Secutron™

MMX

Application Guide

LT-6045SEC Rev. 0
November 2016

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1.0 Introduction

This reference guide is for application engineers who build and configure the MMX Fire Alarm Control Panel. It covers MMX firmware and software version 12.

2.0 Working with the Fire Alarm Control Panel and the Configurator

This chapter covers the most important things you need to know about the Fire Alarm Control Panel and the Configurator.

The Fire Alarm Control Panel network (also called the Fire Alarm Control Panel, the FACP, or the panel) is the system of networked panels that controls the fire detection and prevention system.

The MGC Fire Detection and Mass Notification Configurator (the Configurator) is the software application that lets you configure and manage the jobs that control the Fire Alarm Control Panel network. A job is a set of configuration data that uniquely describes and controls a set of Fire Alarm Control Panel hardware. The application icon is called **MGC Configurator V12**.

This chapter includes:

- Connecting the Configurator to the Fire Alarm Control Panel
- Sending a Job to the Fire Alarm Control Panel
- Getting the Active Job from the Fire Alarm Control Panel
- Exporting a Job
- Managing Jobs
- Changing the Active Job
- Deleting a Job
- Getting Configuration Information
- Getting Information about the CodeMeter Key
- Restarting the Fire Alarm Control Panel
- Watchdog Jumpers

2.1 Connecting the Configurator to the Fire Alarm Control Panel

You need the following items in order to connect the Configurator to the Fire Alarm Control Panel:

- Windows computer with a serial or USB port
- Serial cable or USB to serial cable
- UIMA cable
- Registered CodeMeter key
- MGC Fire Detection and Mass Notification Configurator (the Configurator) version 11 or higher

To connect the Configurator to the Fire Alarm Control Panel you must:

- Insert the CodeMeter key.
- Connect the computer and start the Configurator.

Follow the instructions below to complete these steps.

2.1.1 Inserting the CodeMeter Key

The CodeMeter key is a USB flash drive that controls access to the Fire Alarm Control Panel.

- Insert your CodeMeter key into the computer.

  The CodeMeter icon in the Windows system tray (the lower right-hand corner of the screen) turns blue.

Figure 1 Connected CodeMeter key

If the CodeMeter key is not connected, the icon is grey.

Figure 2 Disconnected CodeMeter key

2.1.2 Connecting the Computer

To connect the computer to the Fire Alarm Control Panel

1. Connect the RS-232 cable or the USB cable to the UIMA cable.
2. Connect the 10-pin head of the UIMA cable to the last CPU in the CPU chain that starts from the main board.
3. Connect the other end of the RS-232 cable or the USB cable to the computer.
4. Start the Configurator.

   The Configurator prompts you for your PIN.
5. Type your four digit PIN.

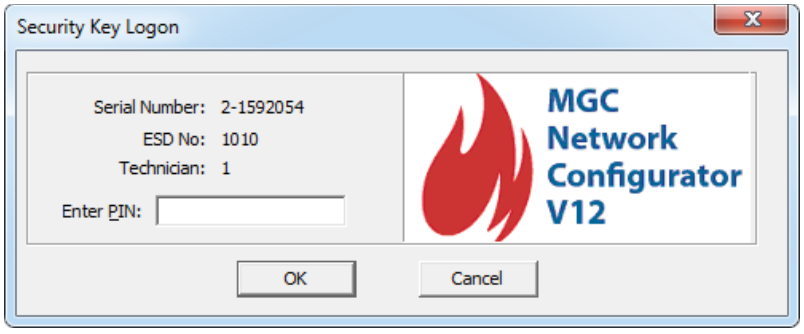


Figure 3 Security Key Logon

   If you are using an RS-232 cable with a serial port to connect the FACP and the computer, then follow these steps:

   a. In the Configurator, click **File** > **User Preferences**.

   b. In the **Serial Port** pulldown menu, select the port that the RS-232 uses to connect to the computer.

   c. Click **OK**.
6. Click **Panel** > **Connect**.

You are now connected to the Fire Alarm Control Panel.

2.2 Sending a Job to the Fire Alarm Control Panel

To send a job

1. Click **Job** > **Open Job** and open the job that you want to send.
2. In the Configurator, click **Panel** > **Connect**.
3. Click **Panel** > **Send Job**.
4. Select the nodes that you want to send the job to.

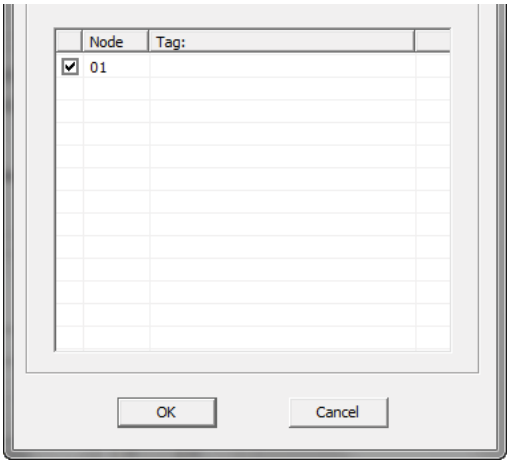


Figure 4 Send Job

A window appears warning you that the job you are about to overwrite on the panel is not backed up on the local database. This message only applies if you are sending the same version of a job that is already on the panel.

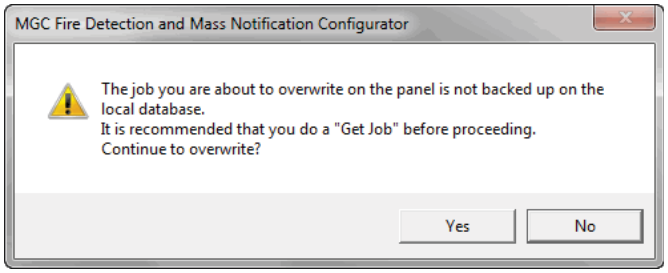


Figure 5 The job you are about to overwrite on the panel is not backed up on the local database

5. Click **Yes**.

   A window appears asking if you want to make this job the active job.

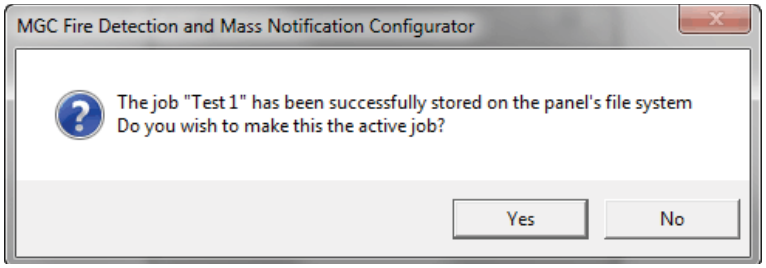


Figure 6 The job has been successfully stored

6. Click **Yes** if you want to make this job the active job.

   A window appears saying that the job was successfully downloaded to the FACP.

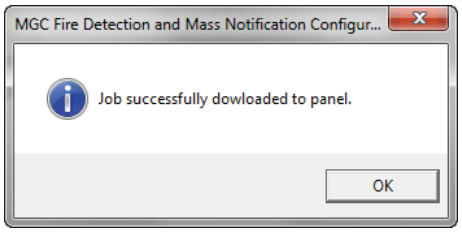


Figure 7 Job successfully downloaded

7. Click **OK**.
8. The panel restarts.

2.3 Getting the Active Job from the Fire Alarm Control Panel

To get the current active job from the Fire Alarm Control Panel

1. In the Configurator, click **Panel** > **Connect**.
2. Click **Panel** > **Get Job**.

   If a window appears saying that the job is already in the database:

   a. Click **Yes** to save it as a new version.

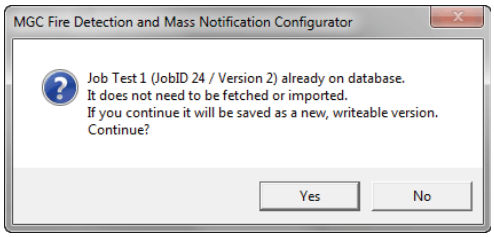


Figure 8 Job Already in Database

A window appears asking for the new version information.

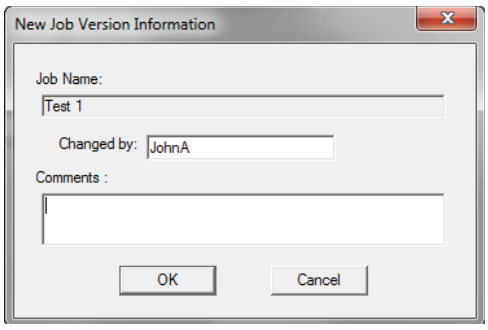


Figure 9 New Job Version Information

   b. Type a comment in the **Comments** box, and then click **OK**.

A window appears saying that the job was successfully uploaded from the FACP.

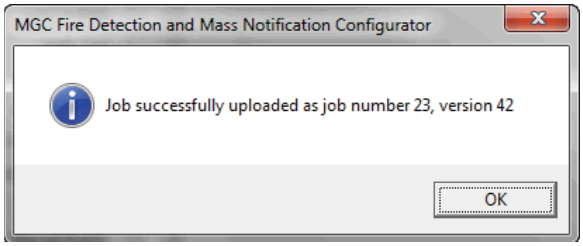


Figure 10 Job successfully uploaded

3. Click OK.

2.4 Exporting a Job

You can export jobs from the Configurator, and send them to other technicians or use them in other applications. The job file contains all the job information, including CPUs, devices, and correlations. You can export jobs in a number of formats. The two most commonly used formats are:

- **Database files (*.mdb)**. This format is used by other technicians. If you export a job in this format, another technician can import it into the Configurator on another computer.
- **OpenGN Phase II (*.xml)**. This format is used by OpenGN.

2.4.1 Exporting a job as a database file or an XML file

To export the job as a database file or an XML file

1. In the Configurator, click **Job** > **Export Job**.

   The **Export current job to a file** window appears.

   The Configurator gives the job a name of the form **Jobnn-w**, where **nn** is the job number, and **w** is the version number. You can change this name.
2. Choose a location to save the file, and type a name for the file.

- To export the job as a database file:
  - Select **Database files (*.mdb)** in the **Save as type** pulldown menu.
- To export the job as an XML file for OpenGN:
  - Select **OpenGN Phase II (*.xml)** in the **Save as type** pulldown menu.

3. Click **Save**.
4. If the **Select Firmware Version** window appears, make sure that the numbers in the first two fields match the firmware version of the FACP that is running the job that you are exporting. Then click **OK**.

2.5 Managing Jobs

You can manage the jobs on the panel and see which job is active and what has changed.

To manage jobs on the panel

- In the Configurator, click **Panel** > **Manage Jobs**.

The **Manage Jobs Configuration on Panel** window appears.

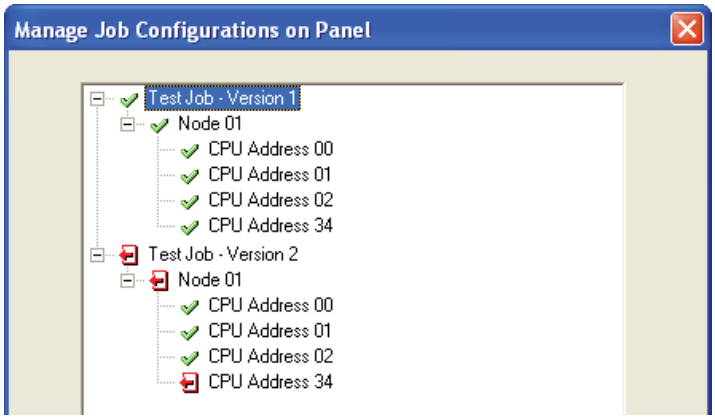


Figure 11 Manage Jobs

The FACP can hold three jobs in its memory. This window shows the jobs that are currently on the panel, and it shows the active job in orange. This window also shows any changes that have been made.

- A green check mark indicates items that are the same.
- A red arrow indicates items that were removed.
- A blue arrow indicates items that were added.

In Figure 11, Version 1 had an annunciator at address 34. This annunciator was removed in version 2.

2.6 Changing the Active Job

The FACP can hold three jobs in its memory. One of these jobs is the active job. The FACP can have only one active job at a time. You can make one of the other jobs the active job using the Configurator or using the switches on the FACP.

2.6.1 Changing the Active Job using the Fire Alarm Control Panel

Note: This procedure changes the configuration for all the nodes that are currently connected to the system.

To change the active job using the Fire Alarm Control Panel

On the main display of any node (transponder unit) or on an annunciator for any node in the system:

1. Press the MENU button, and then press the arrow buttons to scroll down to **Choose Config**.
2. Press ENTER.
3. If the system asks for your passcode, enter it, and then press ENTER.
4. Press the arrow buttons to scroll through the available configurations, and then press the ENTER button to choose the configuration you want.

5. Press ENTER to confirm.

   The system changes the active job.

2.6.2 Changing the Active Job using the Configurator

You can change the active job using the Configurator.

Note: This procedure changes the configuration for all the nodes that are currently connected to the system.

To change the active job using the Configurator

1. In the Configurator, click **Panel** > **Manage Jobs**.

   The **Manage Jobs Configuration** window appears.
2. Right-click the job you want to make active, and then click **Activate Job**.
3. Click **Yes** to confirm.

   The system changes the active job.
4. Click **OK** to close the **Manage Jobs Configuration** window.

2.7 Deleting a Job

The FACP can hold three jobs in its memory. If there are already three jobs on the FACP and you want to send a new job, you must delete one of the old jobs.

Note: You cannot delete the active job. You must make another job active first.

To delete a job

1. In the Configurator, click **Panel** > **Manage Jobs**.

   The **Manage Jobs Configuration** window appears.
2. Select the checkbox of the job that you want to delete.
3. Click **Delete Selected**.
4. Click **Yes** to confirm.

   The system deletes the job.

2.8 Getting Configuration Information

If you experience difficulty, it is helpful to have information about how the Fire Alarm Control Panel is configured. You can get this information from the Configurator and from the Fire Alarm Control Panel itself.

2.8.1 Getting Configuration Information from the Configurator

To get configuration information from the Configurator

1. In the Configurator, click **Panel** > **Connect**.
2. Click **Panel** > **Panel Information**.

   The **Panel Information** window appears.

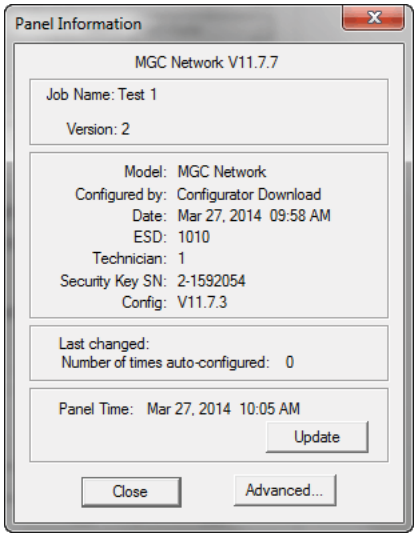


Figure 12 Panel Information

Job Name	The name of the job that is currently active on the FACP.
Version	The version number of the job that is currently active on the FACP.
Date	The date and time when the job was sent to the FACP.
ESD	The ESD (Electronic Systems Distributor) number of the organization that sent the job. Each organization has a unique ESD number, so that one organization cannot modify systems that another organization has configured.
Technician	The number of the technician who sent the job.
Config	The version of the Configurator that sent the job to the FACP.
Last changed	The date and time the FACP was last changed.
Panel Time	The date and time on the FACP.

3. Click **Advanced**.

   The **Advanced Panel Information** window appears.

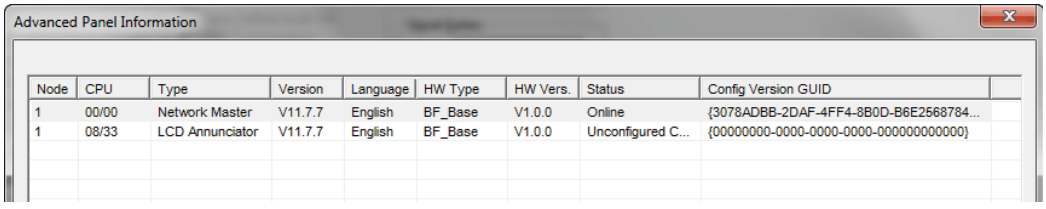


Figure 13 Advanced Panel Information

Node	The number assigned to each node.
CPU	The number for each CPU on the node.
Type	The type of CPU, for example a Main CPU, LCD Annuciator, Loop Controller, or Audio Controller.
Version	The version of the firmware on the CPU.
Language	The language that the display uses for messages and menus.
Status	The status should be **Online**.
Config Version GUID	A number that uniquely identifies the active job on the FACP.

2.8.2 Getting Configuration Information from the Fire Alarm Control Panel

You can get configuration information from the FACP itself, including the number of the ESD and technician that configured the FACP.

To get configuration information from the FACP

1. On the main display of any node or on an annunciator for any node in the system, press the MENU button.
2. Use the arrow buttons to scroll to **Config Info**, and then press ENTER.

   The display shows the **ESDNo** (ESD number) and **TechNo** (technician number).
3. Press the down arrow button to see the Build Time (the date and time when the firmware on the CPU was built).
4. Press the down arrow button to see the IP information for this node (the IP address, the subnet mask, and the default gateway).

2.9 Getting Information about the CodeMeter Key

To get information about the CodeMeter Key

1. Insert the CodeMeter key into the computer.
2. In the Configurator, click **Panel**, and then click **Security Key Info**.

The **Security Key Information** window appears.

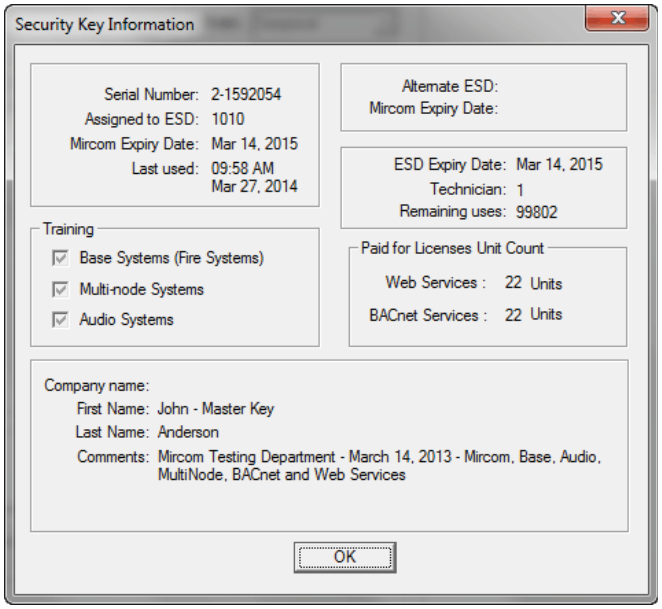


Figure 14 Security Key Information window

Assigned to ESD	The ESD (Electronic Systems Distributor) number assigned to the key. Each organization has a unique ESD number, so that one organization cannot modify systems that another organization has configured.
Training	The level of training that your organization has completed. The level of training determines what you can do with MMX. • **Base Systems:** You can use the key with a single-node system. • **Multi-node Systems:** You can use the key with multi-node systems. • **Audio Systems:** You can use the key with systems that have an audio component.
ESD Expiry Date	The date when your key expires. If your key has expired or is about to expire, contact Secutron technical support at 1-905-695-3545.
Technician	The number assigned to the technician. Each technician in your organization has a unique number.
Paid for Licenses Unit Count	The number of Web Services licenses and BACnet Services licenses that you have. You can use one Web Services license and one BACnet Services license with each job.

2.10 Restarting the Fire Alarm Control Panel

There are two ways to restart the Fire Alarm Control Panel.

- A network restart reboots all the CPUs on the network.
- A hard restart (also called a factory default) reboots the CPUs, and also makes the currently active job inactive.

2.10.1 Performing a Network Restart of the Fire Alarm Control Panel

You must perform a network restart:

- After you upgrade the firmware.
- As the first step of troubleshooting. If a network restart does not solve the problem, you can perform a hard restart. See section 2.10.3 on page 26.

To perform a network restart of the system

1. On the main display of any node or on an annunciator for any node in the system, press the MENU button.
2. Scroll down to **Network Restart**, and press ENTER.
3. Press ENTER to confirm.

   The system restarts.

2.10.2 Performing a Network Restart of a Single CPU

To perform a network restart of a single CPU

- Short (close) the reset jumper with a screwdriver for a second.

  Every CPU has a reset jumper. Reset jumpers are labeled as follows:
  - MMX-2000N: JW2
  - ANC-5000 Audio Network Controller Board: JW4
  - RAXN-LCD Network Remote Annunciator Panel: JW1
  - ALCN-792M Quad Loop Adder Module: JW1

2.10.3 Performing a Hard Restart of the Fire Alarm Control System

The next troubleshooting step to try after a network restart is a hard restart. A hard restart makes the currently active job inactive.

Note: Performing a hard restart inactivates the active job.

To perform a hard restart

1. Determine which components in your system have CPUs.

   The following components have CPUs:
   - Main panels, for instance MMX-2000N series panels
   - Audio controllers, for instance ANC-5000
   - Remote annunciators, for instance RAXN-LCD
   - Loop adders, for instance ALCN-792M Quad Loop Adder

See Figures 15 and 16 for pictures of a CPU.

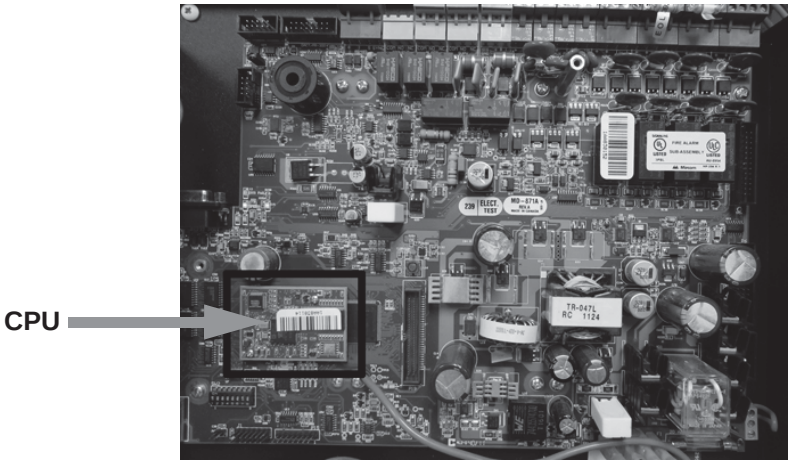


Figure 15 MMX-2003-12NDS board showing the CPU

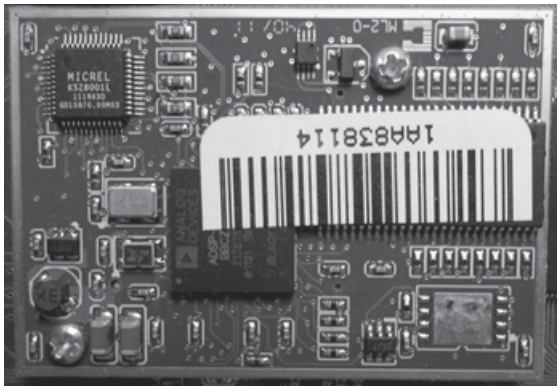


Figure 16 Close-up of a CPU

2. Set DIP switch **8** to **ON** (the up position) on all the components that have CPUs.
3. On the main display of any node or on an annunciator for any node in the system, press the MENU button.
4. Scroll down to **Network Restart**, and press ENTER.
5. Press ENTER to confirm.

   After the FACP restarts, it should display **Configuration data wiped**.
6. Set DIP switch **8** back to **OFF** (the down position) on all the components that have CPUs.

Attention: Remember to set DIP switch 8 back to OFF after a hard restart.

2.11 Watchdog Jumpers

The watchdog jumper controls the watchdog timer, which restarts the CPU if there is a malfunction. Every CPU has a watchdog jumper. For proper operation of the CPU, the

watchdog jumper must be closed. If you are experiencing problems, for example if the system does not restart properly, make sure that the watchdog jumper is closed.

Watchdog jumpers are labeled as follows:

- MMX-2000N series panels: JW4
- ANC-5000 Audio Network Controller Board: JW5
- RAXN-LCD Network Remote Annunciator Panel: JW2
- ALCN-792M Quad Loop Adder Module: JW2

3.0 Upgrading Firmware

To upgrade the firmware on a Fire Alarm Control Panel, you need the following items:

- Windows computer with a serial or USB port
- Serial cable or USB to serial cable
- UIMA cable
- Registered CodeMeter key
- The latest version of the MGC Fire Detection and Mass Notification Configurator (the Configurator)
- A copy of the latest firmware

3.1 Upgrading Firmware

Attention: This process erases all the information on the panel. Get the jobs from the panel and back up your configurations before continuing.

To upgrade the firmware on a system

1. Insert your CodeMeter key into the computer.
2. Connect the RS-232 cable or the USB cable to the UIMA cable.
3. Connect the 10-pin head of the UIMA cable to the last CPU in the CPU chain that starts from the main board.
4. Connect the other end of the RS-232 cable or the USB cable to the computer.
5. Start the Configurator.

   The Configurator prompts you for your PIN.
6. Type your four digit PIN.

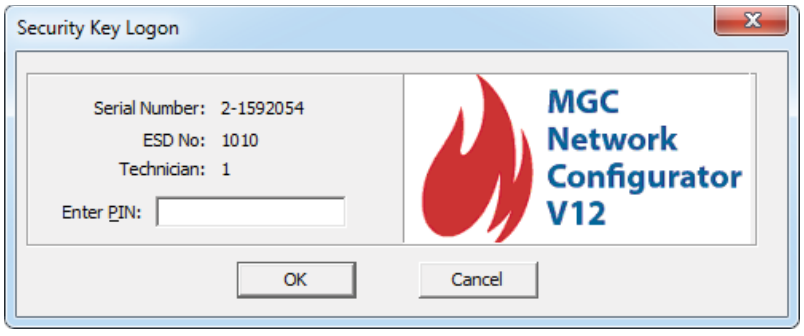


Figure 17 Security Key Logon

Note: To upgrade the firmware on the FACP, you must use the same ESD number as the organization that configured the panel, unless it is a new blank panel.

7. In the Configurator, click **Panel** > **Connect**.
8. Click **Panel** > **Upgrade Firmware**.
9. Navigate to the location where the firmware file is stored, and then click **Open**.

   The **Upgrade Firmware on Panel** window appears.

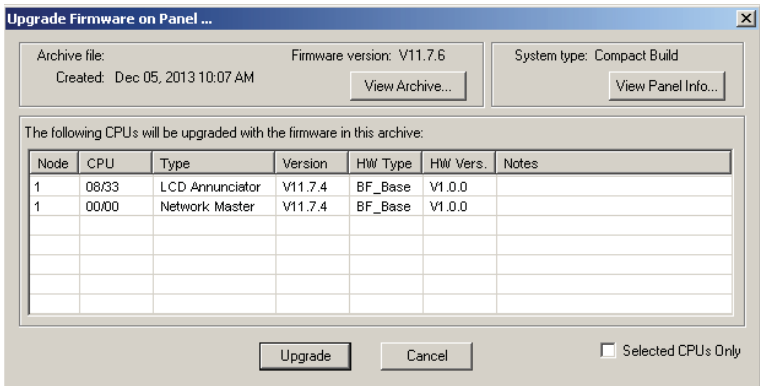


Figure 18 Upgrade firmware on panel

- If you want to upgrade the firmware on all the CPUs, click **Upgrade**.
- If you want to upgrade the firmware on only some of the CPUs, select **Selected CPUs Only**, and then hold down the Ctrl key and select the CPUs you want to upgrade. Then click **Upgrade**.

A window appears warning you that this procedure will erase the configuration on the panel.

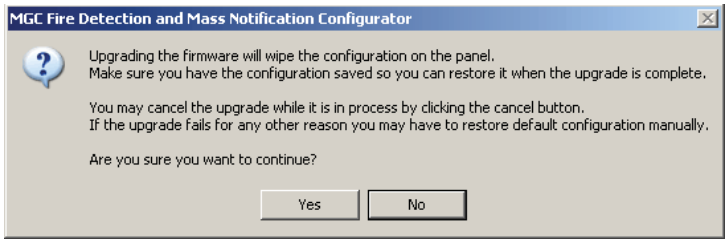


Figure 19 Firmware upgrade warning

10. Click **Yes** to continue with the upgrade.

    The Configurator uploads the firmware to the CPUs. This process can take up to 10 minutes for each type of CPU. For example, if the system has one main board and two annunciators, it has two types of CPU, and the process will take approximately 20 minutes.

    When the upgrade is complete, the **Panel firmware upgraded successfully** window appears.

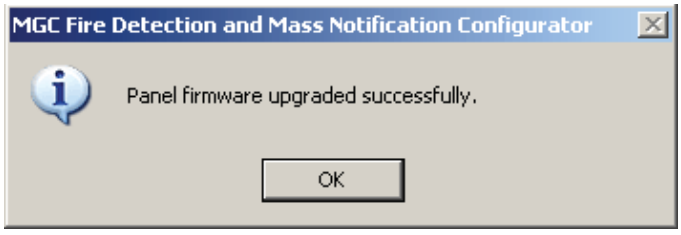


Figure 20 Panel firmware upgraded successfully

11. Click **OK**.

    After you have upgraded the firmware, you must restart the system.

12. Follow the instructions in section 2.10.1 on page 26.

13. After the system has restarted, get the advanced panel information to confirm that the system has the latest firmware. See section 2.8 on page 22.

4.0 System Limits

4.1 MMX System Limits

Unless otherwise noted, these limits apply to software and firmware version 12.

Table 1 MMX System Limits

	Device	Maximum number
1	**Nodes**	63
2	**CPUs**	12 per node: 1 on the main board + 4 local per node (quad loop adders) + 7 remote per node (annunciators) 128 CPUs in total per system Note: The audio controllers do not count towards the node limit, but they do count towards the system limit. Note: The Configurator treats LED annunciators as having CPUs.
3	**Remote Annunciators**	4 LCD annunciators per node or 4 LED annunciators per node A maximum of 7 annunciators in total per node (for example, 3 LCD annunciators and 4 LED annunciators) 50 annunciators per system
4	**Quad Loop Adders**	4 per node
5	**Built-in Conventional Loops**	2 per node 128 per system
6	**Addressable Loops**	17 per node (4 quad loop adders with 4 loops each + 1 built-in loop)
7	**Addressable Sensors**	159 per loop
8	**Addressable Input/ Output Modules**	159 per loop
9	**Audio Controllers**	1 per node
10	**Amplifiers**	2 adder bins per node 18 60-Watt amplifiers per node or 36 30-Watt amplifiers per node or 72 15-Watt amplifiers per node
11	**Zone Switches**	250 per system
12	**Page Select Switches**	504 per system
13	**Telephone Select Switches**	504 per system

Table 1 MMX System Limits (Continued)

	Device	Maximum number
14	**Inputs correlated to Remote Zones**	1800 per CPU
15	**Remote Output Zones**	1800 per CPU
16	**UDACTs**	1 per system
17	**Custom Audio Clips**	96 per system
18	**Entries in one audio message (audio clips and repeat loops together)**	32 per system
19	**Custom Digital Messages**	96 per system
20	**Custom Intervals**	60 per system
21	**Custom Timers**	30 per system
22	**Output Circuits**	318 per CPU
23	**Input Zones**	400 per CPU
24	**Proving Correlations**	100 per system
25	**Manual Controls**	200 per system
26	**Units in an Equation**	999 per CPU
27	**Equations**	220 per system
28	**Node groups**	127

4.2 Frames

The frame is a measure of display capacity. The LCD annunciators and the main displays provide frames, and the display boards (display adders) consume frames. The total number of frames used by all the display boards connected to an annunciator must not exceed the number of frames provided by that annunciator.

For example, the main display has 12 available frames, and the FDX-008 smoke control fan damper module uses 1 frame. You can connect 12 FDX-008s to a main display if you connect no other display boards. The RAX-1048 programmable zone/trouble LED uses 3 frames, so you can connect 4 RAX-1048s to a main display. Or you can connect a combination of both, for instance 2 RAX-1048s (6 frames) and 6 FDX-008s (6 frames).

Table 2 lists the number of frames used and provided by each device.

Table 2 Frame Count

Name	Description	Name in the Configurator	Frames Used	Frames Available
DSPL-420	Narrow Main Display (4 lines by 20 characters)	Main Display	2	12
DSPL-2440	Narrow Graphic Display	Main Display	2	12
RAXN-LCD	Remote Shared Display Annunciator	LCD Annunciator	1	39 (13 on each header)
RAXN-LCDG	Remote Shared Graphical Display Annunciator (24 lines)	LCD Annunciator	1	39 (13 on each header)
RAM-1016(TZ)(DS)	Remote Annunciator with 16 bi-coloured LEDs	LED Annunciator	2	N/A
RAM-1032(TZ)(DS)	Remote Annunciator with 32 trouble LEDs	LED Annunciator	2	You can add up to 4 RAX-1048(TZ)s to this device
IPS-2424(DS)	Zone Bypass, Adder Annunciator (48 Display Points)	24 Sw Adder	2	N/A
RAX-1048(TZ)(DS)	Adder Annunciator with 48 bi-coloured LEDs (DS model has 48 bi-coloured LEDs and 32 trouble LEDs)	48 LED Adder	3	N/A
FDX-008(KI)	Smoke Control Fan Damper Module	HOA Sw Adder	1	N/A
AGD-048	Adder Graphic Module with 48 supervised outputs	Graphic Adder	1	N/A
MGD-32	Master Graphic Driver Module with 32 supervised outputs	N/A	0	N/A
QAZT-5302(DS)	Addressable Telephone Selector Panel	Telephone/Page Selector	2	N/A
QMP-5101N(V)	Network Paging Control Unit	Master Paging	1	N/A

Table 2 Frame Count (Continued)

Name	Description	Name in the Configurator	Frames Used	Frames Available
QMT-5302N(V)	Network Telephone Control Unit	Master Telephone	1	N/A

5.0 Advanced Logic

Advanced logic uses logical operators such as AND, OR, and NOT, and inputs such as zones and detectors. To use advanced logic, you create a zone and add an equation in the Advanced Logic Editor. When the result of the equation is true, the associated output activates.

Attention: Do not apply an equation directly to an output. Create a zone instead. Applying an equation directly to an output bypasses all of the regular input to output correlation processing.

Chapters 8, 9 and 10 cover specific applications of advanced logic.

This chapter has 4 sections:

- An overview of the Advanced Logic Editor.
- Examples of how to use the AND, OR, NOT, ANY, and EQU operators.
- An example of how to use advanced logic with the MMX Mass Notification System (see chapter 14).
- A more complex example of advanced logic.

5.1 Overview of the Advanced Logic Editor

To open the Advanced Logic Editor

1. Select any zone or output.
2. Click the **Advanced Logic** tab in the correlations pane.
3. Click the **Edit** button.

   The Advanced Logic Editor window appears.

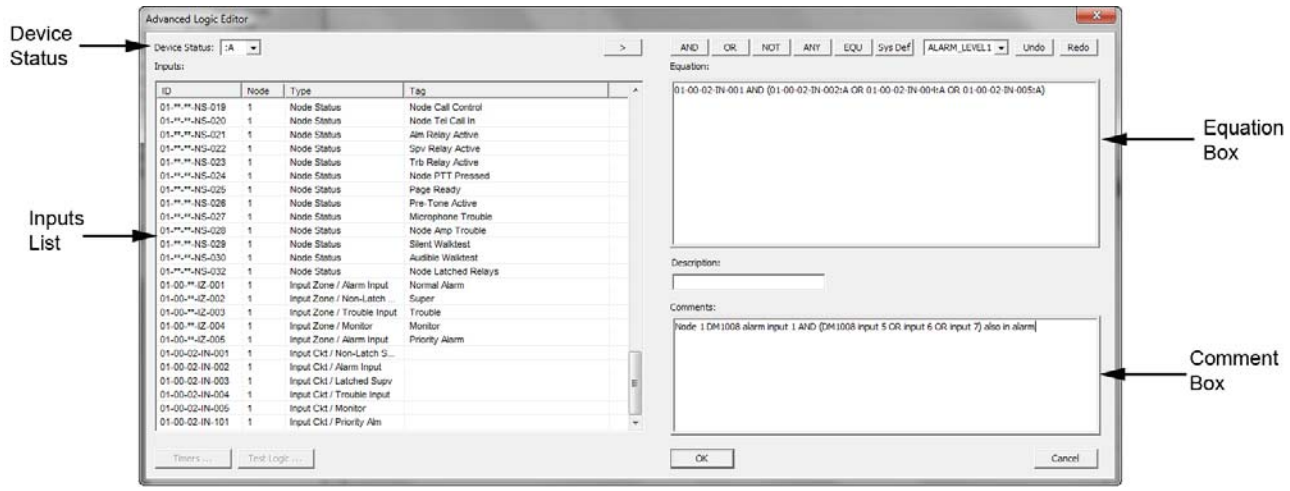


Figure 21 Advanced Logic Editor

5.1.1 Inputs List

The **Inputs** list is a list of all inputs that you can use in equations. The inputs are:

- Local input circuits
- Local input zones
- Remote input zones
- Custom Intervals
- Custom Timers
- Switches

As per UL 864 and UL 2572, the use of Custom Timers which would delay the operation of Input Zones or Outputs is not permissible.

The columns in the Inputs list are **ID**, **Node**, **Type**, and **Tag**.

- **ID:** This column displays IDs for all inputs. IDs aid in identifying the input. IDs have the following structure:

  Node Number-CPU Number-Loop Number-Circuit Type-Circuit Number

  Node Number – The two-digit number assigned to the node.

  CPU Number – The two-digit number assigned to the node's CPU.

  Loop Number – The two-digit number assigned to the loop the device is on, if applicable.

  Circuit Type – The two-letter code that identifies the type of circuit. This is used to distinguish between an input circuit, zone, interval, timer, and status. The circuit type uses the following abbreviations:

  IT – Interval

  ST – System status

  SW – Switch

  TM – Timer

  ZS – Zone switch

  NS – Node status

  IZ – Input zone

  IN – Input circuit

  Circuit Number – The three-digit number assigned to each status, switch, timer, interval, zone or input.

  A double asterisk (******) appears if there is no applicable value for certain components, such as a Loop Number for a system status.
- **Node:** This column displays the node number of each input device or zone. Global inputs, such as system statuses, control switches, timers, and intervals, have no node number.
- **Type:** This column identifies the type of input. Inputs can be intervals, system statuses, switches, timers, zone switches, node statuses, input zones, and input circuits.
- **Tag:** This column displays a description of each input.

5.1.2 Device Status

The **Device Status** menu applies a status (also called a mask) to an input. If you apply a status to an input, then the equation becomes true when the input has that status.

The statuses are:

:A – Alarm

:B – Bypass

:F – Fault

:L – Level (used with 4-20 mA input modules)

For example:

- The equation **07-02-01-IZ-001:B** is true only when this zone is bypassed.
- The equation **01-00-02-IN-001:A** is true only when this input device is in alarm.

If you do not apply a Device Status to an input, any change in the input's status results in the equation becoming true. For example, the equation **01-00-02-IN-002** (a single input device with no Device Status) is true whenever this input device changes status.

To apply a Device Status

1. Click a Device Status in the pulldown menu.
2. Double-click the input in the Inputs list.

   The input and the Device Status appear in the Equation box.

5.1.3 Operators

Operators are the operations that you apply to the inputs in the equation. The operators are:

AND Syntax: **input AND input**

An equation with AND is true only if both inputs are true. For example, the equation **01-00-02-IN-001:A AND 01-00-02-IN-002:A** is true only if both input 01-00-02-IN-001 and input 01-00-02-IN-002 are in alarm.

This equation can turn on a relay if a smoke detector in the lobby is in alarm, but not if the smoke detector in the elevator machine room is detecting smoke.

OR Syntax: **input OR input**

An equation with OR is true if either input is true. For example, the equation **01-00-02-IN-001:A OR 01-00-02-IN-002:A** is true if either input 01-00-02-IN-001 or input 01-00-02-IN-002 is in alarm.

NOT Syntax: **NOT input**

An equation with NOT is true only if the following input is not true.

For example, the equation **NOT 01-00-02-IN-001:A** is true only if input 01-00-02-IN-001 is not in alarm.

The equation **01-00-L2-SM-001:A AND NOT 01-00-L2-SM-002:A** is true if the first input (01-00-L2-SM-001) is in alarm, and the second input (01-00-L2-SM-002) is not in alarm.

ANY Syntax: **ANY n OF (input 1, input 2, ... input x)** where n is a positive integer

An equation with ANY is true if any one of the following inputs are true.

For example, the equation **ANY 1 OF (01-00-02-IN-003:A, 01-00-02-IN-004:A)** is true if any one of the inputs (01-00-02-IN-003 or 01-00-02-IN-004) is in alarm.

The following equation is true only if three of the 10 alarms are active.

ANY 3 OF (01-00-L2-SM-001:A , 01-00-L2-SM-002:A , 01-00-L2-SM-003:A , 01-00-L2-SM-004:A , 01-00-L2-SM-005:A , 01-00-L2-SM-006:A , 01-00-L2-SM-007:A , 01-00-L2-SM-008:A , 01-00-L2-SM-009:A , 01-00-L2-SM-010:A , 01-00-L2-SM-011:A)

This equation can be used to release halon in a semiconductor clean room only if three of the 10 verified alarms in the area are active.

EQU Syntax: **input EQU Sys Def**

EQU is an equal sign. An equation with **EQU** is true if the status of the input is equal to the system defined value.

For example, the equation **01-00-02-IN-003:L EQU ALARM_LEVEL1** is true if the level of the input (01-00-02-IN-003) equals alarm level 1.

As per UL 864 and UL 2572 only usage of an input's immediate TRUE or FALSE value (without the application of a mask and a test for equality) is permissible. That is, no combination of Device Status, the operator EQU or Sys Def should be used.

Sys Def **Sys Def** is a system defined value. Commonly used system defined values are:

ALARM_LEVEL1 - alarm level 1

ALARM_LEVEL2 - alarm level 2

ALARM_LEVEL3 - alarm level 3

TIMER_EXPIRED - the specified timer has expired. See chapter 8.

TIMER_RUNNING - the specified timer is running. See chapter 8.

5.1.4 Using brackets

You can use brackets **( )** to group parts of the equation together. The system treats the part of the equation in brackets as one unit.

For example, consider this equation:

****-**-**-ZS-000 AND **-**-**-ZS-001 OR **-**-**-ZS-002**

This equation is true:

- If both **-**-**-ZS-000 and **-**-**-ZS-001 are pressed.
- If both **-**-**-ZS-000 and **-**-**-ZS-002 are pressed.
- If **-**-**-ZS-002 is pressed by itself.

In contrast, the following equation groups the last 2 inputs in brackets:

****-**-**-ZS-000 AND (**-**-**-ZS-001 OR **-**-**-ZS-002)**

This equation is true if **-**-**-ZS-000 and either **-**-**-ZS-001 or **-**-**-ZS-002 are pressed. The last 2 inputs are grouped, so one of them must be active at the same time that the first input is active.

The equation is not true if **-**-**-ZS-002 is pressed by itself, because it is part of a group.

5.1.5 Equation Box

You can type equations in the Equation Box. However, to avoid mistakes, follow the steps below to add operators and inputs.

To add an input to the equation

- Select the input in the **Inputs** list, and then click the **>** button above the list.
- Or double-click the input in the **Inputs** list.

  The input appears in the Equation Box.

To add an operator to the equation

- Click one of the operator buttons above the Equation Box, for instance **AND** or **NOT**.

  The operator appears in the equation.

To add a system defined value

- Click a value in the pulldown menu, and then click the **Sys Def** button.

  The value appears in the equation.

5.1.6 Description Box

Use the Description box to add a short description to the equation. The description is required.

5.1.7 Comment Box

Use the comment box to add comments on the equation. Comments are optional, but they are important for quickly explaining the function of an equation. This allows for easier troubleshooting and quicker review of the equation later.

5.2 Example of Advanced Logic with AND

This example shows how to create an advanced logic equation with the AND operator. You must:

- Create a zone.
- Correlate the zone with an input using advanced logic.
- Correlate the zone with the output.

Follow the instructions below to complete these steps.

5.2.1 Creating a zone

To create a zone

1. Select **Input Zones** (under **Base I/O**) in the job tree on the left side of the Configurator window.
2. Click the **Insert** menu, and then click **Add Zone**.

   The **Add Zone** window appears.
3. In the **Process As** pulldown menu, click **Mon** (monitor zone). Click **Add** to add the zone, and then click **Close**.
4. Double-click in the **Tag** column, and then type a name for the zone, for instance, **Monitor Zone 1**. Press the Enter key.

   Tagging the zone helps you identify it when you create the equation.

5.2.2 Correlating the zone with an input using advanced logic

To correlate the zone with an input

1. Create two input devices, and then tag the devices appropriately. The tags help identify the devices when you create the equation.
2. Click **Monitor Zone 1**.
3. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
4. Click **:A** (alarm) in the **Device Status** menu.
5. Select the first input device, and then click the **>** button to move the device to the Equation box.
6. Click the **AND** button.
7. Select the second input device, and then click the **>** button to move the device to the Equation box.

   The equation should look like this:

   06-03-11-IN-101:A AND 06-03-11-IN-102:A
8. Type a description in the **Description** box, and then type a comment in the **Comments** box.
9. Click **OK** to close the **Advanced Logic Editor**.

5.2.3 Correlating the zone with an output

To correlate the zone with an output

1. Right-click the zone, then click **Add Correlations**.
2. Add an output, and then click **Close**.

   Monitor Zone 1 will become active when both devices become active. When **Monitor Zone 1** becomes active, its output correlations will also become active.

5.3 Example of Advanced Logic with OR

This example shows how to create an advanced logic equation with the OR operator. This is almost the same as the previous example. The only difference is the equation itself.

To create an equation with OR

1. Create a monitor zone, and then tag this zone **Monitor Zone 2**.
2. Create two input devices, and then tag the devices appropriately. The tags help identify the devices when you create the equation.
3. Click **Monitor Zone 2**.
4. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
5. Click **:A** (alarm) in the **Device Status** menu.
6. Select the first input device, and then click the **>** button to move the device to the Equation box.
7. Click the **OR** button.
8. Select the second input device, and then click the **>** button to move the device to the Equation box.

   The equation should look like this:

   06-03-11-IN-101:A OR 06-03-11-IN-102:A
9. Type a description in the **Description** box, and then type a comment in the **Comments** box.
10. Click **OK** to close the **Advanced Logic Editor**.
11. Right-click the zone, then click **Add Correlations**.
12. Add an output, and then click **Close**.

    Monitor Zone 2 will become active when either device becomes active. When **Monitor Zone 2** becomes active, its output correlations will also become active.

5.4 Example of Advanced Logic with NOT

This example shows how to create an advanced logic equation with the NOT operator. The equation will be true when Input 1 is in alarm and Input 2 is not in alarm.

To create an equation with NOT

1. Create a monitor zone, and then tag this zone **Monitor Zone 3**.
2. Create two input devices, and then tag the devices **Input 1** and **Input 2**.
3. Select **Monitor Zone 3**.
4. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
5. Click **:A** (alarm) in the **Device Status** menu.
6. Select **Input 1**, and then click the **>** button to move the device to the Equation box.
7. Click the **AND** button.

8. Click the **NOT** button.
9. Click **:A** (alarm) in the **Device Status** menu.
10. Select **Input 2**, and then click the **>** button to move the device to the Equation box.

    The equation should look like this:

    06-03-11-IN-101:A AND NOT 06-03-11-IN-102:A
11. Type a description in the **Description** box, and then type a comment in the **Comments** box.
12. Click **OK** to close the **Advanced Logic Editor**.
13. Right-click the zone, then click **Add Correlations**.
14. Add an output, and then click **Close**.

    Monitor Zone 3 will become active when **Input 1** is in alarm and **Input 2** is not in alarm.

5.5 Example of Advanced Logic with ANY

This example shows how to create an advanced logic equation with the ANY operator. The equation will be true when any 2 of the 3 devices go into alarm.

To create an equation with ANY

1. Create three input devices, and then tag the devices appropriately. The tags help identify the devices when you create the equation.
2. Create a monitor zone, and then tag this zone **Monitor Zone 4**.
3. Click **Monitor Zone 4**.
4. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

    The **Advanced Logic Editor** appears.
5. Click the **ANY** button.
6. Change the **1** in the equation to **2**, so that it is **ANY 2 OF**.
7. Type **(** (an open bracket) in the Equation box.
8. Click **:A** (alarm) in the **Device Status** menu.
9. Select the first input device, and then click the **>** button to move the device to the Equation box.
10. Type **,** (a comma).
11. Select the second input device, and then click the **>** button to move the device to the Equation box. Then type **,** (a comma).
12. Select the third input device, and then click the **>** button to move the device to the Equation box.
13. Type **)** (a close bracket).

    The equation should look like this:

    ANY 2 OF (01-00-02-IN-001:A, 01-00-02-IN-002:A, 01-00-02-IN-003:A)

14. Type a description in the **Description** box, and then type a comment in the **Comments** box.
15. Click **OK** to close the **Advanced Logic Editor**.
16. Right-click the zone, then click **Add Correlations**.
17. Add an output, and then click **Close**.

    Monitor Zone 4 will become active when any 2 of the 3 devices go into alarm.

5.6 Example of Advanced Logic with EQU

This example shows how to create an advanced logic equation with the **EQU** operator and the **Sys Def** values. The equation will be true when a 4-20 mA input input module's PW4 value is equal to ALARM_LEVEL3.

To create an equation with EQU

1. Create a monitor zone, and then tag this zone **Monitor Zone 5**.
2. Create a non-verified alarm input and select sensitivity levels in the columns **Sens**, **Sens Lvl 2**, and **Sens Lvl 3**.
3. Click **Monitor Zone 5**.
4. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
5. Click **:L** (level) in the **Device Status** menu.
6. Select the input device, and then click the **>** button to move the device to the Equation box.
7. Click the **EQU** button.
8. Click **ALARM_LEVEL3** in the pulldown menu, and then click the **Sys Def** button.

   ALARM_LEVEL3 appears in the Equation box.

   The equation should look like this:

   01-00-02-IN-101:L EQU ALARM_LEVEL3
9. Type a description in the **Description** box, and then type a comment in the **Comments** box.
10. Click **OK** to close the **Advanced Logic Editor**.
11. Right-click the zone, then click **Add Correlations**.
12. Add an output, and then click **Close**.

    Monitor Zone 5 will become active when the device's PW4 value is equal to ALARM_LEVEL3.

5.7 Using a Dummy Input

You can associate an equation with a dummy input and then reference that input in several equations.

In this example, zone 3 is true if smoke detectors 5, 6 and 7 are active. Zone 3 is then re-used in the equations for 4 different relays. The simplifies the relays' equations, which would otherwise all have to include the equation in zone 3.

The equation in zone 3 looks like this:
01-00-L0-SM-005:A AND 01-00-L0-SM-006:A AND 01-00-L0-SM-007:A

This equation is common to relays 1, 2, 3, and 4.

Relay 1:
01-00--IZ-003:A AND NOT 01-00-L0-SM-008:A**

Relay 2:
01-00--IZ-003:A AND NOT 01-00-L0-SM-009:A**

Relay 3:
01-00--IZ-003:A AND NOT 01-00-L0-SM-010:A**

Relay 4:
01-00--IZ-003:A AND NOT 01-00-L0-SM-011:A**

5.8 Example of Advanced Logic with Mass Notification

The following example shows how to use advanced logic to create a virtual zone for a typical configuration with fire and Mass Notification (see chapter 14).

5.8.1 The Mass Notification System

Governing bodies such as UL/ULC require that the Mass Notification System (MNS) and the fire control system be grouped separately in the software. The input and output devices for fire and MNS must be in different zones and these zones must be in different groups. Since an input zone cannot activate outputs in a different group, the MNS input zones will not activate fire output signals and fire input zones will not activate MNS output signals.

However, sometimes inputs from one group require the use of hardware present in a different group. For example, the fire group may have inputs that require the use of amplifiers in the MNS panel. You can use advanced logic to make inputs activate outputs that are in a different group. The following procedure demonstrates how to do this.

To activate outputs across groups, you must:

- Create two nodes in different groups.
- Assign switches to each group.
- Assign zones to each node.
- Create a virtual zone that is local to one node, but is correlated with the zone on the other node.

Follow the instructions below to complete these steps.

5.8.2 Assigning the nodes to the groups

The first step is to create two nodes, and to put them in different groups.

To assign the nodes to the groups

1. Create two nodes, and tag them **Fire Panel** and **MNS Panel**.
2. Select the **Fire Panel** node.
3. In the right pane, scroll down to the **Node Grouping** section, and then click **Add** to create a group.
4. Type the name **Fire Group**, and then click **OK**.
5. Click the **>>** button to move the **Fire Group** to the **Group Membership** box.
6. Select the **MNS Panel** node.
7. In the right pane, scroll down to the **Node Grouping** section, and then click **Add** to create a group.
8. Type the name **MNS Group**, and then click **OK**.
9. Click the **>>** button to move the **MNS Group** to the **Group Membership** box.

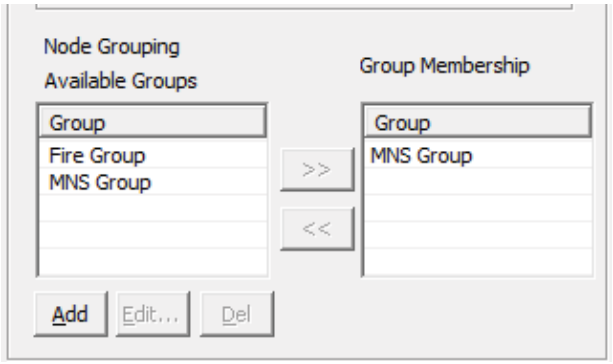


Figure 22 Node Grouping for the MNS Panel

5.8.3 Assigning switches to the groups

You must assign Common Control switches such as Signal Silence and System Reset to the appropriate group. By default, these switches are set to **Global,** which ignores any grouping.

To assign switches to the groups

1. Select **Base Control/Annun** in the **Main Display** of the **Fire Panel** node.
2. For each switch, double-click in the **Node Group** column, and then click **Fire Group** in the pulldown menu.
3. Repeat step 2 for any switches on annunciators connected to the **Fire Panel** node.
4. Select **Base Control/Annun** in the **Main Display** of the **MNS Panel** node.
5. For each switch, double-click in the **Node Group** column, and then click **MNS Group** in the pulldown menu.
6. Repeat step 5 for any switches on annunciators connected to the **MNS Panel** node.

5.8.4 Assigning zones to the nodes

You must create a zone for each node, and correlate each zone with its respective inputs.

To assign zones to the nodes

1. Select **Input Zones** under the **Fire Panel** node.
2. Create a zone, and then tag it **Fire Input Zone**.
3. Correlate this zone to the fire input devices and the fire output signals.
4. Select **Input Zones** under the **MNS Panel** node.
5. Create a zone, and then tag it **MNS Input Zone**.
6. Correlate this zone to the MNS input devices and the MNS output signals.

5.8.5 Using advanced logic to communicate between groups

You use advanced logic to tell the fire inputs to activate the output signals or play digitized messages in the MNS group.

To use advanced logic to communicate between groups

1. Select **Input Zones** under the **MNS Panel** node.
2. Create a monitor zone, and then tag it **Virtual Zone**.
3. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
4. Click **:A** (alarm) in the **Device Status** menu.
5. Select the **Fire Input Zone**, and then click the **>** button to move the zone to the Equation box.

   The equation should look like this:

   01-00--IZ-001:A**
6. Type a description in the **Description** box, and then type a comment in the **Comments** box.
7. Click **OK** to close the **Advanced Logic Editor**.
8. Correlate the **Virtual Zone** with output signals and digitized messages that are in the **MNS group**.

You have successfully created a virtual zone that communicates across groups.

The virtual zone is local to the **MNS Panel**, but you have correlated it with the **Fire Input Zone** using advanced logic. The **Fire Input Zone** can now activate outputs on the **MNS Panel**.

5.9 Complex Advanced Logic Example

5.9.1 Objective

This example shows how to create an advanced logic equation using a combination of operators. The advanced logic equation is part of a virtual input zone. It references inputs that are in a different group from the equation's virtual zone. This virtual zone is correlated with an output in its group that becomes active when the equation becomes true.

The complete equation will look like this:

(01-00-02-IN-001:A AND 01-00-02-IN-002:A) OR ANY 1 OF (01-00-02-IN-003:A, 01-00-02-IN-004:A) OR (01-00-02-IN-103:L EQU ALARM_LEVEL1 AND NOT 01-00-02-IN-103:L EQU ALARM_LEVEL2)

01-00-02-IN-001 - Example Input 1 (detector)

01-00-02-IN-002 - Example Input 2 (detector)

01-00-02-IN-003 - Example Input 2 (detector)

01-00-02-IN-004 - Example Input 5 (detector)

01-00-02-IN-103 - Example Input 4 (4-20 mA input module)

The equation is true when Example Input 1 and Example Input 2 are in alarm, or either Example Input 3 or Example Input 5 are in alarm, or Example Input 4 is equal to ALARM_LEVEL1 and not equal to ALARM_LEVEL2.

5.9.2 Creating a zone and inputs

To create a zone and inputs

1. Create an alarm input zone in the same group as the outputs that you want to activate. Tag the zone **Virtual Alarm Zone 1**.
2. Create 5 input devices and tag them **Example Input 1** to **5**. Example Inputs 1, 2, 3 and 5 are detectors and Example Input 4 is a 4-20 mA input module.

5.9.3 Adding an equation to the zone

To add the equation

3. Select **Virtual Alarm Zone 1**, and then click the **Advanced Logic** tab.
4. Click the **Edit** button.

   The **Advanced Logic Editor** appears.
5. Type **(** (an open bracket).
6. Select **:A** (alarm) in the **Device Status** menu, and then select the device tagged **Example Input 1**.
7. Click the **>** button.

   Example Input 1 appears in the Equation box.
8. Click the **AND** button.
9. Select **:A** (alarm) in the **Device Status** menu, and then select the device tagged **Example Input 2**.
10. Click the **>** button.

    Example Input 2 appears in the Equation box.
11. Type **)** (a close bracket).

    The equation so far looks like this:

    (01-00-02-IN-001:A AND 01-00-02-IN-002:A)

12. Click the **OR** button.
13. Type **(** (an open bracket).
14. Click the **ANY** button.
15. Select **:A** (alarm) in the **Device Status** menu, and then select the device tagged **Example Input 3**.
16. Click the **>** button.

    Example Input 3 appears in the Equation box.
17. Type **,** (a comma).
18. Select **:A** (alarm) in the **Device Status** menu, and then select the device tagged **Example Input 5**.
19. Click the **>** button.

    Example Input 5 appears in the Equation box.
20. Type **)** (a close bracket).

    The equation so far looks like this:

    (01-00-02-IN-001:A AND 01-00-02-IN-002:A) OR ANY 1 OF (01-00-02-IN-003:A, 01-00-02-IN-004:A)
21. Click the **OR** button, and then type **(** (an open bracket).
22. Select **:L** (level) in the **Device Status** menu, and then select the device tagged **Example Input 4**.
23. Click the **>** button.

    Example Input 4 appears in the Equation box.
24. Click the **EQU** button, click **ALARM_LEVEL1** in the pulldown menu, and then click the **Sys Def** button.
25. Click the **AND** button, and then click the **NOT** button.
26. Select **:L** (level) in the **Device Status** menu.
27. Select the device tagged **Example Input 4**, and then click the **>** button.

    Example Input 4 appears in the Equation box.
28. Click the **EQU** button, then click **ALARM_LEVEL2**, and then click the **Sys Def** button.
29. Type **)** (a close bracket).

    The equation should look like this:

    (01-00-02-IN-001:A AND 01-00-02-IN-002:A) OR ANY 1 OF (01-00-02-IN-003:A, 01-00-02-IN-004:A) OR (01-00-02-IN-103:L EQU ALARM_LEVEL1 AND NOT 01-00-02-IN-103:L EQU ALARM_LEVEL2)

    01-00-02-IN-001 - Example Input 1 (detector)

    01-00-02-IN-002 - Example Input 2 (detector)

    01-00-02-IN-003 - Example Input 2 (detector)

    01-00-02-IN-004 - Example Input 5 (detector)

    01-00-02-IN-103 - Example Input 4 (4-20 mA input module)

    The equation is true when Example Input 1 and Example Input 2 are in alarm, or either Example Input 3 or Example Input 5 are in alarm, or Example Input 4 is equal to ALARM_LEVEL1 and not equal to ALARM_LEVEL2.

30. Type a comment in the comment box, and then click **OK**.
31. Click **OK** to close the **Advanced Logic Editor**.

5.9.4 Correlating the zone with an output

To correlate the zone with an output

1. Right-click an output in the same group as **Virtual Alarm Zone 1**, and then click **Add Correlations**.
2. Select **Virtual Alarm Zone 1** and click **Add**.

   This output activates every time the virtual zone activates. The virtual zone activates whenever the equation becomes true.

6.0 Testing UUKL Devices

The goal of UUKL is prevent smoke from entering other floors (or zones) by pressurizing them to evacuate the smoke from the smoked zone.

This chapter describes how to create an interval for testing UUKL devices.

Attention: You should be familiar with advanced logic before following the instructions in this chapter. See chapter 5 on page 36.

6.1 Configuring a UUKL Smoke Control Test Interval

1. Create an interval for your testing time and cycle. Figure 23 shows an interval called **UUKL Test** from 11:09 am to 11:12 am every Tuesday. See section 8.2 on page 64 for more information.

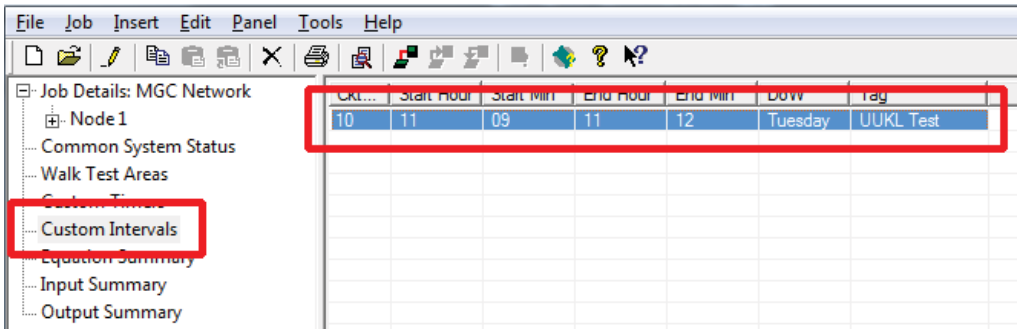


Figure 23 Interval for UUKL testing

2. Select the input zone for the UUKL devices.
3. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
4. In the Advanced Logic Editor, select the interval that you just created, and then click the **>** button to move the interval to the Equation box.

   The equation should look like this:

   ****-**-**-IT-010**

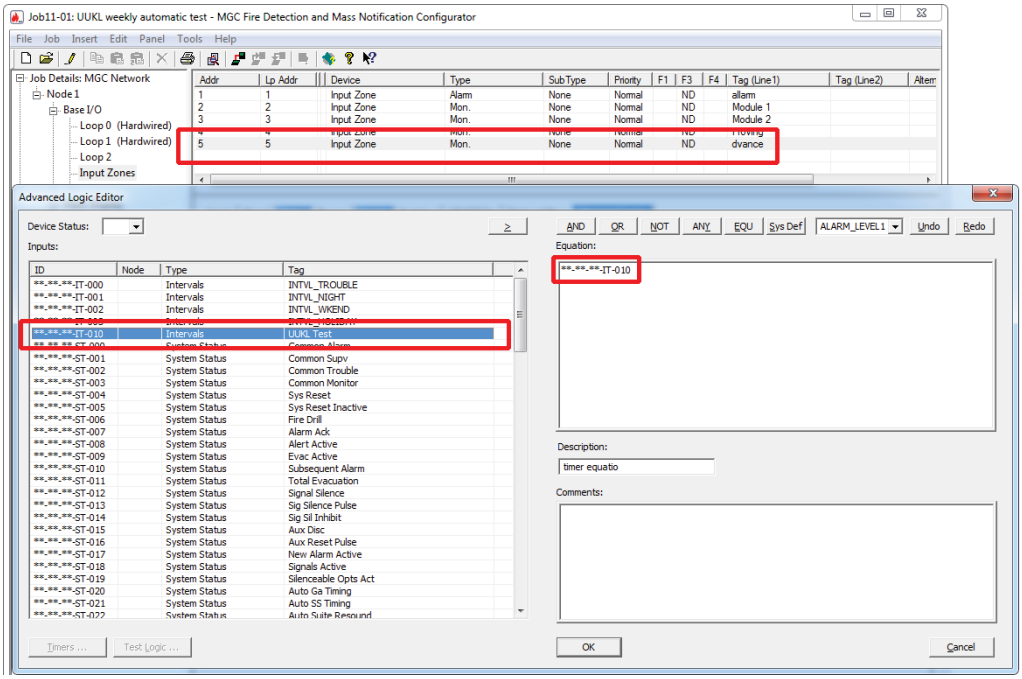


Figure 24 Advanced logic equation for UUKL test interval

5. Click **OK**.

7.0 Walk Test

The walk test allows an operator to test the system or part of the system. While the system is in walk test mode, devices can be tested without causing a real alarm situation.

There are two kinds of walk test:

- One man walk test: used on single node systems and can be done by one person
- Assisted walk test: used on single node or multinode systems and requires two people

7.1 One Man Walk Test

The one man walk test is for single node systems where one operator can conduct the walk test in a short time. The entire system switches to walk test mode for the duration of the test.

To start a one man walk test

1. Enter walk test mode from the command menu.

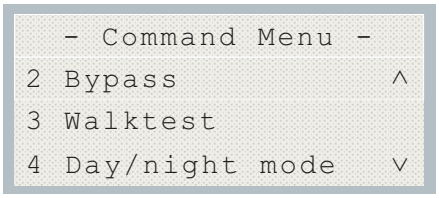


Figure 25 Enter walk test

2. Select the one man walk test option.

Figure 26 Walk test menu

3. Select the walk test type (audible or silent).

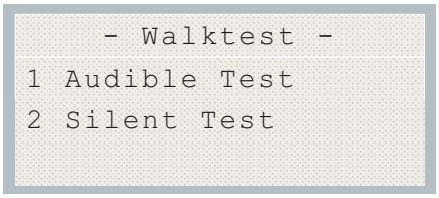


Figure 27 Select audible or silent

4. Press the UP or DOWN button to change the walk test termination timeout.

   The valid range is from 1 hour to 12 hours, and the default value is 6 hours.

Figure 28 Walk test termination timeout

5. Select 1 to start the walk test.

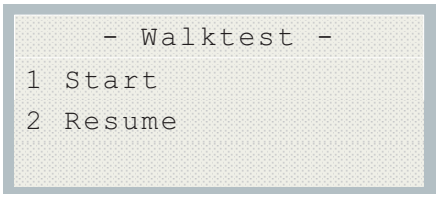


Figure 29 Start walk test

6. Test the devices.

   When a device is tested, signals and relays activate and the audio plays the walk test trouble or alarm signal (if the walk test is an audible test).

To stop the walk test

- Press the CANCEL button on the panel.

7.1.1 Results

During the walk test, the system displays the number of alarm and trouble events since the walk test started, the number of duplicate trouble and alarm events, and the number of expected events remaining for walk test completion.

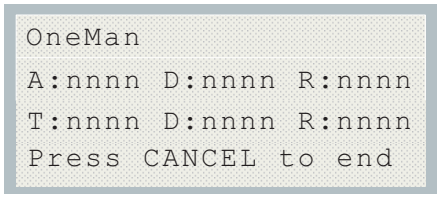


Figure 30 Walk test results

- **A** - Number of devices that reported alarm events from the moment the walk test started.
- **T** - Number of devices that reported trouble events from the moment the walk test started.
- **D** - Number of duplicate events recorded from the moment the walk test started. The duplicate event counter is separate for alarm events and for trouble events.
- **R** - Number of remaining events until the walk test is completed. The remaining event counter is separate for alarm events and for trouble events.

To browse the devices in the walk test list

- Press the UP and DOWN buttons.

  The display indicates if the device is already tested (**A:nnn** for the total number of alarm events and **T:nnn** for the total number of trouble events reported on the device).

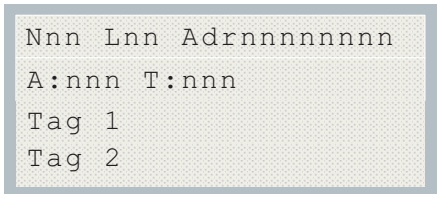


Figure 31 Walk test device information

To view the device information for the last selected device

- Press the INFO button.

  The operator can observe if the results are expected.

  The first row indicates if the last event was an alarm (**A**) or non-alarm (**T**) event. The bottom 3 rows show the device information.

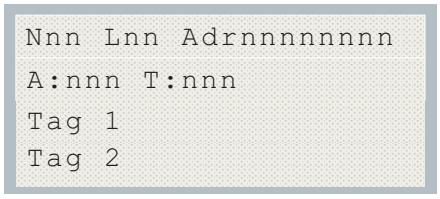


Figure 32 Walk test device information

7.2 Assisted Walk Test

The assisted walk test is for large systems where the walk test is activated only for a specific area at a time. Multinode systems have the assisted walk test option only; they do not have a one man walk test option.

In order to use the assisted walk test, the system must have walk test areas configured (see section 7.4 on page 60).

At least two operators are required to complete a walk test session. One operator (the assistant) should observe the panel and guide the walk test process. The second operator (the tester) should go to the device currently in test to generate the required conditions for the test.

The assistant and tester should use cell phones or walkie-talkies to be in direct communication with each other.

In the case of an alarm on a device outside the walk test area, the system automatically ends the walk test and enters a verification process to allow the assistant to either acknowledge the event or proceed with the regular operation of the system.

To start an assisted walk test

1. Enter walk test mode from the command menu.

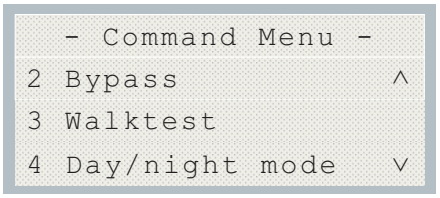


Figure 33 Enter walk test

2. Select 1 for assisted walk test.

Figure 34 Select assisted walk test

3. Select the walk test area.

   Walk test areas are configurable. See section 7.4 on page 60.

Figure 35 Walk test areas

4. Test the devices.

7.2.1 Results

During the walk test, the system displays the number of alarm and trouble events since the walk test started, the number of duplicate trouble and alarm events, the number of expected events remaining for walk test completion, and the location (node, CPU, loop, address) of the last device generating the event.

Figure 36 Walk test results

- **A** - Number of devices that reported alarm events from the moment the walk test started.
- **T** - Number of devices that reported trouble events from the moment the walk test started.

- **D** - Number of duplicate events recorded from the moment the walk test started. The duplicate event counter is separate for alarm events and for trouble events.
- **R** - Number of remaining events until the walk test is completed. The remaining event counter is separate for alarm events and for trouble events.

To browse the devices in the walk test list

- Press the UP and DOWN buttons.

  The display indicates if device is already tested (**A:nnn** for the total number of alarm events and **T:nnn** for the total number of trouble events reported on the device).

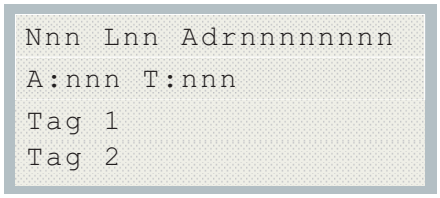


Figure 37 Walk test device information

The assistant should guide the tester on one of the following actions:

- Select a device to be tested using the UP and DOWN buttons.
- Once an alarm or trouble is triggered by the tester, the assistant can view the count change in real-time for the device.
- Press the INFO or MENU button to switch to the main walk test display screen.

To view the device information for the last selected device

- Press the INFO button.

  The assistant can observe if the results are expected and instruct the tester accordingly.

  The first row indicates if the last event was an alarm (**A**) or non-alarm (**T**) event. The bottom 3 rows show the device information.

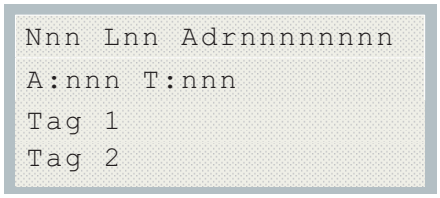


Figure 38 Walk test device information

If any alarm event from outside the test area activates, the system ends the walk test and enters alarm mode.

7.3 Walk Test Report

The results of the last walk test are saved and can be printed or displayed.

To view the results of the last walk test

1. Enter walk test mode from the command menu.

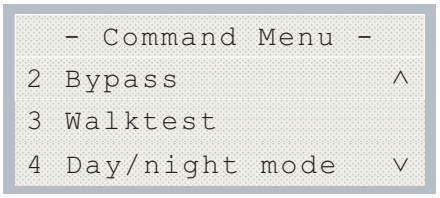


Figure 39 Enter walk test

2. Select 2 for walk test report.

Figure 40 Walk test menu

3. Select 1 for a printed report and 2 for a report on the display.

Figure 41 Walk test report options

The general information appears.

Figure 42 Walk test report

4. Use the UP and DOWN buttons to show individual devices in the walk test area. UP selects the next device from the list and DOWN selects the previous device in the list.

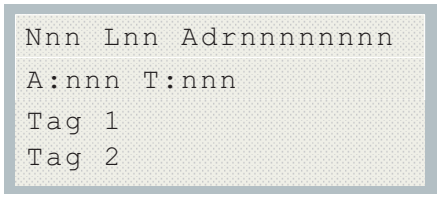


Figure 43 Walk test device information

5. Press the INFO button to switch the display to the general information for the walk test list.

Figure 44 shows an example of the printed walk test results.

```
----------     - Walktest -      - Jun 11,2015 15:22:07 ----------
------------------------ Job Name:        walktest ------------------------
------------------------------ Job version: 1.0 ------------------------------
------------------ Firmware version: 12.0.1 (Node 17, CPU 0) ----------------
Walktest    test
A:   4 D:   1 R:   6
T:   1 D:   1 R:   9
=======================================
Adr:   1 A:  0 T:  0
Nd:17 CPU: 1 L: 3
coptir on addr 1    on qla
=======================================
Adr: 101 A:  0 T:  0
Nd:17 CPU: 0 L: 2
Input 101         first node
=======================================
Adr: 103 A:  0 T:  0
Nd:17 CPU: 0 L: 2
Input 103         first node
=======================================
Adr: 101 A:  0 T:  0
Nd:17 CPU: 1 L: 3
virtual coptir 101  on qla
=======================================
Adr: 104 A:  1 T:  0
Nd:17 CPU: 0 L: 2
Input 104         first node
=======================================
Adr: 106 A:  1 T:  0
Nd:17 CPU: 0 L: 2
input 106         first node
=======================================
Adr: 107 A:  2 T:  0
Nd:17 CPU: 0 L: 2
input 107         first node
=======================================
Adr:  94 A:  1 T:  2
Nd:17 CPU: 1 L: 3
ion on addr 94      on qla
=======================================
Adr: 111 A:  0 T:  0
Nd:17 CPU: 1 L: 4
```

Figure 44 Printed walk test report

7.4 Configuring Walk Test Areas

Walk test areas are areas containing devices to be tested. Walk test areas let you test devices in one area while leaving the other areas active. You create walk test areas in the Configurator. In order to use the assisted walk test, the system must have walk test areas configured.

To create a walk test area

1. In the Configurator, select Walk Test Areas in the Job Tree.
2. Right-click in the **Details** pane and select **Add WalkTest Area**.

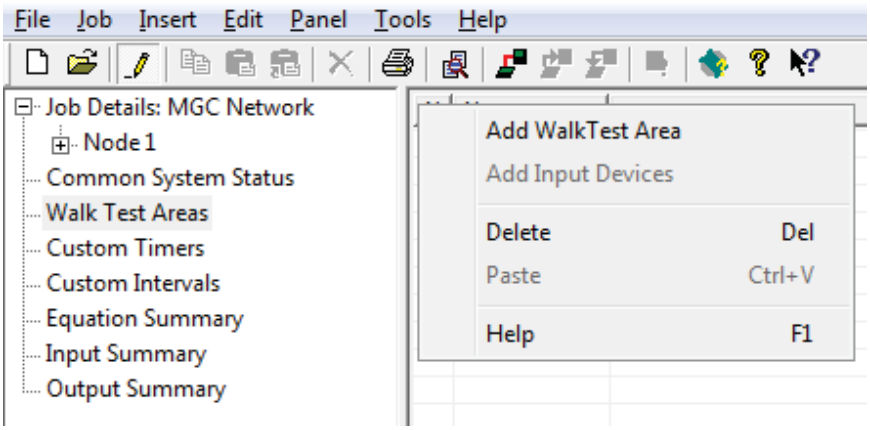


Figure 45 Add WalkTest Area

3. Enter a name for the walk test area, for instance **1st Floor**, and then click **Add**.

   The walk test area appears in the **Details** pane.

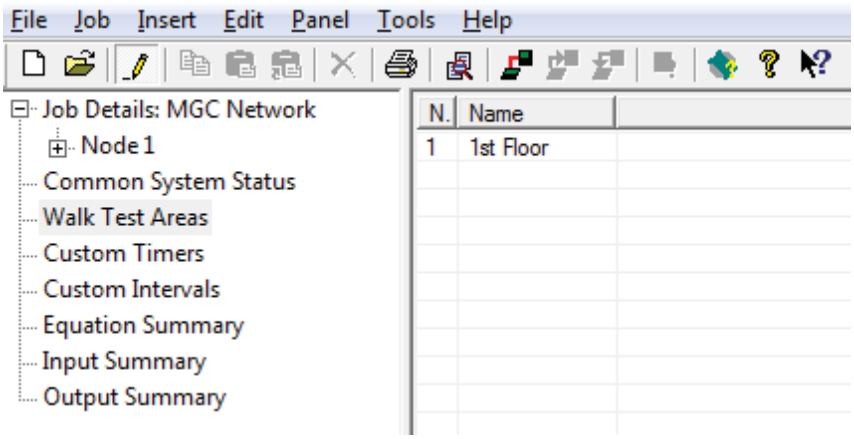


Figure 46 New walk test area

4. Right-click the walk test area, and then select **Add Input Devices**.

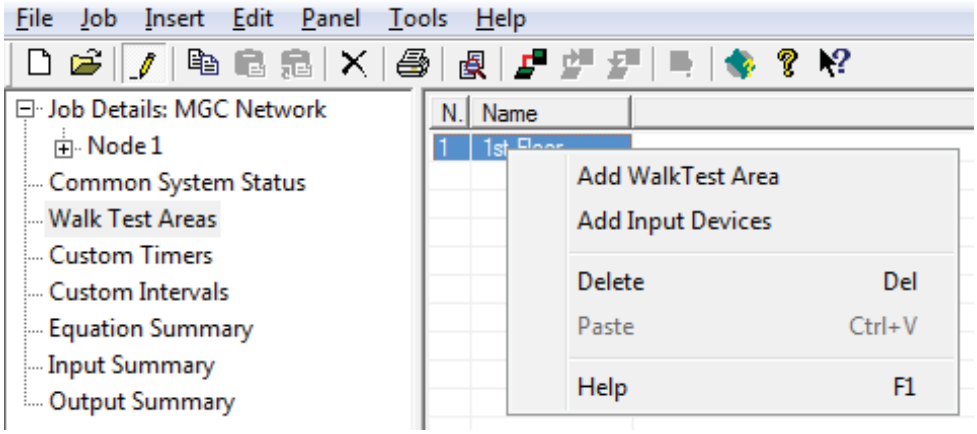


Figure 47 Add Input Devices

The **Select items to add** window appears.

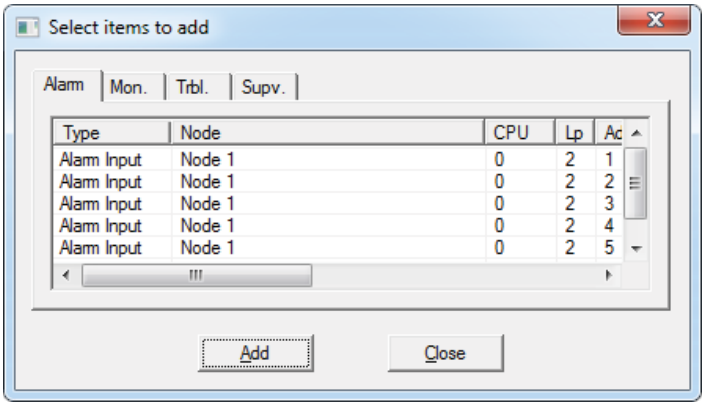


Figure 48 Select items to add

5. Select the input devices that you want to add to this walk test area, and then click **Add**.
6. Click **Close**.
7. Repeat these steps for each walk test area.

8.0 Custom Timers and Intervals

This chapter describes how to create custom timers and intervals with the Configurator. Timers and intervals let you control when and for how long a certain operation takes place.

For example, you can use a timer to delay a vent fan until the damper has had time to open, or to delay the activation of compressors so that they do not all activate at once and overload the system.

You can use an interval to change the language of announcements at certain times of day, or to turn on a dedicated air handling system once a week for testing.

All timers are initially un-assigned. To enable a timer, edit the **Enable** column to make it **Y**.

Note: As per UL 864 and UL 2572 only a setting of un-assigned is permissible.

8.1 Custom Timers

You can create a timer to activate an output a certain amount of time after an input activates. You do this with the **Custom Timers** section of the Configurator, and with advanced logic.

To make a custom timer you must:

- Create the timer.
- Correlate the timer with an input using advanced logic.
- Create a zone and correlate it with the timer using advanced logic.
- Correlate the zone with the output.

Follow the instructions below to complete these steps.

8.1.1 Creating a custom timer

To create a custom timer

1. Select **Custom Timers** in the job tree on the left side of the Configurator window.

   The list of custom timers appears on the right.
2. In the row for the next unassigned timer, double-click in the **Enable** column, and then click **Y** in the pulldown menu.
3. Double-click in the **Duration** column, and then type the duration of the timer in seconds.
4. Double-click in the **Tag** column, and then type a name for the timer.
5. Press Enter.

   The Configurator gives each timer a number starting from 16.

8.1.2 Correlating the timer with an input

To correlate the timer with an input

1. Select the timer that you just created.
2. Click **Edit** in the **Advanced Logic** window at the bottom of the Configurator window.

   The **Advanced Logic Editor** appears.
3. Double-click an input from the **Inputs** list on the left.

   The input appears in the **Equation** window.
4. Type a description for the timer in the **Description** field.
5. Click **OK**.

   The timer will start when the input activates.

8.1.3 Correlating a zone with the timer

To correlate a zone with the timer

1. Select **Input Zones** (under **Base I/O**) in the job tree on the left side of the Configurator window.
2. Click the **Insert** menu, and then click **Add Zone**.

   The **Add Zone** window appears.
3. Click **Add** to add the zone, and then click **Close**.
4. Double-click in the **Tag** column, and then type a name for the zone. Press the Enter key.
5. Select the zone that you just created.
6. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
7. Double-click the timer you created from the **Inputs** list on the left.

   You can identify the timer by the **Tag** that you gave it. The ID for the timer is something like ****-**-**-TM-016**, where **TM** means “timer” and **016** is the number of the timer. The Configurator gives each timer a number starting from 16.

   The timer you created appears in the **Equation** box.
8. Click the **EQU** button.

   The **EQU** operator appears in the **Equation** box.
9. Click the pulldown menu, click **TIMER_EXPIRED**, and then click the **Sys_Def** button.

   This equation should look something like this:

   ****-**-**-TM-016 EQU TIMER_EXPIRED**

   When timer 16 expires, the equation becomes true and the zone activates.

   If you want the zone to activate while the timer is running:

   - Click **TIMER_RUNNING** instead of **TIMER_EXPIRED**. The zone will remain active while the timer is running. When the timer expires, the zone will become inactive.
10. Type a description in the **Description** box, and then type a comment in the **Comments** box.
11. Click **OK** to close the **Advanced Logic Editor**.

8.1.4 Correlating the zone with an output

To correlate the zone with an output

1. Right-click the zone, then click **Add Correlations**.
2. Add an output, and then click **Close**.

You have successfully created a timer. The input you specified in section 8.1.2 starts the timer. The zone you created in section 8.1.3 becomes active when the equation becomes true (when the timer expires). The output you specified in section 8.1.4 activates when the zone becomes active.

8.2 Custom Intervals

An interval is a period of time during the day. Intervals have a start time, an end time, and an optional day of the week. If the day of the week is not specified, then the interval applies every day.

Follow the instructions below to make an equation that tells a zone to become active when the current time is not within a certain interval.

To create a custom interval

1. Create a trouble zone, and then tag this zone **Trouble Zone 1**.
2. Select **Custom Intervals** in the job tree.
3. Click the **Insert** menu, and then click **Add Interval**.

   The interval appears in the right pane. Intervals are numbered starting from 10.
4. Double-click in each column and select a value in the pulldown menus. You must give the interval the following values. Define the end time first, then the start time.

Start Hour	The hour that the interval starts, on the 24 hour clock.
Start Minutes	The minute that the interval starts.
End Hour	The hour that the interval ends, on the 24 hour clock.
End Minutes	The minute that the interval ends.
DoW	Day of the week. This is optional. If you leave it blank, then the interval applies every day.
Tag	A descriptive name for the interval.

5. Select **Trouble Zone 1**.
6. Click the **Advanced Logic** tab at the bottom, and then click **Edit**.

   The **Advanced Logic Editor** appears.
7. Click the **NOT** button.
8. Select the interval you created, and then click the **>** button to move the interval to the Equation box.

   The equation should look like this:

   NOT **--**-IT-010**

9. Type a description in the **Description** box, and then type a comment in the **Comments** box.
10. Click **OK** to close the **Advanced Logic Editor**.
11. Right-click the zone, then click **Add Correlations**.
12. Add an output, and then click **Close**.

    Trouble Zone 1 will become active when the current time is not within the interval.

    If you want the zone to become active when the current time is within the interval, omit **NOT** from the equation.

9.0 Zone Latching

"Latching" and "non-latching" refer to the behavior of an input. When a non-latching input initiates an alarm, the alarm stays active until the input goes back to normal status. In contrast, when a latching input initiates an alarm, the alarm stays active until the system is reset.

With advanced logic, you can latch normally non-latching zones such as monitor, trouble, and non-latching supervisory zones. A latched zone maintains outputs or timers even if the original input is no longer active.

For example, you can use zone latching to delay a strobe for a period of time after a page has occurred. The page active status is the input that initially activates the zone. This zone is correlated to the output strobes that become active when the zone becomes active. You make the zone into a latching zone with advanced logic, so that the zone remains active even after the page active status has become inactive.

9.1 Zone Latching Sequence

The order of events in a zone latching sequence is as follows:

1. A switch or input becomes active.
2. This activates the latching zone, which activates the output.
3. The zone remains active until the system is reset, so that the output also remains active.

The equation for the latching zone must have more than one input, separated by OR. One of the inputs must be the latching zone itself.

For example, the following equation for the zone 01-00-**-IZ-011 tells the zone to become active either by the input 01-00-00-IN-007, or by itself. As a result, the zone initiates itself.

01-00-00-IN-007:A OR 01-00--IZ-011**

01-00-00-IN-007 – Initiating device
01-00-**-IZ-011 – Zone

Note: The zone is referenced in its own advanced logic equation. This allows the zone to latch itself.

When the initiating device becomes active, the latching zone becomes active, because the advanced logic equation is true. If the initiating device becomes inactive or is restored, the latching zone remains active, because the equation is still true. Therefore, the zone is latched. In order to unlatch the zone, you must reset the system. This is similar to a normally latching zone such as an alarm zone.

9.2 Creating a Zone Latching Sequence

To create a zone latching sequence

1. Create an initiating device. This can be a monitor zone, input circuit, or a status such as All Call.
2. Create a non-latching zone such as a monitor zone. This will become a latching zone.
3. Select this zone, and click the **Advanced Logic** tab.
4. Create an equation that will activate the zone by the initiating zone, input, or status OR by the zone itself.

   For example, this equation is in the monitor zone 01-00-**-IZ-011:

   ****-**-**-SW-017 OR 01-00-**-IZ-01**

   --**-SW-017 – All Call common switch
   01-00-**-IZ-011 – monitor zone

   The zone 01-00-**-IZ-011 will become active when the All Call switch becomes active. If the All Call becomes inactive, the zone will remain active until the system is reset.

9.3 Creating a Latching Zone with a Timer

You can set the zone to unlatch when a timer expires. For example, this equation is for the zone 01-00-**-IZ-011:

01-00-00-IN-007:A OR (01-00--IZ-011 AND NOT **-**-**-TM-021 EQU TIMER_EXPIRED)**

01-00-00-IN-007 – Initiating device
01-00-**-IZ-011 – Zone
--**-TM-021 - Timer 21

The sequence of events is as follows:

1. The initiating device 01-00-00-IN-007 goes into alarm.
2. The equation is now true, and the zone 01-00-**-IZ-011 becomes active.
3. Another initiating device starts Timer 21.
4. The initiating device 01-00-00-IN-007 goes back to normal status, but the equation is still true because Timer 21 is not expired, so the zone remains active.
5. When Timer 21 expires, the equation is no longer true, and the zone becomes inactive.

10.0 Relay Pulsing

Relay pulsing refers to a configuration where a relay turns on (closes) and then turns off (opens) after a single switch press. An example of relay pulsing is the activation of a pre-recorded digital message with the first switch press, and then the deactivation of the message with the second switch press, simulating a maintained switch.

10.1 Relay Pulsing Sequence

The order of events in an example relay pulsing sequence is as follows:

1. A switch or input becomes active.
2. This activates the monitor zone **Input Switch**.
3. This activates the zone **Latch A**, which will remain latched until **Latch B Timer** starts (see chapter 9).
4. **Latch A** activates **Latch A Timer**, which is linked to the output relay by advanced logic.
5. **Latch A Timer** activates the output relay while **Latch A Timer** is running. The timer is usually set for a short period of time, such as 3 seconds, in order to simulate a pulse. This is the first pulse.
6. **Latch A Timer** expires, which deactivates the output relay.
7. The switch is pressed again, or the input becomes inactive.
8. This activates the zone **Latch B**, which will remain latched until the switch is pressed again or the input becomes active.
9. **Latch B** starts **Latch B Timer**, which is linked to the output relay by advanced logic.
10. **Latch B Timer** activates the output relay while it is running. The timer is usually set for a short period of time, such as 3 seconds, in order to simulate a pulse. This is the second pulse.
11. **Latch B Timer** expires, which deactivates the output relay.

10.2 Creating a Relay Pulsing Sequence

Follow this procedure to create the relay pulsing sequence described above.

To create a relay pulsing sequence

1. Create a monitor input zone. Tag the zone **Input Switch**.
2. Select the zone **Input Switch**, click the **Advanced Logic** tab, and then click **Edit**.
3. In the **Advanced Logic Editor**, create an equation that contains only the input or switch that will start the pulse.
4. Create two timers. Specify a time in seconds, for example 3 seconds. Tag them **Latch A Timer** and **Latch B Timer**.
5. Create another monitor input zone. Tag this zone **Latch A**.
6. Select the zone **Latch A**, click the **Advanced Logic** tab, and then click **Edit**.
7. Create the following equation:

   01-00--IZ-007 OR (01-00-**-IZ-011 AND NOT **-**-**-TM-021 EQU**

TIMER_EXPIRED)

01-00-**-IZ-007 – **Input Switch** zone
01-00-**-IZ-011 – **Latch A** zone
--**-TM-021 – **Latch B Timer**

Latch B Timer is included in the equation so that Latch A will unlatch (become inactive) during the second pulse (when Latch B Timer starts).

8. Create another monitor input zone. Tag this zone **Latch B**.
9. Select the zone, click the **Advanced Logic** tab, and then click **Edit**.
10. Create the following equation:

    ****-**-**-TM-020 EQU TIMER_EXPIRED AND (NOT 01-00-**-IZ-007 OR 01-00-**-IZ-012)**

    --**-TM-020 – **Latch A Timer**
    01-00-**-IZ-007 – **Input Switch** zone
    01-00-**-IZ-012 – **Latch B** zone

This equation becomes true when the switch is pressed for the second time or the input becomes inactive. Latch B will remain latched until the switch becomes active or the input becomes active.

11. Select **Latch A Timer** in the **Custom Timers** section on the left side of the Configurator window.
12. Click **Edit** under **Advanced Logic**.
13. Add the **Latch A** zone to the equation.

    When the Latch A zone becomes active, this timer will start.
14. Select **Latch B Timer**.
15. Click **Edit** under **Advanced Logic**.
16. Add the **Latch B** zone to the equation.

    When the Latch B zone becomes active, this timer will start.
17. Select the output relay, click the **Advanced Logic** tab, and then click **Edit**.
18. Create an equation that will be true if either Latch A Timer or Latch B Timer is running:

    ****-**-**-TM-020 EQU TIMER_RUNNING OR **-**-**-TM-021 EQU TIMER_RUNNING**

    --**-TM-020 – **Latch A Timer**
    --**-TM-021 – **Latch B Timer**

Attention: We recommend that you do not apply an equation directly to an output, except in special cases.

You have successfully created a relay pulsing sequence.

10.3 Relay Pulsing with Multiple Switches

If you want to use multiple switches, you can add an equation to the monitor zone to reduce interference between switches. Refer to the example below:

01-00-00-IN-008 AND NOT ANY 1 OF (01-00--IZ-008 , 01-00-**-IZ-009 , 01-00-**-IZ-010)**

01-00-00-IN-008 – Input circuit 1
01-00-**-IZ-008 – Input Switch 2
01-00-**-IZ-009 – Input Switch 3
01-00-**-IZ-010 – Input Switch 4

This equation is optional. However, it will reduce interference between switches. For example, if the first switch is pressed, and then Input Switch 2 is pressed, issues could arise if both switches are turning digital messages on or off. This is because the first message would be overridden.

11.0 Hardware Layouts

Note: The information in this chapter is for reference only and is subject to change without notice. For complete details refer to the respective manual.

The MMX Fire Alarm Control System contains two major types of nodes: Fire Nodes and Mass Notification Nodes. The entire system is modular and any number of combinations are possible when building a system.

The Fire Nodes use the MMX-BBX-1024R, the MMX-BBX-1072A(R)DS, the BB-5008, and the BB-5014 model backboxes.

The Mass Notification Node uses the MMX-BBX-FXMNS model backbox.

The system can also include Audio-Signaling Enclosure Cabinets that can connect to either node and use the MMX-BBX-MSNXP backbox. Local Operating Consoles use the MMX-LOC backbox and are used with Mass Notification Nodes.

Note: Leave at least ¼ inch (6.35 mm) between the door and any metal parts inside the cabinet or chassis.

11.1 Hardware Nomenclature

For a chassis:

- The number indicates the number of modules that the chassis holds. For instance, the MMX-2003-12NDS can accommodate 3 modules, and the MMX-2017-12NDS can accommodate 17 modules.
- The number after the dash indicates the output of the transformer. For example, the transformer on the MMX-2003-12NDS has an output of 12 A.
- The N suffix indicates that the device is part of a networked fire panel.

For an annunciator:

- The number represents the number of LEDs the device has. For example, The RAM-1016 has 16 LEDs, and the RAX-1048 has 48 LEDs.
- The TZ suffix indicates that the device has trouble LEDs.
- The DS suffix indicates that the device has a newer kind of switch (a dome switch).

For a backbox:

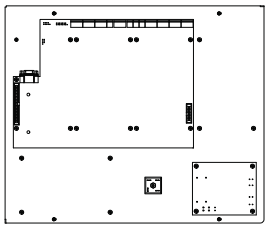
- For backboxes with the BB prefix, the number indicates the number of annunciators that the backbox holds. For example, the MMX-BB-1008 holds 8 annunciators.
- The DS suffix indicates that the backbox has a window that accommodates DS displays (with dome switches).
- B or R indicates whether the door is black or red. If there is no letter, then the door is white or the same colour as the cabinet.

11.2 Chassis

Table 3 Chassis

Name	Description	Mounts in	Number of Additional Displays or Adder Modules	Notes
MMX-2003-12NDS 	12 Amp Compact Main Chassis	MMX-BBX-1024DS(R)	FNC-2000 Network Controller Module and 2 adder modules over the main board plus 2 annunciator or programmable modules	Slot 3 is reserved for MR-2300-PR (Polarity Reversal/ City Tie Module) or UDACT-300A (Dialer) if required FNC-2000 (Fire Network Controller Module) goes in slot 2 FOM-2000-SP (Fiber Optic Network Module) is mounted over FNC-2000
MMX-2003-12NXTDS 	12 Amp Compact Main Chassis Extended Enclosure	MMX-BBX-1024R	NC-2000 Network Controller Module and 2 adder modules over the main board plus 6 adder boards and 2 annunciator or programmable modules	
MMX-2009-12NDS 	12 Amp Large Main Chassis	BB-5008 and BB-5014 (occupies 4 display positions)	FNC-2000 Network Controller Module and 2 adder modules over the main board plus 6 adder boards and 3 annunciator or programmable modules	Slot 3 is reserved for MR-2300-PR or UDACT-300A if required FNC-2000 goes in slot 2 FOM-2000-SP is mounted over FNC-2000

Table 3 Chassis (Continued)

Name	Description	Mounts in	Number of Additional Displays or Adder Modules	Notes
MMX-2017-12NDS 	12 Amp Mid-size Main Chassis	MMX-BBX-1072A(R)DS	FNC-2000 Network Controller Module and 2 adder modules over the main board plus 14 adder boards and 3 annunciator or programmable module	Slot 3 is reserved for MR-2300-PR or UDACT-300A if required FNC-2000 goes in slot 2 FOM-2000-SP is mounted over FNC-2000
MMX-2000MNS 	Main Network Board	MMX-BBX-FXMNS	9 adder modules	
ECX-0012 	Expander Chassis for MMX-2009-12N	BB-5008 and BB-5014 (occupies 2 display positions)	2 displays 12 adder modules	12 adder modules or any 2 of the following 3 options: • 6 adder modules • 1 main board and 3 adder modules • 1 ANC-5000 and 1 TNC-5000

11.3 Display Modules

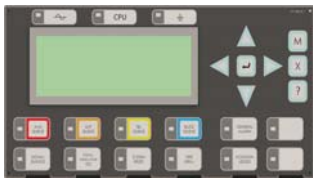
Each of these Display Modules occupies one display position and mount to the display cutouts on the following chassis:

- MMX-2003-12NDS Compact main chassis
- MMX-2003-12NXTDS Mid-size main chassis
- MMX-2017-12NDS Mid-size main chassis
- MMX-2009-12NDS Large main chassis
- ECX-0012 Expander chassis for MMX-2009-12NDS

These modules can also be mounted in the standard BB-5000 cutouts (with brackets), as well as the MMX-BB-1000 enclosures (requires RAXN-LCD as a driver).

11.3.1 Main Displays

Table 4 Main Displays

Name	Description	Mounts in
DSPL-420 	Narrow Main Display (4 lines by 20 characters)	MMX-BBX-1072A(R)DS BB-5008(R) BB-5014(R) MMX-BBX-FXMNS MMX-2003-12NDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS
DSPL-2440 	Narrow Graphic Display	MMX-BBX-1072A(R)DS BB-5008(R) BB-5014 MMX-BBX-FXMNS MMX-2003-12NDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS

11.3.2 Programmable Modules

Programmable modules are also called display adders, display boards, or display modules. They can be installed on the door of any unit that has display module slots.

Table 5 Display Boards

Name	Description	Mounts in
IPS-2424DS 	Zone Bypass, Adder Annunciator (48 Display Points)	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2017-12NDS MMX-2009-12NDS ECX-0012 BB-5008(R) BB-5014 MMX-BB-1000 series MMX-BBX-FXMNS

Table 5 Display Boards (Continued)

Name	Description	Mounts in
FDX-008/KI 	Smoke Control Fan Damper Module, 8 zones	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2017-12NDS MMX-2009-12NDS ECX-0012 BB-5008(R) BB-5014 MMX-BB-1000 series MMX-BBX-FXMNS

11.3.3 Remote Annunciators

Remote annunciators are also called display modules or display adders.

Table 6 Remote Annunciators

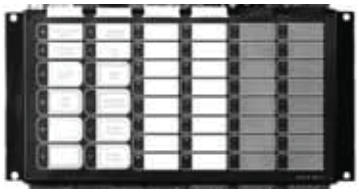
Name	Description	Mounts in
RAM-1016TZDS 	Remote Annunciator with 16 bi-coloured LEDs and 16 trouble LEDs	MMX-BB-1000 series
RAM-1032TZDS 	Remote Annunciator with 16 Bi-coloured LEDs and 32 trouble LEDs	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2017-12NDS MMX-2009-12NDS ECX-0012 BB-5008(R) BB-5014 MMX-BB-1000 series

Table 6 Remote Annunciators (Continued)

Name	Description	Mounts in
RAX-1048TZDS 	Adder Annunciator with 48 bi-coloured LEDs and 32 trouble LEDs	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2017-12NDS MMX-2009-12NDS ECX-0012 BB-5008(R) BB-5014 MMX-BB-1000 series MMX-BBX-FXMNS
RAXN-LCD 	Remote Shared Display Annunciator	MMX-BB-1000 series BB-5008(R) BB-5014 MMX-BBX-FXMNS MMX-LOC ECX-0012
RAXN-LCDG 	Remote Shared Graphical Display Annunciator (24-line display)	MMX-BB-1000 series BB-5008(R) BB-5014 ECX-0012 MMX-BBX-FXMNS
RAM-216 	Annunciator with 16 bi-coloured LEDs	Mounts to a 4 gang electrical box.
RAM-208 	Annunciator with 8 bi-coloured LEDs	Mounts to a 4 gang electrical box.

Table 6 Remote Annunciators (Continued)

Name	Description	Mounts in
RTI-1 	Remote Trouble Indicator (single LED and trouble buzzer)	Mounts to a single gang electrical box.
MGD-32	Master Graphic Driver Module with 32 supervised outputs	BB-5008 BB-5014
AGD-048	Adder Graphic Module with 48 supervised outputs	BB-5008 BB-5014

11.4 Paging and Fire Fighter Telephone Modules

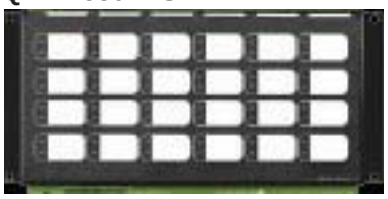
These modules can be installed on the door or inside any node with paging module slots. The specific number and combination of paging and fire fighter telephone modules varies depending on the application and requirements of the job.

These devices are also called audio controllers or audio modules. They are the same size as display boards, but they contain a telephone or microphone. They can be installed on the door or inside any unit that has paging module slots.

Table 7 Paging and Fire Fighter Telephone Modules

Name	Description	Mounts in
QMP-5101N 	Network Paging Control Unit	BB-5008 BB-5014 MMX-LOC MMX-BB-1000 series
QMP-5101NV 	Network Paging Control Unit (Vertical Mount)	MMX-BBX-FXMNS

Table 7 Paging and Fire Fighter Telephone Modules (Continued)

Name	Description	Mounts in
QMT-5302N 	Network Telephone Control Unit	BB-5008 BB-5014 MMX-BB-1000 series
QMT-5302NV 	Network Telephone Control Unit (Vertical Mount)	MMX-BBX-FXMNS
QAZT-5302DS 	Addressable Telephone Selector Panel	BB-5008 BB-5014 MMX-BB-1000 series

11.5 Adder Modules

These modules can be installed inside any node with adder module slots. The specific number and combination of adder modules varies depending on the application and requirements of the job.

11.5.1 Network Controller Modules

Table 8 Network Controller Modules

Name	Description	Mounts in	Notes
FNC-2000	Fire Network Controller Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	1 per node

Table 8 Network Controller Modules (Continued)

Name	Description	Mounts in	Notes
FOM-2000-SP	Fibre Optic Network Adder Module	MMX-2003-12NDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	1 per node
ANC-5000	Audio Network Controller Module	QMB-5000N BB-5008 and BB-5014, positions 4 - 9 MMX-2009-12NDS	1 per node
TNC-5000	Telephone Network Controller Module	QMB-5000N BB-5008 and BB-5014, positions 4 - 9 MMX-2009-12NDS	1 per node

11.5.2 Adder Modules

Adder modules are circuit boards that provided added functionality. They can be installed inside any unit that has adder module slots.

Each of these adder modules occupy one module slot and mount inside the following chassis unless otherwise specified:

- MMX-2003-12NDS Compact main chassis
- MMX-2003-12NXTDS Mid-size main chassis
- MMX-2009-12NDS Large main chassis
- MMX-2017-12NDS Mid-size main chassis
- ECX-0012 Expander chassis for MMX-2009-12NDS

Table 9 Controller Cards

Name	Description	Mounts in	Notes
ALCN-792M	Quad Loop Controller Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	7 per node
ALCN-792D	Quad Loop Adder Daughter Board	Mounts on top of ALCN-792M	7 per node

Table 9 Controller Cards (Continued)

Name	Description	Mounts in	Notes
DM-1008A	8 Initiating Circuit Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	8 per built-in loop 16 per node
SGM-1004A	4 Notification Appliance Circuit Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	8 per built-in loop 16 per node
RM-1008A	8 Relay Circuit Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	8 per built-in loop 16 per node
UDACT-300A	Digital Alarm Communicator Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	1 per system
MR-2300-PR	Polarity Reversal/City Tie Module	MMX-2003-12NDS MMX-2003-12NXTDS MMX-2009-12NDS MMX-2017-12NDS ECX-0012 MMX-2000MNS	1 per node

11.6 Booster Power Supplies

Table 10 Booster Power Supplies

Name	Description	Mounts in
INX-10AC 	Addressable Booster Power Supply	BB-5014 MMX-BBX-FXMNS BB-5008(R)

11.7 Backboxes

Backboxes, also called enclosures, are large steel cabinets that hold chassis, displays, and adder modules.

11.7.1 MMX-BBX-1024R Fire Node Backbox

The MMX-BBX-1024R is the smallest backbox available. It holds the MMX-2003-12NDS Compact Main Chassis along with batteries for emergency operation. The MMX-2003-12NDS Compact Main Chassis contains the main display, mother board, adder modules and the transformer. It fits directly into the MMX-BBX-1024R backbox. The outer dimensions of the MMX-BBX-1024R fit within 26.3” X 14.8” X 4.6”.

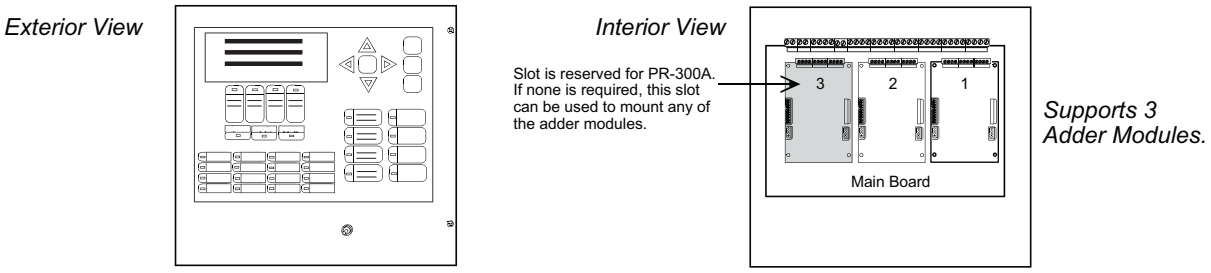


Figure 49 MMX-2003-12NDS mounts in the MMX-BBX-1024DS enclosure

Table 11 MMX-BBX-1024R

Name	Description	Holds	Dimensions
MMX-BBX-1024DS(R) 	Black backbox, white or red door	MMX-2003-12NDS 17 Ah battery pack	26.3” H x 14.8” W x 4.6” D

11.7.2 MMX-BBX-1072A(R)DS Fire Node Backbox

The MMX-BBX-1072A(R)DS backbox is larger than the MMX-BBX-1024R. It contains the MMX-2017-12NDS Mid-Size Main Chassis along with the batteries for emergency operation. The MMX-2017-12NDS Mid-Size Main Chassis contains the main display, mother board, adder modules and the transformer. It fits directly into the MMX-BBX-1072A(R)DS backbox. The outer dimensions of the MMX-BBX-1072A(R)DS fit within 33.9” X 26.4” X 6.5”.

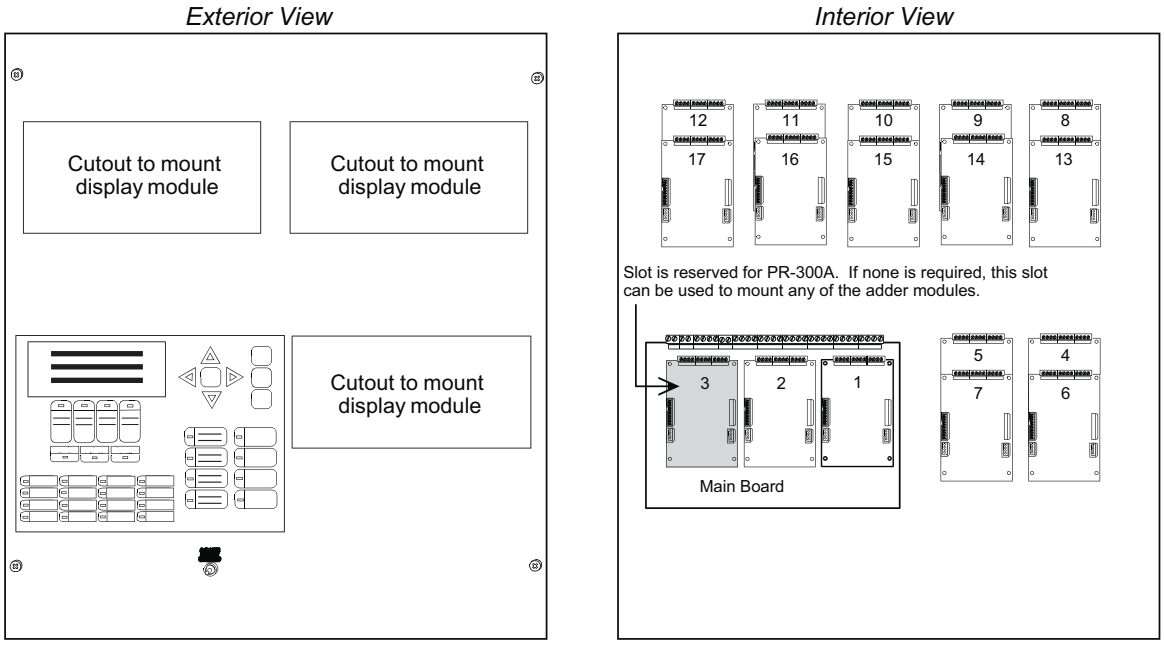


Figure 50 MMX-2017-12NDS mounts in the MMX-BBX-1072A(R)DS Backbox

Table 12 BBX-1072A(R)DS

Name	Description	Holds	Dimensions
MMX-BBX-1072A(R)DS 	Black backbox, white or red door	MMX-2017-12NDS DSPL-420 DSPL-2440 24 Ah battery pack	33.9” H x 26.4” W x 6.5” D

11.7.3 BB-5008 Fire Node Backbox

The BB-5008 backbox is larger than the MMX-BBX-1072A(R)DS. It can use the MMX-2009-12NDS Large Main Chassis combined with ECX-0012 Expander Chassis for additional display modules and the CCH-5008/CCH-5014 Custom Mounting Kits for paging and fire fighter telephone modules. The MMX-2009-12NDS Large Main Chassis can be substituted for two ECX-0012 Expander Chassis with the main display being replaced by the DSPL-420 Narrow Main Display module. The outer dimensions of the BB-5008 fit within 38.0” X 32.5” X 7.5”.

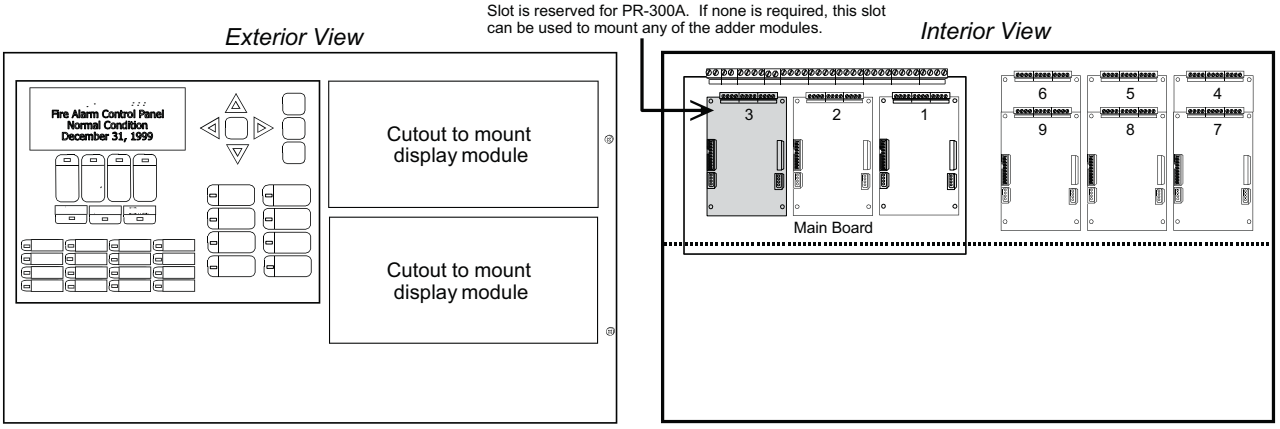
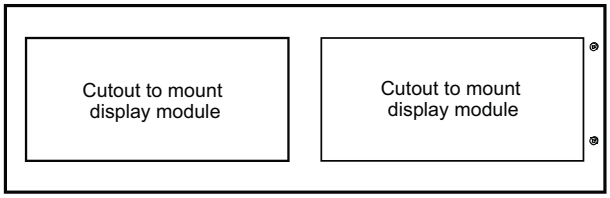


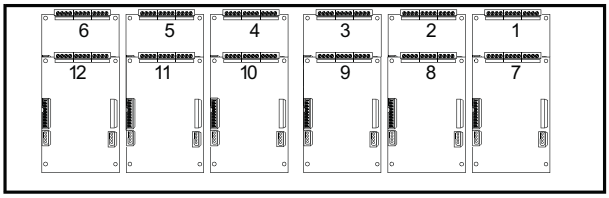
Figure 51 MMX-2009-12NDS mounts and occupies 4 display positions in BB-5008 or BB-5014

Exterior View



Supports 2 Display Modules.

Interior View



Supports 12 Adder Modules.

The backplate can support 12 Adder Modules or any 2 of the following 3 options: 6 Adder Modules, 1 Main Board and 3 Adder Modules, 1 Telephone Network Card and 1 Audio Network Card

Figure 52 EXC-0012 mounts and occupies 2 display positions in BB-5008 or BB-5014

Table 13 BB-5008 Backbox

Name	Description	Holds	Number of Displays and Remote Annunciators	Dimensions
BB-5008(B/R) 	Lobby Control Backbox (black backbox, black or red door)	1 MMX-2009-12NDS or 2 ECX-0012s DSPL-420 DSPL-2440 RAXN-LCD RAXN-LCDG QMT-5302N QMP-5101N QAZT-5302DS INX-10AC 24 Ah battery pack	8 (the MMX-2009-12NDS uses 4, the ECX-0012 uses 2)	38.0” H x 32.5” W x 7.5” D

11.7.4 BB-5014 Fire Node Backbox

The BB-5014 backbox is the largest available backbox. It can use the MMX-2009-12NDS Large Main Chassis combined with ECX-0012 Expander Chassis for additional display modules and the CCH-5008/CCH-5014 Custom Mounting Kits for paging and fire fighter telephone modules. The MMX-2009-12NDS Large Main Chassis can be substituted for two ECX-0012 Expander Chassis with the main display being replaced by the DSPL-420 Narrow Main Display module. The outer dimensions of the BB-5014 fit within 61.5” X 32.5” X 7.5”

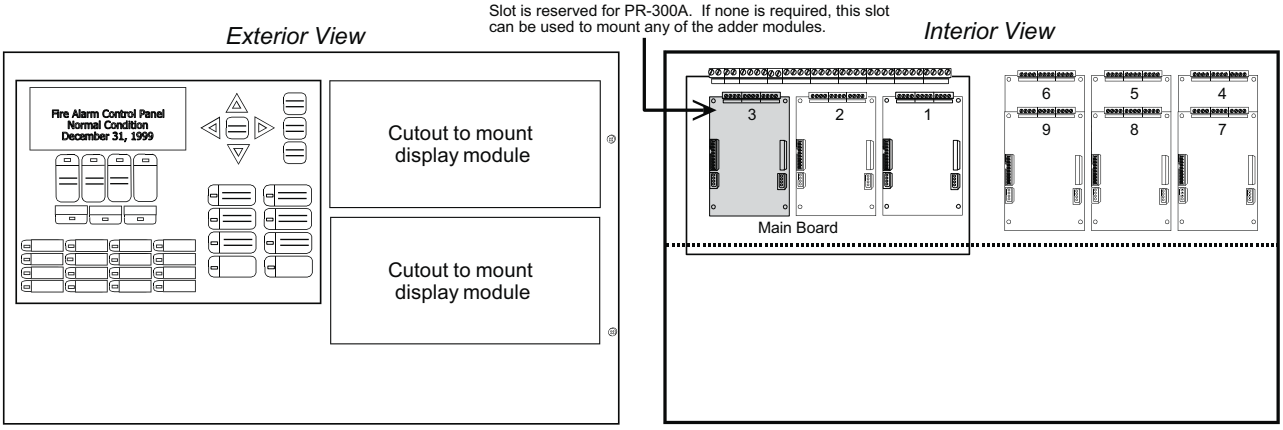


Figure 53 MMX-2009-12NDS mounts and occupies 4 display positions in BB-5008 or BB-5014

Table 14 BB-5014 Backbox

Name	Description	Holds	Number of Displays and Remote Annunciators	Dimensions
BB-5014(B/R) 	Lobby Control Backbox (black backbox, black or red door)	1 MMX-2009-12NDS 2 ECX-0012s DSPL-420 DSPL-2440 INX-10AC RAXN-LCD RAXN-LCDG QMT-5302N QMP-5101N QAZT-5302DS 24 Ah battery pack	14 (the MMX-2009-12NDS uses 4, the ECX-0012 uses 2)	61.5” H x 32.5” W x 7.5” D

11.7.5 ECX-0012 Expander chassis for MMX-2009-12NDS

The backplate can support 12 adder modules or any 2 of the following 3 options:

- 6 adder modules
- 1 main board and 3 adder modules
- 1 telephone network module and 1 audio network module.

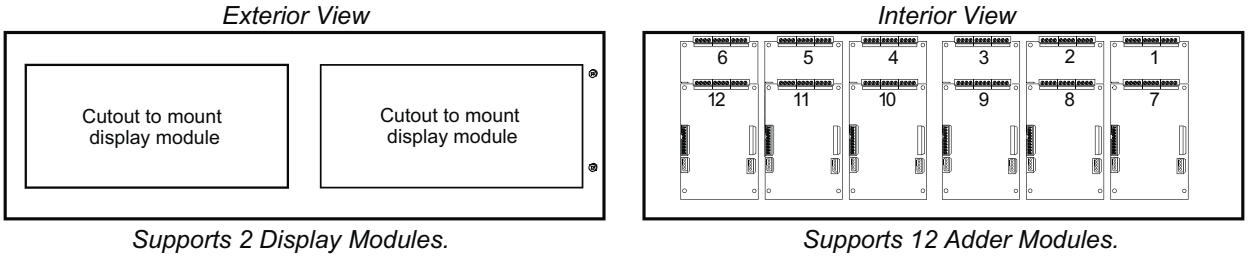


Figure 54 ECX-0012 mounts and occupies 2 display positions in BB-5008 or BB-5014

11.7.6 Mounting of paging and firefighter telephone modules in the BB-5008 or BB-5014

The paging and firefighter telephone modules mount in the MMX-BB-1000 or BB-5000 series enclosures. These modules require brackets for mounting. The brackets are attached to the backplates of the enclosures. The MMX-2017-12NDS mid-size main chassis does not have provisions for these brackets since adder modules are mounted to the backplate. In order to mount the paging and firefighter telephone modules, order the CCH-5008 or CCH-5014 custom mounting kits which will provide the proper deadfront as well as the brackets on the backplate. These modules can also be mounted in the MMX-BB-1000 enclosures.

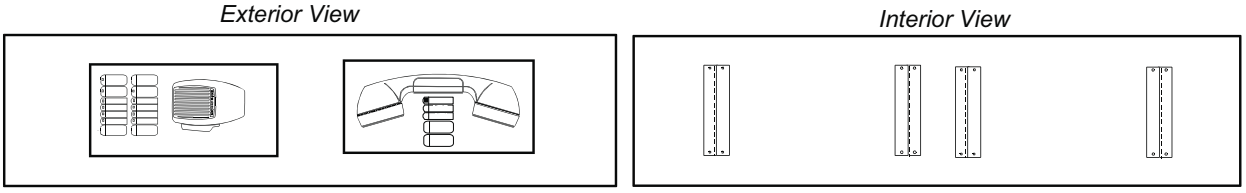


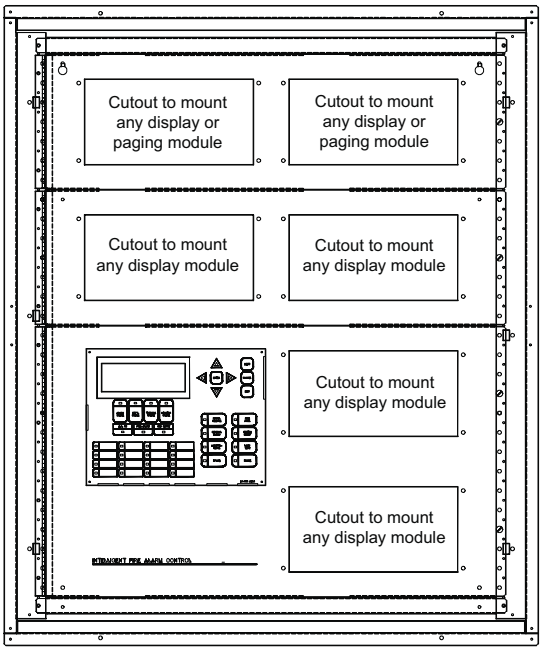
Figure 55 Mounting of Paging and Fire Fighter Telephone Modules in the BB-5008

11.7.7 BB-5008 and BB-5014 sample layouts

The modular nature of a fire node allows for many different configurations and combinations of modules depending on the requirements of the job. The figures below show sample layouts for the BB-5008 and BB-5014, but many other layouts are possible.

BB-5008 Sample Layout

Exterior View



Interior View

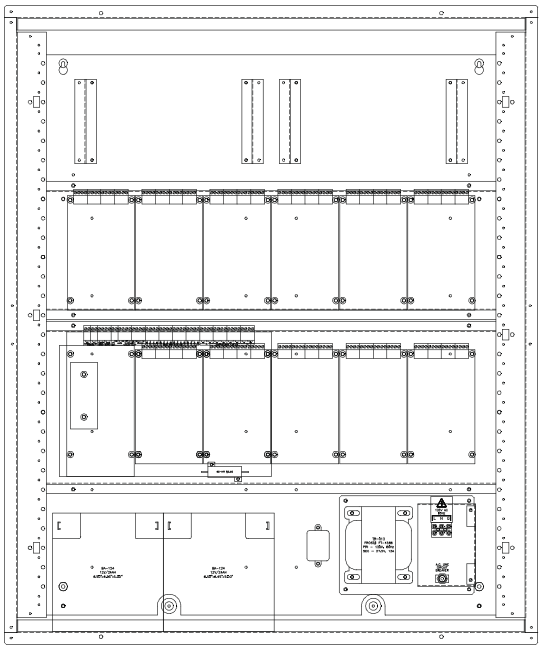


Figure 56 BB-5008 Sample Layout

BB-5014 Sample Layout

Exterior View *Interior View*

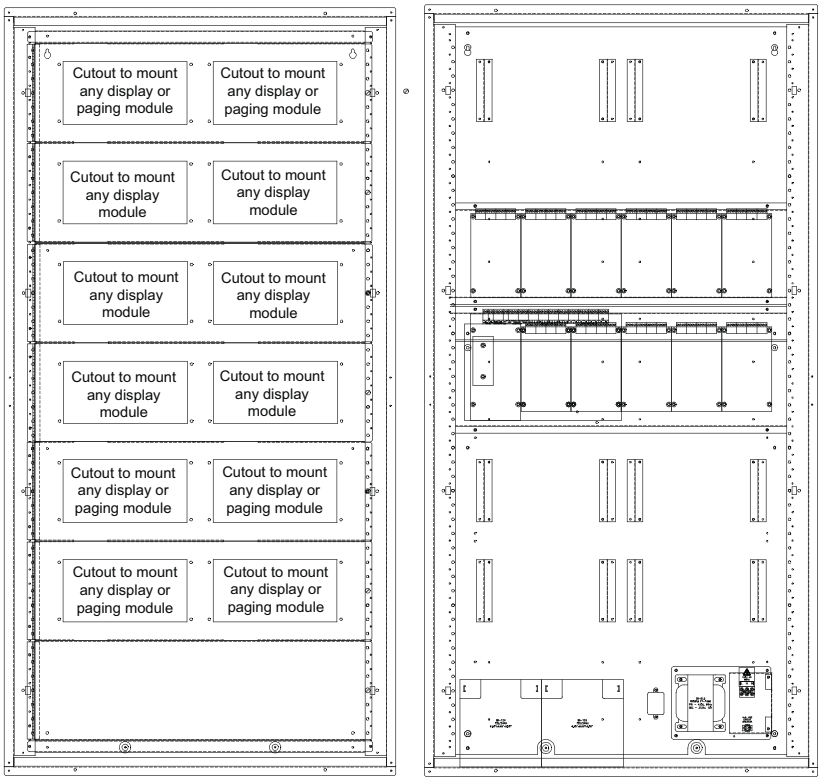


Figure 57 BB-5014 Sample Layout

11.7.8 Backboxes for the RAXN-LCD and RAXN-LCDG

Table 15 Backboxes for the RAXN-LCD(G)

Name	Number of annunciators and audio modules it holds	Dimensions	Horizontal distance between mounting screws	Vertical distance between mounting screws
MMX-BB-1001	1	9”H x 12.75”W x 1.2”D	9.95”	7.50”
MMX-BB-1002	2	18”H x 12.75”W x 1.2”D	9.95”	16.5”
MMX-BB-1003	3	26.4”H x 12.75”W x 1.2”D	9.95”	24.90”
MMX-BB-1008	8	33”H x 22.5”W x 1.25”D	20.9”	35.2”
MMX-BB-1012	12	45”H x 22.5”W x 1.25”D	20.9”	52.0”

11.8 MMX-BBX-FXMNS Mass Notification Node Backbox

The MMX-BBX-FXMNS backbox is used for the mass notification node. It can hold 2 paging modules, 9 adder modules and 7 display modules as shown in Figure 58. It also supports the addition of 4 audio amplifiers along with audio and telephone networking modules. The outer dimensions of the MMX-BBX-FXMNS fit within 63.5” X 22.5” X 9.5”.

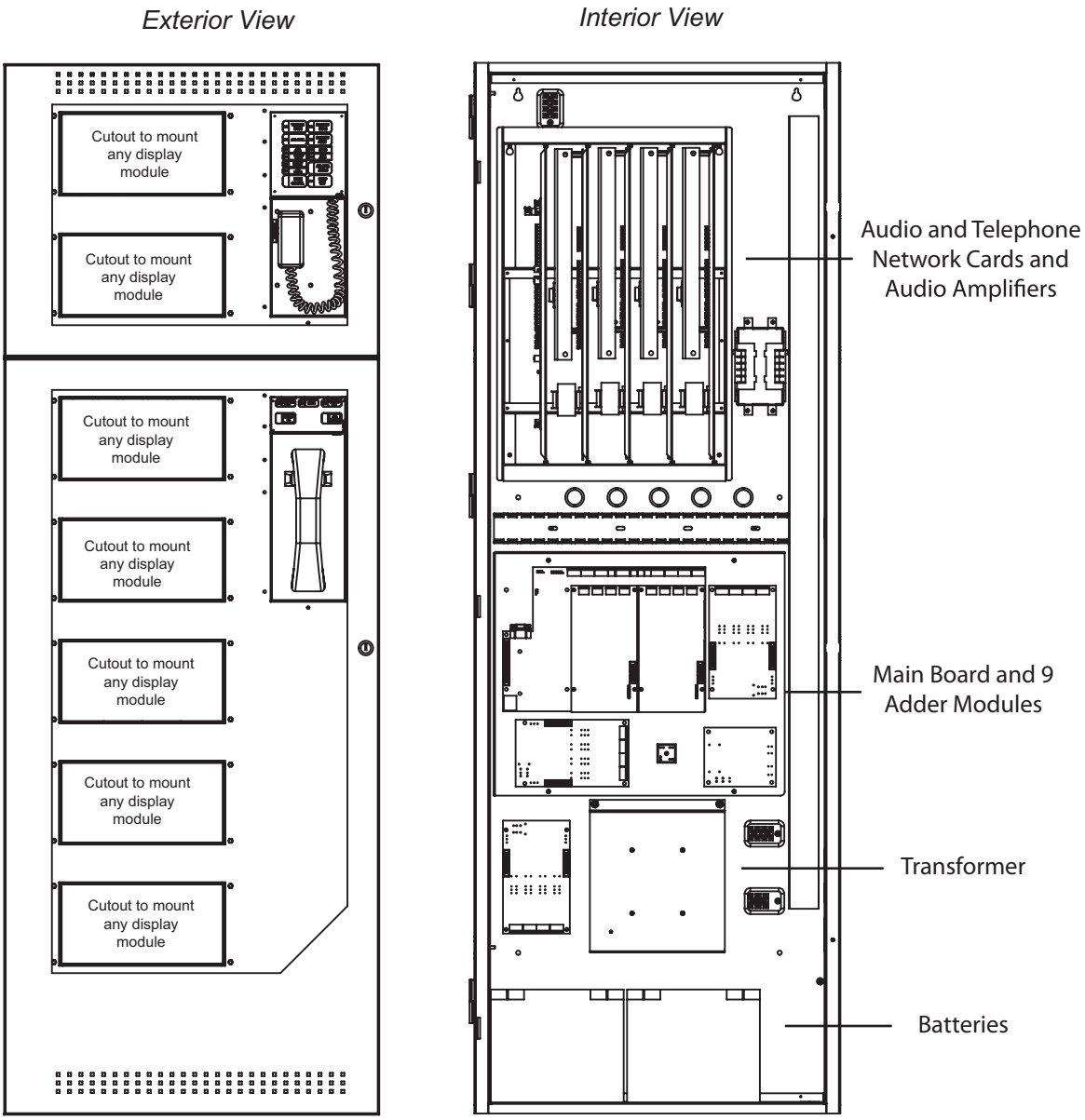


Figure 58 MMX-BBX-FXMNS Sample Layout

11.9 BBX-MNSXP Multi-Purpose Backbox

This backbox can provide additional audio amplification for speakers and strobes. It can hold up to 7 amplifier boards and 3 INX-10AC Intelligent NAC Expander/Power Supplies. The outer dimensions are 62.75” X 27.5” X 9”.

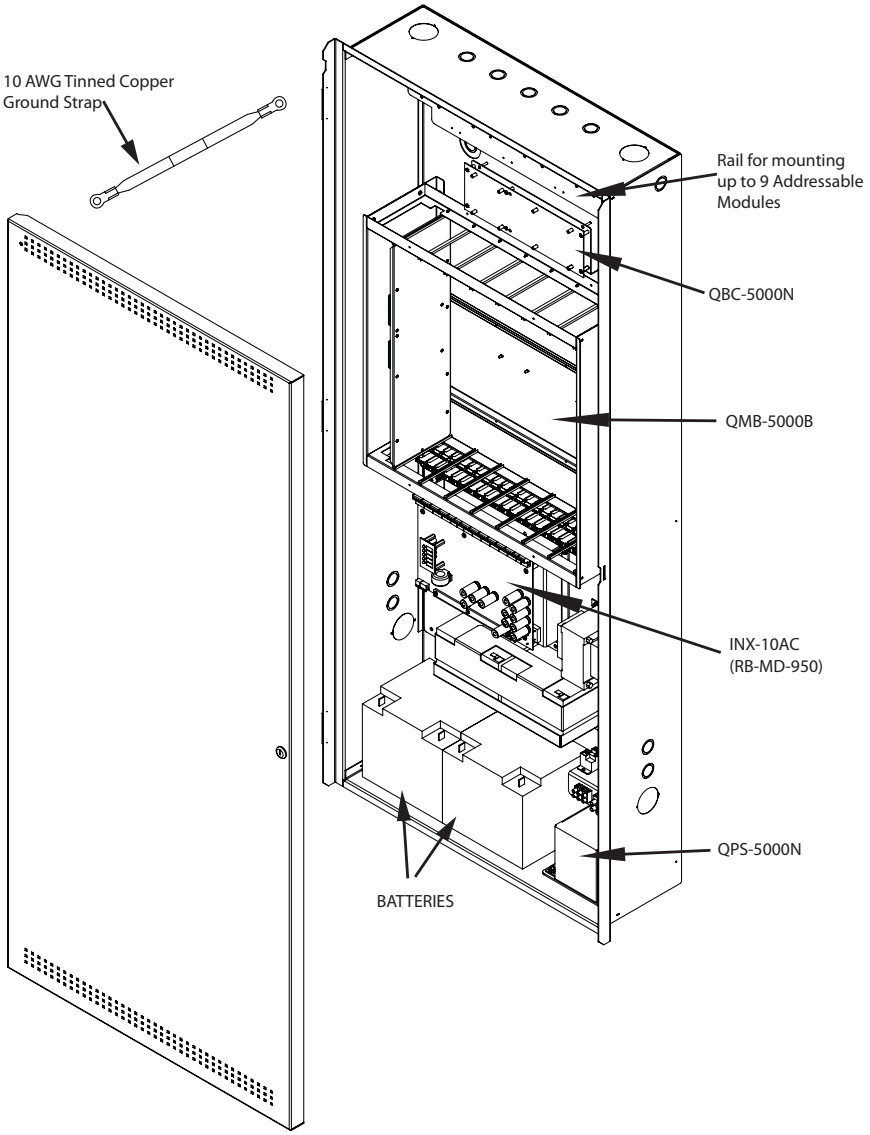


Figure 59 Audio System Installation into BBX-MNSXP with CH-993B Internal Chassis

Note: Leave bottom of box conduit free for batteries.

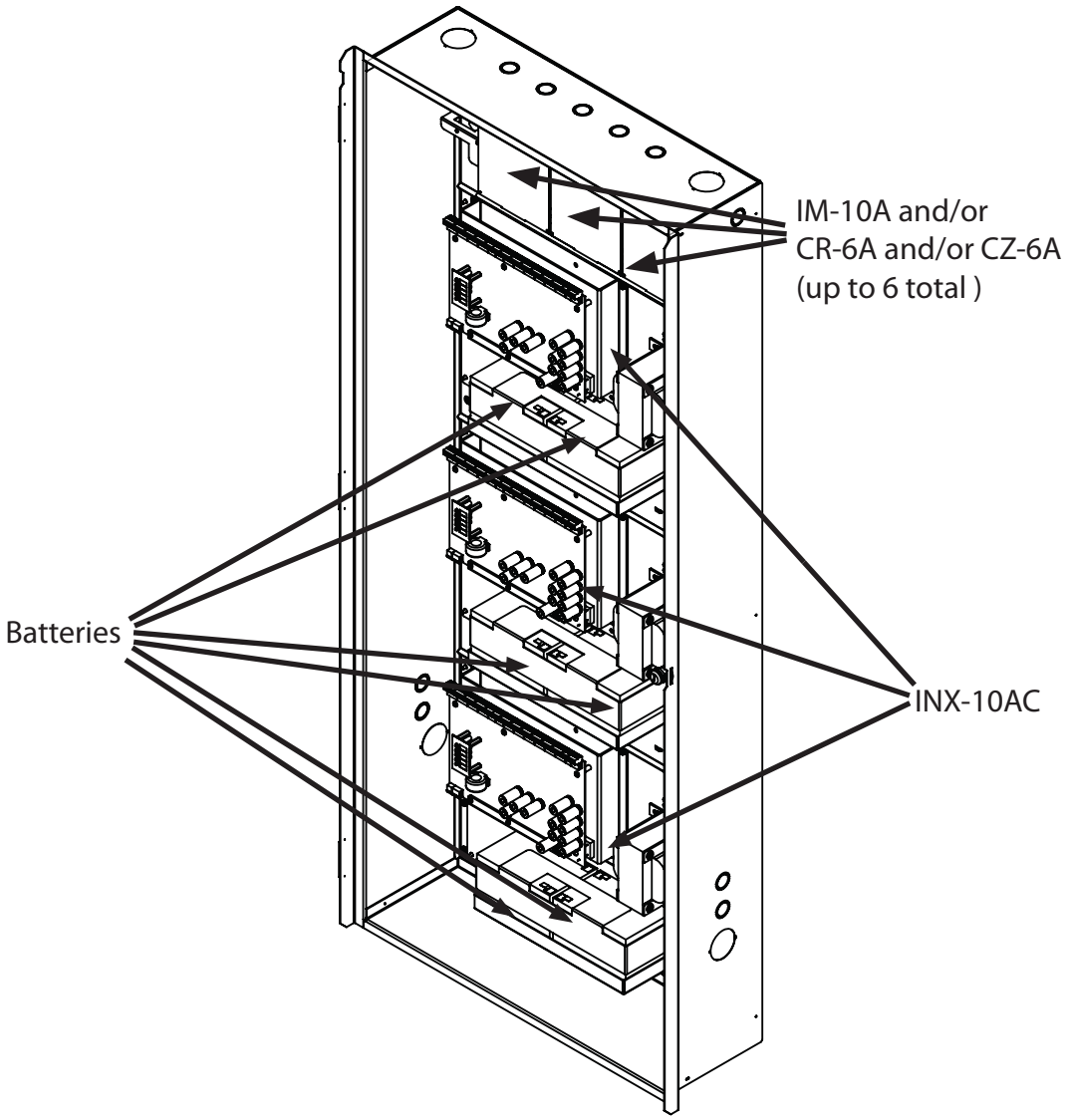


Figure 60 NAC Expander Installation into BBX-MNSXP with CH-994B Internal Chassis

11.10 MMX-LOC Local Operating Console

These operating consoles are intended for use in mass notification. They can mount 3 modules on the deadfront door. These modules are usually a RAXN-LCD annunciator and a QMP-5101N paging microphone in conjunction with either a QAZT-5302DS selector panel or a FDS-008 switch module and IM-10 input module combination. The paging microphone is for broadcasting announcements, while pre-recorded digital messages can be played using the selector panel or the switch/input module combination. The figure below shows the setup with the switch/input module combination.

Note that the deadfront and door can be installed such that they open either to the left or to the right as required. The outer dimensions of the MMX-LOC fit within 25.0” X 15.0” X 7.0”.

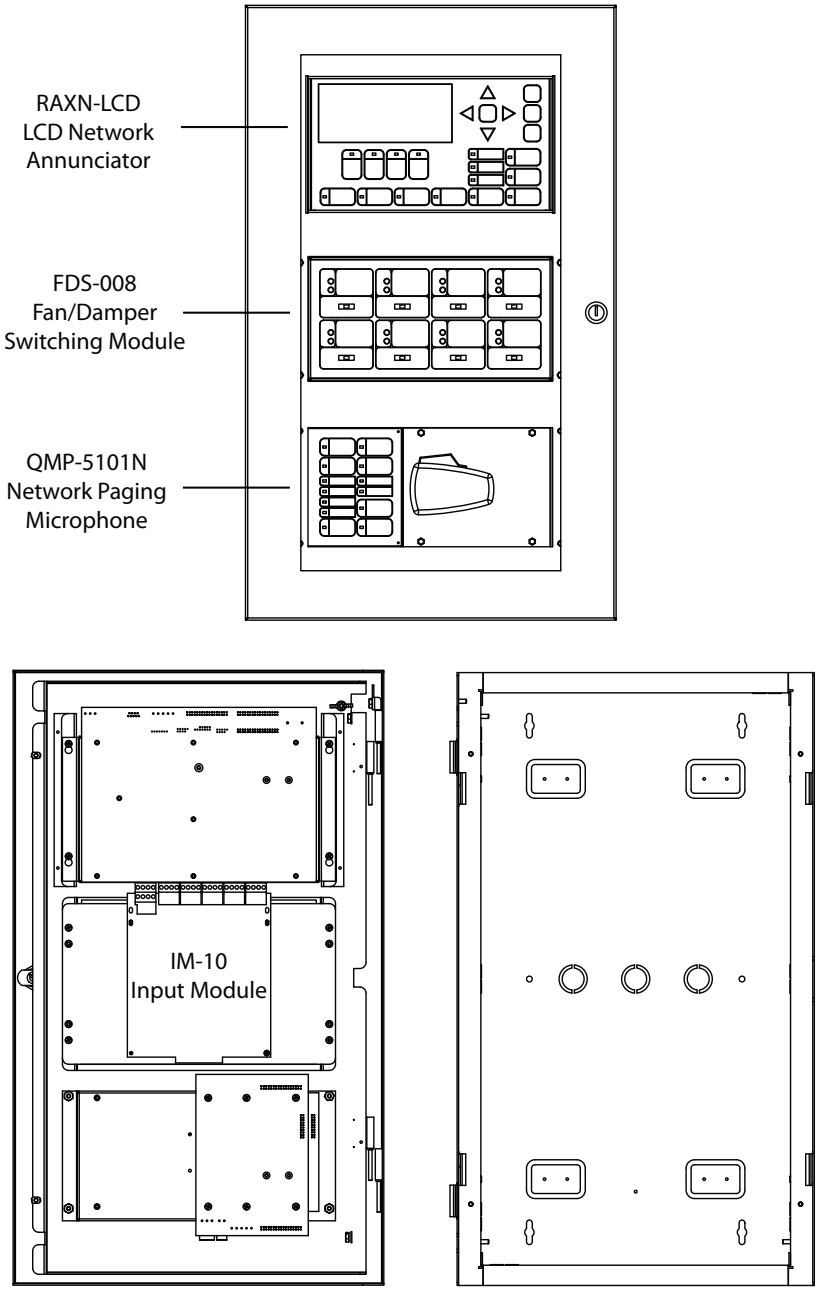


Figure 61 MMX-LOC

11.10.1 Audio Cabinets

Table 16 Audio Cabinets

Name	Description	Holds	Dimensions
MMX-QBB-5001(R) 	Expansion Audio Cabinet	1 QMB-5000B (space for 1 ANC-5000, 1 TNC-5000, and 7 amplifier boards) 1 QPS-5000N power supply 1 QBC-5000N battery charger	24.25” H x 41” W x 8” D
MMX-BBX-FXMNS 	Integrated Fire and Audio Backbox	1 MMX-2000MNS 2 paging modules (QMT-5302NV, QMP-5101NV) 9 adder modules 7 displays QMB-5000N (space for 1 ANC-5000, 1 TNC-5000, and 4 amplifier boards) 1 PS-2040 power supply See section 11.8 on page 89	63.5” H x 22.5” W x 9.5” D
MMX-LOC 	Local Operating Console	3 modules: RAXN-LCD, QMP-5101N, and either QAZT-5302DS or FDS-008 See section 11.10 on page 91	25.0” H x 15.0” W x 7.0” D

11.10.2 Amplifier Bins

An amplifier bin, also called a card cage, holds amplifier boards and the ANC-5000 Audio Controller board. It is mounted inside an audio cabinet.

You need an ANC-5000 Audio Controller only in the first bin.

Table 17 Amplifier Bins

Name	Description	Amplifier Modules	Notes
QMB-5000N	4 amplifier bin	4 amplifier boards + 1 ANC-5000	1 per node
QMB-5000B	7 amplifier bin	7 amplifier boards + 1 ANC-5000	2 per node

11.10.3 Amplifiers

- Maximum number of bins per node: 3
- Maximum number of amplifiers per node:
  - 18 60-Watt amplifiers per node

    or
  - 36 30-Watt amplifiers per node

    or
  - 72 15-Watt amplifiers per node

You have 2 options for arranging the amplifiers in each bin:

	Bin 0	Bin 1	Bin 2
Option 1	4 amplifiers	7 amplifiers	7 amplifiers
Option 2	7 amplifiers	7 amplifiers	4 amplifiers

Table 18 Amplifier Cards

Name	Description	Mounts in
QAA-5230-70/25	Two 30 W speaker outputs, 70 V or 25 V	MMX-QBB-5001 MMX-BBX-FXMNS
QAA-5230S-70/25	Two 30 W split into four 15 W speaker outputs, 70 V or 25 V	MMX-QBB-5001 MMX-BBX-FXMNS
QAA-5415-70	Four 15 W speaker outputs, 70 V	MMX-QBB-5001 MMX-BBX-FXMNS
QAA-5415-25	Four 15 W speaker outputs, 25 V	MMX-QBB-5001 MMX-BBX-FXMNS

Table 18 Amplifier Cards (Continued)

Name	Description	Mounts in
QAA-5160-70/25	One 60 W speaker output, 70 V or 25 V	MMX-QBB-5001 MMX-BBX-FXMNS

12.0 Cables

12.1 Maximum Recommended Cable Lengths

There is a physical limit on the length of the cable between 2 transponder units. Table 19 lists the maximum recommended lengths per segment for various brands of fire alarm cable.

Exceeding these limits per segment can result in signal distortion or signal loss, which can affect the network as a whole.

When planning an installation or performing an onsite inspection, take the maximum length per cable segment into account. Refer to Table 19 for recommended lengths per cable segment. If the cable you are using is not listed in Table 19, refer to section 12.1.1 on page 97 to calculate the maximum recommended length for a cable segment based on brand of cable.

If you are experiencing signal loss or degradation, contact Secutron Technical Support for assistance:

1-905-695-3545
Email techsupport@mircom.com

Attention: Do not mix gauges and brands of cables on a network. Use the same cable gauge and brand throughout the network.

Table 19 Maximum Recommended Cable Lengths

Manufacturer	Model	Type	Recommended maximum length per cable segment (point-to-point)	
			Metres	Feet
Belden	5320UJ	18 AWG, 2 conductors, twisted, non-shielded	820	2690
Belden	5320UM	18 AWG, 2 conductors, twisted, non-shielded	625	2060
Belden	6320UJ	18 AWG, 2 conductors, twisted, non-shielded	410	1345
Belden	9572	16 AWG, 2 conductors, twisted, non-shielded	380	1250
Belden	9575	16 AWG, 2 conductors, twisted, shielded	185	610
Draka Lifeline	FAS-2C/18NS	18 AWG, 2 conductors, twisted, non-shielded	750	2460
Draka Lifeline	FAS-2C/18OS	18 AWG, 2 conductors, twisted, shielded	410	1345

Table 19 Maximum Recommended Cable Lengths (Continued)

Manufacturer	Model	Type	Recommended maximum length per cable segment (point-to-point)	
			Metres	Feet
Draka Lifeline	FAS-2C/16NS	16 AWG, 2 conductors, twisted, non-shielded	625	2050
Draka Lifeline	FAS-2C/16OS	16 AWG, 2 conductors, twisted, shielded	360	1180
Electro Cables	7241802BFT4	18 AWG, 2 conductors, twisted, shielded	190	620
Electro Cables	7241803BFT4	18 AWG, 3 conductors, twisted, shielded	195	640
Honeywell Genesis Series	4106	18 AWG, 2 conductors, non-shielded	535	1750
Honeywell Genesis Series	4602	18 AWG, 2 conductors, shielded	160	515
Pentair Pyrotenax	2/18-215T	18 AWG, 2 conductors, twisted, non-shielded	225	745
Provo Ltd.	PP5052-21	18 AWG, 2 conductors, twisted, non-shielded	600	1970
Provo Ltd.	PP5883-21	18 AWG, 2 conductors, twisted, shielded	180	590
West Penn Wire	980	18 AWG, 2 conductors, twisted, non-shielded	460	1520
West Penn Wire	990	16 AWG, 2 conductors, twisted, son-shielded	460	1520
West Penn Wire	975	18 AWG, 2 conductors, twisted, shielded	265	875
West Penn Wire	991	16 AWG, 2 conductors, twisted, shielded	230	760

12.1.1 How to Calculate the Maximum Recommended Length

For cables not in Table 19, you can determine the maximum length of cable between transponders using the cable's mutual capacitance, which is provided by the cable manufacturer.

Capacitance

Capacitance is the ability of a system to store an electric charge when a potential difference exists between its conductors. Capacitance is measured in farads (F). A system that is charged with 1 coulomb of energy and that has a potential difference of 1 volt between its conductors has a capacitance of 1 farad.

A cable, like any electrically charged object, has capacitance. The capacitance between the conductors of a cable is called mutual capacitance.

A cable's mutual capacitance depends on many factors, including the length of the cable, the distance between the conductors, and the type of dielectric (the insulation between the conductors). Different brands of cables can have different capacitances, even if their gauge and length are the same.

A capacitance higher than 35 nF can lead to signal distortion

If the capacitance of the cable is too high, signal distortion results at high frequencies, including the frequencies used for communication between transponders. A cable with a capacitance higher than 35 nF (nanofarads) can lead to signal distortion. Secutron has looked at different brands of cables and calculated the length of each cable at 35 nF. This is the maximum recommended length for each brand of cable. Table 19 lists these lengths.

Using capacitance to determine maximum recommended length

The manufacturer's specifications for a cable usually lists the capacitance for a certain length. From this information you can calculate the length of cable that has a capacitance of 35 nF.

For example, consider a cable that has a capacitance of 47 pF/ft (picofarads per foot). That is, 1 foot of this cable has a capacitance of 47 pF. You can calculate the length at which this cable has a capacitance of 35 nF.

To calculate the maximum recommended length of a cable

1. Convert the capacitance to nanofarads. 1 pF equals 0.001 nF.

   For example, 47 pF equal 0.047 nF.

2. Create an equation where one side is the known capacitance per foot, and the other side is 35 nF per *x* feet.

$$\frac{0.047}{1} = \frac{35}{x}$$

3. Solve for *x*.

$$(0.047)(x) = (35)(1)$$

$$\frac{(0.047)(x)}{0.047} = \frac{(35)(1)}{0.047}$$

$$x = 744.68$$

   The capacitance of this cable is 35 nF per 744.68 feet. Therefore, the maximum recommended point-to-point length for this cable is 744.68 feet.

   If you know the nanofarads per foot, you can divide 35 by this number to get the maximum recommended length in feet.

12.2 Fiber Optic Cables

MMX supports two kinds of fiber optic cables:

- 50/125 µm
- 62.5/125 µm

The numbers represent the diameter of the core/cladding in micrometers (microns).

12.3 Typical Optical Power Budget

- 50/125 µm: 9.6 dB
- 62.5/125 µm: 15 dB

12.3.1 Connecting Fiber Optic Cables

The FOM-2000-SP Fiber Optics Network Module has 4 connections: RX2, RX1, TX2, and TX1. **R** stands for **Receive** and **T** stands for **Transmit**.

- Wire the Fiber Optics Network Module from the TX connection to the RX connection, and from 1 to 2:
  - Connect a cable from TX1 of node 1 to RX2 of node 2, and a cable from RX1 of node 1 to TX2 of node 2.
  - Connect a cable from TX1 of node 2 to RX2 of node 3, and a cable from RX1 of node 2 to TX2 of node 3.

See Figure 62.

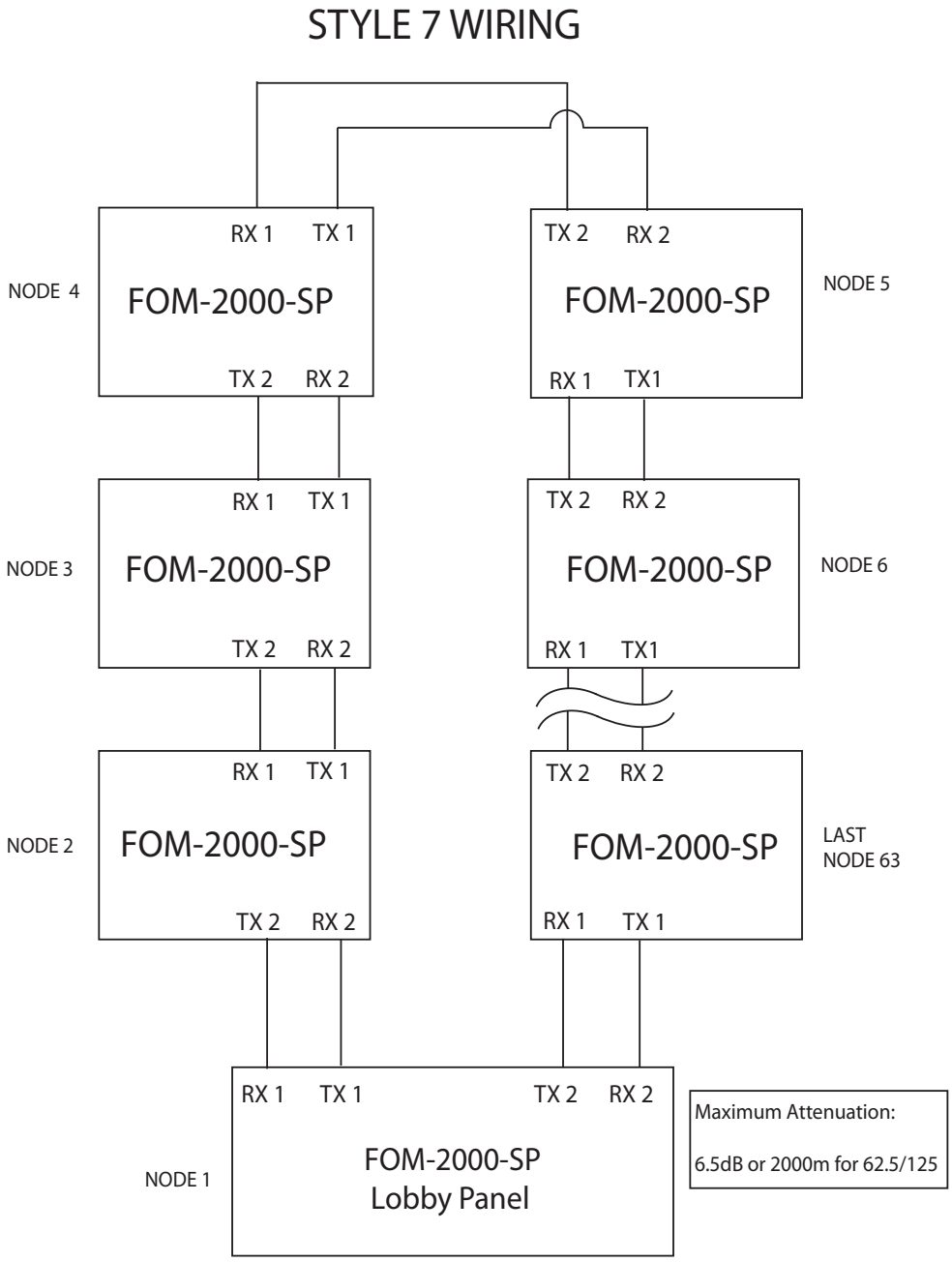


Figure 62 Wiring the FOM-2000-SP Fiber Optics Network Module

12.4 Ground Fault Reporting

The MMX system reports ground faults as required by UL, ULC, and FM. Secutron has enhanced ground fault reporting to aid the technician in identifying which lead of a pair of wires is in contact with the ground. To this end, the ground fault report on the panel includes information about polarity (positive or negative).

- **SLC (signaling line circuits) wires and IDC (input detection circuits) wires:** The positive ground fault or negative ground fault report on the panel points the technician to the fault directly.

- **NAC circuits:** The polarity of the ground fault is reversed in the panel report because in normal supervisory condition, the NAC circuits are driven in the opposite polarity.
- **Annunciator and network connections that use electrical industry standard RS-485 connections:** The panel reports a ground fault on either lead of these connections as negative. This is a result of the low voltage circuitry used for such signaling. Neither the positive lead nor the negative lead of the RS-485 line is of a high enough voltage level to accurately differentiate between a positive or negative ground fault, so in the case of a ground fault on either lead of the RS-485 line, only a negative ground fault is reported.

12.5 Ground Fault Detection

In certain applications, a large number of wires connected to the same panel can cause a high capacitance to ground, which can cause the MMX system to report false intermittent ground faults.

If the system reports intermittent ground faults when there is no ground fault, turn on **Alternate Ground Fault Detection** in the Configurator. This compensates for the errors caused by high capacitance to ground in cables.

To turn on Alternate Ground Fault Detection

1. In the Configurator, open the version of the job that is active on the panel.
2. Select the node that is reporting ground faults.
3. Check **Alternate Ground Fault Detection** at the bottom of the window.
4. Click **Panel** > **Send Job** to send the job to the Fire Alarm Control Panel.

13.0 Addressable Loop Interference on Phone Handset Lines

Addressable loops can cause noise on the phone handsets connected to the FACP, especially on handsets connected to System Sensor addressable modules. Secutron has several recommendations for reducing this noise. Keep these recommendations in mind before you start a job.

13.1 Use the Quad Loop Adder

Connect loops to the quad loop adder main board (ALCN-792M) instead of to loop 2 (the loop that is hardwired on the Fire Alarm Control Panel). Each quad loop adder main board supports 2 addressable loops.

Contact Secutron Technical Support for assistance:

1-905-695-3545
Email techsupport@mircom.com

13.2 Avoid Sources of Electrical Interference

Avoid running phone cables near sources of electrical interference or noise, such as:

- Other cables, especially cables for addressable loops.
- Motors (for example, fans and dampers).
- Fluorescent lamps.

13.3 Use the TNC-5000 Telephone Bus Terminals

There are two ways that telephones can communicate:

- Over the cables (either twisted pair or fiber optic) that connect the nodes to each other. The nodes communicate over the ARCNet protocol (a protocol for communication between computers). If you check **Digital Phone** in Job Details in the Configurator, then the phones communicate over these wires. (See section 19.5 on page 147.)
- Over the telephone bus terminals on the TNC-5000 (telephone network controller) boards. If you uncheck **Digital Phone** in Job Details in the Configurator, then the phones communicate over the telephone bus terminals.

To reduce interference, use the telephone bus terminals for telephone communication instead of the ARCNet wires.

If you decide to use the ARCNet wiring for telephone communication, connect the telephone bus terminals as well. If you experience too much interference on the phones over the ARCNet wiring, you can easily switch to the telephone bus terminals instead.

13.4 Use Shielded Wiring

- Use 18 gauge shielded twisted pair cables for the connections between TNC-5000 telephone bus terminals, and for the connections between the addressable modules.
- Use shielded cables for the connections between the addressable modules and the telephone handsets, if possible.

To connect the TNC-5000 telephone bus terminals with shielded wiring

1. Wire the TNC-5000 boards as explained in *LT-894SEC MMX Installation and Operation Manual*.

   Each board has 2 buses: 1 IN bus and 1 OUT bus.

   Each bus has 3 terminals: positive (+), negative (-), and shield (S).
2. Connect the positive, negative, and shield wires of one end of the cable to the Tel. Bus OUT of the previous board.
3. Connect the positive, negative, and shield wires of the other end of the cable to the Tel. Bus IN of the next board.

   Terminate both ends of the shield.

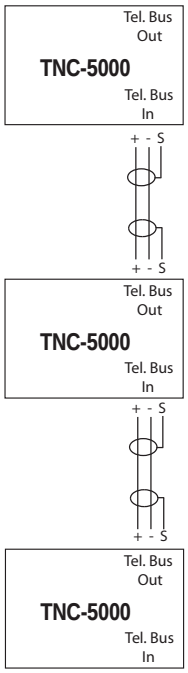


Figure 63 Wiring of the TNC-5000 boards

To connect the M500 addressable modules with shielded wiring

1. Wire the addressable modules as explained in *LT-894SEC MMX Installation and Operation Manual.*
2. Connect the shields to each other with twist-on wire connectors (marettes).

   Terminate only one end of the shield.

   - For class A wiring, leave the shield unconnected at the end of the loop (where the wires return to the module).

- For class B wiring, leave the shield unconnected at the end of the line.

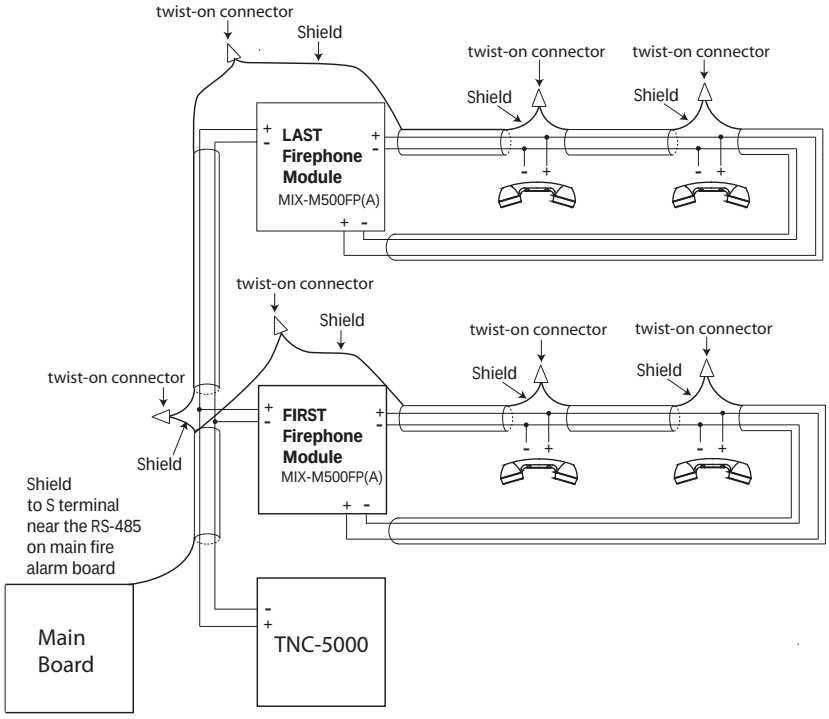


Figure 64 Telephones and addressable modules showing shielded wiring (Class A)

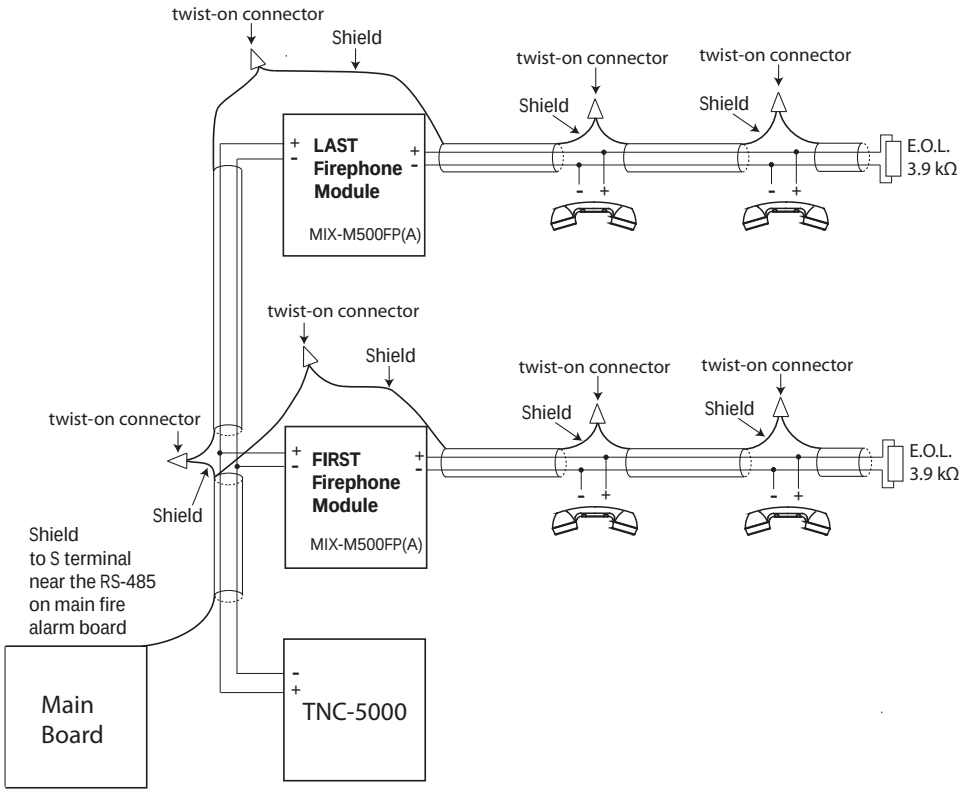


Figure 65 Telephones and addressable modules showing shielded wiring (Class B)

13.5 Keep Modules Close to the Handsets

- Install the handsets as close as possible to the modules. A shorter cable will reduce interference.
- If you cannot install the handsets close to the modules, use shielded cables between the telephone modules and the handsets.

13.6 Large Systems and Retrofits

When there is a large number of cables connected to a single node, or when the amount and location of wiring is not known, keep the following in mind:

- Make a cost provision for connecting loops to the quad loop adder main board (ALCN-792M) instead of loop 2 (the loop that is hardwired on the Fire Alarm Control Panel).

14.0 Mass Notification System Introduction

The MMX Mass Notification System (MNS) allows announcements and notifications outside of regular fire announcements. For example, MNS can be used for weather warnings or toxic chemical alerts, and these announcements have a higher priority than fire announcements. The fire control system can also override the MNS.

The MNS comes with a fire control and monitoring system. A single MNS panel can display both MNS and fire events, but each type of event appears separately on different annunciator displays. The fire and mass notification modules on the MNS panel are arranged independently of each other and are accessed by two separate doors. Refer to Figure 66.

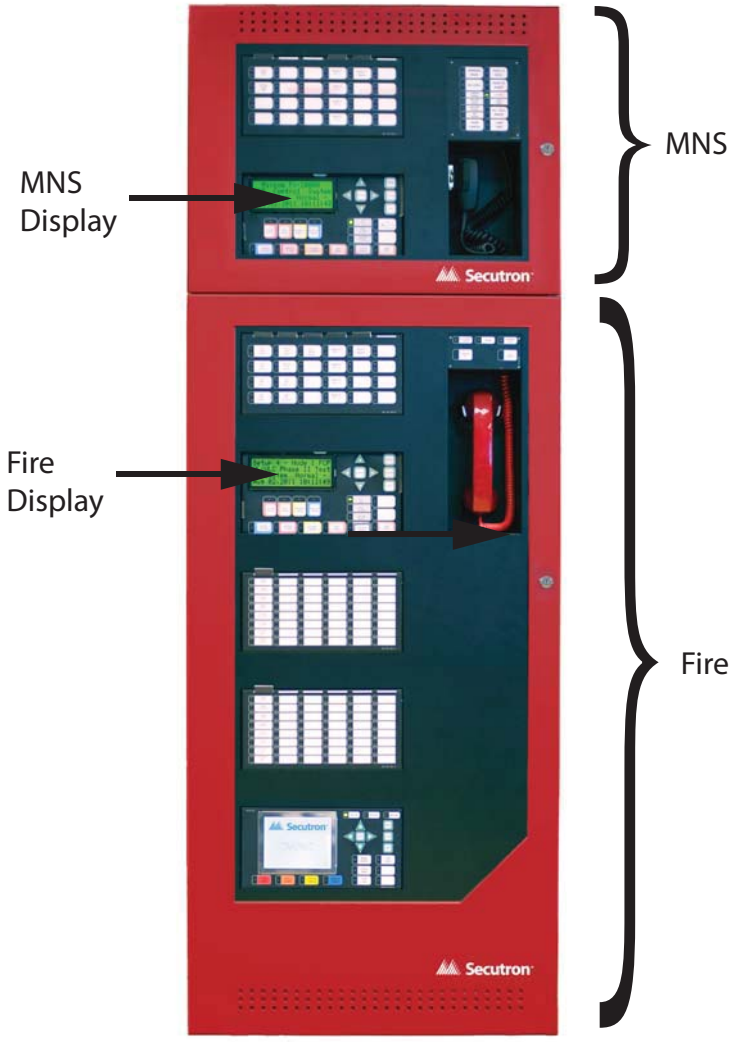


Figure 66 The MMX Mass Notification System

14.1 Virtual Zones

A virtual zone is a zone that is not associated with any physical devices but instead monitors inputs across groups and activates outputs across groups using advanced logic.

Even though the MNS has a fire monitoring component, it cannot control fire devices. Governing bodies such as UL/ULC require that MNS and fire control systems be grouped separately in the software. The input and output devices for fire and MNS must be in different zones and these zones must be in different groups. Since an input zone cannot activate outputs in a different group, the MNS input zones will not activate fire output signals and fire input zones will not activate MNS output signals.

However, sometimes inputs from one group require the use of hardware present in a different group. For example, the fire group may have inputs that require the use of amplifiers in the MNS panel. You can use virtual zones to make inputs activate outputs across groups.

Chapter 5 outlines how to use advanced logic with virtual zones.

14.1.1 Conflicts with virtual zones

Sometimes conflicts can occur. For example, two inputs may try to activate the same output simultaneously. To prevent this, you can give priority to either MNS or fire.

For example, if MNS has a higher priority and a fire input activates:

1. The fire output remains active until an MNS input activates.
2. When an MNS input activates, the MNS output takes over and silences the fire output.
3. When the MNS output is finished, the fire output resumes.

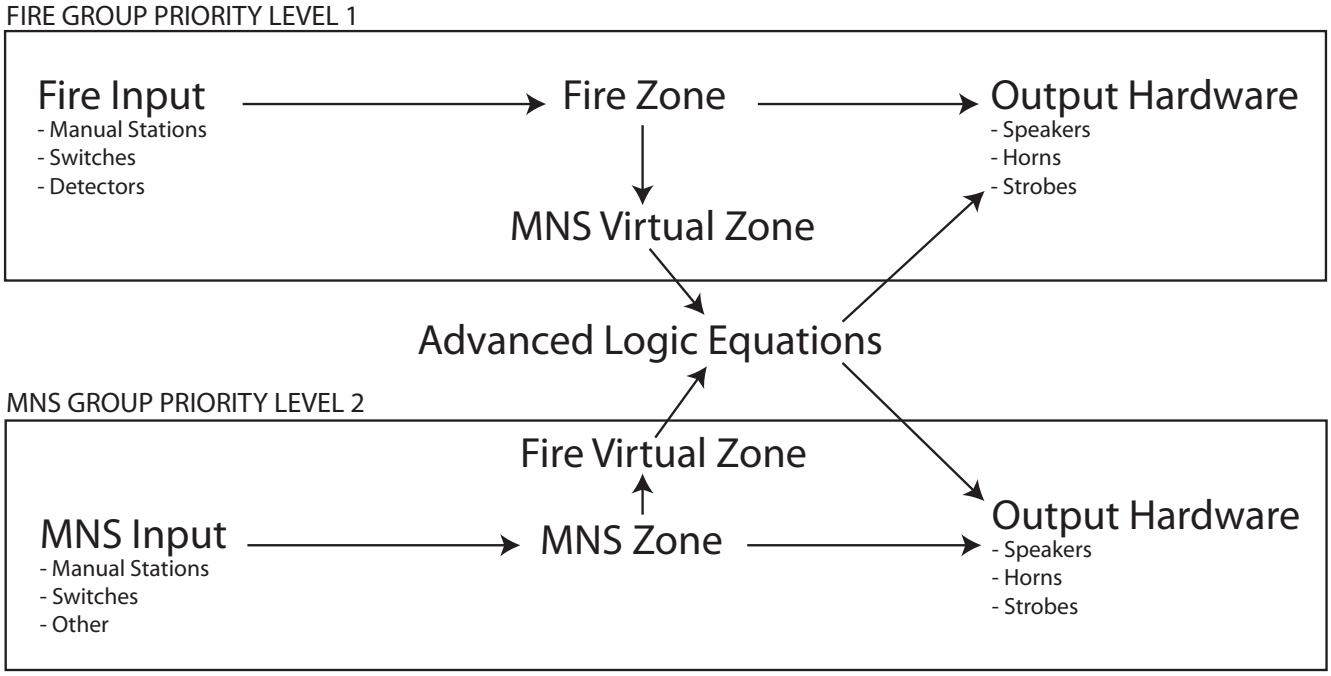


Figure 67 Virtual Zone Priorities

14.2 Setting priorities for zones and switches

You set the priority of zones and switches in the Configurator.

To set priority for a zone or a switch

1. In the Configurator, double-click in the **Priority** column for the zone or switch.
2. Click a priority in the pulldown menu.

   This number is the priority given to digital messages that are correlated with this zone or switch. The priority ranges from -95% (lowest) through Normal (default) to +95% (highest).

15.0 Autonomous Control Unit and Local Operating Consoles

The Autonomous Control Unit (ACU) and the MMX Local Operating Consoles (MMX-LOCs) connect to the MMX Mass Notification System (MNS) remotely. The MNS uses the ACU and the MMX-LOCs to broadcast live announcements and pre-recorded digital messages to multiple locations in a building.

15.1 ACU and MMX-LOC Configuration

The ACU has a paging microphone that connects directly to the main board through a ribbon cable connection. The microphone has priority over the MMX-LOC paging microphones and all digital messages. The ACU contains an IPS switch adder module that broadcasts pre-recorded digital messages. Each button on the switch adder module can be configured as a zone switch in the Configurator. For each zone switch, a priority level can be assigned and a digital message can be attached.

The MMX-LOC contains a switching and input module combination that broadcasts pre-recorded digital messages.

Both the ACU and the MMX-LOC contain a paging module that broadcasts announcements and a display that monitors MNS events.

15.2 Setting priorities for zones and switches

You set the priority of zones and switches in the Configurator.

To set priority for a zone or a switch

1. In the Configurator, double-click in the **Priority** column for the zone or switch.
2. Click a priority in the pulldown menu.

   This number is the priority given to digital messages that are correlated with this zone or switch. The priority ranges from -95% (lowest) through Normal (default) to +95% (highest).

15.3 Broadcast Priority

Announcements or digital messages from an ACU override broadcasts already in progress from an MMX-LOC. The broadcast of announcements or digital messages from an MMX-LOC occurs on a first come first serve basis. If one MMX-LOC is broadcasting, another MMX-LOC cannot broadcast until the first MMX-LOC has stopped broadcasting. The following list identifies broadcast priorities from highest (1) to lowest (6).

1. ACU announcement by paging microphone
2. ACU highest priority digital messages (priority is set in the Configurator)
3. ACU lowest priority digital messages (priority is set in the Configurator)
4. MMX-LOC announcement by paging microphone
5. MMX-LOC highest priority digital messages (priority is set in the Configurator)
6. MMX-LOC lowest priority digital messages (priority is set in the Configurator)

For example, a priority of 10% assigned to a zone switch on the ACU's IPS switch adder module has a higher priority than a priority of 90% assigned to a zone correlated to the input module used by the MMX-LOC. Refer to Figure 68.

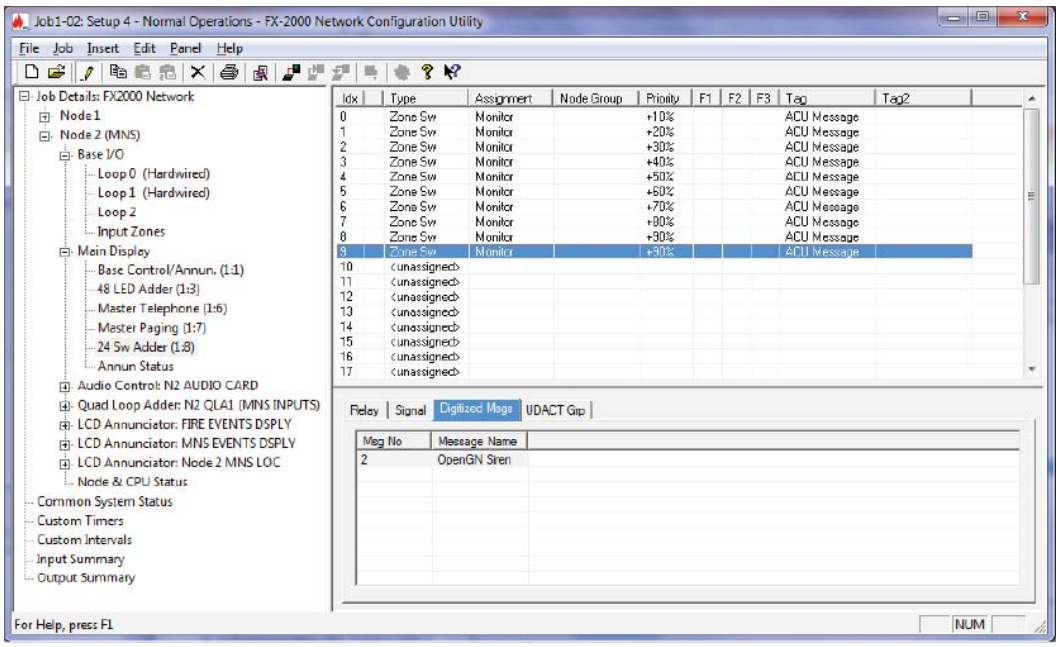


Figure 68 ACU and LOC Configuration

The MMX-LOC paging microphones are hardwired to the board belonging to the ACU paging microphone. They have a lower priority than the IPS switch adder module messages used by the ACU but a higher priority than the FDS switching module messages used by the MMX-LOC.

The MMX-LOC broadcasts digital messages using an FDS switching module. Each switch on this switching module is hardwired to inputs on an input module that are correlated to input zones in the configuration. Each input is correlated to its own input zone with a digital message attached to each zone. Priority for MMX-LOC digital messages is set between the input zones. For example, an input zone with an assigned priority of 70% will override an input zone with an assigned priority of 50%. Refer to the figure below.

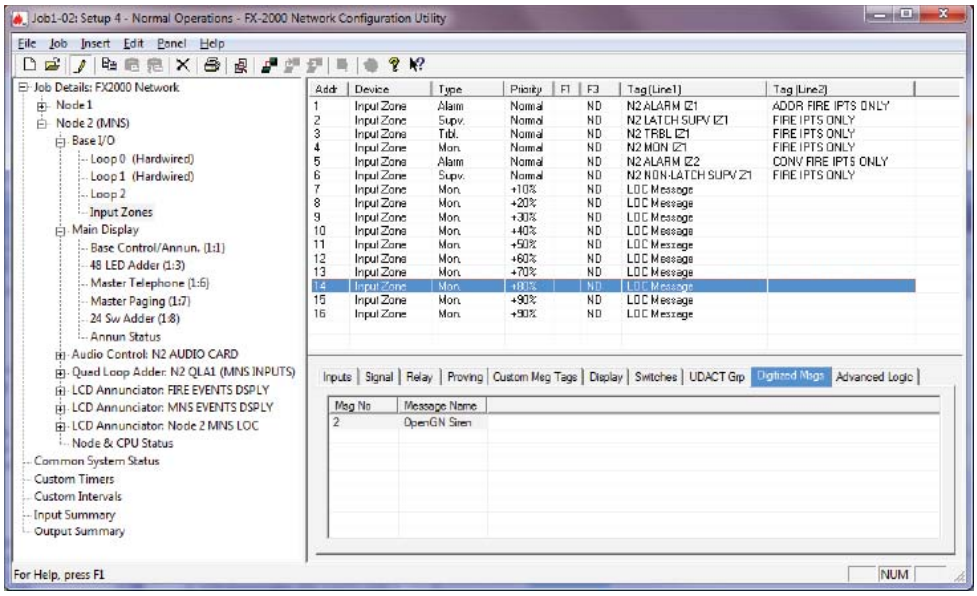


Figure 69 Zone Priorities

15.4 ACU Operation

To broadcast a pre-recorded digital message:

- Press a button on the selector with the appropriate message.

  Buttons should be labelled to indicate the content of the message. The message will be broadcasted and will loop continuously until the system is reset or a higher priority operation is performed.

To broadcast an announcement:

1. Remove the microphone from its holder and press the button on the microphone.
2. Speak into the microphone.

   The Page Ready LED turns on when the microphone is keyed.

   The ACU paging microphone has the highest priority and will override all other operations.

15.5 LOC Operation

To broadcast a pre-recorded digital message:

- Move a switch with the appropriate message to the ON position.

  Switches should be labelled to indicate the message that they will play. The message will be broadcasted and will loop continuously until the system is reset or a higher priority operation is performed.

To broadcast an announcement:

1. Remove the microphone from its holder and press the button on the microphone.
2. Speak into the microphone.

Only one microphone can be used at a time.

If the Page Ready LED is on before the microphone is removed from the receiver, then another microphone is in use.

If the LED is off then there is no microphone in use.

If the LED turns on only after the paging microphone is removed, then that microphone is now active.

16.0 Digital Messages

A digital message is a pre-recorded announcement or alarm tone. You compose a digital message by combining clips (audio files) into a composition.

Note: You can have up to 96 digital messages used in correlations per job.

16.1 Creating a Digital Message

To create a digital message

1. In the **Job Details** window of the Configurator, click the **Set up** button under **Audio**.

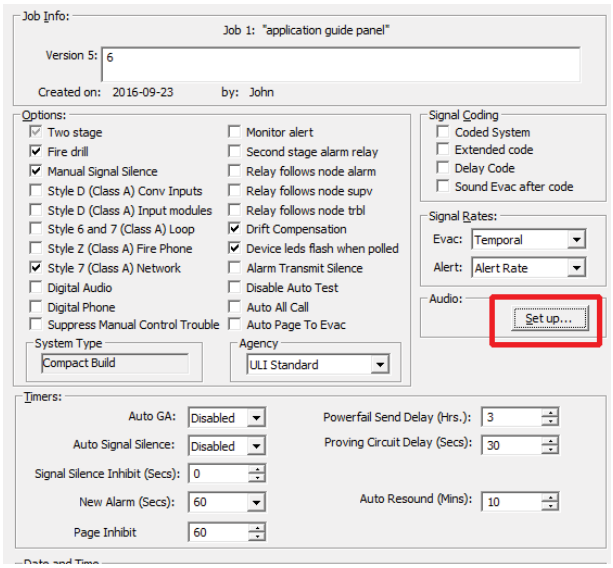


Figure 70 Job Details window showing Audio Setup

The **Audio Setup** window appears.

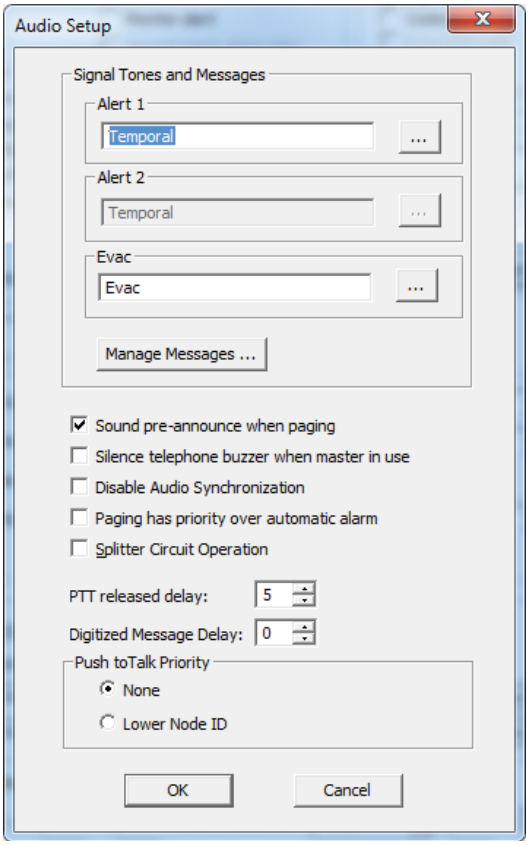


Figure 71 The Audio Setup window

2. Click the **Manage Messages** button.

   The **Manage Messages** window appears.

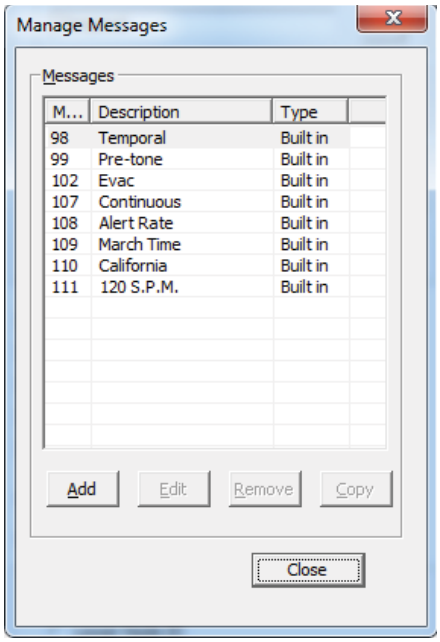


Figure 72 The Manage Messages window

The Manage Messages window lists the compositions that are currently in the system. You can add a new composition, or edit or remove an existing composition.

3. Click the **Add** button to create a new composition.

   The **Audio Compose Message** window appears. The left side of the window lists the available clips (audio files that you can combine into compositions). Several clips are included by default; they are listed as **Built-In**. The right side of the window shows the current composition.

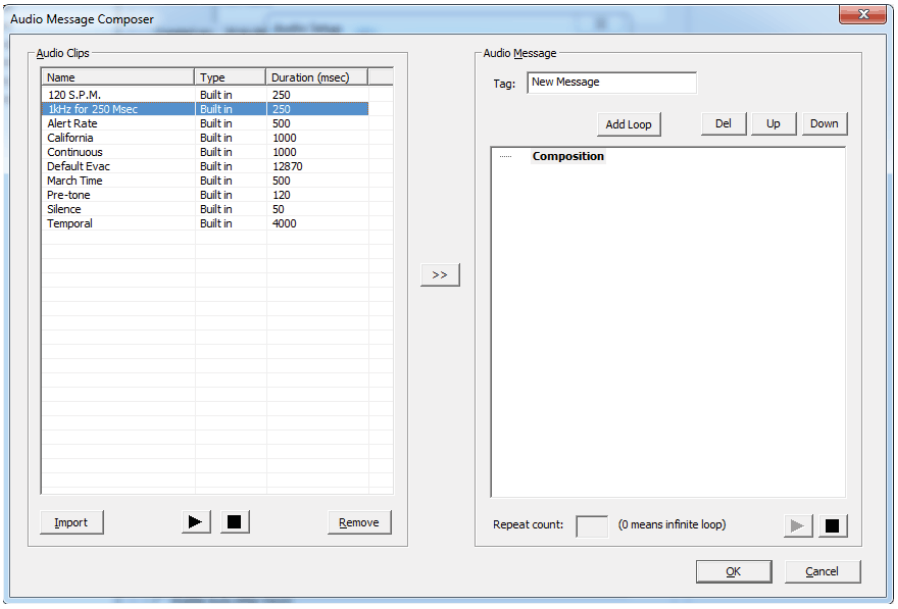


Figure 73 Audio Compose Message

4. Click the **Import** button, and then select an audio file to import.

   The imported file appears on the left under **Audio Clips**.

   All audio files must be in one of the following formats:

   - Voice messages: .wav format sampled at 11.025 kHz, 16-bit mono, ADPCM 4-bit
   - Non-voice messages such as a whoop signal or sweep: .wav format PCM (RAW) 16-bit mono

Note: Audacity (available as freeware from **http://audacity.sourceforge.net/**) can convert most audio file formats into .wav format.

5. Click the **>>** button to move an audio clip to the **Audio Message** list.

   The built-in clips are composed of one or more sounds in a loop. When you move a built-in clip to the **Audio Message** list, it is expanded and shown with its included clips and loops.

6. When you are finished composing your message, click **OK**.

   Your new composition appears in the **Manage Messages** window.

7. Click Close in the **Manage Messages** window.

16.2 Clips and Nested Loops

Each clip is part of a loop. The loop is marked by the words **Repeat Count** and the curved arrow. Clips are marked by a speaker icon.

The Audio Message Composer lets you create nested loops. If one loop is nested inside another, then the inside loop will play a specified number of times for every time the outside loop plays.

You can make up to 4 levels of nesting.

You can move a clip up or down within a loop, but you cannot move a clip outside a loop. For this reason, create the loop first, then import the clip into the loop.

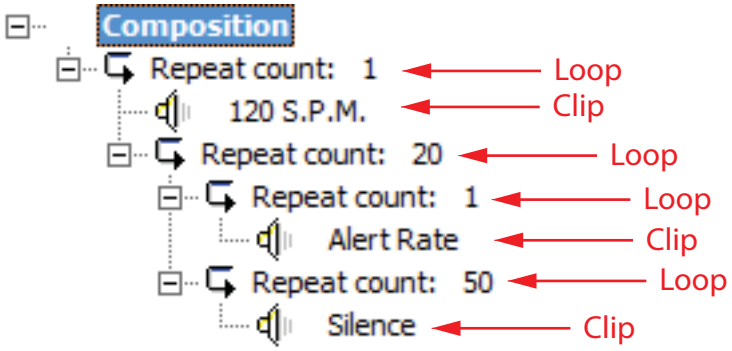


Figure 74 Clips and nested loops

To create a loop

1. Select the loop that you want the new loop to be part of. If the new loop is not part of another loop, select **Composition**.
2. Click **Add Loop**.

To import a clip into a loop

1. Select the loop that you want to import the clip into.
2. Select the clip in the **Audio Clips** list and click the **>>** button to move the clip to the **Audio Message** list.

Note: When you move a clip to the Audio Message list, it is placed into the selected loop.

To specify the number of times a loop should play

- Select the loop, and then type the number of times to repeat it in the **Repeat Count** field.

To reorder clips within a loop

- Select the clip, and then click the **Up** and **Down** buttons.

Note: You can move a clip up or down within a loop, but you cannot move it outside a loop.

To reorder loops

- Select the loop, and then click the **Up** and **Down** buttons.

Note: You can move a loop up or down within its containing loop, but you cannot move it outside its containing loop.

To delete a clip in the Composition list

- Select the clip, and then click the **Del** button. Deleting a clip does not delete the loop.

To delete a loop in the Composition list

- Select the loop, and then click the **Del** button. Deleting a loops also deletes the clips in that loop.

To make a clip repeat

- Select the loop that the clip is part of, and then type the number of times to repeat it in the **Repeat Count** field.

To make a clip repeat indefinitely

- Select the loop that the clip is part of, and then type **0** in the **Repeat Count** field. If a clip repeats indefinitely, any following clips are not played.

To play the whole message

- Click the  button.

16.3 Nested Loop Example

Figure 75 shows a composition with nested loops. In this composition, clip A plays twice (Loop 3), then clip B plays 3 times (Loop 4). These clips form a loop which repeats 4 times (Loop 2). Then clip C plays 3 times (Loop 5). The entire composition plays twice (Loop 1).

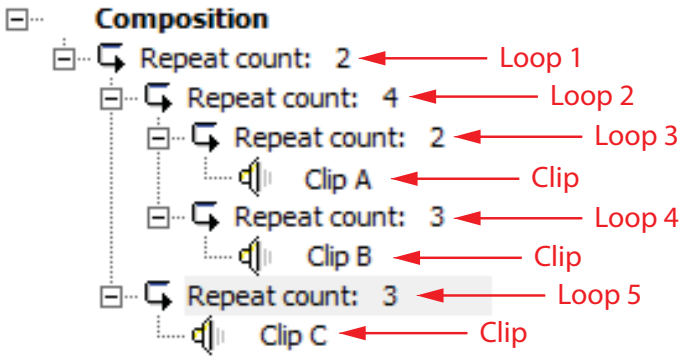


Figure 75 Clips and nested loops

16.3.1 Procedure for creating a nested loop

This procedure shows how to create the composition in Figure 75.

To create a nested loop

1. Click the **Add Loop** button.

   A loop appears with a repeat count of 1.
2. Select the loop and type **2** in the **Repeat count** field. This is Loop 1.
3. Select Loop 1 and click **Add Loop**.

   A second loop appears inside the outermost loop.
4. Select the second loop and type **4** in the **Repeat count** field. This is Loop 2.
5. Select Loop 2 and click **Add Loop**.

   A third loop appears inside the second loop.
6. Select the third loop and type **2** in the **Repeat count** field. This is Loop 3.
7. Select Loop 3, then select clip A in the **Audio Clips** list, then click the **>>** button to move clip A to the **Composition** list.

   Clip A appears inside Loop 3.
8. Select Loop 2 and click **Add Loop**.

   The new loop appears above Loop 3 but still inside Loop 2.
9. Select the new loop and type **3** in the **Repeat count** field. This is Loop 4.
10. Select Loop 4, then select clip B in the **Audio Clips** list, then click the **>>** button to move clip B to the **Composition** list.

    Clip B appears inside Loop 4.
11. Select Loop 1 and click **Add Loop**.
12. Select the new loop and type **3** in the **Repeat count** field. This is Loop 5.

13. Select Loop 5, then select clip C in the **Audio Clips** list, then click the **>>** button to move clip A to the **Composition** list.

    Clip A appears inside Loop 5.

14. The composition should look like this (Figure 76):

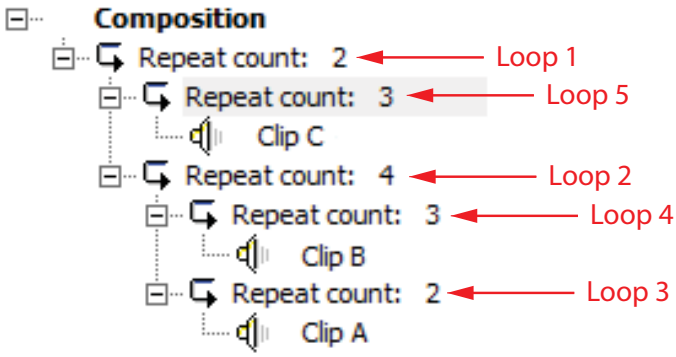


Figure 76 Nested Loop Example

15. Select Loop 2 (not the clip) and click the **Up** button to move it above Loop 5.
16. Select Loop 3 and click the **Up** button to move it above Loop 4.

The composition should now look like Figure 75.

16.4 Configuring MMX to use your new composition

1. In the **Audio Setup** window (Figure 71), click the **...** button beside **Alert 1**, **Alert 2**, or **Evac**.

   The **Choose a Message** window appears.

2. Select your composition, and then click **OK**.

   The MMX system will use your new composition as the **Alert 1**, **Alert 2**, or **Evac** message, depending on which one you selected.

   The message associated with Alert 2 will be disabled if the **Sound pre-announce tone when paging** check box is selected.

- Select **Sound pre-announce tone when paging** to make a 900 Hz pre-announce tone play (using the Alert 2 channel) for 2 seconds before the paging audio source is applied. This special tone will un-silence speakers that are currently silenced.
- Select **Silence telephone buzzer when handset off hook** to make the call-in buzzer on the audio controller silent when the local master handset is off the hook.

16.5 Correlating Digital Messages to a Zone or Switch

You can correlate compositions that you create to a zone or switch. The message will play when the zone or switch becomes active.

To correlate a digital message

1. Right-click the zone or switch that you want to associate with the digital message, and then click **Add Correlations**.
2. Click the **Digitized Msgs** tab.

   A list of the digital messages that you have created appears.

3. Click the message that you want to correlate, and then click **Add**.

17.0 Connecting to a BACnet system

BACnet stands for Building Automation and Control Networks (**http://www.bacnet.org**). It is a communication protocol for monitoring and controlling different building regulation systems, which include heating, ventilation, lighting control, access control, and fire detection systems. The BACnet protocol uses a common communication format to let these different systems communicate with each other. A tutorial is available at **http://www.bacnet.org/Tutorial/**.

BACnet uses a peer-to-peer architecture where any device can send service requests to any other device. Protocol services include Who-Is, I-Am, Who-Has and I-Have. Any BACnet object can perform these service requests. BACnet services can provide event notifications such as troubles or input activations.

The MMX system can interface with other systems that communicate through BACnet. MMX does not query other BACnet systems. Instead, other BACnet systems can request current values from the MMX system. MMX only replies to requests or sends out notifications of new events.

17.1 BACnet Objects

A BACnet **object** is “a collection of information related to a particular function that can be uniquely identified and accessed over a network in a standardized way”. Each object has an object ID and a set of properties.

A confusion of terminology can arise when describing MMX under the BACnet model. In the fire alarm industry, the term **device** refers to things such as detectors, strobes, and alarms. With BACnet, the entire MMX system is a device with many objects. **Object** refers to all the fire devices, system statuses and switches connected to the MMX system.

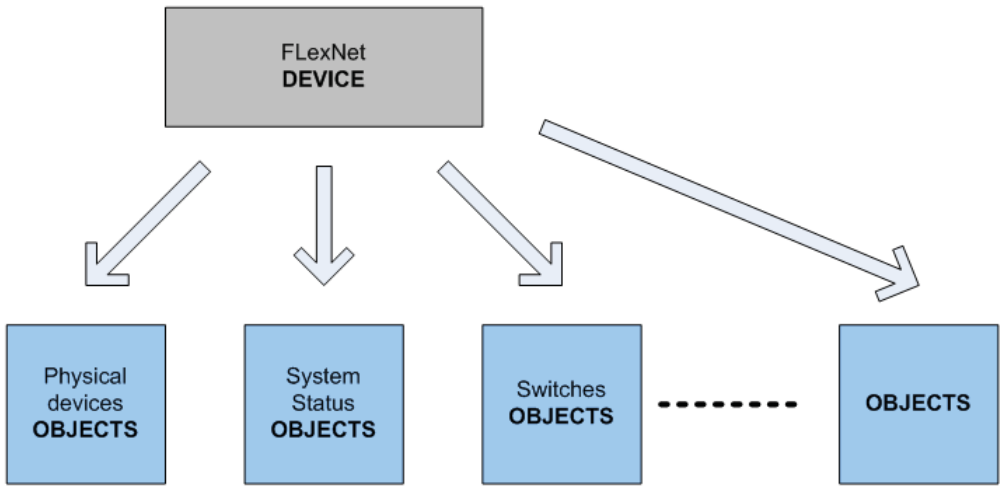


Figure 77 BACnet Objects

BACnet classifies objects into different types. For example, fire devices are divided into categories such as binary inputs, binary outputs, analog inputs and analog outputs. Every object has an object identifier, an object name, and other properties. Some properties are required and some are optional.

17.2 Setting up BACnet

Note: You must purchase a BACnet license in order to use MMX with BACnet. You must purchase one license for each job.

To set up the BACnet server you must:

- Connect the Ethernet cable.
- Configure the Fire Alarm Control Panel.
- Ping the Fire Alarm Control Panel to verify the connection.

Follow the instructions below to complete these steps.

17.2.1 Connecting the Ethernet cable

Note: Connect MMX only over secure networks.

To connect the Ethernet cable

1. Connect an Ethernet cable to the Ethernet port on the main board (MD-871A) of the node. The port is labelled P7 and is in the bottom left corner of the mounted board.
2. Connect the other end of the Ethernet cable to a computer, a router, or a switch.

17.2.2 Configuring the Fire Alarm Control Panel

You need to follow this procedure only for the node that is connected by Ethernet.

To configure the Fire Alarm Control Panel for BACnet

1. Connect your computer to the Fire Alarm Control Panel, and then open the Configurator. See chapter 2 for details.
2. In the Configurator, open the version of the job that is active on the panel.
3. Select the **Node** that you connected the Ethernet cable to.

The **Network Node Info** appears on the right.

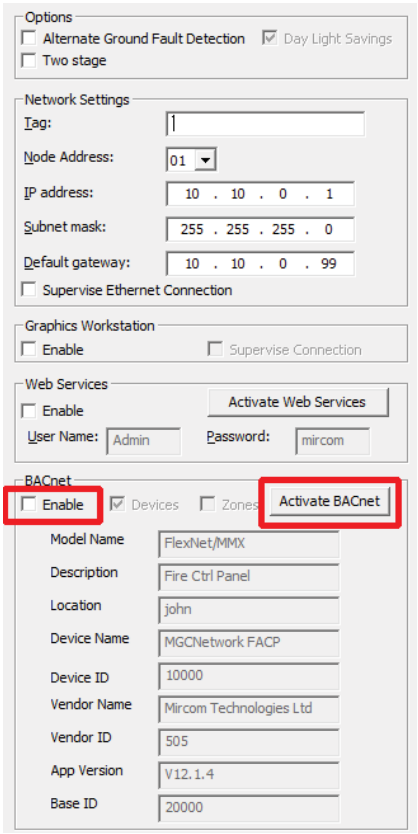


Figure 78 Network Node Info - BACnet

4. Type the static IP address, subnet mask and default gateway. Each node on the TCP/IP network requires its own IP (Internet Protocol) address. The IP address must be unique to the node and it must not be used by any other device on the TCP/IP network.

   If you need assistance, contact your network administrator.

5. Click **Enable** under **BACnet**.
6. Click the **Activate BACnet** button. You must have a CodeMeter key inserted in the computer.

Note: Your organization has a certain number of BACnet Services licenses You can use only one BACnet Services license per job.

7. Click **Yes** to transfer a BACnet license from your CodeMeter key to the Configurator, and then click **OK** in the **BACnet Services Licence Imported** window, and then click **OK** in the **UnitCounter** window.
8. Type a **Device ID** and a **Base ID** in the appropriate fields. The Device ID must be a lower number than the Base ID.

   The Base ID determines where the object ID values will start from. MMX assigns every device a BACnet object ID starting from the Base ID.

   The Device ID determines the ID of the Fire Alarm Control Panel. The Device ID must be lower than the Base ID so that it is outside the range of possible object IDs.

9. Check **Supervise Ethernet Connection** if necessary. This creates a trouble event if the node does not detect an Ethernet connection.
10. Click **Panel** > **Send Job** to send the job to the Fire Alarm Control Panel.

17.2.3 Pinging the Fire Alarm Control Panel

Before attempting to connect BACnet software to the MMX system, ensure that there is a network connection between the computer with the BACnet software and the Fire Alarm Control Panel.

To ping the Fire Alarm Control Panel

1. Click the **Start** button, click **Run**, type **cmd.exe**, and then press Enter.
2. In the command prompt window, type **ping** followed by the IP address of the node that is connected by Ethernet. For example, if the IP address is 10.10.0.1, then type:

   ping 10.10.0.1

   - If the ping is successful, then the computer can communicate with the node.

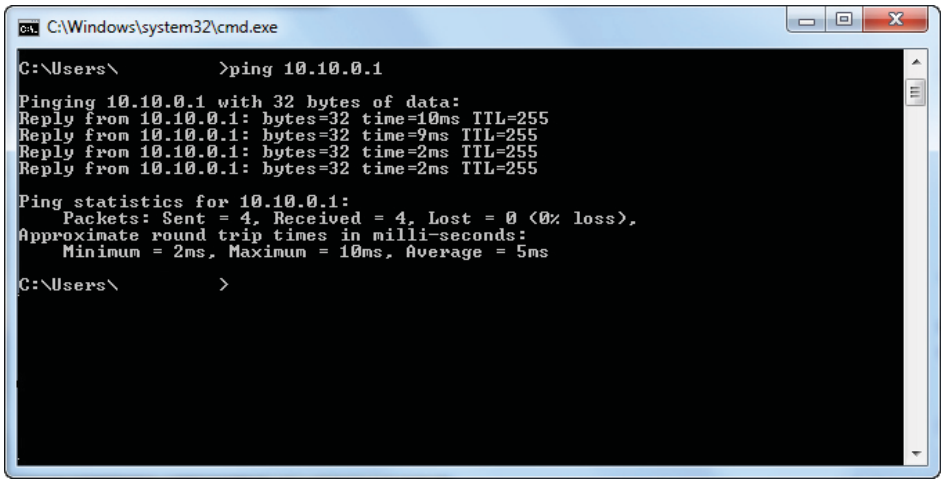


Figure 79 Successful ping

   - If you see the message **Request timed out**, then the ping was not successful, and the computer cannot communicate with the node. Check the network connection and make sure that the computer and the node are on the same subnet and have different IP addresses.

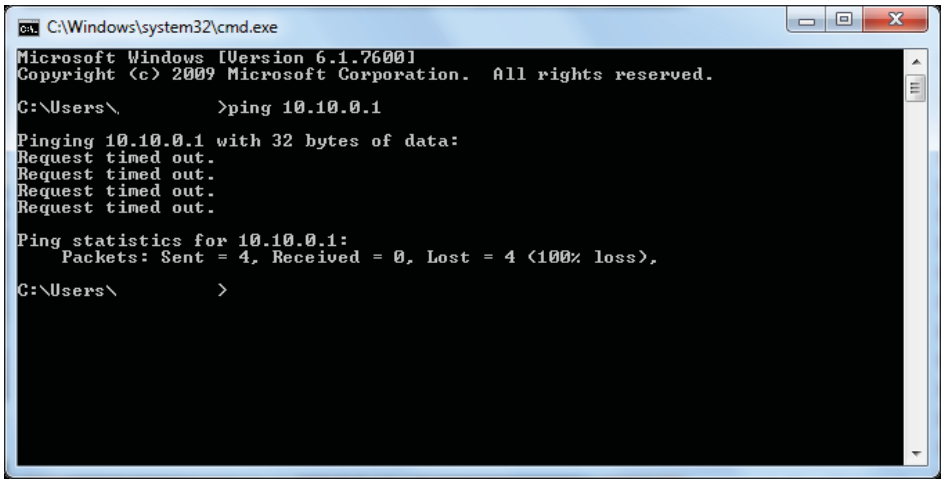


Figure 80 Unsuccessful ping

17.3 Generating Reports

The Configurator can generate a BACnet report that includes the object ID of each object, and other identifying information such as node, CPU and loop number.

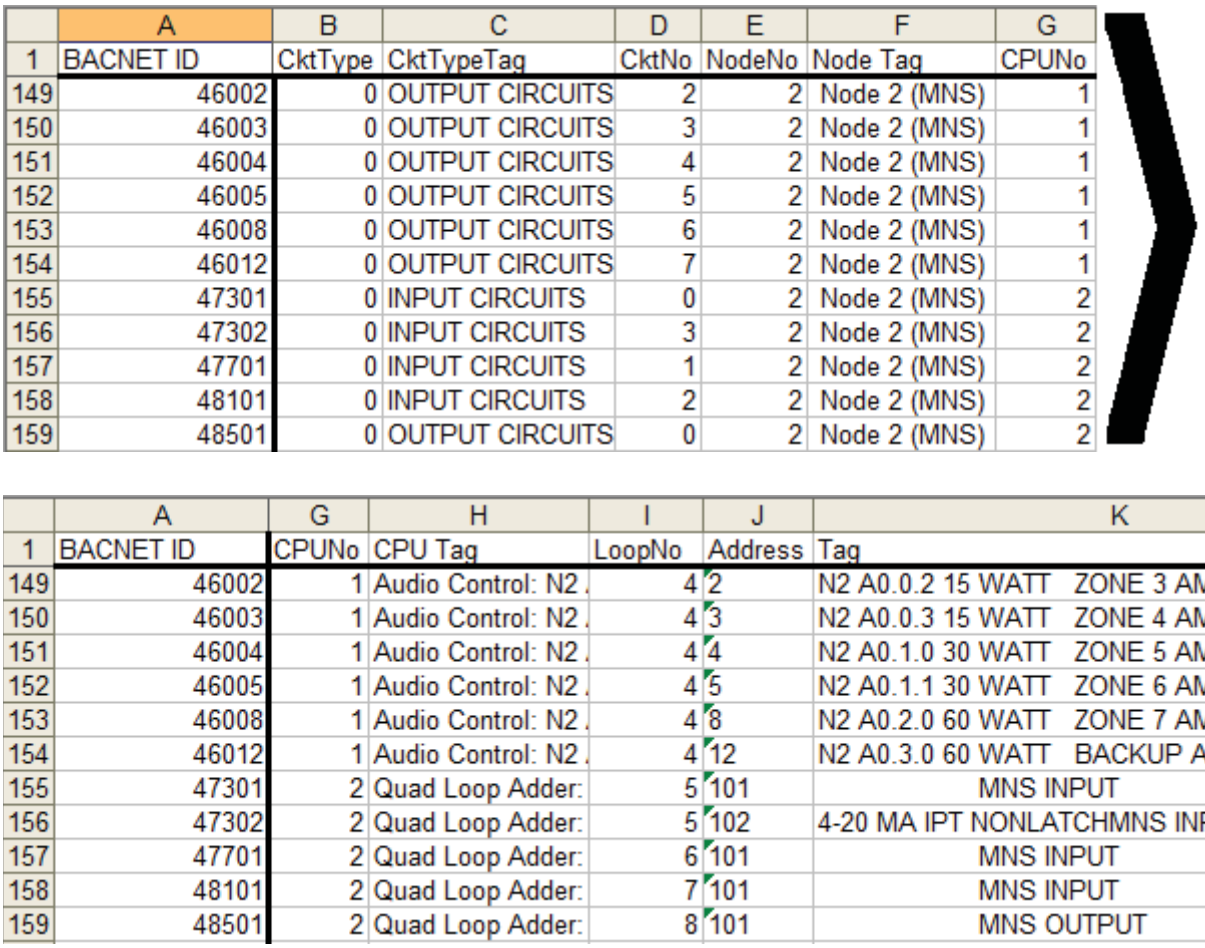
To generate a report

1. In the Configurator, click **Job** > **Export Job**.

   The **Export Current Job to a File** window appears.
2. Choose a location to save the report, and type a name for the report.
3. Select **BACnet Report - Excel (*.xml)** under the **Save as type** pulldown menu.
4. Click **Save**.

   The **Select Firmware Version** window appears.
5. In the **Select Firmware Version** window, make sure that the numbers in the first two fields match the firmware version of the panel that is running the job.
6. Click **OK**.

Figure 81 shows the report.



	A	B	C	D	E	F	G
1	BACNET ID	CktType	CktTypeTag	CktNo	NodeNo	Node Tag	CPUNo
149	46002	0	OUTPUT CIRCUITS	2	2	Node 2 (MNS)	1
150	46003	0	OUTPUT CIRCUITS	3	2	Node 2 (MNS)	1
151	46004	0	OUTPUT CIRCUITS	4	2	Node 2 (MNS)	1
152	46005	0	OUTPUT CIRCUITS	5	2	Node 2 (MNS)	1
153	46008	0	OUTPUT CIRCUITS	6	2	Node 2 (MNS)	1
154	46012	0	OUTPUT CIRCUITS	7	2	Node 2 (MNS)	1
155	47301	0	INPUT CIRCUITS	0	2	Node 2 (MNS)	2
156	47302	0	INPUT CIRCUITS	3	2	Node 2 (MNS)	2
157	47701	0	INPUT CIRCUITS	1	2	Node 2 (MNS)	2
158	48101	0	INPUT CIRCUITS	2	2	Node 2 (MNS)	2
159	48501	0	OUTPUT CIRCUITS	0	2	Node 2 (MNS)	2

	A	G	H	I	J	K
1	BACNET ID	CPUNo	CPU Tag	LoopNo	Address	Tag
149	46002	1	Audio Control: N2	4	2	N2 A0.0.2 15 WATT ZONE 3 AMP FIRE
150	46003	1	Audio Control: N2	4	3	N2 A0.0.3 15 WATT ZONE 4 AMP FIRE
151	46004	1	Audio Control: N2	4	4	N2 A0.1.0 30 WATT ZONE 5 AMP FIRE
152	46005	1	Audio Control: N2	4	5	N2 A0.1.1 30 WATT ZONE 6 AMP FIRE
153	46008	1	Audio Control: N2	4	8	N2 A0.2.0 60 WATT ZONE 7 AMP MNS
154	46012	1	Audio Control: N2	4	12	N2 A0.3.0 60 WATT BACKUP AMP
155	47301	2	Quad Loop Adder:	5	101	MNS INPUT
156	47302	2	Quad Loop Adder:	5	102	4-20 MA IPT NONLATCHMNS INPUT
157	47701	2	Quad Loop Adder:	6	101	MNS INPUT
158	48101	2	Quad Loop Adder:	7	101	MNS INPUT
159	48501	2	Quad Loop Adder:	8	101	MNS OUTPUT

Figure 81 BACnet Report

The first column lists the BACnet ID of each object in the MMX system.

- The **NodeNo**, **CPUNo**, and **LoopNo** columns describe which Node, CPU and Loop each object is on.
- The **Node Tag** and **CPU Tag** columns describe the Node and CPU respectively.
- The **Address** column is the fire device address.
- The **Tag** column describes the object.
- The **CktType**, **CktTypeTag**, and **CktNo** columns contain information that MMX uses internally to identify the object.

17.4 Object Types

Table 20 shows how MMX classifies its devices according to the BACnet object types.

Table 20 Object Types

Object Type	Fire Device Types
	Conventional Input, System Status, Page Select Switches, Manual Control Switches, Miscellaneous Input Circuits
	Ion Detector, Photo Detector, Heat Detector, Laser Detector, COPTIR, 4-20mA Module, Acclimate Detector
	Fire Phone, Telephone Line, Generic Input
	Amplifier, Addressable Relay, Conventional Relay, Conventional Signal, Control

17.5 Object Type Properties

Each of these object types has a set of properties, which identify the object and its state. Table 21 lists the properties associated with each BACnet object that MMX uses. Some of the properties are static (they do not change), while others are dynamic (they change depending on the state the object is in). The dynamic properties are **bold**.

Table 21 Object Type Properties

Object Type	Binary Input	Analog Input	Multi-State Input	Life Safety Point	Binary Output
Object Properties	Object Identifier Object Name Object Type **Present Value** **Status Flags** **Event State** Out of Service Polarity Description	Object Identifier Object Name Object Type **Present Value** **Status Flags** **Event State** Out of Service Units Description	Object Identifier Object Name Object Type **Present Value** **Status Flags** **Event State** Out of Service Number of States Description State Text	Object Identifier Object Name Object Type **Present Value** **Status Flags** **Event State** Out of Service Reliability Mode Accepted Modes Silenced Operation Expected Description	Object Identifier Object Name Object Type **Present Value** **Status Flags** **Event State** Out of Service Polarity Priority Array Relinquish Default Description Active Text Inactive Text

17.5.1 Dynamic Properties

Each dynamic property uses different types of information as the values. The values also vary depending on the kind of object.

Binary Input

Property	Value
Present Value	**active** or **inactive**
Status Flags	a Boolean array [_,_,_,_] - each value in the array represents the presence (1) or absence (0) of an Alarm, Fault, Override or Out of Service respectively
Event State	**normal**, **fault** or **off normal**

Analog Input

Property	Value
Present Value	an analog value in the form of a pulse width PW4 signal
Status Flags	a Boolean array [_,_,_,_] - each value in the array represents the presence (1) or absence (0) of an Alarm, Fault, Override or Out of Service respectively
Event State	**normal**, **fault** or **off normal**

Multi-state Input

Property	Value
Present Value	0-7
Status Flags	a Boolean array [_,_,_,_] - each value in the array represents the presence (1) or absence (0) of an Alarm, Fault, Override or Out of Service respectively
Event State	**normal**, **fault** or **off normal**

Life Safety Point

Property	Value
Present Value	**quiet**, **fault** or **alarm**
Status Flags	a Boolean array [_,_,_,_] - each value in the array represents the presence (1) or absence (0) of an Alarm, Fault, Override or Out of Service respectively
Event State	**normal**, **fault** or **off normal**

Binary Output

Property	Value
Present Value	**active** or **inactive**
Status Flags	a Boolean array [_,_,_,_] - each value in the array represents the presence (1) or absence (0) of an Alarm, Fault, Override or Out of Service respectively
Event State	**normal**, **fault** or **off normal**

17.6 CAS BACnet Explorer

CAS BACnet Explorer is useful for testing, debugging and discovering BACnet networks and devices. The program can be downloaded from the internet from: http://www.chipkin.com/cas-BACnet-explorer but it requires a license to use. The license comes in the form of a USB key which must be plugged into the computer the software is being used on. When installing the software the installer will prompt for the installation of WinPcap. Allow this to install as it is part of the CAS BACnet Explorer package.

Figure 82 CAS BACnet Explorer

Once CAS BACnet Explorer is installed start the program. Some settings require configuration:

1. Press the Settings button and a Settings dialogue box will appear.
2. In the Settings dialogue box press the Network tab on the left and check the BACnet IP and the BACnet Ethernet check boxes.
3. Select the network card being used and then press OK.

The Discover function of the program identifies all objects associated with the MMX system. These objects include inputs, outputs, switches and system statuses. This function is useful

for confirming the presence and availability of all the objects associated with the FACP and it must be performed before any FACP devices can be monitored.

1. Press the Discover button and a Discover dialogue box will appear.
2. Ensure that all check boxes on the left are selected. Select the All check box beside the Network field.
3. In the Low Device Instance field enter the Device ID of the FACP that was set in the configuration.
4. In the High Device Instance field enter a value one greater than the Device ID. Setting this range ensures that only objects associated with the FACP will be discovered.
5. Press Send to begin the discovery process.

Note that sometimes the software will report errors while discovering, this will not affect the outcome of the discovery. Once the discovery is complete the main window should display a populated tree consisting of all the objects associated with the FACP. If the list does not appear or is incomplete repeat the discovery process with all options selected.

The CAS BACnet explorer can also be used to monitor any changes in the properties of any of the objects associated with the FACP. Once objects have been discovered the populated tree can be expanded and individual objects can be selected. Each object can be expanded to view its parameters and properties. To monitor an object right click on it and select “Add this object to monitor list”. Repeat this for each object that needs to be monitored.

Objects will be monitored using default properties however the list of default properties may not included all required properties. To set properties to be monitored click on the settings icon and the Settings window appears. Use the Add and Remove buttons to select properties. Press OK to confirm the settings.

Once objects and properties to be monitored are selected press the Monitor button in the main window. All the objects to be monitored will be displayed in a new window titled Monitor List. This window will display any changes in properties as they happen in real time.

17.7 Visual Test Shell

Visual Test Shell (VTS) is an application that is able to monitor BACnet objects and communicate with BACnet devices to acknowledge alarms. It is freeware and can be downloaded from: http://sourceforge.net/projects/vts/. Once the zip file package has been downloaded extract the files and launch the application using the executable VTS.exe. Note that WinPcap must be installed in order for the VTS application to launch.

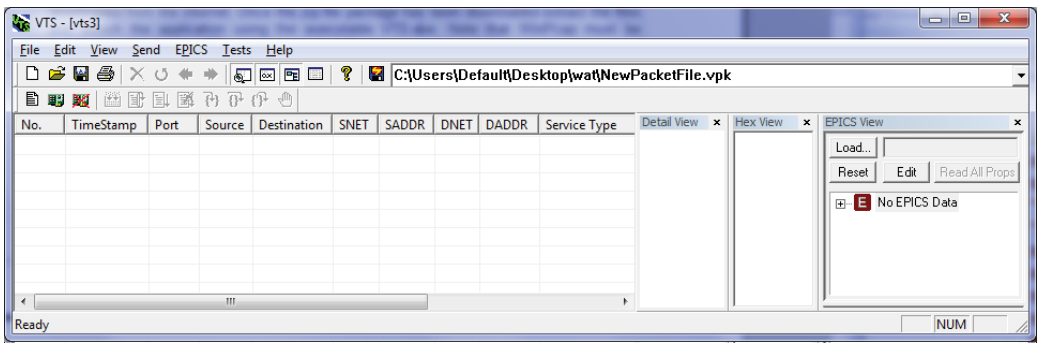


Figure 83 Visual Test Shell

17.7.1 Configuring Device, Port and Name Settings

1. From the taskbar select Edit then select Device. The Device Configuration window appears.
2. Enter a name for the BACnet device in the Name field and its Device ID in the Instance field.
3. Press OK to confirm your settings.
4. From the task bar select Edit then select Ports. The Port Configuration window appears.
5. Press the New button and in the Name field enter a name for the port.
6. Select the Enable check box and use the Network drop down box to select the device that was configured in the Device Configuration window.
7. Press the IP tab and ensure that the Interface drop down box displays the correct network adapter.
8. Press OK to confirm your settings.
9. From the task bar select Edit then select Names. The Names window appears.
10. Press the New button and set the Address Type to Local Station if the FACP is on the same subnet.
11. Use the Port drop down box to select the port created using the Ports menu. Enter a name for the FACP. Enter the IP address assigned to the FACP in the configuration in the Address field along with the port number.
12. Press OK to confirm your settings.

17.7.2 Setting up Filters

Navigate to the Edit menu and select either Capture Filter or Display Filter. The setup for each filter type is the same, the difference being that the display filter changes what is displayed and does not affect the log file while the capture filter directly affects what appears in the log file. To create a new filter:

1. Click the New button in the Filters window.
2. Select options for accepting or rejecting packets and set the Port, Address and Address Type as before in section 17.7.1.
3. Press OK to confirm your settings.

17.7.3 Acknowledging Alarms

1. Navigate to the menu bar and select Send. From the drop down menu navigate to Alarm and Event then Acknowledge Alarm. The Acknowledge Alarm dialogue box will appear.
2. The majority of information to be filled in under the Acknowledge Alarm tab is only for log file purposes and can be replaced with placeholder information. For the Acknowledging Process Identifier, Event Object Identifier and Acknowledgement Source fields enter placeholder text such as “1”.
3. Press both Time Stamp buttons and the Time Stamp window appears, enter placeholder text such as “1” in the Time field for both windows and press OK.
4. For the Event State Acknowledged drop down select normal.
5. Select the IP tab in the Acknowledge Alarm window and select the destination FACP using the Destination drop down menu.
6. Press Send to Acknowledge the alarm.

17.7.4 Monitoring Objects

Objects can be monitored by retrieving the current value of any property associated with an object. This is accomplished by sending read property commands. To send a read property to the FACP:

1. Navigate to the menu bar and select Send. From the drop down menu navigate to Object Access then Read Property. The Read Property dialogue box will appear.
2. Under the Read Property tab press the ID button beside the Object ID field. The Object ID dialogue box appears.
3. In this dialogue box select the Object Type using the drop down menu and enter the object's BACnet ID under the Instance field. This is the ID described by the expression in section 17.2.2.
4. Press OK and switch to the IP tab in the Read Property dialogue box.
5. Select the destination FACP using the Destination drop down menu.
6. Press Send to send the read property request. The request should be responded to by the FACP with information about the object in the main VTS window.

17.8 BACnet Discovery Tool

The BACnet Discovery Tool (BDT) is a tool for discovering and verifying objects on a BACnet server. The BDT can connect remotely and scan the system for all BACnet object. Object properties can also be discovery and, in some cases, changed through the BDT. The software is free and can be downloaded from http://www.ccontrols.com/sd/bdt.htm.

To install, unzip the downloaded package and run the BDT 2.03.00.exe program. If you are using Windows 7 or later the program must be run as Administrator to install correctly. When you start up the program it may warn you that the file has no valid digital signature. It is safe to ignore this warning and proceed.

If the BACnet network uses several subnets then you will need to input the IP address of the central BACnet/IP Broadcast Management Device (BBMD) to ensure that you see the entire network and all objects.

Figure 84 BBMD Address

To create a database of the objects in the BACnet network, press the "Search" button.

Attention: The BACnet Discovery Tool using a BACnet/IP Who-is command and thus will not discovery any objects that that support only BACnet/ Ethernet identification.

When the search is complete the main window will display all of the discovered objects with the following information,

- The Device Instance Number

- The Device Name
- The IP Address and UDP Port number
- The MS-TP Network number and MAC Address (for some devices)

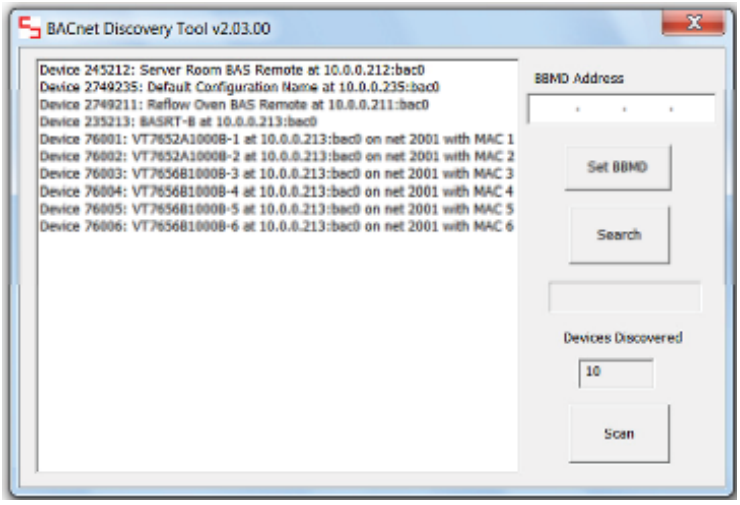


Figure 85 BACnet Discovery Tool

Double click any discovered device to see a list of objects contained in that device. The Device name will appear at the top of the objects list and can be double clicked to display the Device Objects Properties window with more detailed information on the device. Any of the contained objects may be double clicked to open up the Object Properties window with more detailed information on the object. If the Write button is not greyed out you may set a Write Value and a Priority value for this object.

The “Scan” button starts a continuous scan of all devices and objects in the database, reporting their present values or logging errors if they fail to reply.

18.0 Using the Web Server

The MMX Web Server allows remote monitoring from any computer on the same network as the Fire Alarm Control Panel. The Web Server displays much of the same information that appears on any annunciator connected to the Fire Alarm Control Panel.

18.1 Setting up the Web Server

Note: You must purchase a Web Server license in order to use the Web Server. You must purchase a license for each job.

To set up the Web Server you must:

- Connect the Ethernet cable.
- Configure the Fire Alarm Control Panel.
- Ping the Fire Alarm Control Panel to verify the connection.
- Configure the web browser.
- Access the Web Server in the browser.

Follow the instructions below to complete these steps.

18.1.1 Connecting the Ethernet cable

Note: Connect MMX only over secure networks.

To connect the Ethernet cable

1. Connect an Ethernet cable to the Ethernet port on the main board (MD-871A) of the node. The port is labelled P7 and is in the bottom left corner of the mounted board.
2. Connect the other end of the Ethernet cable to a computer, a router, or a switch.

18.1.2 Configuring the Fire Alarm Control Panel

You need to follow this procedure only for the node that is connected by Ethernet.

To configure the Fire Alarm Control Panel for the Web Server

1. Connect your computer to the Fire Alarm Control Panel, and then open the Configurator. See chapter 2 for details.
2. In the Configurator, open the version of the job that is active on the panel.
3. Select the **Node** that you connected the Ethernet cable to.

The **Network Node Info** appears on the right.

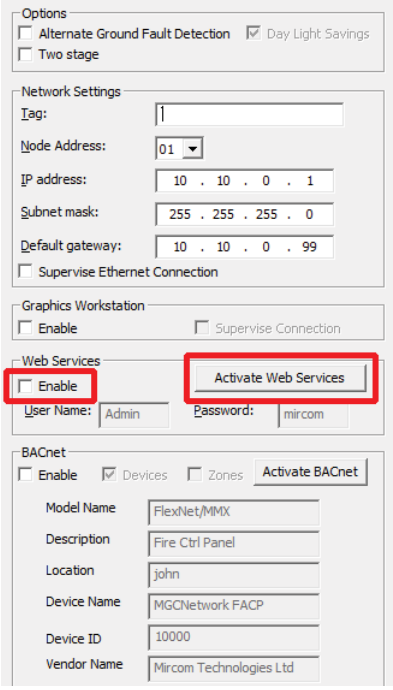


Figure 86 Web Services

4. Type the static IP address, subnet mask and default gateway. Each node on the TCP/IP network requires its own IP (Internet Protocol) address. The IP address must be unique to the node and it must not be used by any other device on the TCP/IP network.

   If you need assistance, contact your network administrator.

5. Type a Username and Password in the appropriate fields.
6. Click **Enable** under **Web Services**.
7. Click the **Activate Web Services** button. You must have a CodeMeter key inserted in the computer.

Note: Your organization has a certain number of Web Services licenses. You can use only one Web Services license per job.

8. Click **Yes** to transfer a Web Services license from your CodeMeter key to the Configurator, and then click **OK** in the **Web Services Licence Imported** window, and then click **OK** in the **UnitCounter** window.
9. Check **Supervise Ethernet Connection** if necessary. This will create a trouble event if the node does not detect an Ethernet connection.
10. Click **Panel** > **Send Job** to send the job to the Fire Alarm Control Panel.

18.1.3 Pinging the Fire Alarm Control Panel

Before attempting to access the Web Server, ensure that there is a network connection between the computer and the Fire Alarm Control Panel.

To ping the Fire Alarm Control Panel

1. Click the **Start** button, click **Run**, type **cmd.exe**, and then press Enter.
2. In the command prompt window, type **ping** followed by the IP address of the node that is connected by Ethernet. For example, if the IP address is 10.10.0.1, then type:

   ping 10.10.0.1

   - If the ping is successful, then the computer can communicate with the node.

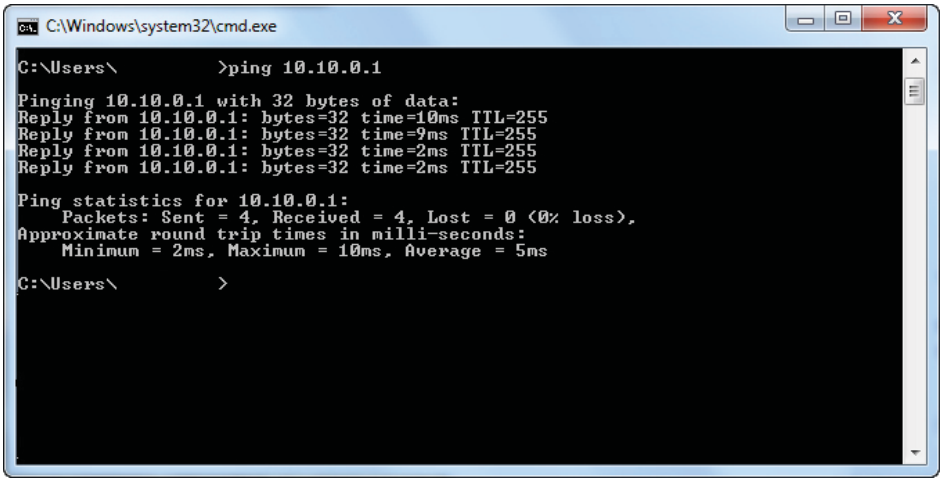


Figure 87 Successful ping

   - If you see the message **Request timed out**, then the ping was not successful, and the computer cannot communicate with the node. Check the network connection and make sure that the computer and the node are on the same subnet and have different IP addresses.

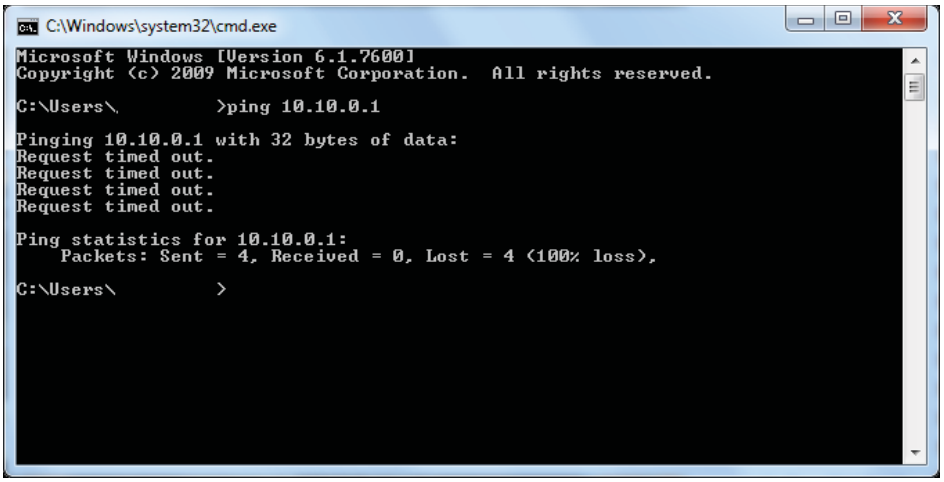


Figure 88 Unsuccessful ping

18.1.4 Web Browser Setup

Internet Explorer version 6 or later is recommended. You must configure it to not cache web pages.

To set up the web browser

1. In the Internet Explorer 6 menu bar, click **Tools**, then click **Internet Options**.

   The **Internet Options** window appears.
2. In the Browsing History section, click **Settings**.

   The **Temporary Internet Files and History Settings** window appears.
3. Select **Every time I visit the webpage**, and then click **OK**.

18.1.5 Accessing the Web Server

To access the Web Server

1. In the browser's address bar, type the IP address of the node, followed by **/index.html**. For example, if the IP address is 192.168.0.1, then type

   192.168.0.1/index.html
2. Press Enter.

   A prompt to enter the user name and password appears.
3. Type the user name and password that you set up in section 18.1.2, and then press Enter.

You can now use the Web Server to monitor the Fire Alarm Control Panel remotely.

18.2 Using the Web Server

The Web Server displays information about the function and operation of the MMX system. It allows you to access the MMX system remotely for monitoring and troubleshooting.

18.2.1 Queue Status

The **Display Queue Status** page shows the alarm, supervisory, trouble and monitor queues. To browse through these queues, click the corresponding button.

To view the Queue Status:

- Click **Panel Information**, and then click **Queue Status**.

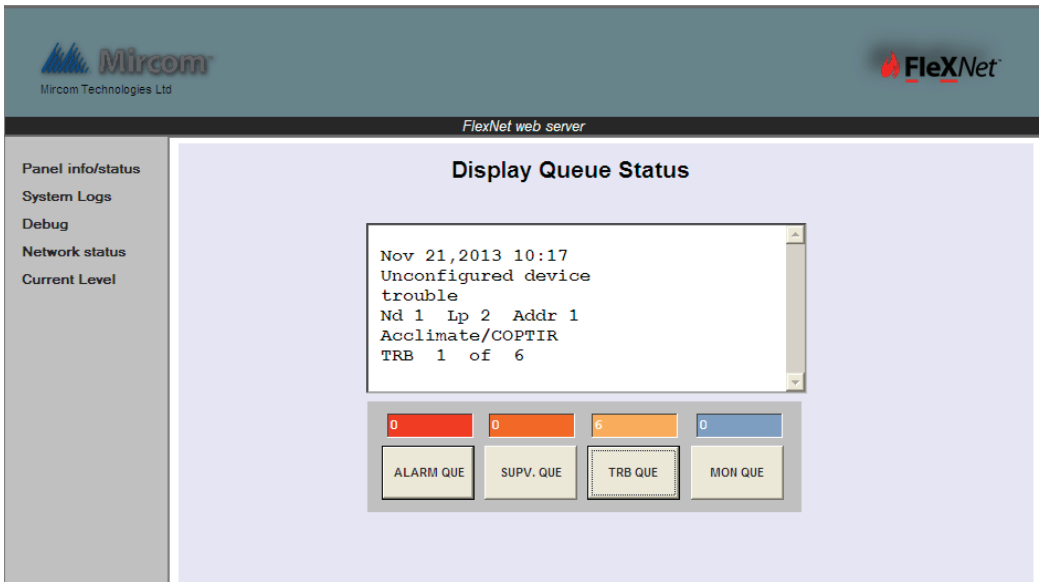


Figure 89 Queue Status

18.2.2 Advanced Panel Info

The **Advanced Panel Info** page shows information about the CPUs connected to each node in the system, including the firmware version and the current job. For more information, see section 2.8 on page 22.

To view the Advanced Panel Info:

- Click **Panel Information**, and then click **Panel Info**.

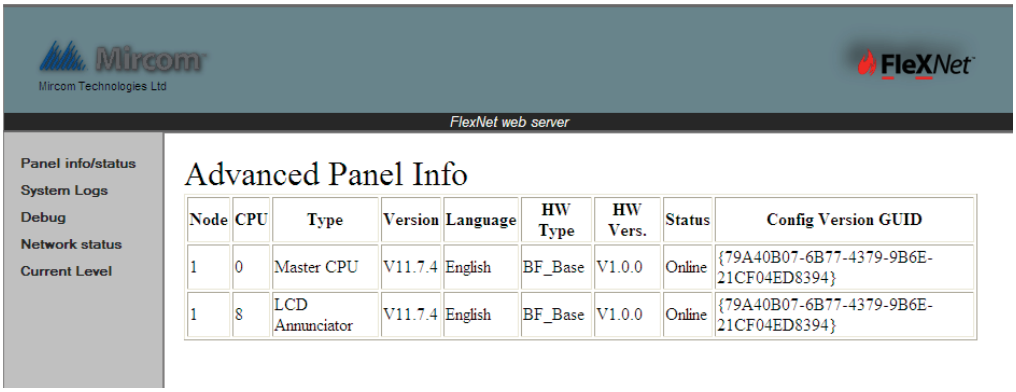


Figure 90 Advanced Panel Info

18.2.3 Configuration Status

The **Configuration Status** page shows a list of the nodes that comprise the MMX system. The CPUs that are in use have a CPU number beside their associated node.

To view the Configuration Status:

- Click **Panel Information**, and then click **Configuration Status**.

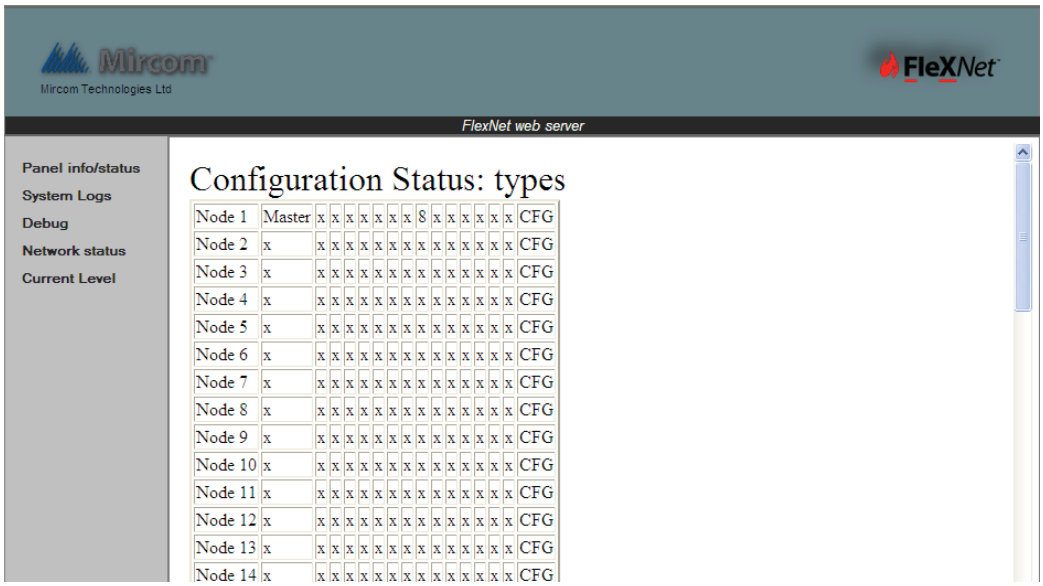


Figure 91 Configuration Status

18.2.4 Alarm Log

The **Alarm Log** page displays the list of all Alarms, including network and system restarts. You can save or print this log with the buttons at the top of the page. Note that there is a delay of a few minutes before the logs update. They are not updated in real time.

To view the Alarm Log:

- Click **System Logs**, and then click **Alarm Logs**.

Figure 92 Alarm Log

18.2.5 Event Log

The **Event Log** page displays a list of all events, including troubles and alarms. You can save or print this log with the buttons at the top of the page. Note that there is a delay of a few minutes before the logs update. They are not updated in real time.

To view the Event Log:

- Click **System Logs**, and then click **General Logs**.

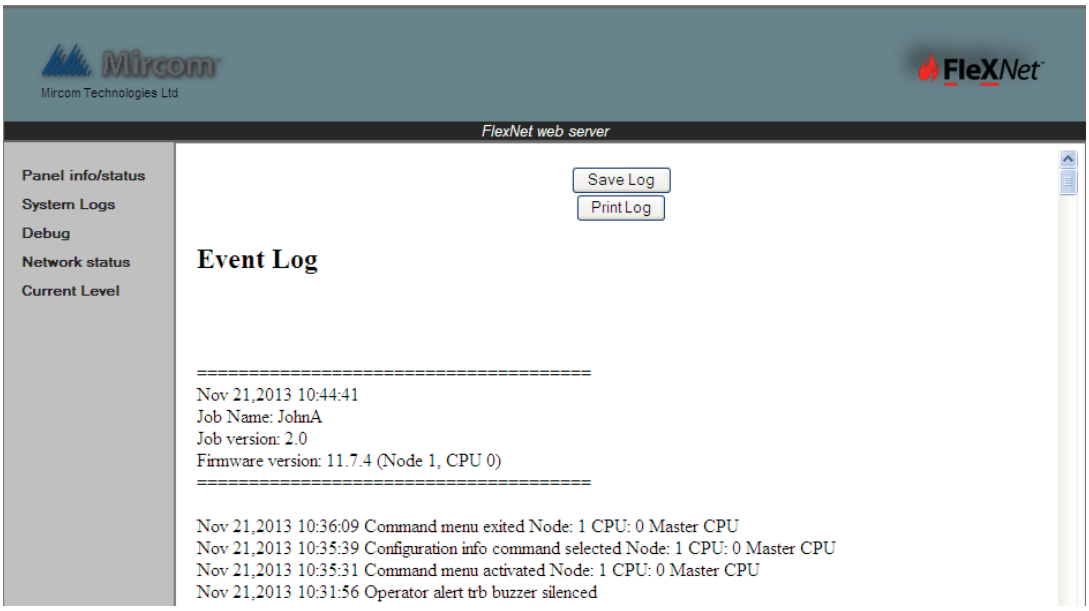


Figure 93 Event Log

18.2.6 TCP Socket Table

The **TCP Socket Table** page displays a list containing all the connections currently being made to the Web Server from remote locations. Each entry after the first represents a unique connection to the Web Server.

To view the TCP Socket Table:

- Click **Network Status**, and then click **TCP**.

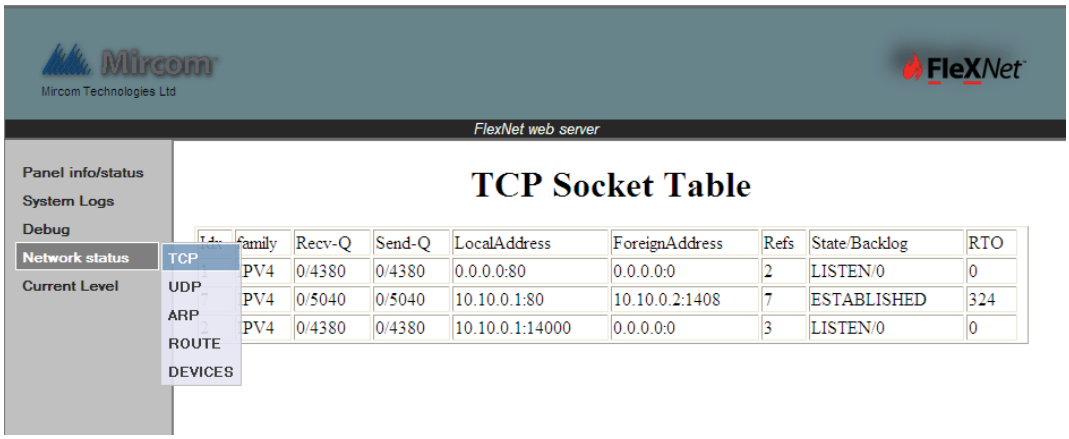


Figure 94 TCP Socket Table

18.2.7 UDP Socket Table

The **UDP Socket Table** page displays a list containing all the BACnet applications currently connecting to the MMX system from remote locations. Each entry after the first represents a unique connection to the Web Server.

To view the UDP Socket Table:

- Click **Network Status**, and then click **UDP**.

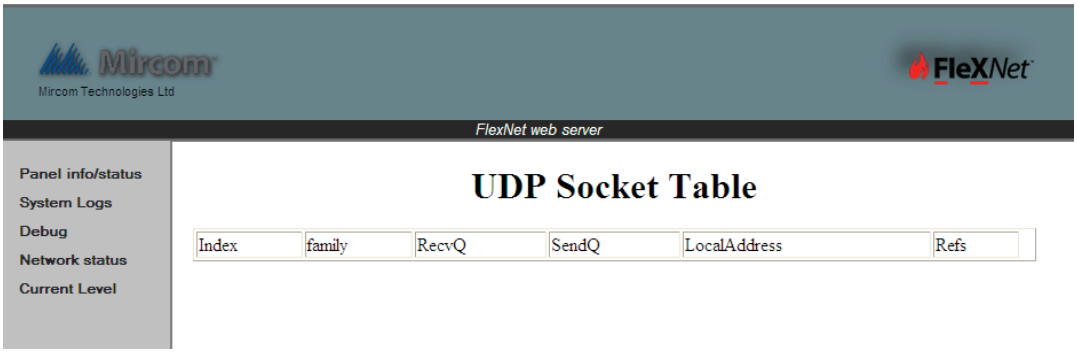


Figure 95 UDP Socket Table

18.2.8 ARP, Routing and Device Tables

The ARP Table, Routing Table and Device Table contain information that aids network administrators in remotely monitoring, troubleshooting and configuring the network connection of the MMX system.

To view the ARP Table:

- Click **Network Status**, and then click **ARP**.

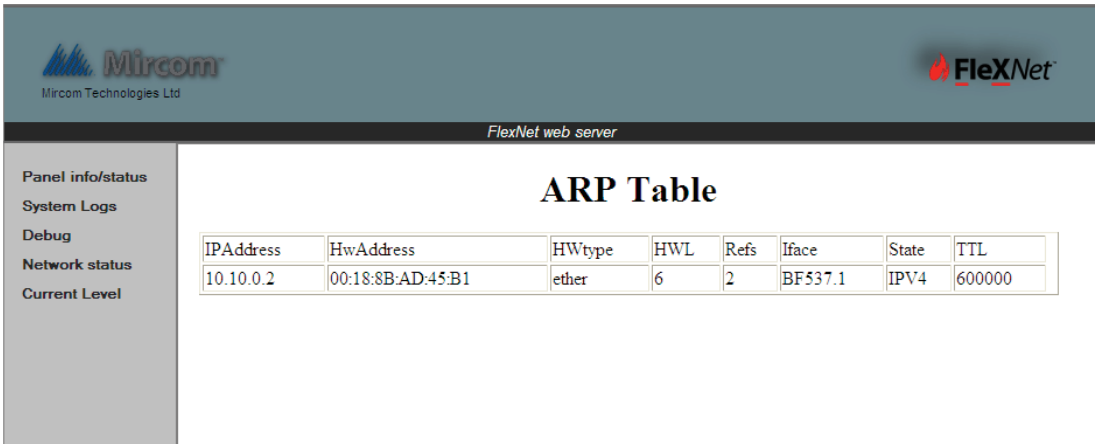


Figure 96 ARP Table

To view the Routing Table:

- Click **Network Status**, and then click **ROUTE**.

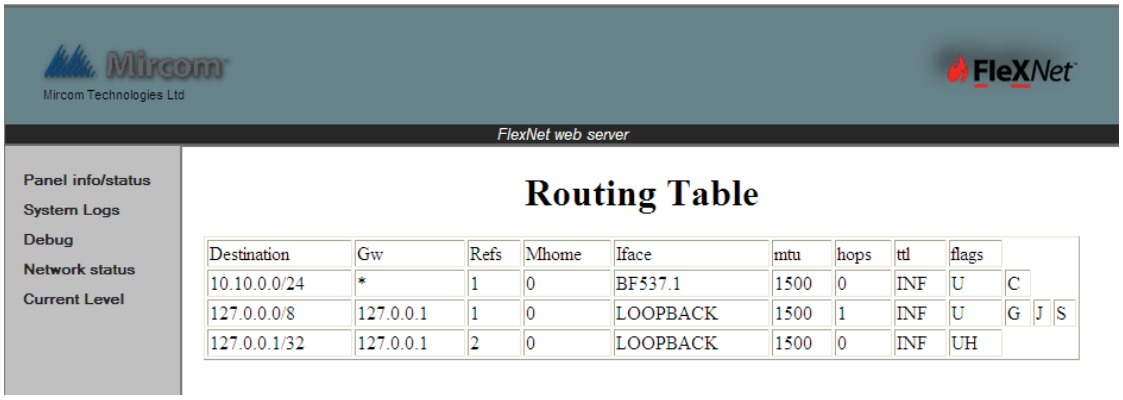


Figure 97 Routing Table

To view the Device Table:

- Click **Network Status**, and then click **DEVICES**.

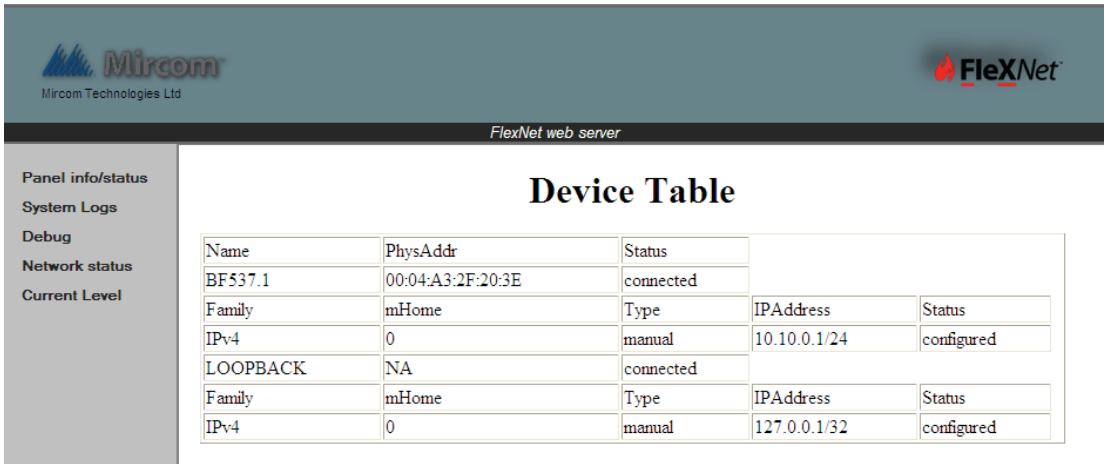


Figure 98 Device Table

18.2.9 Current Level

The Current Level page monitors individual devices.

To view the Current Level:

- Click **Current Level**.

To add a device for current level monitoring:

1. Click the line for the device to be placed on in the **Display Line No.** pulldown menu.
2. Type the values for the node the device is on, the loop that it is on, and the device address in the **Node No**, **Loop No**, and **Device Address** fields.
3. Do one of the following:

- Click **Add**, and then type information for a second device.

  Or

- Click **Start** to begin monitoring.

  The Device Info window shows the current level readings and the percentage that the current level is at before it reaches alarm level at or beyond 100%.

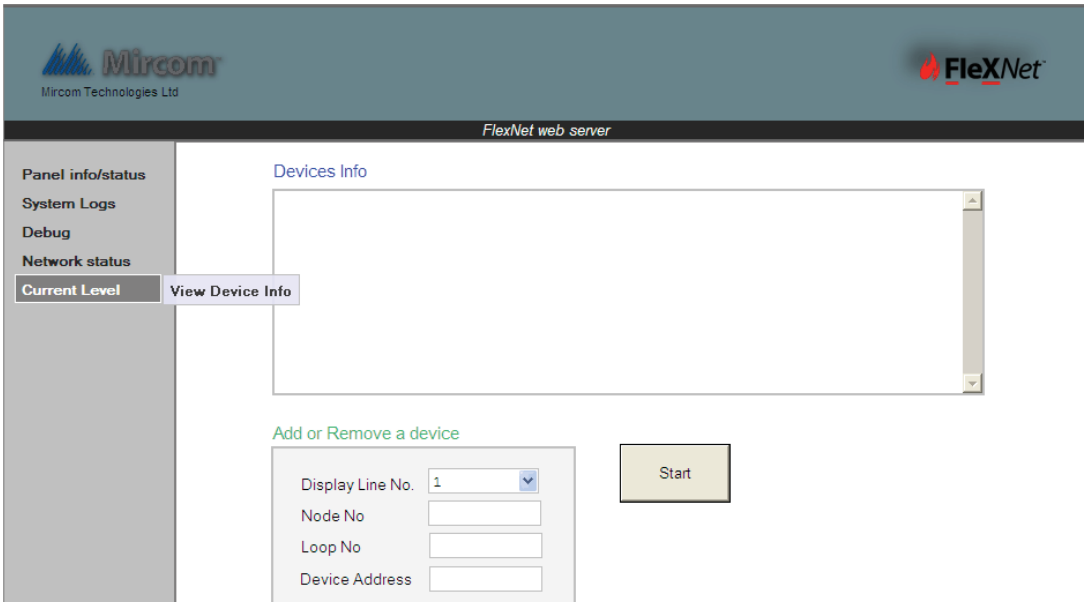


Figure 99 Devices Info

19.0 Using the Configurator

19.1 Overview

The MGC Fire Detection and Mass Notification Configurator (the Configurator) is an application that lets you create and manage jobs. A job is a set of configuration data that uniquely describes and controls a set of Fire Alarm Control Panel hardware. The Configurator also allows you to send firmware to a panel and all its related nodes and CPUs.

You usually run the Configurator on a portable laptop computer that you take to the job site and connect to the panel. You prepare a job with the Configurator, then you send the job to the panel. Later, you or another authorised technician can retrieve the job from the panel, modify it, and send it back to the panel.

The Configurator stores jobs in a Microsoft Access relational database. Jobs can be imported or merged from another database, copied, deleted, and archived in various formats. A job can be printed, or two versions of a job can be compared.

19.2 User Preferences

The first time the Configurator starts, the **User Preferences** window appears.

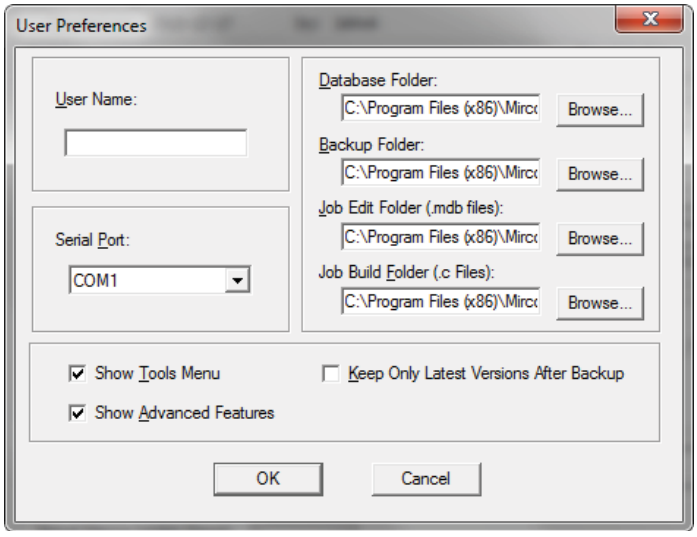


Figure 100 User Preferences

User Name	The creator of all new jobs and job versions.
Serial Port	The port that the Configurator uses to connect to the panel.
Database Folder	The folder where the main database file is stored. This is usually the folder where the configurator is installed.
Backup Folder	The folder where backup database files are stored.
Job Edit Folder	The folder where the job files are stored.

Job Build Folder	The folder where the C output files are stored.
Show Tools Menu	Displays or hides a Tools menu. This menu contains trace and debug functions and features that are helpful to Technical Support.
Keep Only Latest Versions After Backup	If this option is selected, only the latest versions of all jobs will be kept after a successful Backup Database command. All older versions will be deleted.
Show Advanced Features	If this option is disabled, some of the more advanced features are hidden.

19.3 Major Components of the Configurator Window

The Configurator window is divided into three panes.

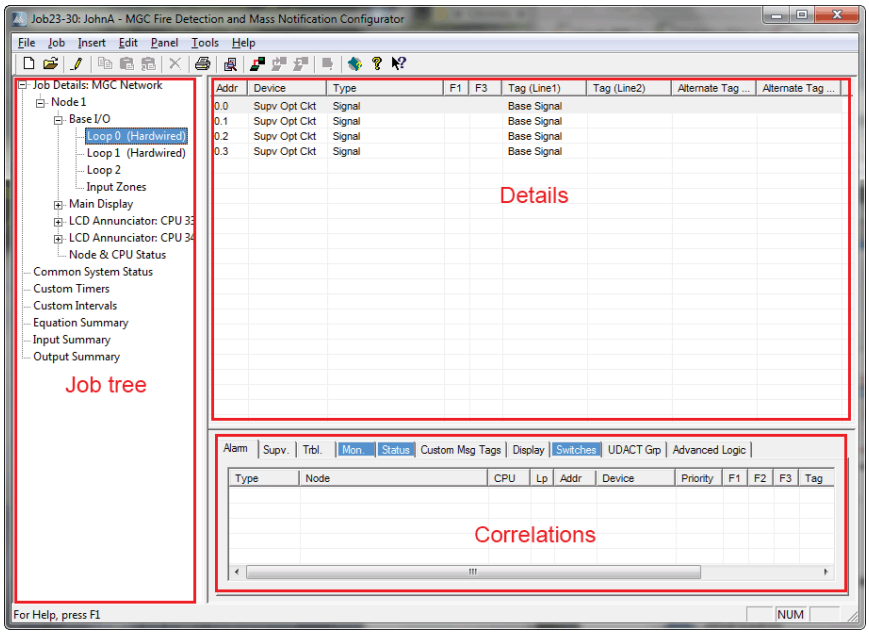


Figure 101 Configurator Window

19.3.1 Job Tree

In the left pane, the job appears as a tree. At the highest level in the tree are the nodes and CPUs. Under each node are its components, for example annunciators and loop controllers. Some items are divided into other items. For example, an annunciator is divided into display adders and a loop controller is divided into loops.

Some items in the tree do not represent physical components. For example, items exist for input and output summaries, timers, and intervals.

19.3.2 Details Pane

The top right pane displays the details of the selected item in the tree.

19.3.3 Correlations Pane

The third pane displays correlations for the item selected in the Details pane. For example, when a loop is selected in the Job Tree, the Details pane shows all of its devices or circuits.

When one or more input circuits are selected in the Details pane, then the Correlations pane shows the output circuits they are correlated to.

19.4 Job Tree

The Job Tree lists the following items:

- Job Details
- Base I/O and associated Loops
- Main Display and associated Display Adders
- Common System Status
- Walk Test Areas
- Custom Timers
- Custom Intervals
- Equation Summary
- Input Summary
- Output Summary

Items representing the network nodes (for networkable products) and CPUs (for instance, main display, loop controllers, and annunciators) are at the highest level. You can expand these to show their sub-components, for instance, individual loops and display adders.

You can copy and paste items, and also drag and drop items, in the tree.

19.5 Job Details

This section explains the options in the Job Details.

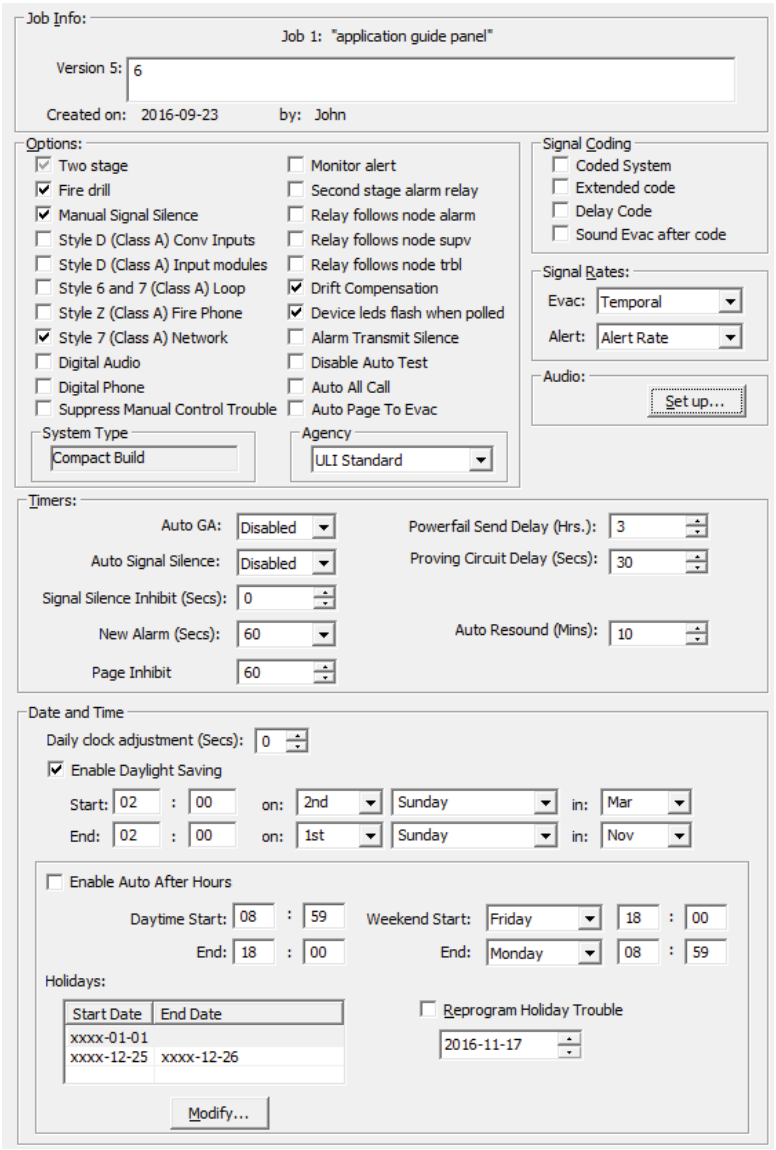


Figure 102 Job Details

To see the Job Details

- Select the **Job Details** node (the highest node) in the Job Tree.

Job Info

The **Job Info** section shows details of the job's name, number, creation date and author, and any comments. Text in the **Version** field becomes part of the job's version history.

Options

Two stage	Select this check box to configure the system as a two stage system. If you do not select this, then the system is single stage. As per UL 864 and UL 2572 only a setting of Single Stage (disabled) is permissible.
Fire drill	Select this check box to enable the panel's Fire Drill switch.
Manual signal silence	Select this check box to enable the panel's Signal Silence switch.
Style D (Class A) Conv Inputs	Select this check box to indicate that the panel has Style D (Class A) conventional inputs.
Style D (Class A) Input Modules	Select this check box to indicate that input modules' field wiring is Style D (Class A).
Style 6 and 7 (Class A) Loop	Select this check box to indicate that the panel has Style 6 and 7 (Class A) addressable loops.
Style Z (Class A) Fire Phone	Select this check box to indicate that the wiring from an addressable fire phone module and the handset is Style Z (Class A).
Style 7 (Class A) Network	Select this check box to indicate that the wiring between Network Nodes is Style 7 (Class A).
Digital Audio	Select this check box to indicate that the audio signals use the ARCNet wiring between network nodes. If this option is not selected, then the audio runs over a separate pair of wires.
Digital Phone	Select this check box to indicate that the fire phones use the ARCNet wiring between network nodes. If this option is not selected, then the phones communicate over the telephone bus terminals.
Suppress Manual Control Trouble	Select this check box to suppress trouble for auto/man switch on 24 switch adder (IPS-2424) and HOA (FDX-008).
Monitor alert	Select this check box to make an alert sound play when a monitor input activates.
Second stage alarm relay	Select this check box to set the alarm relay to operate on a stage two alarm. This option is disabled unless **Two stage** is selected. As per UL 864 and UL 2572 only a setting of **Disabled** is permissible.
Relay follows node alarm	Select this check box to set the alarm relay to activate on a node level alarm. If this option is not selected, the alarm relay activates on a system level alarm.
Relay follows node supv	Select this check box to set the supervisory relay to activate on node level supervisory. If it is not selected, the supervisory relay activates on a system level supervisory.
Relay follows node trbl	Select this check box to set the trouble relay to activate on node level trouble. If it is not selected, the trouble relay activates on system level trouble.

Drift compensation	Select this check box to set the system to compensate for drift (buildup of dust in the detectors that can lead to inaccurate readings). As per UL 864 and UL 2572 only a setting of Enable is permissible.
Device LEDs flash when polled	Select this check box to make the LEDs of addressable devices on the Base I/O's loop flash when polled.
Alarm Transmit Silence	Select this check box to cause the Alarm Transmit and Auxiliary Alarm Relay to reset on Signal Silence rather than on the Reset switch.
Disable auto test	Select this check box to disable the automatic testing of System Sensor addressable devices.
Auto All Call	Select this check box to enable automatic all call when Press To Talk or a digital message switch is pressed.
Auto Page to Evac	Select this check box to enable automatic page to evac when a microphone is keyed. This means that the page goes only to the amplifiers in the evac zone. If there is no alarm, then keying the microphone generates all call instead.
System Type	Indicates the system type (compact or large) of the current Job. You cannot edit this field, but for some products you can convert the job between system types.
Agency	Select ULI Standard or ULC Standard.

Signal Coding

Coded System	Select this check box to enable coded system features. In a coded system, each input zone can be associated with a code, which is played on the signal and speaker circuits. The code indicates where the alarm has occurred.
Extended Code	Select this check box to set the code pulse duration to 1/2 second. If this is not selected, the code pulse duration is 1/4 second.
Delay Code	Select this check box to set the time between codes to 10 seconds. If this is not selected, the time between codes is 3 seconds.
Sound Evac after code	Select this check box to make the system enter general alarm after the coded signals have finished playing.

Signal Rates

Evac	Choose the evacuation signal rate.
Alert	Choose the alert signal rate.

Audio

Audio Set up	Click **Set up** to create a digital message. See chapter 16.

Timers

Auto GA

On a two stage system, the stage one alarm (alert) will change to the stage two alarm (general alarm) after this amount of time.

Auto GA must be shorter than **Auto Signal Silence**.

Choose from 0-30 minutes or **Disabled**. To use this option, you must select **Two stage** above.

Auto Signal Silence

This is the amount of time after which the alarm is automatically silenced. In a two stage system, the stage two alarm counts as a new alarm. For example, if **Auto GA** is set to 30 seconds and **Auto Signal Silence** is set to 1 minute, then the stage two alarm will be automatically silenced 1 minute after it starts (1.5 minutes after the stage one alarm started).

Auto Signal Silence must be longer than **Signal Silence Inhibit** and **Auto GA**.

Choose from 0-30 minutes or **Disabled**.

Signal Silence Inhibit

While this timer is running, you cannot silence the alarm or reset the system.

Signal Silence Inhibit must be shorter than **Auto Signal Silence**.

Choose from 0-3 minutes.

As per UL 864 and UL 2572 only a Signal Silence Inhibit setting of 0 is permissible. See section 19.45 on page 206.

New Alarm

This feature is for suite silence configurations. This is the amount of time that the alarm plays on outputs correlated with the **New Alarm Active** Common System Status. After this amount of time, the alarm plays only on the outputs correlated with the zone or input that started the alarm.

For example, if you correlate the **New Alarm Active** Common System Status with all the suites in the building, then a new alarm will play in all the suites for this amount of time. After this time, the alarm with continue to play only in the suite that started the alarm (as well as outputs correlated with the **Common Alarm** Common System Status).

In a two stage system, suite silence is canceled when the stage two alarm starts.

As per UL 864 and UL 2572 the **New Alarm Active** Common System Status must not be correlated.

Choose from 10-120 seconds.

For more information, see section 19.45 on page 206.

Page Inhibit	This timer is started by the first active alarm. Paging is inhibited while this timer is running. As per UL 864 and UL 2572 only a setting of 0 is permissible. Choose from 10-120 seconds.
Powerfail Send Delay	If the only trouble is an AC power failure, this is the amount of time after the power failure that the system delays transmission of status to the monitoring station. The default is 3 hours. The maximum time is 18 hours. See section 19.11 on page 163.
Proving Circuit Delay	This timer is used for fan dampers. If the monitor inputs do not activate within the specified time (indicating that the fan has not started running, or the damper has not moved to its commanded position), then a trouble will be reported and LEDs associated with the fan damper switch will flash. Choose from 5-90 seconds.
Auto Resound	This timer specifies the time, in minutes, after which the signals will resound if an alarm remains un-acknowledged. The default is 10 minutes. See section 19.45 on page 206. Choose from 5-12 minutes.

Date and Time

Daily clock adjustment	The number of seconds (positive or negative) by which the system adjusts the panel's clock every 24 hours. The adjustment happens at 01:55 every day.
Enable Daylight Saving	Enables automatic change to and from daylight saving time. You can specify when daylight saving time begins and ends.
Enable Auto After Hours	Specifies when the system automatically goes into After Hours mode. If After Hours mode is enabled, then you can change the detector sensitivity for the times designated as After Hours (because there will be fewer people in the facility, the sensitivity might need to be higher).
Holidays	A list of the defined holidays, when the system will go into After Hours mode.
Reprogram Holiday Trouble	Select this check box to put the system into trouble when there are no future holidays programmed. Specify the date after which there are no programmed holidays. The system will be in trouble until more holidays are added, or until the check box is unselected.

19.5.1 Holidays

During a holiday, the system goes into After Hours mode. You can add and remove holiday definitions.

To add a new holiday

1. Click **Enable Auto After Hours** at the bottom of the Job Details.
2. Click **Modify**.

   The **Holidays** window appears.

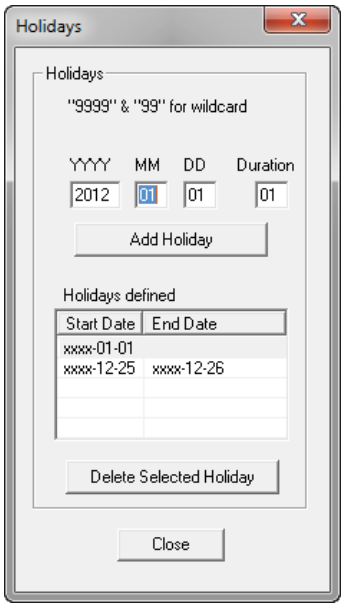


Figure 103 Holidays Window

3. Compose a new holiday definition in the **YYYY MM DD** edit boxes.
4. If the holiday lasts longer than one day, type the number of days in the **Duration** field.
5. Click **Add Holiday**.

   The holiday appears in the **Holidays defined** list.

To specify a holiday that recurs once a year

- Type **9999** in the **YYYY** field.

  For example, type **9999 01 01** for New Years Day.

To specify a holiday that recurs once a month or once a day

- Type **99** in the **MM** or **DD** field.

  For example, type **9999 99 01** to specify that the first of every month is a holiday.

  Type **9999 07 99** to specify that the plant is shut down every day in July for summer vacation.

Note: Make sure that your holidays do not overlap.

To change the duration of a holiday

By default the holiday has a **Duration** of 1 day. Change this to specify a longer holiday.

- Type **9999-12-25 2** to specify a two day break beginning on December 25th.

To remove a holiday

- Select the date in the **Holidays defined** list, and then click **Delete Selected Holiday**.

19.6 Network Node

To add a network node

1. Click **Insert** > **Add Network Nodes**.

   The **Add Network Node** window appears.

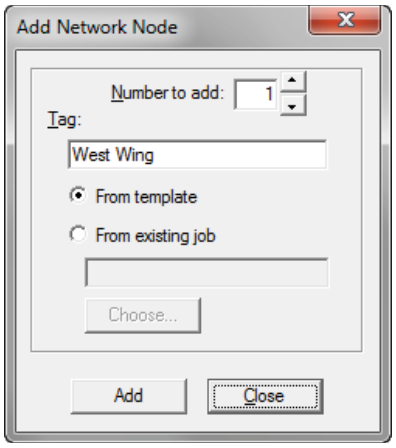


Figure 104 Add Network Node

2. Type the number of nodes that you want to add in the **Number to add** field.
3. Type a description for the new node or nodes in the **Tag** field.
4. Click **Add**, and then click **Close**.

To see the Network Node Details

- Select a node in the Job Tree.

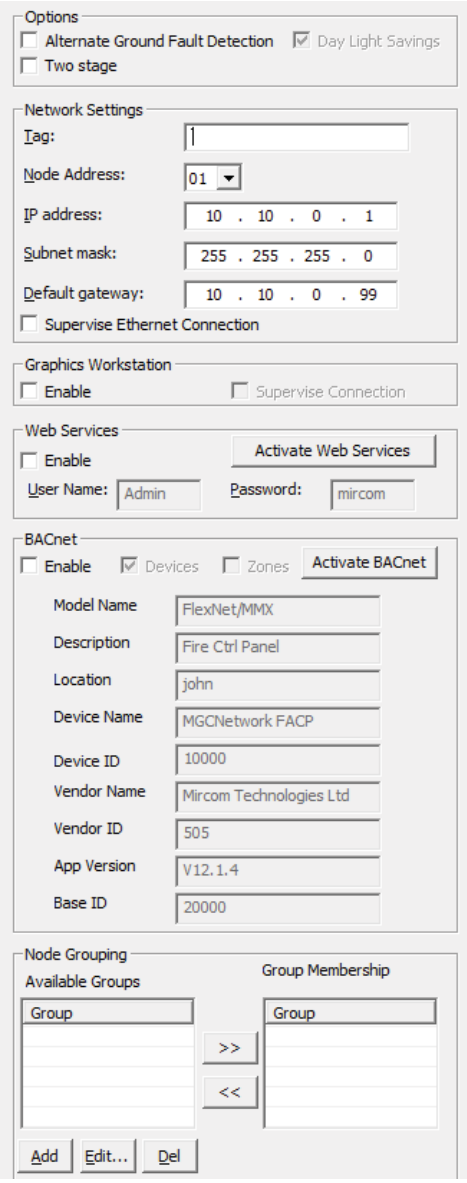


Figure 105 Network Node Details

Alternate Ground Fault Detection	If you select this check box, the system will use alternate ground fault detection settings to compensate for the capacitance and resistance of long audio cable runs. See section 12.5 on page 101.
Two Stage	Check to enable two stage. As per UL 864 and UL 2572 only a setting of Single Stage (disabled) is permissible.
Tag	A description of the node. This appears in the Job Tree.
Node Address	The node address.

IP Address	The IP (Internet Protocol) address of this node's Ethernet connection.
Subnet mask	Identifies which network segment the node is on.
Default gateway	The address of the local IP router that forwards traffic outside of the local network.
Supervise Ethernet Connection	If you select this check box, then a trouble is reported if no Ethernet cable is connected to the node.
Graphics Workstation	Select **Enable** to allow MMX to communicate with OpenGN. If **Supervise Connection** is selected, then MMX reports a loss of connection with OpenGN as a trouble on the annunciators.
Web Services	Select **Enable** and click **Activate Web** Services to turn on the Web Server. This allows you to access the system with a browser. See chapter 18. Enter the **User Name** and **Password** required to access the node's web server. The default username is **admin** and the default password is **mircom**. If the username and password are changed, the changes will be applied to all nodes in the job. If new nodes are added or copied from this node, they will have the same username and password as the existing nodes.
BACnet	Select **Enable** and click **Activate BACnet** to allow the node to run a BACnet (Building Automation and Control Networks) Server. See chapter 17. Model Name: BACnet Model Name. Description: BACnet Description. Location: BACnet location. This is the first 25 characters of the Job Name. You can change it. Device Name: BACnet Device Name. Device ID: The BACnet ID for the entire fire alarm system. Base ID: The starting ID for all BACnet objects. These are the circuits, switches and system statuses of the configured job.

19.6.1 Node Grouping

Grouping is a way of isolating nodes from each other. Nodes that belong to one group are isolated from nodes that belong to another group. Alarms and troubles that occur in one group are not annunciated on the nodes of another group.

For example, in a facility consisting of two towers, you can place the nodes of the North Tower in the North group and the nodes of the South Tower in South group. If there is a CACF (central alarm control facility) node in a common area (for example, a lobby), you can place it in both groups. Alarms or fire drill activation in the North Tower will not be transmitted to the South Tower, and vice versa. The CACF node, because it is a member of both groups, will annunciate events from both towers.

In a combined fire and MNS (Mass Notification System) installation, Node Grouping is used to separate the MNS nodes from the fire nodes.

To create a group

- Click **Add**, type a name for the group, and then click **OK**.

To rename a group

1. Select a group.
2. Click **Edit**, type a new name for the group, and then click **OK**.

To delete a group

1. Select a group.
2. Click **Del**.

   If the group has no member nodes, it is deleted immediately.

   The group is not deleted if it has member nodes.

To add the node to a group

1. Select the group in the **Available Groups** box.
2. Click the **>>** button.

   The group appears in the Group Membership box. The node is now a member of this group.

To remove the node from a group

1. Select the group in the **Group Membership** box.
2. Click the **<<** button.

   The group disappears from the Group Membership box. The node is no longer a member of this group.

19.7 Base I/O

The Base I/O screen appears in the top right pane when the Base IO item is selected in the Job Tree view.

These items override the attributes on the Job Details page.

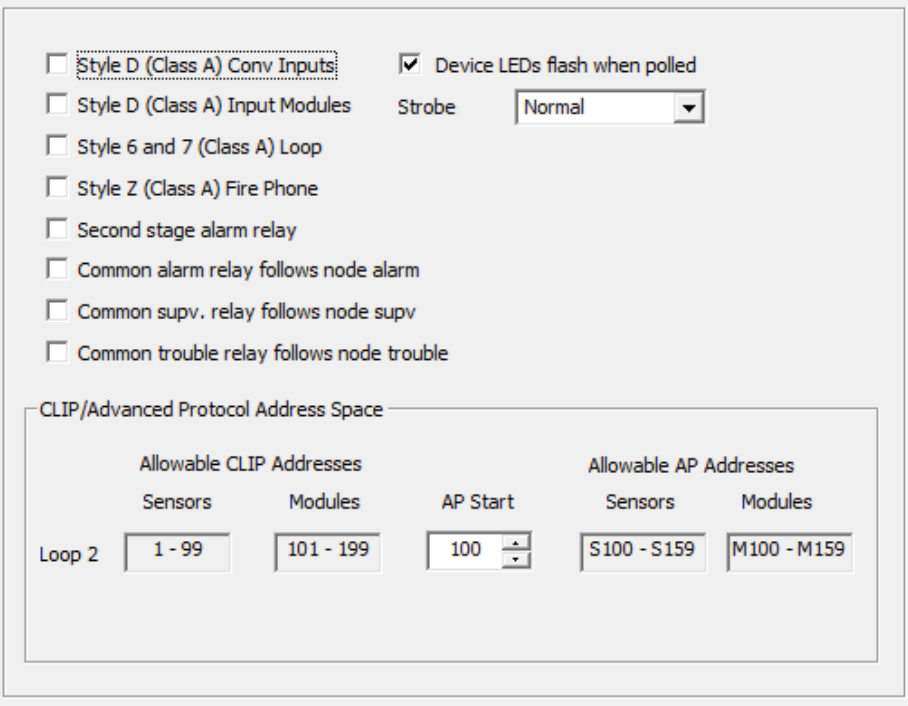


Figure 106 Base I/O

Style D (Class A) Conv Inputs	Select this box to indicate that the Base IO has Style D (Class A) conventional inputs.
Style D (Class A) Input Modules	Select this box to indicate that the Base IO's input modules' field wiring is Style D (Class A).
Style 6 and 7 (Class A) Loop	Select this box to indicate that the Base IO has Style 6 and 7 (Class A) addressable loop(s).
Style Z (Class A) Fire Phone	Select this box to indicate that the wiring from an addressable fire phone module and the handset is Style Z (Class A).
Second stage alarm relay	Select this box to set the alarm relay to operate on second stage alarm. Disabled unless Two Stage checked.
Common alarm relay follows node alarm	Select this box to set the alarm relay on this node to activate on node level alarm. Mutually exclusive with Second stage alarm relay.
Common supv. relay follows node supv	Select this box to set the Supervisory relay on this node to activate on node level supervisory.

Common trouble relay follows node trbl	Select this box to set the Trouble relay on this node to activate on node level trouble.
Device LEDs flash when polled	Select this box to indicate that the LEDs of the addressable devices on this loop flash when polled.
Strobe	Choose the brand or manufacturer of the strobes that are installed on this node. This ensures that the correct synchronization sequences are sent to the strobe.
CLIP/Advanced Protocol Address Space	Defines the address boundary between CLIP devices and Advanced Protocol devices. • **AP Start:** Enter the starting address of the AP devices on the loop. The addresses below this entry are allocated for CLIP devices and the addresses above and including this entry are allocated for AP devices. Valid AP Start values are 001 to 100.

19.8 Main Display / LCD Annunciator

To add an annunciator

1. Select the node that you want to add an annunciator to.
2. Click **Insert** > **Add Annunciators**.

   The **Add Annunciator** window appears.

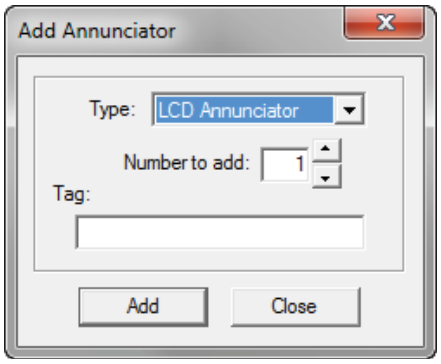


Figure 107 Add Annunciator

3. Select the type of annunciator that you want to add from the **Type** pulldown menu.
4. Type the number of annunciators that you want to add in the **Number to add** field.
5. Type a description for the new annunciators or annunciators in the **Tag** field.
6. Click **Add**.

   The Configurator adds the annuciators.

   If the number of annunciators that you selected exceeds the maximum number of annunciators allowed on this node, a message appears saying that the Configurator cannot add some of the CPUs.
7. Click **Close**.

To see the main display or LCD annunciator details

- Select a main display or annunciator in the Job Tree.

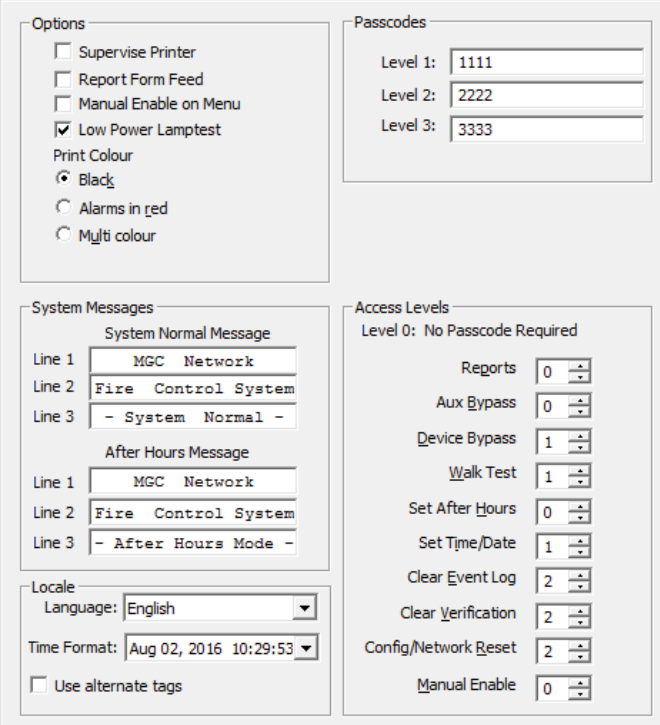


Figure 108 Main Display

Options

Supervise Printer

Select this check box to make the system report a trouble if the printer is disconnected.

Report Form Feed

Manual Enable on Menu

Select this check box to add a **Manual Control Enable** option in the display's menu. **Manual Control Enable** lets you enable manual control on a node. When manual control is enabled on a node, then the master microphone or master telephone work for that node only. This lets you limit the use of the master microphone and master telephone to one node.

Low Power Lamptest

Select this check box to turn the LEDs on in groups rather than all at the same time when you perform a lamp test.

Print Colour

Select the colour to print log items in. Make sure that the printer can print in colour.

- Black
- Red for alarms only
- Multi colour (a different colour for alarm, supervisory, monitor, and trouble events)

The Configurator cannot verify that the printer can support the selected option.

System Messages

There are three 20 character text fields for the System Normal Message, and three 20 character text fields for the After Hours Message.

Locale

Language

Select the language for this annunciator. The system uses this language for any messages. The Main Display's language is the default language for other annunciators that are added to the job. You can have a mix of English and French annunciators.

For **Eng/Arabic** and **Eng/Hebrew**, the language before the slash is the language for the messages, and the language after the slash is the language for the tags, which are set in the list view for the device.

The main display does not support either Arabic or Hebrew. If you want the system to show only Arabic or Hebrew, either delete the main display, or physically hide it from view, and use a remote annunciator (with Arabic or Hebrew tags) in it place.

Time Format

Select the time and date format. The system uses this format for all time reporting for this annunciator.

Use alternate tags

Select this check box to have the display use the alternate (secondary) tags. You can use this feature to show tags in a different language on designated displays. Alternate tags can be entered in the list view for the device. The tags can be in a different language from the primary tags, but must use characters from the same code page.

19.8.1 Passcodes

This section appears on the main display only.

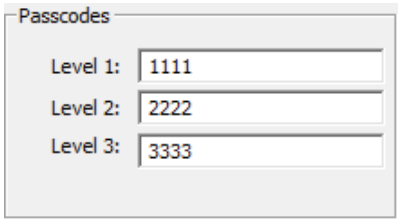


Figure 109 Passcodes

To set or change the passcodes

- Type the passcodes for three levels of access. Passcodes must consist of the digits **0**, **1**, **2**, and **3** only.

On the main display, the queue buttons function as passcode buttons:

- **ALARM**: 0
- **SUPV**: 1
- **TROUBLE**: 2

- **MONITOR**: 3

To enter a passcode on the main display

1. Press the queue buttons corresponding to the numbers. For example, to enter the passcode **2222**, press the **TROUBLE QUEUE** button 4 times.
2. Press the **ENTER** button.

19.8.2 Access Levels

Specify the level of access for various panel actions.

- **0** means that the panel operator does not need to enter a passcode.
- **1** means the operator must enter the code specified for Level 1, in the **Passcodes** section.
- **2** means the operator must enter the code specified for Level 2, in the **Passcodes** section.
- **3** means the operator must enter the code specified for Level 3, in the **Passcodes** section.

The permissions given to each passcode apply to the levels under it. For example, an operator who has the Level 3 passcode has access to the actions assigned to Levels 2 and 1.

19.9 Remote CPU

This section appears on remote annunciators only.

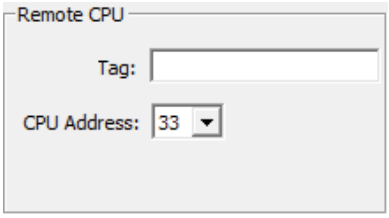


Figure 110 Remote CPU

Tag	Type a tag for the annunciator. The tag appears in the Job Tree.
CPU Address	Select the remote CPU number for the remote annunciator.

19.10 Display Adder

To add a display adder

1. Select the annunciator or display adder that you want to add a display adder to.
2. Click **Insert** > **Add Display Adder**.

   The **Add Display Adder** window appears.

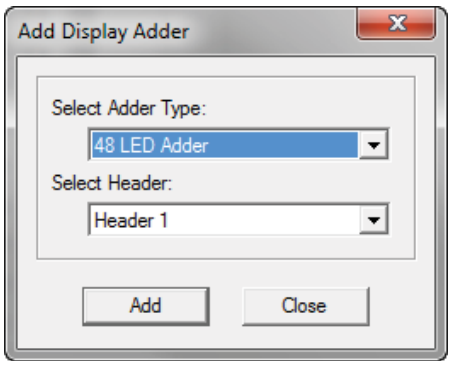


Figure 111 Add Display Adder

3. Select the type of display adder that you want to add from the **Select Adder Type** pulldown menu.
4. Select the header (connector) in the **Select Header** pulldown menu.
5. Click **Add**.

   The Configurator adds the display adder.

   If the frame limit for the annunciator you are adding to is exceeded, an error message appears. A frame is a measure of display capacity. See *LT-894SEC MMX Installation and Operation Manual* for information about how many frames each annunciator has available, and how many frames each display adder uses.
6. Click **Close**.

To view the display adder

- Select **Display Adder** in the Job Tree.

Table 22 describes the columns in the display adder view.

Table 22 Display Adders

Name	Description
Idx	The zero based position of the item on the adder.
Unnamed	Linked Item - contains an asterisk if the item shares the same LedGrp with other items. This means that correlations to one such item are added to all linked items. Linked Items can be created when Paste Special is used. The linked items can be viewed with the Linked Items dialog.
Type	The type of display item.
Assignment	Dependent on the Type.

Table 22 Display Adders (Continued)

Name	Description
Node Group	Applies only to common control switches. The column displays the Node Group to which the common control operation is to be limited. Global means that the operation is system wide and is the default. If the user has created Node Groups, then one of those groups can be chosen. The common control then applies only to the member nodes of that group.
Priority	Specifies the priority to be given to digitized messages correlated to correlatable switches. Choose from a range or priorities. -95% (lowest) through Normal (default) to +95% (Highest). Activation of a switch with a higher priority will cause its message to be played, and any lower priority message will cease to play. In a combined fire and Mass Notification System (M.N.S.) installation, choose appropriate priorities. For example, if risk analysis has determined that M.N.S. has priority over fire, assign a higher priority to all M.N.S. digitized message switches. Within M.N.S. relative priorities can be set, so that higher priority messages will have precedence over lower priority messages.
Code	If the Type is Zone Switch and Coded System is specified, then Code is displayed and editable as for an Input Circuit.
F1	If the item is a switch, then this column can be set to ER (enable required), meaning that it requires a passcode.
F2	For bypass and manual switches, this column can be set to AR (Aux Reset Required). For correlatable switches it can be set to NS (non-silenceable)
F3	For correlatable switches this column can contain GA (stage two, general alarm device). For bypass and manual push switches, it can be set to SR (System Reset Required).
Tag 1	Except for Common Controls, System Status and Man Ena, a 20 character tag can be entered. It will be used to identify the control in messages. For some Type/Assignment combinations the tag cannot be edited.
Tag 2	Correlatable Switches (being analogous to Input Zones) accept a second line of 20 characters.

19.11 UDACT

A UDACT (Universal Digital Alarm Communicator/Transmitter) is a device that communicates alarms to a central monitoring station using the Contact ID or SIA communication formats.

The dialer can dial out on two phone lines. You must configure an account and specify the line attributes for both. Line 2 can dial a cell phone. If this is the case the auto test can be reduced from daily to monthly.

To add a UDACT

1. Select the node that you want to add a UDACT to.
2. Click **Insert** > **Add UDACT**.

   The **Add UDACT** window appears.

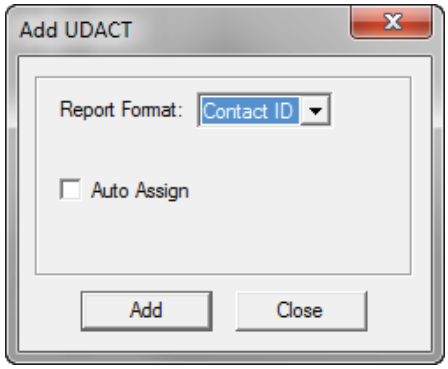


Figure 112 Add UDACT

3. Select **Contact ID**, **SIA300** or **SIA110** in the **Report Format** menu.
4. Select **Auto Assign** if you want to assign a UDACT group of the correct type to every input zone and output circuit.
5. Click **Add**.

To view the dialer

- Select **Dialer** in the Job Tree.

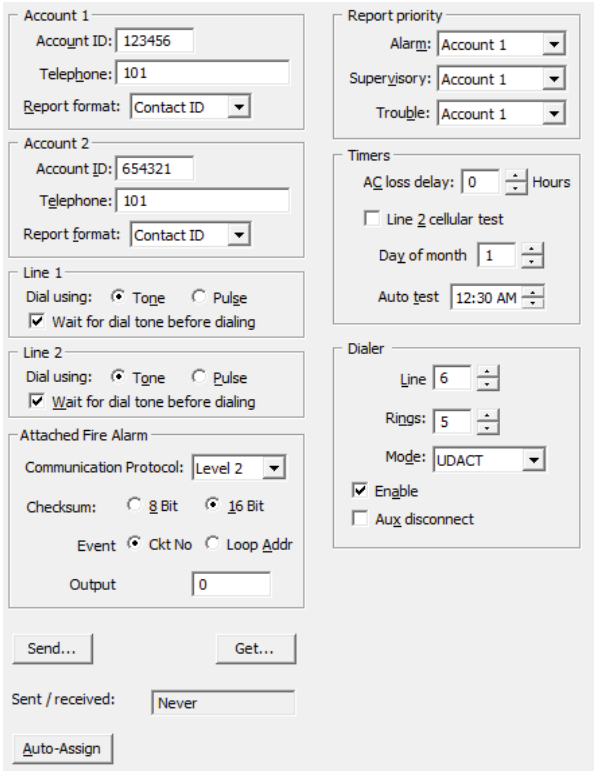


Figure 113 Dialer

To get the configuration information

- Click **Get**.

  The **Sent/received** field will tell you if the configuration is out of date.

To automatically assign a UDACT group to every unassigned zone and output circuit

- Click **Auto-Assign**.

Account

Account ID	Six digit decimal for the SIA report formats and four digit hexadecimal for Contact ID.
Telephone	The telephone number.
Report	Choose **SIA110**, **SIA300**, or **Contact ID**.

Line

Dial Using	Select **Tone** or **Pulse**.
Wait for dial tone before dialing	Select this check box if you want the dialer to wait for a dial tone before dialing.

Attached Fire Alarm

Communication Protocol	Level 0, Level 1, Level 2 or Level 1G.
Checksum	8 Bit / 16 Bit.
Event Format	Specifies whether the internal Ckt No or a combination of Loop and Address is sent to the monitoring station.
Output Offset	0-9999. This value is added to outputs to differentiate them from inputs with the same Ckt No.

Report Priority

Alarm	Select the account that will report alarms.
Supervisory	Select the account that will report supervisory alerts.
Trouble	Select the account that will report trouble alerts.

Timers

AC loss delay	If there is a loss of AC power, the dialer waits this amount of time before calling the monitoring station.
Line 2 cellular test	Select this check box to indicate that line 2 dials a cell phone. Select the day of the month for the cell phone test.
Auto test	Select the time for a daily test of the lines.

Dialer

Line	Select the number of retries that you want the dialer to make.
Rings	You can program the dialer remotely over a phone line. Select the number of rings before the dialer answers when you call it. **Warning**: If this is set to zero the next dial-in session will not connect.
Mode	Select **DACT** or **UDACT**. The UDACT mode includes information about the zone when the dialer calls the monitoring station.
Enable	Unselect this check box if you want to set the dialer to the disabled state when you send the job to the panel. The dialer is enabled by default.
Aux disconnect	The dialer blocks the alarm and supervisory events from being reported after the auxiliary disconnect button is pressed.

To configure the dialer with the Configurator

1. Remove the RS-485 / UIMA cable from the MMX-2000N panel and plug it directly to the dialer.
2. Short the jumper marked **JW2** on the dialer.
3. Edit the dialer parameters, described above, and press the **Send** button.
4. Type your password.

19.12 Adding a Device

You can add input devices (for example, manual stations or smoke detectors) to a device loop.

To add a device

1. Select the loop that you want to add a device to.
2. Click **Insert** > **Add Device**.

The **Add Device** window appears.

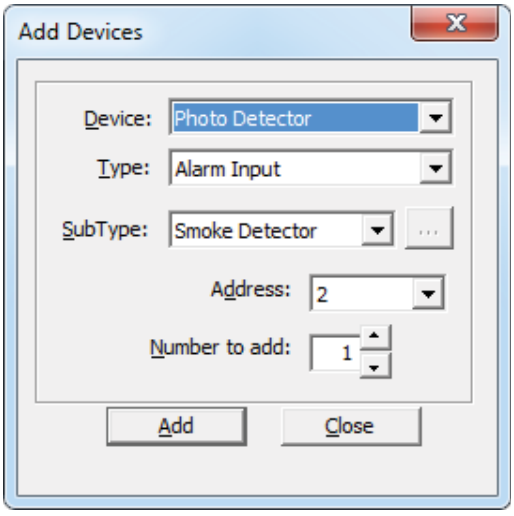


Figure 114 Add Device

3. Select the type of device from the **Type** menu.
4. Select the subtype of device from the **SubType** menu.
5. In the **Process as** menu, select the process type for the device. For example, **Alarm Input** or **Verified Alm** for a photoelectric detector.
6. Select the address for the device in the **Address** field. The default is the lowest available address for the selected type.
7. Type the number of devices to add in the **Number to add** field. The Configurator will give addresses to the devices sequentially, starting with the address you selected.
8. Click **Add**.

   If there are not enough addresses, a message appears giving you three options.

   - Click **Yes** to continue. The Configurator will add the remaining devices where empty addresses exist.
   - Click **No** to stop. The Configurator will stop adding devices. A second message will appear saying how many devices were successfully added.
   - Click **Cancel** to cancel the whole procedure. The Configurator will not add any devices at all.
9. Click **Close**.

19.13 Adding a COSAP Device

In the Configurator, a COSAP device (an advanced protocol carbon monoxide and smoke detector) is listed as **Fire-CO (AP)**. When you add a COSAP device to the Configurator, it is added as 1 real device and 2 virtual devices:

- **Fire-CO (AP):** smoke detector (input sensor)
- **Fire-CO “B” (AP):** carbon monoxide detector (input module)
- **Sounder Base (AP):** Sounder base (output module)

When you add a COSAP device, by default the starting number is **S100**. This number must match the address physically set on the device's dials. For example, if device's physical address is 100, then set the number in the Configurator to **S100**.

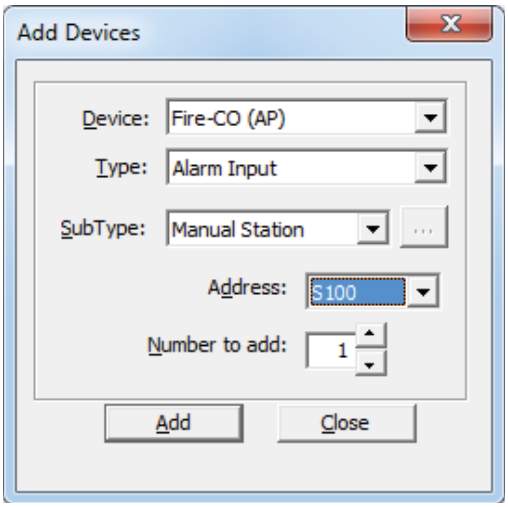


Figure 115 Add COSAP device

You can change the starting address for advanced protocol devices under **Base I/O**. See section 19.7 on page 156.

The real detector is assigned the same number but distinguished by the prefix **S** for "sensor". The virtual detector is assigned the same number but distinguished by the prefix **M** for "module". The virtual sounder base is assigned the next highest number and given the prefix **M** for "module".

For example, if the COSAP device is physically set to address 100, then the virtual device addresses are assigned as follows:

- Fire-CO (AP): S100
- Fire-CO "B" (AP): M100
- Sounder Base (AP): M101

Addr	Lp Addr	Device	Type
S100	100	Fire-CO (AP)	Alarm Input
M100	260	Fire-CO "B" (AP)	Latched Supv
M101	261	Sounder Base (AP)	Signal

Figure 116 A COSAP device with the physical address 100

You cannot physically set COSAP devices with consecutive addresses. For example, if you set one device with the address 100, you cannot set the next device with the address 101. You must give it the address 102 or higher.

19.14 Adding a Circuit Adder

You can add a circuit adder to a conventional hardwired loop.

To add a circuit adder

1. Select the conventional hardwired loop that you want to add a circuit adder to.
2. Click **Insert** > **Add Ckt Adder**.

   The **Add circuit adders** window appears.

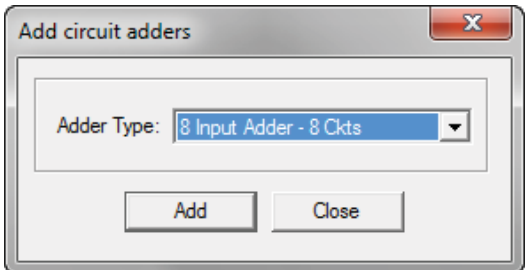


Figure 117 Add circuit adders

3. In the **Adder Type** menu, click the type of adder you want to add. For example:
   - **8 Input Adder - 8 Ckts**: a DM-1008A input module with 8 class B (4 class A) input circuits.
   - **Supv Opt. Adder - 4 Ckts**: a SGM-1004A signal module with 4 supervised output circuits.
   - **Relay Opt. Adder - 8 Ckts**: an RM-1008A relay module with 8 relay circuits.
4. Click **Add**.
5. Click **Close**.

19.15 Adding a Loop Controller

To add a loop controller

1. Select the node that you want to add a loop controller to.
2. Click **Insert** > **Add Loop Controllers**.

   The **Add Loop Controller** window appears.

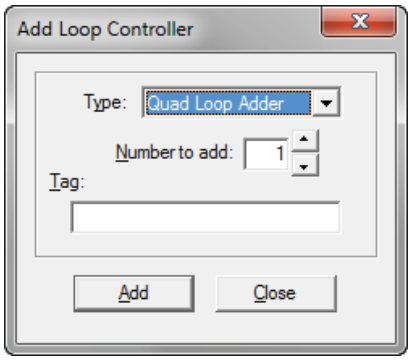


Figure 118 Add Loop Controller

3. Select the type of loop controller that you want to add from the **Type** pulldown menu.
4. Type the number of loop controllers that you want to add in the **Number to add** field.
5. Type a description for the new loop controller in the **Tag** field.

6. Click **Add**.

   The Configurator adds the loop controllers.

   If the number of loop controllers that you selected exceeds the maximum number of loop controllers allowed on this node, an error message appears saying that the Configurator cannot add some of the CPUs.

7. Click **Close**.

To see the loop controller

1. Click the loop controller in the Job Tree.

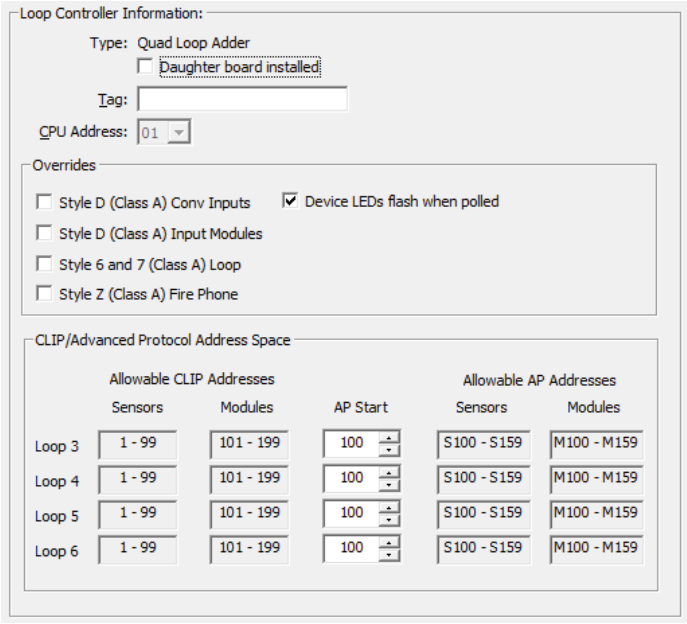


Figure 119 Loop Controller

Type	Conventional Adder or Loop Adder.
Daughter board installed	Select this check box if the quad loop adder's daughter board is installed.
Tag	Type a description for the loop controller.
CPU Number	Select the CPU address for the loop controller.
Overrides	These options override the options on the Job Details page.
CLIP/Advanced Protocol Address Space	Defines the address boundary between CLIP devices and Advanced Protocol devices. • **AP Start:** Enter the starting address of the AP devices on the loop. The address space below this entry are allocated for CLIP devices and the address space above and including this entry are allocated for AP devices. Valid AP Start values - 001 to 100.

19.16 Correlations

Programming a Fire Alarm Control Panel consists of correlating inputs to outputs. For example, you might correlate all the smoke detectors on the first floor to the speakers on the first and second floors, and smoke detectors on the second floor to the speakers on the first, second, and third floors, and so on.

To add correlations

1. Select the device or zone that you want to add correlations to.
2. Click **Insert** > **Add Correlations**.

   The **Select items to add** window appears.

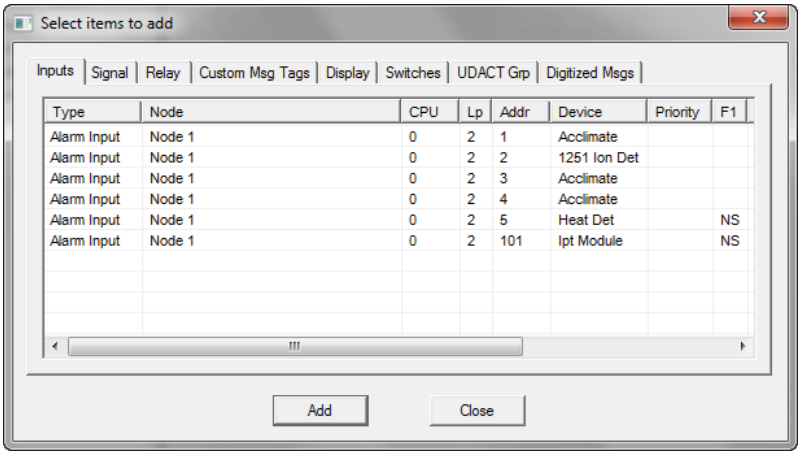


Figure 120 Select items to add

   This window has a tab for every category of circuit or display item that can be correlated to the selected device or zone.

3. Select the item that you want to correlate. To select more than one item, hold down the Ctrl key and right-click the items.
4. Click **Add**.
5. Repeat steps 3 and 4 for each tab, if necessary.
6. Click **Close**.

19.16.1 Viewing Correlations

You use the information in the Details Pane in combination with the Correlations Pane. Each tab in the Correlations Pane shows a different category of circuit, display LED, etc.

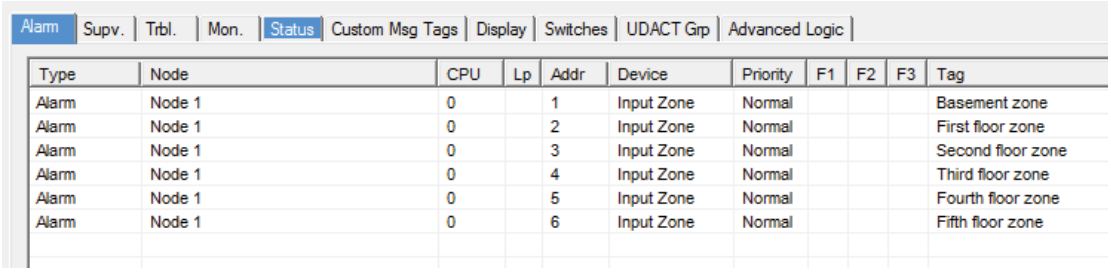


Figure 121 The Correlations Pane

To add a correlation to an item

1. Right-click the item in the Details Pane.
2. Click **Add Correlations**.

   The **Select items to add** window appears.
3. Double-click the correlations that you want to add, and then click **Close**.

Output Circuit Correlations

If the selected circuits are outputs, then the Correlations Pane usually has tabs for:

- Alarm Zones
- Supervisory Zones
- Trouble Zones
- Monitor Zones
- Display Points (Output Zones, Bypass LEDs, etc.)

Input Circuit Correlations

If the selected circuits are inputs, then the Correlations Pane has a tab for input zones only. You must correlate inputs with input zones before they can be correlated to outputs or LEDs.

When you select an item and then click **Add Correlations**, only the items that are eligible to be correlated are shown.

If you select multiple items and then click **Add Correlations**, only the possible correlations common to all the items are shown.

Advanced Logic

You can assign individual outputs or input zones to an equation. If an equation is associated with an output, there must be no other inputs or outputs correlated to the output. If an equation is associated with an input zone, there must be no input circuits correlated to the input zone.

19.17 Custom Messages

Custom messages are messages that you can correlate with a zone or zone switch. The messages appear on a remote annunciator.

For example, for a facility with a main display in the Exhibit Hall and a remote annunciator in the East Wing:

- The devices are displayed individually on the main display.

- The devices are correlated with zones, and the zones are correlated with the custom message **Exhibit Hall**. When any device becomes active, the custom message is displayed on the remote annunciator.

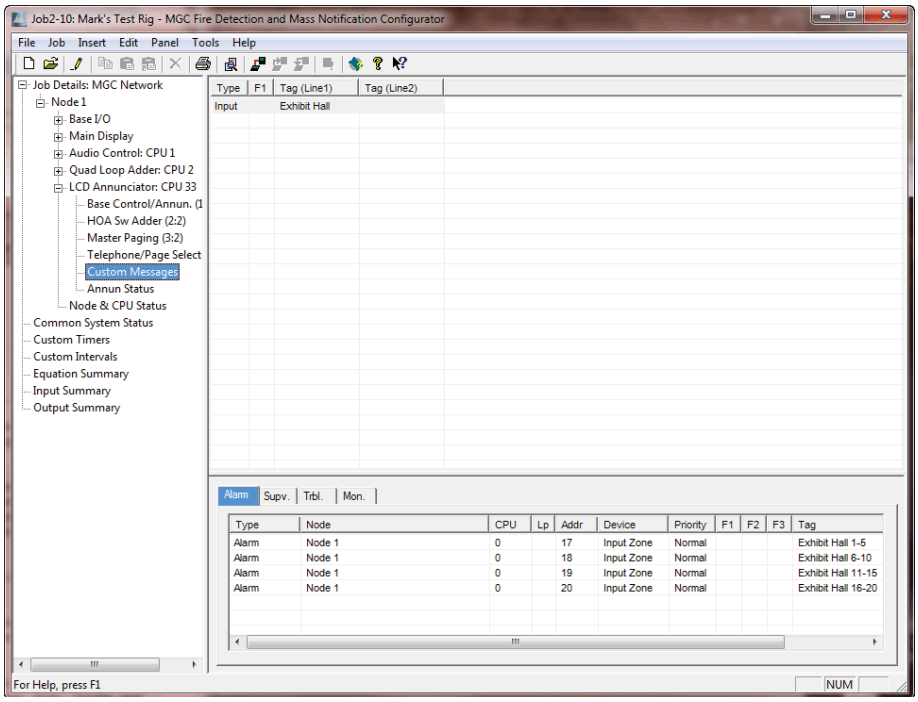


Figure 122 Custom Messages

The ND (No Display) flag can be set for input message types. When set, no message will be shown on the target CPU's LCD. This feature can used to suppress fire related activations on a Mass Notification System node and vice versa.

To create a custom message

1. Select **Custom Messages** under the remote **LCD Annunciator** in the Job Tree.
2. Click **Insert** > **Add Message**.

   The **Add Messages** window appears.

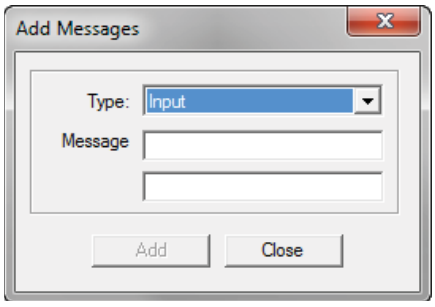


Figure 123 Add Messages

3. In the **Type** menu, click either **Input** or **Output**. Input messages can be correlated with input zones and zone switches. Output messages can be correlated with signals and relays.
4. Type your message. The message can be up to 40 characters long. Each field holds 20 characters.
5. Click **Add**, then click **Close**.

The message appears in the Details Pane.

To correlate a custom message with an input or output

1. Right-click your custom message, and then click **Add Correlations**.

   For input messages, the possible correlations are separated into **Alarm**, **Supervisory**, **Trouble** and **Monitor**.

   For output messages, the possible correlations are separated into **Signal** and **Relay**.

2. Select the input or output that you want to correlate with the message, and then click **Add**.

   For an input message, the message is displayed in the corresponding queue when the zone becomes active.

You can correlate an input or output with only one custom message at a time.

You cannot correlate inputs of different types with the same message. For example, if you correlate a message with a monitor zone, you cannot also correlate it with an alarm zone.

19.18 Audio Controller

Notes: Your organization needs audio systems training in order to add an audio controller to a job. To check whether you have this training, see section 2.9 on page 24.

To add an audio controller

1. Select the node that you want to add the audio controller to.
2. Click **Insert** > **Add Audio Controller**.

   The **Add Audio Controller** window appears.

Figure 124 Add Audio Controller

3. Select **Master Handset** if this audio controller supports a master handset (there must be at least one master handset per job). Each job must have at least one master handset. If you choose to support a master handset, it will consume one of the controller's five lines.
4. Select either **Conventional Phones** or **Voice Lines** depending on whether the lines are configured as conventional phones or as voice lines (for addressable phone modules).
5. Click **Add**.

To see the Audio Controller Details

- Select an audio controller in the Job Tree.

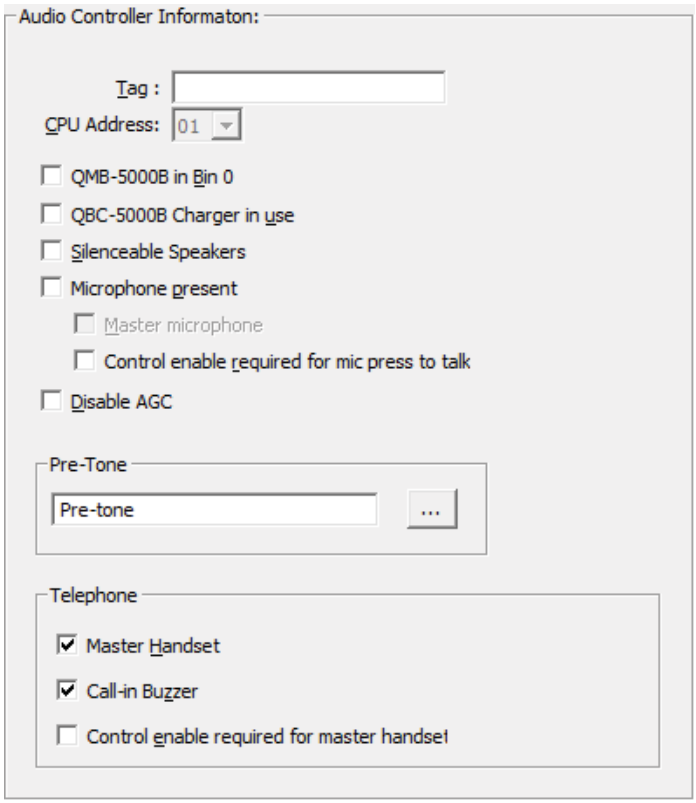


Figure 125 Audio Controller Details

Tag — Type a description for the audio controller. This will appear in the Job Tree.

CPU Number — Select the CPU address for the audio controller.

QMB-5000 in Bin 0 — Select this check box if the amplifier bin arrangement is that of the QMB-5000. The legacy QMB-5000 has seven amplifier slots. If this check box is not selected, the Configurator assumes that the QMB-5000N is used. The QMB-5000N has only four amplifier slots. During conversion from QMB-5000N to QMB-5000, any existing amplifiers in expansion bins are re-arranged to first fill the additional bins of the QMB-5000. During conversion from QMB-5000 to QMB-5000N, any existing amplifiers in the base unit's extra slots are moved to the expansion bins.

QBC-5000 Charger in use — Select this check box if the amplifier battery charger is a legacy QBC-5000. Otherwise, the Configurator assumes that a QBC-5000N charger is in use. Selecting the wrong charger can affect battery supervision and charging.

Silenceable Speakers — Select this check box if the speakers connected to the controller can be silenced.

Microphone present	Select this check box if there is a microphone connected to this audio controller. If there are two or more microphones, then one must be designated as the master microphone and the **Control enable required for mic press to talk** check box must be selected on every audio controller with a microphone.
Master microphone	Select this check box if you want the microphone connected to this audio controller to be the master microphone. If there are two or microphones, then one (and only one) must be designated as master.
Control enable required for mic press to talk	Select this check box if you want the operator to enable the use of the microphone (through the menu or a switch). This option must be selected if there is a microphone connected to this node and there is at least one other microphone on another audio controller.
Disable AGC	Select this check box if you want to disable Automatic Gain Control.
Pre-Tone	Click the **...** button to select which audio tone or digitized message to use as the pre-tone. You can select the standard, built in pre-tone, or you can select an existing custom message, or you can create a new message.
Master Handset	Select this check box if you want the telephone to be the master handset. If you specify a master handset, the first telephone line is used for that purpose. The line will be hidden and cannot be used for anything else. If line 0 is currently in use (either as a voice line serving addressable phone modules, or as a conventional phone) and you select this box you will be asked for confirmation before the line is removed. If you remove the master handset, line 0 will become available. If there is a correlation from a telephone selector switch to Call Control at this network node, you will be asked for confirmation before the master handset is removed.
Call-in Buzzer	Select to enable the call in buzzer.
Control enable required for master handset	Select this check box if you want the operator to enable use of the master handset (through the **Manual Control Enable** menu or a switch).

19.19 Panel Information

This window displays a summary of panel and the configurator information.

To view configuration information from the Configurator

1. In the Configurator, click **Panel** > **Connect**.
2. Click **Panel** > **Panel Information**.

   The **Panel Information** window appears.

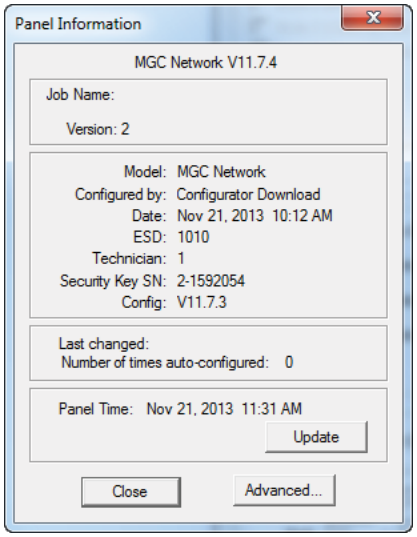


Figure 126 Panel Information

Job Name	The name of the job that is currently active on the FACP.
Version	The version number of the job that is currently active on the FACP.
Date	The date and time when the job was sent to the FACP.
ESD	The ESD (Electronic Systems Distributor) number of the organization that sent the job. Each organization has a unique ESD number, so that one organization cannot modify systems that another organization has configured.
Technician	The number of the technician who sent the job.
Config	The version of the Configurator that sent the job to the FACP.
Last changed	The date and time the FACP was last changed.
Panel Time	The date and time on the FACP.

19.20 Advanced Panel Information

This window displays detailed information about the panel.

To view Advanced Panel Information

1. Click **Panel** > **Connect**.
2. Click **Panel** > **Panel Information**.
3. Click **Advanced**.

Node	The number assigned to each node.
CPU	The number for each CPU on the node.
Type	The type of CPU, for example a Main CPU, LCD Annuciator, Loop Controller, or Audio Controller.
Version	The version of the firmware on the CPU.
Language	The language that the display uses for messages and menus.
System Type	One of the following: • Compact Build • Large Build
HW Type	Currently always **BF_Base**
HW Vers.	Currently always **V1.0.0**
Status	One of the following: • Online • Not responding • Wrong type • Unconfigured CPU • Firmware version mismatch • Address mismatch • Offline trouble
Config Version GUID	A number that uniquely identifies the active job on the FACP.

19.21 Backing up the Database

You can make a backup of the Configurator database. Back up your database often and store it on a CD in a safe place.

To back up the database

1. Click **File** > **Backup Database**.
2. Click **Save** to save the backup in the **Backup** folder. The name of the backup file is in the form **YYYY-MM-DDV12-xx-xx.mdb**.

You can change the backup folder in User Preferences. See section 19.2 on page 144.

If the **Keep Only Latest Versions After Backup** option is selected in User Preferences, only the latest versions of all jobs will be kept after a successful **Backup Database** command. All older versions will be deleted.

19.22 Restoring the Database

Restoring the database means replacing the current database with a copy from a backup. You can do this if you are having a problem with your current database.

Attention: This procedure erases all the data in the current database. Any changes made since you made the backup will be lost.

To restore the database from a backup

1. Click **File** > **Restore Database**.

   A window appears warning you that this operation will erase all the data in the current database.
2. Click **Yes** to continue restoring the database.

   The **Specify database to restore** window appears.
3. Select the database that you want to restore, and then click **Open**.

   The Configurator erases the current database and restores the backup.

19.23 Compacting the Database

A database that has been the subject of many deletions and additions can become fragmented and use a lot of disk space. You can compact the database to recover the space and improve performance.

To compact the database

- Click **File** > **Compact Database**.

This may take several minutes for a large database.

19.24 Comparing Jobs

You can compare two jobs. The Configurator displays which elements have been added, removed, or changed.

To compare jobs

1. Click **Job** > **Open Job** and open the first job. This is the primary job.
2. Click **Job** > **Compare Job Versions**.

The **Select Job to Compare** window appears.

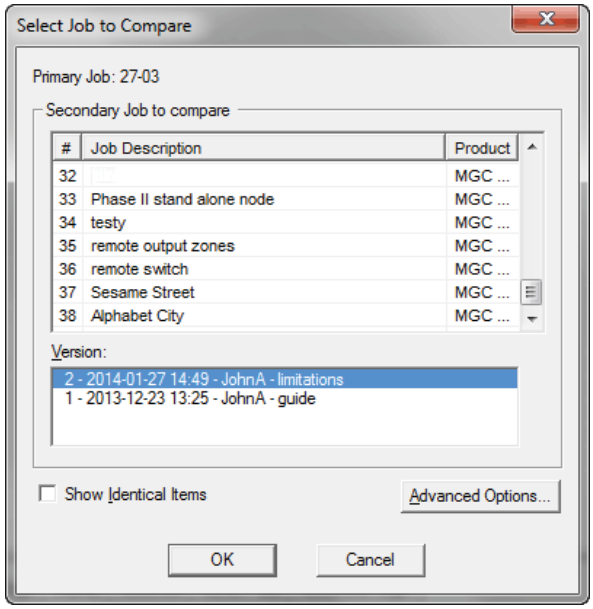


Figure 127 Select Job to Compare

3. Select the second job. This is the secondary job.

- Select **Show Identical Items** if you want to see not only changes, but also those items that stayed the same.

4. Click **OK**.

   The Configurator displays a comparison of the two jobs. See section 19.24.2 on page 181.

19.24.1 Advanced Compare Options

The **Select Job to Compare** window has some advanced options. They are selected by default.

To see the Advanced Compare Options

- In the **Select Job to Compare** window, click **Advanced Options**.

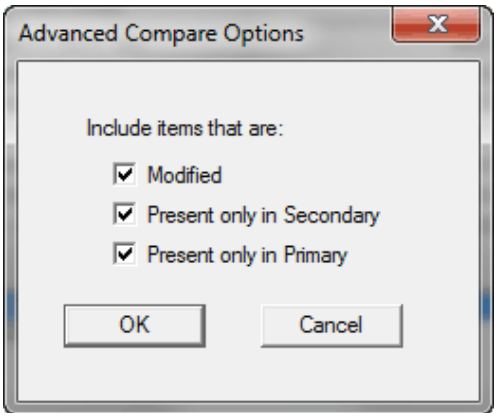


Figure 128 Advanced Compare Options

Modified	Select this check box to include any item that has been modified (it is the same adder, circuit, or switch but some attribute has been changed).
Present only in Secondary	Select this check box to include items that are only present in the secondary job. For example, loop adders, annunciators, and display adders that are not in the primary job will be included.
Present only in Primary	Select this check box to include items that are only present in the primary job. For example, loop adders, annunciators, and display adders that are only in the primary job will be included.

The **Present only in Secondary** and **Present only in Primary** options do not apply to the Job Tree. The entire Job Tree is shown, regardless of these options. These options are applied only to the details of devices.

If you select **Present only in Secondary Job** or **Present only in Primary Job**, but you do not select **Modified**, then circuits that have had only correlation changes will not be shown as different.

19.24.2 Interpreting the results

The comparison appears as one job tree.

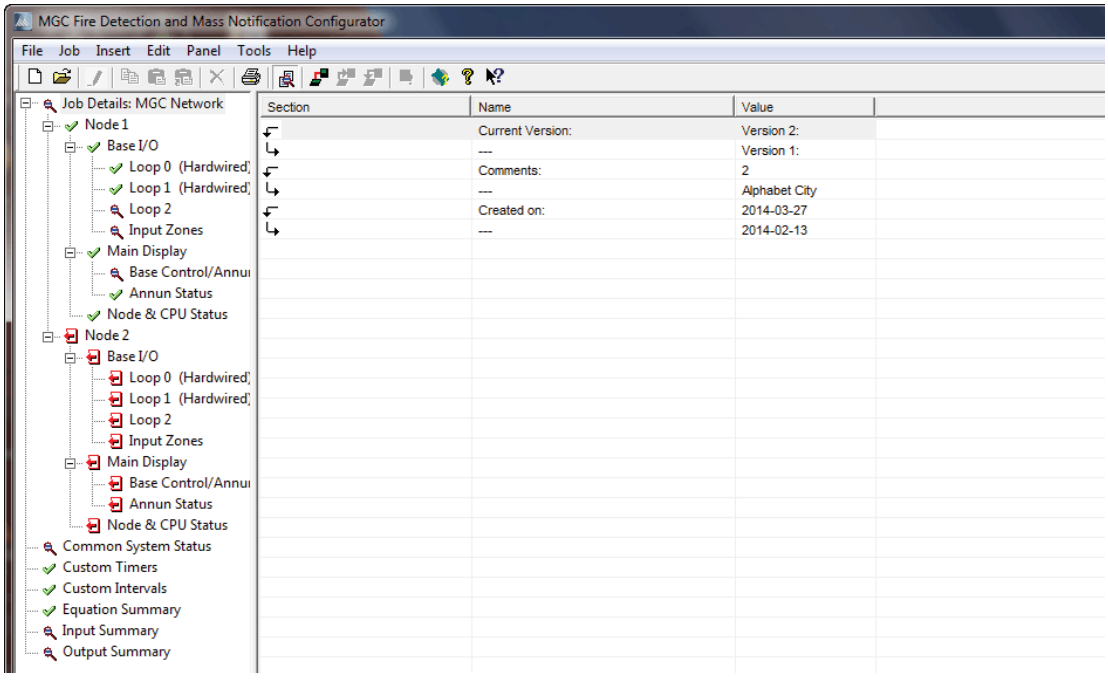


Figure 129 Job Comparison

A magnifying glass indicates items that have been modified. Click the item to see the change.

A green check mark indicates items that are the same.

If you unselect **Modified** in the **Advanced Compare Options**, then a green check mark appears next to items that have been modified, but that have no deletions or additions.

A red arrow indicates items that have been removed (they are present in the primary job, but not present in the secondary job).

A blue arrow indicates items that have been added (they are not present in the primary job, but are present in the secondary job).

For example, in Figure 130, the Main Display did not change, so it is marked with a green check mark. However, some changes were made to its Base Control/Annunciator, so that item is marked with a magnifying glass.

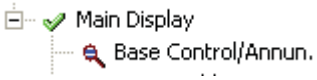


Figure 130 Comparison Example

Where a minor modification to a form, device, LED, or switch has been made, two adjacent rows appear. The attributes that remained the same are represented by an ellipsis (**...**) in the second row.

Section	Name	Value
	Current Version:	Version 2:
	---	Version 1:

Figure 131 Minor Modifications

19.24.3 Printing the comparison

You can print the differences of the entire job, a single node, or a node and its sub-nodes. In addition to choosing how much of the job to print, you can also decide whether to print outputs with input correlations, inputs with output correlations or display correlations.

To print the job comparison

- See section 19.31 on page 189.

If you did not select **Show Identical Items** when you made the comparison, then any node in the tree that is marked with a green check mark will not be printed.

On the printout, the symbols **- - >** and **< - -** are used in place of the blue and red check marks.

- **- - >** An item has been added (it is not present in the primary job, but is present in the secondary job).
- **< - -** An item has been removed (it is present in the primary job, but not present in the secondary job).

The same symbols are used on pairs of lines to indicate which line indicates the primary (**< - -**) and which line indicates the secondary (**- - >**).

If the print range of the job is **Complete Job**, then you may decide to choose only one of Input or Output Correlations, since every input has a corresponding output somewhere on the job.

If the print range of the job is not **Complete Job**, then selecting only Input or Output might not include all the correlations.

The Input and Output summaries will list any changes to the UDACT numbers to be reported to the authorities.

Print Preview works best if you maximize the Preview window and zoom in and out so that a complete page fits in the window.

19.24.4 How does the Configurator decide what is added, removed, or changed?

For a base annunciator or loop controller, the node number is the key. If you change the tag or add display adders, the item is still the same, because the node number has not changed.

If you remove and add annunciators so that the node numbers change, then they are changed.

For a circuit or device, the combination of loop number and device address is the key. The internal circuit or UDACT number is not considered a change. Because of additions and deletions, a circuit at the same loop or device address may receive a different UDACT number. This is a modification.

For display items such as LEDs and switches, the key is a combination of node number, their relative position on the adder, and their type and assignment. Minor changes to an LED's assignment (for example, from Alarm Status to Mixed Ipt) are treated as though the LED was deleted and re-added. This makes the handling of correlations more meaningful. Very often there is only a small subset of correlation types that are common to two different LED or switch assignments. By treating the type and assignment as key, the Configurator shows the complete before and after correlations.

19.25 Creating a Job

To create a job

1. Click **Job** > **New Job**.

   The **Create Job** window appears.

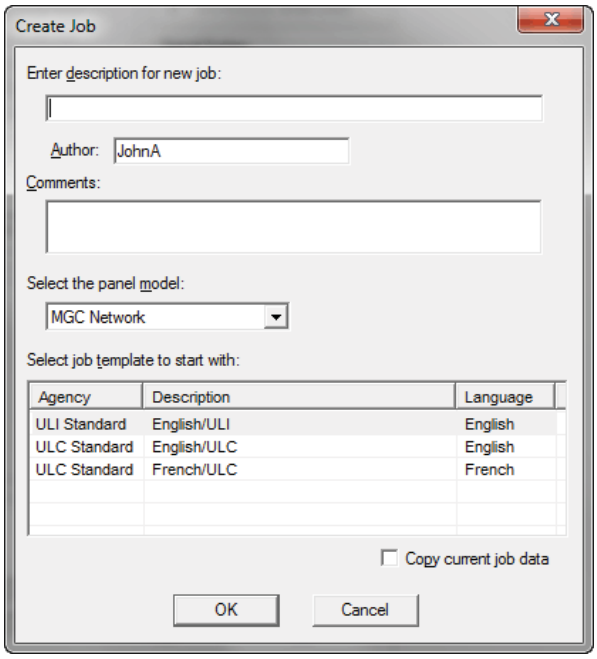


Figure 132 Create Job

2. Type a name for the job in the first field. This name should be unique. It will identify the job throughout its lifetime.

Note: In a multi-product environment, the same job name cannot be used for jobs of different products, even if you do not currently have access to all possible products.

3. Type a comment in the **Comments** field. This is required. This will become part of the job's version history.
4. Select the model of panel in the **Panel Model** menu.
5. Select a template.

   There are two copies of most template jobs, one for ULI and one for ULC. You can change the template later.

   There might be templates for more than one language. For panels with multiple CPUs, this is the language of the main CPU.
6. Click **Copy current job data** to copy the current open job, and use this copy for the new job.
7. Click **OK**.

19.26 Opening a Job

To open a job

1. Click **Job** > **Open Job**.

   The **Select Job and Version** window appears.

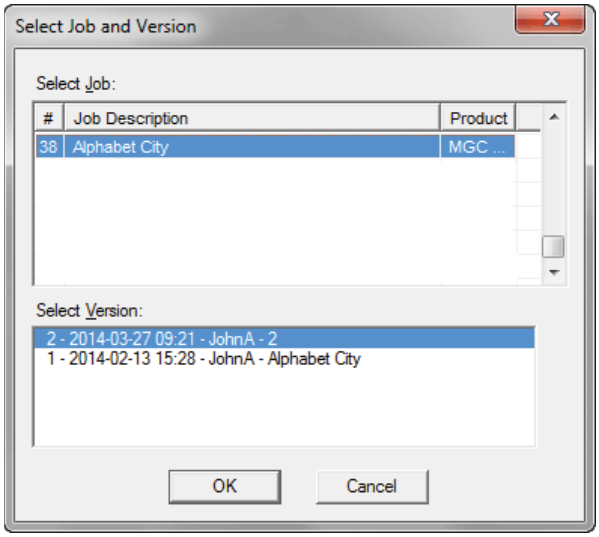


Figure 133 Select Job and Version

   This window shows all the jobs in the database.

2. Click on the column heading to sort the jobs by:
   - Job Number
   - Job Description
   - Product (where more than one product is supported)
3. Select a job and version to open.
4. Click **OK**.

19.27 Importing a Job

You can import a job that has been ed on another computer or by another technician. You can import .mdb or .fx2Job files.

To import a job

1. Click **Job** > **Import Job**.
2. Browse to the file you want to import, then click **Open**.

If the same job is already on the database, then the Configurator gives the imported job the next highest version number.

19.28 Display Structure

The **Display Structure** feature lets you view the contents of a panel data structure.

To display a structure

1. Connect to the panel.
2. Click **Tools** > **Display Structure**.

   If you do not see the **Tools** menu, you must enable it. See section 19.2 on page 144.

   The **Display Firmware Data Structure** window appears.

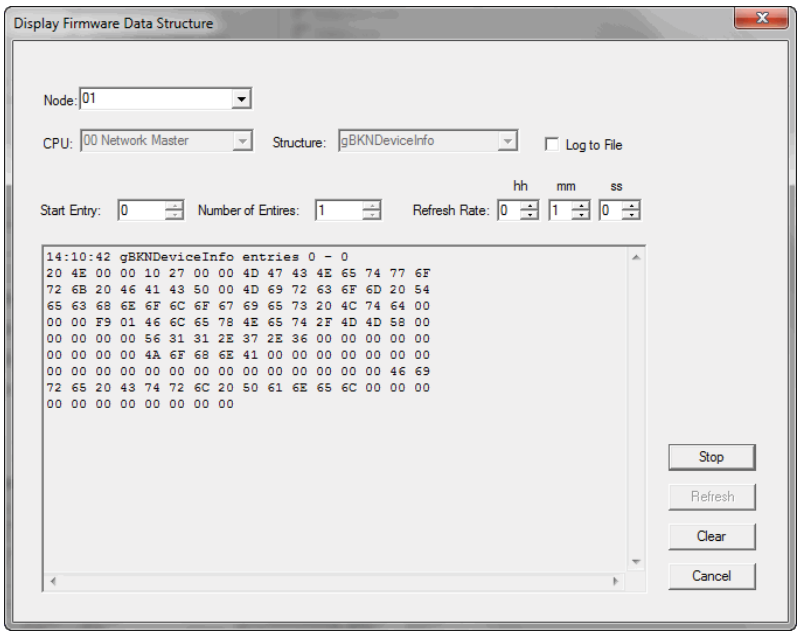


Figure 134 Display Firmware Data Structure

3. In the pulldown menus, select the node and CPU that you want to display.
4. In the **Structure** pulldown menu, select the structure that you want to display.

   Loop structures are qualified with a loop number, for example **gLCUPollData - Loop 2**.
5. Choose the entry (for poll data there is one entry per device, other structures may be organised differently).
6. Choose the **Number of Entries** to display.
7. Select a refresh rate, and then click **Start**.
8. To save the display to a file, select the **Log to File** check box.

You can adjust the refresh rate, the start entry and the number of entries while the display is running.

19.29 Version Control

The Configurator prevents accidental editing of jobs in order to keep the job in its database identical to the job on the Fire Alarm Control Panel.

19.29.1 Editing a job

When you open a job, whether by getting it from the panel or opening it from the database, it is locked by default, and you must unlock it in order to edit it.

To edit a job

- Click **Job** > **Edit Job**.

  If the job has been sent to a panel, a message appears warning you that you should create a new version first. See section 19.29.2 below.

If you try to edit a locked job that has not been sent to a panel, a message appears asking if you want to make it editable.

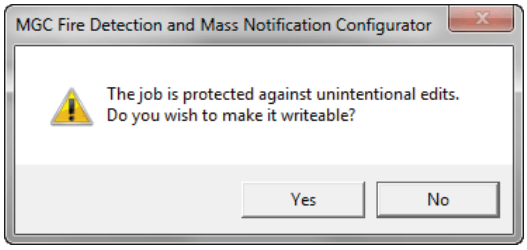


Figure 135 This job is protected against unintentional edits

- Click **Yes** to unlock the job.

Note: Jobs that have more than one node cannot be unlocked. You must create a new version.

19.29.2 Creating a new version

If you try to edit a job that has been sent to a panel, a message appears saying that you must create a new version.

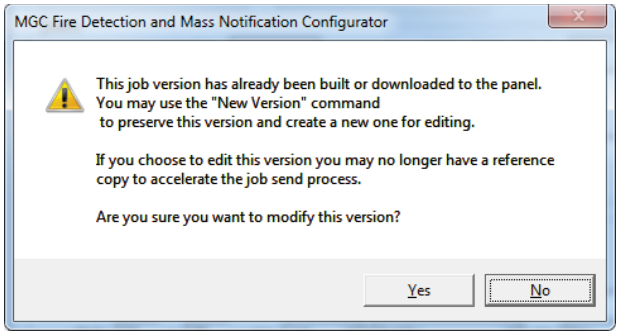


Figure 136 This job version has already been built or downloaded to the panel

To create a new version of a job

1. Click **Job** > **New Version**.

   The **New Job Version Information** window appears.

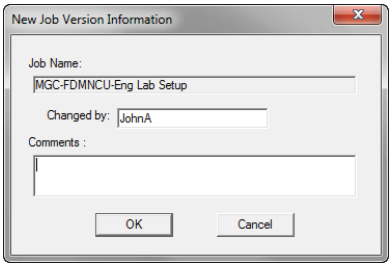


Figure 137 New Job Version Information

2. Type a comment in the **Comments** field. This is required.
3. Click **OK**.

19.30 Paste Special

You can use the **Paste Special** command to paste circuits, conventional adders, or entire loops.

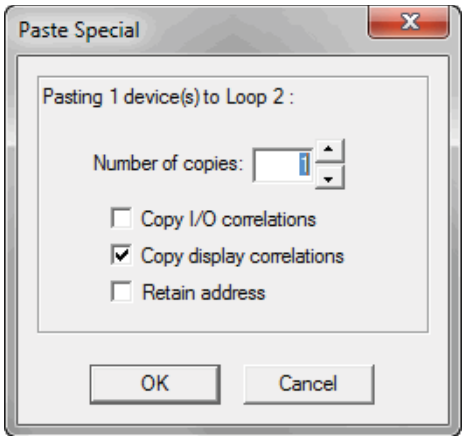


Figure 138 Paste Special for loops

Number of copies	Select the number of copies to make.
Copy I/O correlations	Select this check box if you want the copied devices to have the same I/O correlations as the original.
Copy display correlations	Select this check box if you want the copied devices to have the same display correlations as the original.
Retain Address	Select this check box to keep the same addresses on the copied devices.

You can use **Paste Special** to paste display items, display adders, or annunciators.

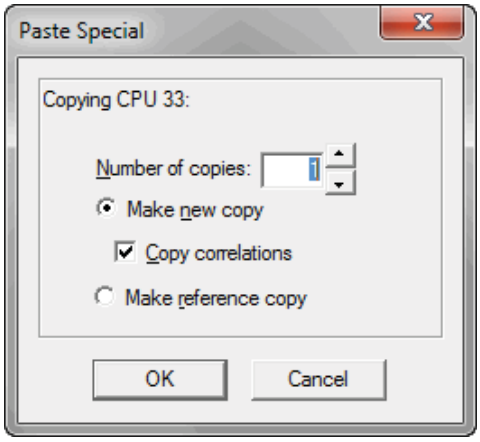


Figure 139 Paste Special for annunciators

Number of copies	Select the number of copies to make.
Make new copy	Click this button to make an unrelated copy of the source.
Copy correlations	Select this check box if you want the copied devices to have the same correlations as the original.
Make reference copy	Click this button to make a reference copy of the source.

A regular copy is defined as follows:

- The LEDs and switches are copied and become separate entities from the original LEDs and switches.
- Common Control Status LEDS are an exception. All similar types operate in parallel. For example, a copied and pasted Signal Silence would retain the internal LED group of the source.
- All attributes (tags and flags) are copied.
- If **Copy I/O correlations** is selected, then the I/O correlations are assigned to the new copy.
- If **Copy I/O correlations** is not selected, then the I/O correlations are not copied.

A reference copy is defined as follows:

- New LEDs and switches are defined, but they are linked closely to the original source.
- If any 3 POSITION SLIDE SWITCH is encountered while attempting a "Reference Copy" of individual items, a complete adder or an entire annunciator, an error message is displayed and a roll back of the operation occurs.
- Both the new copy and the source (and any subsequent reference copies) will be marked with an asterisk to warn the user that the items are linked or cross referenced. A change to one (for example, addition of correlations) affects the others.

19.31 Print

To print a job

1. Click **File** > **Print**.

The **Print** window appears.

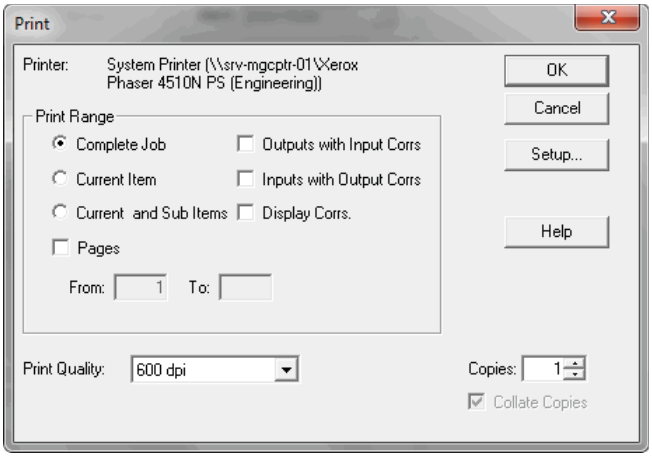


Figure 140 Print

Complete Job	Prints the complete job, and prints each major item of the Job Tree on a new page.
Current Item	Prints only the currently selected item. No details of contained loops are printed.
Current Item and Sub Items	Prints only the currently selected item and any items contained in it.
Outputs with Input Corrs	Prints the inputs correlated to outputs. Does not print an item if it has no correlations.
Inputs with Output Corrs	Prints the outputs correlated to inputs, including status correlations. Does not print an item if it has no correlations.
Display Corrs	Prints the display correlations. Does not print an item if it has no correlations.

If you need to repeat part of a print job (because the printer jammed part way through a job, for example), then you must note the start page and the end page - up to the maximum number of calculated pages - and enter them in the **From** and **To** fields.

19.32 Security Key Logon

This window appears if the CodeMeter key is inserted when you start the Configurator. It also appears if the key is inserted later.

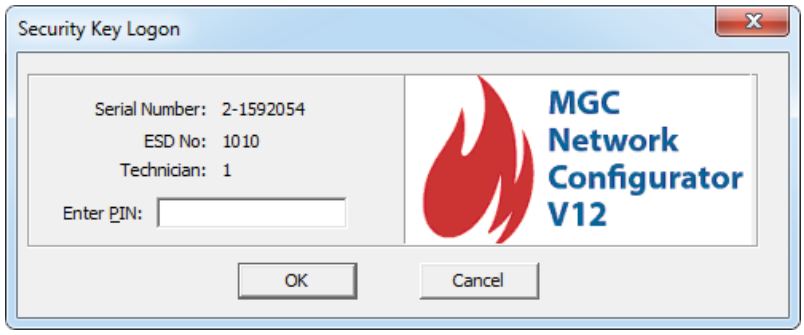


Figure 141 Security Key Logon

- Type your PIN and click **OK**.

19.33 Upgrade Firmware

This window appears when you select the **Upgrade Firmware** command, after you have selected a firmware archive.

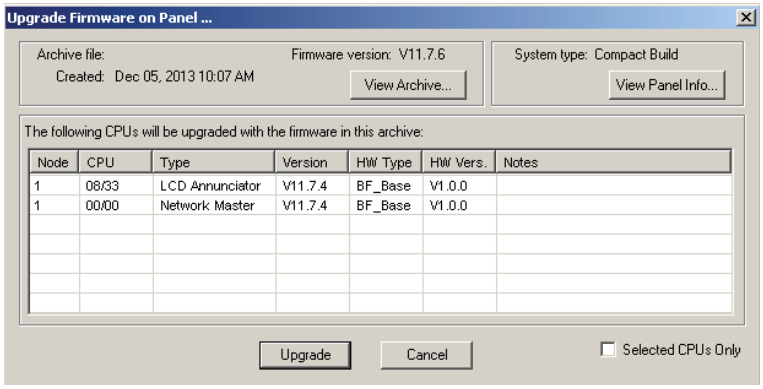


Figure 142 Upgrade Firmware on Panel

View Archive
The **Firmware Archive Contents** window appears, which lists all of the files in the archive.

View Panel Info
The **Advanced Panel Information** window appears, which lists all of the CPUs present on the panel.

Selected CPUs Only
Select this check box, and then select the CPUs you wish to upgrade. If this check box is not selected, all of the CPUs will be upgraded.

To select multiple rows:

- Hold down the Ctrl key and right-click in the row.

Upgrade
Starts the firmware upgrade.

19.34 Update Panel Time

To update the panel time

1. Click **Panel** > **Panel Information**.

   The **Panel Information** window appears. See section 19.19 on page 177.

2. Click **Update**.

   The **Update Panel Time** window appears.

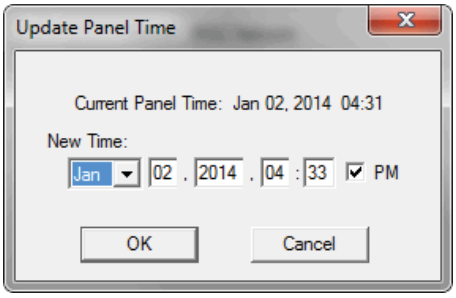


Figure 143 Update Panel Time

3. Adjust the time, if necessary, and then click **OK**.

19.35 Version History

To see the version history of the open job

1. Click **Job** > **Version History**.

   The **Version History** window appears.

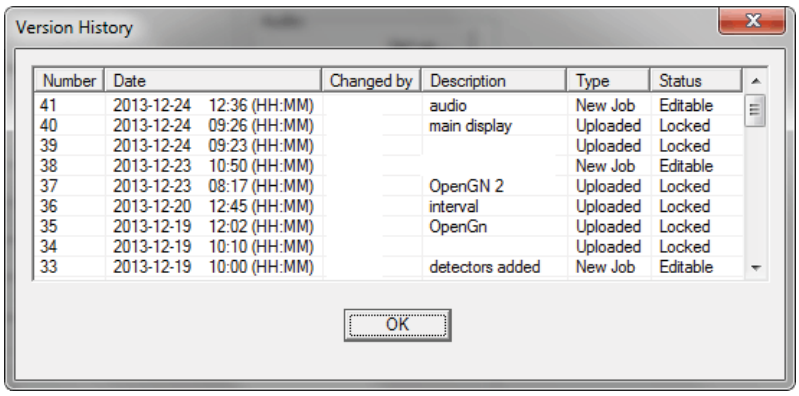


Figure 144 Version History

Number	The version number.
Date	The date and time the version was created.

Changed by	The technician who created the version.
Description	The description that was entered when the new job version was created.
Type	• Uploaded: The new job version was a result of a **Get Job**. • New Job: The user created a new version manually.
Status	• Locked: The job has been sent to the panel and is locked against editing. • Editable: The job is not locked.

19.36 System/Node/CPU Status

The System Status, Node Status, or CPU Status appear in the Details Pane when you select the **Common System Status**, **Node & CPU Status**, or **Annun Status** items in the Job Tree.

System Statuses are inputs that can be correlated to outputs. For example:

- Correlate a signal circuit to operate as a power supply (using Init Done).
- Customize the **Fire Drill** operation.
- Correlate a relay to operate on Reset Command (using **Sys Reset**).

System Statuses are can also be correlated to LEDs.

System statuses can have three different scopes.

- **Common System Status**: These statuses have a system wide scope. Examples are **Common Alarm**, **Fire Drill** and **Signals Active**.
- **Node Status**: **Node Active** and **AC On** are examples of Node Status. When you choose a Node Status and correlate something to it, you are specifying, for example, the **AC On** status of the selected node. The **Scope** column specifies which node the status is on.
- **CPU Status**: These fall into two categories.
  - The list view containing the special Annunciator Statuses, Control Enabled, and Control Disabled appears in the job tree for every CPU that has an LCD (Main Display and LCD Annunciators).
  - The list view containing the other CPU statuses appears in the Job Tree for each network node and is combined with the Node Statuses. These CPU Statuses are associated with the main CPU of the node.

The **Scope** column specifies the Node and CPU of the status. You must have defined a suitable LED to accept the correlation from the Node or Node/CPU specific status.

F/W Status	Scope	Status	F1
0	Node 1	Node Active	
0	Node 1 - Main CPU	CPU Online	
1	Node 1	AC On	
1	Node 1 - Main CPU	CPU Sys Reset Activ	
2	Node 1	Node Sys Reset Activ	
2	Node 1 - Main CPU	CPU Alarm	
3	Node 1	Node Alarm	
3	Node 1 - Main CPU	CPU Supv	
4	Node 1	Node Supv	
4	Node 1 - Main CPU	CPU Monitor	
5	Node 1	Node Monitor	
5	Node 1 - Main CPU	CPU Trouble	
6	Node 1	Node Trouble	
6	Node 1 - Main CPU	CPU Alert Active	
7	Node 1	Node Alert Active	
7	Node 1 - Main CPU	CPU Evac Active	
8	Node 1	Node Evac Active	
8	Node 1 - Main CPU	CPU Subseq Alarm	
9	Node 1	Node Subsequent Alar	
9	Node 1 - Main CPU	Alarm Verif	
10	Node 1	Node Alarm Verif	
10	Node 1 - Main CPU	Wflw Retard	
11	Node 1	Node Wflw Retard	
11	Node 1 - Main CPU	Pre-alarm	
12	Node 1	Node Pre-alarm	

Figure 145 System Status

Table 23 describes the columns in the System Status view.

Table 23 System Status

Name	Description
F/W Status	The firmware status number.
Scope	Either Common for system wide statuses or the Node name, or Node CPU combination of the status.
Status	A short description of the status.
F1	Flag field: NS for Non-Silenceable or blank.
F2	On a two stage system, select **GA** if you want the outputs correlated to a Common System Status to sound at the Evac rate. If this column is blank, the outputs sound at the Alert rate. You can specify the tones for Evac and Alert in the Audio Setup window. See chapter 16.

Some System Statuses can also be correlated to switches. Examples are **Signal Silence**, **Fire Drill**, **Aux Disc**, **Total Evacuation**. When one of these items is selected, the Correlations Pane shows any display adder switches that are correlated to the item. This does not include remote switches (input circuits or devices of type **Input Module** that are assigned to a Common System Status).

19.37 Custom Intervals

A custom interval is a period of time during the day. Intervals have a start time, an end time, and an optional day of the week. If the day of the week is not specified, then the interval applies every day.

You can use a custom interval to change the language of announcements at certain times of day, or to turn on a dedicated air handling system once a week for testing.

To view custom intervals

- Select **Custom Intervals** in the Job Tree.

You can use custom intervals in equations. See section 8.2 on page 64.

To use more than one interval

1. Connect the intervals in an equation with OR.

   For example, consider these two intervals:
   ****-**-**-IT-010**: 06:00 to 09:00 "Kitchen in use - breakfast."
   ****-**-**-IT-011**: 11:00 to 13:00 "Kitchen in use - lunch."

   The following equation is true when the time is within either of these intervals:

   ****-**-**-IT-010 OR **-**-**-IT-011**

Table 24 describes the columns in the Custom Intervals view.

Table 24 Customer Intervals

Name	Description
CktNo	The number assigned to the interval.
Start Hour	The hour (0-23) when the interval starts.
Start Min	The minute (0-59) when the interval starts
End Hour	The hour (0-23) when the interval ends.
End Min	The minute (0-59) when the interval ends.
DoW	The day of the week, if the interval period is restricted to one day. Leave this column blank if you want the interval to occur every day.
Tag	A 20 character description of the interval. The tag helps to identify the interval in the Advanced Logic Editor.

19.38 Custom Timers

A custom timer is a length of time. You can make an operation occur after a timer has expired, or while a timer is running. For example, you can use a timer to delay a vent fan until the damper has had time to open, or to delay the activation of compressors so that they do not all activate at once and overload the system.All timers are initially un-assigned. To enable a timer, edit the **Enable** column to make it **Y**.

Note: As per UL 864 and UL 2572 only a setting of un-assigned is permissible.

To view custom timers

- Select **Custom Timers** in the Job Tree.

To create a timer

- Double-click in the **Enable** column, and then click **Y** in the menu.

You can use custom timers in equations. An equation can start a timer, test whether a timer has expired, or can test whether it is still running. See section 8.1 on page 62.

Table 25 describes the columns in the Custom Timers view.

Table 25 Customer Timers

Name	Description
Address	The number assigned to the timer.
Enable	Double-click in this column, and then click **Y** to create a timer.
Duration	The duration of the timer in seconds.
Tag	A 20 character description of the timer. The tag helps to identify the timer in the Advanced Logic Editor.

19.39 Input / Output Circuit Summary

The Job Tree always contains Input Summary and Output Summary items. Select either of these items to see a list of all of the circuits on the job.

On products that support them, this list may include Correlatable Switches. These will not have a value in the Loop and Address columns.

19.40 Input Zones

To see the input zones

- Click **Input Zones** in the Job Tree under **Base I/O**.

You use Input Zones to combine multiple input circuits into zones which can then be correlated to signals and other outputs.

Table 26 Input Zones

Name	Description
Device	Input Zone.

Table 26 Input Zones (Continued)

Name	Description
Type	Double-click in this column to change the process type of the zone.
Priority	Specifies the priority given to digitized messages correlated to this input zone: -95% (lowest) through Normal (default) to +95% (Highest). Activation of a zone with a higher priority will cause its message to be played, and any lower priority message will cease to play. In a combined fire and Mass Notification System (MNS) installation, choose appropriate priorities. For example, if risk analysis has determined that fire has priority over MNS, assign a higher priority to all fire input zones – higher than those of MNS digitized message switches.
Code	In a coded system, you can associate devices with a code that sounds on the signal circuits to indicate where the alarm has occurred. The code consists of 1 to 4 digits, each digit consisting of 1-15 pulses on the signals. Each coded circuit can be configured to sound the complete code 1 - 15 times after which the signals will either go silent or revert to the programmed General Alarm rate.
Tag 1 and 2	A description, in two 20 character fields, which appears on the front panel when an alarm occurs.

Flag Columns

There are up to three **Flag** columns (F1, F2 and F3) for flags of various types.

NS: Non Silenceable - used on inputs and supervised outputs.

GA: stage two alarm - in a two stage system.

ND: No Display - This zone will not appear in the alarm queue.

19.41 LED Annunciator

A node can have multiple LED annunciators, but they all share the same configuration. Therefore, only one LED annunciator appears for each node in the Job Tree.

To add an LED annunciator

1. Click **Insert**, then click **Add Annunciator**.
2. In the **Type** menu, select **LED Annunciator**.
3. Type a description in the **Tag** field, and then click **Add**.

To see the LED annunciator summary

- Click **LED Annunciator** in the Job Tree.

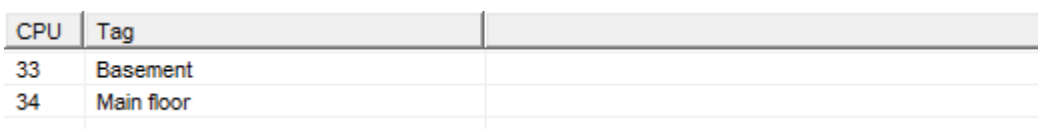


Figure 146 LED Annunciator

- Double-click in the CPU column to change the CPU address.
- Double-click in the Tag column to change the tag.

19.42 Loop Details

The loop details displays the hard wired (conventional) circuits or addressable devices in a loop.

To see the loop details

1. In the Job Tree, click the loop that you want to see under the **Loop Adder** or **Audio Control**.

Table 27 Loop Details

Name	Description
Addr	For regular addressable devices, this address is the same as the device address. For conventional circuits display adder & circuit on adder.
Device	Conventional - fixed, depending on the circuit adder. See section 19.14 on page 168. Addressable - chosen when adding devices. Can be edited conditionally. For example, a Photo Detector can be changed to other types of detector, a Relay Opt module can be changed to a Supv. Opt module. Other changes can be made only by deleting the device and adding another.
Type	The process type of the device. You can change this by double-clicking it.
SubType	The specific subtype of the device. For instance, a photo detector can be a smoke, beam, or duct detector. The SubType helps identify the device to OpenGN. In OpenGN, you can assign an icon to the device based on the Type or SubType. In the OpenGN Event List, the SubType appears in the Object Description column.
Sens Lvl Pre	On addressable loops, the pre-alarm (or for some device types the trouble) sensitivity level.
Sens	On addressable loops, the alarm level 1 sensitivity level.
Sens Lvl 2	On addressable loops, the alarm level 2 sensitivity level.
Sens Lvl 3	On addressable loops, the alarm level 3 sensitivity level.
Sens B Lvl Pre	On addressable loops, the after hours and night time pre-alarm (or for some device types the trouble) sensitivity level.
Sens B	On addressable loops, the after hours and night time alarm level 1 sensitivity level.
Sens B Lvl 2	On addressable loops, the after hours and night time alarm level 2 sensitivity level.
Sens B Lvl 3	On addressable loops, the after hours and night time alarm level 3 sensitivity level.

Table 27 Loop Details (Continued)

Name	Description
Tag1 and 2	The description, in two 20 character fields, that appears on the panel when an alarm occurs.
Alternate Tag (Line 1 and Line 2	The description that appears on displays where **Alternate Tags** is selected. See section 19.8 on page 158. The primary tags will appear on all other displays. The alternate tags are typically used for a second language.

Flags

There are up to four Flag columns (**F1**, **F2**, **F3** and **F4**).

- **AR**: Auxiliary Reset required - for relays.
- **BU**: Back Up amplifier - for audio controllers. This flag designates the amplifier as the backup. It must be of sufficient power to substitute for any of the other configured amplifiers. The backup amplifier can only be correlated with status LEDs, trouble LEDs and UDACT groups.
- **ER**: Enable Required - Select this if you want the switch to require a passcode.
- **GA**: Stage Two Alarm - in a two stage system, and also to return the supervised signal to EVAC rate after the code is completed in a coded system.
- **NB**: Non Bypassable - for relays.
- **NC**: Not coded - for supervised outputs (for instance, strobes) to keep the output operating until reset (even after the code has ended).
- **ND**: No Display - Select this if you do not want the input to appear in the queue.
- **NS**: Non Silenceable - for inputs and supervised outputs.
- **SR**: System Reset required - for switches used for fan control.
- **NF**: Do not flash an addressable device's LED (and do not activate the sounder) when the device is active. The LED flashes by default. This setting may only be enabled if the Authority Having Jurisdiction allows.

Sens Columns

Sensitivity level for COSAP provides 6 levels of sensitivity, which are categorized as below:

- **Alarm 1:** Level 1 - 1%/ft of smoke. No delays from processed photo output.
- **Alarm 2:** Level 2 - 2%/ft of smoke. No delays from processed photo output.
- **Alarm 3:** Level 3 - 3%/ft of smoke. No delays from processed photo output.
- **Alarm 4:** Level 4 - 3%/ft of smoke. Maximum of 10 minutes delay from processed photo output.
- **Alarm 5:** Level 5 - 4%/ft of smoke. Maximum of 10 minutes delay from processed photo output.
- **Alarm 6:** Level 6 - Heat only alarm. If the heat level limits.

Once the CO cell has reached its end of life, and enters PTIR mode, the following sensitivities apply:

- **Alarm 1:** Level 1 - 1%/ft of smoke. No delays from processed photo output.
- **Alarm 2:** Level 2 - 2%/ft of smoke. No delays from processed photo output.

- **Alarm 5:** Level 5 - 3%/ft of smoke. Time elapsed from smoke detection is
- **Alarm 6:** Level 6 - Heat only alarm. If the heat level on either thermistor exceeds 1 limits.
- **CO Operation:** CO only alarm.

19.43 Fire Phone Configuration

You can set up an audio controller, conventional phones, voice lines, remote field phones, master telephone handsets and telephone selectors, and you can connect them together.

You need at least an Audio Network Controller Module (ANC-5000), a Telephone Network Controller Module (TNC-5000), a Telephone Master Controller (QMT-5302N(V)), and a Telephone/Page Selector (QAZT-5302(DS)). The Audio Controller supports conventional fire phone circuits or voice lines. There may also be addressable fire phone modules. If you configure addressable fire phone modules you must also ensure that there is a voice line to support them.

19.43.1 Adding an audio controller

Note: Your organization needs audio systems training in order to add an audio controller to a job. To check whether you have this training, see section 2.9 on page 24.

- See section 19.18 on page 174 for instructions on adding an audio controller.

The Audio Network Controller Module (ANC-5000) must have a Telephone Network Controller Module (TNC-5000) installed.

You must also specify whether the four or five lines are conventional phones or voice lines to serve addressable phone modules. After the audio controller is added you can still edit these attributes, or change just some of the lines between voice and conventional.

19.43.2 Adding a fire phone module

To add a fire phone module

1. Select the loop that you want to add a device to.
2. Click **Insert** > **Add Device**.

   The **Add Device** window appears.

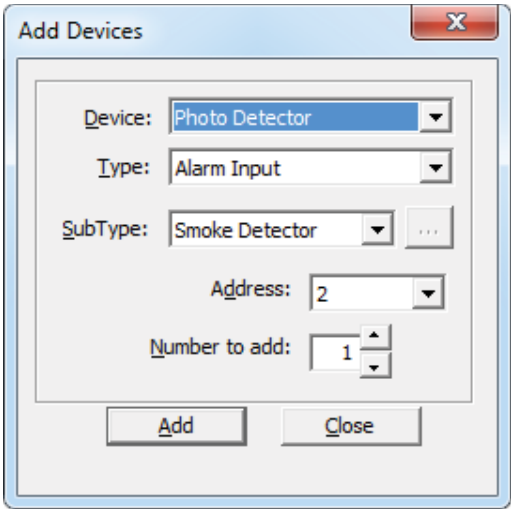


Figure 147 Add Device

3. Select **Firephone Ipt** in the **Type** pulldown menu.
4. Click the **Add** button.

19.43.3 Adding master telephones (QMT-5302N(V))

You can add a maximum of one master telephone to each RAXN-LCD annunciator or to the base panel's main display. The master telephone uses one frame.

To add a master telephone

1. Select the annunciator or display adder that you want to add the telephone to.
2. Click **Insert** > **Add Display Adder**.
3. Select **Master Telephone** in the **Select Adder Type** menu.
4. Select the header (connector) in the **Select Header** menu.
5. Click **Add**.
6. Click **Close**.

19.43.4 Adding telephone/page selectors (QAZT-5302(DS))

You can add any number of telephone/page selector adders to each RAXN-LCD annunciator or to the base panel's main display, up to the maximum frame count for an annunciator. An annunciator has 14 frames, and a telephone/page selector uses 2 frames.

To add a telephone/page selector

1. Select the annunciator or display adder that you want to add the telephone to.
2. Click **Insert** > **Add Display Adder**.
3. Select **Telephone/Page Selector** in the **Select Adder Type** pulldown menu.
4. Select the header (connector) in the **Select Header** pulldown menu.
5. Click **Add**.
6. Click **Close**.

The telephone/page selector has 24 switches, all of which are initially un-assigned. They can be configured as Phone Select, Dig Msg or Page Select.

19.43.5 Correlating selector switches to remote telephones

The following constraints apply to correlations between telephones and switches.

- Each dual LED/Switch combination on a Selector can control and annunciate only one telephone (conventional circuit or addressable module).
- If a switch on one CPU (Annunciator) is already controlling a telephone, then no other switch on that same CPU can be associated with the same telephone. However, any given telephone module can be controlled from a similar LED/Switch combination on another CPU.

Typically, a bank of selectors on one Annunciator mirrors those on another. However, this is not required. For example, the Selector Switches at the Main Panel could control all the phone modules on a job, while each remote Annunciator controls only a sub-set.

To correlate a selector switch to a telephone

1. Select the addressable loop or audio controller phone list view containing the telephone.
2. Click **Insert** > **Add Correlations**.
3. Click a maximum of one switch from each CPU that you want to correlate with this telephone.
4. Click **Add**.

If you had previously correlated one or more switches to this telephone module, then you will not see any available switches from the same CPU as those existing correlations.

To correlate a phone module to a switch

1. Select the Selector Switch.
2. Click **Insert** > **Add Correlations**.
3. Click only one **Phone Module**. A switch cannot control more than one telephone.
4. Click **Add**.

If the phone you added was already correlated to another switch on the same CPU, you will receive a message "A select switch already exists for control circuit number nnn. A circuit can only be assigned to one Telephone Switch per CPU".

If you selected more than one Phone to add, or if you press add again, then you will receive the error message “Cannot correlate a Phone Select switch to more than one phone module”.

19.43.6 A fire phone device cannot be copied if it is already correlated to a selector switch

A fire phone device cannot be copied if it is already correlated to a selector switch. If you attempt to copy such a device (or a loop that contains one) an error message appears. If you need to copy phones, use **Paste Special** and unselect **Copy display correlations**.

19.44 Using Master Telephones

A master telephone (QMT-5302N(V)) is attached to a node and is configured to call other specific master telephones.

Master telephones are called by pressing a switch on a telephone/page selector (QAZT-5302(DS)).

In order to call one master telephone from another master telephone, you must correlate a switch on one node to a switch on another node. See section 19.44.4 on page 204 for instructions on how to do this.

The following 3 sections describe 3 applications of master telephones.

19.44.1 Calling Master-to-Master (Single Call)

In this two-node example, node 1 switch number 0 is correlated to node 2 switch number 0.

1. Press switch number 0 on node 1 to call node 2.

   Node 1 and node 2 sound their buzzers and the green LEDs blink.
2. Press switch number 0 on node 2 to answer the call.

   Node 1 and node 2 turn off their buzzers and green LEDs turn solid.
3. Press switch number 0 again on node 1 (or press switch number 0 on node 2) to disconnect the call.

19.44.2 Calling Master-to-Master (Multiple Calls)

In a three-node system, an operator at node 1 can call both node 2 and node 3. In this example the following correlations have been made:

- Node 1 switch number 0 <--> Node 2 switch number 0
- Node 1 switch number 1 <--> Node 3 switch number 0
- Node 2 switch number 1 <--> Node 3 switch number 1

1. Press switch number 1 on node 1 to call node 3.

   Node 1 and node 3 sound their buzzers and the green LEDs blink.
2. Press switch number 0 on Node 3 to answer the call from node 1.

   Node 1 and node 3 turn off their buzzers and the green LEDs turn solid.

   The operators at nodes 1 and 3 can talk to each other.
3. Press switch number 1 on node 2 to call node 3.

   Node 2 and node 3 sound their buzzers and the green LEDs blink.

4. Press switch number 1 on node 3 to answer the call from node 2.

   Node 2 and node 3 turn off their buzzers and the green LEDs turn solid.

   The operators at all 3 nodes can now talk to each other.
5. Press switch number 0 on node 3 to disconnect the call from node 1.
6. Press switch number 1 on node 3 to disconnect the call from node 2.

19.44.3 Call Control

The operator can call all the nodes that are correlated to the node's telephone/page selector by pressing the Call Control switch on the master telephone (QMT-5302N(V)).

In this example three-node system, the following correlations have been made:

- Node 1 switch number 0 <--> Node 3 switch number 0
- Node 1 switch number 1 <--> Node 2 switch number 0

1. Press the Call Control switch on node 1.

   Nodes 1, 2, and 3 sound their buzzers and the green LEDs blink.
2. Press switch number 0 on node 3 to answer the call from node 1.

   All nodes turn off their buzzers.

   The green LEDs on node 1 and node 3 turn solid.

   The green LED on node 2 blinks (the call from node 1 can still be answered).
3. Press switch number 0 on node 3 to disconnect the call from node 1.
4. Press the Deselect All switch on node 1 to disconnect all calls from this node.

19.44.4 Master telephones in the Configurator

This section describes how to set up master telephones on the three-node system described in section 19.44.2 on page 203.

Add the audio controllers and master telephones

Add an audio controller, a master telephone, and a telephone/page selector to each node as described in sections 19.43.1, 19.43.3 and 19.43.4.

Assign the phone selector switches

1. Select the Telephone/Page Selector under node 1's Main Display.
2. For switch number 0, double-click **<unassigned>** and select **Phone Sel**.

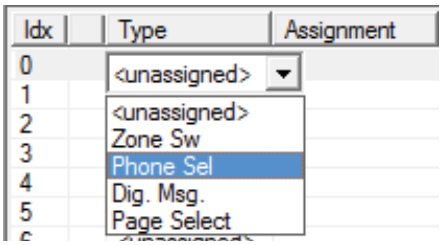


Figure 148 Make a Switch a Phone Selector Switch

3. For switch number 1, double-click **<unassigned>** and select **Phone Sel**.
4. Repeat steps 1 and 2 for nodes 2 and 3.

Correlate the phone selector switches across nodes

1. Select the Telephone/Page Selector under node 1's Main Display.
2. Select the row for switch number 0, and then click **Insert** - **Add Correlations**.
3. In the **Select items to add window**, click the **Call Control** tab.

   All the phone selector switches available for correlation appear here. Figure 149 shows that switch numbers 0 and 1 on node 2, and switch numbers 0 and 2 on node 3 are available for correlation.

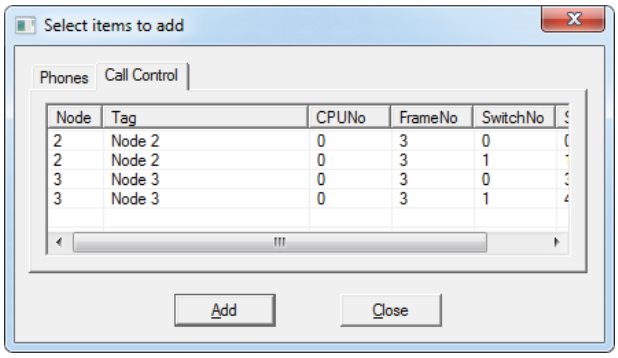


Figure 149 Add Correlations to a Phone Selector Switch

4. Select switch number 0 for Node 2, and then click **Add**.
5. Click **Close**.
6. Select the row for switch number 1, and then click **Insert** - **Add Correlations**.
7. In the **Select items to add window**, click the **Call Control** tab.

   All the phone selector switches available for correlation appear here. Figure 150 shows that switch numbers 0 and 2 on node 3 are available for correlation. Node 2 is not available because it was correlated with switch number 0 earlier.

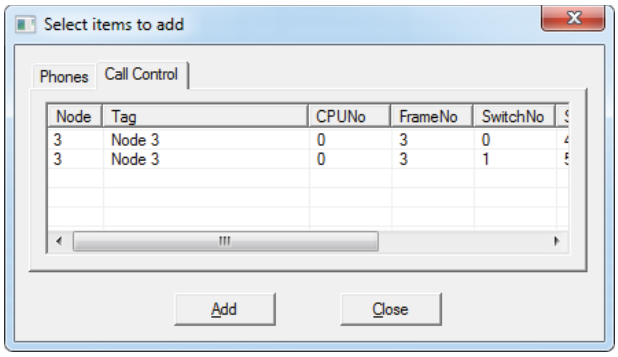


Figure 150 Add Correlations to a Phone Selector Switch

8. Select switch number 0 for Node 3, and then click **Add**.
9. Click **Close**.
10. Select the Telephone/Page Selector under node 2's Main Display.
11. Select the row for switch number 1, and then click **Insert** - **Add Correlations**.
12. In the **Select items to add window**, click the **Call Control** tab.

Figure 151 shows that switch number 1 on node 3 is available for correlation.

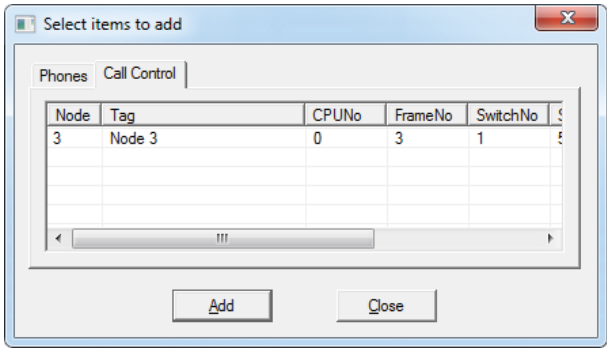


Figure 151 Add Correlations to a Phone Selector Switch

13. Select switch number 1 for Node 3, and then click **Add**.
14. Click **Close**.

The switches are now correlated as follows:

- Node 1 switch number 0 <--> Node 2 switch number 0
- Node 1 switch number 1 <--> Node 3 switch number 0
- Node 2 switch number 1 <--> Node 3 switch number 1

19.45 Suite Silence

You can configure a combination of system statuses, timers, input zones, and signal zones to satisfy the requirements of the National Building Code of Canada with respect to suite silence. The code allows the signals (speakers) in dwelling units in zones other than the zone where the alarm occurred to be automatically silenced. However, it specifies that the automatic signal silence can only occur after a certain amount of time. It also specifies that the signals must resound immediately if there is a subsequent alarm anywhere in the building, or if ten minutes elapse and the alarm has not been acknowledged.

For example, consider a 3 floor residential building with a speaker in each suite and a speaker in each hallway. If an alarm occurs on floor 3, the following events occur.

1. All the speakers sound.
2. After 60 seconds, the speakers in the suites on floors 1 and 2 are silenced. The speakers in the hallways on floors 1 and 2 continue to sound, and all the speakers on floor 3 continue to sound.
3. After 10 minutes, if the alarm is not acknowledged, all the speakers sound again.

An excerpt of the code is reproduced below:

(13) Audible signal devices, within dwelling units that are wired on separate signal circuits, need not include a means for silencing as required by Sentence(9) provided the fire alarm system includes a provision for automatic signal silence within dwelling units, where,

- *(a) the automatic signal silence cannot occur within the first 60 sec. of operation or within the zone of initiation,*
- *(b) a subsequent alarm elsewhere in the building will reactuate the silenced audible signal devices within dwelling units,*

- *(c) after a period of not more than 10 min., the silenced audible signal devices will be restored to continuous audible signal if the alarm is not acknowledged...*

19.45.1 Timers for Suite Silence

There are three timers for suite silence in the Job Details. See section 19.5 on page 147.

- **Auto Resound** - This timer specifies the time, in minutes, after which the signals will resound if an alarm remains un-acknowledged. The default is 10 minutes.
- **New Alarm** - This is the time, in seconds, that the alarm plays on outputs correlated with the **New Alarm Active** Common System Status. After this amount of time, the alarm plays only on the outputs correlated with the zone or input that started the alarm.

  For example, if you correlate the **New Alarm Active** Common System Status with all the zones that contain suites, then a new alarm will play in all the suites for this amount of time. After this time, the alarm with continue to play only in the zone where the alarm was initiated (as well as outputs correlated with the **Common Alarm** Common System Status).

  In a two stage system, suite silence is canceled when the stage two alarm starts.

  As per UL 864 and UL 2572 the **New Alarm Active** Common System Status must not be correlated.
- **Signal Silence Inhibit** - This is the time, in seconds, during which you cannot silence the alarm or reset the system. This time must be shorter than **Auto Signal Silence**.

  As per UL 864 and UL 2572 only a Signal Silence Inhibit setting of 0 is permissible.

19.45.2 Common System Statuses

There are three Common System Statuses used for Suite Silence.

- **New Alarm Active** - This status is true when a new alarm occurs and remains true while the **New Alarm** timer is running. It is usually correlated with the suite signal circuits.

  As per UL 864 and UL 2572 the **New Alarm Active** Common System Status must not be correlated.
- **Auto Suite Resound** - This status becomes true when the **Auto Resound** timer expires. It is usually correlated with the suite signal circuits, so that the alarm resounds in the suites if it is not acknowledged.
- **Common Alarm** - Signal circuits that are correlated with **Common Alarm** activate when any alarm is active.

Attention: Do not correlate the Subsequent Alarm Common System Status with suite signals.

19.46 Configuring suite silence

To configure suite silence

1. Select **Job Details** in the job tree.
2. Set the Alert rate to Alert and the Evac rate to **Temporal**.
3. If the job has audio, click the **Set up** button under **Audio**. Click the buttons beside **Alert** and **Evac** and set the alert rate to **Alert** and the Evac rate to **Temporal**.
4. Set **New Alarm** to 60 seconds. After 60 seconds, the signals will stop in the correlated zones, except the zone where the alarm was initiated.
5. Set **Auto Resound** to 10 minutes. After 10 minutes, the alarm will sound in all the suites if it has not been acknowledged.
6. Set **Signal Silence Inhibit** to 60 seconds.
7. Set **Auto Signal Silence** to **Disabled**.

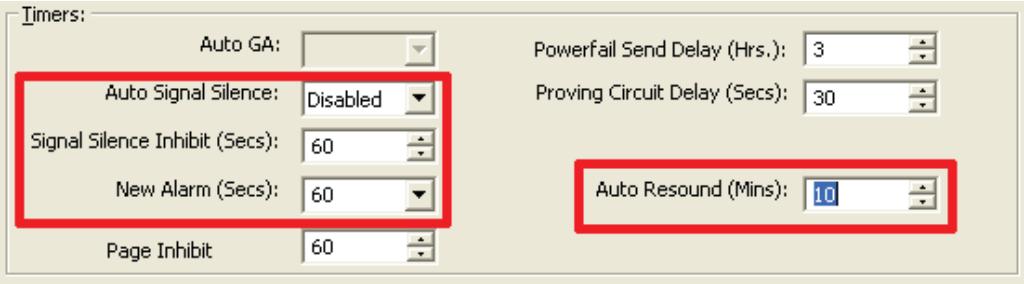


Figure 152 Timers for suite silence

8. Create an alarm zone for each floor.
9. Create 2 signal circuits for each floor - one circuit for the suites, and one for the hallways.
10. Correlate each floor alarm zone to the corresponding suite's signal circuits.
11. Correlate Common Alarm to the Hallways' signal circuits.
12. Correlate the **Common Alarm** common system status to the hallways' signal circuits.
13. Correlate the **New Alarm Active** common system status to all suite signal circuits.
14. Correlate the **Auto Suite Resound** common system status to all suite signal circuits.

19.47 Menus

19.47.1 File Menu

The **File** menu contains the following commands:

Table 28 File Menu

Name	Short cut	Description
Backup Database		Backup database makes a copy of the Master Database in the File folder specified in the User Preferences. The backup file will have a name of the form YYYY-MM-DD.mdb. The back up can be used by the Restore Database command to recover all of the jobs in the database. The Import command can be used to recover selected jobs from a backup. Backup your Master Database often and store a copy of the resulting file on a CD or other media.
Restore Database		Restores the database from a backup copy. Note: This operation will replace the entire contents of the current, working database with the backup.
Compact Database		To ensure optimal performance, you should compact and repair your database on a regular basis. If you have purged job versions or deleted jobs, Compacting the Database will regain the space occupied by those records.
User Preferences		Specifies User Preferences, such as the location of database, backups, and job files.
Open Folder		Opens the folder for the backup, the job files, or the job build in Windows Explorer.
Print	Ctrl+P	Print the active job.
Print Preview		Display a Print Preview of the active job.
Print Setup		Select the printer, paper size and orientation for a print job.
Exit		Closes the configurator.

19.47.2 Job Menu

The **Job** menu contains the following commands:

Table 29 Job Menu

Name	Short cut	Description
New Job	Ctrl-N	This command will open the Create Job dialog which will allow you to start a new job. The new job can be based on a supplied template or on an existing job.
Open Job	Ctrl+O	This command will open an existing job from your database.

Table 29 Job Menu (Continued)

Name	Short cut	Description
Import Job		Imports a selected job/version from an external database or serialized job archive and converts the job to the current version if necessary.
Export Job	Ctrl+E	Exports the current job in one of two formats: A single job database file, or a compact, serialized archive format.
Merge Jobs		Merges a selected job into the current job, retaining all correlations.
New Version	Ctrl+W	Make a copy of the current job, assigning it the next highest version number. The user is prompted for mandatory comments and may also override the Author field. The Job Name cannot be changed. The new version is un-locked for editing.
Delete Job Version	Ctrl+D	This command permanently deletes the current Job / Job Version from the database.
Version History		Display the Version History (Date, Author, Comments) for the current job.
Compare Job Versions		Compare two versions of the same job, or two similar jobs of different lineage.
Convert Job		Convert a job between two models. Produces a new version of the current job.
Validate Job		This action performs all of the steps normally performed when preparing to send a job to the panel.
Edit Job		Toggle the lock on a job that is protected against unintentional edits or has been down loaded to a panel.

19.47.3 Insert Menu

The **Insert** menu contains the following commands.

Some commands may be disabled (greyed) depending on what items are selected on the user interface.

Some items may be suppressed depending on the product.

Table 30 Insert Menu

Name	Description
Add Network Nodes	Nodes Add a network node to the job.
Add Loop Controllers	Add an Addressable or Conventional Loop Controller to the selected network node.
Add Annunciators	Add an LCD or LED Annunciator to the selected network node.

Table 30 Insert Menu (Continued)

Name	Description
Add Display Adder	Add a Display Adder to an Annunciator or Base Panel.
Add UDACT	Add UDACT capability to the selected network node.
Add Audio Controller	Add an Audio Controller to the selected network node. A maximum of one Audio Controller is allowed per node.
Context Dependent	
Add Device	If the selected tree item is a device loop, add a device or circuit.
Add Message	Add a Message if the selected tree item is a remote annunciator that can accept Custom Messages.
Add Correlations	Launch a dialog that allows correlations to be added to the selected devices or display items.

19.47.4 Edit Menu

The **Edit** menu contains the following commands.

Some commands may be disabled (greyed) depending on what items are selected on the user interface.

Table 31 Edit Menu

Name	Short cut	Description
Delete Item	Del	Deletes the currently selected item.
Modify Item	Ctrl+M	If the currently selected item is a row in an editable list, then the first changeable cell is selected and prepared for editing.
Copy	Ctrl+C	Copies the selected item(s) to the clipboard.
Paste	Ctrl+V	Pastes items from the clipboard to the selected destination.
Paste Special	Ctrl+Shift+V	Similar to Paste: Opens the Paste Special dialog to allow defaults to be changed before pasting.

19.47.5 Panel Menu

The **Panel** menu contains the following commands.

Table 32 Panel Menu

Name	Short cut	Description
Connect	Ctrl+L	This command will establish a connection between the configuration tool and the panel, enabling most of the other commands in this menu. Remember to disconnect when you are finished, as a trouble will be indicated on the fire alarm panel as long as the laptop is connected.
Send Job	Ctrl+S	Build the job and send the configuration to the panel.

Table 32 Panel Menu (Continued)

Name	Short cut	Description
Get Job	Ctrl+G	Get the job from the panel and store it on the configuration tool's database. The job becomes the current job, shown in the user interface.
Manage Jobs		Displays the jobs currently loaded on the panel and lets you delete them.
Panel Information...		Displays detailed information about the panel to which the configuration tool is connected.
Security Key Info...		Displays information about the security key for those products that support a key. The user must have entered the correct PIN when prompted - either when configurator was started or when the key was inserted - to enable this command.
Upgrade Firmware...		Loads firmware to the panel from a firmware archive file.

19.47.6 Tools Menu

The items under the **Tools** menu are used mainly for troubleshooting and diagnostic purposes by the factory.

Table 33 Tools Menu

Name	Short cut	Description
Extract All DB		Extracts the latest version of every job to individual database files.
Build Job	Ctrl+B	Builds the job, assuming the latest product version, creating a ".c" file in the Job Build folder.
Build Job (old versions)...		Builds the job ".c" file for a specified, older product version.
Link Statistics		Displays the connection link statistics
Log Send		Toggle the current state of the "dump on send" option. Causes the ".c" file to be produced and dumped on a Get Job.
Log Get		Toggle the current state of the "dump on get" option. Causes the ".c" file to be produced and dumped on a Send Get.
Log Comms		Toggles logging of serial communications.
Trace		Toggles the current state of the trace option. When turned on this causes debug information to be written to a trace file.
Display Structure		This command will display a dialog that will allow you to view and log panel data structures.

Table 33 Tools Menu (Continued)

Name	Short cut	Description
External Bus		Toggles the "Use External Bus" setting. When turned on, this signals that the configurator is connected to the External Bus of the panel.

Note: The **Tools** menu is only available if you checked the **Show Tools Menu** option. See User Preferences.

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