FleX-Net™

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1.0   Introduction

This reference guide is for application engineers who build and configure the FleX-Net™ Fire Alarm Control Panel. It covers FleX-Net™ firmware version 12.2.33 and Configurator version 12.2.33.

For FleX-Net™ version 12.1, see revision 3.2 of this guide.

1.1   Related Documents

- LT-6707 Advanced Logic Programming Manual

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 2018 (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_2**.

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
- Synchronize Sounder Base Addresses
- Print Active Events
- Connect a Virtual Terminal Program

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 7 or 10 computer with a USB port
- Serial cable or USB to serial cable
- UIMA4 cable
- Registered CodeMeter key
- MGC Fire Detection and Mass Notification Configurator 2018 (the Configurator) version 12.2.33

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

Connect the computer to the Fire Alarm Control Panel for configuration

1. Connect the RS-232 cable or the USB cable to the UIMA4 cable.
2. Connect the 10-pin head of the UIMA4 cable to the last CPU in the CPU chain that starts from the main board.

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Note: The port is P3 on the FleX-Net™ main board and ALCN-792MISO, P4 on ALC-386S, and P10 on ANC-5000.

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.
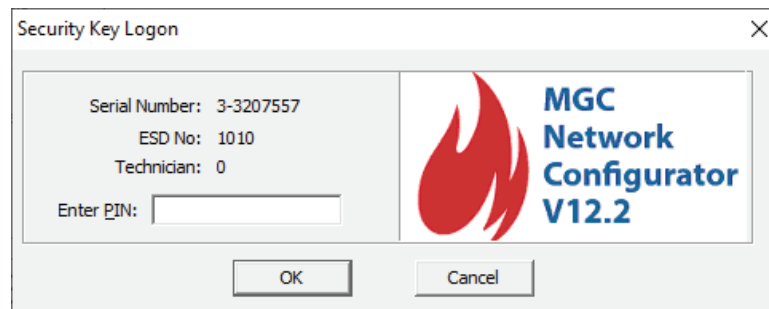
Figure 3   Security Key Logon

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

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.
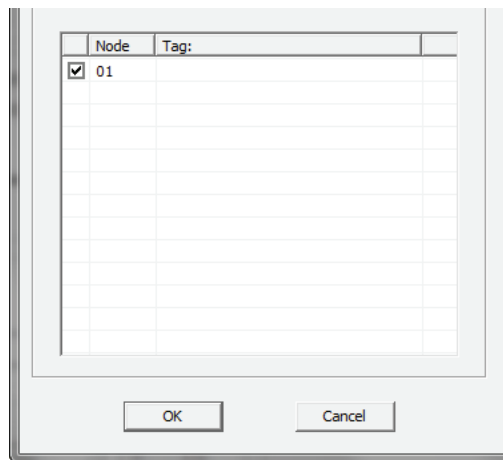
Figure 4   Send Job

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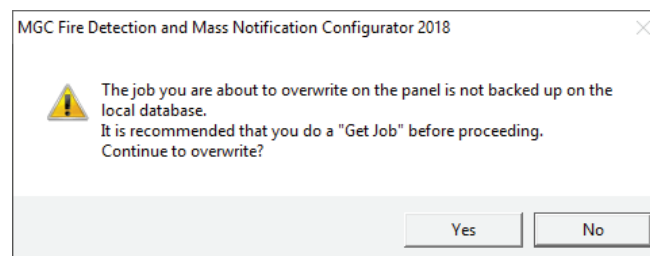
Figure 5   The job you are about to overwrite on the panel is not backed up on the local database

5. Click **Yes**.

A window appears asking if you want to make this job the active job.
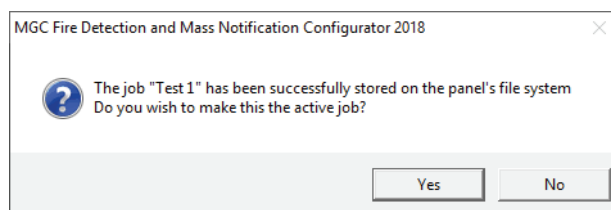
Figure 6   The job has been successfully stored

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.
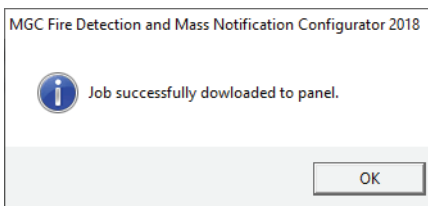
Figure 7   Job successfully downloaded

7. Click **OK**.

8. The panel restarts.

2.3   Getting the Active Job from the Fire Alarm Control Panel

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.
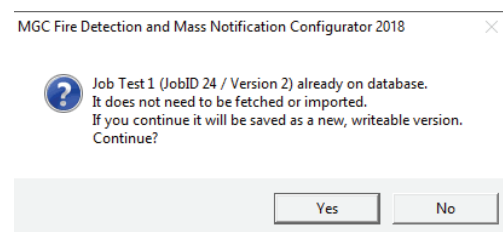
Figure 8   Job Already in Database

A window appears asking for the new version information.
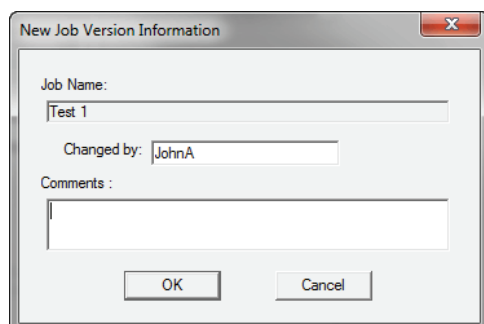
Figure 9   New Job Version Information

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.
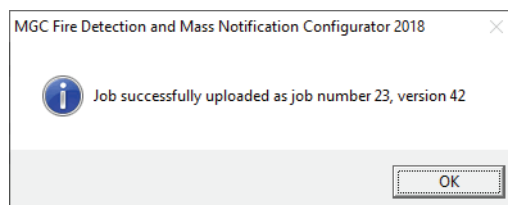
Figure 10   Job successfully uploaded

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

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 **Job_nn-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.

Manage jobs on the panel

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

    The **Manage Jobs Configuration on Panel** window appears.
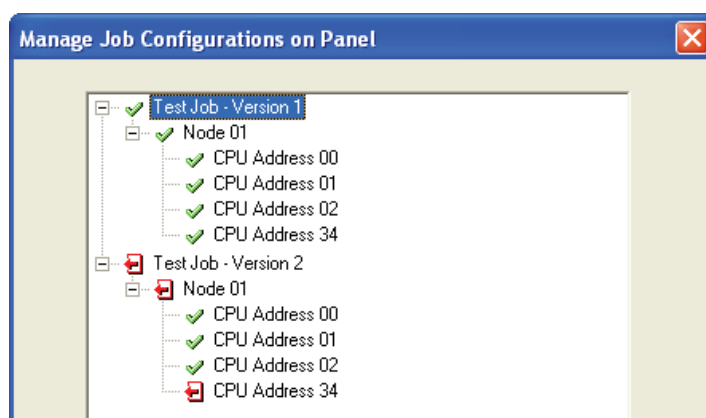
Figure 11   Manage Jobs

The FACP can hold three jobs in its memory. This window shows the jobs that are currently on the panel. The active job is orange if not selected and blue if selected. 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

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

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.

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

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.

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

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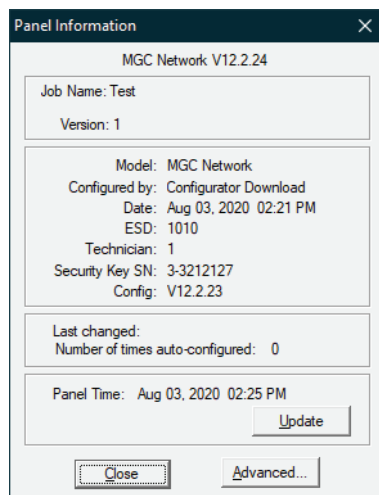
If you experience difficulty, it is helpful to have information about how the Fire Alarm Control Panel is configured. You can get this information from the Configurator and from the Fire Alarm Control Panel itself.

2.8.1 Getting Configuration Information from the Configurator

Get configuration information from the Configurator

1. In the Configurator, click **Panel** > **Connect**.

2. Click **Panel** > **Panel Information**.

   The **Panel Information** window appears.
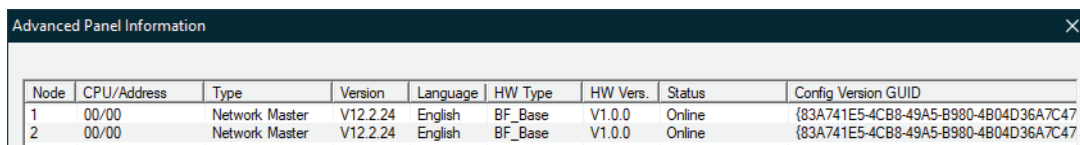
Figure 12   Panel Information

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.

Advanced Panel Information								✕
Node	CPU/Address	Type	Version	Language	HW Type	HW Vers.	Status	Config Version GUID
1	00/00	Network Master	V12.2.24	English	BF_Base	V1.0.0	Online	{83A741E5-4CB8-49A5-B980-4B04D36A7C47
2	00/00	Network Master	V12.2.24	English	BF_Base	V1.0.0	Online	{83A741E5-4CB8-49A5-B980-4B04D36A7C47

Figure 13   Advanced Panel Information

Node	The number assigned to each node.
CPU/Address	The number for each CPU on the node.
Type	The type of CPU, for example a Main CPU, LCD Annunciator, 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.

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

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.
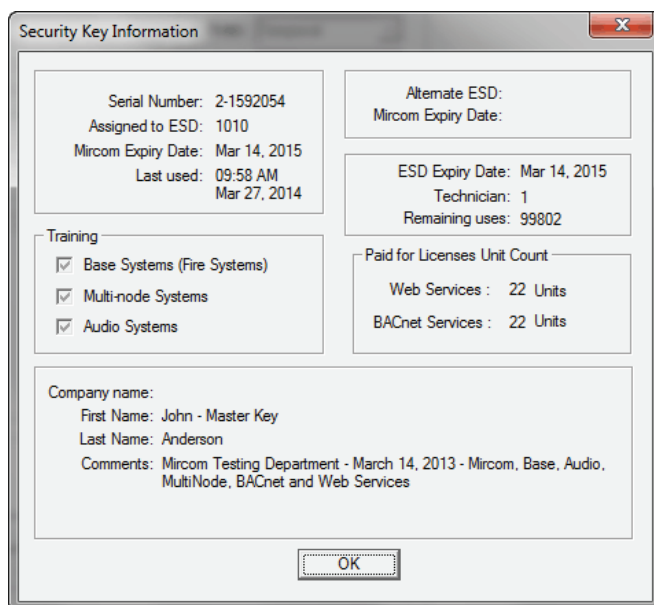
Figure 14   Security Key Information

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 FleX-Net™.

- **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 Mircom technical support at 1-888-647-2665.
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.

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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 24.

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

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:

   - FX-2000N: JW2

   - ANC-5000 Audio Network Controller Board: JW4

   - RAXN-LCD Network Remote Annunciator Panel: JW1

   - ALCN-792MISO 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.

> **!**   **Attention:** **Performing a hard restart inactivates the active job.**

Perform a hard restart

1. Determine which components in your system have CPUs.

   The following components have CPUs:

   - Main panels, for instance FX-2000N series panels

   - Audio controllers, for instance ANC-5000

   - Remote annunciators, for instance RAXN-LCD

   - Loop adders, for instance ALCN-792MISO Quad Loop Adder

See Figures 15 and 16 for pictures of a CPU.
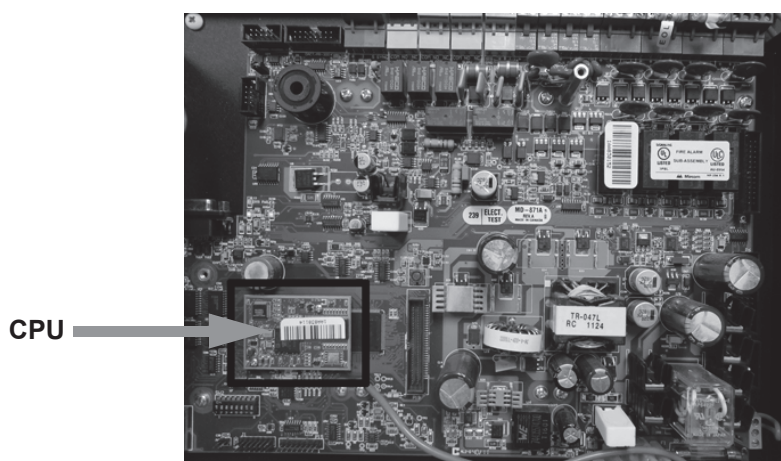
Figure 15   FX-2003-12NDS board showing the CPU
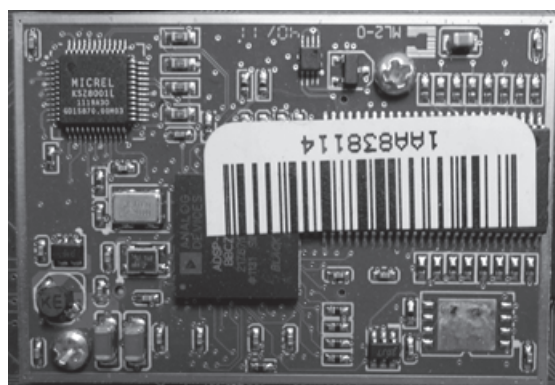
Figure 16   Close-up of a CPU

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:

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

2.12   Synchronize Sounder Base Addresses

When an addressable sounder base is added to the job in the Configurator, it is assigned an address based on the address of the AP sensor it is connected to (see section 19.12 on page 159). However, the physical sounder base has a default address which might not match the configured address. This mismatch generates a "mismatched address" or "unconfigured device" error on the panel. This error will usually occur on new installations, or in situations where the sounder bases have been replaced.

The menu item **Pairing Sound B** synchronizes the internal address of the sounder base with the address of the AP sensor it is connected to. This command applies only to the node it is sent from.

Synchronize sounder base addresses

1. On the main display or on an annunciator, press the MENU button.
2. Scroll down to **Pairing Sound B**, and press ENTER.
3. Enter your passcode if required.
4. Press ENTER to confirm.

   The sounder base addresses are synchronized.
5. Repeat these steps for every node that has sound bases connected to it.

After all sounder bases on the network are synchronized, all troubles related to sounder base addresses should be cleared.

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> **Note:**   A sounder base with no AP sensor mounted on it will reset its address to 0 following this procedure. Install the missing AP sensor and perform this procedure again.

2.13   Print Active Events

You can quickly print a list of the active events to a printer connected to the panel, or to your laptop computer.

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> **Note:**   To print a report to a printer or to a laptop (using Tera Term or HyperTerminal), the printer output must be enabled via the Configurator.

Print the active events

1. On the main display of any node or on an annunciator for any node in the system, press the ENTER button.

2. Press ENTER again to print the active events to a printer or a laptop connected to the printer port.

2.14 Connect a Virtual Terminal Program

A virtual terminal program such as Tera Term or HyperTerminal lets you see the alarm and event reports, the system diagnostic reports, and the events in real time.

This section shows how to install and use Tera Term as a virtual terminal.

You need:

- Microsoft Windows 7 or 10
- Tera Term software application (available at the following link:)
- Mircom's MGC-CONFIG-KIT4

Connect the computer to FleX-Net™

- Connect the computer to the RS-232 P9 connector on the main FleX-Net™ board. Refer to LT-6230, the MGC-CONFIG-KIT4 instructions for details.

USB connector   9 pin serial connector

Computer   USB A to B male cable   UIMA4 interface   Serial cable   P9 on main board
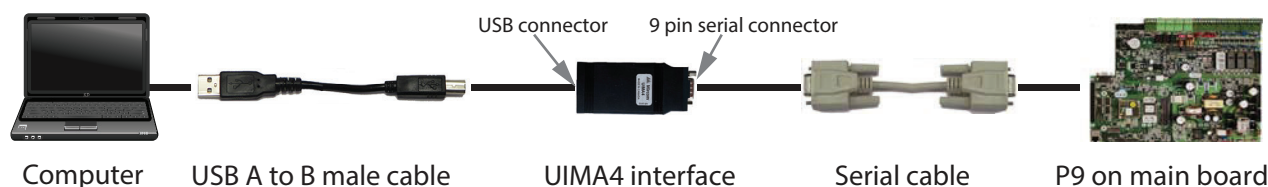
Figure 17   Connect the computer to the RS-232 P9 connector on the main FleX-Net™ board

Install Tera Term

1. Double-click the Tera Term installer.

2. Follow the instruction on the screen to install the software.

3. After the installation is complete, start the Tera Term application.

The **New connection** window appears.
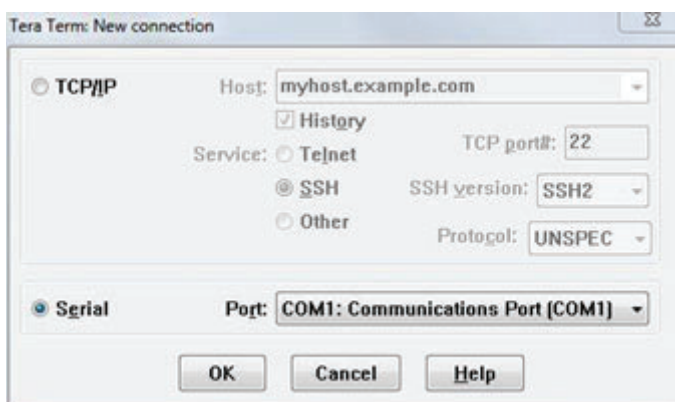
Figure 18   Tera Term New connection

4.   Select **Serial**.

5.   In the **Port** menu, select the COM port that the serial cable is using.

6.   Click **OK**.

7.   Click **Setup**, and then click **Serial port**.

     The **Serial Port Setup** window appears.
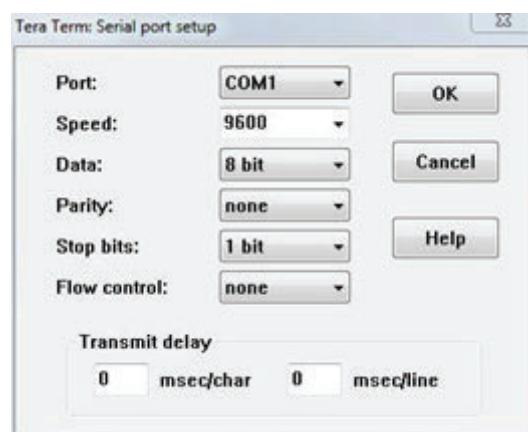
Figure 19   Tera Term Serial port setup

8.   Select the correct COM port.

9.   Select **9600** as the **Speed**.

10. Click **OK**.

Print the real time log

1. Click **File** and then click **Log**.

   The **Tera Term Log** window appears.
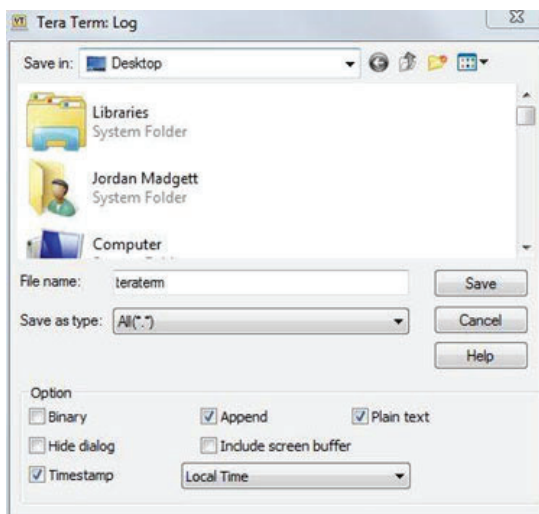
Figure 20   Tera Term Log

2. Select **Timestamp**.

3. Select the location where you want the file to be stored, then click **Save**.

4. After you have printed the historical event logs you must end the log. When ending the log file, verify where the files are located, then click **Pause** and **Close**.
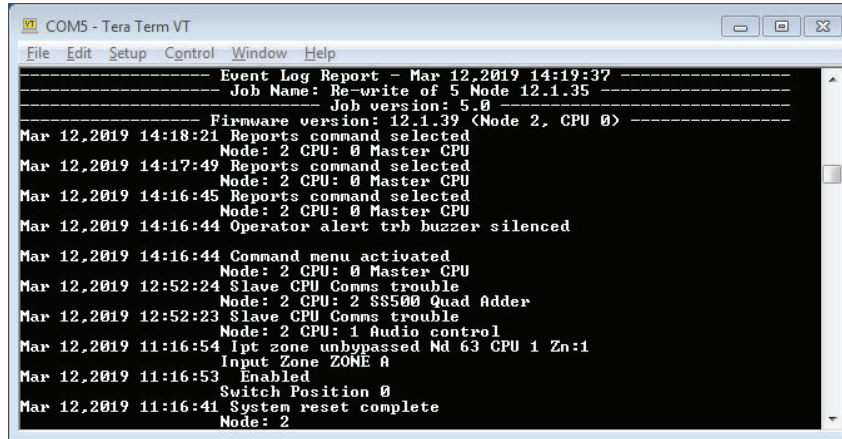
Figure 21   Close Tera Term Log

Print the historical alarm log or event log

1. On the main display or remote annunciator, access the Menu and select **Reports**.

2. Select **Event log** (or the desired report), then select **Printer**.

The panel prints all historicalevents to the virtual terminal program. An example is shown in Figure 22.

Figure 22   Example event log printout

3.0 Upgrading Firmware

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> **Note:** This chapter describes how to upgrade all the CPUs on the network by using the Configurator to broadcast the upgrade across the whole FleX-Net™ system. If you want to upgrade or downgrade the firmware on a single CPU, use the MGC-CONFIG-KIT4 connection kit and the FleX-Net™ MP Upgrade Wizard. The FleX-Net™ MP Upgrade Wizard is available at:
> https://mircom.com/technical-support/documents-firmware-software-downloads/
> The manual for the wizard is LT-6232, available on **http://www.mircom.com**

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

- Windows 7 or 10 computer with a USB port
- UIMA4 cable
- Registered CodeMeter key
- The latest version of the MGC Fire Detection and Mass Notification Configurator
- A copy of the latest firmware

3.1 Installing the Configurator

To broadcast firmware across the FleX-Net™ system, you need the Configurator that matches the firmware of the system. For example, if the system has V12.1.43 firmware, but needs to be updated to V12.2.XX, you will need the V12.1.43 Configurator.

1. Download the Configurator from the Mircom website.
2. Double-click the file that you downloaded.
3. Follow the instructions to install the software.

   After the installation is complete, the User Preferences window appears.
4. Fill out the appropriate sections, then click **OK**.
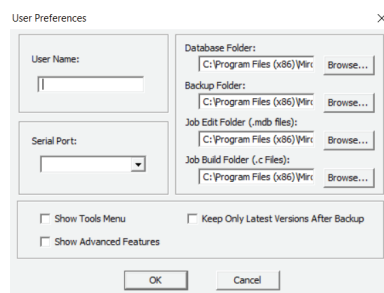
Figure 23   User Preferences

3.2 Importing the Job File

You must import the job that matches the hardware in the system. You can

Importing a database from your computer is similar to importing a job. A job is a file that describes one hardware setup, while a database is a library of jobs.

To import a database, select **File > Restore Database**, then browse your computer.

To import a single job, select **Job > Import Job**, then browse your computer.

3.3 Connecting to the System

Now that you have the appropriate Configurator, as well as the matching job file, you can connect to the panel to update the firmware.

Connect to the system

1. Insert your CodeMeter key into the computer.

2. Connect the USB cable to the UIMA4 cable.

3. Connect the 10-pin head of the UIMA4 cable to the last CPU in the CPU chain that starts from the main board.

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Note: The port is P3 on the FleX-Net™ main board and ALCN-792MISO, P4 on ALC-386S, and P10 on ANC-5000.
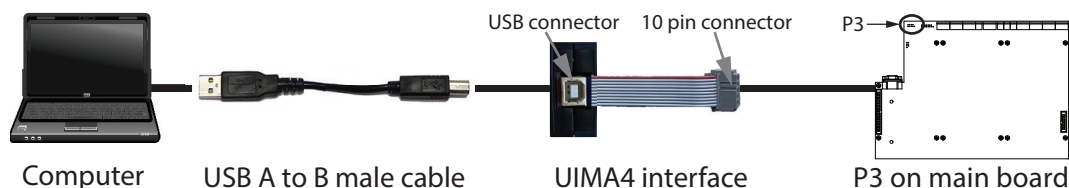
Figure 24   Connect to P3 on FX-2000N Series Panels
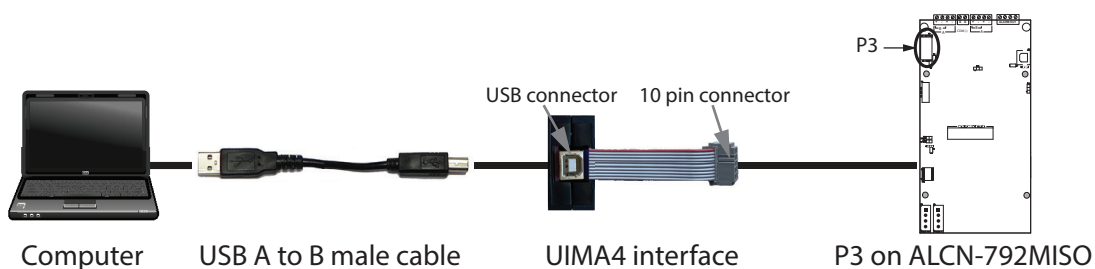
Figure 25   Connect to P3 on ALCN-792MISO Loop Controller
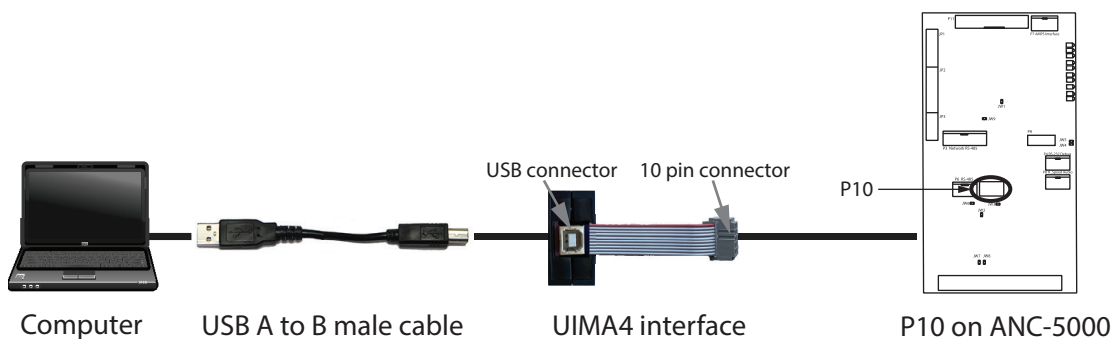
Figure 26   Connect to P10 on ANC-5000

3.4 Upgrading Firmware

Upgrade the firmware on a system

1. Start the Configurator.

   The Configurator prompts you for your PIN.

2. Type your four digit PIN.
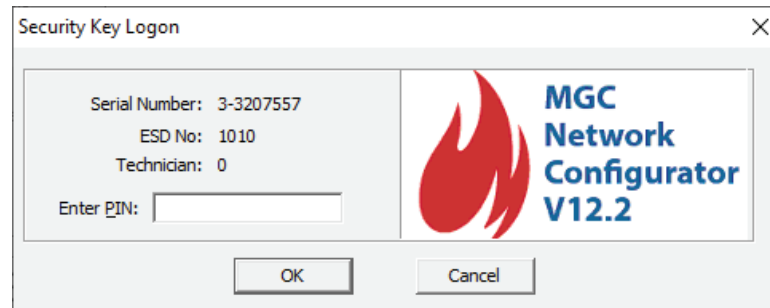
Figure 27 Security Key Logon

> *i*
>
> **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.

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

   The **Upgrade Firmware on Panel** window appears.
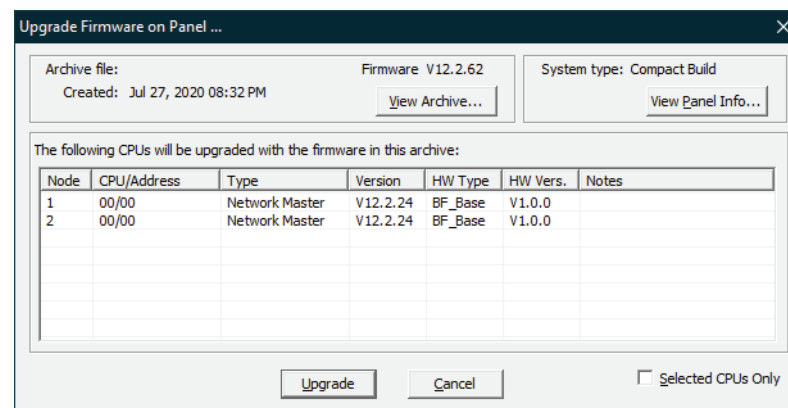
Figure 28 Upgrade Firmware on Panel

   a. If you want to upgrade the firmware on all the CPUs, click **Upgrade**.

   b. 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.
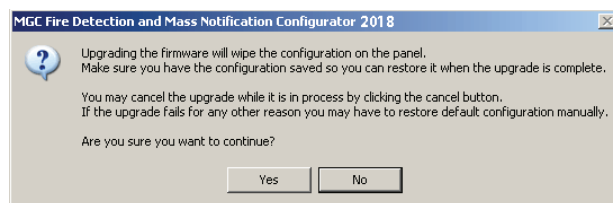
Figure 29   Firmware upgrade warning

6. 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.
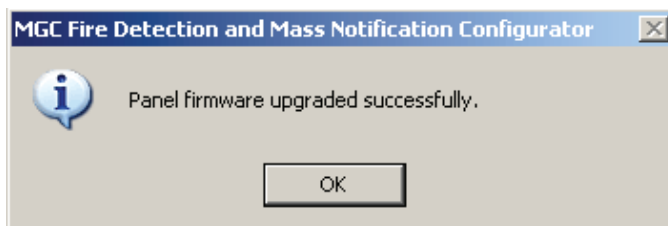
Figure 30   Panel firmware upgraded successfully

7. Click **OK**.

8. Follow the instructions in section 2.10.1 on page 24 to restart the system.

9. 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 21.

Each CPU displays the firmware version that it is running, as well as the configuration that it has stored. Make sure all these values are consistent throughout the system.

Lastly, after upgrading an existing system, the following procedures are recommended:

•   Where applicable, after the system update, test all system operations which may be affected.

•   Review the system configuration after the update to ensure that no unintended changes or modifications have occurred.

•   Plan the update and retesting according to all applicable national and local requirements.

4.0 AP Reports

AP (advanced protocol) reports are a new type of report that you can access from the main menu of the FleX-Net™ display. You can print reports or display them on Tera Term. The reports show only addresses that are configured.

Refer to LT-893 FleX-Net™ User Guide on **www.mircom.com** for instructions on how to see the reports.

4.1 AP Device Type

This report prints the type and OEM value (manufacturer ID) that the panel retrieves from the device. Use this report to make sure that the configured device description matches the actual data that is retrieved from the device. Replace the device if it is not the correct type.

In the report, the configured device description is indicated as a text string, for example **Unsupv Output Module**. The Type and OEM values are retrieved from the actual device and appear as numbers following the device description. The complete lists of possible values for Type and OEM are shown in tables 1 and 2 below.

The device description should match the Type if the job is configured correctly.
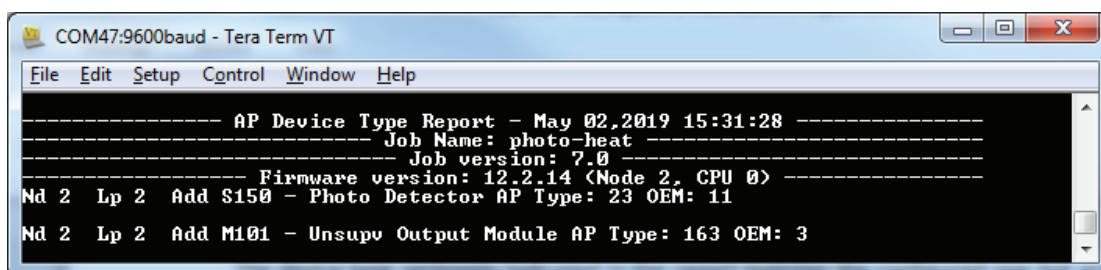
Figure 31 AP Device Type report

Table 1 OEM Values

Name	Value
Mircom	3
Secutron	11
System Sensor	51

Table 2 Type Values

Name	Value
Ion	10
Heat Photo	33
Photo	23
Heat 135	54
Heat ROR	56
Heat 190	55

Table 2 Type Values (Continued)

Name	Value
Acclimate	34
Fire-CO	35
Zone Monitor	162
Dual Mini Monitor	165
Mini Monitor	161
Monitor	160
Control	163
Relay	164
Sound Base (Canada, no hush switch)	170
Sound Base (US, with hush switch)	171
Sound Base Low Freq.	173
Dual Monitor	168
Ten Monitor	139
Six Relay	137

In Figure 31, the device at address **S150** has the description **Photo Detector**. This matches the data retrieved from the actual device: the Type is **23** (Photo). This device is OEM value **11** (Secutron).

The device at address **M101** has the description **Unsupervised Output Module** (a relay module). However, the data retrieved from the device shows that the Type is **163** (Control), which is a supervised module. If the device really was an unsupervised output module, the Type would **164** (Relay).

The device at address **M101** is OEM value **3** (Mircom).

4.2   AP Device Data

Generate this report when requested by technical support.
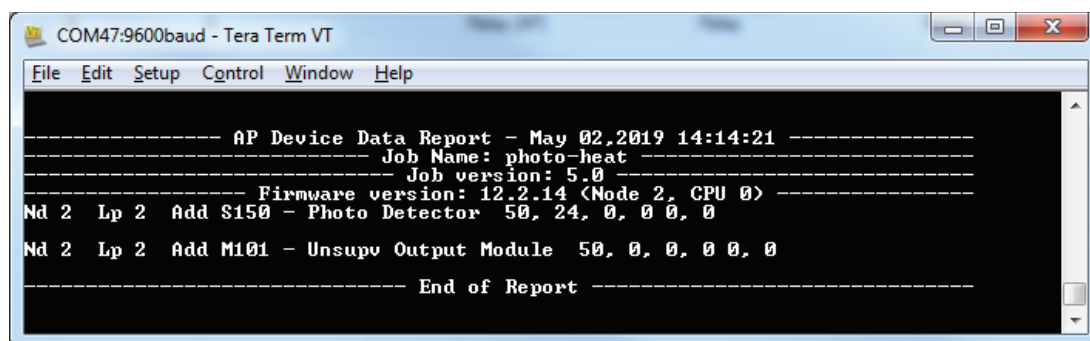
Figure 32   AP Device Data report

The numbers are the analog values retrieved from sub-addresses in the device. For most devices, the usual value for the first sub-address is 50, which indicates that the device is in a normal state.

4.3 AP Group Param

Use this report to check the output group configuration (see section 19.48 on page 196). The report prints the output group numbers for every device. A device can be in four output groups. The value **0** does not indicate any particular output group.
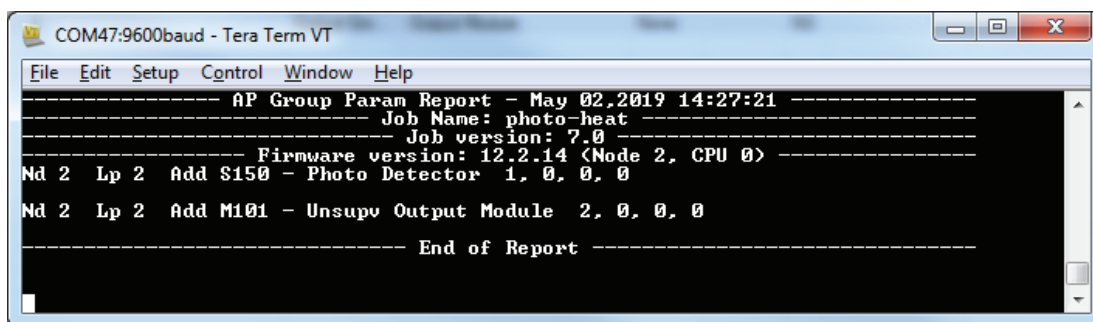
Figure 33   AP Group Param report

In Figure 33, the photo detector is correlated to a relay base and the relay base is part of output group 1. This device is in only 1 output group (the remaining 3 output groups are 0).

The unsupervised output module is part of output group 2. This device is in only 1 output group (the remaining 3 output groups are 0).

4.4 AP Param List

Generate this report when requested by technical support.

This report prints the complete list of the internal non-volatile parameters of the devices. It contains the device type, OEM value, output groups, and other useful information.
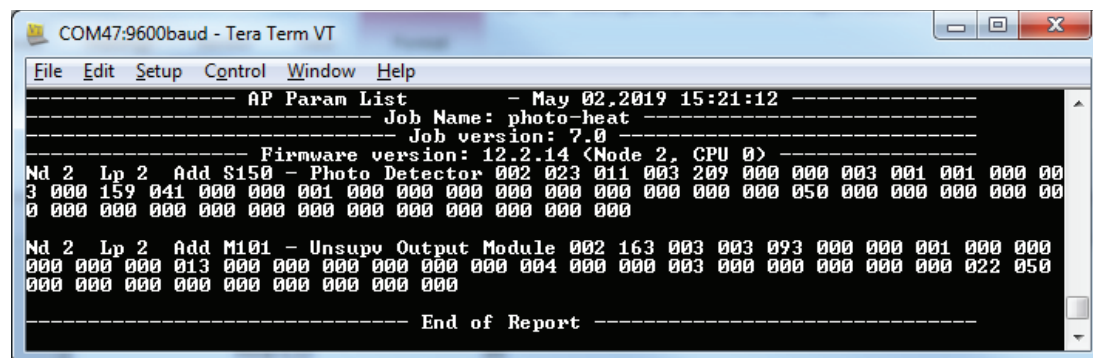
Figure 34   AP Param List report

Figure 34 shows the printed report from an SLC with two configured devices.

The second and third numbers after the device's description are the OEM value and the Type (as described in tables 1 and 2). The device with the **Photo Detector** description is Type **023** (Photo) and OEM value **011** (Secutron).

The second device is described as a **Unsupv Output Module** (relay). However the actual device is shown as Type **163** (Control). If the device really was an unsupervised output module, the Type would **164** (Relay). The OEM value is **003** (Mircom).

4.5   Multi-Addresses

This option reports devices that have the same serial number or the same address as set by the switches on the device.

The system uses one of two methods to scan devices. If you select "yes" on the **Digital Method?** menu, the system scans for duplicate serial numbers. If you select "no", the system scans for duplicate addresses as set by the switches on the device

```
Nd 0  Lp 3   Add S137 - Serial no:D01C2A6D - Tested
Nd 0  Lp 3   Add S138 - Serial no:4B7D534F *** Multiple dev address
Nd 0  Lp 3   Add S139 - Serial no:FF695162 - Tested
Nd 0  Lp 3   Add S140 - Serial no:1A6A5162 - Tested
Nd 0  Lp 3   Add S141 - Serial no:4B7D534F *** Multiple dev address
Nd 0  Lp 3   Add S142 - Serial no:FA132E42 - Tested
```

Figure 35   Multi-Addresses - duplicate serial number

In Figure 35, the system is scanning for duplicate serial numbers. The system prints ***** Multiple dev address** beside two devices with the same serial number. The duplicate serial number is **4B7D534F**. The addresses of the two devices are **S138** and **S141**.

```
Lp 3   Add S015 - Serial no:C274515F - Tested
Lp 3   Add S016 - Serial no:00000003 *** Multiple dev a
Lp 3   Add S018 - Serial no:0AD55066 - Tested
```

Figure 36   Multi-Addresses - duplicate address

In Figure 36, the system is scanning for duplicate addresses. The system prints ***** Multiple dev address** beside the address that is duplicated. The duplicate address is **S016**. (The serial number is printed as **0000003** because the devices with the same address have different serial numbers and the system cannot show both of them.)

5.0   System Limits

5.1   FleX-Net™ System Limits

Unless otherwise noted, these limits apply to software and firmware version 12.2.33.

Table 3   FleX-Net™ System Limits

Device	Maximum number
Nodes	63 per system
CPUs	15 per node: 1 on the main board + 7 local per node (quad loop adders and 1 audio controller) + 7 remote per node (annunciators) 128 CPUs in total per system Note: The Configurator treats LED annunciators as having CPUs.
Remote Annunciators	7 LCD annunciators per node or 4 LED annunciators per node A maximum of 7 annunciators in total per node 50 annunciators per system
Quad Loop Adders	7 per node
Built-in Conventional Loops	2 per node 128 per system
Addressable Loops	29 per node (7 quad loop adders with 4 loops each + 1 built-in loop)
Addressable Sensors	159 per loop
Addressable Input/Output Modules	159 per loop
Audio Controllers	1 per node
Amplifiers	3 adder bins per node: maximum number of amplifiers: 25 25 60-Watt amplifiers per node or 50 30-Watt amplifiers per node or 100 15-Watt amplifiers per node
Zone Switches	250 per system
Page Select Switches	504 per system
Telephone Select Switches	504 per system
Inputs correlated to Remote Zones	1800 per CPU
Remote Output Zones	1800 per CPU
UDACTs	1 per system

Table 3   FleX-Net™ System Limits (Continued)

Device	Maximum number
Custom Audio Clips	96 per system
Entries in one audio message (audio clips and repeat loops together)	32 per system
Custom Digital Messages	96 per system
Custom Intervals	60 per system
Custom Timers	30 per system
Output Circuits	640 per CPU
Input Zones	999 per CPU
Proving Correlations	400 per system
Manual Controls	512 per system
Equations in Input Zones	880 per CPU
Size of a Single Equation	4096 characters
Terms in an Equation	4000 per CPU
Characters in all Equation Comments	65536 per CPU
Node Groups	254 per system
Devices in an Output Group	159 per loop
Output Groups	254 per CPU
Event Log Capacity	5000
Maximum size of audio files (in total)	3 MB

5.2   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-008WKI smoke control fan damper module uses 1 frame. You can connect 12 FDX-008WKIs to a main display if you connect no other display boards. The RAX-1048TZDS programmable zone/trouble LED uses 3 frames, so you can connect 4 RAX-1048TZDSs to a main display. Or you can connect a combination of both, for instance 2 RAX-1048TZDSs (6 frames) and 6 FDX-008WKIs (6 frames).

Table 4 lists the number of frames used and provided by each device.

Table 4   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-1032TZDS	Remote Annunciator with 32 trouble LEDs	LED Annunciator	2	You can add up to 4 RAX-1048TZDSs to this device
IPS-2424DS	Programmable Input Switches Module	24 Sw Adder	2	N/A
IPS-4848DS	Programmable Input Switches Module	2 x 24 Sw Adder	4	N/A
RAX-1048TZDS	Adder Annunciator with 48 bi-coloured LEDs and 32 trouble LEDs	48 LED Adder	3	N/A
FDX-008W(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-5302DS	Addressable Telephone and Paging Selector Panel	Telephone/Page Selector	2	N/A
QAZT-5348DS	Addressable Telephone and Paging Selector Panel	2 x Telephone/Page Selector	4	N/A

Table 4   Frame Count (Continued)

Name	Description	Name in the Configurator	Frames Used	Frames Available
QMP-5101N(V)	Network Paging Control Unit	Master Paging	1	N/A
QMT-5302N(V)	Network Telephone Control Unit	Master Telephone	1	N/A

6.0 Testing UUKL Devices

The goal of UUKL is to 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 6 on page 44.**

6.1 Configuring a UUKL Smoke Control Test Interval

1. Create an interval for your testing time and cycle. Figure 37 shows an interval called **UUKL Test** from 11:09 am to 11:12 am every Tuesday. See section 8.2 on page 49 for more information.
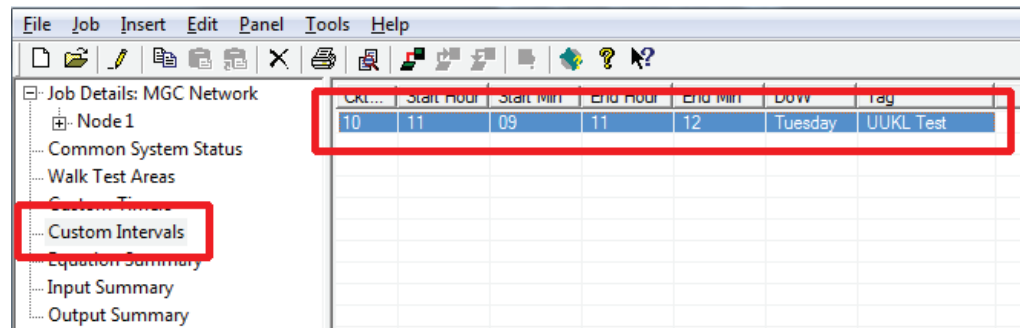
Figure 37   Interval for UUKL testing

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
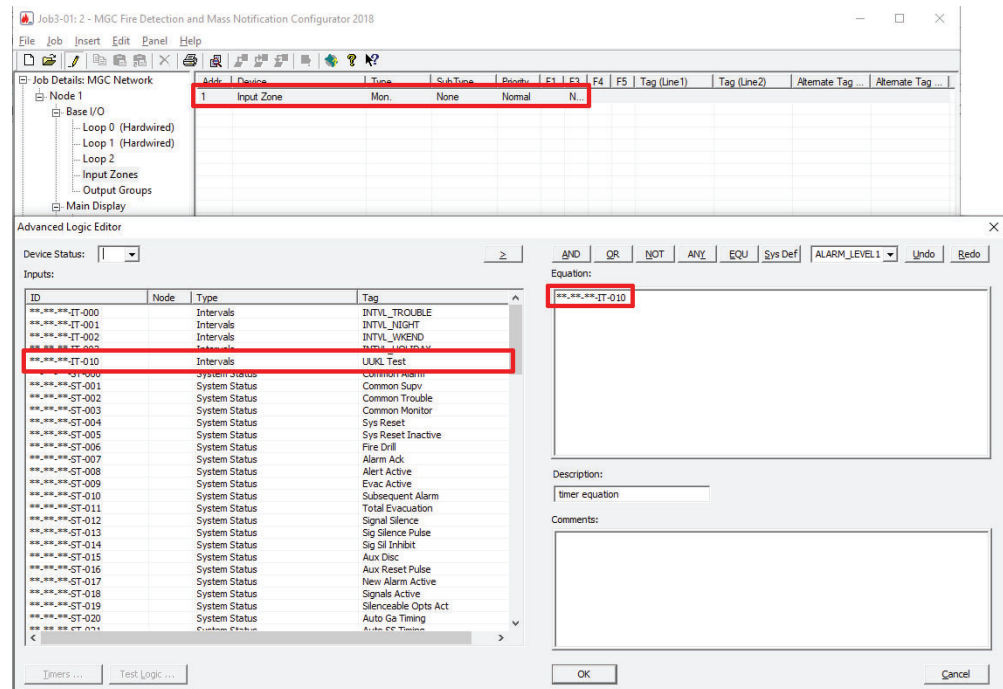
Figure 38   Advanced logic equation for UUKL test interval

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.

Refer to LT-893 FleX-Net™ User Guide on **www.mircom.com** for instructions on how to perform the walk test.

7.1 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.

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**.
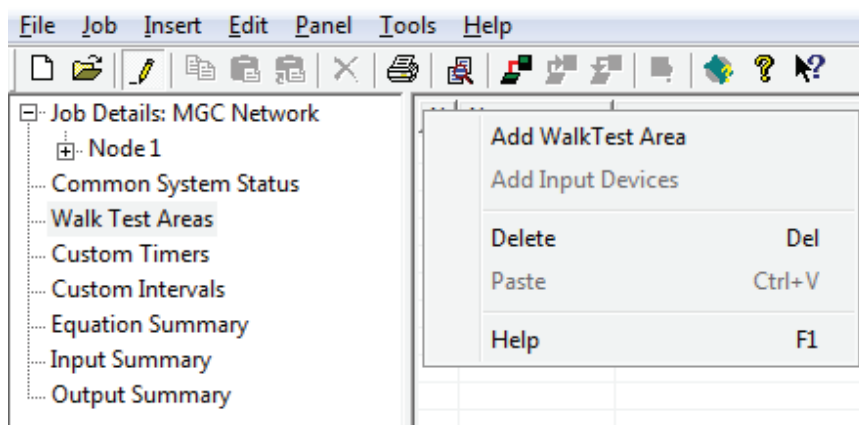
Figure 39   Add WalkTest Area

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.
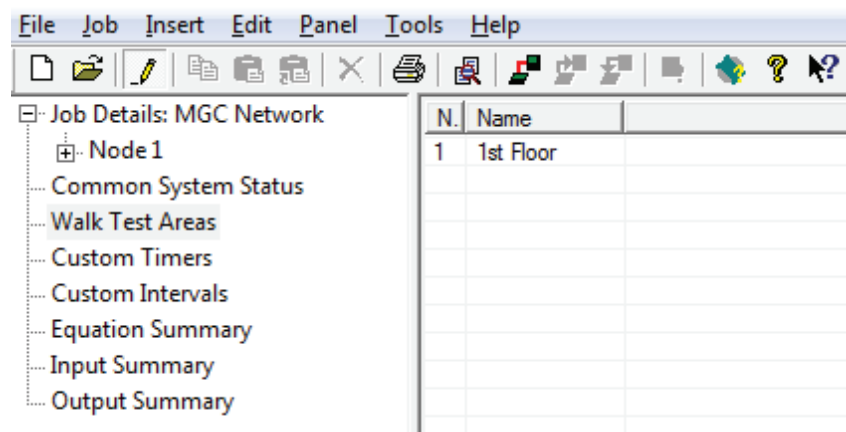
Figure 40   New walk test area

4. Right-click the walk test area, and then select **Add Input Devices**.
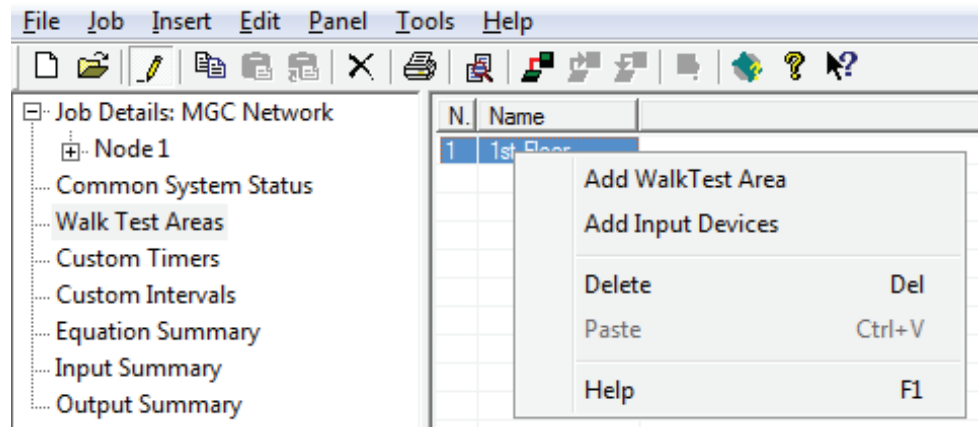
Figure 41   Add Input Devices

The **Select items to add** window appears.
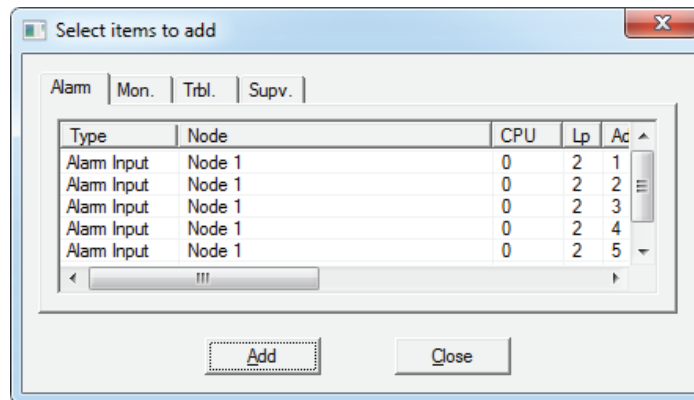
Figure 42   Select items to add

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.

7.2   Configuring the Walk Test Switch

You can configure a switch as a walk test switch. Press the walk test switch to access the walk test menu.

Configure the Walk Test Switch

- In the Display Adder view of the Main Display or 24 Sw Adder, set a switch to the Type **Common Ctrl** and the Assignment **Walk Test Sw**.
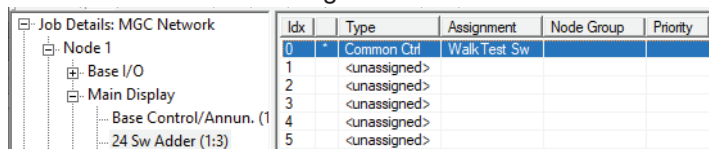
Figure 43   Walk test switch

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**.

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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 delay activation of an output, limit the time an output is active, or cause a delayed activation of additional outputs. 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.
- Create a trigger to start the timer using advanced logic.
- Use the timer in an advanced logic equation to activate a zone.
- Correlate the zone with the output.

Follow the instructions below to complete these steps.

8.1.1 Creating a custom timer

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.

   The Configurator gives each timer a number starting from 16.

8.1.2 Create a trigger for the timer

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. Create an **Advanced Logic Equation** to start the timer (see Chapter 6.0 on page 44).

   Note that you cannot use any input devices or circuits in this equation because only local (on the same node) devices or circuits are available in **Advanced Logic** and the timer is not local to any node. Input Zones and all other **Advanced Logic** Inputs can be used.

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 Use the timer in Advanced Logic

Correlate a zone with the timer

1. Select **Input Zones** (under **Base I/O** or **Quad Loop Adder**, under the **NODE** where you want the zone that will be controlled by the timer) in the job tree on the left side of the Configurator window.

2. Click the **Insert** menu, and then click **Add Zone**.

   The **Add Devices** 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. Select a **Sys_Def** to determine how the timer will be used.

   #### To cause a delayed activation

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

To limit the time the output is active

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

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 equation you specified in step 8.1.2 starts the timer. The zone you created in step 8.1.3 becomes active when the equation becomes true (when the timer expires or while it is active, depending on your choice in step 9). The output you specified in step 8.1.4 activates when the zone becomes active.

If the equation you created in step 8.1.2 involves elements that might trigger other zones that are correlated with outputs (for example, the activation of an Input Zone that has its own correlations or activation in a situation where the Common Alarm Status is active) then the timer will server as an additional annunciation (activating new outputs while the previously activated ones continue to operate). If the timer's triggers are exclusive to it then it will server as either a delay or a limit on all of the annunciation.

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.

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.

9. Click the **EQU** button.

10. Click the pulldown menu, click **INTVL_ACTIVE**, and then click the **Sys_Def** button.

    The equation should look like this:

    NOT **-**-**-IT-010 EQU INTVL_ACTIVE

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**.

    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

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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

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.

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

i

> **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 for the product in question.

The FleX-Net™ 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 BBX-1024DS(R), the BBX-1072A(R)DS, the BB-5008, and the BB-5014 model backboxes.

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

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

i

> **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 before the dash indicates the number of modules that the chassis holds. For instance, the FX-2003-12NDS can accommodate 3 modules, and the FX-2017-12NDS can accommodate 17 modules.
- The number after the dash indicates the output of the transformer. For example, the transformer on the FX-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 RAX-1048TZDS 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 BB-1002 holds 2 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 5 Chassis
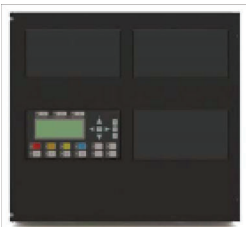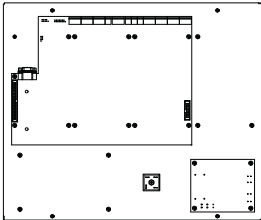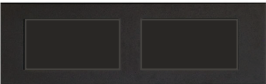
Name	Description	Mounts in	Number of Additional Displays or Adder Modules	Notes
FX-2003-12NDS	12 Amp Compact Main Chassis	BBX-1024DS(R) consisting of UB-1024DS universal backbox and DOX-1024DS(R) door	FNC-2000 Network Controller Module and 2 adder modules over the main board plus 2 annunciator or programmable modules	Slot 3 is reserved for PR-300 (Polarity Reversal/City Tie Module) or UDACT-300A (Dialer) if required FNC-2000 (Fire Network Controller Module) goes in slot 2 FOM-2000-UM (Fiber Optic Network Module) is mounted over FNC-2000
FX-2003-12NXTDS	12 Amp Compact Main Chassis Extended Enclosure	BBX-1024XT(R)	FNC-2000 Network Controller Module and 2 adder modules over the main board plus 6 adder boards and 2 annunciator or programmable modules	
FX-2017-12NDS	12 Amp Mid-size Main Chassis	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 PR-300 or UDACT-300A if required FNC-2000 goes in slot 2 FOM-2000-UM is mounted over FNC-2000

Table 5   Chassis (Continued)

Name	Description	Mounts in	Number of Additional Displays or Adder Modules	Notes
FX-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 PR-300 or UDACT-300A if required FNC-2000 goes in slot 2 FOM-2000-UM is mounted over FNC-2000
FX-2000MNS	Main Network Board	BBX-FXMNS(R)	The main board is mounted on a backplate which can hold up to 9 internal adder modules	
ECX-0012	Expander Chassis for FX-2009-12NDS	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:

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

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

11.3.1   Main Displays

Table 6   Main Displays

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

11.3.2   Display Adders

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

Table 7   Display Adders
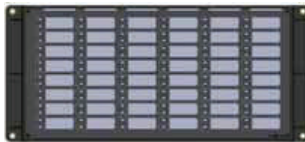
Name	Description	Mounts in
IPS-2424DS	Zone Bypass, Adder Annunciator (48 Display Points)	FX-2003-12NDS FX-2003-12NXTDS FX-2017-12NDS FX-2009-12NDS ECX-0012 BB-5008 BB-5014 BB-1000 series BBX-FXMNS

Table 7   Display Adders (Continued)

Name	Description	Mounts in
IPS-4848DS	Zone Bypass, Adder Annunciator (96 Display Points)	FX-2003-12NDS FX-2003-12NXTDS FX-2017-12NDS FX-2009-12NDS ECX-0012 BB-5008 BB-5014 BB-1000 series BBX-FXMNS
FDX-008W(KI)	Smoke Control Fan Damper Module, 8 zones	FX-2003-12NDS FX-2003-12NXTDS FX-2017-12NDS FX-2009-12NDS ECX-0012 BB-5008 BB-5014 BB-1000 series BBX-FXMNS

11.3.3   Remote Annunciators

Remote annunciators are also called display modules or display adders.

Table 8   Remote Annunciators

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

Table 8   Remote Annunciators (Continued)
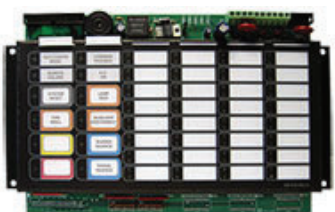
Name	Description	Mounts in
RAX-1048TZDS	Adder Annunciator with 48 bi-coloured LEDs and 32 trouble LEDs	FX-2003-12NDS FX-2003-12NXTDS FX-2017-12NDS FX-2009-12NDS ECX-0012 BB-5008 BB-5014 BB-1000 series BBX-FXMNS
RAM-1032TZDS-CC	32-circuit main annunciator chassis for outdoor use	BB-1001WP(R)A BB-1002WP(R)A
RAX-1048TZDS-CC	48-circuit adder annunciator chassis for outdoor use	BB-1002WP(R)A
RAXN-LCD	Remote Shared Display Annunciator	BB-1000 series BB-5008 BB-5014 BBX-FXMNS FX-LOC ECX-0012
RAXN-LCDG	Remote Shared Graphical Display Annunciator (24-line display)	BB-1000 series BB-5008 BB-5014 ECX-0012 BBX-FXMNS

Table 8   Remote Annunciators (Continued)

Name	Description	Mounts in
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.
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 9   Paging and Fire Fighter Telephone Modules
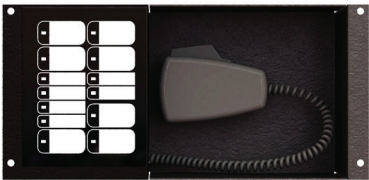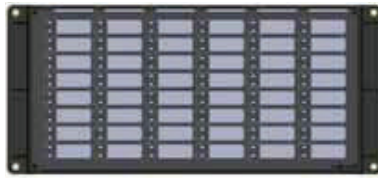
Name	Description	Mounts in
QMP-5101N 	Network Paging Control Unit	BB-5008 BB-5014 BB-1000 series FX-LOC(R)

Table 9   Paging and Fire Fighter Telephone Modules (Continued)

Name	Description	Mounts in
QMP-5101NV 	Network Paging Control Unit (Vertical Mount)	BBX-FXMNS
QMT-5302N 	Network Telephone Control Unit	BB-5008 BB-5014 BB-1000 series FX-LOC(R)
QMT-5302NV 	Network Telephone Control Unit (Vertical Mount)	BBX-FXMNS
QAZT-5302DS 	Addressable Telephone/Paging Selector Panel (24 zones)	BB-5008 BB-5014 BB-1000 series FX-LOC(R) BBX-FXMNS
QAZT-5348DS 	Addressable Telephone/Paging Selector Panel (48 zones)	BB-5008 BB-5014 BB-1000 series FX-LOC(R) BBX-FXMNS

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 10 Network Controller Modules

Name	Description	Mounts in	Notes
FNC-2000	Fire Network Controller Module	FX-2003-12NDS FX-2003-12NXTDS FX-2017-12NDS FX-2009-12NDS ECX-0012 FX-2000MNS	1 per node
FOM-2000-UM	Single-Mode or Multi-Mode Fiber Optic Network Adder Module (use FOM-CONN-SM single mode fiber optic module connector or FOM-CONN-MM multi-mode fiber option module connector)	FX-2003-12NDS FX-2009-12NDS FX-2017-12NDS ECX-0012 FX-2000MNS	1 per node
ANC-5000	Audio Network Controller Module	QMB-5000N BB-5008 and BB-5014, positions 4 - 9 FX-2009-12NDS ECX-0012	1 per node
TNC-5000	Telephone Network Controller Module	QMB-5000N BB-5008 and BB-5014, positions 4 - 9 FX-2009-12NDS ECX-0012	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:
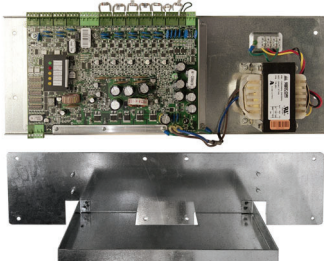
- FX-2003-12NDS Compact main chassis
- FX-2003-12NXTDS Mid-size main chassis
- FX-2009-12NDS Large main chassis
- FX-2017-12NDS Mid-size main chassis
- ECX-0012 Expander chassis for FX-2009-12NDS
- FX-2000MNS

Table 11 Adder Modules

Name	Description	Notes
ALCN-792MISO	Isolated Quad Loop Controller Module	7 per node
ALCN-792D	Quad Loop Adder Daughter Board	7 per node (Mounts on top of ALCN-792MISO)
DM-1008A	8 Initiating Circuit Module	8 per built-in loop 16 per node
SGM-1004A	4 Notification Appliance Circuit Module	8 per built-in loop 16 per node
RM-1008A	8 Relay Circuit Module	8 per built-in loop 16 per node
UDACT-300A	Digital Alarm Communicator Module	1 per system
PR-300	Polarity Reversal/City Tie Module	1 per node

11.6   Booster Power Supplies

Table 12 Booster Power Supplies

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

11.7   Backboxes

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

11.7.1   BBX-1024DS(R) Fire Node Backbox

The BBX-1024DS(R) is the smallest backbox available. It consists of the UB-1024DS universal backbox and DOX-1024DS(R) door. It holds the FX-2003-12NDS Compact Main Chassis along with batteries for emergency operation. The FX-2003-12NDS Compact Main Chassis contains the main display, mother board, adder modules and the transformer. It fits directly into the BBX-1024DS(R) backbox. The outer dimensions of the BBX-1024DS(R) fit within 26.3" X 14.8" X 4.6".

Exterior View

Interior View

Slot is reserved for PR-300A. If none is required, this slot can be used to mount any of the adder modules.

3 2 1

Supports 3 Adder Modules.

Main Board
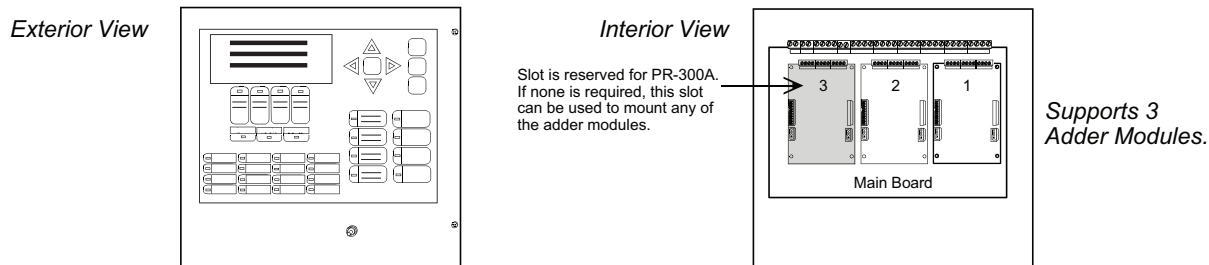
Figure 44   FX-2003-12NDS mounts in the BBX-1024DS(R) enclosure

Table 13 BBX-1024DS(R)

Name	Description	Holds	Dimensions
BBX-1024DS(R) 	Consists of UB-1024DS universal backbox and DOX-1024DS(R) white or red door	FX-2003-12NDS 17 Ah battery pack	26.3" H x 14.8" W x 4.6" D

11.7.2 BBX-1024XT(R)

Table 14 BBX-1024XT(R)

Name	Description	Holds	Dimensions
BBX-1024XT(R) 	Extended chassis	FX-2003-12NXTDS	14.76" wide by 35.8" long by 5.45"

11.7.3 BBX-1072A(R)DS Fire Node Backbox

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

Exterior View

Interior View

Cutout to mount display module

Cutout to mount display module

Cutout to mount display module

12 11 10 9 8

17 16 15 14 13

Slot is reserved for PR-300A. If none is required, this slot can be used to mount any of the adder modules.

5 4

3 2 1

7 6

Main Board

Supports 3 Display Modules.

Supports 17 Adder Modules.
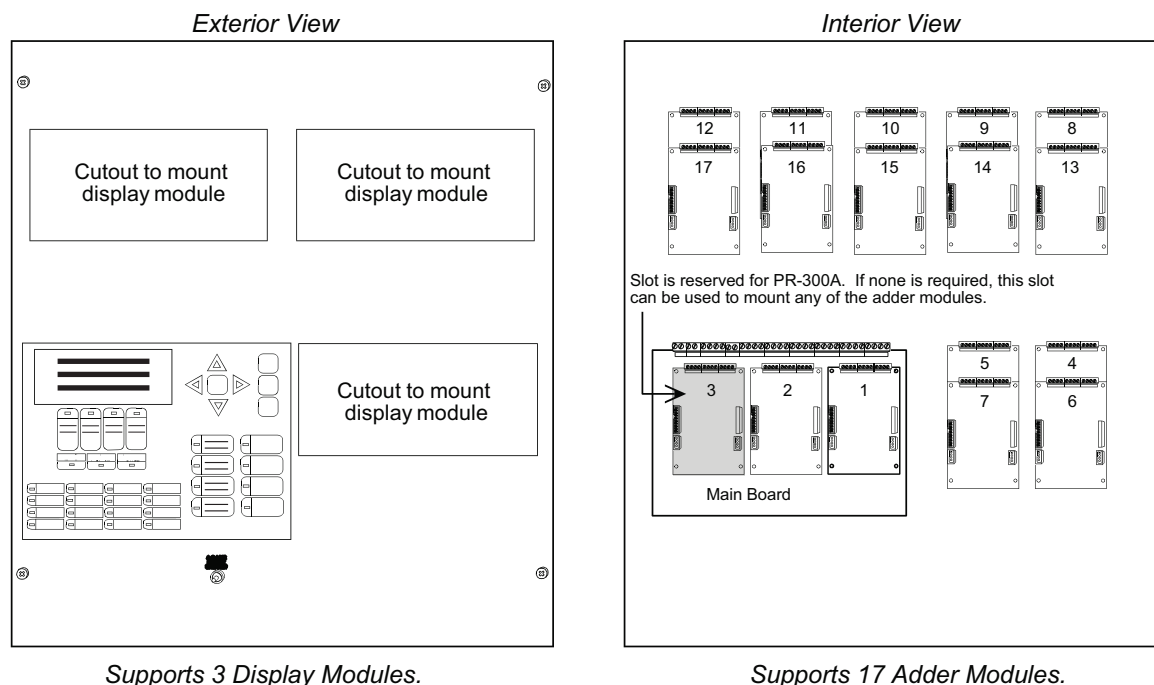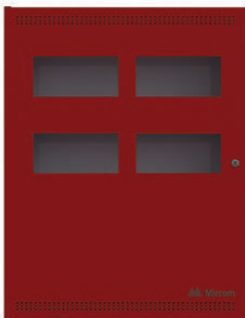
Figure 45   FX-2017-12NDS mounts in the BBX-1072A(R)DS Backbox

Table 15 BBX-1072A(R)DS

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

11.7.4　BB-5008 Fire Node Backbox

The BB-5008 backbox is larger than the BBX-1072A(R)DS. It can use the FX-2009-12NDS Large Main Chassis combined with ECX-0012 Expander Chassis (see section 11.7.6 on page 71) for additional display modules and the CCH-5008ANNUNKIT/PANELKIT and CCH-5014ANNUNKIT/PANELKIT Custom Mounting Kits for paging and fire fighter telephone modules. The FX-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". See Figure 46 and Table 16.

Table 16 BB-5008 Backbox

Name	Description	Holds	Number of Displays and Remote Annunciators	Dimensions
BB-5008	Lobby Control Backbox	1 FX-2009-12NDS or 2 ECX-0012s DSPL-420 DSPL-2440 RAXN-LCD RAXN-LCDG QMT-5302N QMP-5101N QAZT-5302DS QAZT-5348DS INX-10AC 24 Ah battery pack	8 (the FX-2009-12NDS uses 4, the ECX-0012 uses 2)	38.0" H x 32.5" W x 7.5" D

11.7.5 BB-5014 Fire Node Backbox

The BB-5014 backbox is the largest available backbox. It can use the FX-2009-12NDS Large Main Chassis combined with ECX-0012 Expander Chassis for additional display modules and the CCH-5008ANNUNKIT/PANELKIT and CCH-5014ANNUNKIT/PANELKIT Custom Mounting Kits for paging and fire fighter telephone modules. The FX-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". See Figure 46 and Table 17.

Exterior View

Slot is reserved for PR-300A. If none is required, this slot can be used to mount any of the adder modules.

Interior View

Supports 2 Display Modules.

Supports 9 Adder Modules.
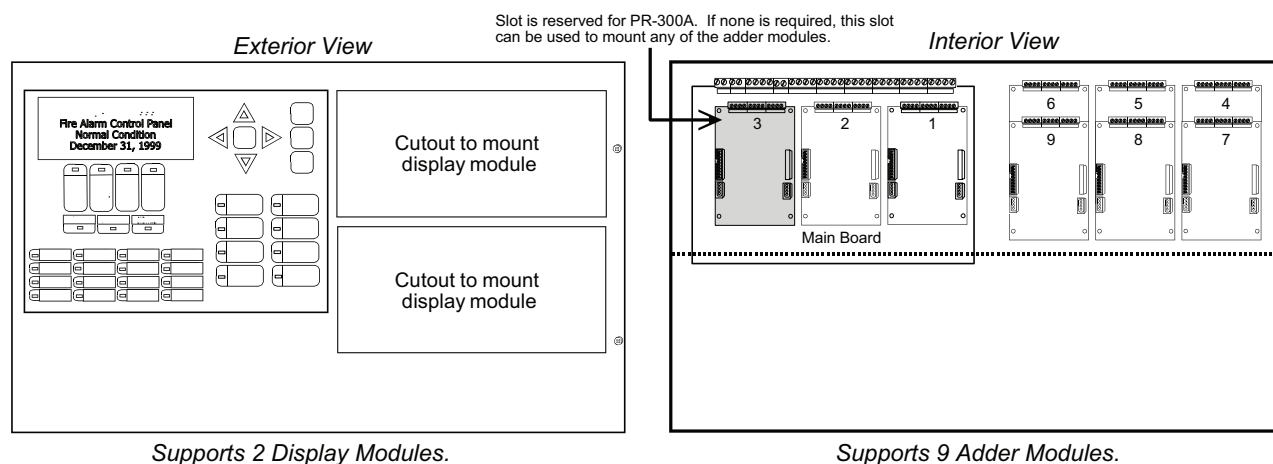
Figure 46   The FX-2009-12NDS mounts and occupies 4 display positions in BB-5008 and BB-5014

Table 17 BB-5014 Backbox

Name	Description	Holds	Number of Displays and Remote Annunciators	Dimensions
BB-5014	Lobby Control Backbox	1 FX-2009-12NDS 2 ECX-0012s DSPL-420 DSPL-2440 INX-10AC RAXN-LCD RAXN-LCDG QMT-5302N QMP-5101N QAZT-5302DS QAZT-5348DS 24 Ah battery pack	14 (the FX-2009-12NDS uses 4, the ECX-0012 uses 2)	61.5" H x 32.5" W x 7.5" D

11.7.6   ECX-0012 Expander chassis for FX-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.

Exterior View   *Interior View*

Supports 2 Display Modules.   *Supports 12 Adder Modules.*
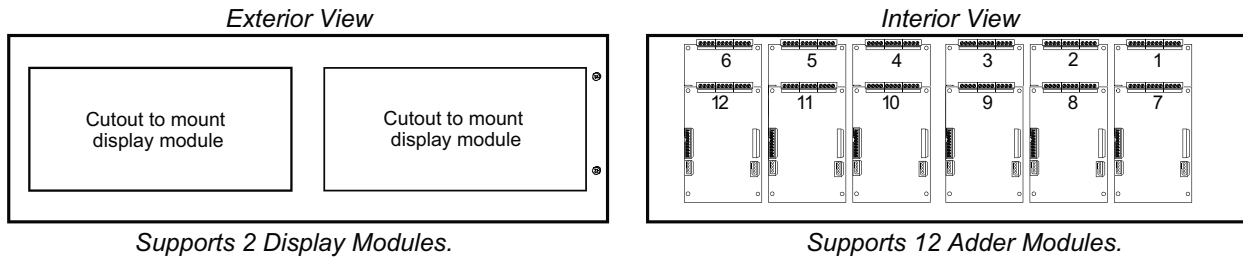
Figure 47   ECX-0012 mounts and occupies 2 display positions in BB-5008 or BB-5014

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

The paging and firefighter telephone modules mount in the BB-1000 or BB-5000 series enclosures. These modules require brackets for mounting. The brackets are attached to the backplates of the enclosures. The FX-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 door as well as the brackets on the backplate. These modules can also be mounted in the BB-1000 enclosures.

Exterior View   *Interior View*
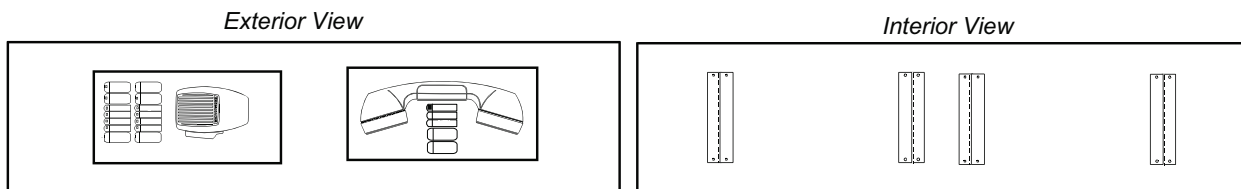
Figure 48   Mounting of paging and fire fighter telephone modules in the BB-5008 or BB-5014

11.7.8   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.

Exterior View   *Interior View*
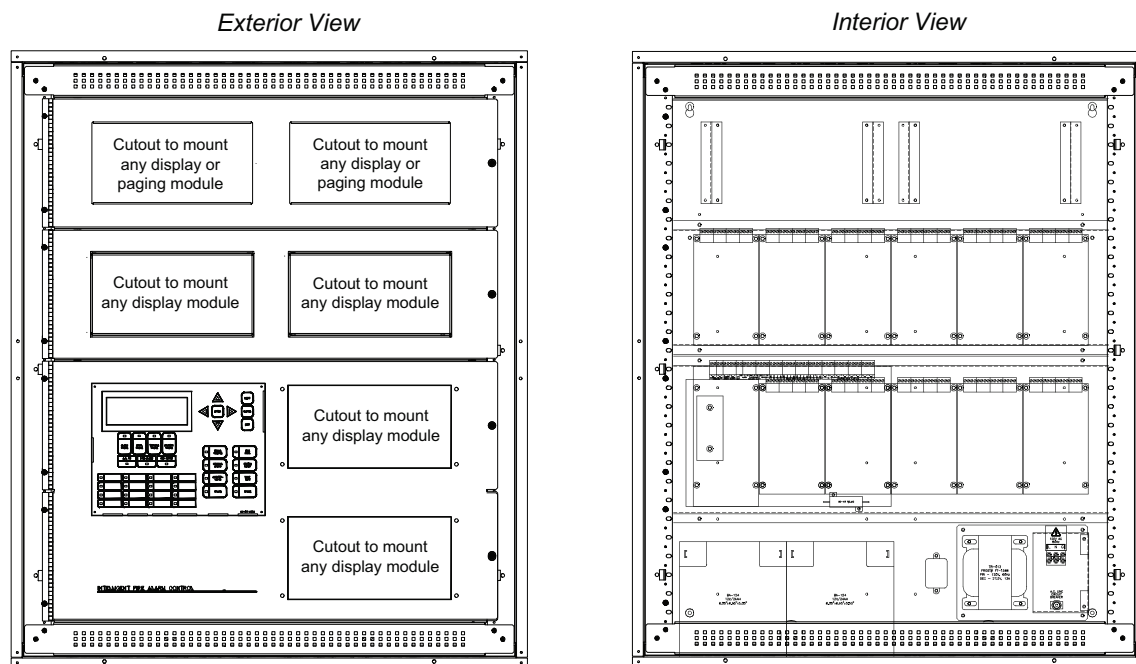
Figure 49   BB-5008 sample layout

Exterior View   *Interior View*
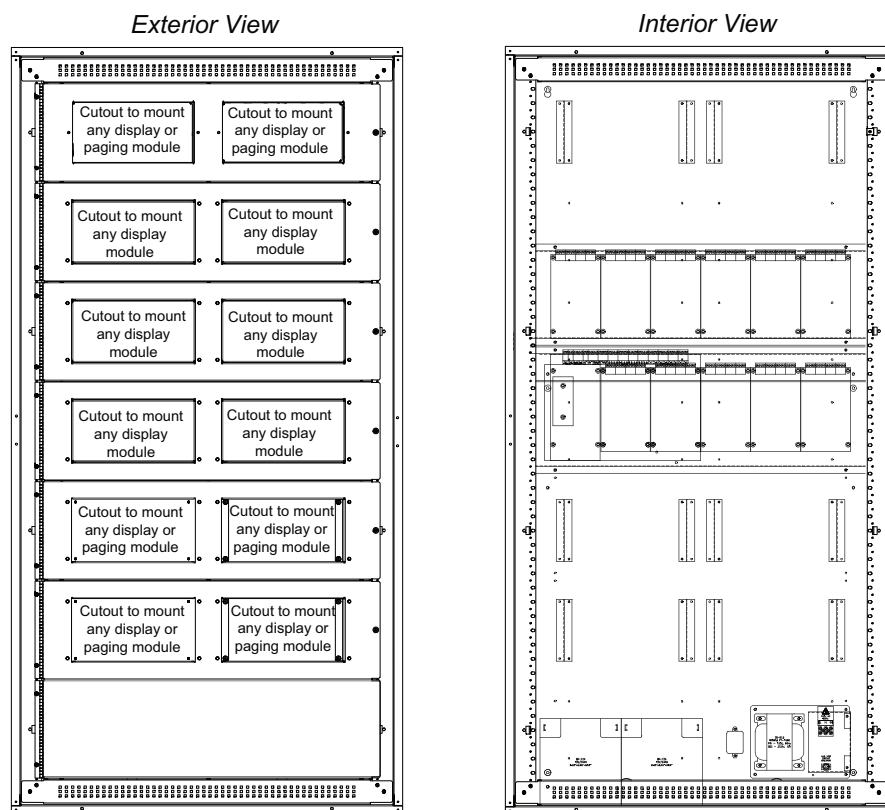
Figure 50   BB-5014 sample layout

11.7.9 Backboxes for the RAXN-LCD and RAXN-LCDG

Table 18 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
BB-1001D(R/S)	1	9"H x 12.75"W x 1.85"D	9.95"	7.50"
BB-1002D(R/S)	2	18"H x 12.75"W x 1.85"D	9.95"	16.5"
BB-1003D(R/S)	3	26.4"H x 12.75"W x 1.85"D	9.95"	24.90"
BB-1008D(R/S)	8	33"H x 22.5"W x 1.85"D	20.9"	35.2"
BB-1012D(R/S)	12	45"H x 22.5"W x 1.85"D	20.9"	52.0"

11.7.10 Weather-Protected Boxes

Table 19 Weather-Protected Boxes

Name	Annunciators it holds	Dimensions	Horizontal distance between mounting screws	Vertical distance between mounting screws
BB-1001WP(R)A	1 RAM-1032TZDS-CC	11 1/8"H x 12 15/16"W x 3 1/2"D	11"	9 1/2"
BB-1002WP(R)A	2 (RAM-1032TZDS-CC and RAX-1048TZDS-CC)	17 15/16"H x 12 15/16"W x 3 1/2"D	11"	16 5/16"

11.8 BBX-FXMNS Mass Notification Node Backbox

The 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 51. It also supports the addition of 4 audio amplifiers along with audio and telephone networking modules. The outer dimensions of the BBX-FXMNS fit within 63.5" X 22.5" X 9.5".

Exterior View   *Interior View*
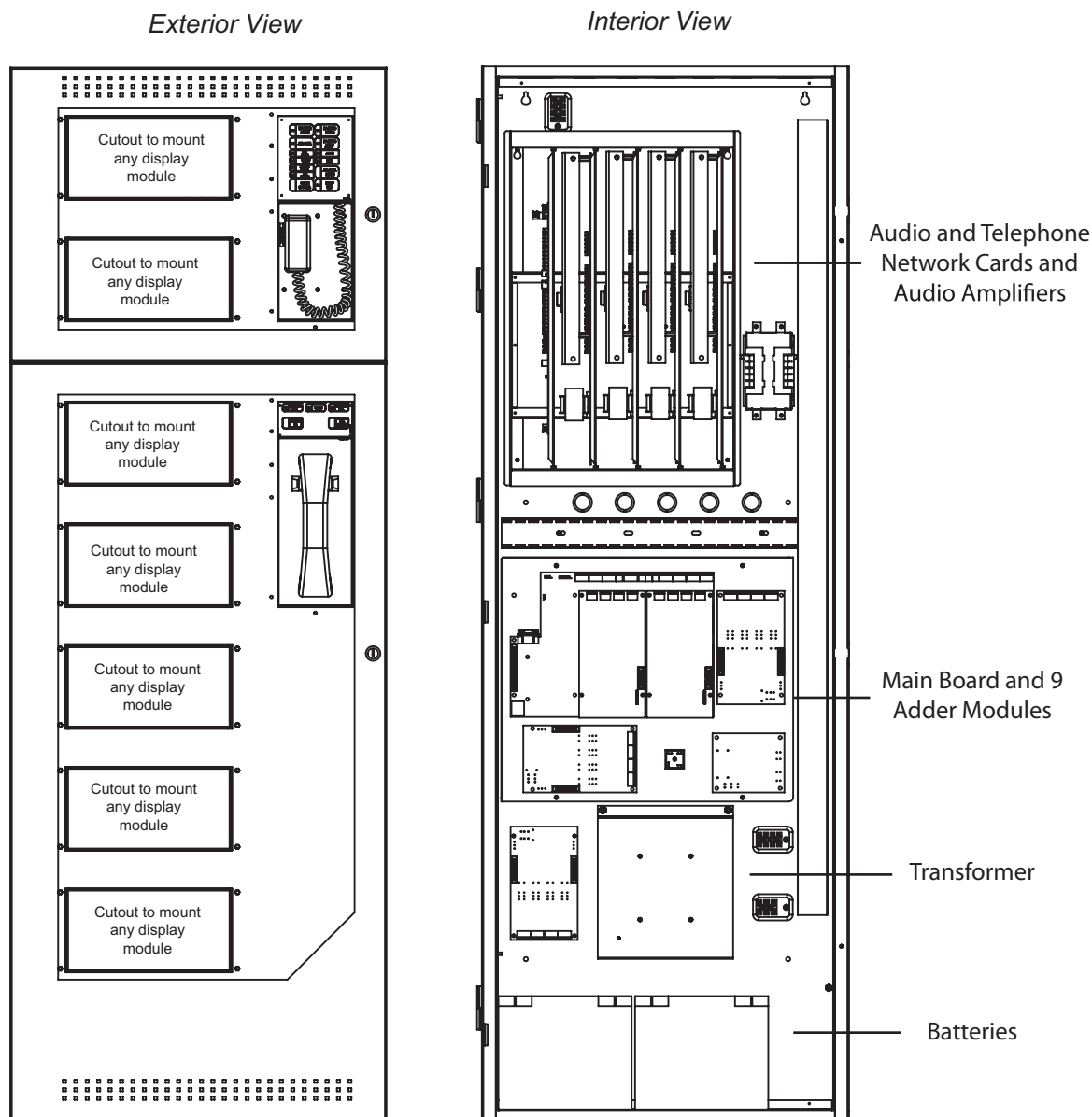
Figure 51   BBX-FXMNS sample layout

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".

10 AWG Tinned Copper Ground Strap

Rail for mounting up to 9 Addressable Modules

QBC-5000N

QMB-5000B

INX-10AC (RB-MD-950)

QPS-5000N
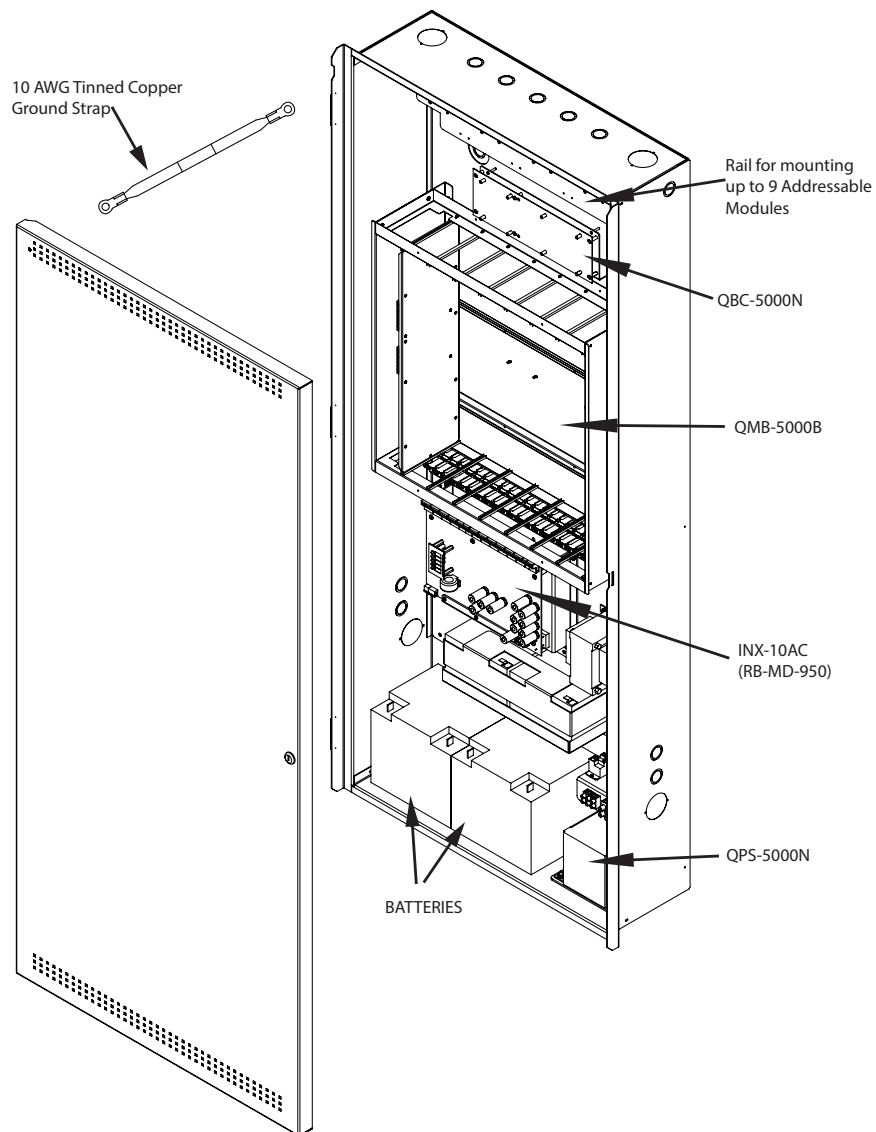
BATTERIES

Figure 52   Audio system installation into BBX-MNSXP with CH-993B internal chassis

i   **Note:**   Leave bottom of box conduit free for batteries.

IM-10A and/or
CR-6A and/or CZ-6A
(up to 6 total)

Batteries

INX-10AC
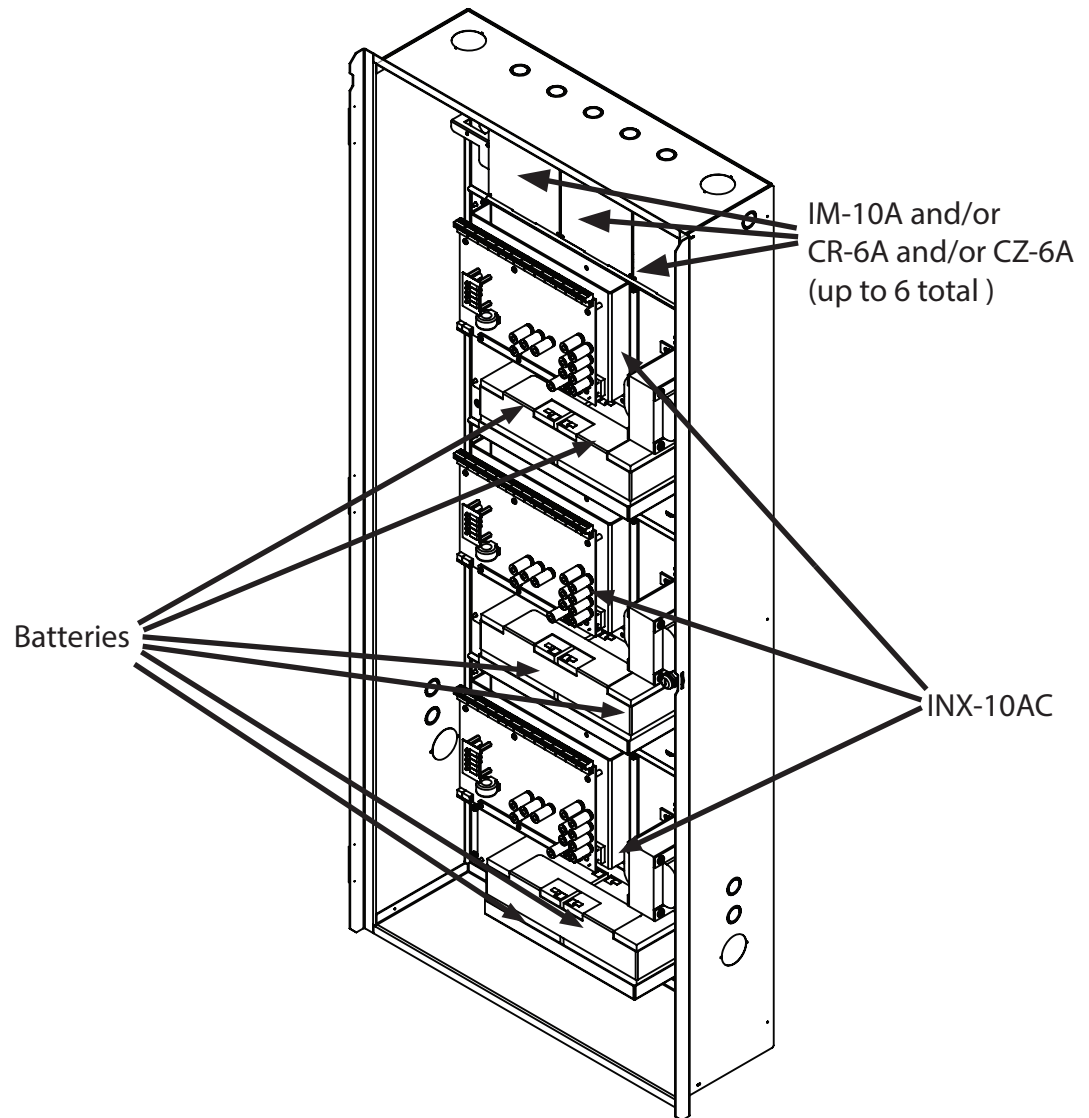
Figure 53   NAC expander installation into BBX-MNSXP with CH-994B internal chassis

11.10   FX-LOC(R) 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 or QAZT-5348DS 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 door and enclosure door can be installed such that they open either to the left or to the right as required. The outer dimensions of the FX-LOC(R) fit within 25.0" X 15.0" X 7.0".

RAXN-LCD
LCD Network
Annunciator

FDS-008
Fan/Damper
Switching Module

QMP-5101N
Network Paging
Microphone

IM-10
Input Module
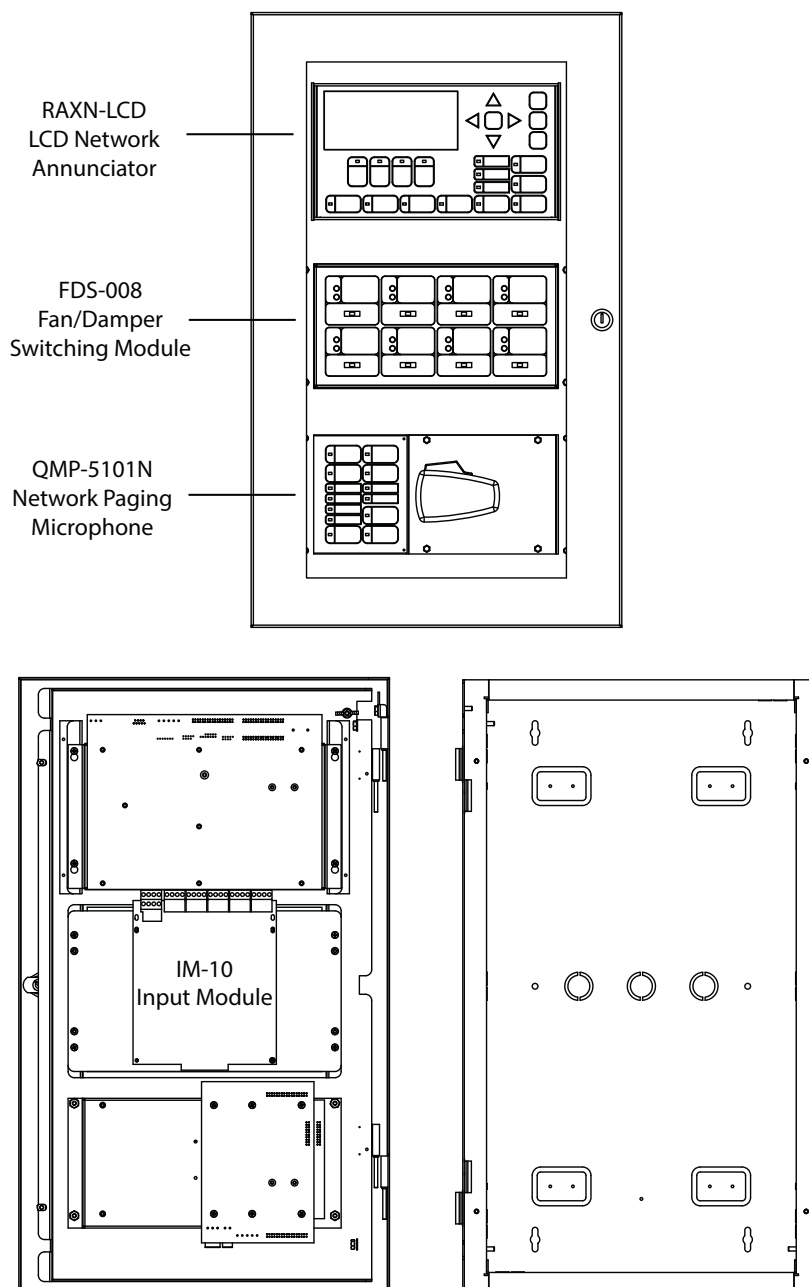
Figure 54   FX-LOC(R)

11.10.1 Audio Cabinets

Table 20 Audio Cabinets
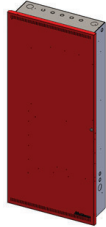
Name	Description	Holds	Dimensions
QBB-5001(R)	Expansion Audio Cabinet	1 QMB-5000B (space for 1 ANC-5000, 1 TNC-5000, and 7 amplifier boards) 1 QPS-5000N power supply 1 QBC-5000N battery charger	24.25" H x 41" W x 8" D
BBX-FXMNS	Integrated Fire and Audio Backbox	1 FX-2000MNS 2 paging modules (QMT-5302NV, 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 74	63.5" H x 22.5" W x 9.5" D
FX-LOC(R)	Local Operating Console	3 modules: RAXN-LCD, QMP-5101N, and QAZT-5302DS or QAZT-5348DS See section 11.10 on page 77	25.0" H x 15.0" W x 7.0" D

Table 20 Audio Cabinets (Continued)

Name	Description	Holds	Dimensions
BBX-MNSXP(R)	MNS Expansion Enclosure	QMB-5000B 1 QPS-5000N power supply 1 QBC-5000N battery charger 1 INX-10AC	62.7" H x 27.4" W x 9" D
BBX-MNSXPI(R)	MNS Expansion Enclosure	QMB-5000B 3 INX-10AC	62.7" H x 27.4" W x 9" 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.

Because of power limitations, you can have only 4 bins per node: 3 QMB-5000Bs and 1 QMB-5000N.

Table 21 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	3 per node

11.10.3 Amplifiers

- Maximum number of bins per node: 4
- Maximum number of amplifiers per node:
  - 25 60-Watt amplifiers

    or
  - 50 30-Watt amplifiers

    or
  - 100 15-Watt amplifiers

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

	Bin 0	Bin 1	Bin 2	Bin 3
Option 1	4 amplifiers	7 amplifiers	7 amplifiers	7 amplifiers
Option 2	7 amplifiers	7 amplifiers	7 amplifiers	4 amplifiers

Table 22 Amplifier Cards

Name	Description	Mounts in
QAA-5230-70/25	Two 30 W speaker outputs, 70 V or 25 V	QBB-5001 BBX-FXMNS
QAA-5230S-70/25	Two 30 W split into four 15 W speaker outputs, 70 V or 25 V	QBB-5001 BBX-FXMNS
QAA-5415-70	Four 15 W speaker outputs, 70 V	QBB-5001 BBX-FXMNS
QAA-5415-25	Four 15 W speaker outputs, 25 V	QBB-5001 BBX-FXMNS
QAA-5160-70/25	One 60 W speaker output, 70 V or 25 V	QBB-5001 BBX-FXMNS

11.11   Main Display and Remote Annunciator Switch Locations

This section shows how the switch numbers are mapped from the Configurator to the main displays and annunciators. This section also shows the default switch assignments in the Configurator.

For instructions on changing the main display and adding annunciators, see section 19.8 on page 149.

11.11.1 Switch Layout and Assignments for DSPL-420-16TZDS
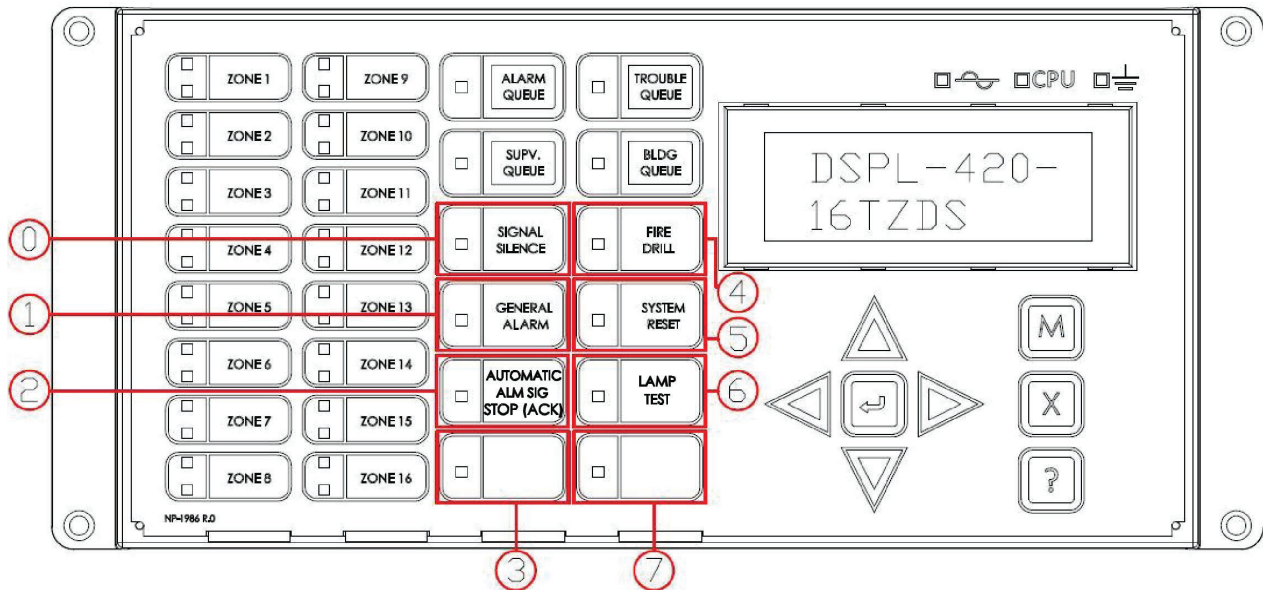
Figure 55   Switch layout on the DSPL-420-16TZDS

Idx		Type	Assignment	Node Group
0	*	Common Ctrl	Signal Silence	Global
1	*	Common Ctrl	Total Evacuation	Global
2	*	Common Ctrl	Acknowledge	Global
3		<unassigned>		
4	*	Common Ctrl	Fire Drill	Global
5	*	Common Ctrl	Sys Reset	Global
6	*	Common Ctrl	Lamp Test	
7		<unassigned>		

Figure 56   Default switch assignments for the DSPL-420-16TZDS

11.11.2 Default Switch Assignments for DSPL-420(DS)
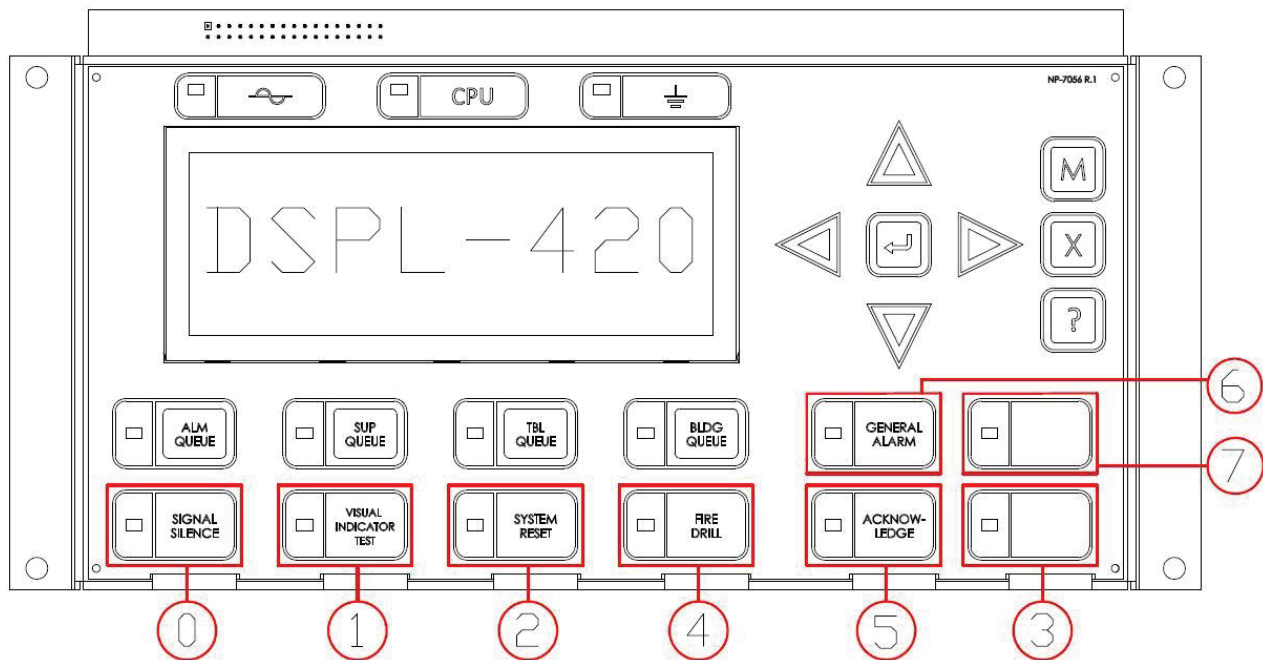
Figure 57   Switch layout on the DSPL-420(DS)

Idx		Type	Assignment	Node Group
0	*	Common Ctrl	Signal Silence	Global
1	*	Common Ctrl	Lamp Test	
2	*	Common Ctrl	Sys Reset	Global
3		<unassigned>		
4	*	Common Ctrl	Fire Drill	Global
5	*	Common Ctrl	Acknowledge	Global
6	*	Common Ctrl	Total Evacuation	Global
7		<unassigned>		

Figure 58   Default switch assignments for the DSPL-420(DS)

11.11.3 Default Switch Assignments for DSPL-2440
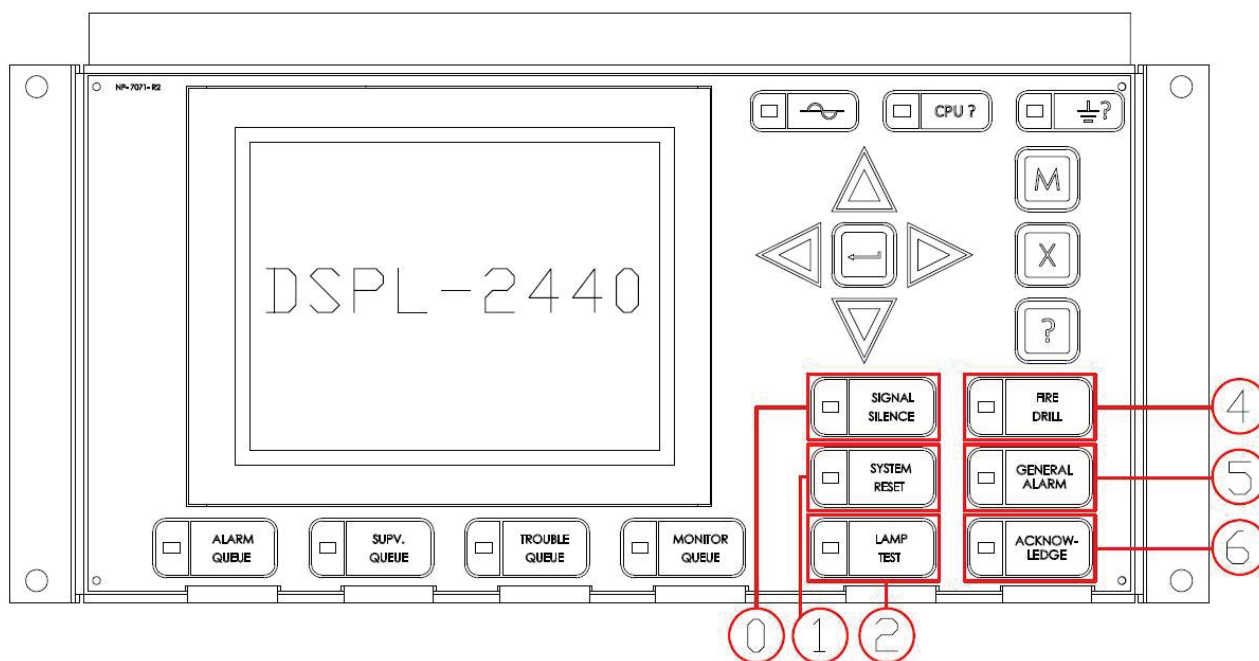
Figure 59   Switch layout on the DSPL-2440

Idx		Type	Assignment	Node Group
0	*	Common Ctrl	Signal Silence	Global
1	*	Common Ctrl	Sys Reset	Global
2	*	Common Ctrl	Lamp Test	Global
3		<unassigned>		
4	*	Common Ctrl	Fire Drill	Global
5	*	Common Ctrl	Total Evacuation	Global
6	*	Common Ctrl	Acknowledge	Global
7		<unassigned>		

Figure 60   Default switch assignments for the DSPL-2440

i

Note: If you configure switches 3 or 7 on the DSPL-2440, the panel will show an "Invalid Spare Button" trouble.

11.11.4 Default Switch Assignments for RAXN-LCD and RAXN-LCDG
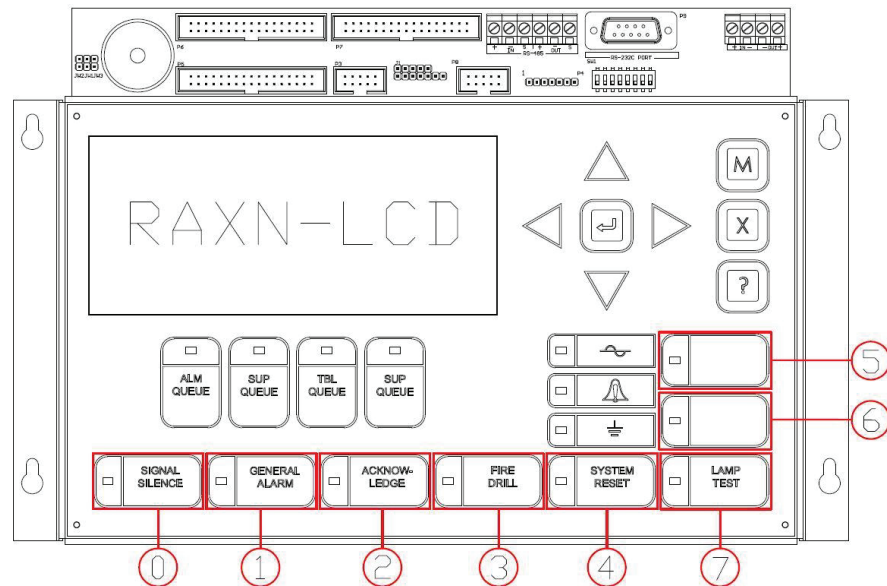
Figure 61   Switch layout on the RAXN-LCD
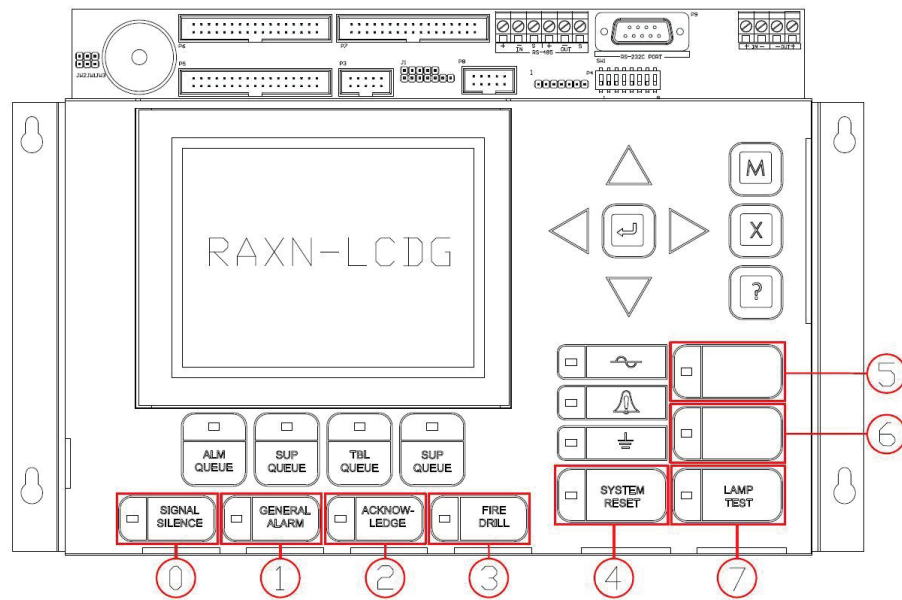
Figure 62   Switch layout on the RAXN-LCDG

Idx		Type	Assignment	Node Group
0	*	Common Ctrl	Signal Silence	Global
1	*	Common Ctrl	Total Evacuation	Global
2	*	Common Ctrl	Acknowledge	Global
3	*	Common Ctrl	Fire Drill	Global
4	*	Common Ctrl	Sys Reset	Global
5		<unassigned>		
6		<unassigned>		
7	*	Common Ctrl	Lamp Test	

Figure 63   Default switch assignments in the Configurator for the RAXN-LCD(G)

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 23 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 23 for recommended lengths per cable segment. If the cable you are using is not listed in Table 23, refer to section 12.1.1 on page 86 to calculate the maximum recommended length for a cable segment based on brand of cable.

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

Toll Free 1-888-647-3665 (North America Only)
Local 905-695-3535
Email techsupport@mircomgroup.com

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

Table 23 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 23 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 23, 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. Mircom 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 23 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.

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

FleX-Net™ 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

For instructions on wiring the FOM-2000-UM, see LT-6907 FOM-2000-UM Installation and Operation Manual.

12.4   Ground Fault Reporting

The FleX-Net™ system reports ground faults as required by UL, ULC, and FM. Mircom 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 FleX-Net™ 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.

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. Mircom 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-792MISO) 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 Mircom Technical Support for assistance:

Toll Free 1-888-647-3665 (North America Only)
Local 905-695-3535
Email techsupport@mircomgroup.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 134.)
- 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.

Connect the TNC-5000 telephone bus terminals with shielded wiring

1. Wire the TNC-5000 boards as explained in LT-894 FleX-Net™ 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.
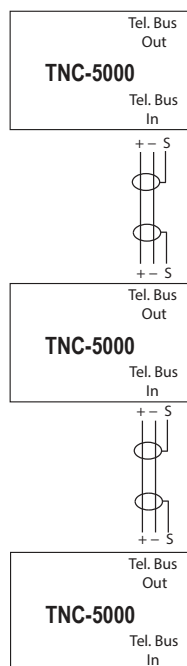
Figure 64   Wiring of the TNC-5000 boards

Connect the M500 addressable modules with shielded wiring

1. Wire the addressable modules as explained in LT-894 FleX-Net™ 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.
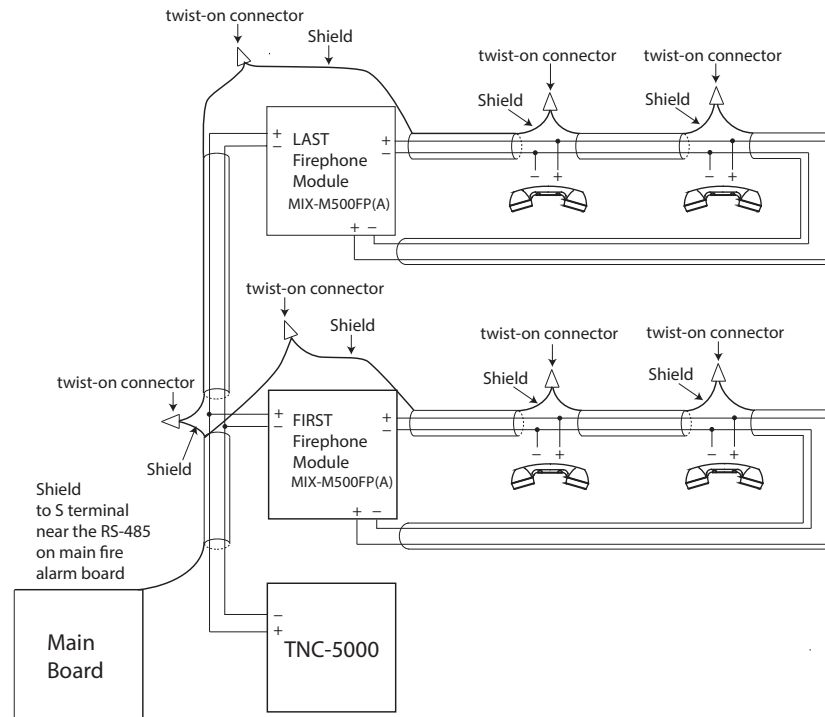
Figure 65   Telephones and addressable modules showing shielded wiring (Class A)
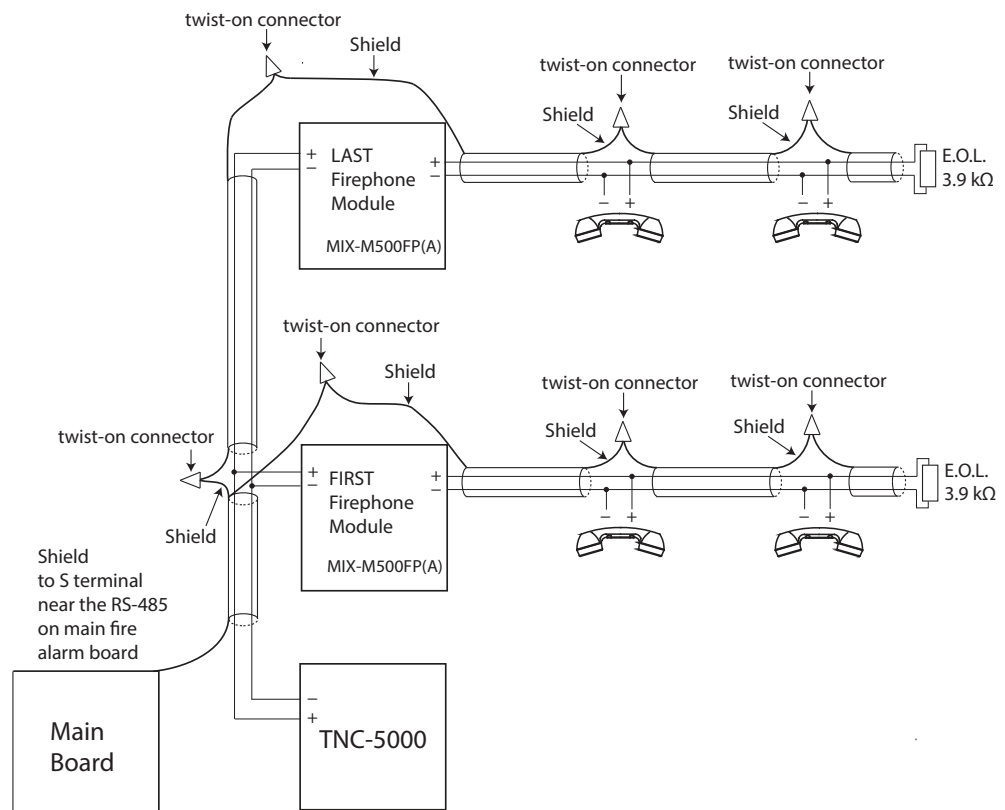
Figure 66   Telephones and addressable modules showing shielded wiring (Class B)

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-792MISO) instead of loop 2 (the loop that is hardwired on the Fire Alarm Control Panel).

14.0 Mass Notification System Introduction

The FleX-Net™ 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 67.
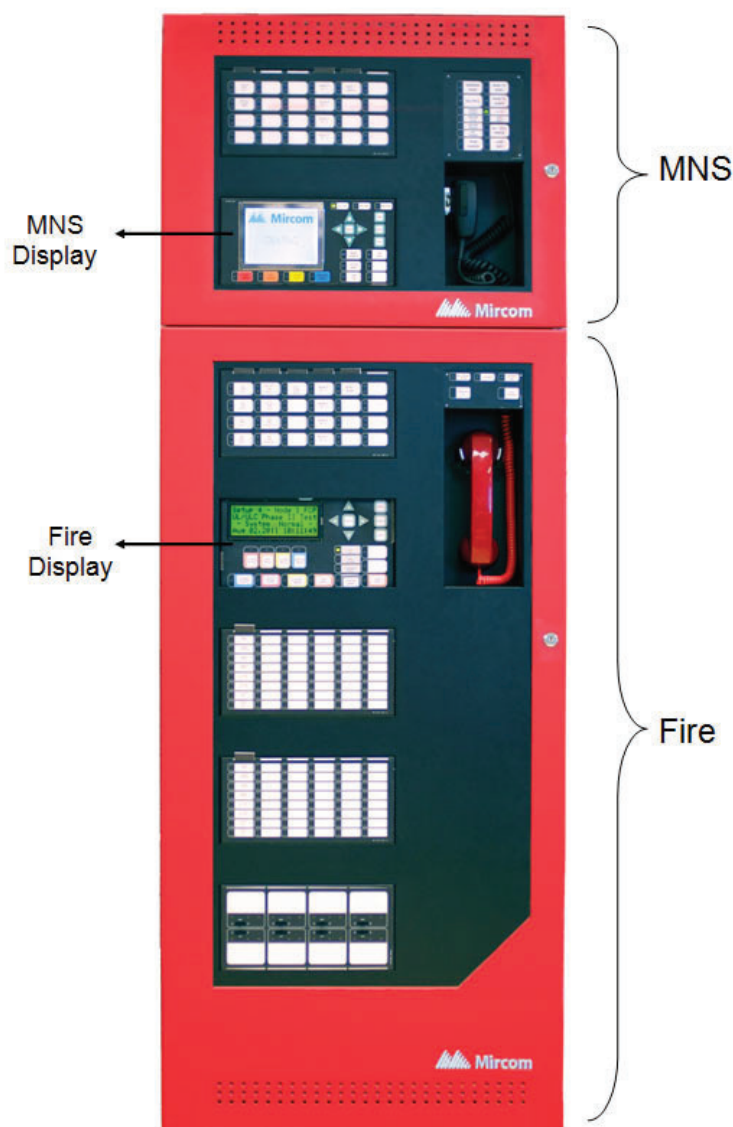
Figure 67   The FleX-Net™ Mass Notification System

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 6 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.

FIRE GROUP PRIORITY LEVEL 1
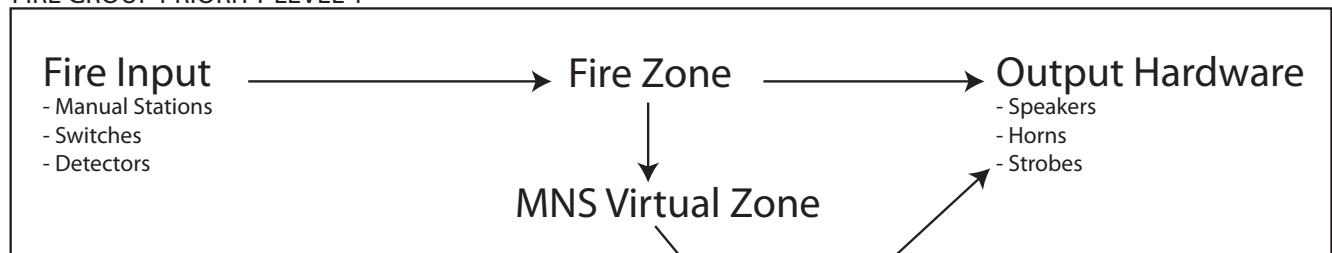
MNS GROUP PRIORITY LEVEL 2
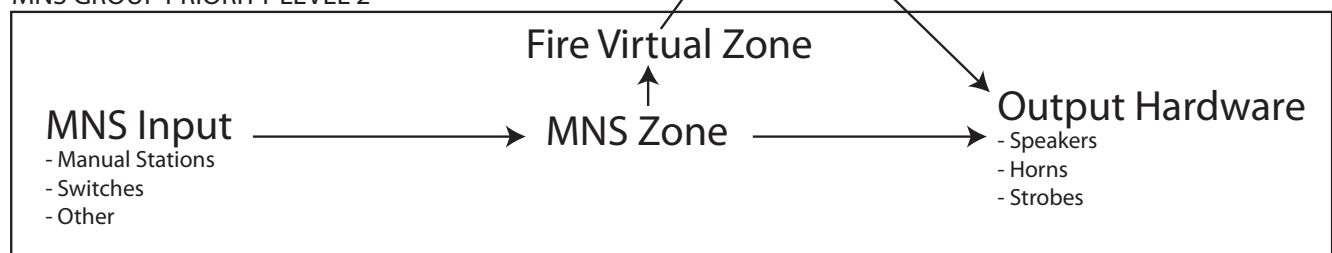
Figure 68   Virtual Zone Priorities

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 zone 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 −19 (lowest) through Normal (default) to +19 (highest).

15.0 Autonomous Control Unit and Local Operating Consoles

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

15.1 ACU and FX-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 FX-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 FX-LOC contains a switching and input module combination that broadcasts pre-recorded digital messages.

Both the ACU and the FX-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 −19 (lowest) through Normal (default) to +19 (highest).

15.3 Broadcast Priority

Announcements or digital messages from an ACU override broadcasts already in progress from an FX-LOC. The broadcast of announcements or digital messages from an FX-LOC occurs on a first come first serve basis. If one FX-LOC is broadcasting, another FX-LOC cannot broadcast until the first FX-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. FX-LOC announcement by paging microphone
5. FX-LOC highest priority digital messages (priority is set in the Configurator)
6. FX-LOC lowest priority digital messages (priority is set in the Configurator)

For example, a priority of -1 assigned to a zone switch on the ACU's IPS switch adder module has a higher priority than a priority of +9 assigned to a zone correlated to the input module used by the FX-LOC. Refer to Figure 69.
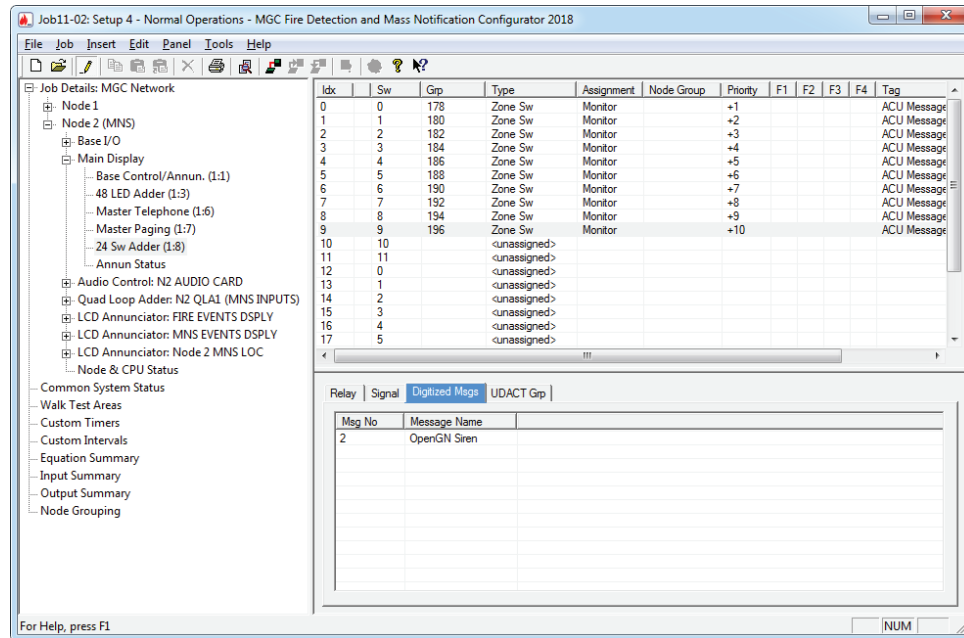
Figure 69   ACU and LOC Configuration

The FX-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 FX-LOC.

The FX-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 FX-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.
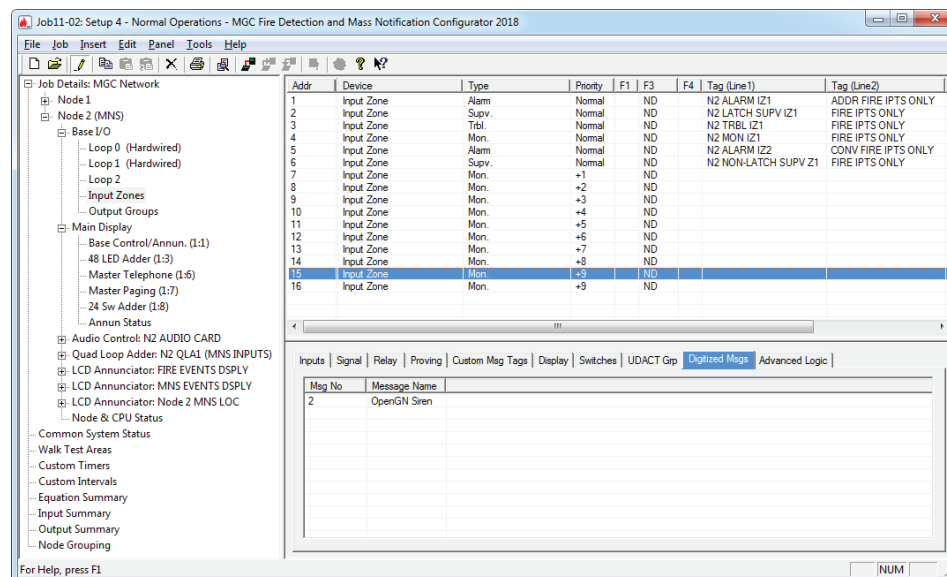
Figure 70   Zone Priorities

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 audio clips (audio files) into a composition.
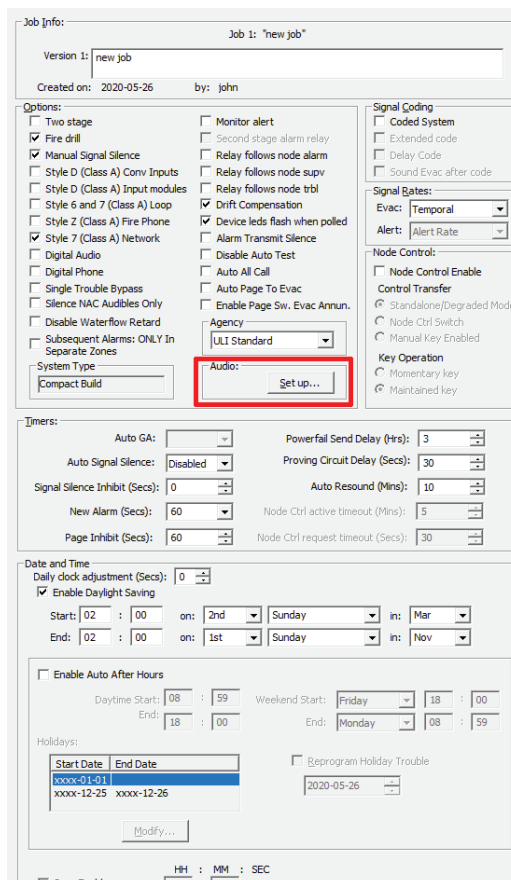
i   **Note:**   You can have up to 96 digital messages used in correlations per job.

16.1   Creating a Digital Message

Create a digital message

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

Figure 71   Job Details showing Audio Setup

The **Audio Setup** window appears.
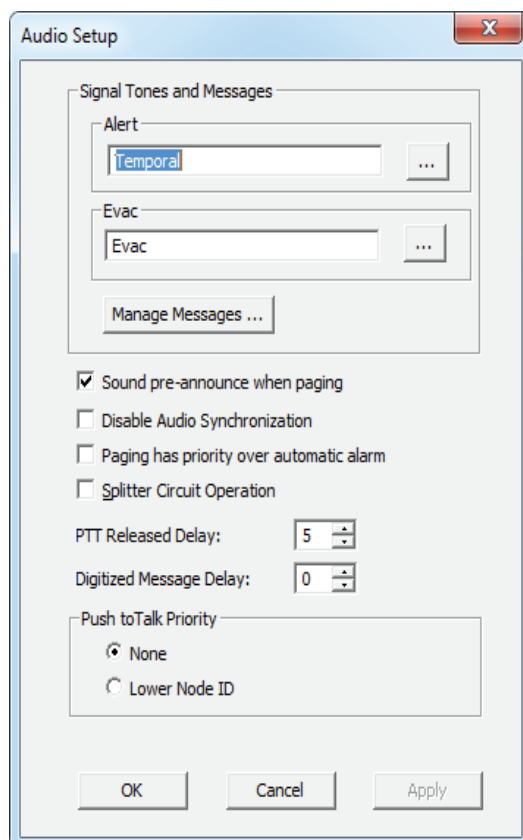
Figure 72   Audio Setup

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

The **Manage Messages** window appears.
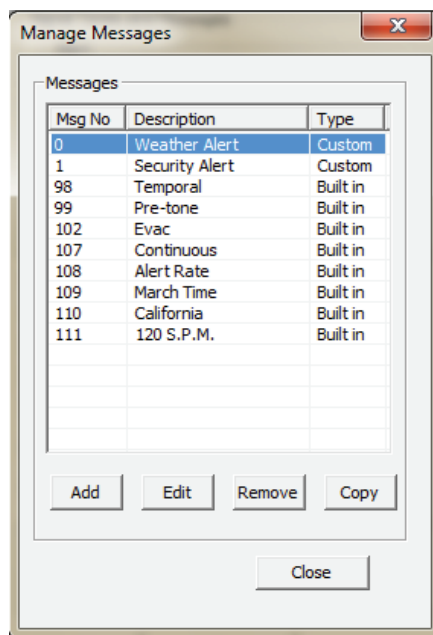
Figure 73   Manage Messages

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.

101

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

   The **Audio Message Composer** window appears. The left side of the window lists the available audio clips (audio files that you can combine into compositions). Several audio clips are included by default; they are listed as **Built-In**. The right side of the window shows the current composition.
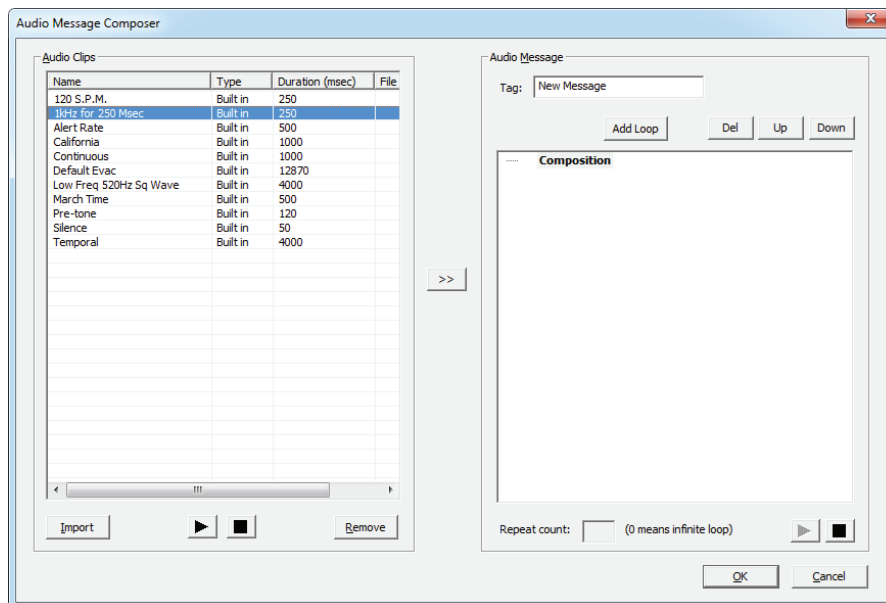
Figure 74   Audio Message Composer

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

   i

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

Each audio clip is part of a loop. The loop is marked by the words **Repeat Count** and the curved arrow. Audio 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 an audio clip up or down within a loop, but you cannot move an audio clip outside a loop. For this reason, create the loop first, then import the audio clip into the loop.
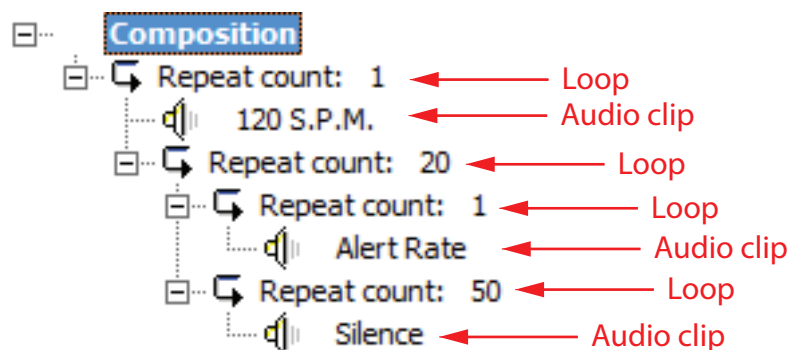
Figure 75　Audio clips and nested loops

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**.

Import an audio clip into a loop

1. Select the loop that you want to import the audio clip into.

2. Select the audio clip in the **Audio Clips** list and click the **>>** button to move the audio clip to the **Audio Message** list.

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

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.

Reorder audio clips within a loop

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

i

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

Reorder loops

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

i

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

Delete an audio clip in the Composition list

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

Delete a loop in the Composition list

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

Make an audio clip repeat

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

Make an audio clip repeat indefinitely

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

Play the whole message

- Click the Play ▶ button.

16.3   Nested Loop Example

Figure 76 shows a composition with nested loops. In this composition, audio clip A plays twice (Loop 3), then audio clip B plays 3 times (Loop 4). These audio clips form a loop which repeats

4 times (Loop 2). Then audio clip C plays 3 times (Loop 5). The entire composition plays twice (Loop 1).
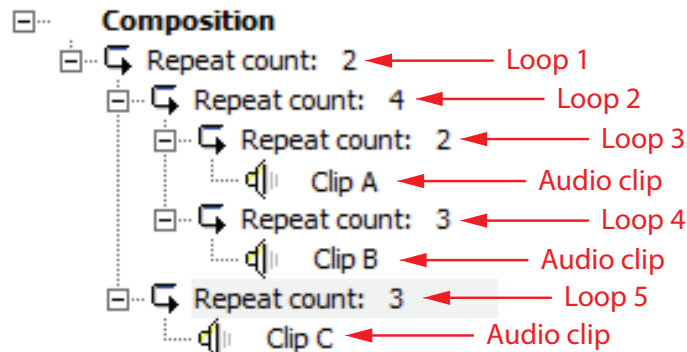
Figure 76   Nested loop example

16.3.1   Procedure for creating a nested loop

This procedure shows how to create the composition in Figure 76.

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 audio clip A in the **Audio Clips** list, then click the **>>** button to move audio clip A to the **Composition** list.

    Audio 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 audio clip B in the **Audio Clips** list, then click the **>>** button to move audio clip B to the **Composition** list.

    Audio 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 audio clip C in the **Audio Clips** list, then click the **>>** button to move audio clip A to the **Composition** list.

    Audio clip A appears inside Loop 5.

14. The composition should look like this (Figure 77):
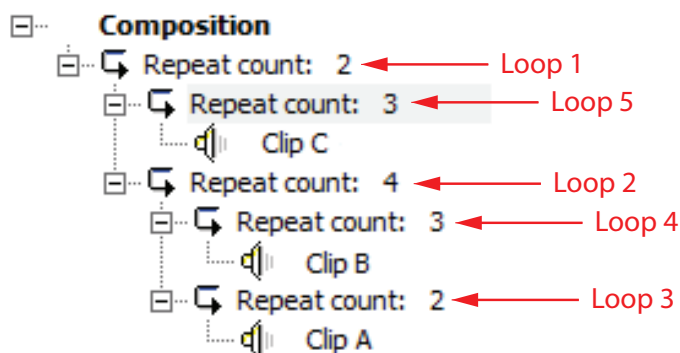
Figure 77   Nested loop example

15. Select Loop 2 (not the audio 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 76.

16.4   Configuring FleX-Net™ to use your new composition

1. In the **Audio Setup** window (Figure 72), click the **...** button beside **Alert 1** or **Evac**.

    The **Choose a Message** window appears.

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

    The FleX-Net™ system will use your new composition as the **Alert 1** or **Evac** message, depending on which one you selected.

• Select **Sound pre-announce tone when paging** to make a 900 Hz pre-announce tone play for 2 seconds before the paging audio source is applied. If Smart Speakers are installed, this special tone will un-silence speakers that are currently silenced.

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.

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**.

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 FleX-Net™ system can interface with other systems that communicate through BACnet. FleX-Net™ does not query other BACnet systems. Instead, other BACnet systems can request current values from the FleX-Net™ system. FleX-Net™ 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 FleX-Net™ 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 FleX-Net™ system is a device with many objects. **Object** refers to all the fire devices, system statuses and switches connected to the FleX-Net™ system.
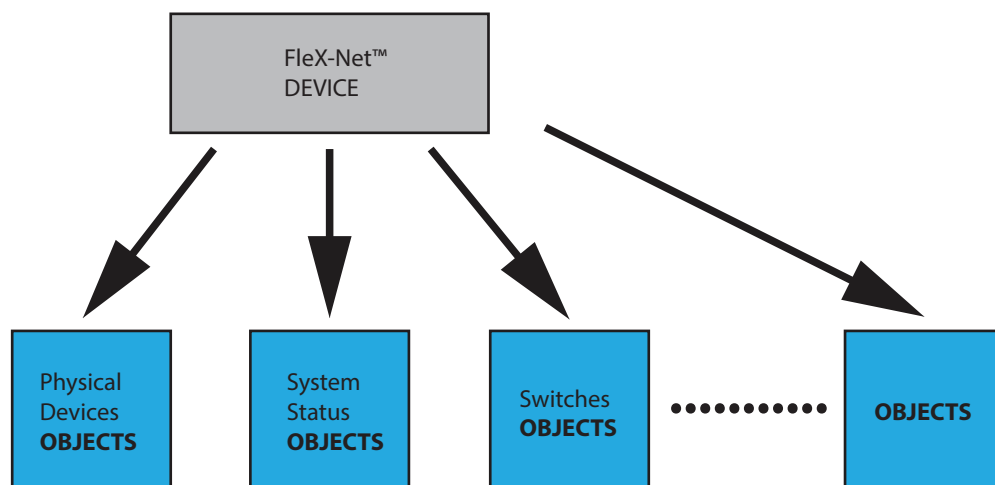
Figure 78   BACnet objects

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

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> **Note:** You must purchase a BACnet license in order to use FleX-Net™ 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

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> **Note:** Connect FleX-Net™ only over secure networks.

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.
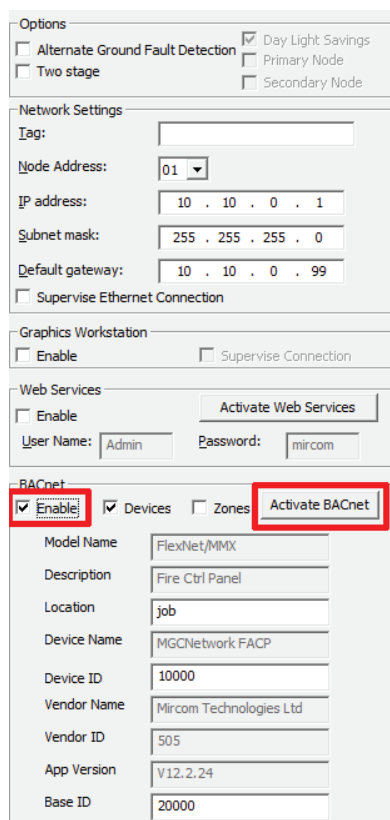
17.2.2   Configuring the Fire Alarm Control Panel

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

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. Create a new version of that job so that you can make changes.
4. Select the **Node** that you connected the Ethernet cable to.

The Network node information appears on the right.

Figure 79   Network node information - BACnet

5. 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.

6. Click **Enable** under **BACnet**.

7. 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.

8. 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.

9. 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. FleX-Net™ 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.

10. Check **Supervise Ethernet Connection** if necessary. This creates a trouble event if the node does not detect an Ethernet connection.

11. Click **Panel** > **Send Job** to send the job to the Fire Alarm Control Panel.

17.2.3 Configuring the BACnet Computer

Communication between the panel and the computer running the BACnet software will be more reliable if the computer is assigned a static IP address. The following procedure describes how to do this in Windows 7.

Set a Static IP Address on Computer

1. Click **Start,** then click **Control Panel**.

2. Click **Network and Sharing Center**.

3. Double-click **Local Area Connection**.

   The **Local Area Connection Status** window appears.

4. Click **Properties.**

   The **Local Area Connection Properties** window appears.

5. Double-click **Internet Protocol Version 4 (TCP/IPv4).**

   The **Internet Protocol Version 4 (TCP/IPv4) Properties** window appears.

6. Click on the **Use the following IP address** radio button.

   Set the **IP Address** to match the **Default Gateway** of the **node** where the computer is connected.

   Set the **Subnet Mask** to match the **Subnet Mask** of the **node** where the computer is connected.

   Set the **Default Gateway** to match the **IP Address** of the **node** where the computer is connected.

Click on **Okay** and close the other windows.

17.2.4 Pinging the Fire Alarm Control Panel
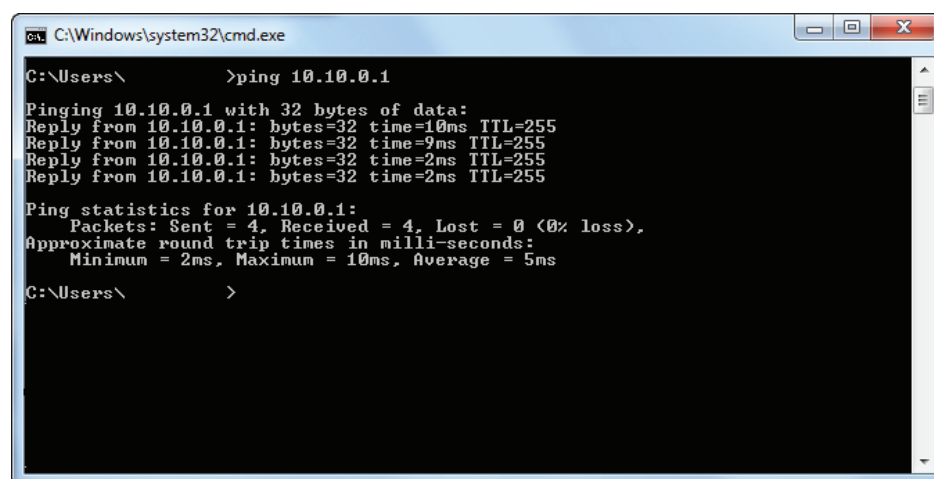
Before attempting to connect BACnet software to the FleX-Net™ system, ensure that there is a network connection between the computer with the BACnet software and the Fire Alarm Control Panel.

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 80   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 81   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.

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 82 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 82   BACnet report

The first column lists the BACnet ID of each object in the FleX-Net™ 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 FleX-Net™ uses internally to identify the object.

17.4   Object Types

Table 24 shows how FleX-Net™ classifies its devices according to the BACnet object types.

Table 24 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 25 lists the properties associated with each BACnet object that FleX-Net™ 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 25 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 83   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 FleX-Net™ 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.
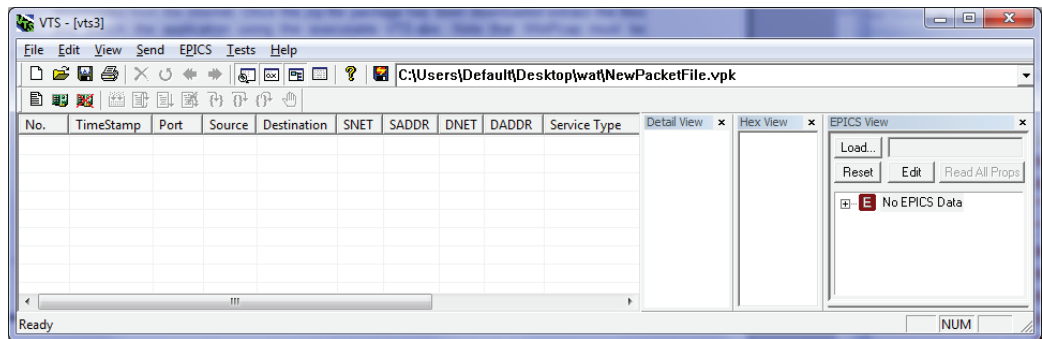
Figure 84   Visual Test Shell

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 Acknowledgment 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 85   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)
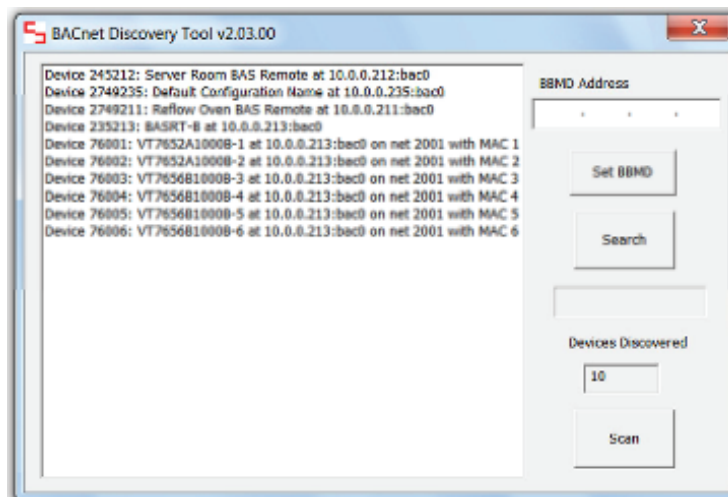
Figure 86   BACnet Discovery Tool

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 FleX-Net™ 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

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> **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

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> **Note:** Connect FleX-Net™ only over secure networks.

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.
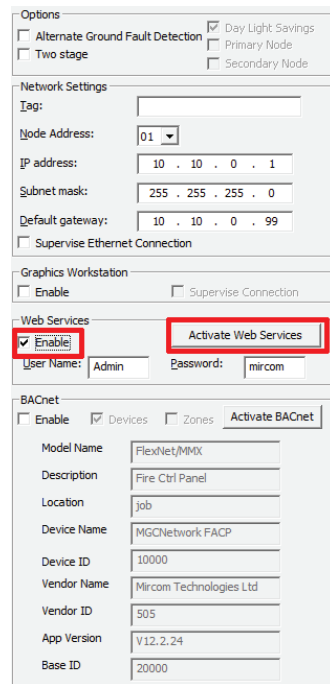
18.1.2 Configuring the Fire Alarm Control Panel

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

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 information appears on the right.

Figure 87   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.

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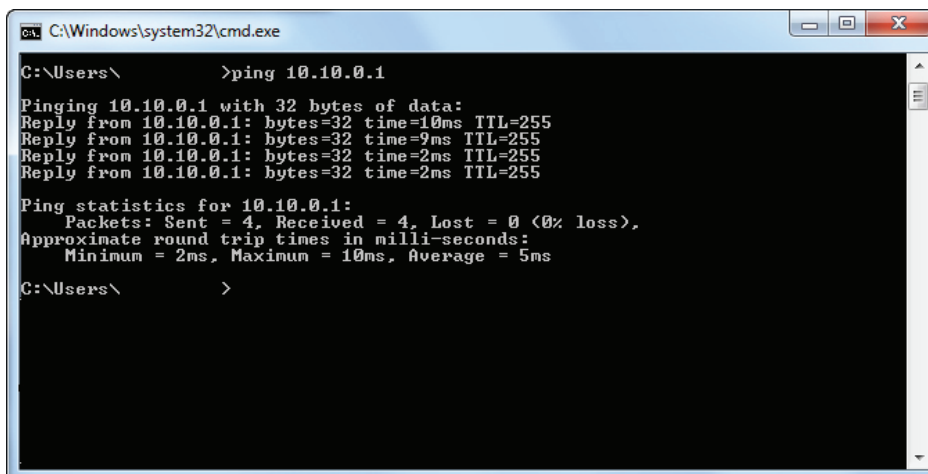
Before attempting to access the Web Server, ensure that there is a network connection between the computer and the Fire Alarm Control Panel.

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 88   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 89   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.

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

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 FleX-Net™ system. It allows you to access the FleX-Net™ 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**.
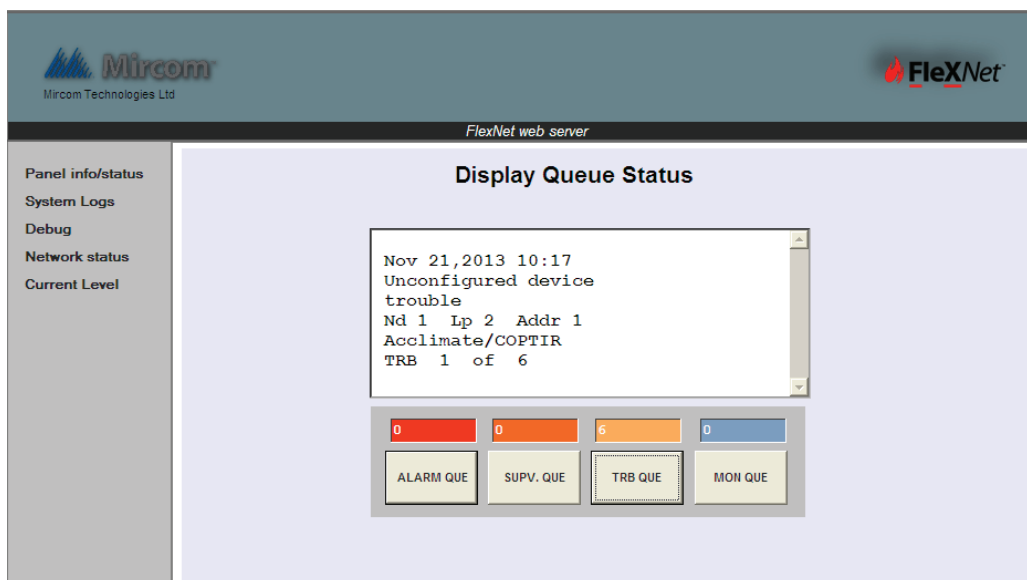
Figure 90   Queue Status

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 21.

To view the Advanced Panel Info:

- Click **Panel Information**, and then click **Panel Info**.
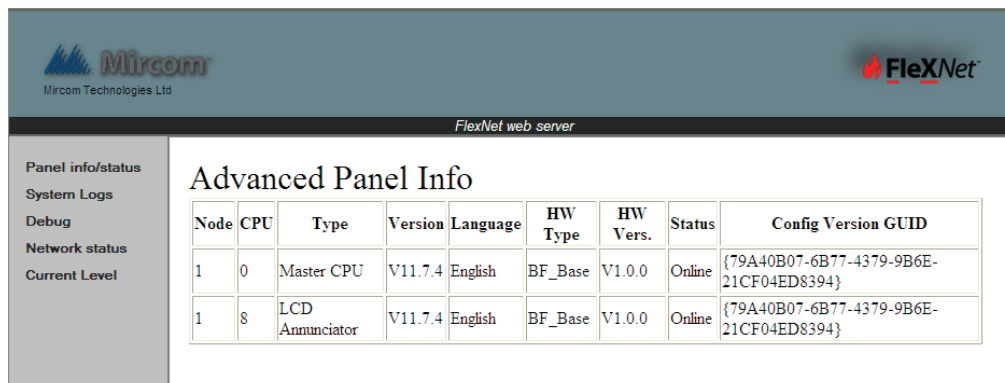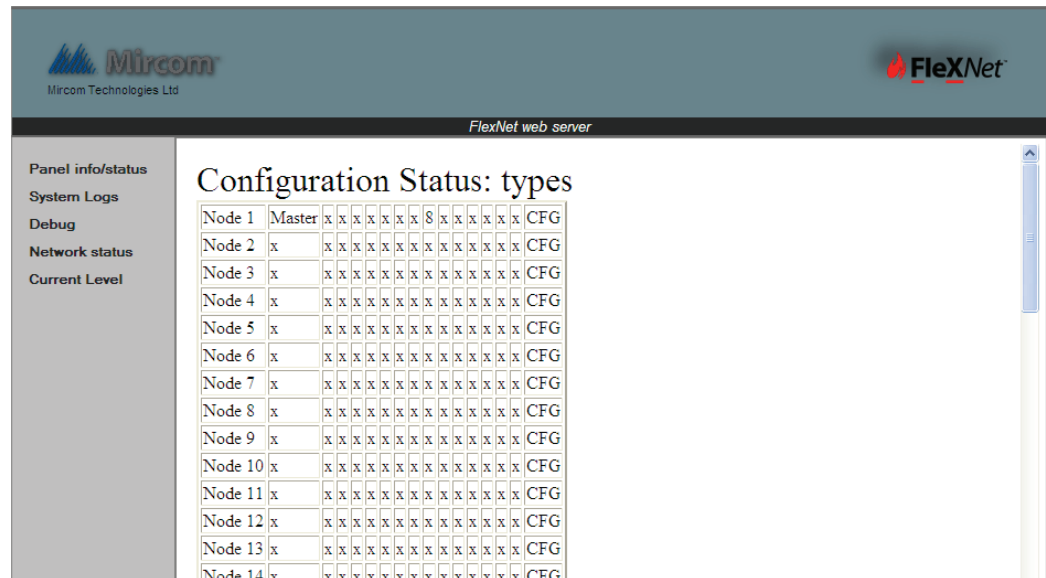
Figure 91   Advanced Panel Info

18.2.3 Configuration Status

The **Configuration Status** page shows a list of the nodes that comprise the FleX-Net™ 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 92   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**.
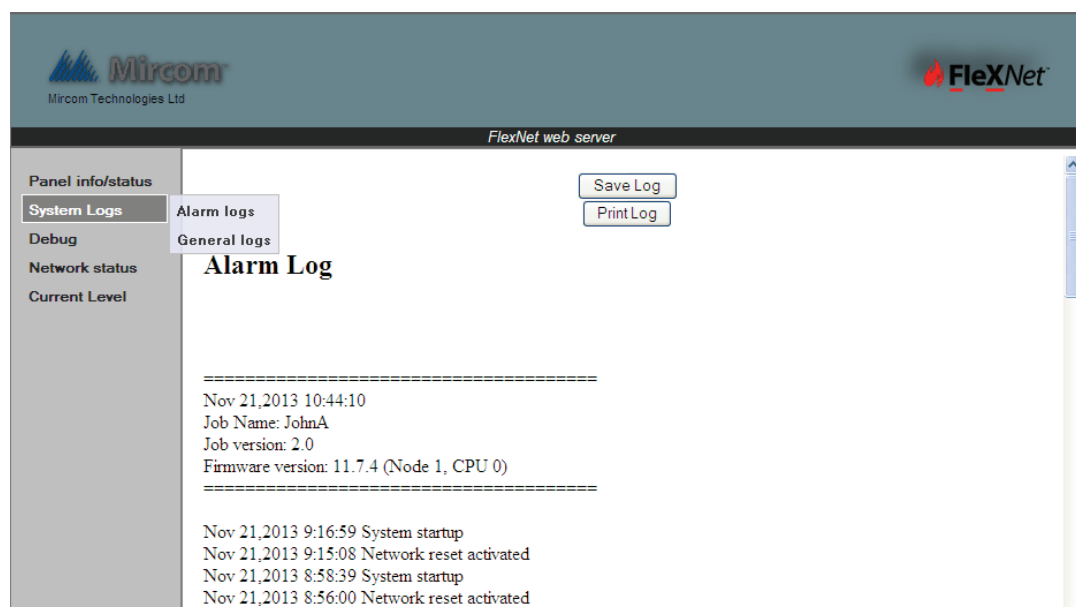
Figure 93   Alarm Log

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 94   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**.
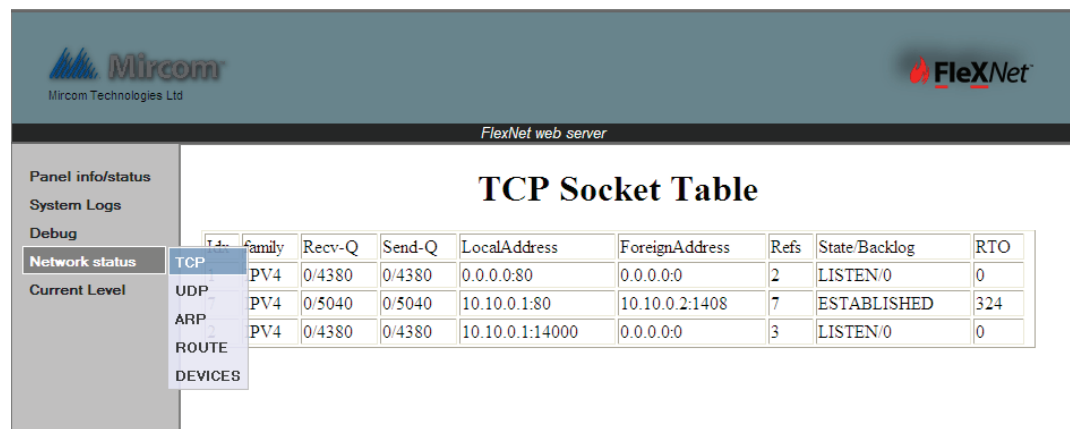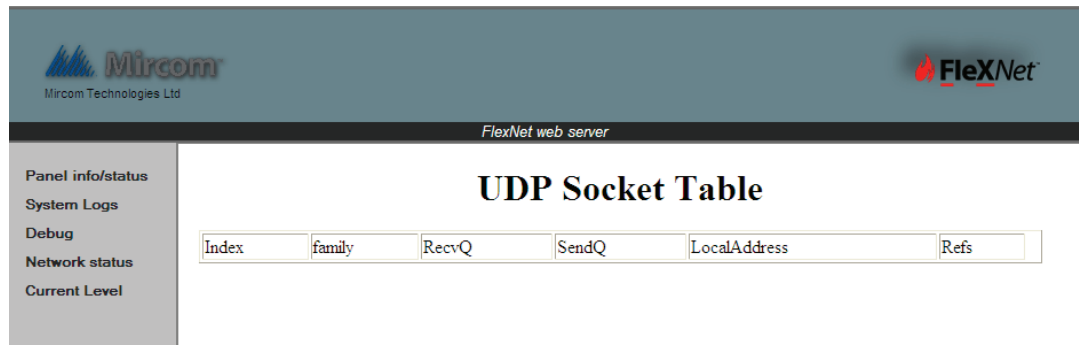
Figure 95   TCP Socket Table

18.2.7 UDP Socket Table

The **UDP Socket Table** page displays a list containing all the BACnet applications currently connecting to the FleX-Net™ 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**.
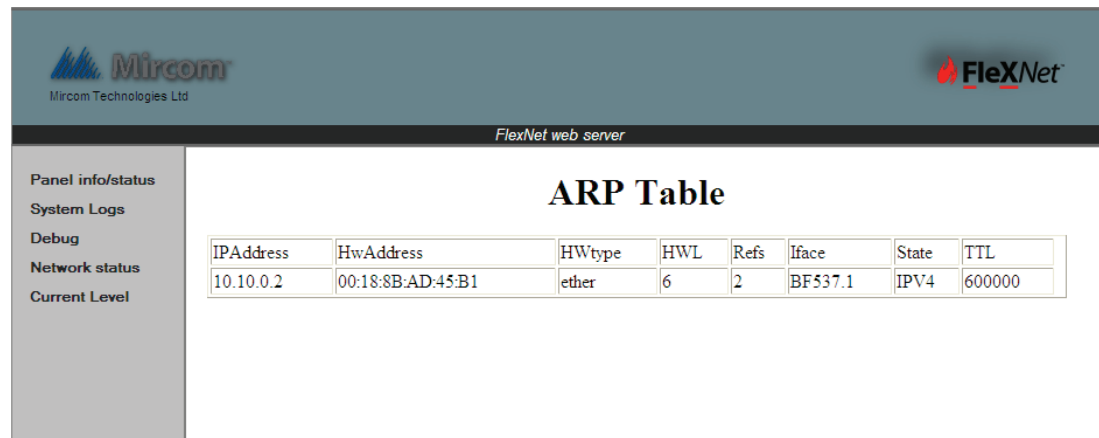
Figure 96 UDP Socket Table

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 FleX-Net™ system.

To view the ARP Table:

• Click **Network Status**, and then click **ARP**.
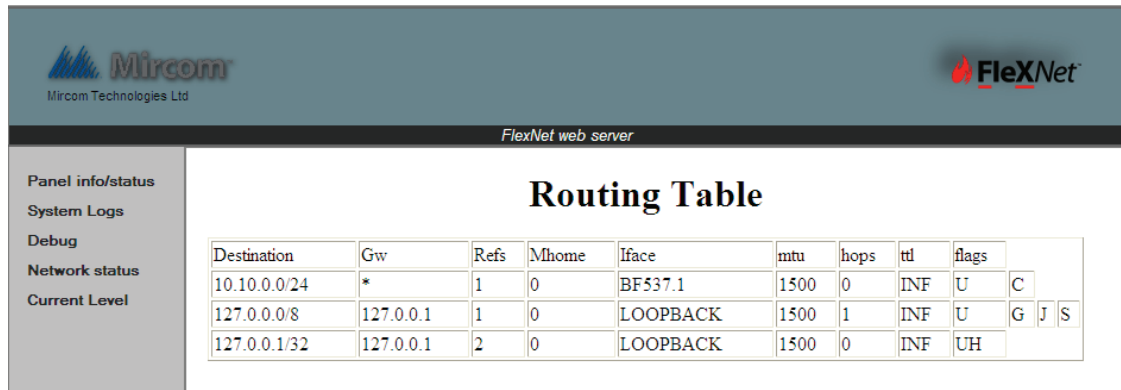
Figure 97 ARP Table

To view the Routing Table:

- Click **Network Status**, and then click **ROUTE**.
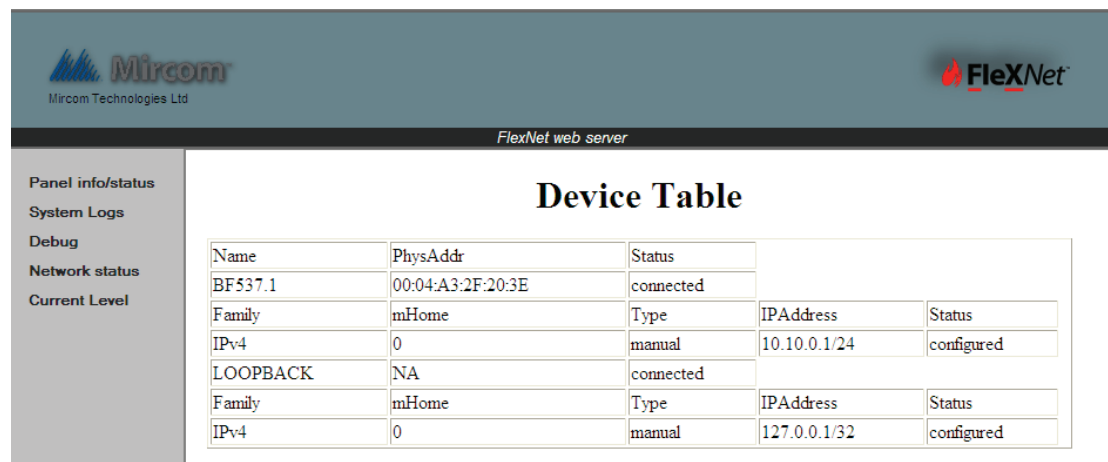
Figure 98   Routing Table

To view the Device Table:

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

Figure 99   Device Table

18.2.9   Current Level

The Current Level page monitors individual devices.

To view the Current Level:

- Click **Current Level**.
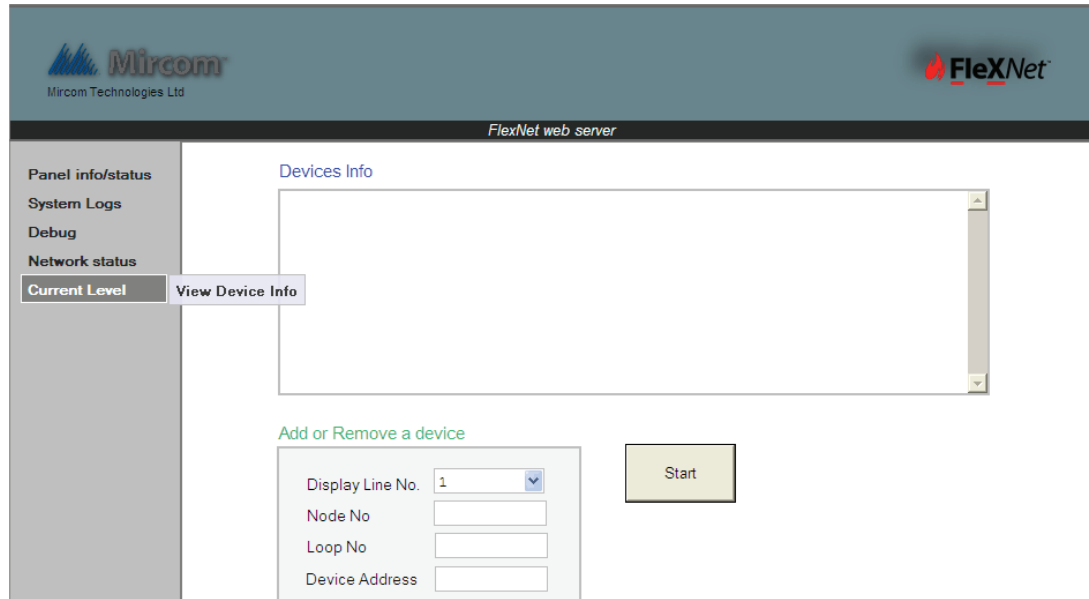
To add a device for current level monitoring:

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 100 Devices Info

19.0   Using the Configurator

19.1   Overview

The MGC Fire Detection and Mass Notification Configurator 2018 (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.
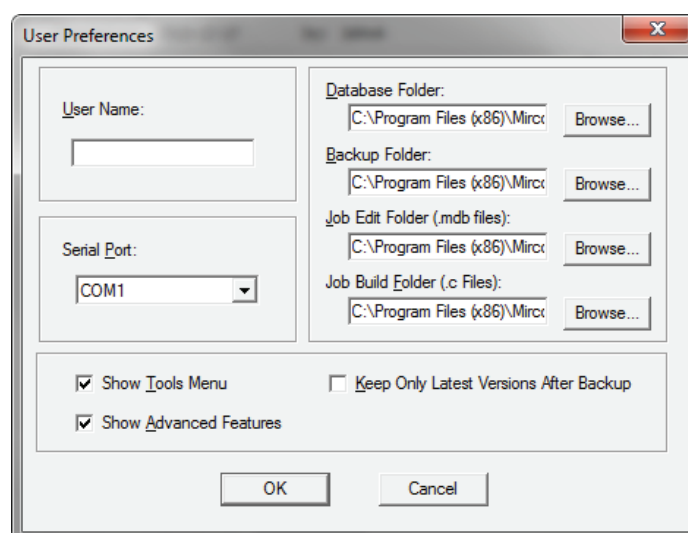
Figure 101 User Preferences

User Name	The creator of all new jobs and job versions.
Serial Port	The serial port or USB 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.
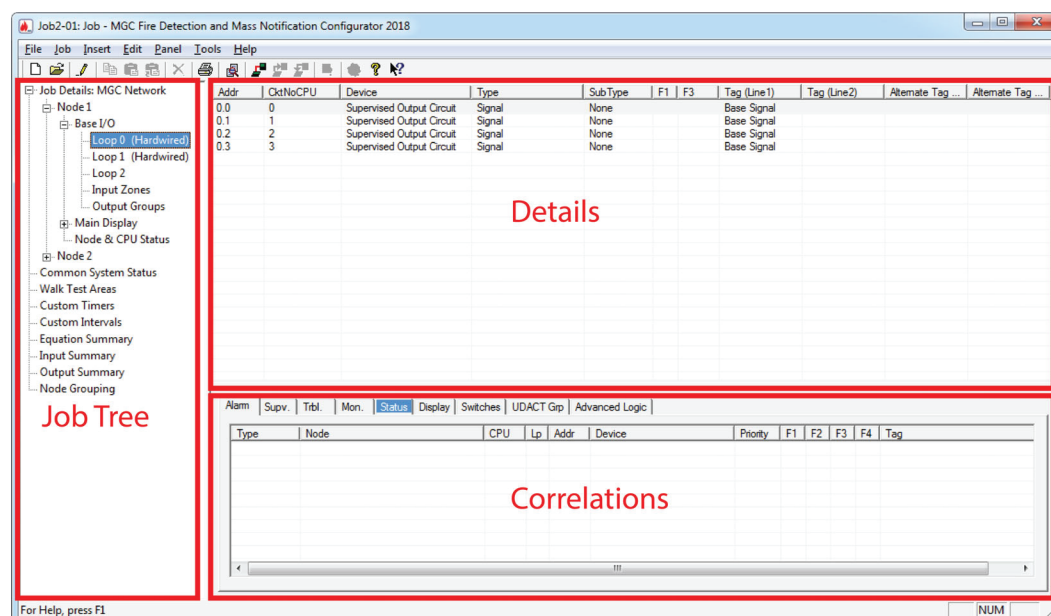
Figure 102 Configurator

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.

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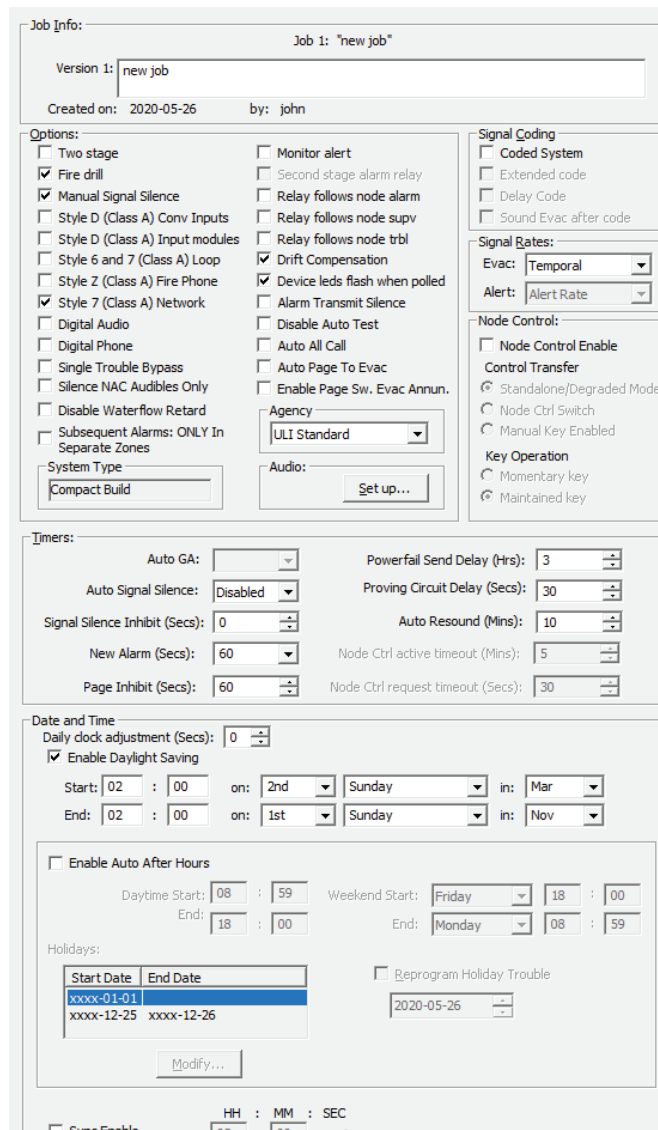
- Job Details
- Base I/O and associated Loops
- Main Display and associated Display Adders
- Common System Status
- Walk Test Areas
- Custom Timers
- Custom Intervals
- Equation Summary
- Input Summary
- Output Summary
- Node Grouping

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 103 Job Details

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.
Single Trouble Bypass	Setting this option will suppress troubles for ALL signal output circuits. Only the Signal Bypass switch active trouble will be generated by bypassing from a switch on a DSPL or IPS-2424 or IPS-4848DS.
Silence NAC Audibles Only	If this check box is selected, all Alarm, Supervisory, Trouble, and Monitor zones with the NS flag will silence only audible signals when signal silence is activated.
Disable Waterflow Retard	If this check box is selected, the retard timer for waterflow devices is disabled. The purpose of this check box is to accommodate sprinkler systems that already have a built-in waterflow retard timer.
Subsequent Alarms: ONLY in Separate Zones	If this check box is not selected, then upon activation of a subsequent alarm for any device in any zone, the signals will re-sound. If this check box is selected, then upon activation of a subsequent alarm for only a device in a different zone, the signals will re-sound.
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.
Enable Page Sw. Evac Annun.	Select this check box to enable Amplifier Evac/Alert Channel LED annunciation via the correlated Page Select Switch.
System Type	Indicates the system type (compact or large) of the current Job.
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.

Node Control

Node Control Enable	Setting this option enables the Node Control feature and makes available Control Transfer options (radio buttons), to allow the user to select which method of node control is desired. The default selection is Standalone/Degraded Mode. Controls that are to be restricted have the **CR** flag set in column F4. Controls without this flag set can be used on any node, regardless of control.
Standalone/Degraded Mode	Restricted controls can be used freely on any node designated as a Primary node.
	There may be multiple Primary nodes active at the same time.
	Restricted controls become available to non-Primary nodes if they lose communication with all Primary nodes on the network.
Node Ctrl Switch	Restricted controls can be used only on the in control node.
	Only one node can be in control at a time.
	Control is acquired, requested, and passed using node control switches on each node.

Manual Key Enable	Primary nodes can use restricted controls freely until control is passed to the Secondary node.
	There can be any number of Primary nodes but only one Secondary node (which must be present).
	The Secondary node can take control of the system with a switch, which disables access to restricted controls on all other nodes.
	Restricted controls become available to non-Primary/Secondary nodes if they lose communication with all Primary/Secondary nodes on the network.
Key Operation	Momentary / Maintained key - defines a type of key switch for the **Manual Key Enable** feature.

Audio

| **Audio Set up** | Click **Set up** to determine how the Audio system will operate. See section 19.5.2 on page 141. |

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 19.53 on page 208.

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 19.53 on page 208.
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 155.
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 19.53 on page 208.
	Choose from 5-12 minutes.
Node Ctrl active timeout	This timer specifies the length of time, in minutes, that an in control node may be inactive before the network defaults back to the idle state.
	Choose from 5-10 minutes.
Node Ctrl request timeout	This timer specifies the length of time, in seconds, that a request for control remains active if it is not granted.
	Choose from 30-60 seconds.

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.
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.
Sync Enable	See section 19.5.1.

19.5.1 Sync Enable

This feature provides a way to synchronize the time on FleX-Net™ once a day. It requires an 8 input adder (DM-1008A) installed on Loop 0. The **Type** of one of the inputs must be configured as **Sync Input** as shown in Figure 104.

Figure 104 8 input adder with the first input configured as Sync Input

When this input is activated, the time on FleX-Net™ is set to the time specified in the **Sync Enable** section of the Job Details window. Only the hours and minutes can be set.

The signal must be a momentary dry contact closure of at least 3 seconds duration.

19.5.2   Audio Setup

This section explains the options in the Audio Setup window, which lets you choose how the audio components of the network will operate.

See the Audio Setup window

- In the **Audio** section of the **Job Details** window, click **Set up**.

    The **Audio Setup** window appears.
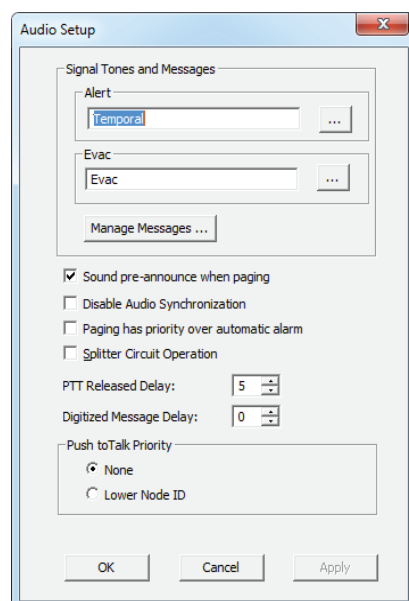
Figure 105 Audio Setup

Signal Tones and Messages

The **Signal Tone and Messages** section allows you to set the tone or message that will be played under different event conditions. The **Manage Messages** button takes you to the **Manage Messages** screen (section 19.5.3 on page 142) where you can work with the catalogue of digital messages available for selection here.

Alert	Click on the ellipsis to bring up the **Choose a Message** version of the **Manage Messages** window. Select the tone or message that you want played when the system is in the Alert (Stage 1) state. (The Built In message Temporal is selected by default.)
Evac	Click on the ellipsis to bring up the **Choose a Message** version of the **Manage Messages** window. Select the tone or message that you want played when the system is in the Total Evacuation (Stage 2) state. (The Built In message Evac is selected by default.)
Manage Messages	Click on the **Manage Messages** button to open the **Manage Messages** window, where you can manage your catalogue of digital messages. See section 19.5.3 on page 142.

General Settings

The settings between the **Signal Tones and Messages** section and the **Push to Talk Priority** section allow you to customize different aspects of the system's behaviour when paging.

Sound pre-announce tone when paging	When checked, a 900Hz pre-announce tone sounds (using the Page channel) for 2 seconds before the paging source is applied. This special tone will un-silence speakers that are currently silenced.
Disable Audio Synchronization	When checked, audio synchronization between nodes is disabled. When unchecked audio is synchronized between the nodes.
Paging has priority over automatic alarm	When checked, a page will be heard over an active Alarm. When unchecked, Alarms will block Pages.
Splitter Circuit Operation	When checked, the Configurator supports the advanced features of class D amplifiers.
PTT Released Delay	If strobes are correlated to the Page Ready status, such that they operate when PTT is pressed, they will continue to operate for the specified number of seconds after PTT is released, if a non-zero delay is configured.
Digitized Message Delay	This will cause a delay (in seconds) on the deactivation of the node and common Page Ready status when PTT is released or when a message playing on the paging channel ends. The statuses can be used to delay strobe de-activation.
Push to Talk Priority	This section contains 2 radio buttons. Choose between None (first come, first served) and Lowest Node ID, where the PTT on the lowest addressed network node has priority over all others.

19.5.3 Manage Messages

This section explains the options in the Manage Messages window, which lets you manage your catalogue of digital messages.

See the Manage Messages window

- In the **Signal Tones and Messages** section of the **Audio Setup** window, click **Manage Messages**.

The Manage Message window appears.
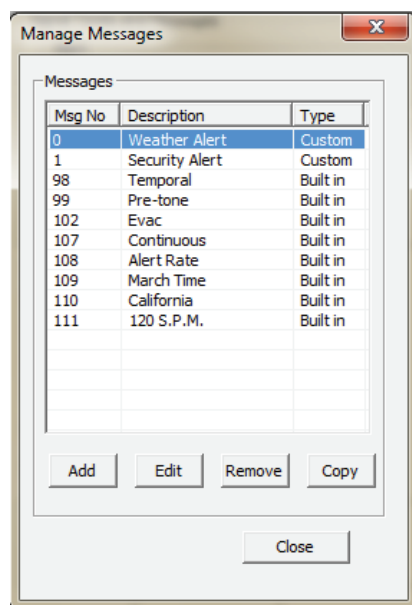
Figure 106 Manage Messages

The columns in the Manage Messages window are described below.

Msg No

This column shows a number for each digital message. There are 8 Built-in messages that are uneditable, unremovable, and have their Message Numbers preassigned. Custom Messages are assigned numbers from 0 to 95 as you create them.

Description

This column shows the label assigned to the message in the Tag box of the **Audio Message Composer** window. See section 16.0 on page 100.

Type

This column shows whether the message is a Built-in or a Custom message. You can create up to 96 Custom Messages. Built-in messages cannot be edited or removed.

The buttons in the Manage Messages window are described below.

Add

Click this button to open the **Audio Message Composer**. See section 16.0 on page 100.

Edit / View

If the current job is writable, this button is labeled **Edit**. Click this button to edit the selected Custom Message in the **Audio Message Composer**.

If the current job is not writable, this button is labeled **View**. Click this button to view the selected Custom Message in the **Audio Message Composer**. You cannot edit the Custom Message, but you can click the **Play** button to listen to it.

This button is disabled when a Built-in message is selected.

Remove	Click this button to delete the selected digital message. A window appears, asking if you are sure you want to delete this digital message. Click **Yes** to permanently delete the selected message. Be sure that you have the correct message selected.
	This button is disabled when a Built-in message is selected.
Copy	Click this button to copy the selected digital message. A window appears, asking for a name for the copied file. Enter the name and click **OK**. A new custom Message appears in the list with the new name. The new message is a copy of the selected digital message.
	This button is disabled when a Built-in message is selected.
Close	Click this button to close the **Manage Messages** window.

19.5.4 Holidays

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

Add a new holiday

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

2. Click **Modify**.

   The **Holidays** window appears.
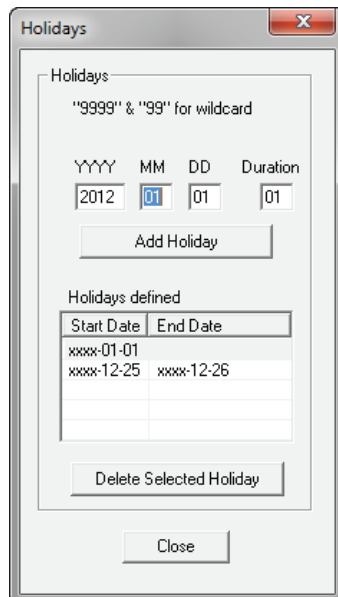
Figure 107 Holidays

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.

Specify a holiday that recurs once a year

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

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

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.

i

Note: Make sure that your holidays do not overlap.

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.

Remove a holiday

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

19.6   Network Node

Add a network node

1. Click **Insert** in the menu bar, then click **Add Network Nodes**.

   The **Add Network Node** window appears.
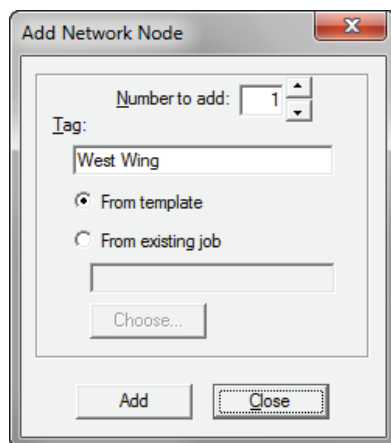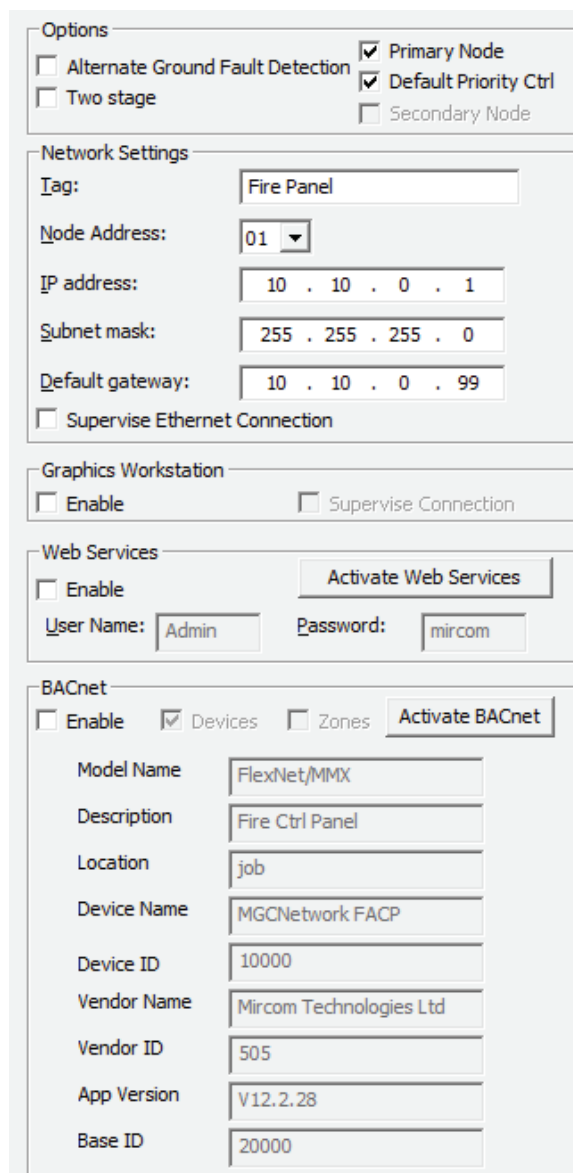
Figure 108 Add Network Node

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**.

See the Network Node Details

- Select a node in the Job Tree.

Figure 109 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 88.
Two Stage	Check to enable two stage.
	As per UL 864 and UL 2572 only a setting of Single Stage (disabled) is permissible.
Day Light Savings	Daylight savings is configured on the Job Details screen (section 19.5 on page 134).
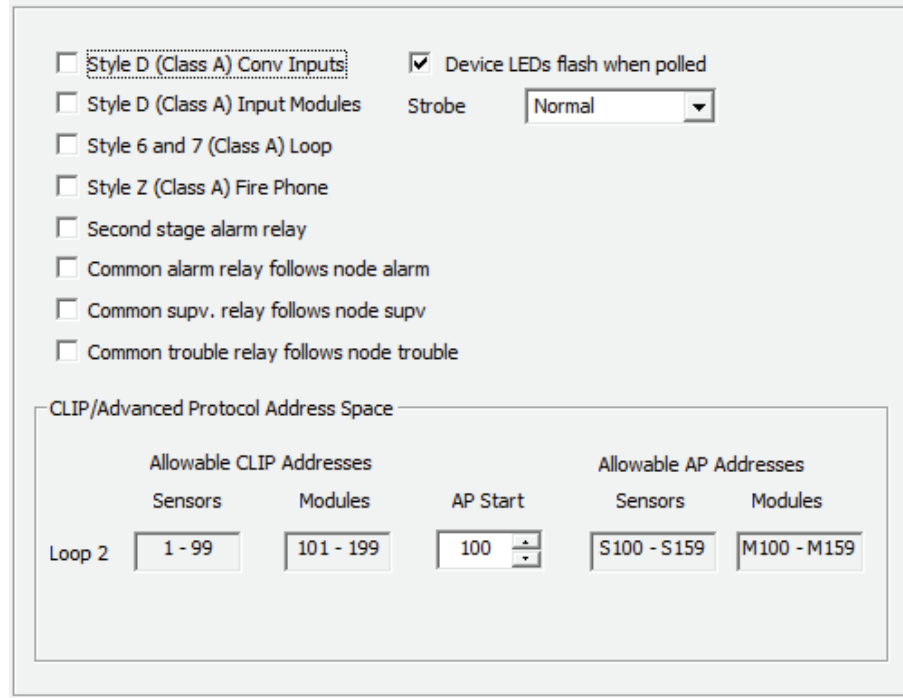
Primary Node If you select this check box, this node is the Primary Node in a transfer of control application.

Default Priority Ctrl If you select this check box, this node is in control by default at system startup. **Primary Node** must also be selected. The feature is available only in the **Node Ctrl Switch** mode of transfer of control.

Secondary Node If you select this check box, this node is the Secondary Node in the **Manual Key Enabled** mode of transfer of control. A node cannot be both a Primary Node and a Secondary Node.

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 FleX-Net™ to communicate with OpenGN.

If **Supervise Connection** is selected, then FleX-Net™ 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 section 18.0 on page 120.

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 section 17.0 on page 107.

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.

19.7 Base I/O

See the Base I/O

Select **Base I/O** in the Job Tree under **Node**.

These items override the attributes on the Job Details page.

Figure 110 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. See section 19.14 on page 161.

19.8   Main Display / LCD Annunciator

Add an annunciator

1. Select the node that you want to add an annunciator to.

2. Click **Insert** in the menu bar, then click **Add Annunciators**.

   The **Add Annunciator** window appears.
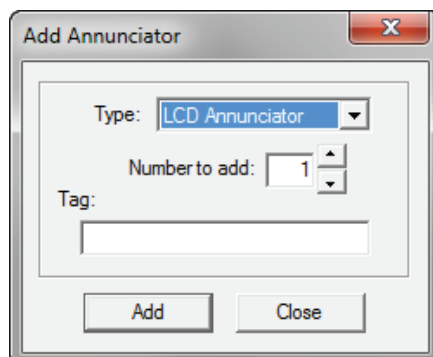
Figure 111 Add Annunciator

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**.

See the main display or LCD annunciator details

- Select a main display or annunciator in the Job Tree.
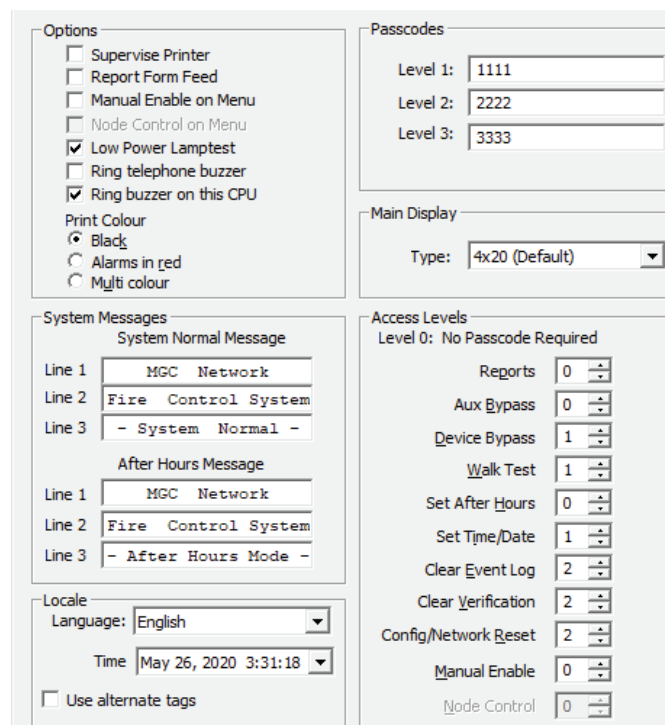
Figure 112 Main Display

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.
Node Control on Menu	Select this check box to unlock control switches at non-primary nodes. This option can be password-protected with the **Node Control** option under **Access Levels** (section 19.8.3 on page 152).

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.
Ring Telephone Buzzer	Select this check box to make the buzzer on this CPU ring for incoming calls.
Ring buzzer on this CPU	Select this check box to allow you to configure (enable/disable) the buzzer on Network masters and Rem. Annunciators.
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.
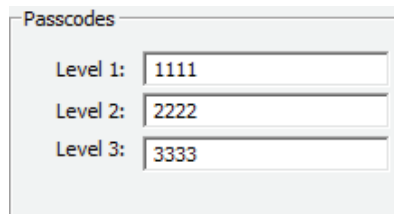
Figure 113 Passcodes

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

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   Main Display

There are three types of Main Display supported on the FleX-Net™ panel.

Table 26 Displays

Name	Name in the Configurator
DSPL-420-16TZDS	4x20 C/W 16 LED
DSPL-420 or DSPL-420DS	4x20 (Default)
DSPL-2440	24x40 Graphic

Change the type of main display

1. Select the type of main display in the **Type** menu.

2. Click **Yes**.

19.8.3   Access Levels

Specify the level of access for various panel actions.
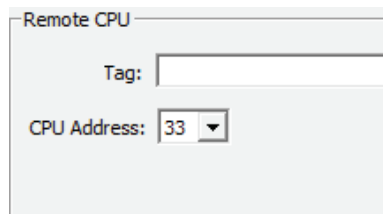
- **0** means that the panel operator does not need to enter a passcode.

- **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 114 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.
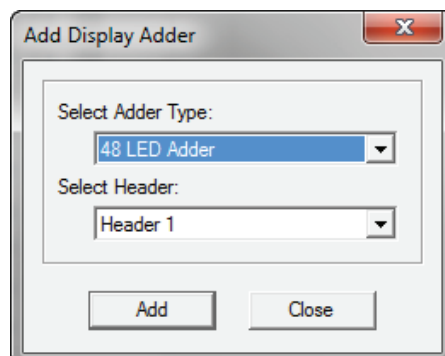
19.10 Display Adder

Add a display adder

1. Select the annunciator or display adder that you want to add a display adder to.

2. Click **Insert** in the menu bar, then click **Add Display Adder**.

   The **Add Display Adder** window appears.

Figure 115 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-894 FleX-Net™ 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**.

View the display adder

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

Table 27 describes the columns in the display adder view.

Table 27 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.
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. −19 (lowest) through Normal (default) to +19 (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 (MNS) installation, choose appropriate priorities. For example, if risk analysis has determined that MNS has priority over fire, assign a higher priority to all MNS digitized message switches. Within MNS 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).

Table 27 Display Adders (Continued)

Name	Description
F4	The CR flag lets you define which switches are locked when Node Control Enable is selected. If the CR flag is not set, then the switch is always unlocked.
	The CR flag on a switch with the Type **Common Ctrl** is propagated to all other occurrences of the same switch in the network. For example, if you set the CR flag on the System Reset switch on one display adder, all System Reset switches in the network automatically have the CR flag.
	Switches that are not **Common Ctrl** switches are not propagated. For example, a paging switch or a bypass switch can be configured to require control on one node, but to always allow operation on a different node, regardless of which node has control.
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.

Add a UDACT

1. Select the node that you want to add a UDACT to.

2. Click **Insert** in the menu bar, then click **Add UDACT**.

    The **Add UDACT** window appears.
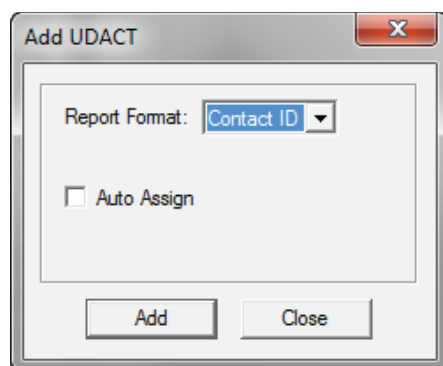
Figure 116 Add UDACT

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**.

View the dialer

- Select **Dialer** in the Job Tree.
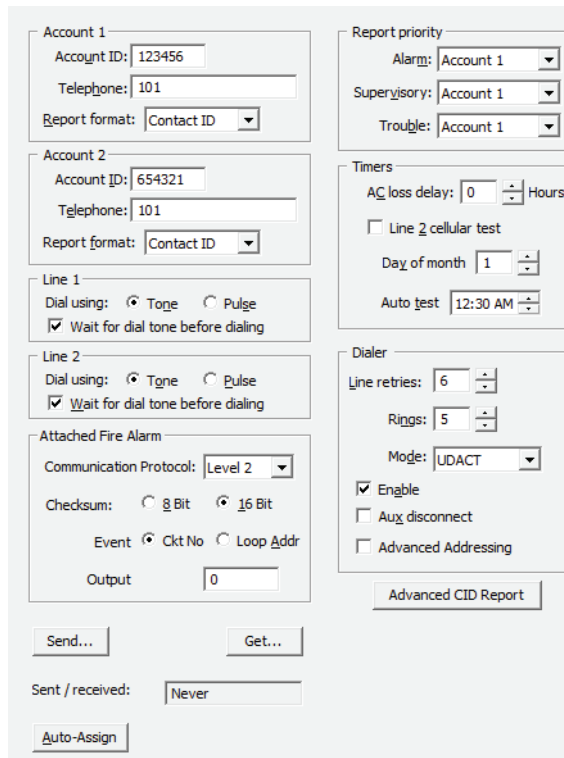
Figure 117 Dialer

Get the configuration information

- Click **Get**.

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

Automatically assign a UDACT group to every unassigned zone and output circuit

- Click **Auto-Assign**.

> **Note:**   If you use advanced addressing, then you do not need to use **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 format	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. Only Level 2 (FX2000) is appropriate.
Checksum	8 Bit / 16 Bit. For FX2000 16 bit is appropriate.
Event	Specifies whether the internal Ckt No or a combination of Loop and Address is sent to the monitoring station.
Output	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	If this check box is unselected, then there is no test reporting for a cell phone, or the phone line is a regular line. Select this check box to set the test report date for the cell phone setup. Set the **Day of month** from 01 to 28 to schedule a test for Line 2 on a certain day of the month. See section 19.11.1 on page 159 for more information.
	When a cell phone service is employed for the panel, it should only be connected to telephone line #2 CO interface. Also, the dial tone detection feature of Line 2 should be disabled for cell phone application.

Auto test	Use this function to set the time for the automatic test. When this test is performed, the test report is sent to the monitoring station. This test must be performed at least once a day.
	The Auto test time can be configured to:
	12:00 a.m. to 5:59 a.m.: test every 24 hours
	6:00 a.m. to 11:59 a.m.: test every 6 hours
	12:00 p.m. to 23:59 p.m.: test every 12 hours
	If **Line 2 cellular test** is unselected, then the test alternates between Line 1 and Line 2. See section 19.11.1 on page 159 for more information.
	To minimize receiver congestion, do not use the following test times: 12:00 a.m., 01:55 a.m., 02:00 a.m. and 03:00 a.m.

Dialer

Line retries	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.
Advanced Addressing	Enables the use of a conversion formula to transmit Node, Loop and Device Address information in Contact ID protocol. The receiver must also have conversion software to properly display the additional information.
Advanced CID Report	If **Advanced Addressing** is selected, click this button and select a location to save a report of all the points on the system. This report can be used to inform the Central Station of the Node, Loop, Absolute Address, CID String, and Tag for each point.
	The file name is **JobName_JN-JV.csv** where JN is the job number and JV is the job version.

Configure the dialer with the Configurator

1. Remove the UIMA4 cable from the FX-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.

19.11.1 Line 2 Cellular Test and Auto Test

If **Line 2 cellular test** is unselected, then the dialer alternates between Lines 1 and 2 when performing the automatic test. If **Line 2 cellular test** is selected, then the automatic test is performed on Line 1 except on the **Day of month** specified under **Line 2 cellular test**, when it is performed on Line 2. See examples in Table 28.

Table 28 Line 2 Cellular Test and Auto Test

Line 2 Cellular Test	Day of month	Auto Test	Line 1 Tested	Line 2 Tested
unselected	NA	12:30 a.m.	12:30 a.m. every other day (alternates with Line 2)	12:30 a.m. every other day (alternates with Line 1)
unselected	NA	6:00 a.m.	6:00 a.m. and 6:00 p.m.	12:00 p.m. and 12:00 a.m.
unselected	NA	12:00 p.m.	12:00 p.m.	12:00 a.m.
selected	15	12:30 a.m.	12:30 a.m. every day except on the 15th of the month	12:30 a.m. on the 15th of the month
selected	15	6:00 a.m.	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. every day except on the 15th of the month	6:00 a.m., 12:00 p.m., 6:00 p.m., and 12:00 a.m. on the 15th of the month
selected	15	12:00 p.m.	12:00 p.m. and 12:00 a.m. every day except on the 15th of the month	12:00 p.m. and 12:00 a.m. on the 15th of the month

19.12 Addressing Formats for Devices

The Configurator uses different kinds of addresses for different devices to avoid conflicts. The different types of addresses are described below.

- **nn** – a two digit number is the legacy addressing format for a CLIP sensor.

- **1nn** – a two digit number with a **1** in front of it is the legacy addressing scheme for a CLIP module. The two digits after the **1** represent the address physically set on the device's dials.

- **nn.1nn** – a two digit number followed by a dot followed by a number starting with **1** is the new addressing scheme for the virtual device of a dual address CLIP module (like the Dual COPTIR). The two digits after the **1** represent the address physically set on the device's dials.

For example, a Dual COPTIR at address 1 has 2 entries:

1   COPTIR

1.101   COPTIR "B"

1.101 represents the address of the virtual device.

- **Snnn** – a three digit number with an **S** in front of it is the addressing scheme for an AP sensor. The three digits after the **S** represent the address physically set on the device's dials.

- **Bnnn** – a three digit number with an **B** in front of it is the addressing scheme for a sounder base or relay base attached to an AP sensor. The three digits after the **B** represent the address physically set on the device's dials.

- **Mnnn** – a three digit number with an **M** in front of it is the addressing scheme for an AP module. The three digits after the **M** represent the address physically set on the device's dials.

- **Vnnn** – a three digit number with a **V** in front is the addressing scheme for a virtual device attached to an AP sensor. The three digits after the **V** represent the address physically set on the device's dials.

- **Wnnn** – a three digit number with a **W** in front is the addressing scheme for a virtual device attached to an AP module. The three digits after the **W** represent the address physically set on the device's dials.

- **Wnnnn** – a four digit number with a **W** in front is the addressing scheme for virtual devices attached to an AP module that requires more than one virtual device. The first three digits after the **W** represent the address physically set on the device's dials and the fourth digit represents the virtual device's sub address.

19.13 Adding a Device

You can add input devices (for example, manual stations or smoke detectors) to a device loop.

Add a device

1. Select the loop that you want to add a device to.

2. Click **Insert** in the menu bar, then click **Add Device**.

   The **Add Device** window appears.
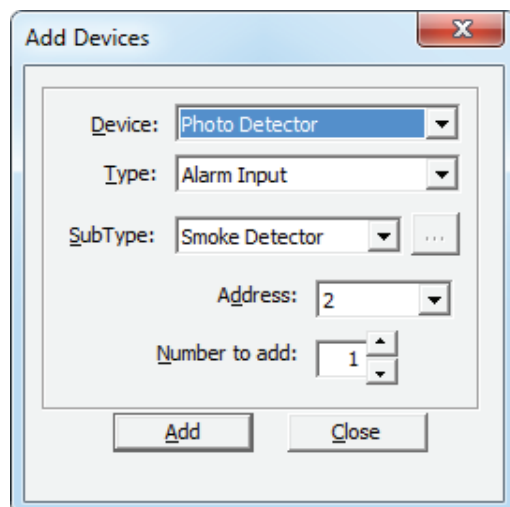
Figure 118 Add Device

3. Select the type of device from the **Type** menu.

4. Select the subtype of device from the **SubType** menu. The subtype is used by OpenGN.

5. Select the address for the device in the **Address** field. The default is the lowest available address for the selected type.

6. 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.

7. 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.

8. Click **Close**.

19.14 Setting the Start of AP Address Space

By default, the addresses 1 to 99 are reserved for CLIP devices, and the addresses 100 to 159 are reserved for AP devices. The beginning of AP space can be lowered. For example, if you are planning to use only AP devices, then you can change these settings so that the addresses 1 to 159 are reserved for AP devices and no addresses are available for CLIP. The values reserved for each type of device can be set differently for each loop.

Change the start of AP space on loop 2
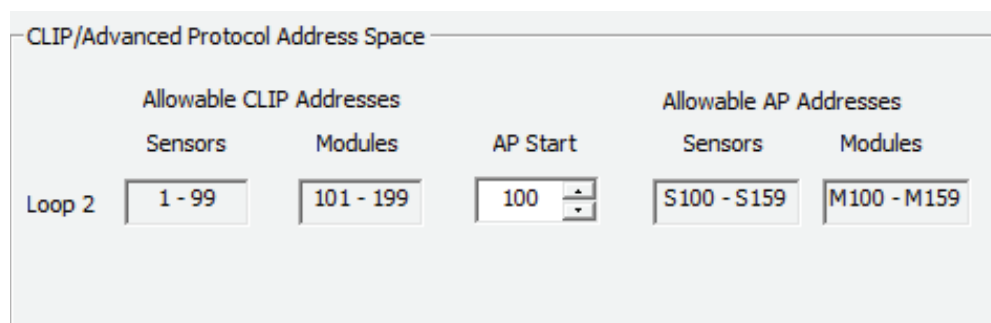
1. Select **Base I/O** in the job tree.

   The **CLIP/Advanced Protocol Address Space** section appears (Figure 119).

2. Change the start of the AP addresses in the **AP Start** menu.

   The addresses below this number are allocated for CLIP devices and the addresses above and including this number are allocated for AP devices.

   The 2 columns to the left show the available range of addresses for CLIP sensors and modules. The 2 columns to the right show the available range of addresses for AP devices, which depends on the number in the **AP Start** menu.

Figure 119 CLIP/Advanced Protocol Address Space

Change the start of AP space on another loop
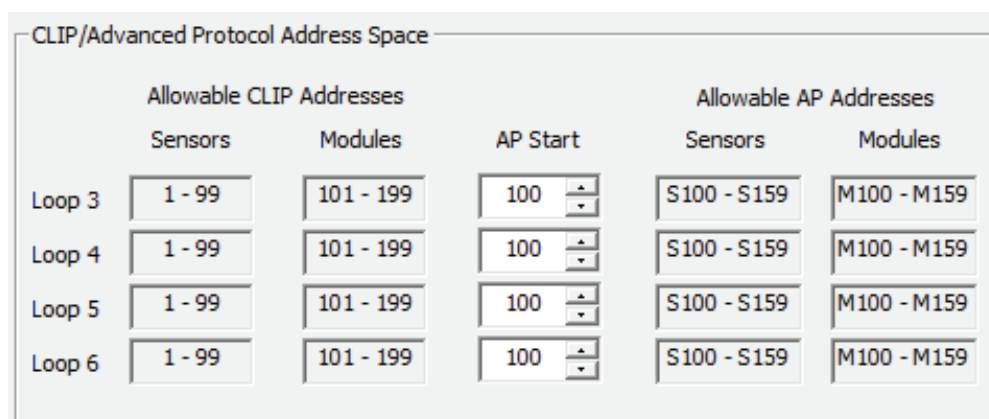
1. In the Job Tree, select the Quad Loop Adder that contains the loop that you want to change.

   The **CLIP/Advanced Protocol Address Space** section appears (Figure 120). There are four rows, one for each loop on the Quad Loop Adder. If there is no daughter card on this Quad Loop Adder, then the last two rows are greyed out.

2. Change the start of the AP addresses in the **AP Start** menu.

   The addresses below this number are allocated for CLIP devices and the addresses above and including this number are allocated for AP devices.

   The 2 columns to the left show the available range of addresses for CLIP sensors and modules. The 2 columns to the right show the available range of addresses for AP devices, which depends on the number in the **AP Start** menu.

Figure 120 CLIP/Advanced Protocol Address Space for a quad loop adder

19.15 Adding an AP Detector

The procedure for adding an AP detector is the same as adding any other device, as described in section 19.13 on page 160, with the following differences.

When you add some AP detectors (for example the Photo (AP)), you have the option to add a special base to the sensor head. The Configurator supports sounder bases and relay bases as alternatives to a standard base.

- To add a standard base, select **NAB (Non-Addr. Base)** from the Options menu.
- To add a sounder base, select **ASB (Addr. Sounder Base)** from the Options menu.
- To add a relay base, select **ARB (Addr. Relay Base)** from the Options menu.
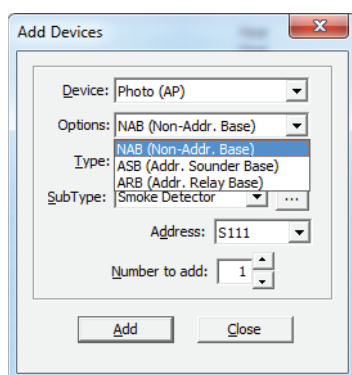
Figure 121 AP base selection

> **Note:** Only AP devices that are branded as Mircom, Secutron, or System Sensor will work properly with a FleX-Net™ system. Other brands of sensor will not work consistently or at all.

When you add an AP detector, the default address is the lowest available address for AP devices. The address has the prefix **S**. If there is an associated relay base or sounder base, the base has the same address with a **B** prefix. For example, a Photo (AP) at address S100 has a sounder base at address B100.

Addr	Abs Addr	Prim Addr	CktNoCPU	Device	Options	Type
S100	100	100	0	Photo (AP)	ASB	Alarm Input
B100	321	100	4	Sounder Base (AP)		Signal

Figure 122 Photo (AP) device with the address 100

19.15.1 Removing a Sounder Base from an AP Device

If AP devices are being used without sounder bases, you can remove the virtual device sounder base that was automatically added with the AP device.

Remove a sounder base

1. Select the sounder base in the Configurator.

2. Press Delete on the keyboard.

3. Click **Yes** to confirm.

4. Repeat these steps for every sounder base that you want to delete.

> **Note:** If you remove a sounder base from an AP device, it cannot be restored. In order to restore the sounder base, you must delete the whole device and add it again.

19.16   Adding a Dual Sensor Device

The procedure for adding a dual sensor device is the same as adding any other device, as described in section 19.13 on page 160. Dual sensor devices can be used with a relay base or a sounder base, as described in section 19.15 on page 162.

When you add a dual sensor device, a second virtual address is automatically created for the additional sensor. The virtual device has the same address as the primary sensor, but with a **V** prefix.

For example, a Fire-CO (AP) device with the address 100 has the following entries:

- Fire-CO (AP): S100

- Fire-CO "B" (AP): V100

- Sounder Base (AP) or Relay Base (AP) if selected: B100

Addr	Abs Addr	Prim Addr	CktNoCPU	Device	Options	Type
S100	100	100	0	Fire-CO (AP)	ASB	Alarm Input
V100	321	100	1	Fire-CO "B" (AP)		Latched Supv
B100	322	100	4	Sounder Base (AP)		Signal

Figure 123 A Fire-CO (AP) device with the address 100

19.17   Adding a Dual Heat Photo Sensor with 90 °F and 135 °F Thresholds

When you add a Dual Heat Photo (AP) to the Configurator, it is added as 1 real device and two virtual devices. All the devices have the same number for their address, but the real device's address has the prefix **S**. The virtual devices have the prefix **V** and a numeric suffix after the address, starting at **1**.

For example, a Dual Heat Photo with the address 100 has the following entries.

- **Dual Heat Photo (AP):** S100 (active on smoke only)

- **Dual Heat Photo "B" (AP):** V1001 (active when the temperature 90 °F or higher but lower than 135 °F)

- **Dual Heat Photo "C" (AP):** V1002 (active when the temperature is 135 °F or higher)

Addr	Abs Addr	Prim Addr	Device	Options	Type	SubType	F1	F3	F4	Sens Lvl Pre	Sens
S100	100	100	Dual Heat Photo (AP)	NAB	Alarm Input	None					2.50%
V1001	321	100	Dual Heat Photo "B" (AP)		Monitor	None					Heat
V1002	322	100	Dual Heat Photo "C" (AP)		Alarm Input	None					Heat

Figure 124 A Dual Heat Photo device with the address 100

19.18   Adding a Dual Module Device

Some AP devices (for example, the Dual Monitor (AP)) have an additional input. When you add a dual input device to the Configurator, it is added as 1 real device and 1 virtual device. The primary and secondary devices have the same number for their address, but the primary device's address has the prefix **M** and the secondary device's address has the prefix **W**.

For example, a Dual Monitor (AP) device with the address 100 has the following entries:

- **Dual Monitor (AP):** M100 (primary input)

- **Dual Monitor "B" (AP):** W100 (secondary input)

Addr	Abs Addr	Prim Addr	CktNoCPU	Device	Options	Type
M100	260	260	0	Dual Monitor (AP)		Alarm Input
W100	321	260	1	Dual Monitor "B" (AP)		Alarm Input

Figure 125 A Dual Monitor (AP) device with the address 100

19.19   Adding a Multiple Module Device

Some AP devices (for example, the Six Relay (AP) and the Ten Monitor (AP)) have multiple additional modules. When you add a multiple module device to the Configurator, it is added as 1 real device and a number of virtual devices. All the devices have the same number for their address, but the primary device's address has the prefix **M**. The virtual devices have the prefix **W** and a numeric suffix after the address, starting at **1**.

For example, a Six Relay (AP) device with the address 100 has the following entries:

- **Six Relay (AP):** M100 (primary relay)

- S**ix Relay "B" (AP):** W1001 (second relay)

- **Six Relay "B" (AP):** W1002 (third relay)

- **Six Relay "B" (AP):** W1003 (fourth relay)

- **Six Relay "B" (AP):** W1004 (fifth relay)

- **Six Relay "B" (AP):** W1005 (sixth relay)

Addr	Abs Addr	Prim Addr	CktNoCPU	Device	Options	Type	SubType
M100	260	260	4	Six Relay Control (AP)		Relay	None
W1001	321	260	5	Six Relay Control "B" (AP)		Relay	None
W1002	322	260	6	Six Relay Control "B" (AP)		Relay	None
W1003	323	260	7	Six Relay Control "B" (AP)		Relay	None
W1004	324	260	8	Six Relay Control "B" (AP)		Relay	None
W1005	325	260	9	Six Relay Control "B" (AP)		Relay	None

Figure 126 A Six Relay (AP) device with the address 100

19.20   Adding a Circuit Adder

You can add a circuit adder to a conventional hardwired loop.

Add a circuit adder

1. Select the conventional hardwired loop that you want to add a circuit adder to.

2. Click **Insert** in the menu bar, then click **Add Ckt Adder**.

The **Add circuit adders** window appears.
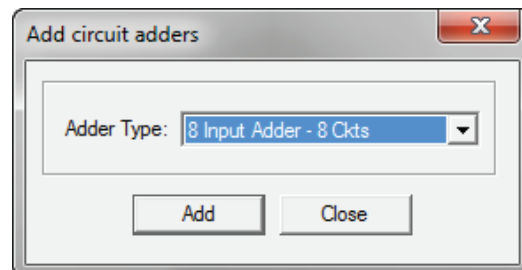
Figure 127 Add circuit adders

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**.

19.21 Adding a Loop Controller

Add a loop controller

1. Select the node that you want to add a loop controller to.

2. Click **Insert** in the menu bar, then click **Add Loop Controllers**.

   The **Add Loop Controller** window appears.
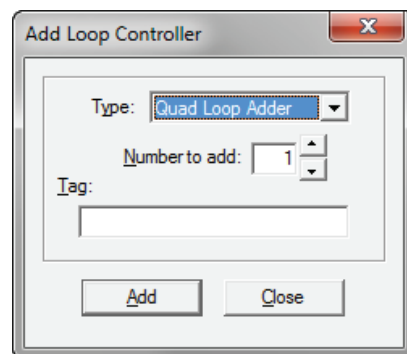
Figure 128 Add Loop Controller

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**.

See the loop controller

1. Click the loop controller in the Job Tree.

Figure 129 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 is allocated for CLIP devices and the address space above and including this entry is allocated for AP devices. Valid AP Start values are 001 to 100.

19.22   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.

Add correlations

1. Select the device or zone that you want to add correlations to.

2. Click **Insert** in the menu bar, then click **Add Correlations**.

   The **Select items to add** window appears.
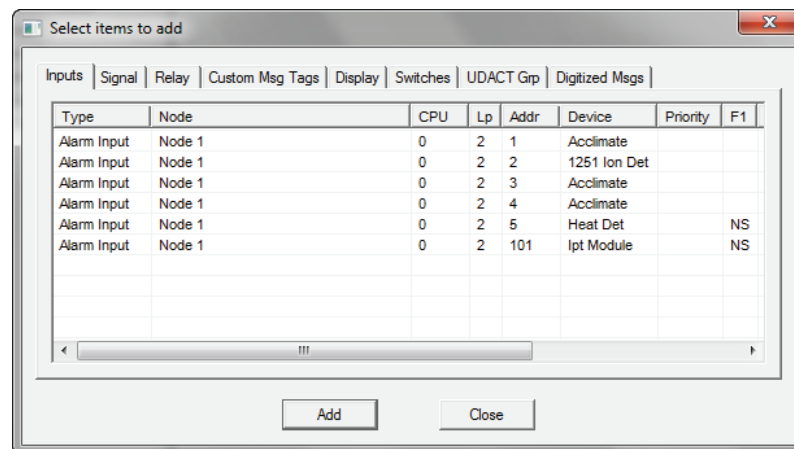
Figure 130 Select items to add

   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 left-click the items.

4. Click **Add**.

5. Repeat steps 3 and 4 for each tab, if necessary.

6. Click **Close**.

19.22.1 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 131 Correlations pane

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.

19.23 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.
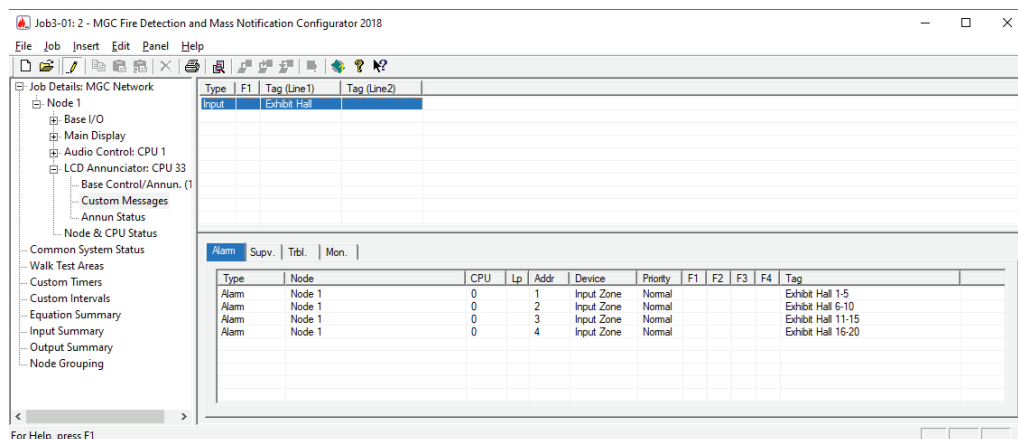
Figure 132 Custom Messages

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.

Create a custom message

1. Select **Custom Messages** under the remote **LCD Annunciator** in the Job Tree.

2. Click **Insert** in the menu bar, then click **Add Message**.

   The **Add Messages** window appears.
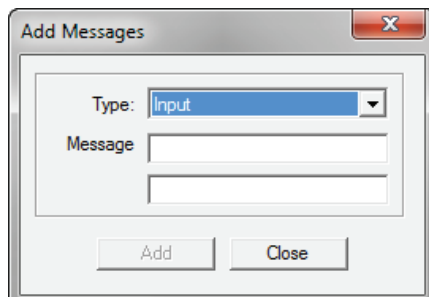
Figure 133 Add Messages

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.

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.

19.24 Audio Controller

> *i*
>
> **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 22.
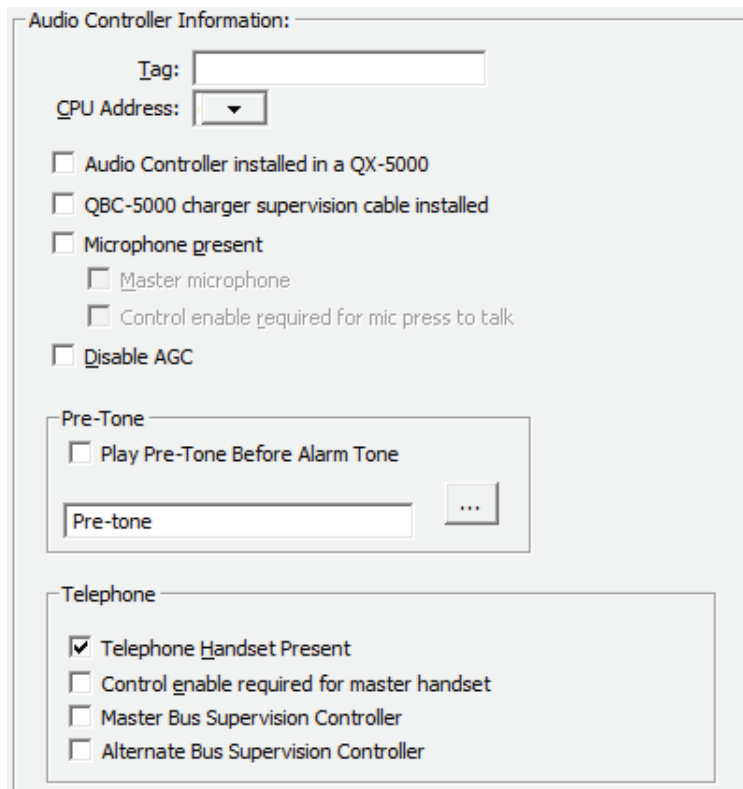
Add an audio controller

1. Select the node that you want to add the audio controller to.

2. Click **Insert** in the menu bar, then click **Add Audio Controller**.

   The audio controller is added.

See the Audio Controller Details

- Select an audio controller in the Job Tree.

Figure 134 Audio Controller Information

Tag	Type a description for the audio controller. This will appear in the Job Tree.
CPU Address	Select the CPU address for the audio controller.
Audio Controller installed in a QX-5000	Select this check box if the amplifier bin arrangement is that of the QMB-5000B. The legacy QMB-5000B has seven amplifier slots. If the box is not selected, the QMB-5000N is assumed. It has only four amplifier slots. During conversion from QMB-5000N to QMB-5000B any existing amplifiers in expansion bins are re-arranged to first fill the additional bins of the QMB-5000B. During conversion from QMB-5000B to QMB-5000N any existing amplifiers in the base unit's extra slots are moved to the expansion bins.
QBC-5000 charger supervision cable installed	Select this check box if the amplifier battery charger is a legacy QBC-5000B. Leave the box unselected if a QBC-5000N charger is in use. The WX-518 cable is required for the QBC-5000N operation (charger supervision). Selecting the wrong charger can affect battery supervision and charging.

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 key 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 Select the **Play Pre-Tone Before Alarm Tone** check box if you want a Pre-Tone to be played before the Alarm 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. See section 19.5.3 on page 142 for more information.

Telephone Handset Present 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. You must delete the Master Telephone Adder (if present) before unselecting the Master Handset.

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 key switch).

Master Bus Supervision Controller	Select this checkbox if you want this audio controller to power the telephone bus. This checkbox must be selected on one of the audio controllers.
	Note: only one audio controller can be designated as the master bus supervision controller per job.
	An audio controller can be specified as having master bus supervision only if:
	• The audio node contains a master telephone handset
	• The **Telephone Handset Present** checkbox is selected
	If this checkbox is not selected on any of the nodes, then there will be a "Tel. Bus Trouble" reported on the system.
Alternate Bus Supervision Controller	Select this checkbox to designate this audio controller as the back-up power for the telephone bus. The alternate bus supervision controller is optional and is used for redundancy (should the master bus supervision controller go offline).

19.25 Panel Information

This window displays a summary of panel and the Configurator information.

View configuration information from the Configurator

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

   The **Panel Information** window appears.
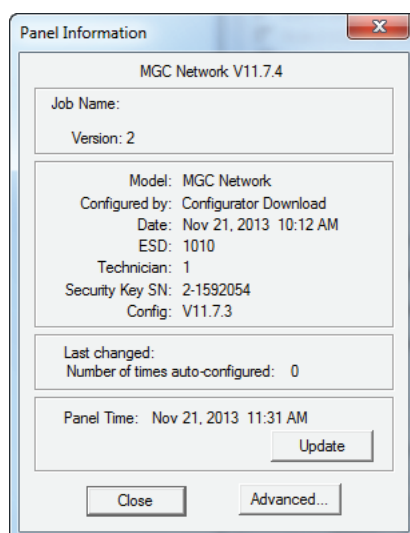
Figure 135 Panel Information

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.

19.26 Advanced Panel Information

This window displays detailed information about the panel.

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 Annunciator, 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.

19.27 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.

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-DD-V12-01-xx.mdb**.

   You can change the backup folder in User Preferences. See section 19.2 on page 131.

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.

19.28 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.**

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.

19.29 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.

Compact the database

- Click **File** > **Compact Database**.

This may take several minutes for a large database.

19.30   Comparing Jobs

You can compare two jobs. The Configurator displays which elements have been added, removed, or changed.

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.
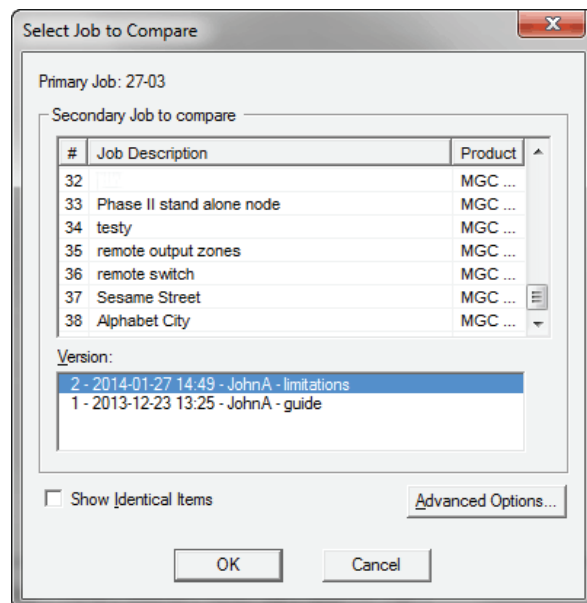
Figure 136 Select Job to Compare

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 19.30.2 on page 179.

19.30.1 Advanced Compare Options

The **Select Job to Compare** window has some advanced options. They are selected by default.

See the Advanced Compare Options

- In the **Select Job to Compare** window, click **Advanced Options**.
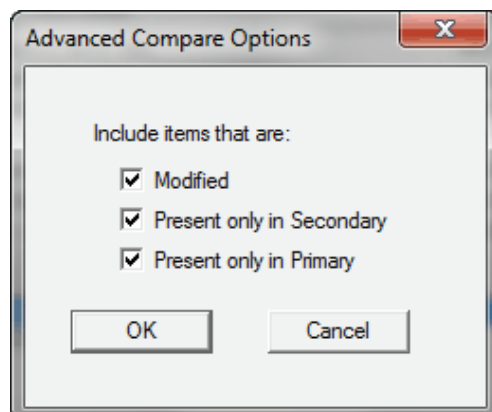
Figure 137 Advanced Compare Options

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.
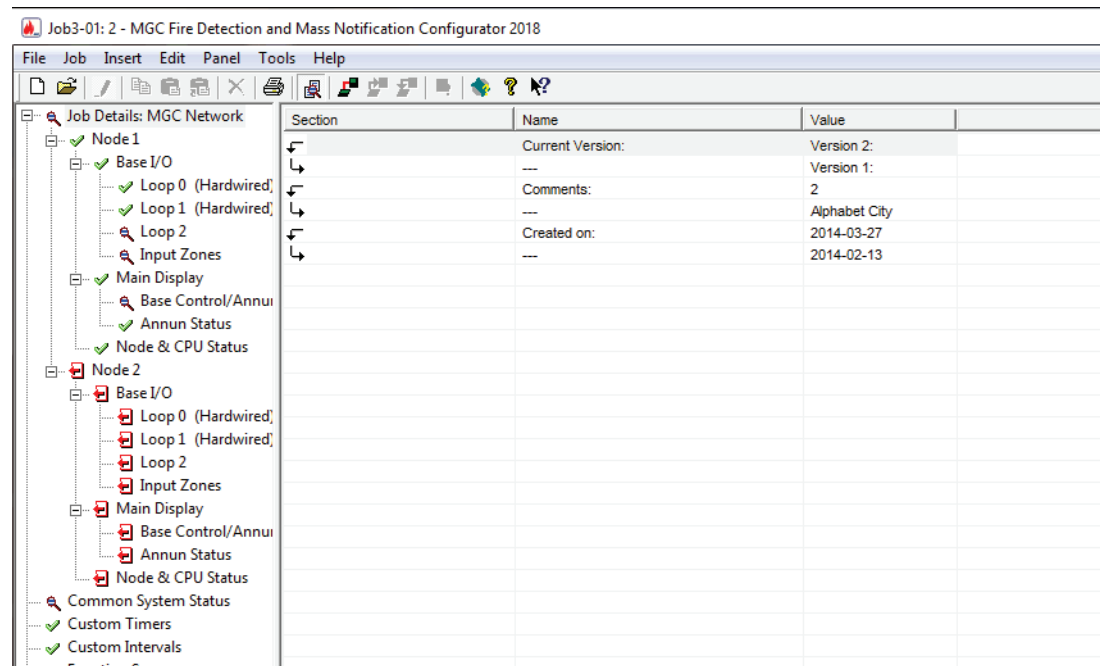
The **Present only in Secondary** and **Present only in Primary** options do not apply to the Job Tree. The entire Job Tree is shown, regardless of these options. These options are applied only to the details of devices.

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.

19.30.2 Interpreting the results

The comparison appears as one job tree.

Figure 138 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 139, 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.
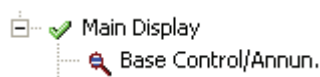
Figure 139 Comparison example

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 140 Minor modifications

19.30.3 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.

Print the job comparison

- See section 19.37 on page 187.

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.

19.30.4 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.
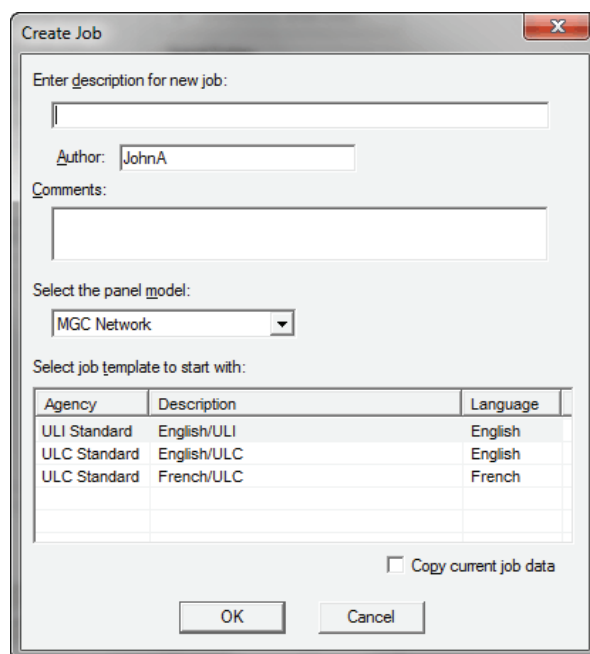
For display items such as LEDs and switches, the key is a combination of node number, their relative position on the adder, and their type and assignment. Minor changes to an LED's assignment (for example, from Alarm Status to Mixed Ipt) are treated as though the LED was deleted and re-added. This makes 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.

19.31 Creating a Job

Create a job

1. Click **Job** > **New Job**.

   The **Create Job** window appears.

Figure 141 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.

> *i*
>
> **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**.

19.32 Opening a Job

Open a job

1. Click **Job** > **Open Job**.

   The **Select Job and Version** window appears.
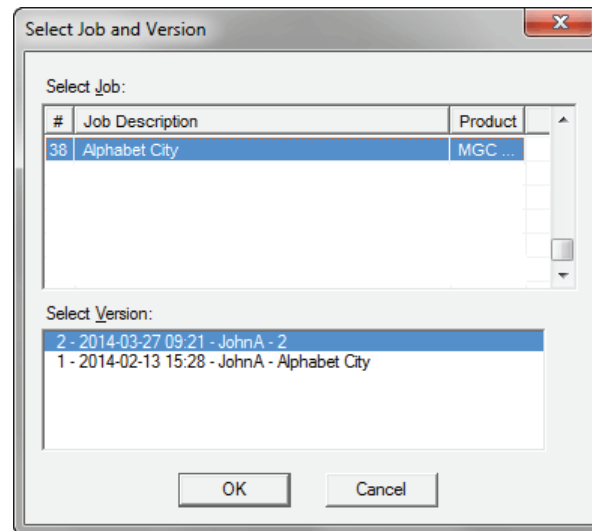
Figure 142 Select Job and Version

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**.

19.33 Importing a Job

You can import a job that has been created on another computer or by another technician. You can import .mdb or .fx2Job files.

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.

19.34 Display Structure

The **Display Structure** feature lets you view the contents of a panel data structure.

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 131.

   The **Display Firmware Data Structure** window appears.
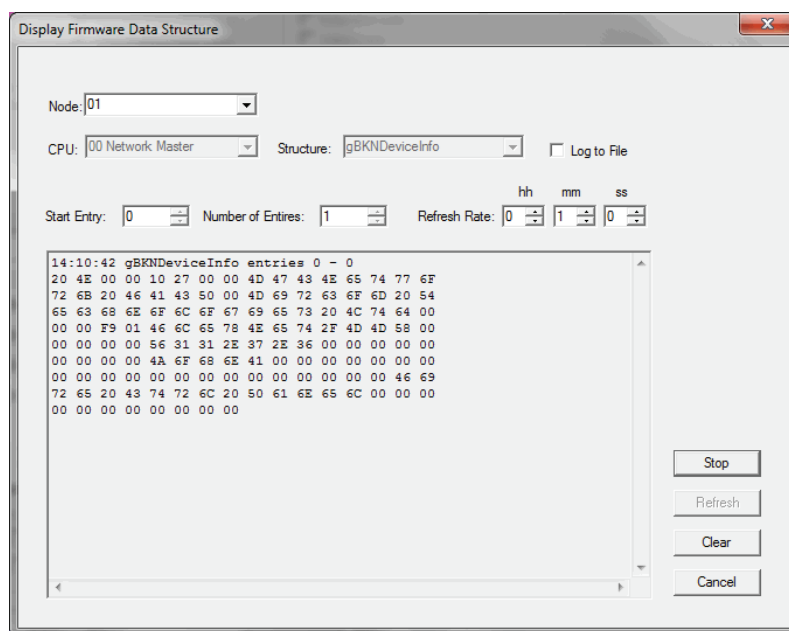
Figure 143 Display Firmware Data Structure

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.

19.35 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.

19.35.1 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.

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 19.35.2 on page 184.

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.
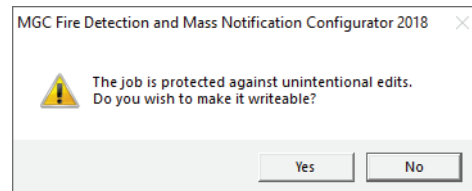
Figure 144 This job is protected against unintentional edits

- Click **Yes** to unlock the job.

Note: Jobs that have more than one node cannot be unlocked. You must create a new version.

19.35.2 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.
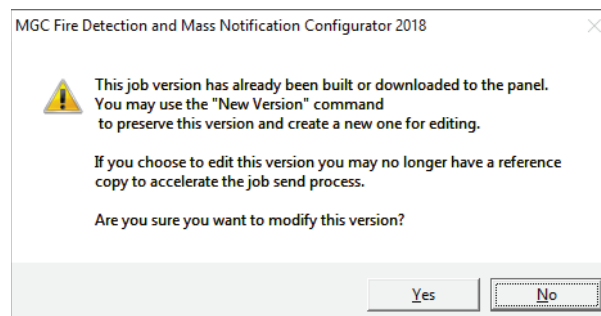
Figure 145 This job version has already been built or downloaded to the panel

Create a new version of a job

1. Click **Job** > **New Version**.

   The **New Job Version Information** window appears.
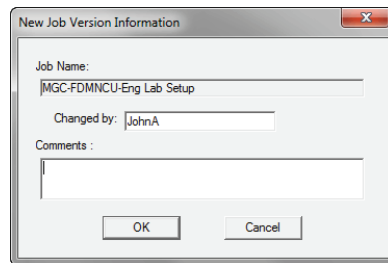
Figure 146 New Job Version Information

2. Type a comment in the **Comments** field. This is required.

3. Click **OK**.

19.36 Paste Special

You can use the **Paste Special** command to paste circuits, conventional adders, or entire loops.
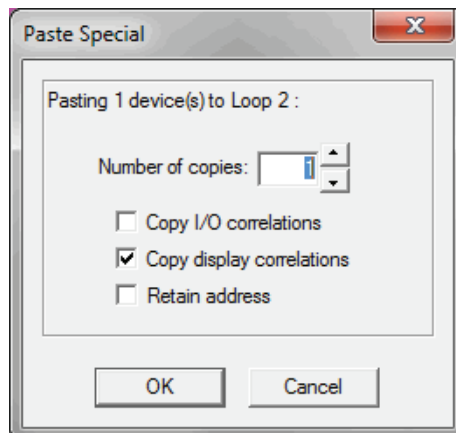
Figure 147 Paste Special for loops

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.
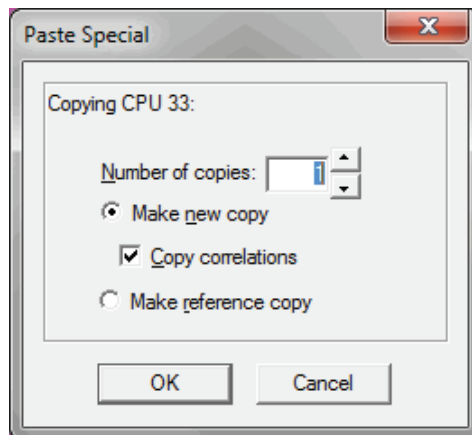
Figure 148 Paste Special for annunciators

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.

19.37   Print

Print a job

1.   Click **File** > **Print**.

The **Print** window appears.
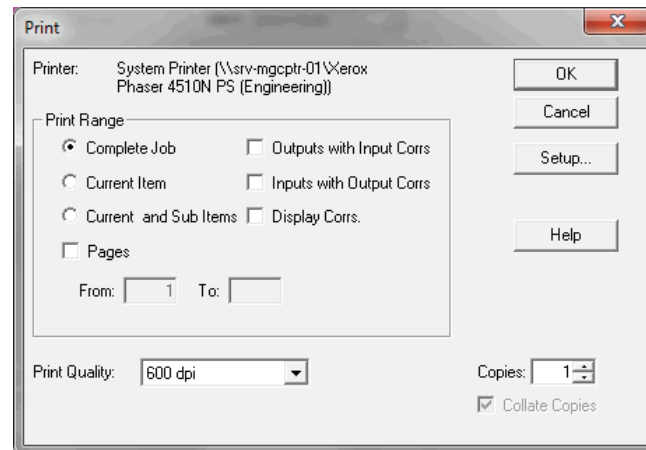
Figure 149 Print

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.

19.38   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.
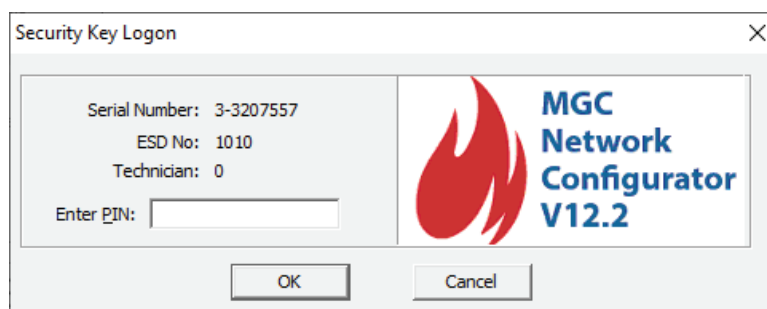
Figure 150 Security Key Logon

- Type your PIN and click **OK**.

19.39   Upgrade Firmware

This window appears when you select the **Upgrade Firmware** command, after you have selected a firmware archive.
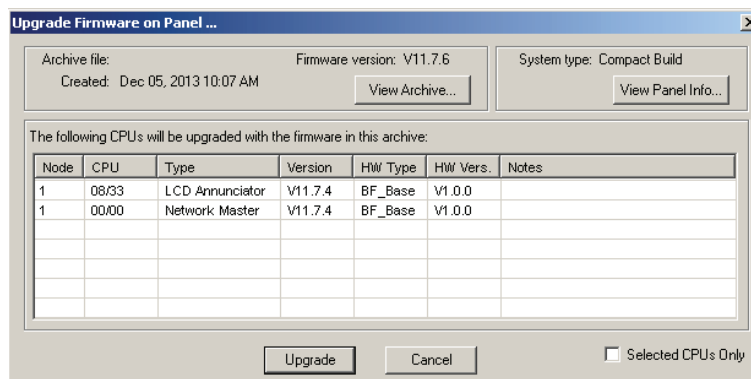
Figure 151 Upgrade Firmware on Panel

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 left-click in the row.
Upgrade	Starts the firmware upgrade.

19.40   Update Panel Time

Update the panel time

1. Click **Panel** > **Panel Information**.

    The **Panel Information** window appears. See section 19.25 on page 174.

2. Click **Update**.

    The **Update Panel Time** window appears.
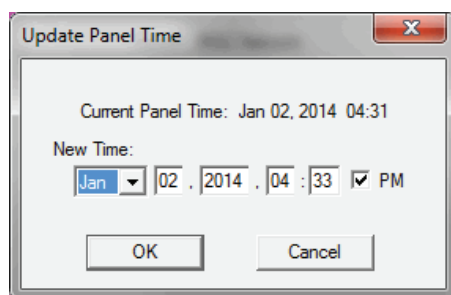
Figure 152 Update Panel Time

3. Adjust the time, if necessary, and then click **OK**.

19.41   Version History

See the version history of the open job

1. Click **Job** > **Version History**.

    The **Version History** window appears.
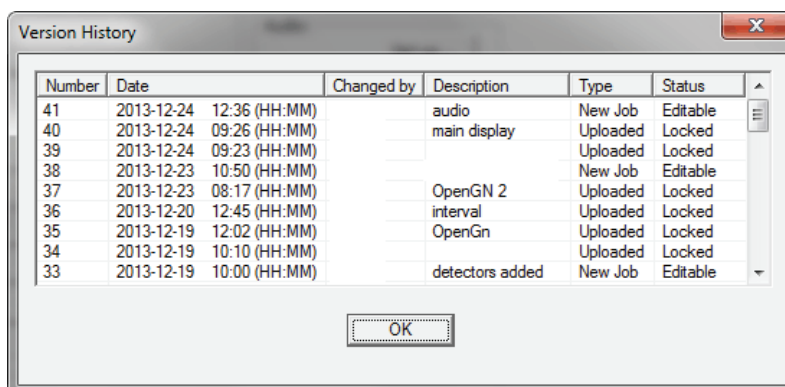
Figure 153 Version History

| **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.

19.42   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 154 System Status

Table 29 describes the columns in the System Status view.

Table 29 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).

19.43 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.

View custom intervals

• Select **Custom Intervals** in the Job Tree.

You can use custom intervals in equations. See section 8.2 on page 49.

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 30 describes the columns in the Custom Intervals view.

Table 30 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.

19.44 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.

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

View custom timers

• Select **Custom Timers** in the Job Tree.

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 47.

Table 31 describes the columns in the Custom Timers view.

Table 31 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.

19.45 Input / Output Circuit Summary

The Job Tree 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.

19.46 Node Grouping

Node 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 DGP (data gathering panel) nodes of the North Tower in the North group and the DGP 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.

Create node groups and add nodes to groups

1. Create two nodes, and give them appropriate tags, for example **Fire Panel** and **MNS Panel**.

2. In the left pane, select **Node Grouping**.

3. Click **Insert** - **Add Group**.

4. Type a name for the group, for example **Fire Group**, and then click **OK**.

5. Double-click under **Fire Panel** and select the **X** to add **Fire Panel** to the Fire Group.

Figure 155 Node grouping for the fire panel

6. Click **Insert** - **Add Group**.

7. Type a name for the second group, for example **MNS Group**, and then click **OK**.

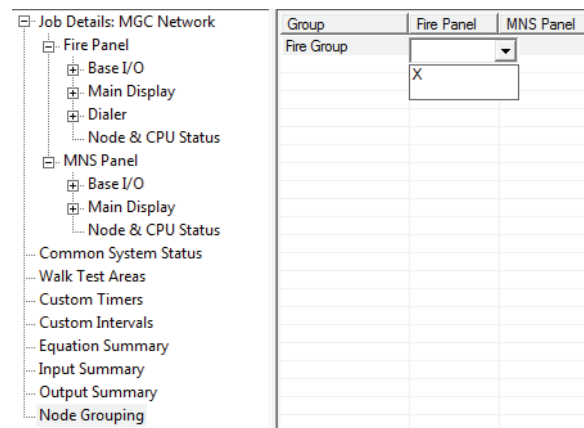8. Double-click under **MSN Panel** and select the **X** to add **MNS Panel** to the MNS Group.
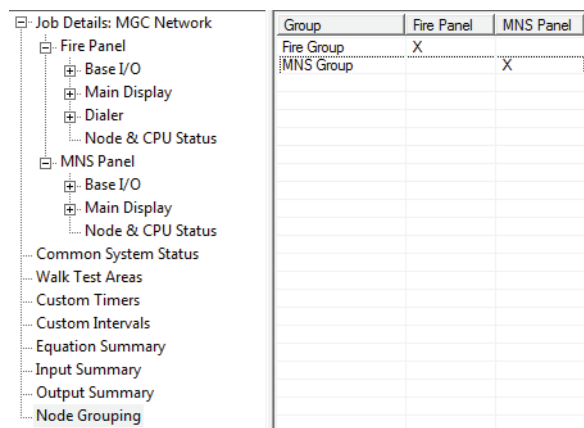
Figure 156 Node grouping for the MNS panel

Rename a group

1. Right-click the group, then select **Edit Group**.

2. Type a new name for the group, and then click **OK**.

Delete a group

1. Right-click the group, then select **Delete Group**.

2. Click **OK**.

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

   The group is not deleted if it has member nodes.

Remove a node from a group

- Double-click the **X** under the node and select the blank line in the pull-down menu.
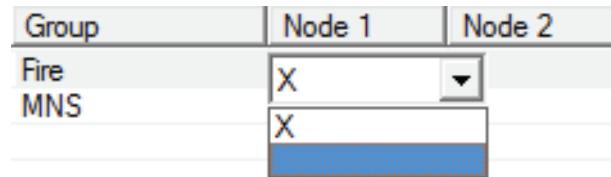
Figure 157 Remove a node from a group

   The node is no longer a member of this group.

19.47 Input Zones

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 32 Input Zones

Name	Description
Device	Input Zone.
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: −19 (lowest) through Normal (default) to +19 (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 5 **Flag** columns (F1, F2, F3, F4, and F5) 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.

CO: CO Alarm - This indicates a carbon monoxide detection zone. Sounder bases correlated to this zone will sound the corresponding CO pattern. It can be set for zone Type **Supv.** or **Alarm**.

SA: Zone activation - This is equivalent to cancelling Signal Silence. It can be set only for zone Type **Supv.** or **Mon**.

19.48   Output Groups

Output groups let you specify a group of Advanced Protocol relay modules, control modules, and sounder bases that you want to activate simultaneously.

FleX-Net™ uses the Advanced Protocol broadcast command to simultaneously activate all relay modules, control modules, and sounder bases that are in the same output group when there is a general alarm or fire drill.

In order to configure output devices so that they activate simultaneously when they are triggered by an input, you must correlate the output devices to an input zone in addition to adding the output devices to an output group.

i

Note: You can only add devices that are on the same CPU to an output group. For example, you cannot add devices from both Node 1 and Node 2 to the same output group. However, you can add devices from more than one loop on a quad loop adder to the same output group.

19.48.1 Add Output Devices to an Output Group

1.   Click **Output Groups** in the Job Tree under **Base I/O**.

2.   Click **Insert** in the menu bar, then click **Add Groups**.
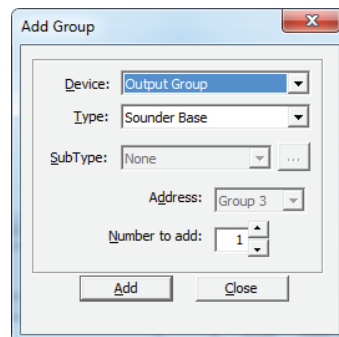
Figure 158 Add Output Group

3.   In the Device menu, select **Output Group**.

4. In the Type menu, select **Sounder Base**, **Relay Base**, or **Output Module**.

5. Click **Add**.

   The new output group appears in the top pane.

6. Select the new output group.

7. Click **Insert** in the menu bar, then click **Add Correlations**.

   The **Select items to add** window appears.
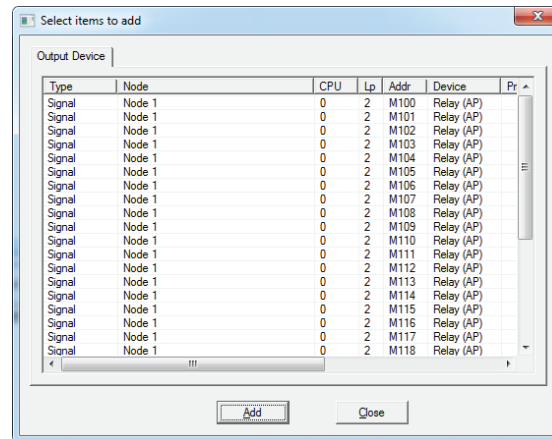
Figure 159 Select items to add to output group

8. Select the output devices that you want to add. To select more than one device, hold down the Ctrl key and click the devices.

Note: If you selected **Sounder Base** in the Type menu, then you can add only Sounder Base (AP) devices. If you selected **Relay Base** in the Type menu, then you can add only Relay Base (AP) devices. If you selected **Output Module** in the Type menu, then you can add only Control (AP), Six Relay Control (AP), and Relay (AP) devices.

9. Click **Add**.

10. Click **Close**.

19.48.2 Correlate Output Devices to an Input Zone

In order to configure output devices so that they activate simultaneously when they are triggered by an input, you must also correlate the output devices to an input zone.

> **Note:** **The list of outputs in the output group must match the list of outputs correlated to the input zone.** If the input zone contains more outputs than are in the output group, then the outputs that are not in the output group will not activate simultaneously when they are triggered by the input. However, if the output group contains more outputs than are in the input zone, then no outputs will activate simultaneously.
>
> For example, consider a job that contains 10 output devices. If all 10 devices are correlated to an input zone, and the output group contains only 5 devices, then only the 5 devices in the output group will activate simultaneously when they are triggered by the input.
>
> If the output group contains all 10 devices, but only 5 of these devices are correlated to an input zone, then no devices will activate simultaneously when they are triggered by the input.

1. Select the input zone that you want to add the output devices to.

2. Click **Insert** in the menu bar, then click **Add Correlations**.

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

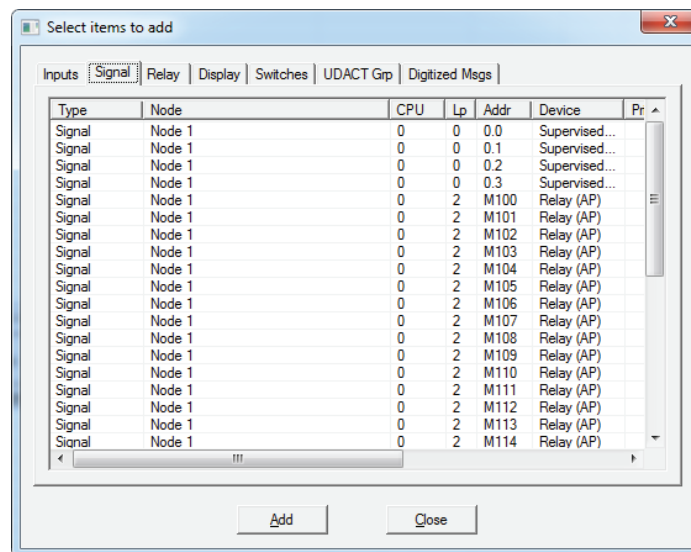**Figure 160 Select items to add to input zone**

3. Select the **Signal** tab for Control (AP) and Sounder Base (AP) devices, and select the **Relay** tab for Relay (AP) devices.

4. Select the same output devices that you added to the output group in section 19.48.1. To select more than one device, hold down the Ctrl key and click the devices.

5. Click **Add**.

6. Click **Close**.

If the output devices are both in an output group and correlated to the input zone, they will activate simultaneously when the input zone activates.

19.49 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.

Add an LED annunciator

1. Click **Insert** in the menu bar, then click **Add Annunciator**.

2. In the **Type** menu, select **LED Annunciator**.

3. Type a description in the **Tag** field, and then click **Add**.

See the LED annunciator summary

- Click **LED Annunciator** in the Job Tree.

CPU	Tag
33	Basement
34	Main floor

Figure 161 LED Annunciator

- Double-click in the CPU column to change the CPU address.

- Double-click in the Tag column to change the tag.

19.50 Loop Details

The loop details displays the hard wired (conventional) circuits or addressable devices in a loop.

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 33 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.
Abs Addr	In order to accommodate as many device addresses as possible, advanced addressing uses the absolute address instead of the real address. Absolute address is unique and fixed for each device address.
Device	Conventional - fixed, depending on the circuit adder. See section 19.20 on page 165. 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.

Table 33 Loop Details (Continued)

Name	Description
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.
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 149. 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:** No LED Activation - do not turn ON an addressable device's LED (and activate sounder when present) when the device is active. The LED turns ON by default and may only be changed to NF if the Authority Having Jurisdiction allows.
- **HV**: High Volume - use the High Volume setting on an AP sounder base.

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.

19.51   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-5302DS or QAZT-5348DS). 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.

19.51.1 Adding an audio controller

> *i*
>
> **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 22.

- See section 19.24 on page 171 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.

19.51.2 Adding a fire phone module

Add a fire phone module

1. Select the loop that you want to add a device to.

2. Click **Insert** in the menu bar, then click **Add Device**.
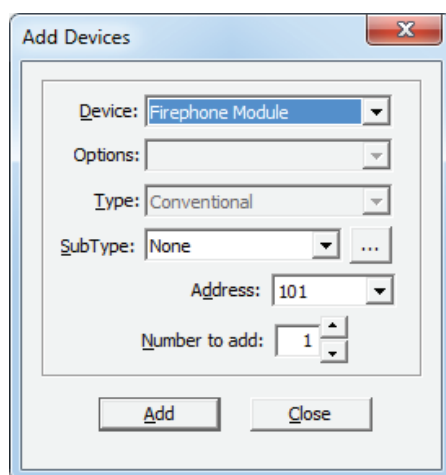
   The **Add Device** window appears.

Figure 162 Add fire phone module

3. Select **Firephone Module** in the **Device** pulldown menu.

4. Click the **Add** button.

19.51.3 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.

Add a master telephone

1. Select the annunciator or display adder that you want to add the telephone to.

2. Click **Insert** in the menu bar, then click **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**.

19.51.4 Adding telephone/page selectors (QAZT-5302DS)

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.

Add a telephone/page selector

1. Select the annunciator or display adder that you want to add the telephone to.

2. Click **Insert** in the menu bar, then click **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 unassigned. They can be configured as Zone Switch, Phone Select, Dig Msg, Page Select, or Node Control.

19.51.5 Adding QAZT-5348DS and IPS-4848DS

The QAZT-5348DS is represented in the Configurator by 2 Telephone/Page Selectors. It uses 4 frames.

The IPS-4848DS is represented by 2 24 Sw Adders. It uses 4 frames.

Add a QAZT-5348DS

1. Select the annunciator or display adder that you want to add the QAZT-5348DS to.

2. Click **Insert** in the menu bar, then click **Add Display Adder**.

3. Select **Telephone/Page Selector** in the **Select Adder Type** pulldown menu.

4. Click **Add**.

5. Click **Insert** in the menu bar, then click **Add Display Adder**.

6. Select **Telephone/Page Selector** in the **Select Adder Type** pulldown menu.

7. Click **Add**.

8. Click **Close**.

The first Telephone/Page Selector that you added represents the first 24 switches on the QAZT-5348DS. The second Telephone/Page Selector represents the next 24 switches.

Add an IPS-4848DS

1. Select the annunciator or display adder that you want to add the IPS-4848 to.

2. Click **Insert** in the menu bar, then click **Add Display Adder**.

3. Select **24 Sw Adder** in the **Select Adder Type** pulldown menu.

4. Click **Add**.

5. Click **Insert** in the menu bar, then click **Add Display Adder**.

6. Select **24 Sw Adder** in the **Select Adder Type** pulldown menu.

7. Click **Add**.

8. Click **Close**.

The first 24 Sw Adder that you added represents the first 24 switches on the IPS-4848DS. The second 24 Sw Adder represents the next 24 switches.

19.51.6 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.

Correlate a selector switch to a telephone

1. Select the addressable loop or audio controller phone list view containing the telephone.

2. Click **Insert** in the menu bar, then click **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.

Correlate a phone module to a switch

1. Select the Selector Switch.

2. Click **Insert** in the menu bar, then click **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".

19.51.7 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**.

19.52   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-5302DS or QAZT-5348DS).

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 19.52.4 on page 206 for instructions on how to do this.

The following 3 sections describe 3 applications of master telephones.

19.52.1   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.

19.52.2   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.

19.52.3 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.

19.52.4 Master telephones in the Configurator

This section describes how to set up master telephones on the three-node system described in section 19.52.2 on page 205.

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 19.24, 19.51.3 and 19.51.4. For each audio controller select the **Master Handset** check box.

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**.
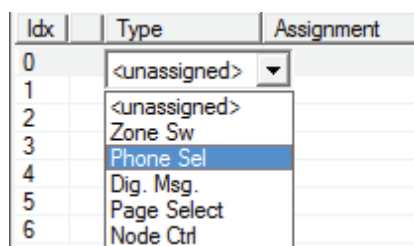

Figure 163 Make a switch a phone selector switch

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** in the menu bar, then click **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 164 shows that switch numbers 0 and 1 on node 2, and switch numbers 0 and 2 on node 3 are available for correlation.
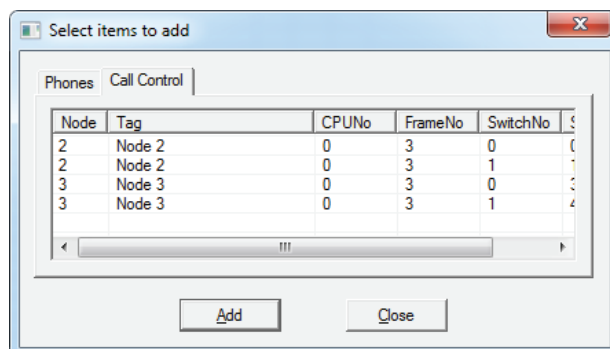

   Figure 164 Add correlations to a phone selector switch

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** in the menu bar, then click **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 165 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.
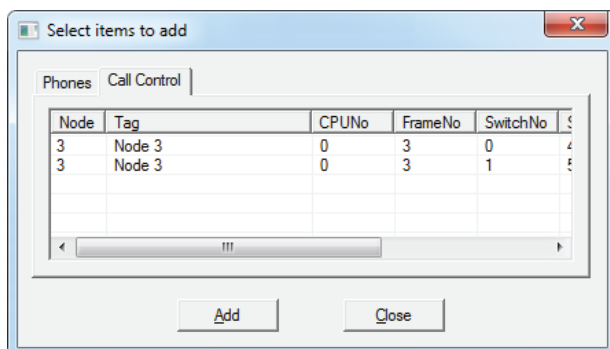

   Figure 165 Add correlations to a phone selector switch

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** in the menu bar, then click **Add Correlations**.

12. In the **Select items to add window**, click the **Call Control** tab.

Figure 166 shows that switch number 1 on node 3 is available for correlation.
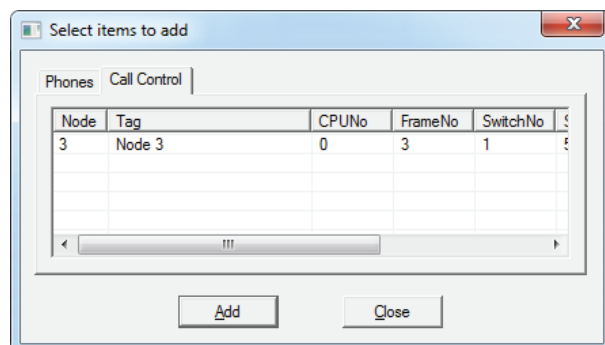

Figure 166 Add correlations to a phone selector switch

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

19.53 Suite Silence

You can configure a combination of system statuses, timers, input zones, and signal zones to satisfy the requirements of Division B, Part 3.2.4.18 of the National Building Code of Canada 2015 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.

Excerpt from the National Building Code of Canada 2015 Division B, Part 3.2.4.18

(11) Audible signal devices within dwelling units that are wired on separate signal circuits need not include a means for silencing as required by Sentence (7) 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 s. of operation or within the zone of initiation,*

- *(b) a subsequent alarm elsewhere in the building will reactivate 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...*

> **Note:** For more information, consult the National Building Code of Canada 2015. Please review the full text of the code and consult with professional advisors for the implications of the code.

19.53.1 Timers for Suite Silence

There are three timers for suite silence in the Job Details. See section 19.5 on page 134.

- **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.

19.53.2 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.**

19.54   Configuring suite silence

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**.
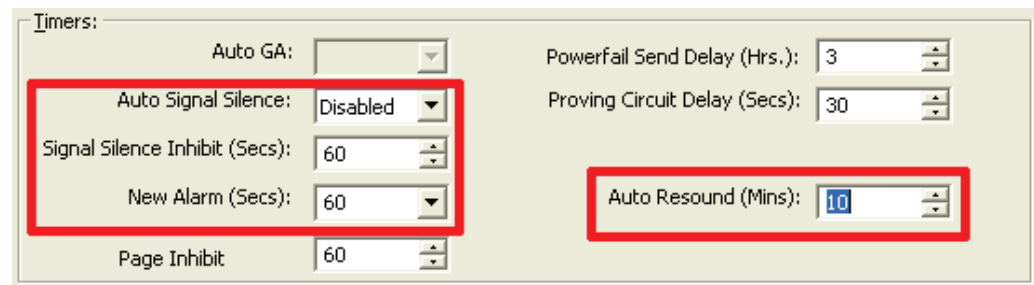
Figure 167 Timers for suite silence

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.

19.55   Signal Silence Operation

This section describes how to configure the notification appliance circuits (NACs) in accordance with four types of signal silence operation:

- **Basic Signal Silence Operation:** A Basic Signal Silence Operation is considered to be any system whereby activation of the signal silence switch following receipt of an alarm is uninhibited.

- **Modified Signal Silence Operation:** A Modified Signal Silence Operation is considered to be any system whereby activation of the signal silence switch following receipt of an alarm is partially inhibited: the audible signals are deactivated and the visual signals remain activated.

- **Non-Silenceable Waterflow Alarm Operation:** A Non-Silenceable Waterflow Alarm Operation is considered to be any system whereby activation of a waterflow alarm shall inhibit the signal silencing of audible and/or visual signals.

- **Modified Non-Silenceable Waterflow Alarm Operation:** A Modified Non-Silenceable Waterflow Alarm Operation is considered to be any system whereby activation of the signal silence switch following receipt of a non-waterflow alarm is partially inhibited: the audible signals are deactivated and the visual signals remain activated. The activation of a waterflow alarm shall inhibit the signal silencing of the audible and/or visual signals.

Activation of the Signal Silence button when the panel is in alarm turns on the Signal Silence indicator and deactivates any silenceable NACs. Non-silenceable circuits are unaffected. Signals will resound upon any subsequent alarm. This button does not function during any configured signal silence inhibit timer period. It also does not function if the signals are active as a result of a fire drill.

The **NS** (Non-Silenceable) flag is intended as an inhibitor to the signal silence command in accordance with certain jurisdictions where silencing of audible and/or visual notification appliance circuits during a waterflow alarm may not be permitted.

Where driven by the activation of an input zone with an **NS** flag, audible and/or visual notification circuits shall continue to operate following the manual activation of the signal silence switch. Only visual and audible notification circuits drive by silenceable input zones (no **NS** flag) shall be silenced.

It is recommended that the **NS** flag not be applied directly to the notification appliance circuits.

19.55.1 Signal Silence Operation (Single Stage)

Below is a description of the Signal Silence operation in accordance with requirements.

In a single stage system, all alarm inputs are treated in a similar manner. Alarm inputs include any of the following: Non-verified alarm, verified alarm, water-flow alarm, and general alarm input circuits. Upon receipt of an **initial alarm input**, the panel shall cause the following:

- The active alarm input is displayed within the Main Display Alarm Queue.
- The internal piezo buzzer sounds steadily.
- The Common Alarm Status is active.
- The on-board Common Alarm Relay is closed (Active).
- Audible and/or Visual signals associated with the input are activated at the evacuation rate.

While in alarm, and the 1-minute signal silence inhibit has expired (where applicable), pressing the **Signal Silence Switch** will cause the following events to occur (**Basic Signal Silence Operation**):

- Signal Silence switch is activated.
- Signal Silence switch LED is illuminated (flashing yellow).
- A Signal Silence trouble event is reported for each node currently silenced.
- Audible and/or Visual signals become inactive.

A Subsequent alarm shall cause the following:

- Signal Silence switch is de-activated and the Signal Silence switch LED is off.
- The Signal Silence trouble event(s) are restored.
- Audible and/or Visual signals are reactivated.

- Any additional signals associated with the subsequent alarm are activated at the evacuation rate.

Where **Modified Signal Silence operation** is required, activation of an alarm input shall operate in a similar manner as described following the receipt of an initial alarm.

While in alarm, and the 1-minute signal silence inhibit has expired (where applicable), pressing the **Signal Silence Switch** will cause the following events to occur (**Modified Signal Silence Operation**):

- Signal Silence switch is activated.
- Signal Silence switch LED is illuminated (flashing yellow).
- A Signal Silence trouble event is reported for each node currently silenced.
- Audible signals become inactive.
- Visual signals shall be unimpeded.

A Subsequent alarm shall cause the following:

- Signal Silence switch is de-activated and the Signal Silence switch LED is off.
- The Signal Silence trouble event(s) are restored.
- Audible signals are reactivated.
- Any additional signals associated with the subsequent alarm are activated at the evacuation rate.

Where **Non-Silenceable Water Flow operation** is required, activation of a water flow alarm input shall operate in a similar manner as described following the receipt of an initial alarm.

During an active water flow alarm, pressing the **Signal Silence Switch** will cause the following events to occur (**Non-Silenceable Water Flow operation**):

- Signal Silence switch is activated
- Signal Silence switch LED is illuminated (flashing yellow)
- Audible and/or Visual signals driven by the water flow alarm shall be unimpeded

Where **Modified Non-Silenceable Water Flow Operation** is required, activation of a water flow alarm or any alarm input shall operate in a similar manner as described following the receipt of an initial alarm.

During an active alarm classified as a **non-water flow,** pressing the **Signal Silence Switch** will cause the following events to occur (**Modified Non-Silenceable Water Flow Operation**):

- Signal Silence switch is activated.
- Signal Silence switch LED is illuminated (flashing yellow).
- A Signal Silence trouble event is reported for each node currently silenced.
- Audible signals become inactive.
- Visual signals shall be unimpeded.

A Subsequent alarm shall cause the following:

- Signal Silence switch is de-activated and the Signal Silence switch LED is off.
- The Signal Silence trouble event(s) are restored.

- Audible signals are reactivated.

- Any additional signals associated with the subsequent alarm are activated at the evacuation rate.

If **water flow alarm** receipt is received, pressing the **Signal Silence Switch** will cause the following events to occur (**Non-Silenceable Water Flow operation**):

- Signal Silence switch is activated

- Signal Silence switch LED is illuminated (flashing yellow)

- Audible and/or Visual signals driven by the water flow alarm shall be unimpeded

19.55.2 Signal Silence Operation (Two Stage)

Below is a description of the Signal Silence operation in accordance with requirements.

In a two-stage system, all alarm inputs are treated in a similar manner. Alarm inputs include any of the following: Non-verified alarm, verified alarm, water-flow alarm, and general alarm input circuits. Upon receipt of an **initial alarm input**, the panel shall cause the following:

- The active alarm input is displayed within the Main Display Alarm Queue.

- The internal piezo buzzer sounds steadily.

- The Common Alarm Status is active.

- The on-board Common Alarm Relay is closed (Active).

- Audible and/or Visual signals associated with the input are activated at the alert rate (unless specified with the GA flag).

- Auto GA timer becomes active (if required).

- Auto signal silence (if required).

> *i*
>
> **Note:** All four signal silence operations in a two-stage system shall operate as described in the single stage operation with regards to the Silencing and Subsequent alarm of Audible and/or Visual signals, unless otherwise specified in the configuration.

19.55.3 Basic Signal Silence Configuration

A Basic Signal Silence Operation is considered to be any system whereby activation of the signal silence switch following receipt of an alarm is uninhibited.

Configure basic signal silence driven by the FleX-Net™ built-in NACs

1. Do not define the **NS** flag to any of the FleX-Net™ built-in NACs.

2. Do not define the **NS** flag to any of the alarm zones.

Configure basic signal silence driven by the INX-10A

1. Do not correlate the signal silence status to the designated internal signal silence relay output module of the INX-10A Power Supply panel.

2. Do not define the **NS** flag (F1) to any of the designated internal Supervised Output module (NAC'S) of the INX-10A Power Supply panel.

3. Do not define the **NS** flag (F1) to any of the alarm zones.

19.55.4 Modified Signal Silence Configuration

A Modified Signal Silence Operation is considered to be any system whereby activation of the signal silence switch following receipt of an alarm is partially inhibited: the audible signals are deactivated and the visual signals remain activated.

When the **Silence NAC Audibles Only** check box on the Job Details page is selected, all Alarm, Supervisory, Trouble, and Monitor zones with the **NS** flag will deactivate only audible signals when signal silence is activated.

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> **Note:** NFPA 72 (2019) 10.12.2 "When a fire alarm notification deactivation means is actuated, both audible and visible notification appliances shall be simultaneously deactivated" unless otherwise specified by Authority Having Jurisdiction (AHJ).

Configure modified signal silence driven by the FleX-Net™ built-in NACs

1. Select the **Silence NAC Audibles Only** check box on the Job Details page.

2. Define the **NS** flag to the alarm zone that requires the modified signal silence operation.

3. Do not define the **NS** flag to any of the FleX-Net™ built-in NACs.

Configure modifier signal silence driven by the INX-10A

1. Select the **Silence NAC Audibles Only** check box on the Job Details page.

2. Correlate the signal silence status to the designated internal signal silence relay output module of the INX-10A Power Supply panel.

3. Do not define the **NS** flag (F1) to any of the designated internal Supervised Output module (NACs) of the INX-10A Power Supply panel.

4. Define the **NS** flag (F1) to the alarm zone that requires the Modified Signal Silence operation.

19.55.5 Non-Silenceable Waterflow Alarm Configuration

A Non-Silenceable Waterflow Alarm Operation is considered to be any system whereby activation of a waterflow alarm shall inhibit the signal silencing of audible and/or visual signals.

Audible and/or visual signals in the **Waterflow** zone type are unaffected by the activation of the signal silence switch.

Configure a non-silenceable waterflow alarm driven by the FleX-Net™ built-in NACs

1. Add all devices that are required to be non-silenceable to the **Waterflow** zone.

2. Do not define the NS flag to any of the FleX-Net™ built-in NACs.

Configure a non-silenceable waterflow alarm driven by the INX-10A

1. Add all devices that are required to be non-silenceable to the **Waterflow** zone.

2. Do not correlate the signal silence status to the designated internal signal silence relay output module of the INX-10A Power Supply panel.

3. Do not define the NS flag (F1) to any of the designated internal Supervised Output module (NACs) of the INX-10A Power Supply panel.

19.55.6 Modified Non-Silenceable Waterflow Alarm Configuration

A Modified Non-Silenceable Waterflow Alarm Operation is considered to be any system whereby activation of the signal silence switch following receipt of a non-waterflow alarm is partially inhibited: the audible signals are deactivated and the visual signals remain activated. The activation of a waterflow alarm shall inhibit the signal silencing of the audible and/or visual signals.

When the **Silence NAC Audibles Only** check box on the Job Details page is selected, all Alarm, Supervisory, Trouble, and Monitor zones with the **NS** flag will deactivate only audible signals when signal silence is activated.

Configure a modified non-silenceable waterflow alarm driven by the FleX-Net™ built-in NACs

1. Add all devices that are required to be non-silenceable to the **Waterflow** zone.

2. Select the **Silence NAC Audibles Only** check box on the Job Details page.

3. Define the **NS** flag to the alarm zone that requires the modified signal silence operation.

4. Do not define the **NS** flag to any of the FleX-Net™ built-in NACs.

Configure a modified non-silenceable waterflow alarm driven by the INX-10A

1. Add all devices that are required to be non-silenceable to the **Waterflow** zone.

2. Select the **Silence NAC Audibles Only** check box on the Job Details page.

3. Do not define the **NS** flag (F1) to any of the designated internal Supervised Output module (NACs) of the INX-10A Power Supply panel.

4. Define the **NS** flag (F1) to the alarm zone that requires the modified signal silence operation.

5. Add the following logic statement to internal signal silence relay output module of the INX-10A Power Supply panel: **Signal Silence AND NOT Water Flow Zone: A**

    Example: **-**-**-ST-012 AND NOT 01-00-**-IZ-005: A

19.56 Menus

19.56.1 File Menu

The **File** menu contains the following commands:

Table 34 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.

Table 34 File Menu (Continued)

Name	Short cut	Description
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.

19.56.2 Job Menu

The **Job** menu contains the following commands:

Table 35 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.
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.

Table 35 Job Menu (Continued)

Name	Short cut	Description
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		For future use.
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.

19.56.3 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 36 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.
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.

19.56.4 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 37 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.

19.56.5 Panel Menu

The **Panel** menu contains the following commands.

Table 38 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.
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.

19.56.6 Tools Menu

The items under the **Tools** menu are used mainly for troubleshooting and diagnostic purposes by the factory.

Table 39 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.
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.

List of Procedures