides a visual representation of the file, but does not affect its function.) When you exit this application, you can save the connection configuration. Refer to the online help for HyperTerminal if you have questions about running the application.
  - Click **[OK]**.
- 4 Set up the connection:

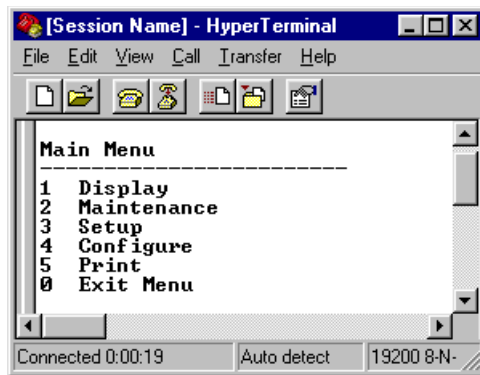


- Select Direct to Comx (x = the comm port you are using for communication).
- 5 Set up the Comm Port properties:

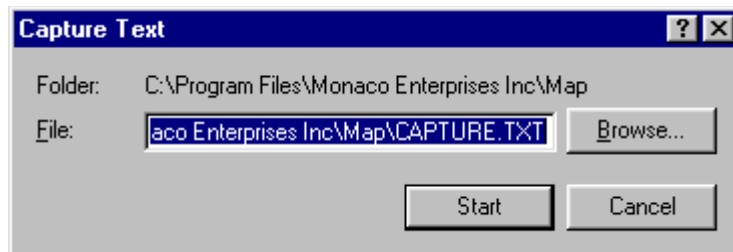




- Ensure the following settings are selected, then click **[OK]**:
  - Bits per second: 19200
  - Data bits: 8
  - Parity: None
  - Stop bits: 1
  - Flow control: None
- 6 Press **[0]** on the keyboard. The MAAP main menu appears, providing access to the same menus available on the MAAP.



- 7 To save a text record of your HyperTerminal session, choose **Transfer > Capture Text**. The Capture Text dialog appears.

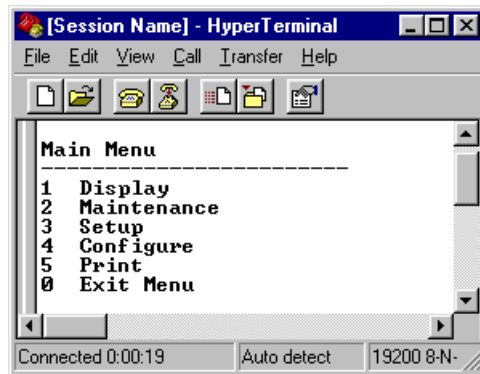


Use the browse button to navigate to the location where you want to save the captured text, then enter a name and click **Save**. Click **Start**.

- 8 To stop capturing text, choose **Transfer > Capture Text > Stop**. The captured file can be opened in any text editor. For additional information, see the HyperTerminal online help.

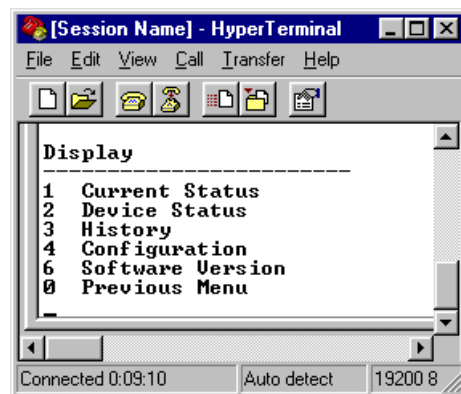


## Main Menu



You manage the MAAP via a variety of menu items. This section describes each of the options in the Main Menu.

## Display

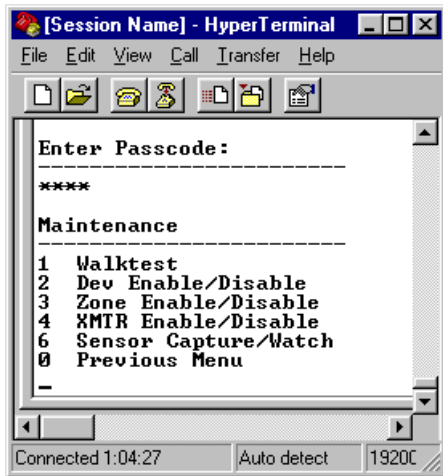


Use the Display menu to:

- **[1] Current Status** View current alarms, troubles, early warnings, maintenance alerts, disabled devices, or devices or system events for which transmission is disabled
- **[2] Device Status** View the status of a specific addressable device, all addressable devices of a particular type, all addressable devices addressed through a particular ADC, or all addressable devices
- **[3] History** View the 500 most recent events (alarms, troubles, early warnings, maintenance alerts, or all events)
- **[4] Configuration** View configuration information for, and configure, the panel, installed ADCs and Expansion Cards, actions, remote displays, system events, conventional inputs and outputs, control modules, sensors, monitor modules, or all of the above
- **[5] Display Meters** (available from the LCD/keypad only) View ac voltage, unregulated voltage, panel voltage, panel current, battery voltage, battery charge current, or battery discharge current
- **[6] Software Version** View the software version for the electronic assembly, AAC, and ADCs



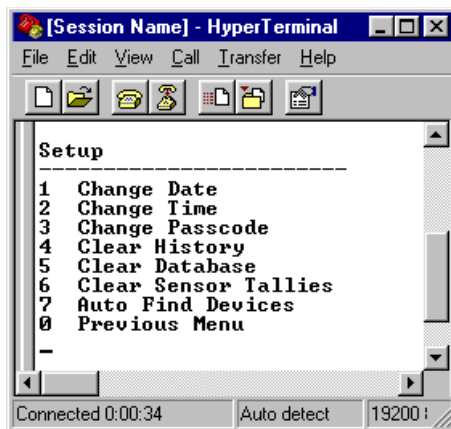
## Maintenance



You must enter a passcode to access the maintenance menu. Use the maintenance menu to:

- [1] **Walktest** Put the panel in “walktest” mode, so that you can test alarms without transmitting to the Central Receiving System
- [2] **Dev Enable/Disable** Enable or disable addressable devices
- [3] **Zone Enable/Disable** Enable or disable zones
- [4] **XMTR Enable/Disable** Enable or disable alarm transmission for specific devices and zones, or for all ZID or ZID Position numbers.
- [6] **Sensor Capture/Watch** Watch the status of a specific addressable device; the capture feature is not yet implemented

## Setup



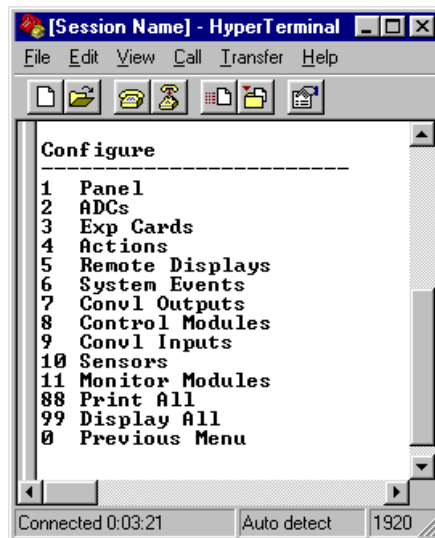
Use the Setup menu to:

- [1] **Change Date** Set the date
- [2] **Change Time** Set the time
- [3] **Change Passcode** Change the passcode (requires passcode)



- **[4] Clear History** Clear the history (requires passcode)
- **[5] Clear Database** Clear the MAAP database of all configuration information (requires passcode)
- **[6] Clear Sensor Tallies** Clear the MAAP's record of the number of times sensors configured for verification have detected an alarm condition, but the condition did not continue long enough for an alarm to be reported to the panel (requires passcode)
- **[7] Auto Find Devices** Find addressable devices connected to installed and configured ADCs (requires passcode)

## Configure

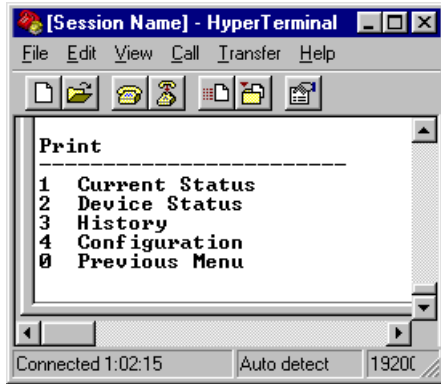


Monaco recommends using the Monaco Addressable Planner for configuring the MAAP; however, it is possible to configure via the LCD/keypad or a terminal. You must enter a passcode to access the configuration menu. Use the Configure menu to:

- **[1] Panel** Configure panel identification, number of tones for DTMF transceivers, and trouble resounding; specify onboard zone and bell classes, and ac voltage (for meters)
- **[2] ADCs** Configure and delete ADCs
- **[3] Exp Cards** Configure and delete Expansion Cards
- **[4] Actions** Create and identify actions
- **[5] Remote Displays** Configure and delete Remote Displays
- **[6] System Events** Configure system events
- **[7] Convl Outputs** Configure conventional outputs
- **[8] Control Modules** Configure control modules
- **[9] Convl Inputs** Configure conventional outputs
- **[10] Sensors** Configure addressable sensors
- **[11] Monitor Modules** Configure monitor modules
- **[88] Print All** Print all configuration data
- **[99] Display All** Display all configuration data



## Print



The print menu is virtually the same as the display menu, except that it does not include [6] **Software Version**. Use the print menu to print:

- [1] **Current Status** Print current alarms, troubles, early warnings, maintenance alerts, disabled devices, or devices or system events for which transmission is disabled
- [2] **Device Status** Print the status of a specific addressable device, all addressable devices of a particular type, all addressable devices addressed through a particular ADC, or all addressable devices
- [3] **History** Print a list of the previous 500 alarms, troubles, early warnings, maintenance alerts, or all events
- [4] **Configuration** Print configuration information for the panel, installed ADCs and Expansion Cards, actions, remote displays, system events, conventional inputs and outputs, control modules, sensors, monitor modules, or all of the above

## Alarm Types

The MAAP supports eight alarm types. The following table shows which alarms types are available for which zone and device types.

Alarm Type	Addressable Sensors	Addressable Monitors	Onboard and Expansion IDCs	Auxiliary Inputs
Standard	▪	▪	▪	▪
Supervisory	▪	▪	▪	▪
Detector Verification	▪		▪	
Security		▪		
Tamper				▪
Waterflow			▪	▪
Positive Alarm Sequence			▪	▪
Master Box Operation				▪



## Standard

This is the most common type of alarm. An alarm occurring on a zone or addressable device type is processed without delay. The following zone and device types can be configured to activate this type of alarm:

- IDCs
- Auxiliary input
- ZEC
- Addressable sensor
- Addressable monitor module

When an alarm occurs, the ALM LED illuminates, the LCD shows the zone input number/device address and description, and an alarm message with the ZID number (M-1 MAAP) or ZID Position number (M-2 MAAP) is transmitted to the Central Receiving System. Actions configured to initiate when an alarm condition occurs on the zone or device from which the alarm originated, are activated.

The addressable device or zone remains in alarm condition until the **PANEL RESET** key is pressed. Only those devices or zones for which alarm conditions have been corrected are reset.

## Supervisory

This type of zone monitors critical equipment malfunctions such as valve closure, loss of pressure, high or low temperature, etc. This is a specialized, instantaneous alarm. The resulting alarm does not require a standard fire alarm response or evacuation of the premises, but it does require attention. The following zone and device types can be configured to activate this type of alarm:

- Onboard or expansion IDCs
- Auxiliary input
- Addressable sensor
- Addressable monitor module

When an alarm occurs on a device or zone configured as supervisory:

- The ALM LED illuminates
- The LCD shows an alarm with the zone input number/device address and description
- The MAAP audible alert sounds every one-half second (the **ALARM SILENCE** key may be pressed to silence it)
- An alarm message with the ZID number (M-1 MAAP) or ZID Position number (M-2 MAAP) is transmitted to the Central Receiving System
- Configured actions are activated

The addressable device or zone remains in alarm condition until **PANEL RESET** is pressed, unless auto-reset is enabled, in which case the alarm ends when the condition causing it ends.



### Detector Verification

This setting provides a way to verify that an alarm is not a momentary condition. Smoke detectors that are powered by the initiation loop can be verified; those that use auxiliary power (four-wire detectors) cannot be verified. The following zone types and devices can be configured for detector verification:

- Onboard and expansion IDCs with two-wire detectors
- Addressable smoke sensors

When the MAAP detects an alarm on a conventional zone set for verification, it waits the amount of time specified for verification less four seconds, then interrupts power to the zone circuits for two seconds. If the alarm reactivates within two seconds, the MAAP processes the condition as a standard alarm.

When an alarm condition on an addressable sensor set for verification is detected, the MAAP waits the amount of time specified for verification to determine whether the sensor is still in alarm. If it is, the MAAP processes the condition as a standard alarm.

When specifying verification time in device configuration, you may choose whether audible verification is on. If the device is connected to a sounder base, specifying that audible verification is on causes the sounder base to activate during the verification period. This alert provides notification that the condition causing the notification, if it is easily alleviated (for instance, smoke from cooking), should be quickly remedied to avoid causing an alarm condition.

### When Not to Use Detector Verification

Detector Verification should never be used on a conventional initiating-device circuit that includes contact devices such as heat detectors or manual stations, since the verification procedure would significantly delay response to a true alarm condition. The MAAP Auxiliary Input circuits cannot be used or programmed for this type of alarm since loop power is required for the verification process.

### Security

When an addressable monitor module is configured for security purposes, a trouble condition (such as an open) is reported to the MAAP as an alarm. Only addressable monitor modules can be configured for this type of alarm.

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▼ **NOTE** *Because a trouble condition on a monitor module configured for security is reported as an alarm, such a device cannot report a trouble to the MAAP. An open or a missing device will be reported as an alarm.*

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When a security alarm occurs, the ALM LED illuminates, the LCD shows the device address and description, and an alarm message with the ZID or ZID Position number is transmitted to the Central Receiving System. Security alarms cannot be configured to activate General Alarm. Actions configured to initiate when a security alarm condition occurs on the monitor module from which the alarm originated, are activated.

If a short caused the zone alarm, the zone remains in alarm until the **PANEL RESET** key is pressed, unless auto-reset is enabled. If auto reset is enabled, the alarm ends when the condition causing it ends.

If an open caused the alarm, the zone auto resets, regardless of the auto-reset setting (enabled or disabled) in the configuration programming of the MAAP.

## Tamper

A tamper zone is typically connected to a switch that indicates the panel door has been opened or otherwise manipulated.

Only the AUX INPUT terminals can be configured for Tamper.

When a tamper zone is activated, the TBL LED illuminates, the LCD shows a trouble with the zone input number and zone description. The panel audible alert may or may not sound, depending on the configuration programming, and a tamper message is transmitted to the central supervising station with the Monaco Analog Addressable Panel address. If the panel audible alert sounds, it will be turned off when the **TROUBLE SILENCE** switch is pressed or when the zone is returned to normal. Actions configured to initiate when a Tamper condition occurs on the zone from which the alarm originated, are activated.

The zone remains in an alarm condition until the **PANEL RESET** key is pressed, unless auto-reset is enabled, in which case the alarm ends when the condition causing it ends.

A previous tamper condition can be viewed by choosing [1] **Display** > [3] **History** > [2] **Troubles**, then specifying the period for which you wish to view tamper data.

## Alarms Associated with AUX OUT

Three alarm types require association with the AUX OUT circuit. Only one of these alarm types (Waterflow, Positive Alarm Sequence or Master Box Operation) can be used on one MAAP since each uses the Auxiliary Output circuit for a different purpose. AUX OUT must be configured with the desired alarm type before the IDCs can be configured for that alarm type. Once AUX OUT has been configured for one of the three alarm types, the other two types will not be available options.

### Waterflow

A zone of this type monitors devices that detect water flow in a sprinkler system. This is a specialized alarm with a programmable delay option. When this alarm type is selected for a zone, the user enters a delay time of 0 to 60 seconds to indicate how long the alarm must remain on the input before it is processed. This helps prevent activation and reporting of alarms for intermittent flow switch operation due to pressure surges.

All conventional input zones can be configured for Waterflow.



When water flow is still detected after the programmed delay, the ALM LED illuminates, the LCD shows an alarm condition with the zone input number and zone description, an alarm message with the zone position is transmitted to the Central Receiving System and the AUX OUT circuit is activated. Actions configured to initiate when an alarm condition occurs on the zone from which the alarm originated, are activated. Devices connected to the Auxiliary Output circuit remain activated until the alarm is cleared by pressing **PANEL RESET**.

The zone remains in an alarm condition until **PANEL RESET** is pressed.

### Positive Alarm Sequence

Positive Alarm Sequence is a specialized zone type used only where a station in the protected area is constantly attended, and where it is necessary to avoid panic or to implement assisted evacuation procedures, such as a hospital. The MAAP uses the Auxiliary Output to sound a pre-alarm audible device such as a buzzer or chime at the attended station.

All conventional input zones can be configured for Positive Alarm Sequence.

When an alarm occurs on a Positive Alarm Sequence zone, the device on the Auxiliary Output circuit activates and the LCD shows PAS ALARM; however, the ALM LED does not illuminate, evacuation signaling circuits and relays do not activate, and the alarm is not transmitted.

If no one responds to the PAS ALARM warning by pressing the **ALARM SILENCE** key on the MAAP within 15 seconds, the device on the AUX OUT circuit turns off, and the MAAP processes the condition as a standard alarm.

If the **ALARM SILENCE** key is pressed within 15 seconds of the PAS alarm warning, designated personnel have 180 seconds (three minutes) to determine the cause of the alarm. If the **PANEL RESET** key is not pressed during the 180-second investigation period, a general alarm will be automatically activated. If the zone is returned to normal and the **PANEL RESET** key is pressed within the investigation phase, no alarm is processed and the LCD displays SYSTEM NORMAL.

If the zone is returned to normal, but the **PANEL RESET** key is not pressed within the 180-second investigation period, the MAAP processes the condition as a standard alarm. If the zone is not returned to normal, but the **PANEL RESET** key is pressed, the positive alarm sequence starts again.

### Master Box Operation

This type of zone provides for connection of a publicly accessible manual pull station to a MAAP auxiliary zone input.

Only AUX IN zones can be configured for Master Box Operation.

When the pull station is operated, the ALM LED illuminates and the LCD shows an alarm with zone input number and description. The MAAP uses the auxiliary output to turn on an audible or visible indicator at the manual pull station for three seconds to confirm alarm activation to the user. Actions configured to initiate when an alarm condition occurs on the zone from which the alarm originated, are activated.



The zone remains in an alarm condition until **PANEL RESET** is pressed, unless auto-reset is enabled, in which case the alarm ends when the condition causing it ends.

## Alarm Indication Summary

The following table indicates what happens when an alarm occurs. The LCD displays the information indicated in the LCD Message column of the table and automatically scrolls the message vertically until you press **ALARM SILENCE**; then, you need to use the up and down arrow keys to scroll the messages. If a message exceeds two lines, use the left and right arrow keys to scroll it. When the alarm is corrected, press **PANEL RESET** to clear it from the alarm list.

Alarm	LEDs lit	LCD Message	Panel Audible Alert	NACs	Control Modules	AUX OUT	Message to Central
Standard	ALM	ALARM <i>alarm number ID component description</i>	Off	If assigned	If assigned	On if user assigned	ALARM and ZID # or ZID Position #
Supervisory	ALM	<i>month dd hh:mm</i>	Beeps on and off	Off	If assigned	On if user assigned	ALARM and ZID # or ZID Position #
Detector Verification	ALM (after verification)	<ul style="list-style-type: none"> <li><i>alarm number = 01 to 32</i></li> </ul>	Off	If assigned	If assigned	On if user assigned	ALARM and ZID # or ZID Position #
Security	ALM	<ul style="list-style-type: none"> <li><i>ID = component designation; see “Component Identifiers for Items in Alarm or Trouble” on page E-4</i></li> </ul>	Off	If assigned	If assigned	On if user assigned	ALARM and ZID # or ZID Position #
Tamper	TBL		On steady if assigned	Off	If assigned	On if user assigned	TAMPER and transceiver address
Waterflow	ALM (after user set delay expires)		Off	If assigned	If assigned	On (non-silenceable)	ALARM and ZID # or ZID Position #
Positive Alarm Sequence	ALM (after Pre-Alarm Phase)	<ul style="list-style-type: none"> <li><i>component description = description of the ID</i></li> <li><i>month dd hh:mm = the month, day, and time</i></li> </ul>	Off	If assigned; can be silenceable or non-silenceable after the pre-alarm phase.	If assigned	On for 15 seconds unless ALARM SILENCE is pressed	ALARM and ZID # or ZID Position #
Master Box Operation	ALM	<p><b>NOTE</b> When the alarm is an early warning, (EW) appears after the alarm number.</p>	Off	Off	If assigned	On for 3 seconds	ALARM and ZID # or ZID Position #
<p><b>NOTES</b></p> <ul style="list-style-type: none"> <li>AOC outputs are on if assigned as a General Alarm, Device Alarm, or Zone Alarm.</li> <li>Zone power is only removed for Detector Verification on conventional zones.</li> <li>Relays K1 and K2 activate if user-assigned.</li> </ul> <p><b>IMPORTANT</b> Do not short bell circuits or auxiliary output when the panel is in a trouble or alarm condition. Doing so will damage the panel.</p>							



## Trouble Conditions

A “trouble” is a condition in which a MAAP component, an attached circuit, or a device attached to such a circuit, is not functioning in a manner that enables the system to operate correctly.

A “general trouble” is activated by all trouble types. The audible alert activates for a general trouble. Pressing **TROUBLE SILENCE** silences the audible alert and assigned output devices configured as silenceable, and causes the current trouble display to stop scrolling on the LCD. For information on using the MAAP in this mode, see [“Alarm/Trouble Silence Pending Mode and Alarm/Trouble Display Mode”](#) on page 4-4.

Addressable and conventional outputs, including AOCs and relays, can be configured to activate for general trouble. All of these except AOCs and relays can be configured as silenceable.

## Trouble Types

The MAAP identifies three types of trouble conditions.

### Zone Trouble

A trouble on an onboard or ZEC zone. All MAAP onboard and auxiliary input zones and all connected expansion zones, regardless of class or zone type, are supervised for open or single ground fault conditions (a short or double ground fault is processed as an alarm). When a trouble condition occurs on any of the zones, the TBL LED illuminates, the panel audible alert sounds, and the LCD displays a trouble condition with the zone input number and zone description. If a zone is supervised by an expansion card, the zone input is identified by the card type and number and the zone input number.

### Device Trouble

A trouble with an addressable device. When a trouble condition occurs on an addressable device, the TBL LED illuminates, the panel audible alert sounds, and the LCD displays a trouble condition with the device ID and user-entered description.

### System Trouble

A trouble with a MAAP component, such as the transceiver, the AAC or an ADC, an expansion backplane or installed expansion cards; or an ac fail or battery fault. For all system trouble conditions except when the transceiver has been shut down by the interrupt circuitry, the MAAP sends a message to the Central Receiving System. If the trouble is not with the battery or ac power, the message includes the system trouble ZID or ZID Position number; if the trouble is with the battery or ac power, the MAAP sends its transceiver address rather than the system trouble ZID number (M-1 MAAP) or ZID Position number (M-2 MAAP).



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## Listing Troubles

The MAAP can list current troubles and troubles stored in its database. The database stores the 500 most recent events.

### ☰ To list current troubles

- 1 From the main menu, select **[1] Display**, then press **ENT/ENTER**
- 2 Choosing **[1] Current Status**, then press **ENT/ENTER**
- 3 Choose **[2] Current Troubles**, then press **ENT/ENTER**

### ☰ To list troubles stored in the history database

- 1 From the main menu, select **[3] History**, then press **ENT/ENTER**
- 2 Choose **[2] Troubles**, then press **ENT/ENTER**
- 3 Specify the period for which you wish to view troubles, then press **ENT/ENTER**

## Returning the MAAP to Normal Display Mode

When a trouble other than an SLC fallback has been corrected, and no other troubles exist, the panel returns to normal. Panel reset is not required. An `End Trouble` message with the `ZID` or `ZID Position` number, or `End AC Fail/End Battery Fail` is transmitted to the Central Receiving System. In the case of an SLC fault, press **RESET (S3)** on the electronic assembly after the trouble has been corrected to return the panel to normal.

## Troubles

When a trouble occurs, the LCD displays the information indicated in the LCD Message column of the table and automatically scrolls the message vertically until you press **TROUBLE SILENCE**; use the up and down arrow keys to scroll the messages. If the message exceeds two lines, use the left and right arrow keys to scroll it. When the trouble is corrected, it is automatically cleared from the trouble list.



## Trouble Conditions

Trouble Type	LCD Trouble Description	Transmission	AOC	LEDs illuminated	Panel Audible Alert	NACs, K1 and K2 Relays, Control Modules	
On-Board Zone	TROUBLE <i>trouble number</i> <i>ID</i> <i>trouble description</i> <i>component description</i> <i>month dd hh:mm</i>  <ul style="list-style-type: none"> <li>▪ <i>trouble number</i> = 01 to 32</li> <li>▪ See “<a href="#">Component Identifiers for Items in Alarm or Trouble</a>” on page E-4</li> <li>▪ <i>component description</i> = description of the ID</li> <li>▪ <i>month dd hh:mm</i> = the month, day, and time</li> </ul>	Trouble, ZID # or ZID Position #	On if General Trouble or if user assigned	TBL	On steady	Activate if programmed with General Trouble or if user assigned to the specific zone in trouble	
Expansion Zone							
Non-Tamper Auxiliary Input Zone							
Addressable Sensor							
Addressable Monitor Module							
Addressable Control Module							On if General Trouble
Bell Open							
Bell Short							
AUX OUT Open							
AUX OUT Short							
ac Fail							Trouble, and transceiver number
Battery Fail							
<b>IMPORTANT</b> Do not short bell circuits or auxiliary output when the panel is in a trouble or alarm condition. Doing so will damage the panel.							



## Communication with the Central Receiving System

The M-1 MAAP and M-2 MAAP use different radio transmission protocols and work with different Central Receiving Systems.

- The M-1 MAAP uses Dual Tone Multi-frequency (DTMF) radio protocol to communicate with the D-500 Central Receiving System.
- The M-2 MAAP uses Frequency Shift Key (FSK) radio protocol to communicate with the D-700 Central Receiving System.

The MAAP initiates transmission when an addressable device or zone input status, supervised panel status, or transceiver status is different from the most recent status stored in memory. Communication between the MAAP and the Central Receiving System occurs according to an interrogation/reply routine. The transmitter and receiver share the antenna.

### Transmission Coding

All communication between the MAAP and Central Receiving System are radio signals on a specific frequency. The MAAP monitors addressable devices and onboard, auxiliary, and expansion zone status changes: alarm, trouble, or return to normal. It also monitors for system troubles. (See “[Trouble Conditions](#)” on page 4-18.) When a status change occurs, the MAAP checks the configuration programming and function options (zone disabled, transmitter disabled, walktest mode) to determine whether the change should be reported.

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▼ **IMPORTANT** *Inputs with a ZID (M-1 MAAP) or ZID Position (M-2 MAAP) number of 0 (which is the default) are not reported to the Central Receiving System.*

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If the status change is to be reported, the MAAP encodes a message that identifies the type of condition: alarm, trouble, end alarm, end trouble, ac fail, battery fault, tamper. It includes the transceiver number (for battery fault, ac fail, or tamper) or ZID or ZID Position number (for everything else) in the transmission. When the MAAP receives an interrogation addressed to its transceiver number, it encodes and transmits a reply. The MAAP also responds to RSA relay signals addressed to its transceiver number. For more information on RSA relay signals see “[RSA Relay Signals](#)” on page 4-25.

### Transmission Strategies

Because of their different radio protocols, the M-1 MAAP and M-2 MAAP differ in transmission strategies. The main difference is that the M-1 MAAP communicates with the Central Receiving System only when it has something to report or in response to interrogation by the D-500. The M-2 MAAP is in constant communication with the D-700.

If a message for a particular device or zone is pending and a status change for the same device or zone occurs, in some cases the change replaces the pending message. For example, an alarm will replace a non-alarm message, because an alarm has higher priority. This prevents a trouble or restoration condition which occurred before an alarm from being transmitted after an alarm. All alarms are sent. If a duplicate non-alarm message is generated, the message already in the buffer is sent and the duplicate removed.



The Central Receiving System can recognize only one current state per ZID/ ZID Position number. An alarm always has priority. If one device or zone is in trouble and another device or zone that shares the same ZID/ ZID Position number is in alarm, the Central Receiving System will recognize only the alarm.

### M-1 MAAP

The M-1 MAAP repeats most transmissions to ensure that they are received at the Central Receiving System.

Transmission Type	Number of Transmissions
Alarm	3
Trouble	2
End of Alarm	2
End of Trouble	2
Interrogation Reply	1

Between transmissions the M-1 MAAP checks for other addressable device, zone, panel, or transceiver status changes. If other conditions occur during this time, they are placed in a buffer and scheduled for transmission according to the message priority.

The M-1 MAAP prioritizes messages as follows:

- Interrogation reply
- First transmission of all alarms
- Second transmission of all alarms
- Third transmission of all alarms
- First and second transmissions of all troubles
- First and second transmissions of all end-of alarm messages
- First and second transmissions of all end-of-trouble messages

Within each priority, messages are sent in the order they occur, regardless of the source (device, zone, panel) of the alarm or trouble.

Because the Central Receiving System cannot decode two or more messages received together, transmissions may be delayed momentarily so that multiple transceivers do not transmit at the same time. When the MAAP is preparing to transmit a message other than an interrogation reply, it first checks whether the carrier detect is energized, indicating another device is transmitting in that frequency. The M-1 MAAP is designed so that its transmissions do not conflict with the transmissions of other devices.

### Supervision

The radio link is supervised with an interrogation from the D-500 and the expected reply from the M-1 MAAP. The M-1 MAAP will respond only to an interrogation containing its transceiver address. The interrogation and reply tests the ability of the M-1 MAAP to encode and transmit a message to the Central Receiving System. It also tests the ability of the D-500 to receive and decode a message from the M-1 MAAP.



When the M-1 MAAP encodes a test reply it includes its current status. The code does not provide for identifying specific alarms or troubles, but reminds the Central Receiving System that these conditions exist.

Refer to the D-500 manual for information on interrogation/reply options. Regular, automatic system supervision is accomplished with an interrogation of all transceivers at a scheduled time and interval selected by the user. A system interrogation can also be initiated manually at the D-500. A printed list of transceiver replies is available when the interrogation cycle has been completed.

If the D-500 does not receive a reply from an M-1 MAAP, the D-500 displays a No Reply message including the transceiver number. This can indicate one or more of the following:

- An M-1 MAAP CPU fault
- The M-1 MAAP has been shut down due to a discharged battery during ac fail
- The M-1 MAAP is in diagnostic mode, or offline (for configuration or otherwise)
- The M-1 MAAP is in a fault condition due to a self-test failure
- The M-1 MAAP is not correctly addressed
- The M-1 MAAP did not receive the poll
- Faulty M-1 MAAP transceiver operation
- The M-1 MAAP transceiver has been shut down by interrupt circuitry
- A problem with the antenna system
- Interference on the radio frequency

## M-2 MAAP

The M-2 MAAP is in constant communication with the D-700, responding to D-700 commands when the M-2 MAAP has a status change to report. The M-2 MAAP expects the D-700 to acknowledge any status change transmissions. If the M-2 MAAP does not receive a status change request from the D-700 for 30 seconds, it transmits unacknowledged or new alarm messages at programmed intervals without waiting for a command. All alarm messages are resent for acknowledgement when communications is restored.

The M-2 MAAP responds to the following commands. Refer to the D-700 I-O-M Manual for a more complete description of system polling and command processing.

- **Mark Poll** If the M-2 MAAP address is in the range specified in the command transmitted by the D-700, it replies in sequence. The message indicates one of the following:
  - All normal
  - The first unacknowledged alarm with the zone position number
  - That it has an unacknowledged status change

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▼ **NOTE** *If the M-2 MAAP is configured for more than 16 zones, the D-700 requires an additional transceiver address for each additional set of up to 16 zones—up to four addresses if the M-2 MAAP is configured for more than 48 zones. (The maximum number of*



zones is 64.) The M-2 MAAP automatically assigns up to three additional sequential transmitter addresses. The additional addresses must be configured at the D-700. See the D-700 documentation for instructions.

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- **Extended Poll** When the D-700 polls an individual M-2 MAAP, or the entire system of transceivers, the M-2 MAAP responds with the current status of all ZID Position numbers, including ZECs and addressable devices, as well as its own tamper, battery fault, and ac fail status.
- **Open Air/Alarms** If the M-2 MAAP has an unacknowledged alarm, it selects a randomly timed interval to report it; if it has no unacknowledged alarms, the M-2 MAAP does not respond.
- **Open Air/Alarms and Status Changes** If the M-2 MAAP has an unacknowledged alarm, it selects a randomly timed interval to report it; if it has no unacknowledged alarms, the M-2 MAAP reports status changes, if any.
- **Acknowledge/Status Query** After the M-2 MAAP reports an alarm or status change, it receives an acknowledgement of the transmission from the D-700 and is asked if it has any other alarms or status changes to report. If the M-2 MAAP has additional unacknowledged conditions, it reports them in the following order:
  - Alarm
  - Zone trouble
  - M-2 MAAP trouble
  - End-of-alarm or end of trouble

Each time the M-2 MAAP reports an alarm or status change, the acknowledge/status query routine is repeated. When all alarms and status changes have been sent and acknowledged, the M-2 MAAP responds all ok. If an M-2 MAAP reports more than 16 consecutive status changes, a fault condition is identified and reported to the D-700 as Status Change Overload.

If an M-2 MAAP does not respond to a mark poll, an extended poll, or an acknowledge/status query, the D-700 displays and logs No Reply, and the message window shows the type of command to which the M-2 MAAP did not respond. No Reply can indicate any of the following conditions:

- An M-2 MAAP CPU fault
- The M-2 MAAP has been shut down due to a discharged battery during ac fail
- The M-2 MAAP is in diagnostic mode, or offline (for configuration or otherwise)
- The M-2 MAAP is in a fault condition due to a self-test failure
- The M-2 MAAP is not correctly addressed
- The M-2 MAAP did not receive the poll
- Faulty M-2 MAAP transceiver operation
- The M-2 MAAP transceiver has been shut down by interrupt circuitry
- A problem with the antenna system
- Interference on the radio frequency



## RSA Relay Signals

The Central Receiving System can activate the K1 and K2 relays by radio signal.

The MAAP K1 and K2 relays may be configured for non-latching RSA operation. When the MAAP receives an RSA activation signal with its transceiver number, it activates the configured relays for 20 seconds.