MR-2100 & MR-2200

Fire Alarm Control Panel

Programming Manual

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1.0 Operation and Programming Concepts

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in CAN/ULCS527, Standard for Control Units for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in CAN/ULCS527? (Y/N)	Possible settings\methods	Settings permitted in CAN/ULCS527
Bell System	Y	Alert, Evac, Alert/Evac, Staged	Alert, Evac
Bell Cutoff	Y	0 or 5 to 30 minutes	All

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in UL864, Standard for Control Units for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in UL864? (Y/N)	Possible settings\methods	Settings permitted in UL864
AC Fail	Y	0 to 30 hours	1, 2 or 3 hours
Bell Cutoff	N	0 or 5 to 30 minutes	0

1.1 Introduction

This chapter provides an overview of the MR-2100/2200's (hereafter called the MR-2200) features and supported devices.

1.2   General Information

1.2.1   Warnings: Before Programming

1. All applicable codes and standards should be considered when programming the Control Unit.

2. The Control Unit continues to monitor input circuits and devices and acts according to the current program settings if an alarm is received while it is being programmed.

3. Loading a new database erases the current database before loading the new database. If the new database is not loaded after the erasure, the panel will not operate.

4. The database internal revision number included must match the number required by the MR2 program, otherwise a Database Mismatch trouble condition is generated. This condition disables the panel until a correct MR2 program is loaded.

5. The database must be completely loaded for it to be considered valid. The program keeps track if the last database load was valid/complete or not. An invalid database load disables the panel until a valid database load is done.

1.2.2   Downloadable Database

The panel uses a downloaded database for input circuit programming. This database includes the addressable devices on-line, and the Zone LEDs, Bells, Functions Relays and Control Modules activated by addressable devices. This database is created and downloaded from an IBM compatible computer using the Modul-R Human Interface (MHI) program. Refer to the *Modul-R Human Interface User Guide* for instructions on downloading the database.

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> **Note:** All communications are stopped during the database load. This causes a trouble to be recorded by those units that are normally communicating with the panel.

1.3   Networks

1.3.1   General

The MR-2200 can be incorporated into a network including other MR-2900 panels and MR-2944 annunciators. Though up to 254 panels and annunciators can be supported by the network, such a network would probably be too large to properly maintain. The network can be setup for single building or multiple building operation.
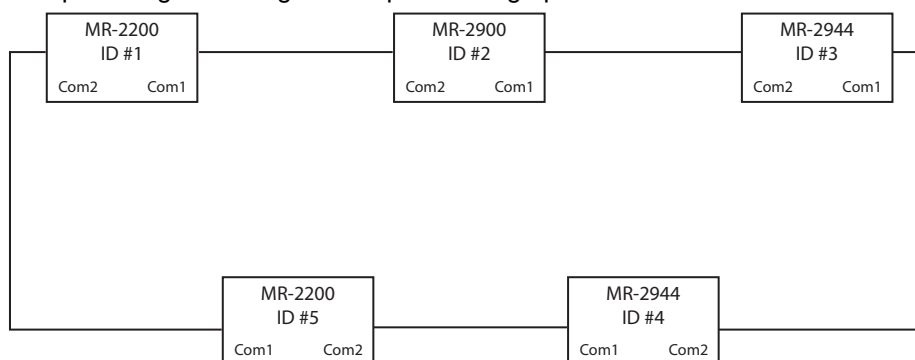

Figure 1   Typical Network Layout

The basic layout of the network is a single loop (see Figure 1). Each panel and annunciator has a unique ID. There is no requirement that the IDs be sequential or that they start with 1. The master panel can be any fire panel in the network. The panels work in a peer-to-peer fashion. This means that each panel is responsible for the programming of the inputs connected to it. The master panel does not control the network, but *it* is *the* central location for *network* information. Information is exchanged over the network via two basic means: a) specific frames, which are from one panel to another, and b) broadcast frames, which are from one panel to all others.

The special functions of master panel are:

a)	synchronize the clocks on the network by broadcasting the date and time at 3:30am every day; this means that only the master panel of a network requires that its clock be calibrated;

b)	maintain a network alarm list that includes all alarms, supervisory and trouble conditions induced on any panel on the network;

c)	transmit all signals from the network to a monitoring location.

1.3.2 Feature Operation

The following are the various types of frames that are sent on the network.

Commands & Restores

These specific frames are sent when a device in alarm requires operation of outputs at another unit. These commands are for the bells, relays, control modules, device messages and LEDs. When the device itself restores, the restore commands are sent right away so that the other panels know that they can be reset. Anything operated stays latched until the *Reset* key is pressed.

Hotkey and Hotkey LED Operation

If Hotkey routing is on a panel, it will send Ack, Reset, Sig Sil and Automatic Alarm Signal Cancel to the other panels as specific frames.

If a panel's function keys are sent to other panels, those panels will send commands to the panel to have it turn on and off the hot key LEDs. This is so that there is indication that the key function has become available. This will cause the LEDs to continue flashing after the key is pressed until the frame is received to turn off the LED.

Time/Date Change

This broadcast frame is sent by a panel or annunciator if the time or date is changed. The master panel also sends both a date and time change frame at 3:30am every day to synchronize all the clocks in the network.

Manual Switch Operation

If the state of any of the 16 software switches is changed manually at any panel, this change is broadcast to all other panels. The software switches are a system resource.

Network Reboot

If a Network Reboot command is initiated at a panel, it is broadcast normally and then the panel reboots itself. Upon receiving the Network Reboot command, a panel passes the command on to the next panel and then reboots itself. This has the affect of causing all the panels to reboot simultaneously.

Network Verify

Network Verify is the process by which the master panel queries the rest of the network to determine on-line status. Each panel will respond to the network verify request. The user can also request a Network Verify at any time from any panel in the network.

1.3.3 Network Communications

Information is sent across the network in frames. ***In addition to the operator generated frames described above, alarm, supervisory, and trouble frames are sent across the network whenever a device or panel indicates a problem.*** There are two types of frames: specific and broadcast. Specific frames are sent from one unit to another. Broadcast frames are sent from one unit to all others.

Specific Frames

Specific frames deal with information generated at one panel and required at another. This type of frame is passed from panel to panel until it reaches its destination. Each panel has a list as to which port to send frames from to reach all other panels through the fewest number of panels. Since networks generally have all communications links running at the same baud rate, this is generally the shortest time as well.

If there is a break in the communications (see **Figure 2**), the panel that cannot pass the message on sends it back the way it came. This causes the frame to go the long way around the network. If there are two breaks in the network loop, the frame is again reversed at the second break. When the originating panel receives it after the second turn around, the originating panel realizes there is a major fault in the network and considers the frame to be orphaned and destroys it. This generates a *Network Reboot Required* trouble. This is passed on to all other panels (or at least as many as can be reached). The reason the orphan frame is destroyed is to prevent unexpected operation when the network is finally repaired, such as a panel starts ringing its bells because of an alarm from the previous day.
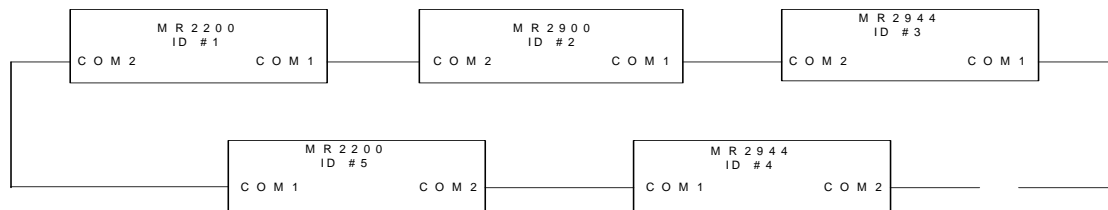
Figure 2   Single Network Break

Broadcast Frames

Broadcast frames deal with information that affects the entire network. When a broadcast frame is created by a panel or annunciator, it is sent out both network communications ports. Each unit in turn receives the broadcast in one port, act upon it and pass it on out the other port. Upon reaching the unit that generated the broadcast frame, that unit then disposes of it. This means that under normal circumstances, all units receive a broadcast twice and act upon it twice.

If there is break in a communications link (see Figure 2) the broadcast is disposed of by the unit unable to pass it on. In the situation where a unit has been removed from the loop (see Figure 3), the broadcast is passed only from com2 to com1 at the jump. In Figure 3, panel 5 passes the broadcast to panel 3, but panel 3 will not pass the broadcast on to panel 5 since it is supposed to be communicating to panel 4.
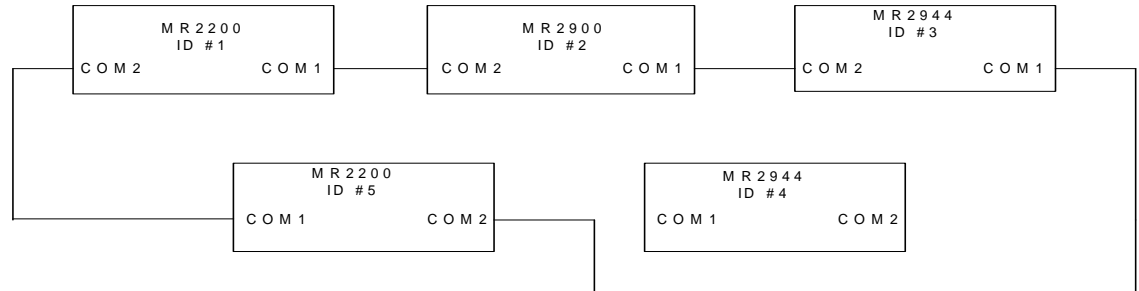
Figure 3   Panel Removed from Network

1.4   Addressable Devices

1.4.1 Supported Devices

The MR-2200 can use analog/addressable devices. There are two general types of devices: sensors and modules. The following devices are supported:

Modules	MRI-M500DM	Dual Input Monitor Module
	MRI-M500M	Monitor module, Classes A/B initiating
	MRI-M501M	Mini Monitor module, Class B initiating
	MRI-M502M	Monitor Module for 2- wire smoke detectors Classes A/B initiating
	MRI-M500S	Control module
	MRI-M500R	Relay Module
	MRI-M500X	Fault isolator module
	IM-10	Intelligent Input Monitor Module
	CZ-6	Zone Interface Module
	CR-6	Control Module Relay
	SC-6	Supervised Control Module

Sensors	MRI-1251	Ionization type smoke detector, low profile
	MRI-1551	Ionization type smoke detector
	MRI-2251	Photoelectric type smoke detector, low profile
	MRI-2551	Photoelectric type smoke detector
	MRI-2251T	Photoelectric type smoke detector c/w heat detector, low profile
	MRI-2551TH	Photoelectric type smoke detector c/w heat detector
	MRI-2251TMB	Acclimate Photo-Thermal Detector
	MRI-5251	Fixed temperature detector, low profile
	MRI-5251H	Fixed high temperature detector
	MRI-5551	Fixed temperature detector
	MRI-5251R	Rate of Rise and fixed temperature detector, low profile
	MRI-5551R	Rate of Rise and fixed temperature detector
	MRI-7251	Pinnacle Laser
	MRI-992A	Photo Detector
	MRI-995A	Thermal Detector
	MRI-M900CA	Control Module
	MRI-M900MA	Monitor Module
	MRI-M902MA	Interface module
	MRI-M900XA	Isolator Module

The MRI-M500S control module can be used to control a supervised output, such as a bell or strobe circuit. The control module monitors the circuit wiring and troubles will be reported. The module will require a separate 24 VDC supply for the controlled circuit. When programming the database in MHI, be sure to program the control module correctly. Choose any "Control (*str*)" other than "Control (relay)" for the MRI-M500S module. The MR-2400 will not operate a control module if the supervised circuit is shorted. Also there are options in MHI that affect the MRI-M500S control module but not the MRI-M500R relay module.

The MRI-M500R relay provides two Form C relays. Choose "Control (relay)" for the MRI-M500R module. There are options in MHI that affect the MRI-M500R relay module that do not affect the MRI-M500S control module.

The MRI-M500X isolator module is used to prevent wiring faults from affecting the entire circuit. It divides the addressable circuit into sections. The isolator has separate IN and OUT wiring. A short on one side of the isolator is not seen on or affects the other side. Isolator modules do not use addresses. The isolator relies on a voltage threshold to determine whether it should be isolating or not. This voltage threshold is around 6.5V. All isolators in a system are in isolated mode on system power up. If there is an excess of current draw, the isolator will not close. When the short is removed, the isolator module automatically closes the circuit again. The LED on the isolator module turns on when the module is in isolated mode, otherwise it flashes periodically. System Sensor recommends no more than 25 devices between isolator modules since the inrush current of the devices may mimic a short condition preventing the isolator from closing.

The sensors all use bases for mounting. Besides the standard plain bases, there are also relay bases, isolator bases and a sounder base. The available bases are:

MRI-B501	Flangeless base for all sensors
MRI-B501B	Flanged base for MRI-x551 sensors
MRI-B210LP	Flanged base for MRI-x251 sensors, low profile
MRI-B501BH	Sounder base for all sensors
MRI-B501BHT	Sounder base, temporal
MRI-B524BI	Isolator base for MRI-x551 sensors
MRI-B224BI	Isolator base for MRI-x251 sensors, low profile
MRI-B524RB	Relay base for MRI-x551 sensors
MRI-B224RB	Relay base for MRx251 sensors, low profile
B901BA	Base for MRI-900 Series Detectors and Modules

The sensor LED activates the relay and sounder bases. When this LED stays on for more than 10 seconds, the base activates. This requires that the MR-2200 have the LED mode set to FLASH/ON. This is done through the LCD Menu by choosing PROGRAM/ADDRESSABLE/ LED MODE/FLASH. The MR-2200 only turns on the LEDs of up to 5 devices per addressable circuit to prevent excess current flow. While the panel continues to respond to further alarms from the circuit, the panel does not turn on additional LEDs. The MRI-B501BH sounder base requires a separate 24 VDC supply for operation. If the polarity of this supply is reversed for more than 10 seconds, the sounder base activates.

Isolator bases function the same as isolator modules. The sensor plugged into the base is connected to the IN wiring to the base. The isolator is between the sensor and the OUT wiring.

While both sensors and modules have rotary dials that allow for addresses from 00 to 99, modules add 100 internally to the address programmed, thus using the address range 100 to 199. Since sensors and modules come from the factory addressed as 00, we do not allow that address to be used for an installed device. Address 0 is used for indication of wiring faults on the addressable circuit.

1.4.2 Device Faults

The following troubles (with condition code letter) can be reported by or for addressable devices:

- **Missing (M):** A device listed in the database is not reporting back when polled by the panel. For a new installation, this is generally indicative of devices that have been mis-addressed. This error can also occur if there are any wiring faults.

- **Illegal (I):** A device is reporting in on an address that the database shows as unused. For a new installation, this is generally indicative of devices that have been mis-addressed. For illegal sensors, since there is no programming available, if an alarm condition is detected, the MR-2200 operates all its bell circuits. In a network system, only the local panel activates its bells. The MR-2200 always ignores illegal modules.

- **Wrong Type (U):** This occurs if the device is not the type expected for the address. For example, the database lists an address to have a ion smoke detector, but a photo smoke detector has reported for the address. This error is also used if the panel cannot

determine the type of the device. If the device goes into alarm, the panel operates normally.

- **Trouble (T):** *Sensors:* The device is defective and needs to be replaced. *Modules:* The extended circuit from the module has a wiring fault. **Note:** Control modules that supervise their output circuits are not operated if the output circuit is shorted.

- **Duplicate (D):** This means that two devices are using the same address. The MR-2200 does a check every hour for duplicate devices. If either device goes into alarm, the panel operates normally. **Note:** Due to the method used to detect duplicate devices, it is possible for a single device to appear as duplicate devices. Generally, the device needs to be replaced.

1.5 Resetting 4-Wire Detectors

1.5.1 General

4-wire detectors can be reset by using one of the function relays on the panel. The relay is not programmed for any use, that is, it is unassigned. The next requirement is that a non-zero duration be programmed for it (*See Outputs Dialog on page 23.*) A duration of zero disables this function. Once this is done, wire the power for the device as shown in Figure 4. A third party power supply (must be UL/ULC-listed compatible power supply suitable for fire applications) can be used instead of the Aux Power as shown. Whenever the *System Reset* operator key is pressed when *neither* LED is flashing, causes the relay to operate for the duration programmed.
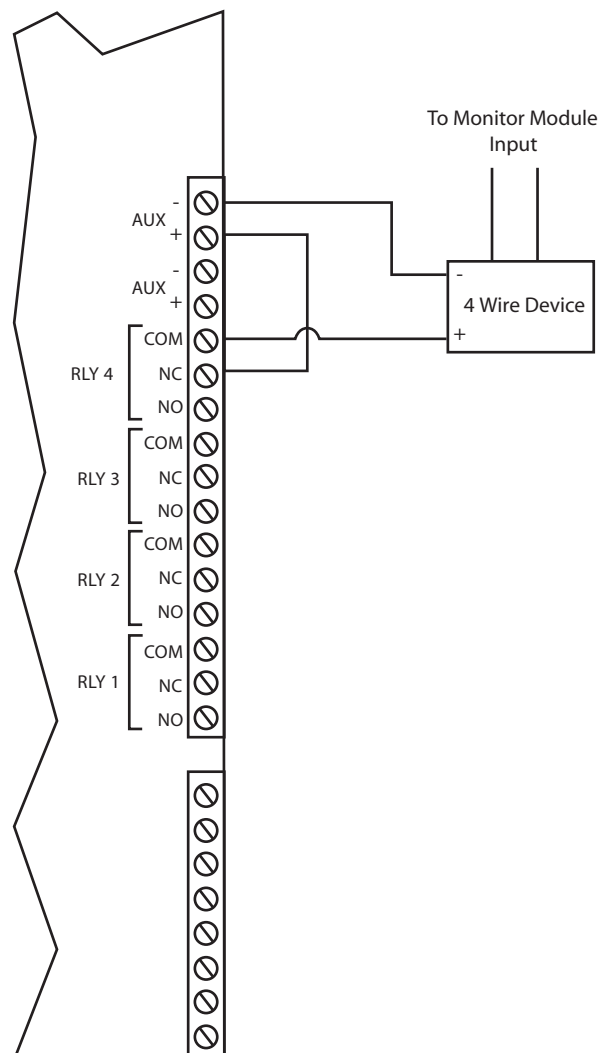
Figure 4   Four Wire Device Wiring (Typical)

2.0 Editing MHI Databases

2.1 Introduction

This chapter describes the windows used to program the system.

2.2 General Comments

Overview

The editing of a system is done through a series of input windows. Editing starts with the System Level and progresses to the Panel Level, then to the Input Level, and finally to the Relate Level. The Main Menu and option speed keys are not available while editing/viewing the system. While editing is being done, the word OPEN is displayed in the Status Bar. This is to remind the user that the system database is open and that the computer should not be turned off. If the computer is turned off while the database is open, it may become corrupted.

If the current database has been previously verified and you select Edit, a requester is displayed confirming your request to edit the database. If No is chosen, then the database is displayed in View mode. Editing the database changes the database to a non-verified state and changes the Last Edit Date.

Prior to an editing session, the database is automatically backed up. This back up copy has the same name as the original database, but incorporates a .BAK extension. If a database becomes corrupted, delete it and rename its .BAK backup file to have a .DBA extension. This restores the database to the state prior to the last editing session.

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Note: When upgrading from a version 17 (or earlier) system, a number of items that were programmed at the panel are now included in the database. See the file UPGRADE.TXT for a complete description of these changes.
Follow these instructions to obtain the required information ***before upgrading your firmware***:

1. Connect your computer to the panel and open the Terminal window.
2. Select the Printer screen in the Terminal: press `14<Tab>`
3. You should note that the title bar of the Terminal window displays the text "File logging in progress...". If this does not appear, press the button **Log On**.
4. In the terminal window, type the following command: `99?`
5. The panel's configuration settings will be listed in the Terminal window and it will also be saved in the file: LOG_CONT.TXT, located in your program directory
6. Close the Terminal window
7. You may now view the contents of the file using any standard word processor or text editor

Note: You must perform the above procedure for ALL panels in your system.

2.2.1 Network-Capable Panel Types

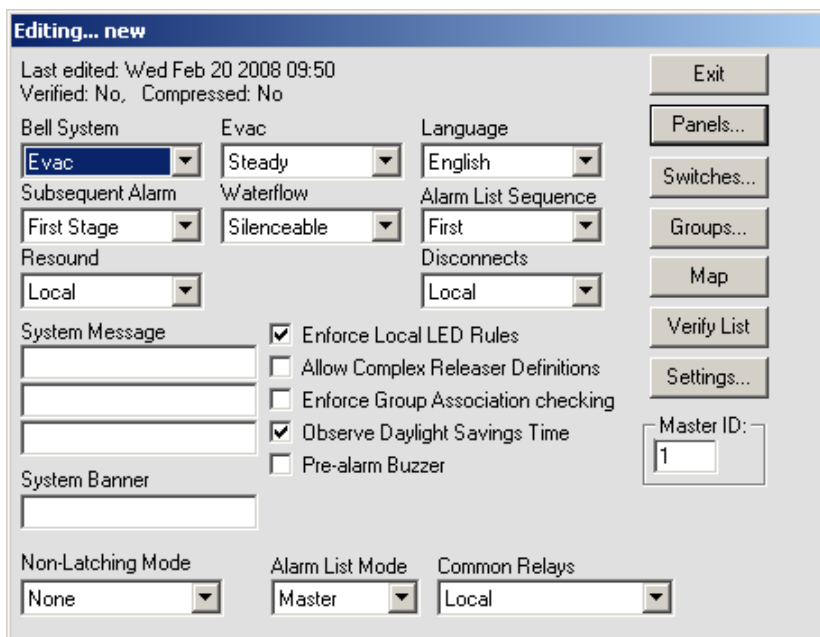The following panels can be used in a network configuration.

- **MR-2100 Fire Panel:** The MR-2100 has one (Class A or B) SLCs and two (expandable to eight) NACs. The NACs can be programmed to be used as either bells or strobe type circuits. The MR-2614 Annunciator can be attached to the MR-2100 panel. It is considered an extension of the panel by MHI and does not change how the panel interfaces with other annunciators.

- **MR-2200 Fire Panel:** The MR-2200 has two (Class A or B) SLCs and two (expandable to eight) NACs. The NACs can be programmed to be used as either bells or strobe type circuits. The MR-2614 Annunciator can be attached to the MR-2200 panel. It is considered an extension of the panel by MHI and does not change how the panel interfaces with other annunciators.

- **MR-2900 (mb2931) Fire Panel:** This is an MR-2900 Control Panel using the MR-2931 motherboard. This panel accepts all input circuit modules and has four Class A or eight Class B power-reversing output circuits. These output circuits can be programmed to be used as bells. This is the standard board for the MR-2900. These panels can be used in a network configuration.

- **MR-2944 Annunciator:** It includes the memory required to have a database loaded into it. This allows for less information to be sent on the network. An optional 4x20 LCD can be included. This annunciator has two communications ports. This allows the annunciator to reside in the network loop. It uses the MR-2910 Network Board.

2.3   System Window

2.3.1   Description

The System Window (see **Figure 5**) allows editing of all system level options, as well as detailing other system wide information.

The Title Bar of the window shows whether editing or viewing of the database is being preformed and the name of the current database.

Figure 5   Modul-R System Window

The text in the top left corner provides information about the database. The top line gives the date and time the database was last edited. The next line states whether the current contents have been verified or not; and whether the database has been compressed or not.

The options *Bell System, Subsequent Alarm, Resound, Evac* and *Waterflow* all affect how the notification appliance circuits (NAC), hereafter referred to as bells, react to alarm conditions.

2.3.2 Bell System

Bell System is a drop down list for selecting how the bells and strobes will operate. This sets the base operation for the entire network. If coded bells are required, the bell codes are defined for each input individually. The following options are available:

- **Alert:** A First Stage alarm activates the selected bells in Alert mode. If the *Signal Silence* or *Automatic Alarm Signal Cancel* Hot Key is not pressed before the *[No Acknowledge] Automatic Alarm Signal Cancel* timeout, the panel will progress to Second Stage. Second stage will activate all bells in Evacuation mode.

- **Evac:** A First Stage alarm will activate selected bells in Evacuation mode. Second Stage will activate all bells in Evacuation mode. There is no timeout from First to Second Stage.

- **Alert/Evac:** A First Stage alarm activates the selected bells in Evacuation mode and all other bells on the panel in Alert mode. If the *Signal Silence* or *Automatic Alarm Signal Cancel* Hot Key is not pressed before the *[No Acknowledge] Automatic Alarm Signal Cancel* timeout, the system will progress to Second Stage. Second Stage will activate all bells in Evacuation mode.

    Note: Not to be used for ULC applications.

- **Staged:** The 1st alarm will activate selected bells in Alert mode. If the *Signal Silence* or *Automatic Alarm Signal Cancel* Hot Key is not pressed before the *[No Acknowledge] Automatic Alarm Signal Cancel* timeout, the selected bells are switched to Evacuation mode and the next bells, i.e. the ones with the next higher number, are activated in Alert mode. This sequence is repeated until all bells are in Evacuation mode. When the highest numbered bell circuit switches to Evacuation mode, all bell and strobe circuits on the panel will be turned on in Evacuation mode. For example, if the alarm activates Bells 1 and 4, after the NAK timeout, Bells 1 and 4 are switched to Evacuation mode and Bells 2 and 5 are set to Alert mode. A 2nd alarm will activate all bells in Evacuation mode.

    Note: Not to be used for ULC applications.

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Note: Control modules cannot be programmed as bell or strobe if the Staged Bell system is used.

2.3.3 Subsequent Alarm

Subsequent Alarm controls how Alert, Evac and Alert/Evac type bell systems behave when a new alarm is received while one is still active. *1st Stage* has the panel repeat the First Stage operation. *2nd Stage* has the panel go immediately to Second Stage operation.

2.3.4 Resound

Resound controls how the panel handles the automatic resounding of silence bells when a new alarm is received. There are two modes:

- **Local:** Each panel resounds only its own silenced bells when a new alarm is received. This would be used when panels in a network are in different buildings, such as a campus.
- **Global:** All panels in a network resound silenced bells when a new alarm condition is received on any panel in the network. This is used when the panels are all in the same building, such as a large plant.

2.3.5 Evac

Evac controls whether the bell system Evacuation Mode sounds Steady (continuously) or uses a Temporal pattern as specified in ANSI S3.41 and ISO 8201 *Audible Emergency Evacuation Signal*. The pattern used ½s On, ½s Off, ½s On, ½s Off, ½s On, 1½s Off repeated.

2.3.6 Waterflow

Waterflow controls if bells can be silenced if they are started by a waterflow type input. If Non-Silenceable is chosen, bell circuits activated due to a waterflow input cannot be silenced until the waterflow device has restored.

2.3.7 Language

Language chooses English (default), French or Hungarian characters to be used in messages.

2.3.8 Alarm List Sequence

Alarm List Sequence controls which end of the Alarm List is shown automatically. If *First* is chosen, the first (oldest) item in the alarm list is shown. If *Last* is chosen, the last (newest) item in the alarm list is shown. Regardless of order, alarms always take precedence in being shown. Another way to think of it is that *First* shows where the fire started while *Last* shows where the fire has gotten to.

2.3.9 Disconnects

Disconnects controls which panels the Signal Disconnect, Relay Disconnect, and Common Disconnect hot keys affect.

- **Local:** The Disconnect hot keys affect only the panel they are on.
- **Global:** The Disconnect hot keys affect all the panels in the network. This means that if any Disconnect key is pressed on a panel, all other panels in the system take on the state of that Disconnect, either on or off.

2.3.10 System Message

The *System Message* is a text entry box for defining a message that is 3 lines by 20 characters that is used to identify the system. This message is printed at the top of printouts and shown on some service terminal screens, but it is not used in any LCD except in STATUS/IDENTIFICATION.

2.3.11 System Banner

The *System Banner* is a 20 character message that is used as a banner for the Main Menu of the LCD. The default banner is "Modul-R by Secutron."

2.3.12 Enforce Local LED Rules

The *Enforce Local LED Rules* check box forces an LED on an input's panel be related. Normally an LED anywhere in the system is all that is required. **Note:** The common LEDs of any panel are based upon the zone LEDs that are displayed by the panel, not based upon the inputs to the panel.

2.3.13 Enforce Group Association

The *Enforce Group Association checking* check box enables MHI to check to see if a group association has been included in the relates of inputs.

2.3.14 Observe Daylight Savings Time

The *Observe Daylight Savings Time* check box enables or disables the automatic changing of the clock for Daylight Savings Time. If enable, the system moves 1 hour ahead the second Sunday of March and fall back 1 hour the first Sunday of November (North American dates).

2.3.15 Pre-Alarm Buzzer

The Pre-Alarm Buzzer, when enabled, will cause a tone to sound when an addressable device is in alarm during the Retard period. The tone is a triple beep repeated every second.

2.3.16 Master ID

Master ID defines which panel in a network acts as the Master panel. Only control panels may be chosen as the Master panel. The Master panel retains an alarm list for the entire network and synchronizes the date and time on all panels and annunciators at 3:30am everyday. (The alarm list functionality is programmable for several modes of operation. See below for more detail.)

2.3.17 Alarm List Mode

Alarm List Mode sets the way the Alarm List messages are displayed on fire panels in the system. Annunciators always receive messages as marked in the database. There are three modes of displaying messages:

- **Local:** Each fire panel shows only Alarm List entries that are for that panel only.
- **Global:** Each fire panel shows Alarm List entries for itself and all other panels and annunciators.
- **Master:** The master fire panel shows the Alarm List entries for all panels and annunciators while all other fire panels show only their own Alarm List entries.

2.3.18 Common Relays

Common Relays controls what signals affect the common alarm, common supervisory and common trouble relays of each panel. The are two settings:

- **Local:** The common relays of a panel follow the events of events on that panel only.
- **follow Alarm List Mode:** The common relays of a panel react to both events of the panel and any events listed in its Alarm List.

Non-Latch Mode controls if the panel will auto store. The options are as follows

- More: Everything Latched

- Trouble only: Only trouble conditions will auto restore; Note some troubles require user intervention before the panel can determine if the condition be restored

- **Supv and Trbl:** Supervisory and Trouble conditions will automatically restore.

2.3.19 Pushbuttons

The System Window has the following push buttons on the right hand side:

- **Exit:** Closes the System Window and, if editing, causes the database to be saved. After an edit session, a requester asks if the database should be Verified. A database has to verify without errors before it can be downloaded.

- **Panels:** Displays the Panel Window. If no panel is currently defined, the Add Panel Box is displayed.

- **Switches:** Displays the Switches Window. This window determines which devices are attached to the switches and the timers associated to each switch. See section 2.4 Switches Window.

- **Groups:** Displays the Groups Window. This window is used to define groups of relates. See section 2.5 Groups Window.

- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.

- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.

- **Settings:** Defines the Verify warnings to disable and/or errors to reduce to warnings for the current database. Not all warnings/errors can be disabled/reduced. The use of this is not recommended, but provided for special circumstances.

2.4   Switches Window

2.4.1   Overview

The Switches Window (see **Figure 6**) allows for the setting of the On/Off (Day/Night) switches. There are 16 system wide switches available. All panels in the network keep track of their portion of the devices related to each switch. Relays, LEDs and control modules follow the On/Off state of the switch they are related to. Addressable sensors use Day sensitivity while the switch is on and Night sensitivity while the switch is off. The timers can be used to have the switch change state at set times each day. Switches can be operated manually at the panel whether they have timers or not. If the Switch is associated to a Hot Key, the Hot Key then operates the switches, causing the related LEDs, relays and control modules to react.

Changing a switch manually at one panel causes all panels in the network to change switch state.
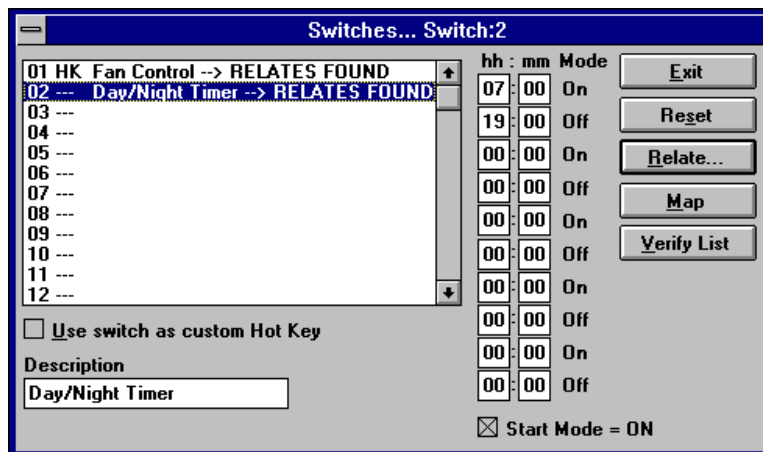

Figure 6   Switches Window

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1. Addressable detectors can only be related to a single switch each.
2. Relays, LEDs and control modules controlled by more than one switch stay on as long as any switch operating them is on.

The title bar of the window always lists the currently highlighted switch.

2.4.2 Switches Table

The *Switches* Table shows all 16 possible switches and highlights the current one. Select any one to make it the current switch. List entries show the message RELATES FOUND for switches that have related devices.

2.4.3 HH:MM (Timer)

The *HH:MM* (Timer) entries control the times that the switch changes state. An even number of times must be entered, ie. each on must have a corresponding off. All times are entered using 24 hour notation, e.g.: one minute after midnight=0:01, noon=12:00, 3 PM=15:00, 4 AM=4:00, etc. A time of 0:00 is considered as not used. If an action at midnight is desired set the time to 0:01, one minute after midnight; or 23:59, a minute before midnight. MHI sorts the times into ascending order after the Switches Window is closed.

2.4.4 Start Mode - On

The *Start Mode - On* check box determines if the first time listed should turn the switch On or Off. If it is not checked, the first time turns the switch off. If it is checked, the first time turns the switch on. The on and off indication beside each time entry changes to reflect what each time in the sorted list does.

2.4.5 Use Switch as Custom Hot Key

Use switch as Custom Hot Key allows the switch to be manually controlled by the Hot Keys. A hot key can be assigned to turn the switch on and another to turn it off. These keys are marked as HK in the Switches Table.

2.4.6 Description

Description is a 20 character message that describes the Switch usage. This is useful in that the switch now has a description of its usage that is easier to understand when assigning Switches to Hot Keys.

2.4.7 Pushbuttons

There are five push buttons on the right side:

- **Exit:** Close the Switches Window and return to the System Window. If there are any invalid times entered (ie greater than 23:59), MHI requests corrections.
- **Reset:** This removes all relates and all times for the currently highlighted switch.
- **Relate:** Shows the Relate Window. Items marked *on* are operated/controlled by the switch.
- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.
- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.

2.5 Groups Window

2.5.1 Overview

The Groups Window (see **Figure 7**) is used for creating and editing the Groups of relates. The Title Bar shows the current group.

This dialog allows you to setup "Groups" which are composed of a text description/message and relates. Groups are a method of establishing zone representations. A zone representation may include a message and/or a group of Relates. Inputs (ie. circuits and/or devices) may relate to a Group or number of Groups and thus acquire all Relates that are referenced by them. Inputs can also separately adopt the Group message. Making a change to a Group affects all inputs (circuits and devices) related to the Group. This is a very powerful feature that can significantly speed up the creation of medium to large size systems as well as simplify changes. Forethought should be placed in defining appropriate Groups. Up to 250 groups may be defined.
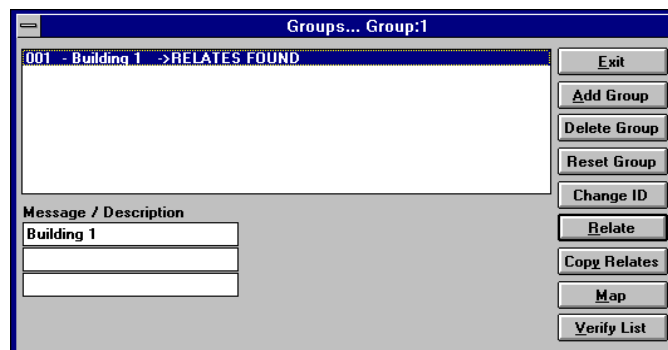

Figure 7   Groups Window

The use of Groups greatly simplifies the changes made to a database as changes are needed by the system. For example, if new door is installed that has to be unlocked during a fire alarm, the control module that unlocks the door is simply added to a Group. This single change is then automatically picked up by any inputs that are related to the Group. Since this number could be hundreds, the use of the Groups makes databases easier to maintain and decreases the likelihood of mistakes when items are added.

> **Note:** Though any relationship can be selected for inclusion into a group, an input that references the group must be able to accommodate the group's relates. It may be advantageous to separate groups in these cases.

2.5.2 Group List

The *Group List* shows all the defined groups along with their message (if any) and if there are any relates defined for the group. The current group is highlighted. Use the `<Backspace>` key in order to quickly re-position the current selection to another group.

2.5.3 Message Description

The *Message/Description* is used to enter a message for the group. This set of text-boxes allows you to enter a message describing the Group. You are allowed space for 3 lines by 20 characters. If desired, this message may be adopted by a circuit or device by checking the *Use Grp Msg* check-box and specifying this Group ID. This is a powerful feature if you are defining a large number of inputs that require the same message.

2.5.4 Pushbuttons

The following push buttons are defined:

- **Exit:** Close the Groups Window and return to the previous window.

- **Add Group:** This defines a new group ID. The new group can have any number between 1 and 250. By default, the number is the next one available. There is no need for the groups to be sequentially numbered or to start at 1.

- **Delete Group:** This removes the group from the list. You are asked if you want to have references to the group automatically removed.

- **Reset Group:** This removes all relates for the currently highlighted group.

- **Change ID:** This allows the group ID to be changed. This may need to be done if two databases are being merged together. MHI automatically changes all references to use the new ID. A gauge is displayed to show the progress of the change.

- **Relate:** Shows the Relate Window. Items marked *on* are operated by inputs related to the group. When relating inputs to groups, be sure that all relates defined by the group are allowable for the input.

- **Copy Relates:** Copies the relates and/or message from an input point to the current group. The values of the panel, circuit and device are required. Most conventional circuits use a device number of 0 (zero). Press Copy to copy the information.

- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.

- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.

2.6 Panel Window

2.6.1 Overview

The Panel Window (see **Figure 8**) allows editing of all panel level options. It defines the hardware mounted in the panel and the functionality of the programmable outputs. The programming controls provided change to reflect the capabilities of the currently selected panel. The Title Bar describes the currently highlighted panel or annunciator.
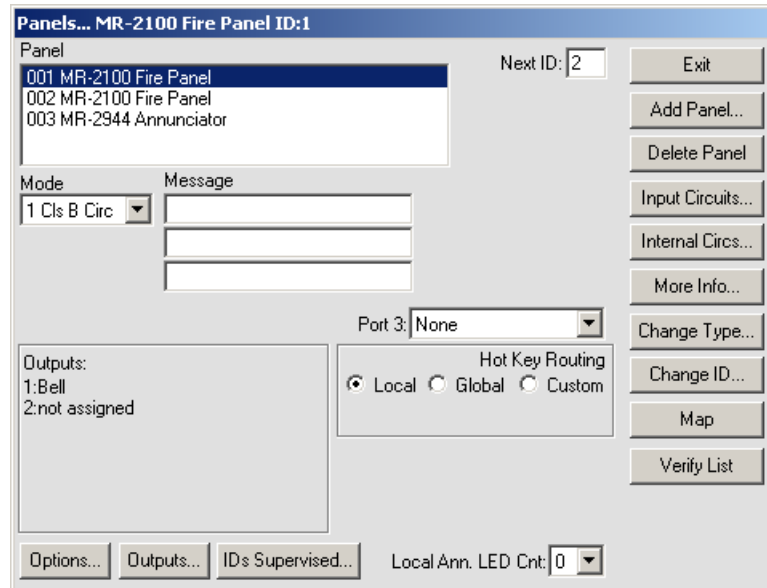

Figure 8   Panel Window

- **Exit:** Close the Panel Window and return to the System Window.

- **Add Panel:** Add another panel to the system. A dialog box will be displayed. The default options are to use the next available panel ID and to select an MR-2100, MR-2200, MR-2900 panel or MR-2944, MR-2934 annunciator. You will also be asked if you want MHI to automatically set the Next ID. If allowed, this panel will have the next higher numbered panel as its Next ID and the panel with the next lower number will be set to have this panel as its Next ID. If the new panel is the highest numbered panel, it will use the lowest numbered panel as its Next ID.

- **Delete:** Remove the current panel from the system. All programming for that panel will be lost. Any of the panel's outputs that are referenced will become invalid and will be removed by the next verify.

- **Input Circuits:** Display the Circuits Window. See section 2.6

- **Internal Circuits:** Display the Internal Circuit Window. See section 2.7.

- **More Info:** This displays a dialog box listing basic information about the panel including the date the database was last downloaded into a panel, the number of times downloaded, etc.

- **Change Type:** Displays a dialog box to change the type of the current panel. This makes it easier to correct mistakes when creating a database and to update the database if a panel type is changed in the field. Only certain type changes are allowed.

Note: This can have far reaching effects on a system. Any information that is no longer valid with the new panel type will be lost.

- **Change ID:** Displays a dialog box for changing the ID of the current panel. MHI will automatically change all references to use the new ID. This process could take a long time for a large database. A gauge will be displayed to show the progress of the change.

- **Map:** Displays and/or updates the Map Window. See section 2.8 **Map Window** of the *Modul-R Human Interface User Guide*.

- **Verify List:** Displays the Verify List. If there is no Verify List, you will be given the option to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide*.

The *Panel List* is located in the top left corner of the window. It lists all the panels, both Control and Annunciator, that are defined in the system. The highlighted entry in the List is the one that is currently being edited. Its description is also shown in the title bar of the Panel Window. If a different panel is selected, all the controls in the window will change to reflect this. Use the `<Backspace>` key in order to quickly re-position the current selection to another panel.

The *Message* is located below the Panel List. This is a 3 line by 20 character message that is associated with the Panel. This message will be displayed in Alarm Lists with signals that are generated by this panel. It will also be included in any print-outs generated by the Master Panel of the system. This message should include enough information that it will identify the panel and its location to fire or service personnel.

The *Outputs* area lists the function of the outputs of the panel. Use the **Outputs** Button to show the Outputs Dialog (see the **Outputs Dialog** section) which allows for the programming of the Outputs and the relays.

The **Options** button displays the Options Dialog (see the **Options Dialog** section). This allows for the programming of the various panel options, such as Hot Keys, bell timers, etc.

The *Next ID* is located to the left of the push buttons at the top of the Panel Window. It is not displayed for single panel systems. It is used to define the ID of the next panel in the network loop. Specify the panel ID of the panel to be connected to the COM 1 terminals of the current panel. See *Links* for notes on programming systems that contain *single-port* MR-2934 or MR-2924 Annunciators.

Links is used to enter the IDs of single port annunciators that are connected to COM 1 of the MR-2100 panel. These annunciators do not reside in the network loop, but are branches off of it.

Port 3 sets the purpose of the Port 3 general communications port. If the operating program loaded does not support the selected setting, a *wrong port 3 program* trouble will be generated by the panel. The options are:

- **none:** Port 3 is not used.

- **Digital Protocol 1:** Sets Port 3 to use the old protocol to the SE 2000.

- **Digital Protocol 2:** Sets Port 3 to use the new protocol to the SE 2000.

- **PC Connect:** Sets Port 3 to use the GRID program interface.

- **Voice Evac. System:** Sets Port 3 to communicate with the MV-2700 voice evacuation panel.

- **Annunciator Connect:** Sets Port 3 to communicate with the Dialer, MR-2614 or MR-2644 annunciators, or city tie module.

Local Ann. LED Cnt will be shown if any MR-2614 annunciators are chosen in the IDs Supervised dialog.

The **IDs Supervised** button displays all possible IDs of the MR-2614 and MR-2644 annunciators (see **Figure 9**) as well as the MR-2801B-MR and MRDL. Check the IDs that will be connected to the system. When the MRDL is enabled, a button will appear next to that option called **Dialer Settings** (see the section on Dialer Options for a description of the dialer options).

Hot Key Routing is a set of radio buttons for setting the other panels or annunciators to be controlled by the current panel. To have no other panels affected by the current panel, mark *Local*. To have the current panel affect all other panels on the network, mark *Global*. To choose only some panels, mark *Custom*. A text entry box entitled *route panel ids* is then displayed. Enter the panel IDs to be controlled separated by commas, e.g. "2, 3, 4". Each ID listed will receive Hot Key commands from the current panel whenever its Hot Keys are pressed.
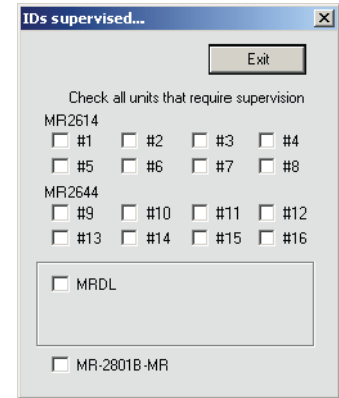
Figure 9: IDs Supervised

Annunciators have the following unique controls for programming (see **Figure 10**).

The *LCD* check box is located immediately left of the buttons. It indicates whether or not the annunciator has an alpha-numeric LCD. This setting is used by MHI only to determine if the *Message Receive* check box should be shown for the annunciator in the Relate Window. This value is not sent to the annunciator.
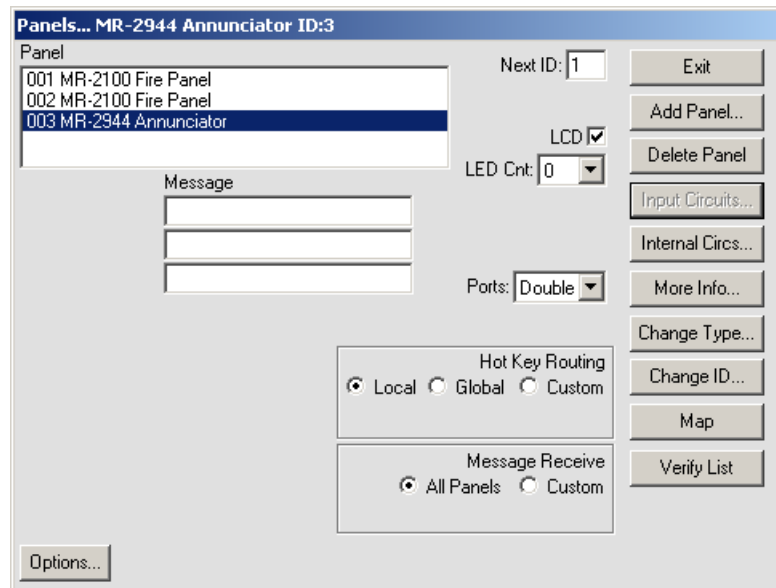
Figure 10: Annunciator Panel Window

LED Count is located directly below the LCD check box. This defines the number of LED zones the annunciator will be using. A count of zero will disable the Hot LEDs and Common LED.

Hot LED is located directly below the LED Count drop down. This value defines the first of four LED zones the annunciator will use for internal functions. Any of the zones can be chosen with the requirement that there are four consecutive zones available. Entering a zone of 0 will disable the hot key zones. These will reflect the current status of the annunciator and the panel(s) it sends commands to.

Interpreting Flashing LEDs

The LEDs have the following meaning when flashing:

Zone n alarm: *Acknowledge* available	Zone n+2 alarm: *Automatic Alarm Signal Cancel* available
Zone n supervisory: *Reset* available (green)	Zone n+2 supervisory Future use
Zone n trouble: *Reset* available (yellow)	Zone n+2 trouble Future use
Zone n+1 alarm: *Signal Silence* active	Zone n+3 alarm Future use
Zone n+1 supervisory: *Signal Silence* available	Zone n+3 supervisory Future use
Zone n+1 trouble: *Automatic Alarm Signal Cancel* active	Zone n+3 trouble Power On

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Note: The Power On LED refers to the 24 VDC to the annunciator, not to any AC source.

Message Receive is a group of a radio buttons for setting which panels this annunciator will display messages for. If all panels are chosen, every message in the system is displayed. If custom is selected, then all messages from the listed panels will be displayed.

Common LED is located directly below the Hot LED setting. This is the LED zone the annunciator will use for common alarm, supervisory and trouble indication. It is a summation of the zone LEDs of the annunciator. Any LED zone may be used. The zone chosen will not be available for general annunciation. Entering a zone of 0 will disable the common zone.

Ports is located below the Common LED setting. It is not displayed for MR-2914 Annunciators. This option enables (double) or disables (single) the COM 1 network port. If both ports are enabled, the *Next ID* text box will become available (see above for a description of *Next ID*).

2.7 Outputs Dialog

2.7.1 Overview

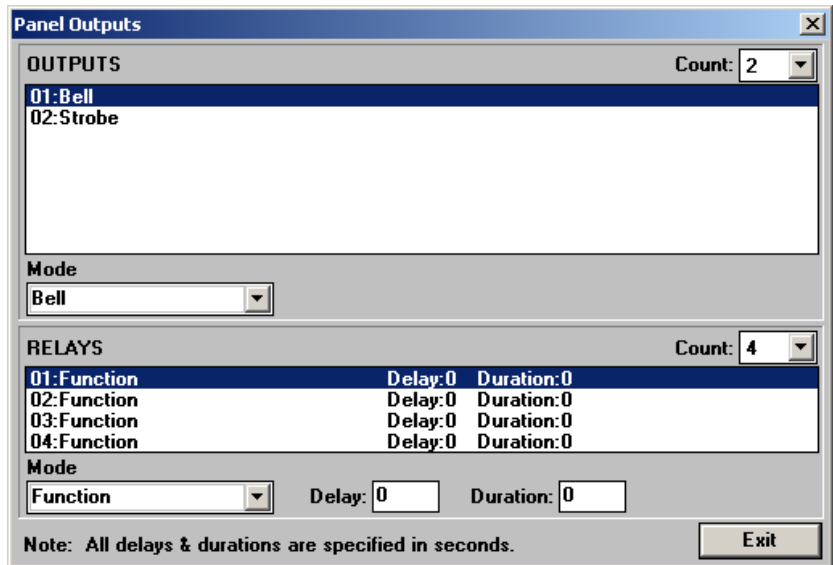The Outputs Dialog (see **Figure 11**) allows for the programming of the panel's outputs and function relays.

Figure 9   Panel Outputs

2.7.2 Outputs

The *Outputs* section is a list box that is used to select the output to program. Once the output is selected, it is programmable for the following output types:

- **Bell:** This is a standard signalling circuit. It does not sound codes.

- **Strobe:** This signalling circuit for use with strobes. Strobe circuits cannot be silenced until the system is reset.

- **Coded Bell:** This signalling circuit sounds out the code for any input that operates it and then silences.

- **Auxiliary Power (AuxPwr):** This turns on the Output continuously to supply power for auxiliary devices, such as annunciators. If a *Duration* time is given for the Auxiliary Power circuit, the circuit is powered off for that number of seconds (from 1 to 30) when the panel *Reset* key is pressed with neither of its LEDs flashing. This allows for the reset of 4 wire detectors. A duration time of 0 prevents this operation. Auxiliary Power circuits are turned off by the panel while it is in its power up cycle.

- **Follow Supervisory (follow Supv):** The output sounds when there is any supervisory condition present on the panel. Pressing *Acknowledge* silences the circuit.

- **Follow Trouble (follow Trbl):** The output sounds when there is any trouble condition present on the panel. Pressing *Acknowledge* silences the circuit.

- **Follow Supervisory and Trouble (follow Supv and Trbl):** This output will sound when there is a supervisory condition and/or a trouble condition on the panel. Pressing *Acknowledge* will silence the circuit.

2.7.3 Relay Delay

Relay Delay is the times that the relay waits before activating. A delay of 0 causes instant operation. This can be from 0 to 60 seconds.
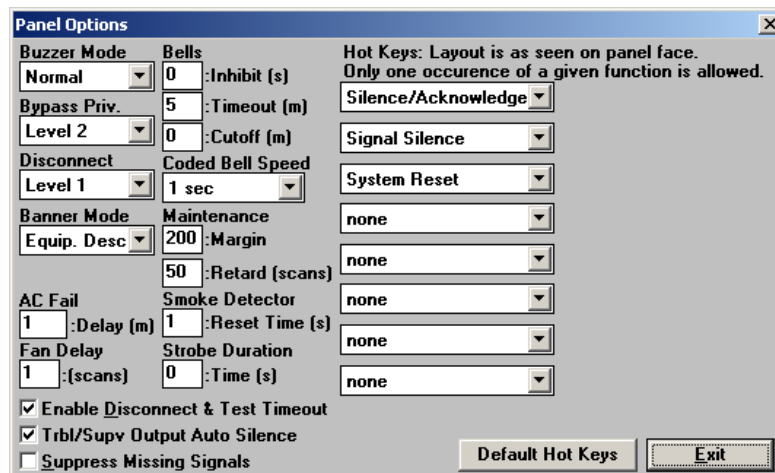
2.7.4 Relay Duration

Relay Duration affects the time the relay is activated. For relays operated from inputs, it is the <u>minimum</u> time the relay operates. The relay must stay on for this length of time before it can be reset. This is for equipment that must remain off a length of time before it can be started up again. If no input operates the relay, it is available for the reset of 4 wire devices. If the duration is not 0 (zero), then the relay activates for the duration time when the *Reset* hot key is pressed with neither of its LEDs flashing. The duration can be from 0 to 300 seconds (5 minutes).

2.8 Options Dialog

2.8.1 Overview

The Options Dialog (see **Figure 12**) allows for the programming of the panel and annunciator options. These settings affect the current panel only.

Figure 10   Options Dialog

2.8.2 Buzzer Mode

Buzzer Mode sets when the panel buzzer sounds. *Normal* causes the buzzer to sound for new supervisory and trouble conditions. *All* causes the buzzer to sound for all new conditions.

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> **Note:**   Always set this option to All (default) to meet current codes

2.8.3 Bypass Priv

Bypass Priv. sets the privilege level required to set circuit and device bypasses, and manual control of relays, control modules and switches. This privilege can be set to Level 2 (default) or Level 1.

2.8.4 Disconnect

Disconnect sets the privilege level required for the Disconnect and Test Mode Hot Keys. These can be set to Level 1 (default) or Level 0. If Level 0 is chosen, the Disconnect Hot Keys can be operated without a passcode being entered into the panel.

2.8.5 Banner Mode

Banner Mode dictates what the top line of the Main Menu of the LCD is. There are four modes of operation:

- **Status Ind.:** This mode displays the lines SYSTEM NORMAL and SYSTEM OFF NORMAL.
- **Panel Ban.:** This mode displays the 20 characters of text entered into the text box that appears below the drop down while this mode is selected.
- **System Ban.:** This mode displays the text defined by the System Banner.
- **Equip. Desc.:** This mode allows the panel to display its own identification text.

2.8.6 AC Fail

The *AC Fail* is the delay before the panel reports that it has lost AC power. The panel itself goes into AC Fail mode to conserve power immediately upon losing AC. This delay is the length of time before the panel generates the trouble condition. This can be set from 0 to 1800 minutes (30 hours). If a time of 0 minutes is entered, the panel uses a 10 second delay. **Note:** For a panel connected to UL-listed monitoring stations, a time of 1, 2, or 3 hours is required. The 30-hour time is available for those locations with long standby requirements.

2.8.7 Fan Delay

Fan Delay sets the number of scans between the reset of each Control Module (relay) on an addressable circuit. This is to allow for the staggered restart of fans when the system is reset. This option can be enabled or disabled on each addressable circuit as required. It has no affect on Control Modules (supervising).

2.8.8 Bell Inhibit

Bell Inhibit is the length of time the bells must sound before they can be silenced. This time can be from 0 to 120 seconds. Coded bells will always sound out their complete code and then stop. For more information, see *Automatic Alarm Signal Cancel (Second Stage Inhibit)* on page 28.

2.8.9 Bell Timeout

Bell Timeout is the length of time the panel will stay in First Stage operation before automatically progressing to Second Stage. This can be set from 2 to 10 minutes. Most codes do not allow this time to exceed 5 minutes. Check with local codes and the authority having jurisdiction for the allowable limits for this time. Both the *Automatic Alarm Signal Cancel* and *Signal Silence* will prevent this timeout from occurring.

2.8.10 Bell Cutoff

Bell Cutoff is the length of time the bells sound before they are automatically silenced by the panel. A time of 0 disables this feature. The cutoff can be set from 5 to 30 minutes. If the cutoff is used, it **must be longer** than the *Bell Timeout*.

For UL installations, disable Bell Cutoff.

2.8.11 Coded Bell Speed

Coded Bell Speed sets the time interval between the bits of the codes. This speed can be 1, ¾, ½ or ¼ second. The time between digits is three times this speed. The time between rounds is seven times this speed. Note that a minimum of three rounds of coded bells is required per NFPA 72.

2.8.12 Maintenance Margin

Maintenance Margin sets the gap between the maintenance threshold and the alarm threshold for addressable sensors. If the sensor stays between these two values for the *Maintenance Retard* time, the panel reports a Maintenance Alert trouble for the sensor. The margin can be set from 0 to 500, with 0 giving no warning and 500 giving the earliest warning.

2.8.13 Maintenance Retard

Maintenance Retard is the number of consecutive scans the addressable sensor has to stay between the maintenance and alarm thresholds to generate the Maintenance Alert trouble. This retard can be from 5 to 50 scans. Scan time can vary from 2.5 to 5 seconds with usual values from 3.5 to 4 seconds.

2.8.14 Enable Disconnect and Test Timeout

Enable Disconnect & Test Timeout enables or disables disconnect timeouts. If the timeouts are disabled, *Relay Disconnect, Disconnect, Signal Disconnect, Common Disconnect* and *Test Mode* must all be manually ended. If enabled, these functions are automatically ended after four hours.

2.8.15 Suppress Missing Signals

Suppress Missing Signals allows for the suppression of device missing signals for a loop that has a short or ground fault condition. If enabled, the panel only reports the short or ground fault condition, but not the missing device messages.

2.8.16 Hot Keys

Hot Keys are a set of drop down boxes that allow you to set the functions of the operator keys on the front of the panel. There are 8 keys, each with red and green LED (some keys may have yellow instead of red LEDs). The LEDs are used to display function status. Figure 11 shows the panel with the label NP-4918.
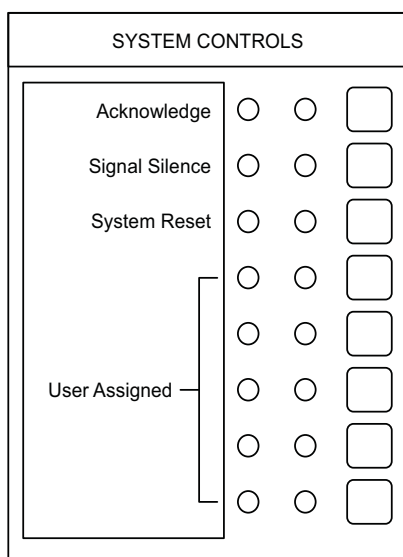
Figure 11   Default Key Assignments

> **Note:**   The fourth key is set to General Alarm by default. For non-Canadian installations, this key can be reconfigured.

The keys and their functions are as follows:

Key	Action
Acknowledge	Silences the buzzer and acknowledges new troubles and alarms. If the buzzer is on, *Acknowledge* will silence it. If the buzzer is not on, any flashing LEDs will become steady. The green LED will flash when there is something to acknowledge.
Signal Silence	Silences the bells. The green LED will flash when *Signal Silence* is available. There may be a silence inhibit before the bells can be silenced if they are activated by an Alarm condition. The yellow LED flashes when the bells have been silenced. The bells will reactivate if a subsequent Alarm is received by the panel.

Key	Action
System Reset	*System Reset* resets part or all of the system. The green LED flashes when the system, or part of the system, can be reset. The yellow LED flashes when there are conventional smoke detector circuits in alarm. Press *System Reset* to reset the smoke detectors. The yellow LED also flashes if the ground fault relay is activated. Press *System Reset* to deactivate the ground fault relay to check for restores and additional ground faults. If ground faults remain, the relay will be re-activated after 5 to 30 seconds. Pressing *System Reset* with no LEDs flashing will operate any relays that are not used by the system and deactivate any Aux Power outputs. The time they remain open is determined by the Duration time programmed. If the Duration is 0, the relay or Aux Power output will not operate. **Notes:** 1.The system <u>cannot</u> be reset until all circuits and devices are reset. 2.If both LEDs are flashing, the green LED function has precedence. 3.The green LED will remain flashing after *System Reset* is pressed until addressable devices have had their LEDs reset.
Automatic Alarm Signal Cancel (Second Stage Inhibit)	Prevents the automatic operation of second stage operation. This applies only to panels with ALERT or STAGED type bell systems. For ALERT systems, pressing the *Automatic Alarm Signal Cancel* will prevent the panel from going into second stage. For STAGED systems, it will prevent the system from going to the next stage. *Automatic Alarm Signal Cancel* has no effect on an EVAC type bell system. The green LED will flash when *Automatic Alarm Signal Cancel* is available, and the yellow LED will flash when it has been activated.
Fire Drill	Activates all the bell circuits, both regular and coded, in Alert mode. Press a second time to have all bell circuits sound in Evacuation mode. Press a third time to end the Fire Drill. The red LED will flash while the Fire Drill is happening. The Fire Drill cannot be performed if the bells are already activated, or if AC power is off. The Fire Drill is automatically ended if an alarm condition occurs.
Relay Disconnect	Causes the function relays and control modules to ignore any new alarms. Press again to restore normal operation. The red LED will flash while active. If no relays nor control modules can be disconnected, *Relay Disconnect* will do nothing. This function can be set to Privilege Level 0 or 1.
Test Mode	Places panel into test mode. Press again to return to normal mode. The red LED will flash while in test mode. This function can be set to Privilege Level 0 or 1. It follows the Disconnect privilege level (set in MHI). During test mode, the remote annunciator zone LEDs becomes non-latching for the zone(s) under test. The common indicators, bells, and relays are not activated and no commands are sent to other units and no signal is sent out of Port 3. Test signals can be archived or not as required. Before beginning testing, the circuits/devices to be tested must be selected. All unselected circuits/devices will operate normally. Be sure that the panel is in test mode. To select circuits/devices, select PROGRAM from the Main Menu on the LCD. The arrow keys move the cursor and the `<Enter>` key selects the item. Then select ADDRESSABLE, then TEST. Enter the device circuit and address for each device to be tested. `<Clear>` will return to the previous menu. When test mode is ended, all zones and devices selected for testing automatically return to normal operation. **Note:** There is no Ground Fault isolation while Test Mode is active.

Key	Action
Signal Disconnect	Disables sounding of the bells. The buzzer beeps every 2 seconds while the bells are disabled. This beeping is suppressed while a privileged level is entered in the panel. Press *Signal Disconnect* again to re-enable the bells. The red LED will flash while the bells are disabled. *Signal Disconnect* is not available if the bells are already activated. This function can be set to Privilege Level 0 or 1.
Common Disconnect	Disables the municipal relays from functioning. Press again to enable relays. The yellow LED flashes while the relays are disabled. The municipal relays affected are programmable. If no relays are selected for disabling, *Common Disconnect* is unavailable. This function can be set to Privilege Level 0 or 1.
General Alarm	Initiates the general evacuation sequence. All bells are activated in Evacuation mode, selected function relays are activated and municipal alarm relay is activated. The yellow LED will flash when activated. Press *System Reset* to cancel the General Alarm. **Note:** General Alarm is recorded in the panel archive.
Switch *n* On	Change the state of the software switch *n* between Auto and On. The yellow LED will flash while the switch is forced On. The green LED will flash whenever the switch is on, either automatically or forced. Switches can affect relays, control modules and LEDs. This function can be set to Privilege Level 1 or 2.
Switch *n* Off	Change the state of the software switch *n* between Auto and Off. The yellow LED will flash while the switch is forced Off. The green LED will flash whenever the switch is off, either automatically or forced. Switches can affect relays, control modules and LEDs. This function can be set to Privilege Level 1 or 2.
Manual Restart	This will cause the programmed control modules to reset after the system has been reset in general. This is an MEA (New York City) requirement.

2.8.17 Hot Keys for Canadian Operation

The following table describes the programming required for operation in Canada. Use the alternate label as shown in Figure 12.
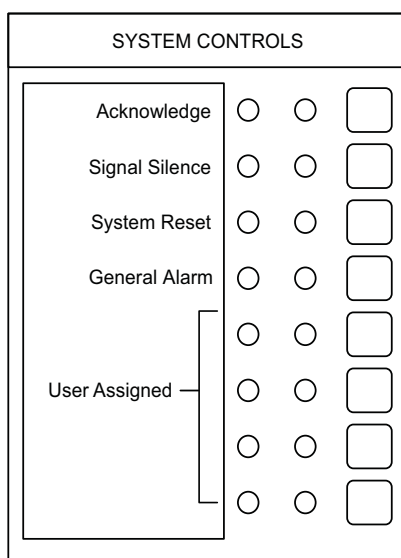
Figure 12   Default Key Assignments for Canadian Installations

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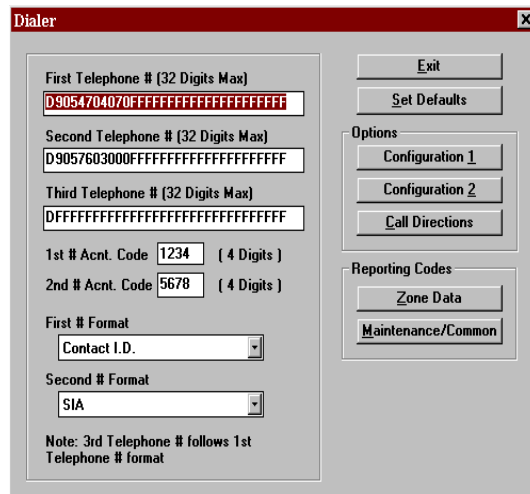
> **Note:** Networking is limited to two nodes for ULC applications.

Key	Action
General Alarm	See *General Alarm* on page 29 for information about this key.
Automatic Alarm Signal Cancel	Configure one of the four remaining keys as *Automatic Alarm Signal Cancel* and label it as follows: AUTO ALM SIG CANCEL TMR CANCELLED TMR ACTIVE (yellow) (green) **Note: This key is optional.** See *Automatic Alarm Signal Cancel (Second Stage Inhibit)* on page 28 for information about this key.

2.8.18 Dialer Settings

The Dialer Settings dialog (see **Figure 13**) allows for the programming of various communications options.

Figure 13   Dialer Settings

The *1st, 2nd and 3rd Telephone Numbers* can be up to 32 digits. Special digits may be used to perform the following functions:

- HEX (B)-simulates the [*] key
- HEX (C)-simulates the [#] key
- HEX (D)-forces the panel to search for dial tone; must be first digit of telephone number
- HEX (E)-forces the panel to pause for 2 seconds
- HEX (F)-end of telephone number marker

The first number is the primary number, the second number is for a second monitoring station, and the third number is the backup number for the first number.

The *1st and 2nd Account Codes* identify the system to the central station when a communication is sent. The code can be programmed for up to four digits. The first and third telephone number transmit the first account code. The second telephone number transmits the second account code.

The *1st and 2nd # Format* setting affects the type of communication that the dialer sends to the central station. There are seven formats available including Contact ID, SIA and a pager format.

The Dialer Settings window has the following push buttons along the right side:

- **Exit:** Close the Dialer Settings window and return to the IDs window.
- **Configuration 1:** Display the Dialer Configuration 1 dialog.
- **Configuration 2:** Display the Dialer Configuration 2 dialog.
- **Call Directions:** Display the Call Directions dialog.
- **Zone Data:** Display the Zone Data dialog.
- **Maintenance/Common:** Display the Dialer Maintenance and Common Reporting Codes dialog.

2.8.19 Dialer Configuration 1

The *Dialer Configuration 1* dialog (see **Figure 14**) contains the First Communicator Options, Second Communicator Options and International Options.
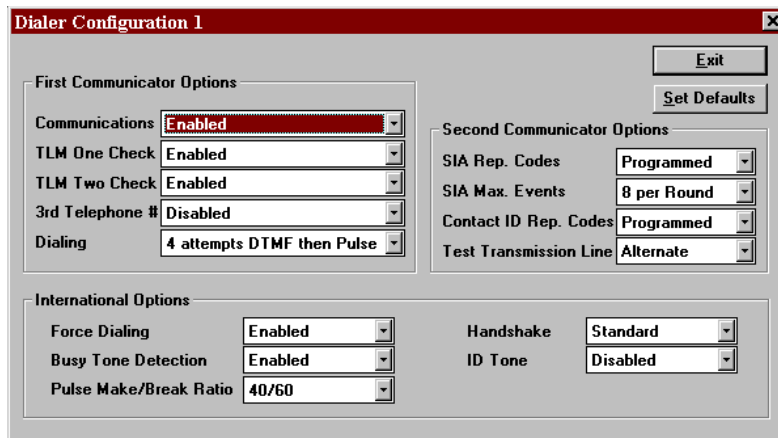
Figure 14   Dialer Configuration 1

The *Communications* option determines if the dialer will communicate to the central station. When Enabled is selected, the dialer will communicate all events as programmed. When Disabled is selected, the dialer will not communicate any events.

The *TLM One/Two Check* options determine whether the dialer will test for telephone line faults on line one and line two respectively.

The *Third Phone #* can be programmed for two different modes of operation. When Alternate Dialing Enabled is selected, the dialer switches between the first and third telephone numbers after each dialing attempt, until the maximum number of dialing attempts have been made to each number. When Third Number Backup is enabled, the dialer will use the third telephone

number only if all attempts to communicate to the first telephone number fail. If all attempts to communicate to the third number also fail, a failure to communicate trouble will be generated. When Disabled is selected, the third telephone number is not used.

The *Dialing* option has three different options for pulse or DTMF dialing. If All attempts Pulse is selected, the dialer will always use pulse (rotary) dialing. If All attempts DTMF Dialing is selected, the dialer will always use DTMF dialing. If 4 attempts DTMF then Pulse is selected, the dialer will use DTMF dialing for the first four attempts. If unsuccessful, the dialer will switch to pulse (rotary) dialing for the remaining attempts.

The *SIA Rep. Codes* option determines whether the dialer will send the automatic reporting codes that are in the dialer, or use the reporting codes that are programmed in the *Zone Data* and *Maintenance/Common* reporting codes sections. See See Appendix D: Table of Reporting Codes on page 67. for a list of the automatic SIA Reporting Codes.

The *SIA Max Events* option sets the maximum number of events the dialer will send for one SIA transmission. When 20 per Round is selected, SIA sends a maximum of 20 events per round. When 8 per Round is selected, SIA sends maximum of 8 events per round.

The *Contact ID Rep. Codes* option determines whether the dialer will send the automatic reporting codes that are in the dialer, or use the reporting codes that are programmed in the Zone Data and Maintenance/Common reporting codes sections. See See Appendix D: Table of Reporting Codes on page 67. for a list of the automatic Contact ID Reporting Codes.

The *Test Transmission Line* option determines how the dialer chooses a telephone line to send the automatic test transmission. If Alternate is selected, the dialer will alternate between using Telephone Lines 1 and 2 for transmissions, regardless of telephone line troubles. If Available is selected, the dialer will use Telephone Line 1 for transmissions. If a trouble exists on Telephone Line 1, the dialer will switch to Line 2.

When the *Force Dialing* option is set to enabled, if the first attempt by the panel to call the monitoring station fails, on every subsequent attempt the panel will dial regardless of the presence of dial tone. When Disabled is selected, the panel will not dial the programmed telephone number if dial tone is not present.

When the *Busy Tone Detection* option is enabled, if busy tone is detected, the dialer will disengage the phone line and try to place the call again following the delay between dialing attempts. When Disabled is selected, the dialer will use the standard dialing procedure for every attempt.

The *Pulse Make/Break Ratio* option is for panels in international applications. When 40/60 is selected, the pulse dialing make/break ratio is the 40/60. When 33/67 is selected, the pulse dialing make/break ratio is 33/67.

The *Handshake* option determines the handshake used for BPS transmissions. When 1600 Hz is selected, the dialer responds to a 1600 Hz handshake. When Standard is selected, the dialer responds to the handshake designated by the format selected (1400 or 2300 Hz).

The *ID Tone* can be set to 1300Hz or 2100 Hz. The panel will emit a tone at the selected frequency for 500 ms every 2 seconds when it places a call to indicate that it is a digital equipment call, not voice. When Disabled is selected, this feature will not be used.

2.8.20 Dialer Configuration 2

The Dialer Configuration 2 screen (seeFigure 15) contains the Swinger Shutdown Variables, Test Transmission options and Other Options.
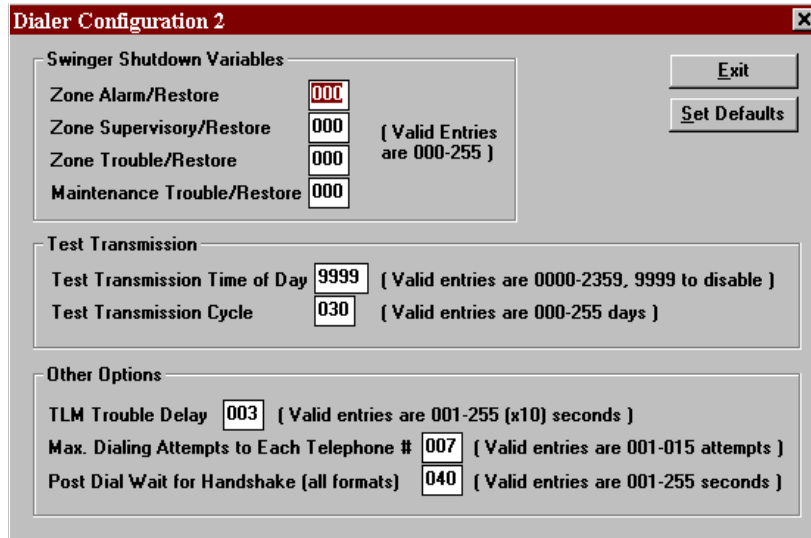
Figure 15   Dialer Configuration 2

The *Swinger Shutdown* options determine the maximum number of zone events and trouble events that the dialer will transmit in one day. The trouble or alarm will still be displayed on the panel and logged in the archive, but the dialer will not transmit the event. There are individual counters for Zone Alarm and Restore, Zone Supervisory and Restore, Zone Trouble and Restore and Maintenance Trouble and Restore. This feature will be reset at midnight. To disable the feature, program 000.

The *Test Transmission Time of Day* determines when the automatic test transmission will occur. The entry is four digits (HH:MM). To disable the feature, program the time as [9999].

The *Test Transmission Cycle* determines the number of days between test transmissions. This is automatically set so that tests are performed daily and may not be varied.

Note: If an upgraded database has a value other than 1, choose Set Default to reset the value.
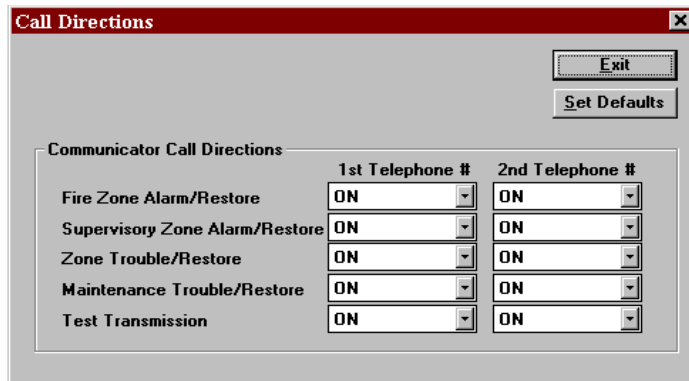
The *TLM Trouble Delay* controls the number of telephone line monitoring checks required before a telephone line trouble is generated. The dialer checks the telephone connection at 10-second intervals.

The *Maximum Dialing Attempts to Each Phone Number* is the number of attempts that the dialer will make to each telephone number before generating a fail to communicate trouble.

Post Dial Wait for Handshake is the amount of time the dialer will wait for a valid initial handshake from the receiver after dialing the programmed telephone number.

2.8.21 Call Directions

The *Call Directions* dialog (see **Figure 16**) contains the options that determine which telephone numbers will be used to communicate events.

Figure 16   Call Directions
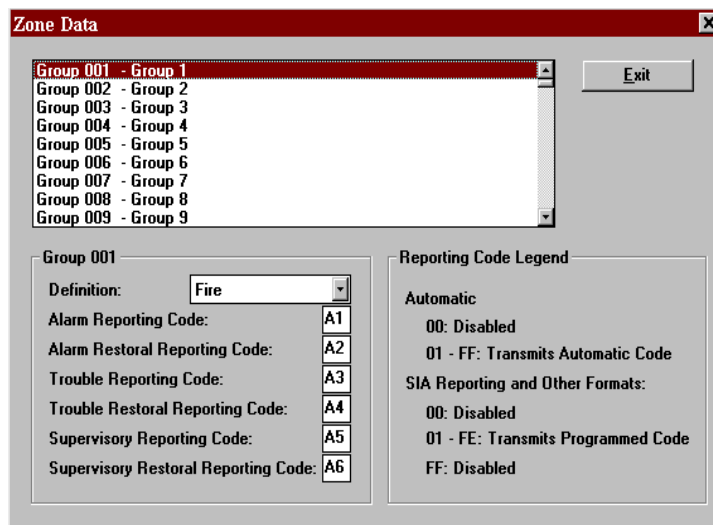
There are five different types of events that can each be sent to telephone number one or telephone number two. The event types are Fire Zone Alarm/Restore, Supervisory Zone Alarm/Restore, Zone Trouble/Restore, Maintenance Trouble/Restore and Test Transmissions.

i

Note: UL Listing requires that the Test Transmission be sent to both telephone numbers.

2.8.22 Zone Data

The Zone Data dialog (see **Figure 17**) contains zone definitions and reporting codes that the dialer will use to communicate events.

Figure 17   Zone Data

The *Groups List* is a list of all currently defined groups. Each line entry includes the Group ID and its message/description. Click on the desired group in order to program it.

The *Definition* specifies the identifier of the alarm or trouble being sent to the central station. The zone types that are available are Fire, Sprinkler, Heat, Water and Untyped.

The *Reporting Codes* are used when SIA or Contact ID is set to Programmed, or when using BPS formats. There are six reporting codes for each group. They are:

- Zone Alarm Reporting Code
- Zone Alarm Restoral Reporting Code
- Trouble Reporting Code
- Trouble Restoral Reporting Code
- Supervisory Reporting Code
- Supervisory Restoral Reporting Code

2.8.23 Dialer Maintenance and Common Reporting Codes

The *Dialer Maintenance and Common Reporting Codes* dialog (see **Figure 18**) contains maintenance and common reporting codes that the dialer will use to communicate those events.
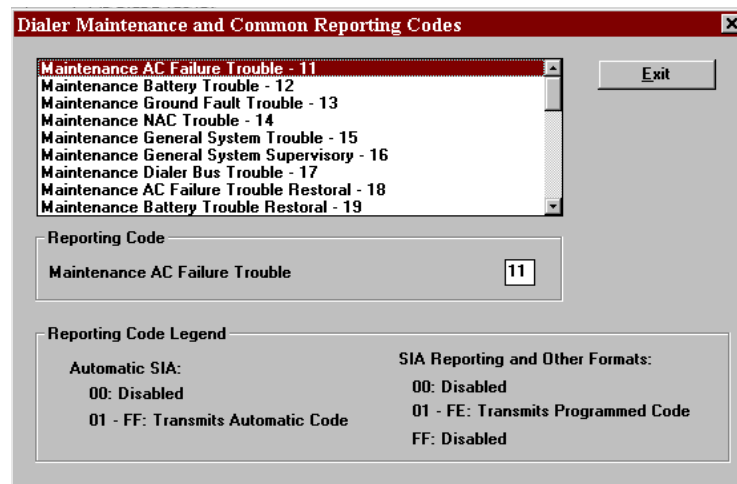
Figure 18   Dialer Maintenance and Common Reporting Codes

The *Reporting Codes List* is a list of all available maintenance and common reporting codes. Select one to program its reporting code.

The Reporting Code is used when SIA or Contact ID is set to Programmed, or when using BPS formats. There are many different reporting codes in this group.

2.9   Circuits and Devices Windows

2.9.1   Overview

The Circuits Window (see **Figure 19**) allows for the defining of addressable input circuits. The Devices Window (see **Figure 20**) allows for the defining of addressable devices. These two

windows are nearly identical. Most controls on one are found on the other with the few exceptions noted. The current Circuit or Device is shown in the Title Bar of the window.
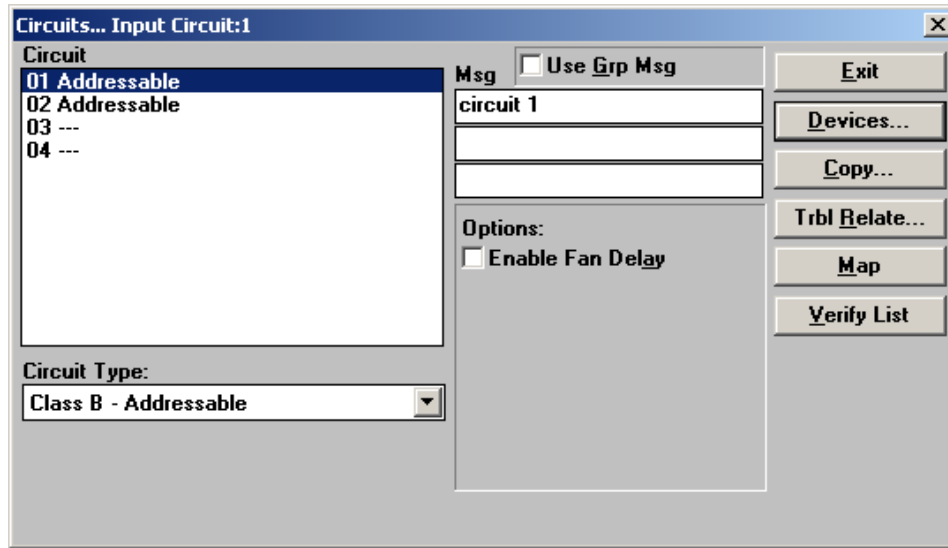
Figure 19   Circuits Window
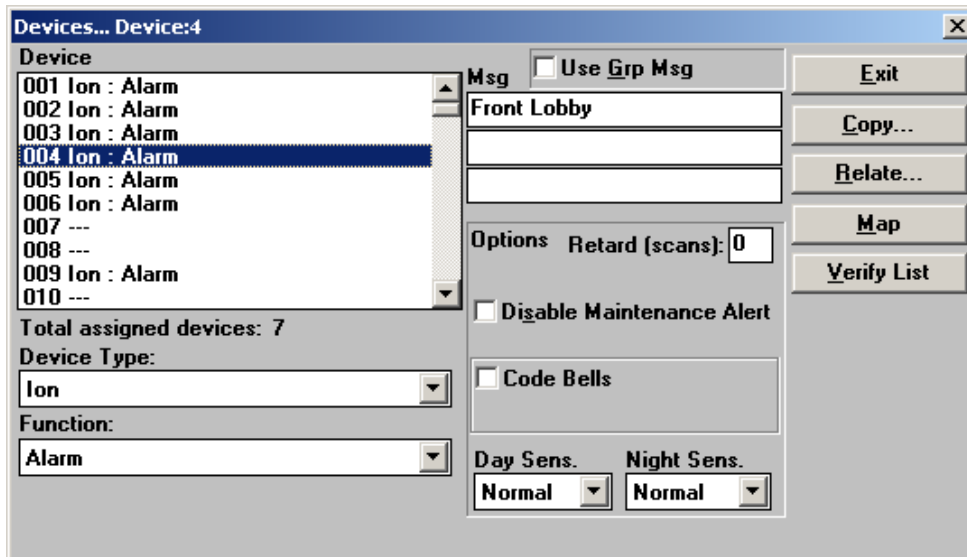
Figure 20   Devices Window

2.9.2 Circuit List

The *Circuit List* is located in the top left corner of the window. It is shown on the Circuits Window only. This lists any defined circuits for the current panel. Each circuit shows the circuit number, type of circuit and function if applicable. The highlighted circuit is described in the title bar of the Circuits Window. Unused circuits are shown using three dashes. Use the <Backspace> key in order to quickly re-position the current selection to another circuit. The <Up> and <Down> Arrow keys change the current circuit. The <Right> and <Left> Arrow keys change the type of the current circuit. The <Plus> and <Minus> keys change the function of the current circuit.

2.9.3 Circuit Type Selector

The *Circuit Type Selector* is located below *Circuit List* on the left hand side. It is shown on the Circuit Window only. It is a drop down box used to assign the current circuit type. If the circuit is unused, select not assigned. Only options supported by the Input Circuit Modules programmed for the current panel are assignable.

2.9.4 Device Type Selector

The *Device Type Selector* is located below *Device List* on the left hand side. It is shown on the Device Window only. It is a drop down box used to assign the current device type. Ion, Photo, Thermal, Acclimate, Dual Acclimate, or Laser. For addressable circuits, it displays all the sensors or modules that can be programmed for the current device address, sensors for addresses 1 to 99 and modules for addresses 101 to 199. If the address is unused, select not assigned. The following module types are available:

- **Monitor (Class B):** This is a standard monitor module using Class B (Style B) wiring and an end-of-line resistor. This must be chosen for MRI-M500DM, MRI-M501M and MRI-M503M modules.

- **Monitor (Class A):** This is a standard monitor module using Class A (Style D) wiring. This can be used only with the MRI-M500M and MRI-M502M modules.

- **Control (supervising):** This programs the MRI-M500S for use as a generic signalling circuit. It can be turned on by alarm or supervisory inputs. It will remain on until the system is reset.

- **Control (relay):** This is used for programming the MRI-M500R relay module.

- **Control (Bell):** This programs the MRI-M500S as a standard signalling circuit. It will turn on continuously when activated by an alarm. They will silence when the *Signal Silence* button is pressed. It does not sound codes.

- **Control (Strobe):** This programs the MRI-M500S as a signalling circuit for use with strobes. They are non-silenceable and will be turned on continuously for both Alert and Evacuation mode operation. Strobe circuits cannot be silenced until the system is reset (unless the strobe duration is programmed – see *Strobe Duration* in section 2.5.2).

2.9.5 Function Type Selector

The *Function Type Selector* is used to display and edit the function of the current input point. The following function types are available:

- **Alarm:** This is a generic fire input. Displays **ALARM** in the Alarm List when activated.

- **Pull Station:** This is a fire input similar to Alarm. The differences are it displays **PULL STATION** in the Alarm List and may not have a retard time programmed.

- **Waterflow:** This is a fire input similar to Alarm except that it displays **WATERFLOW** in the Alarm List. Bell circuits can be made non-silenceable for waterflow type inputs (see section 2.3 System Window).

- **Supervisory:** This is used for such inputs as Low Water Pressure, Sprinkler Shut Off Valve Closed, etc.

- **Property and Building Safety (Monitor):** This is used to monitor the action of items such as dampers, door, fans, etc. The supervisory LED is used.

- **Non-reporting:** This is a non-latching type of input. They can only operate LEDs, function relays and control modules. The supervisory LED will be operated. Outputs operated by a Non-reporting input cannot be also operated by another type of input or switch.

- **Trouble:** This function type is used for various circuit types and for control modules. Trouble type inputs operate LEDs only, no other outputs are allowed. This function type is assigned by MHI automatically.

2.9.6 Message

The *Message* is located in the middle of the top of the window. This 3 line by 20 character text message is displayed or printed for all signals originating from the current input point. Circuit types that use devices have a default message created for them when defined. This message can be changed.

2.9.7 Use Grp Message

The *Use Grp Msg* check box is used if the input point is to use a group message. A text entry box appears when the box is checked. Enter the ID of the group message to be used. Only one ID can be entered. If a group message is being used, it is displayed in the Message area, but the message cannot be altered.

2.9.8 Input Circuit or Device Options

There are a number of options that can be used for each input circuit or device. Not all options apply to all inputs. MHI only shows those options that are currently usable. The following options are available:

- **Enable Fan Delay:** Controls the staggered turning off of Control Modules (relay). If checked, Control Modules (relay) on this circuit are turned off in sequence, from the lowest address to the highest address, at a rate set by the *Fan Delay* option in the Panel Options Dialog, when *Reset* is pressed on the panel. The operation of Control Modules (supervising) is not affected by this setting.

- **Disable Maintenance Alert:** Disables the addressable smoke or heat sensor from reporting Maintenance Alert. Maintenance Alert is defined by the device staying at almost alarm threshold for an extended period of time. This is usually an indication that a smoke sensor requires cleaning. Heat sensors in high temperature areas may need the Maintenance Alert disabled to limit nuisance troubles. Standard room temperature (20°C) does not cause a Maintenance Alert on a heat detector.

- **Code Bells:** Checking this option causes *only selected coded bells* to sound coded signals. If coded bells are used the following options are then also shown:

    - **No Restore:** If checked, the panel does not sound the Code again when the input restores. If not checked, the panel sounds a single round of the Code when the input restores

    - **Code:** This is the sequence that is sounded when an alarm is received on this input. It can be up to 4 digits long. Hexadecimal digits are used, thus each digit can be from 1 to F, where A=10, B=11, C=12, D=13, E=14 and F=15.

    - **Round:** This is the number of times the Code is repeated. It can be between 1 and 4 times for no restore inputs, and between 2 and 4 for restore inputs. Note: A minimum of three rounds of code is required per NFPA 72.

- **Night Sens. and Day Sens.:** Selects the Alarm threshold sensitivity for addressable smoke sensors. Heat sensors always use Normal sensitivity. Increased sensitivity causes alarms at lower levels of smoke. Sensors not attached to a switch always use the Night Sensitivity. Sensors attached to a switch use Night Sensitivity while the switch is Off and Day Sensitivity while the switch is On. Night Sensitivity must always be equal to or more sensitive than the Day Sensitivity.

- **Manual Restart:** Check this to require that the control module not be reset by *System Reset* but by *Manual Restart*. Use of this option requires that there be a *Manual Restart* function key assigned to the panel.

- **Trigger Manual Restart:** Check this option to have a monitor module generate a Manual Restart when activated. Module Restart must have Non-reporting function.

2.9.9 Pushbuttons

The push buttons located on the right hand side are:

- **Exit:** Closes the window and returns to the previous window.

- **Devices:** Opens the Devices Window for the current circuit (Circuits Window only).

- **Copy:** Copies the circuit/device information, relates and message from another input to the current input (see Figure 21). The current input does not have to be defined. Relates cannot be copied between conventional and addressable input points. The *Panel ID, Circuit ID* and *Device ID* (not always shown) list the circuit/device to be copied from. Marking *Transfer Main Definition* copies the listed circuit/device type and function to the current circuit/device. **Note:** Not all inputs can be copied to all other possible inputs. Marking *Transfer Relates* copies the relates from the listed circuit/device relates to the current one. This may cause some invalid relates. Marking *Transfer Message* causes the message to be copied. Marking *Transfer Devices* (if shown) copies any device definitions that the listed circuit contains. These devices copy messages and relates as based on those settings above. There is no checking made at this time as to the validity of the values copied. **Unexpected results can occur if care is not taken.** For each database that is created, a warning about using copy is shown. Marking the check box in the warning stops the box from appearing again for the database. This option can help speed up the creation of a database. By completely defining one input, these values can be copied to all other inputs, making any minor changes that are required after the copy.
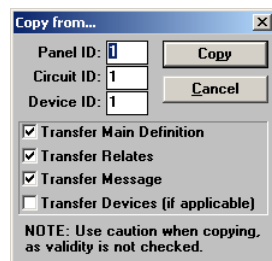
Figure 21   Copy Window

- **Relate or Trbl Relate:** Opens the Relate Window for the current circuit or device. This allows for the programming of outputs, LEDs, relays and control modules to be operated when the input goes into alarm. The Relate button displays all output types that are available depending on the function type of the input. The Trbl Relate button displays only LEDs that can be related. Note: All panel outputs and control modules to be operated must be defined before they can be included in the relates of an input.

- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.

- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.

2.10 Internal Circuits Window

2.10.1 Overview

The Internal Circuits Window (see **Figure 22**) allows for the programming of outputs, LEDs, etc. for the various internal circuits (functions) of the Control Panel. Internal circuits 0, 71, 72, 73, 75, 81, and 82 are fire alarm functions while all others are trouble functions. All internal circuits have specific meanings and are stored in the archive of the panel. MR-2944 and MR-2934 annunciators only use internal circuits 51 and 52. *See Appendix A: Condition Codes and Zone Numbers on page 52.* for a list of all the internal circuits.

Some of the internal circuits are:

- **Internal Circuit 0, General Alarm**: This is the *General Alarm* function. *General Alarm* can be received from an annunciator or from an SE 2000. It can be assigned to one of the Hot Keys of control panels. *General Alarm* causes all the bells and strobes on the panel to operate in Evacuation mode. Any additional outputs, LEDs, etc. that require operation are programmed using the **Relate** button.

- **Internal Circuit 51, Comlink #1 Supervision:** This is used for communications errors on COM1 port of the panel or annunciator.

- **Internal Circuit 52, Comlink #2 Supervision:** This is used for communications errors on COM2 port of the panel or annunciator.

- **Internal Circuit 81, 1st Stage Alarm:** This circuit is activated if the bells and strobes are activated in first stage by an alarm input. Any additional outputs, LEDs, etc. that require operation are programmed using the **Relate** button. If the bells have been disconnected on the panel, this circuit will not be generated.

- **Internal Circuit 82, 2nd Stage Alarm:** This circuit is activated if the bells and strobes are activated in the second stage mode by an alarm input or by a time-out. Any additional outputs, LEDs, etc. that require operation are programmed using the **Relate** button. If the bells have been disconnected on the panel, this circuit will not be generated.

- **Internal Circuit 96, Fire Pre-alarm:** This circuit is activated by any smoke detector in the auto-verify process or addressable device in alarm during the *Retard* period. It can be related to an LED to give a visual indication that an alarm is in the verification process.

- **Internal Circuit 99, Common Trouble:** This circuit is tripped by any internal circuit or trouble condition not associated with an internal circuit that turns on the Common Trouble LED on the panel. This circuit is used to annunciate common trouble conditions at a remote location. This circuit is not tripped by troubles generated by input circuits or addressable devices. This circuit is not recorded in the archive of the panel.
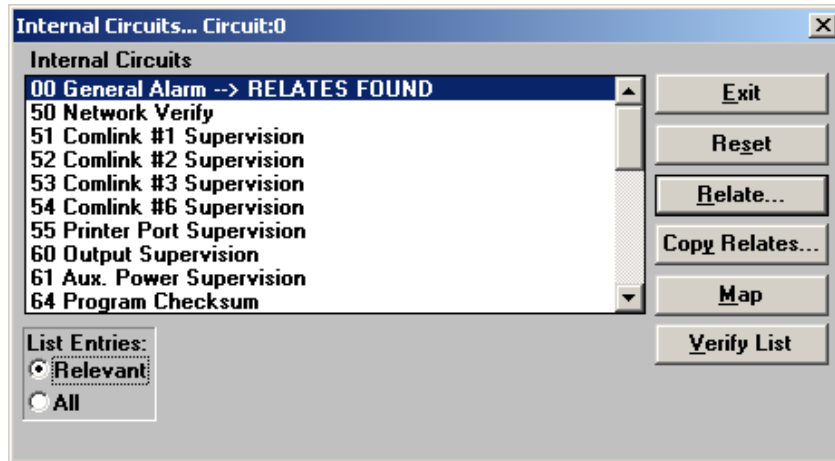
Figure 22   Internal Circuits Window

2.10.2 Internal Circuits List

The *Internal Circuits List* displays all of the internal circuits for the current Control Panel. Each line includes the internal circuit number, its description and if relates have been assigned.

Warning: Some of the internal circuits (e.g. checksum) do not have restore signals associated with them. They generally relate to a condition that requires either service work or a reboot of the panel. Any relates assigned to such an internal circuit have no way to be reset short of re-booting the entire network.

2.10.3 Pushbuttons

The following push buttons are available:

- **List Entries:** This new feature allows the user to control the information displayed. *Relevant only* lists items applicable to the current version only. *All* lists all possible items so that relates made on previous versions may be removed.

- **Exit:** Closes the Internal Circuits Window and returns to the Panel Window.

- **Reset:** Clears all relates associated with the current internal circuit.

- **Relate:** Opens the Relate Window for the internal circuit. This allows for the programming of outputs, LEDs, relays and control modules to be operated by the internal circuit.

- **Copy Relates:** Copies the relates from another input to the current internal circuit (see Figure 21). The values of the panel and circuit are required. Press Copy to copy the information. If the function type of the two circuits is different, a requester is presented to confirm the copy.

- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.

- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See section 2.6.5 of the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.

2.11 Relate Window

2.11.1 Overview

The Relate Window (see **Figure 23**) allows for the relating of inputs, switches and groups to outputs, LEDs, relays, etc. These relationships are used by the panel to determine which outputs to operate for alarm and trouble states. Inputs can operate bells/strobes, LEDs, relays, control modules on any panel in the system. Switches can operate relays, LEDs, control modules on any panel in the system and control the day/night sensitivity change of any addressable detector on any panel. The title bar describes the current input point/switch/group and current output panel or annunciator.
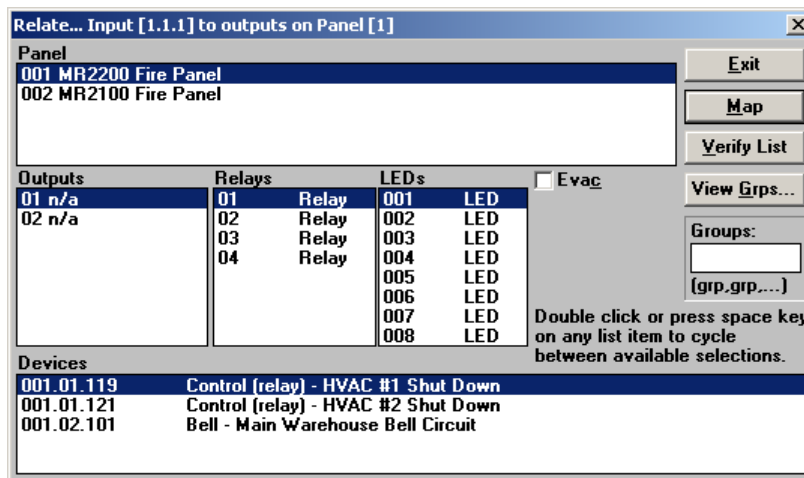
Figure 23   Relate Window

2.11.2 Groups

Groups is a comma separated list of all the groups that the point is to use for relates. Up to ten groups can be listed. These groups are assigned to the point itself and does not change as the current output panel changes. Relates that are part of the groups are not shown in the Relate Window but can be shown on the Map Window if so desired.

2.11.3 Panel List

The Panel List is a list-box located in the top left corner of the window. It lists all the panels, both Control and Annunciator, that are defined in the system along with their panel message. The high-lighted entry in the list is the one that is being related to by the current input. When a different panel is selected, all the controls in the window change to reflect this. Use the `<Backspace>` key in order to quickly re-position the current selection to another panel.

2.11.4 Outputs List

The *Outputs List* shows the programmable outputs of the panel. It is not shown for annunciators. It lists all outputs, along with their definition and current state. The states are **on** for selected, *blank* for not selected, *act* if they activated by default, and *n/a* for not available. A blank definition is for unused outputs. Bell and Strobe outputs can only be

selected for Fire Alarm type inputs. Use the `<space>` key or double click on the entry to cycle between available selections. Use the `<Backspace>` key in order to quickly reposition the current selection to another output.

2.11.5 Relays List

The *Relays List* shows the general purpose function relays of the panel. It is not shown for annunciators. Each is listed by number and state. The states are **on** for selected, *n/a* for not available, and *blank* for not selected. Use the `<space>` key or double click on the entry to cycle between available selections. Use the `<Backspace>` key in order to quickly re-position the current selection to another relay.

2.11.6 LEDs List

The *LEDs List* shows the LED zones available on the panel or annunciator. This is not shown if the panel has no LEDs. Each is listed by number and state. The states are **on** for selected, *blank* for not selected and *n/a* for not available. Use the `<space>` key or double click on the entry to cycle between available selections. Use the `<Backspace>` key in order to quickly re-position the current selection to another LED. The actual number of LED zones varies depending upon the panel or annunciator.

2.11.7 Device List

The *Device List* shows the addressable devices that can be related to the current point. For system inputs and groups, it is displayed only if there are any control modules defined for the panel; for switches, it is displayed if there are any addressable detectors or control modules defined. Each entry shows the devices's address (panel.circuit.device), its state and its device message. The states are **on** for selected and *blank* for not selected. Devices that are not available are not shown. Use the `<space>` key or double click on the entry to cycle between available selections.

2.11.8 Evac

THe EVAC checkbox is an option for fire alarm type inputs only. Checking this option will cause all bells and strobes to operate in second stage (evacuation) mode.

2.11.9 Msg Receive Check Box

The *Msg Receive* check box is an option for annunciators with LCDs only. If marked, this annunciator receives messages about this input point to display in its Alarm List. If not marked, the annunciator does not receive messages about this input point to display in its Alarm List.

2.12 Pushbuttons

The push buttons, located on the right side of the window, are:

- **Exit:** Closes the Relate Window and returns to the previous window.
- **Map:** Displays and/or updates the Map Window. See section 2.8 Map Window of the *Modul-R Human Interface User Guide*.
- **Verify List:** Displays the Verify List. If there is no Verify List, a requester will appear asking whether you wish to perform a verification. See the *Modul-R Human Interface User Guide* for a full description of the Verify List and its uses.
- **View Groups:** Displays the Groups Window. This is for reviewing the defined groups. No editing can be done to the groups. To edit the groups, return to the System Window.

3.0 LCD Programming

3.1 Introduction

This chapter describes the panel components that are programmed via the LCD and keypad.

3.2 General Comments

3.2.1 About the LCD Menu

A number of items are programmed through the LCD and keypad. This is called the LCD menu. All options are under the PROGRAM option on the Main Menu of the panel. The Main Menu can be recalled to the LCD by pressing <Home>.

> **Note:** **The only item that must be programmed from the LCD menu is the Panel ID. This must be done before the database is downloaded.**

There are multiple levels of program access. Privilege Level 0 is the base level of operation. Privilege Level 1 allows access to privileged Hot Key functions and limited programming. Privilege Level 2 allows programming of almost all system parameters. (Note that a Service Mode Trouble occurs when logged in Level 2.) Higher Privilege Levels are reserved for Secutron's own use and are not discussed here. Certain functions can be assigned to different privilege levels. These functions default to the higher of the two privilege levels.

While programming through the LCD menu, the panel beeps once when a valid key is pressed and beep three times if an invalid key is pressed. Programming is done through a series of menus and requester screens. The menus present options to display other menus, show information, or request information. Menus have a ">" or "<" next to the description of each item. Use the arrow keys on the keypad to move the cursor and press <Enter> to select. In Figure 24, pressing <Enter> brings up the Program Menu.

Title

Menu Item

Selected Menu Item

```
Module-R by Secutron
        12:22
>STATUS    HISTORY<
>PROGRAM  PASSCODE<
```

Menu Item

Menu Item

Menu Item
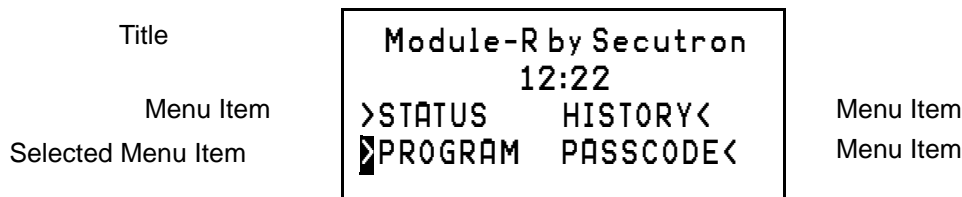
Figure 24   Program Menu

A menu option of more displays further menu options that do not fit on the current screen. All the screens of a menu loop around continuously. The default option, ie the option next to the cursor, is the one to the upper left of the screen. Generally, but not always, more is the default option.

Selector screens (see Figure 25) are screens where options are toggled on or off. Options that are on are marked by an asterisk(*) while options that are off are marked with a dash (-). Use the left and right arrow keys to move the cursor to the desired option and press <Enter> to change it. Move the cursor to OK and press <Enter> to save any changes, or press <Clear> to lose any changes. In Figure 25, the alarm and trouble relays are selected and the

supervisory relay is not selected to be disconnected when the Common Disconnect hotkey is pressed. Pressing `<Enter>` causes the alarm relay to be not selected.

T_{itle}	COMMON DISCONNECT
Options	■ S T

Figure 25   Selector Screen

For all screens, `<Clear>` returns to the previous menu level without changing any information and `<Home>` returns to the Main Menu without changing any information.

3.3   Menus

3.3.1   Clock Menu

This menu has the following options:

• **Date:** View or change the date. The date is entered in MM.DD.YY format. Each section of the date must be separated by a dot. Press `<Enter>` to accept date typed. `<Clear>` removes any digits typed. If no digits are displayed, `<Clear>` returns you to the Clock Menu. The new date is sent to all other panels on the Network, if used. All panels assume this date. The date change is recorded in the Archive.

• **Time:** Change the time. The time is entered in HH.MM.SS format. Each section of the time must be separated by a dot. All times are in 24 hour format. Press `<Enter>` to accept time typed. `<Clear>` removes any digits typed. If no digits are displayed, `<Clear>` returns you to the Clock Menu. The new time is sent to all other panels on the Network, if used. All panels assume this time. If `<Enter>` is pressed with no time entered, the current time is sent to all panels on the network. If a change of greater than 5 minutes occurs, the new time is recorded in the archive.

i
> 1.The Master Panel in a network synchronizes all clocks in the network at 03:30 every day, sending both date and time.
> 2.Changing the time while the panel is calibrating aborts the calibration.

• **Calibrate:** Calibrates the clock so that it keeps correct time. Calibration takes 2 to 45 days. Waiting longer gives more accurate results. The panel functions normally while calibrating. When sufficient time has passed, re-selecting this function asks for the correct time. The calibration is then be reported. In a network, only the master panel needs to calibrated.

i
> **Note:**   Changing the time using the Time option aborts the calibration. If a panel is currently in a calibration, it ignores time changes sent over the network.

3.3.2   Common Relays Menu

This function is restricted to Privilege Level 2. The menu has the following options:

• **Disconnect:** View or change the relays that can be disconnected by the *Common Disconnect* hot key. Selected relays are marked by an asterisk (*). To change the selection, move the cursor to the desired relay A(larm), S(upervisory) or T(rouble) and

press `<Enter>` to change. Select OK when done. `<Clear>` returns you to Program Menu without making changes.

- **Test Inhibit:** View or change whether common relays are disconnected during Test Mode or not. `<Clear>` returns you to Program Menu without making changes.

3.3.3 Switches Menu

This function can be set to Privilege Level 1 or 2. View or change the status of any switches. These switches can be set to On, Off or Auto. The Auto state only applies to switches that have a timer associated with them. The Auto state allows the switch to follow the timer settings. Any changes made are broadcast to the network so that all panels have the same state. Settings are retained by the panel if it is re-booted and the Master Unit broadcasts its settings to the network upon start up. See **Switches Window** for information on programming what the switch affects.

The menu has the following options:

- **Individual:** View or change the status of an individual switch. Each switch is shown in turn. If a switch has no timer, the Auto option is not shown.
- **All Off:** Force switches into the Off mode. The number displayed is the number of timers that are switched On. This option is shown only if no switches have timers associated with them.
- **All Auto:** Force all switches with timers to Auto mode. All switches with timers go into the state dictated by the time. The number displayed is the number of switches with timers forced On or Off. This option has no effect on switches without timers. This option is not shown if no timers are associated with the switches.

3.3.4 Battery

Displays the current battery status. The display shows:

> Line 1: Screen Title
>
> Line 2: AC State (diagnostic use only)
>
> Line 3: Current State of the Battery and Menu Option (see below)
>
> Line 4: Menu Options (listed below)

The menu has the following options:

- **OK:** Return to Program Menu.
- **Test:** Force an immediate battery test.
- **Calibrate:** This function is restricted to Privilege Level 2. This calibrates the Battery Charger. The batteries <u>must</u> be disconnected before beginning calibration. No keypad control is provided during calibration. The calibration display will return when calibration is over. Calibration only needs to be done when the configuration is erased. All Battery Chargers come calibrated from the factory.

3.3.5 Addressable

The menu has the following options:

- **Reset Max/Min:** Clears the stored values for the maximum and minimum values returned by the addressable devices. These values are automatically cleared when the panel reboots.

- **Duplicates Check:** This causes an immediate check to see if more than one device is using an address. The panel automatically does this check on the hour.

- **LED Mode:** This controls how the LEDs on the devices are used. There are three options:

  - **OFF/FLASH:** The device LEDs are normally off and flash when an alarm is reported. The flashing LED is reset when *System Reset* is pressed.

  - **FLASH/ON:** The device LEDs flash each time they are polled. They latch on in Alarm. The LEDs are reset when *System Reset* is pressed. **Note:** Due to current draw limitations, only the first 5 detectors on a circuit latch their LEDs. This has no effect on other panel operation.

  - **OFF/ON:** The LEDs are normally off and latch on in Alarm. The LEDs are reset when *System Reset* is pressed. **Note:** Due to current draw limitations, only the first 5 detectors on a circuit latch their LEDs. This has no effect on other panel operation.

  - **RESET:** This functions resets the LEDs to their off state.

- **Sensitivity:** This function is restricted to Privilege Level 2. This allows for the manual adjustment of the sensitivity of addressable detectors. All devices have a default sensitivity assigned in the database. The detector can be set to the database default value or to one of the pre-defined levels replacing the database values. These manual values are retained if the panel is re-booted.

  - **SELECT**: Change the manual sensitivity of addressable detectors. The first screen asks for a circuit and device number. Enter the circuit and device or press `<Enter>` without entering any number to view the first detector in the database. Each detector is displayed in turn, showing the current sensitivity and allowing for it to be changed or the next detector to be displayed. Press `<Clear>` to stop viewing the detector list.

  - **PRINT:** Print a list of all detectors that have a sensitivity other than the one selected in the database. This option is not shown if no manual sensitivities have been set.

  - **ALL DEFAULT:** Change all manual sensitivity settings to the default values set in the database.

- **Bypass:** This function can be set to Privilege Level 1 or 2. This selects devices to be bypassed. A bypassed device is ignored by the system. Addressable bypasses are retained when the panel is re-booted. Only devices included in the database can be bypassed. Bypasses are annunciated by a common trouble condition. The Bypass menu has the following options:

  - **ON:** Select devices to be bypassed. Enter the circuit and device number. Press `<Enter>` to accept the device and to enter the next one. Pressing `<Clear>` removes any numbers entered. Pressing either `<Enter>` or `<Clear>` with no numbers displayed ends the input mode.

  - **OFF:** Select bypassed devices to be returned to normal operation. Each bypassed device is listed in order. Select next to keep the bypass on or select OFF to remove the bypass. After the last device, display returns to the Bypass menu. Press `<Clear>` to return to the Bypass Menu. This option is not available if there are no devices bypassed.

  - **ALL OFF:** Remove all bypasses, if any, from the system. The number of bypassed devices is displayed next to this option.

- **Test:** Select devices to be tested. Test Mode must be active for this selection to be available. All devices selected for testing are automatically deselected when Test Mode is turned off. The Test Menu has the following options:

   -- **ON:** Select devices for testing. Enter the circuit and device number, or enter the circuit number only to select all devices on the circuit. Press `<Enter>` to accept the device and to enter the next one. Pressing `<Clear>` removes any numbers entered. Pressing either `<Enter>` or `<Clear>` with no numbers displayed ends the input mode.

   -- **OFF:** Select devices under test to be returned to normal operation. Each device under test is listed in order. Select next to keep the device under test or select OFF to remove the test mode. After the last device, display returns to the Test menu. Press `<Clear>` to return to the Test Menu. This option is not available if there are no devices selected for testing.

   -- **ALL OFF:** Remove all devices being tested, if any, from the test mode. The number of devices being tested is displayed next to this option.

- **Control Modules:** This function can be set to Privilege Level 1 or 2. Allow for the manual operation of the control modules included in the database. There are three states available: Automatic (controlled by device inputs), Manual On, and Manual Off. This mode is retained if the panel is re-booted. Manually controlled modules are annunciated by a common trouble condition. The menu has the following options:

   -- **SELECT:** Change the Auto/On/Off state of control modules. The first screen asks for a circuit and device number. Enter the circuit and device or press `<Enter>` without entering any number to view the first control module in the database. Each control module is displayed in turn, showing the current state and allowing for it to be changed or the next control module to be displayed. Press `<Clear>` to stop viewing the control module list.

   -- **ALL AUTO:** Change any control modules that are forced on or off back to automatic mode.

3.3.6 Archive

This function is restricted to Privilege Level 2. View and change the settings for the recording of optional entries into the history. The following items can be included or not included in the history:

- **Test:** View or change whether Test signals should be recorded in the history. The current setting is shown in the upper right corner. Test signals are marked as such.

- **Non-Reporting:** View or change whether non-reporting signals are recorded in the history or not. Non-reporting signals are recorded by default.

- **Network:** View or change the type of archive events that the panel will record in the archive. This is only available on the network master panel. The options are:

   -- **LOCAL:** Record only panel events in the archive.

   -- **GLOBAL:** Record all events in the archive.

3.3.7 Relays

This function can be set to Privilege Level 1 or 2. If Privilege Level 1 is set and Level 2 is required, access to the menu is denied. This function allows for the manual operation of the relays. There are three possible states: Automatic (state determined by inputs), Forced On, or Forced Off. This mode is retained if the panel is re-booted.

- **SELECT:** Change the Auto/On/Off state of relay. Each relay is shown in turn, showing the current state and allowing for it to be changed or the next relay to be displayed. Press `<Clear>` to stop viewing the relay list.

- **ALL AUTO:** Change any relays that are forced on or off back to automatic mode.

3.3.8 Ports

This menu has the following options:

- **Network:** Allows for the setting of parameters related to the network. If the downloaded database indicates that there is no network, the only option is Panel ID. The Network Menu has the following options:

    -- **Panel ID:** This function is restricted to Privilege Level 2. Set the Network ID number. This is between 1 and 254.

    -- **Reboot:** Cause all panels on the network to do a Hard reboot, ie equivalent to pressing the Hard Reboot button on the top of the main board. Each panel records in the history the time it received the Network Reboot command.

    -- **Global Commands:** Sends the selected key (acknowledge, signal silence, or system reset) to all Control panels and annunciators on the Network. Each unit, including the sending unit, responds as if that key has been pressed.

    -- **Verify:** This function is restricted to Privilege Level 2. Enable or disable Network Verify reporting troubles. If disabled, the panel does not report a Network Verify trouble (no common trouble sequence), but still displays the error information in the Misc. Troubles. This should be left enabled.

    -- **Retry:** Set the number of times to try to resend a message before giving up. If this number of retries are attempted without success, the other panel or annunciator is considered to be off-line. The default value is 8.

    -- **Baud:** Set the communications baud rate for Com Port 1. This value may need to be changed if the default rate (4800) does not allow for communications. Since each installation is different, this value needs to be chosen by trial and error. If the default rate does not work, chose the next slower rate. Continue this process until a rate that works is chosen. The available baud rates are: 9600, 4800, 2400, 1200, 600 and 300. The recommended rates are: 4800, 2400, and 1200. Below is a table documenting the maximum wire capacitance allowed on a single port connection.

Baud Rate	Maximum Capacitance
9600	100 nF
4800	220 nF
2400	470 nF
1200	680 nF

- **Port 3:** These options are restricted to Privilege 2. The options available vary depending upon the *Port 3* setting in the database. This port can only be disabled from the database.

    PC Connect (MR2-8G Program): Allows for the configuration of the communications to a GRID package. If more than one signal needs to be sent, new alarms take precedence.

    -- **Baud:** Set the communications baud rate. The available fixed baud rates are 9600, 4800, 2400, 1200, 600 and 300.

-- **Delay:** Sets the length of time the panel will wait before reporting the GRID package off-line. This can be set from 10 to 255 seconds.

-- **Disconnect:** If enabled, the *Common Disconnect* hot key will shut down Port 3. The GRID package will report the panel as offline.

Voice Evac.System (MR2-8E Program): Allows for setting parameters related to the connection to the MV2700 voice evacuation panel.

-- **Mode:** Selects how information is sent to the MV2700. There are the following options:

DEVICE (default): Send the device address or internal circuit number without translation.

ZONE: Send the LED number turned on for input circuits and devices and send the internal circuit for internal circuits.

GROUP: Send the associated Group ID(s) for all conditions. Anything not associated with a specific group sends a group number of 0.

-- **Retry:** Set the number of times to try to resend a message before giving up. If this number of retries are attempted without success, the other panel is considered to be off-line. The default value is 8. This would be increased only if the communications line cycles between on-line and off-line. (Range: 1 to 25)

-- **Disconnect:** If enabled, the *Common Disconnect* hot key shuts down Port 3.

-- **Baud:** Set the communications baud rate. The available fixed baud rates are 9600, 4800, 2400, 1200, 600 and 300.

- **Terminal:** Select ANSI or TeleVideo protocol. Most terminals and terminal emulator programs support ANSI protocol.

- **Port 6:** Allows for the setting of the baud rate to MR-2614 and MR-2644 annunciators, the city tie modules, and the MRDL dialer. The settings are 4800 and 1200. If none of these devices are programmed in the database, the message "nothing to program" is shown.

3.3.9 Alarm List

This menu controls the operation of the Alarm List. This function is restricted to Privilege Level 2. It has the following options:

- **Reset:** Select when entries are taken out of the Alarm List. AUTO removes entries as soon as the condition restores. MANUAL requires that *Reset* be pressed before they are removed. Conditions that have restored are shown as a restored condition in the Alarm List.

- **Remote:** Routes the messages for events from the panel to annunciators. The options are:

    -- **ALL:** All messages are sent to all annunciators.

    -- **SELECT:** Messages are sent as directed in the database.

3.3.10 Passcode

Allows for the changing of passcodes. The Privilege Level 2 can change both the Level 1 and 2 passcodes, while Level 1 can only change the Level 1 passcode. Passcodes are four digit numbers in the range 1000 to 9999. Type in the new passcode and press `<Enter>` to accept. Asterisks are displayed instead of the numbers. `<Clear>` removes any digits typed. If no digits are displayed, `<Clear>` returns to the Program or Passcode Menu.

The default Level 2 passcode is 2222. The default Level 1 passcode is 1111. These passcodes should be changed to prevent unauthorized access.

There is a special Level 2 passcode that is variable from day to day. It can be obtained from Secutron if the Level 2 passcode is forgotten.

3.3.11 Memory

This function is restricted to Privilege Level 2. This menu has the following options:

- **Erase Configuration:** This erases all initiating circuit, bell, relay, and privilege values entered from the keypad and LCD menu, and replace them with default values. With MR2 programs, this has no effect on information contained in the downloaded database. Confirmation is asked before erasure. After the Configuration has been erased, the panel must be reset using the reset button at the top of the Main Circuit Board, if the panel does not do this automatically. The following items are not erased: Serial Number, Clock Calibration, Level 1 Passcode, Level 2 Passcode, Main Board Type, Input Circuit Modules.

4.0 Appendix A: Condition Codes and Zone Numbers

4.1 Introduction

This appendix lists the condition codes and zone numbers used by the panel.

4.2 List of Codes and Zone Numbers

4.2.1 Condition Codes

The alarm list and archive use the following formats for condition codes.

Archive	Alarm List	Description
A	ALARM	Alarm
B	bypass	Bypassed Circuit/Device
C	com	Comlink
D	dupl	Duplicate Addressable Device
E	alert	Maintenance Alert
G	ground	Ground Fault
H		Hot Key Pressed
I	ilgl	Illegal Addressable Device
J		Switch
M	msng	Missing Addressable Device
N	nofire	Non-Fire
P	M.PULL	Pull Station Alarm
S	spv	Supervisory
T	trbl	Trouble or Parameter Change
U	wrong	Wrong Device Type
W	WFLOW	Waterflow Alarm
X	warn	Pre-Alert

A plus sign (+) refers to a new or on condition, a minus sign (-) refers to a restoral or off condition, and an equal sign (=) refers to a one time event.

4.2.2 Zone Number

PPP:ZZ.SSS Format:
PPP   Control Panel Number
ZZ   Panel Zone

Panel Zone	Description	Panel Zone	Description
0	General Alarm	80[2]	Privilege Level
1	Initiating Circuit 1	81	1st Stage Alarm
2	Initiating Circuit 2	82	2nd Stage Alarm
50	Network Verify	83	Switch
51	Comlink 1	84	Test Mode
52	Comlink 2	85[1]	Erase Configuration
53	Comlink 3	86[3]	Change Configuration
54	Comlink 6	87	Passcode Tamper
56	MRDL/City-Tie	88[1]	Database Loaded
60	Output (bell) Supervision	89[1]	Time/Date Change
61	Auxiliary Power Supervision	90[1]	Hot Key Activation
64[1]	Program Checksum	91[1]	Memory Overflow
65[1]	Database Checksum	92[1]	Network Reboot
66	AC Power	93[1]	New Program
67	Low Battery	94[1]	Network Reboot Required who
69[1]	Program Restart	95[1]	Network Reboot Required why
70	Battery Charger		

Notes:

1. These zones do not restore.

2. Privilege Level 0 generates a restore signal; all others generate a trouble signal.
3. This zone does not restore and is not repeated sequentially in the archive.
4. Programs dated before March 4, 1996 use a different numbering sequence. Panels updated erase the archive the first time the new program runs.

SSS   Sub-Zone Number

Zone	Meaning of SubZone Number
Addressable Circuit	000 - Wiring Fault
	All Others - Device Number
Comlink 1 (Zone 51)	Unit Network ID number
Comlink 3 (Zone 53)	Unit ID number
Comlink 6 (Zone 54)	Unit ID Number 1-8 MR-2614 9-16 MR-2644 239 City-tie 240 MRDL/City-tie
Output Supervision (Zone 60)	Output Circuit Number
Auxiliary Power Supervision (Zone 61)	Auxiliary Power Circuit Number
Program Re-start (Zone 69)	000 - Power On/Hard reboot
	001 - Watchdog
	002 - Clock Monitor
	003 - Illegal Instruction
	004 - Unused Interrupt
	005 - Orphan Interrupt
Privilege Level (Zone 80):	Level Set
Switch (Zone 83):	Switch Number

Zone	Meaning of SubZone Number
Hot Key Activation (Zone 90): Function Number of the Hot key pressed	001 - Fire Drill
	002 - Lamp Test
	004 - Relay Disconnect
	005 - Test Mode
	006 - Signal Disconnect
	007 - Acknowledge
	008 - Signal Silence
	009 - Reset
	010 - Common Disconnect
	011 - General Alarm
	016 - Switch 1 On
	017 - Switch 2 On
	018 - Switch 3 On

Zone	Meaning of SubZone Number
	019 - Switch 4 On
	020 - Switch 5 On
	021 - Switch 6 On
	022 - Switch 7 On
	023 - Switch 8 On
	024 - Switch 9 On
	025 - Switch 10 On
	026 - Switch 11 On
	027 - Switch 12 On
	028 - Switch 13 On
	029 - Switch 14 On
	030 - Switch 15 On
	031 - Switch 16 On
	032 - Switch 1 Off
Hot Key Activation (Zone 90): Function Number of the Hot key pressed	033 - Switch 2 Off
	034 - Switch 3 Off
	035 - Switch 4 Off
	036 - Switch 5 Off
	037 - Switch 6 Off
	038 - Switch 7 Off
	039 - Switch 8 Off
	040 - Switch 9 Off
	041 - Switch 10 Off
	042 - Switch 11 Off
	043 - Switch 12 Off
	044 - Switch 13 Off
	045 - Switch 14 Off
	046 - Switch 15 Off
	047 - Switch 16 Off
	051 - Manual Restart
Network Reboot (Zone 92):	Unit ID of panel broadcasting the command
Network Reboot Required Who (Zone 94):	Unit ID of panel generating the Network Reboot Required trouble

Zone	Meaning of SubZone Number
Network Reboot Required Why (Zone 95)	003 - port 3 006 - negative counter 008 - memory overflow 009 - co-processor memory overflow 010 - network 011 - network 012 - network 013 - network
All Others:	Always 000

5.0   Appendix B: Stand-by Battery Calculation

Batteries are designed and manufactured for a specific use. "Standby" is one of these uses. They are rated according to their ability to deliver a steady current for 20 hours ("20 Hour Rating"). A 10 Ah battery is <u>unable</u> to deliver 10 A for 1 hour, however it delivers ½ A (500 mA) for <u>20 hours</u>. A car battery is designed to deliver "cranking" power for a short time, (a few hundred Amps for a few minutes). Unfortunately, fire alarm control panels need both of these characteristics, that is, driving a heavy bell load for a relatively short time, at the end of a 24 hour standby current drain. This protection necessitates certain over sizing.

Regardless of the standby calculation and tables, the battery must be at least 150% of the bell load. e.g. A 4 A total bell load necessitates at least 6 A hour battery (in terms of 20 hour rating).

The standard battery options available for the MR-2200 Control Unit are:

   a) 4 Ah internal,

   b) 7 Ah internal,

   c) 10 Ah internal,

   d) 24 Ah external in a separate battery cabinet,

   e) 35 Ah external in a separate battery cabinet,

6.0   Appendix C: Service Terminal

6.1   General

The MR-2200 Control Unit displays information and accept commands via the service terminal port. The information includes initiating circuit configuration, current status of bell, relays, etc., diagnostic information, the archive, etc. The commands allow for the selection of the information to view, limited programming and basic operation. Certain Control Unit commands are available only at certain privilege levels. Units beep once when a valid character is received and three times if an invalid character is received. If a command is not finished within about 10 seconds, the unit beeps three times and loses any information sent.

The service terminal program provides the information on a number of different screens. When the terminal is first connected, it views whatever screen was the last to be viewed. To view Screen 0, which lists all the screens that are available, press `0<Tab>`. Press `<Delete>` to refresh the screen. Press the `<Tab>` key to view the next screen. See below for a complete description on the `<Tab>` key commands. Certain Control Unit screens are available only at higher privilege levels.

6.2   Control Unit

6.2.1   Screens

The Control Unit uses 8 data bits, no parity, 1 stop bit for communication over the serial port. The default baud rate is 9600 bps.

All screens have a common status line across the top. It shows, from left to right, the current time, the current date, the current privilege level, the panel number, the current screen number and name. All available screens are listed and described below along with any key commands valid only on that screen. To view a particular screen, enter *n*`<Tab>` where *n* is the screen number. Those screens marked with an asterisk (*) are useful in trouble shooting the panel.

Screen	Name	Description
0*	Index	A list of all the available screens.
1	LCD	Display and control the panel LCD. This is useful for training sessions since more people can view the terminal screen than can view the LCD directly. All keypad keys are mapped to the equivalent key board key, with the keypad <Clear> being mapped to the key board `<End>`. **Note:** The control feature does not work over a network.
2	Misc	A list of the program version, boards installed in the system and other information not listed elsewhere.

Screen	Name	Description
3	Battery	Displays the current battery level, and the current status of the battery and AC power. Also shows the timer for the battery test. Commands `<Ctrl-B>` Print battery calculation `0<Ctrl-B>` Execute a dynamic battery test once and end continuous testing if on. `9900<Ctrl-B>` Start continuous dynamic battery testing.
4	AC	Display the current status of the AC power and the delay timer for report AC fail.
5*	Bells	Displays the current status of the bell circuits. Also shows the timers and settings for the cut-off. See screen 11 for acceptable supervision values.
6	Function Relays	Displays the current settings and timers for the 4 function relays.
8	Common Relays	Displays the current status of the 3 common system relays. Also shows which relays may be disconnected by the *Common Disconnect* hot-key.
9*	Alarm List	Shows the current alarm list. This is the same list that is displayed on the LCD menu. Each screen in the LCD corresponds to one line on the terminal screen. See Appendix A for a description of the condition codes and zone numbers. Commands J Page down 0 J Go to the end of the list K Page up 0 K Go to the beginning of the list
10*	Miscellaneous Troubles	Display a list of all the troubles currently displayed by the STATUS/MISC. TROUBLES selection from the LCD.
11*	Output Supervision	Displays the current status of each of the outputs and the aux power outputs. An asterisk is shown for each output that is assigned, if it is turned on (if applicable) and the current supervision condition. The aux power outputs show a scaled number that should be about 225. An output with a power fault has had the 24VDC power connection to the MRNC2 board disconnected.
12	Relay Summary	Displays the installed expansion modules and which relays have been operated. The first section shows which modules have been installed in the panel. Module 0 is the main board itself. The second section shows how many of each of the MRNC2 (UA228) and MRRL4 (UA229) modules are needed and installed. The bottom section shows all the relays in the system, which ones are on and the function of each. Note that a common trouble relay is turned on when the panel has no troubles; the minus sign is a reminder of this.

Screen	Name	Description
13*	Archive	Displays the Archive History List. This is the list of the last 900 (approximate) events that happened. See Appendix A for a description of the condition codes and zone numbers. Commands J Page down 0 J Go to the end of the list K Page up 0 K Go to the beginning of the list
14	Printer	A copy of everything sent to the printer. This is useful for capturing print-outs to a file. **Note:** Status line updating is disabled while on this screen.
15	Printer Status	Displays the current printer status.
16	Network	Displays information about network communications. This includes frames sent and received, frames in error and orphan messages. Commands 0 V Clear counters on screen
17	Port 1	Displays information about the primary network port. Includes the status of the panels that are and should be online. Commands 0 V Clear counters on screen
18	Port 2	Displays information about the secondary network port. A question mark appears in front of the baud rate when the port is off-line. Commands 0 V Clear counters on screen
19	Port 3	Shows the current status ID, frame count and baud rate for the central station communications link. A question mark will appear in front of the baud rate when the port is offline. Commands 0 V Clear counters on screen
26	Port 6	Shows the current status of the MR-2614 and MR-2644 annunciators, as well as the city tie module or dialer. **Note:** ID 1 is the MR-2200HS-3200 front display.
27	Misc. Outputs	Displays the status of follow trouble, follow supervisory and aux power output types.
29	System Reset	Displays a list of resettable items. These are the items that are reset when *System Reset* is pressed.
38	Switches	Show the current on/off status of each switch and list the timer associated with each one.

Screen	Name	Description
49	Clock	Shows the status of the Daylight Savings Time option & clock calibration.
50	Tasks	This screen is restricted to Privilege Level 1 and above. This screen is for factory use only.
51*	FIFO	This screen is restricted to Privilege Level 1 and above. Displays the FIFO memory usage of various system tasks. This diagnostic screen needs to be consulted if the panel has a Memory Overflow trouble. The first line shows the total FIFO space and the largest amount any one task has used. For each task, the first number is the current usage and the second is the maximum usage. If a task uses a large amount of FIFO memory, this means that task is having difficulty in operating.
52	Memory	Displays the type and amount of extended memory installed in the system.
61	Local Annunciator	Displays the states of the optional LED zones on the front panel.
68*	Remote Terminal	Displays the service terminal screens for another panel in the network. This allows for the trouble shooting of a system from a single location. This screen automatically disconnects the remote connection if memory gets low or if no communication is received for 15 seconds. The remote panel stops sending data after 15 minutes. Commands (id) N Display the service terminal for Panel id `<Esc>` Disconnect remote connection
69*	Network Verify	Displays the current status of the network verify feature.
79	Addressable Info	System Settings regarding addressable settings.
80*	Totals	Displays totals for both SLCs, including items such as assigned, on-line, missing, etc. Also lists the total number of devices in alarm, supervisory or trouble conditions. Also lists current wiring supervision status for each loop.
81*	Detail	For a single device, shows all the programming, analog values, status and commands sent. Commands A Display next device (address)A Display selected device at address 0 M Reset Minimum/Maximum Values 0 P Energize both sets of terminals 1 P Energize only B terminals 2 P Energize only A terminals

Screen	Name	Description
82	Type On-Line	For a single circuit, shows a grid displaying all the devices that are actually on the circuit. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals
83	Type Assigned	For a single circuit, shows a grid displaying all the devices that are programmed to be on the circuit. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals
84*	Errors	For a single circuit, shows a grid displaying all the incorrect, missing and mismatched devices. This shows the differences between what is expected to be on the circuit and what actually is on the circuit. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals

Screen	Name	Description
85	Alarms	For a single circuit, shows a grid displaying the current Alarm, Early Warning, Supervisory and Trouble conditions for all devices on the circuit. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals
86	Function	For a single circuit, shows a grid displaying the Alarm and Supervisory initiating devices. Control modules are neither type and are displayed as a dash (-). Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals
88	Control Modules	For a single circuit, shows a grid displaying the current status of all the Control modules. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals
89	Bypass & Test	Displays the Bypass and Test status of all devices on an addressable circuit. Commands A — Display next device (address)A — Display selected device at address 0 M — Reset Minimum/Maximum Values 0 P — Energize both sets of terminals 1 P — Energize only B terminals 2 P — Energize only A terminals

Screen	Name	Description
90	Analog	Displays the analog values of 10 consecutive addresses for a single circuit. **Commands** A Display next device (address)A Display selected device at address 0 M Reset Minimum/Maximum Values 0 P Energize both sets of terminals 1 P Energize only B terminals 2 P Energize only A terminals
92	Sensitivity	Displays the Day/Night status, the default and manual sensitivities of all sensors on an addressable circuit. Dots are shown for any value that is not used. **Commands** C Display next addressable circuit
93	Sensitivity List	Displays the value each sensitivity setting represents.

These keyboard commands are available on all screens.

Command	Description
<Del>	Clear and redisplay screen.
<Tab>	View next available screen. Unused/unavailable screens are skipped over.
<Backspace>	View previous available screen. Unused/unavailable screens are skipped over.
0<Tab>	View Index screen showing the numbers of all available screens.
0-127<Tab>	View Selected Screen. If selected screen is unused/ unavailable, the next available screen is shown.
0.0<Tab>	TeleVideo cursor control mode.
0.1<Tab>	VT100 cursor control mode.
A	Silence buzzer.
D	Print the date and time.
(month).(date) D	Enter the date.
(month).(date).(year) D	Enter the date and year. The year may be entered as 00 to 99 in a two-digit format, or as 1991 to 2090 in a four-digit format.
(hours).(minutes) T	Set the time.
(hours).(minutes).(seconds) T	Set the time.

Command	Description
<Ctrl-V>	Clear privilege (Set to User Privilege.)
(code)<Ctrl-V>	Set privilege. (code) is either the Level 1 or Level 2 passcode programmed into the panel.
0 ?	Print downloaded database.
90 ?	Print archive.
99 ?	Print configuration.
<Esc>	Stop Printout.
<Enter>	Advance printer (paper feed).

7.0 Appendix D: Table of Reporting Codes

The following tables contain automatic Contact ID and SIA format reporting codes.

Contact ID: The first digit (in parentheses) will automatically be sent by the control. The second two digits are to indicate specific information about the signal. For example, if zone 1 is a fire zone, you could program the event code as [1A]. The central station would receive the following:

> *FIRE* - FIRE ALARM - 1 where the "1" indicates which zone went into alarm.

SIA Format – Level 2: The SIA format used in this product follows the Level 2 specifications of the SIA Digital Communication Standard – October 1997. This format will send the account code along with its data transmission. The transmission would look similar to the following at the receiver:N Ri00 FA 01

> N = New Event
>
> Ri00 = System Event
>
> FA = Fire Alarm
>
> 01 = Zone 1

Table 1: Automatic Contact ID/SIA Reporting Codes

Reporting Code	Code sent when...	Dialer Direction*	Contact ID Auto Rep. Codes	SIA Auto Rep. Codes
Zone Supv./Rest.	zone goes into supervisory/ restore (2)	S/R	AA	See Table 4
Zone Alarms/ Rest.	zone goes into alarm/ alarm condition has been restored	A/R	(1) 3A	See Table 4
Zone Trouble/ Rest.	zone exhibits a trouble condition/ zone trouble condition has been restored	T/R	(3) 73	See Table 4
AC Fail Trouble/ Rest.	AC power to control panel is disconnected or interrupted/AC power restored; both codes follow the AC Trouble Delay=	MA/R	(3) A1	AT-000/ AR-000
Battery Trouble/ Rest.	control panel battery is low/battery restored	MA/R	(3) A2	YT-000/ YR-000
Ground Fault Trouble/Rest.	Earth Ground Fault is detected/ restored	MA/R	(3) 1A	UT-000/ UJ-000
NAC Trouble/ Rest.	NAC circuit is opened/restored	MA/R	(3) 21	YA-000/ YH-000

Table 1:   Automatic Contact ID/SIA Reporting Codes (Continued)

Reporting Code	Code sent when...	Dialer Direction*	Contact ID Auto Rep. Codes	SIA Auto Rep. Codes
Dialer Bus Trouble/ Rest.	Dialer Bus connection is lost/restored	MA/R	(3) 33	NT-000/ NR-000
Line 1 or 2 TLM Trouble/Rest.	connection via Telephone Numbers 1 or 2 is lost/restored	MA/R	(3) 51	LT-XXX/ LR-XXX**
Phone # 1 or 2 FTC Trouble/ Rest.	communication is restored after a failure to communicate trouble has occurred; events not communicated during lapse will be sent	MA/R	(3) 54	YC-XXX/ YK-XXX**
Walk Test Start/ Stop	control panel has entered/exited walk test mode; no events will be communicated	MA/R	(6) A7	TS-000/ TE-000
Test Transmission Normal/ Off-Normal	test transmission reports system normal or off-normal (alarm, supervisory or trouble) control panel condition	T	(6) A2	RP-000/ RY-000

* Call directions: A/R = alarm/restoral; T/R = trouble/restoral; MA/R = maintenance alarm/restoral; S/R = supervisory/restore; T = test transmission

** Line number/telephone number is identified (XX)

Program any of these codes for zone alarms/restorals when using the standard (i.e. not automatic) Contact ID reporting format:

Table 2:   Contact ID Zone Alarm/Restore Event Codes

Medical Alarms	(1)18 Near Alarm	24 Hour Non Fire
(1)A1 Emergency	**Panic Alarms**	(1)51 Gas Detected
(1)A2 Fail to Report In	(1)2A Panic	(1)52 Refrigeration
Fire Alarms	(1)21 Duress	(1)53 Loss of Heat
(1)1A Fire Alarm	(1)22 Silent	(1)54 Water Leakage
(1)11 Smoke	(1)23 Audible	(1)55 Foil Break
(1)12 Combustion	**General Alarms**	(1)56 Day Trouble
(1)13 Water Flow	(1)4A General Alarm	(1)57 Low Bottled Gas Level
(1)14 Heat	(1)4A General Alarm	(1)58 High Temp
(1)15 Pull Station	(1)43 Expansion module failure	(1)59 Low Temp
(1)16 Duct	(1)44 Sensor tamper	(1)61 Loss of Air Flow
(1)17 Flame	(1)45 Module Tamper	

Table 3:   SIA Format Automatic Zone Alarm/Restore Codes

Zone Definition	Alarm/Rest Rep. Codes*	Supervisory/Rest. Rep. Codes*	Trouble/Rest. Rep. Codes*
Fire	FA-ZZZ/FH-ZZZ	FS-ZZZ/FR-ZZZ	FT-ZZZ/FJ-ZZZ
Sprinkler	SA-ZZZ/SH-ZZZ	SS-ZZZ/SR-ZZZ	ST-ZZZ/SJ-ZZZ
Heat	KA-ZZZ/KH-ZZZ	KS-ZZZ/KR-ZZZ	KT-ZZZ/KJ-ZZZ
Water	WA-ZZZ/WH-ZZZ	WS-ZZZ/WR-ZZZ	WT-ZZZ/WJ-ZZZ
Untyped	UA-ZZZ/UH-ZZZ	US-ZZZ/UR-ZZZ	UT-ZZZ/UJ-ZZZ

ZZZ = zones 01-250, 256

Secutron™

U.S.A
4575 Witmer Industrial Estates
Niagara Falls, NY 14305
Tel: (888) 660-4655

CANADA - Main Office
25 Interchange Way
Vaughan, ON L4K 5W3
Tel: (888) 660-4655