

Introduction to the ONYX Recertification Program

Online Training

Page 9 of 20

The *online training* component of the ONYX Recertification Program is comprised of a number of training topics introduced through subject modules.

The particular set of online modules you will need to complete depends upon the specific recertification program (particular ONYX panel, Digital Voice, etc).

Each module contains a quiz. The sum of the quiz grades makes up the total grade for the online recertification component.

You must achieve at least a 70% in the online component in order to continue with the program and to be considered for recertification.

- **Introduction to Recertification Program**
- **NFS-320/NFS2-640 Fire Alarm Control**
- **NFS2-3030 Fire Alarm Control**
- **Enclosures**
- **Digital Voice Evacuation**
- **Intelligent Detectors**
- **Addressable Monitor Modules**
- **Addressable Control Modules**
- **Programming Basics**
- **Smoke Control Modules**
- **IP Communicator**

[◀ BACK](#)[NEXT ▶](#)

Introduction to the ONYX Recertification Program

Programming Software Webinar

The *software webinar* component of the ONYX Recertification Program is designed to familiarize technicians with the latest version of programming software

- The **VeriFire** Programming Utility will be detailed in this online sessions.
- **Scheduling.** The webinars will be scheduled periodically based on demand cycles. You can only register to attend the software webinar after successful completion of this online training component.
- Each applicant for recertification must be logged into the webinar on a computer that has the latest version of programming software installed.
- **Scoring.** Your performance in the webinar will be determined by answers to questions submitted online. Some of the questions will be based on interaction with the respective programming software installed on your personal computer.



◀ BACK

NEXT ▶

Introduction to the ONYX Recertification Program

Exam for Recertification

Page 11 of 20

The *written exam for recertification* will test a technician's knowledge in virtually any subject matter associated with the respective fire alarm system.

- Applicants will be tested in their ability to find information in technical manuals, answer questions from the material covered in the online training component and in the writing of equations.
- The written exam can be scheduled to be taken during standard business hours at any one of three Honeywell locations. Evening exams can be taken at additional locations within the continental United States - contact the Notifier Training Administrator for details.
- The materials you will be allowed to use in the exam is limited. A list of authorized documents will be provided to you during registration for the exam.
- You cannot register for the exam until the first two components of the Recertification Program have been successfully completed.



Exams can be scheduled at the following factory locations:

**Northford, CT
Atlanta, GA
Lincolnshire, IL
Maple Grove, MN**

[◀ BACK](#)[NEXT ▶](#)

Introduction to the ONYX Recertification Program

Important Note

Page 12 of 20

Final IMPORTANT Note:

This online Prerequisite Training Program is not intended to replace in any way the technical documentation approved by Underwriter's Laboratories (UL) and shipped with each control panel or system component. Where differences occur between the information presented within this program and a product manual, always refer to the official documentation for resolution.

The learning material contained within this program has been thoughtfully selected from thousands of pages of important technical information on ONYX systems. This program is not intended to provide a comprehensive understanding of any one topic. Rather, its intention is to offer a baseline foundation of knowledge on the key components and features of ONYX systems.

Click the note icon on the right to access important instructions.

[◀ BACK](#)[NEXT ▶](#)

Introduction to the ONYX Recertification Program

Summary Page

Page 13 of 20

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.

[◀ BACK](#)[NEXT ▶](#)

Introduction to the ONYX Recertification Program

Quiz Question



Successful completion of the ONYX Recertification Program is based on which criteria?

- A minimum of 70% in each of three program modules
- Complete an online program and pass the Final Exam
- Complete a final exam and attend a webinar
- None of the above

NEXT ►

Introduction to the ONYX Recertification Program

Quiz Question



The software webinar outlines the latest functionality of programming software for ONYX systems. It requires which of the following from the applicant for recertification:

- I must have the latest programming software installed on my computer
- I must be able to answer online questions throughout the webinar
- I have to complete the online training program first
- All of the above

NEXT ►



Introduction to the ONYX Recertification Program

Quiz Question



Which of the following statements best describes the *Reading Assignments* in the ONYX Recertification Training Program?



- Can be completed in lieu of taking the online training program
- They are for background information only
- Are a required element of the Recertification Program
- Are only for those with less than 3 years of experience

NEXT ►

Introduction to the ONYX Recertification Program

Quiz Question



Attendance in a ONYX Instructor-Led Factory Course is required under which of the following situations? (choose the best answer)

- For initial certification.
- Three years after successful recertification via the online program
- After one failed attempt in the online Recertification Program
- All of the above

NEXT ►

Introduction to the ONYX Recertification Program

Quiz Question



What is the function of this symbol that is used throughout the ONYX Recertification Training Program?

- Indicates a mandatory Reading Assignment
- Provides critical information about products and software selections
- Supplies supplementary information about the current topic
- Links to a related document on Notifier.com

NEXT ►

Introduction to the ONYX Recertification Program

Quiz Question



Which materials will be allowed to be brought into the written Final Exam for Recertification?

- No materials can be used in Final Exam
- Anything - there is no restriction
- Restricted - details will be released at registration time
- A computer, calculator and a set of manuals

NEXT ▶

Introduction to the ONYX Recertification Program

Module Completed

Congratulations - you have completed module *Introduction to the ONYX Recertification Program*.

Your score for this module: **Score: 83%**



Don't forget to click on the Caution

EXIT

NFS-320/NFS2-640 for Recertification

Learning Activity Details

Description:

This module overviews the changes that have been made to the NFS-320 and the NFS2-640 Fire Alarm Systems since January 2006.



The NFS-320 and the NFS2-640 Fire Alarm Systems

This self-paced module of study is a review of the capabilities, features, components and operation of the NFS-320 and the NFS2-640 Fire Alarm Control Panels

NEXT ►

NFS-320 & NFS2-640

Introduction

Page 2 of 18

This module overviews the changes that have been made to the NFS-320 and the NFS2-640 Fire Alarm Systems since January 2006.

Complete information regarding the Installation, Programming and Operation of these systems can be found on the Magni-Fire.com.

[◀ BACK](#)[NEXT ▶](#)

NFS-320 & NFS2-640

ConvertiFire

Page 3 of 18

ConvertiFire software converts Legacy Series panel databases to ONYX Series panel databases.

- Eliminates significant programming time
- Generates reports detailing the conversion
- Identifies features/parameters requiring user intervention
- Converts AFP-300/400 databases to NFS2-640 databases
- Converts AFP-300 databases to NFS-320 databases
- Converts AFP-200 databases to NFS-320 or NFS2-640 databases

[◀ BACK](#)[NEXT ▶](#)

i Java Update Available
A new version of Java is ready
Click here to continue.

NFS-320 & NFS2-640

NFS-320 Fire Alarm Control

Page 4 of 18

Introduced in 2007, the NFS-320 was designed specifically for small applications. Its primary features minimize installation time, simplify maintenance and increase usability.

The NFS-320 offers all the sophistication and performance synonymous with the ONYX Series, but on a smaller scale.

System Features - Standard

- Single cabinet solution
- Quick-change CPU/Chassis Assembly
- Integral Power Supply
- Keypad/Display Assembly
- One Signaling Line Circuit (SLC)
- Up to 318 intelligent FlashScan points
- Four Notification Appliance Circuits (NAC)

 Cabinet Door Dress Panel[◀ BACK](#)[NEXT ▶](#)

NFS-320 & NFS2-640

NFS-320 Fire Alarm Control

Page 5 of 18

The NFS-320 as shipped is supplied with all the essentials for a basic system (except batteries):

- CPU, Power Supply & mounting chassis
- Cabinet
- Internal Dress Panel

Additional equipment is used to meet specific application requirements:

- Serial Printer
- Annunciators
- Digital Communicator
- Network card



◀ BACK

NEXT ▶

NFS-320 & NFS2-640

NFS-320 Fire Alarm Control

The CPU for the NFS-320 is identical to the CPU2-640 with two primary exceptions:

- 1) The NFS-320 is not expandable beyond the one standard SLC loop provided on the motherboard.
- 2) The KDM-R2 is factory installed in a different location over the CPU, making it unsuitable for mount inside a CAB-4 Series enclosure (see update later in this module).



NFS-320 & NFS2-640 FireVoice 25/50

The NFS-320 can interface to an **NFV-25/50ZS** Fire Voice Evacuation system to control messages and speaker circuit activation.

This action is accomplished through software zone programming and an EIA-485 connection to the voice system, making it ideal for small, [single-channel](#) voice evacuation applications. The ACS programming at the FACP consists of programming Annunciator Address 01 as Group "M."

For applications requiring more than eight speaker circuits, the NFV-25/50ZS can be expanded using NFV-25/50DAZS Distributed Audio panels, providing up to twenty-four speaker circuits that can be controlled via the serial communications link.



◀ BACK

NEXT ▶

NFS-320 & NFS2-640 FireVoice 25/50

The NFS-320 can interface to an **NFV-25/50ZS** Fire Voice Evacuation system to control messages and speaker circuit activation.

This action is accomplished through software zone programming and an EIA-485 connection to the voice system, making it ideal for small, single-channel voice evacuation applications. The ACS programming at the FACP consists of programming Annunciator Address 01 as Group "M."

For applications requiring more than eight speaker circuits, the NFV-25/50ZS can be expanded using NFV-25/50DAZS Distributed Audio panels, providing up to twenty-four speaker circuits that can be controlled via the serial communications link.

A single-channel voice evacuation system is capable of sending only one message through selected speaker circuits at any one point in time. If multiple messages needed to be transmitted for a threat condition, they would have to be sent in serial fashion. For example, the system would transmit an evacuation message to the immediate threat zones and then would transmit an alert message to areas outside of the threat zones.

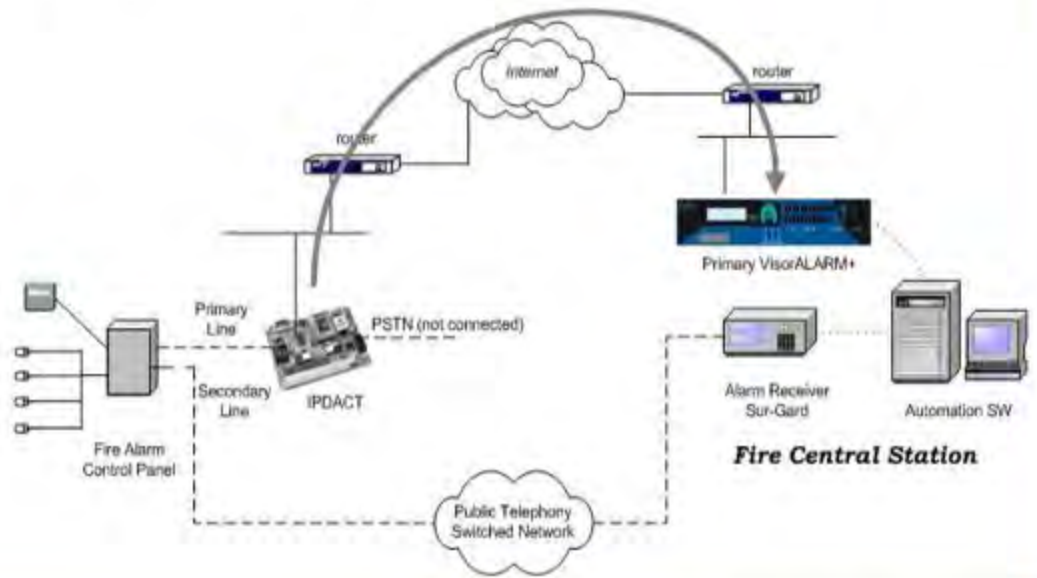
A multiple-channel voice evacuation system is capable of transmitting multiple messages to differing speaker zones simultaneously.



NFS-320 & NFS2-640 IP Communicators

On October 14, 2009, NOTIFIER announced that the **IPDACT-2** and the **IPDACT-2UD** internet communicators received UL Listing with the NFS-320.

These communciators are covered in a separate course module



NFS-320 & NFS2-640

NFS-320SYS

Page 9 of 18

On January 1, 2010, NOTIFIER announced the new **NFS-320SYS** option.

- This option permits the installation of a NFS-320 CPU in a CAB-3/4 series cabinet.
- Allows this installation in retrofit applications of legacy panels is for B, C or D size cabinets.
- Can also be for new, small, one-loop projects needing additional cabinet space for annunciators or other options required by design needs or local codes.

Programming and operations are the same as for the NFS-320. Installation details are found in the *NFS-320SYS/E Installation Manual*.



◀ BACK

NEXT ▶

NFS-320 & NFS2-640 Technical Bulletins

NOTIFIER provides Technical Bulletins to inform of important firmware releases, new capabilities and issues requiring attention. It is vital that the technician remain aware of these bulletins.

These bulletins can be found on Magni-Fire.com under *Downloads & Support - Support - Tech Bulletins*.

Questions regarding these bulletins should be addressed to NOTIFIER Technical Services at 1-800-289-3473 or by email to: NOTIFIER.Tech@honeywell.com.

The screenshot shows the NOTIFIER by Honeywell website interface. The header includes the NOTIFIER logo and navigation links for Home, Downloads & Support, Documentation & Resources, and News & Events. A sidebar on the left contains navigation options: Home, Downloads, Support, and News. The main content area is titled '2010' and lists several technical bulletins:

- July 12, 2010**
Use of Alarm Verification with F58-200 Series Beam Detectors NFS2-3030 and NFS-3030 LCM Firmware Upgrade Notice
TB10-07-2 - The F58-200 and F58-200S addressable beam detectors have many advanced features built in. One of these features is a 20 second alarm verification timer intended to help reduce nuisance alarms. This internal verification should be taken into consideration if an F58-200 series beam detector is required to participate in the Alarm verification programming of the fire alarm control panel.
- July 12, 2010**
VeriFire Tools Version 5.9 with Eighth Edition NFS-3030 Panel Using Rubber Keypad Panel Circuit Modules
TB10-07-01 - NOTIFIER has identified a potential issue that could affect Eighth Edition NFS-3030 fire alarm control panels programmed with VeriFire Tools version 5.9.
- July 7, 2010**
Application Note: New Touch Screen Monitor & Web Server Release for ONYXWorks
AN-2010-3 - NOTIFIER is introducing a new touch screen monitor for ONYXWorks. This new UL listed monitor can be ordered separately or as a complete unit with ONYXWorks.
- July 2, 2010**
Application Note: New NOTI-FIRE-NETTM Network Control Modules
AN-2010-2 - NOTIFIER is introducing a new version of the NOTI-FIRE-NET Network Control Modules (standard, not High Speed NOTI-FIRE-NET); NCM-F, NCM-W, NFN-GW-PC-F and NFN-GW-PC-W. The new NCM cards are backwards compatible with existing NCM modules and are a direct replacement. The change to the NCM module is due to a discontinued microprocessor.

Additional features on the page include 'Recently added' and 'Related Links' with a 'Notifier Notes' link and a 'Get Adobe Reader' button.

NFS-320 & NFS2-640 Reading Assignment

Page 11 of 18



Access the Magni-Fire.com and read each of the four technical bulletins listed below. They are listed in chronological order beginning with the most recent.

Document TB10-03-01 NFS2-640 Firmware Version 12.003.001 Upgrade Notice.

Document TB09-12-01 NFS2-640 and NFS-320 Series Firmware Upgrade Notice.

Document TB07-12-01 NOTIFIER has identified an issue affecting NFS-320/C/E and NFS2-640/E fire alarm control panels with KAPS-24 version 1.0 power supply software installed.

Document TB07-09-01 NOTIFIER has identified an anomaly affecting NFS-640, NFS2-640 and NFS-320 series panels used in Releasing Applications.

[◀ BACK](#)[NEXT ▶](#)

NFS-320 & NFS2-640

Summary Page

Page 12 of 18

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.

[◀ BACK](#)[NEXT ▶](#)

NFS-320 & NFS2-640

Quiz Question

An NFS2-640 control in a releasing application has the trouble condition "No Devices Installed" on the 2nd SLC Loop. 36 detectors but no modules are installed on that loop. What could be a possible cause?

- The SLC Loop is affected by electrical interference
- The KAPS-24 power supply has a bad capacitor (C14)
- The NFS2-640 is operating with firmware version 12.000.004
- At least one CLIP device has been installed on a FlashScan loop

NEXT ►

NFS-320 & NFS2-640

Quiz Question

An NFS2-640 control in a releasing application has the trouble condition "No Devices Installed" on the 2nd SLC Loop. 36 detectors but no modules are installed on that loop. What could be a possible cause?

- The SLC Loop is affected by electrical interference
- The KAPS-24 power supply has a bad capacitor (C14)
- The NFS2-640 is operating with firmware version 12.000.004
- At least one CLIP device has been installed on a FlashScan loop

NEXT ►

NFS-320 & NFS2-640 Quiz Question



What is the required resolution for the technical issue called out in Technical Bulletin TB09-03-01?

- Ion detectors manufactured in 2008 must be replaced
- A firmware upgrade of the NFS-320 and NFS2-640 is required
- The NFS-320 CPU cannot be flashed with updated software
- Affected digital amplifiers must be replaced

NEXT ►

NFS-320 & NFS2-640 Quiz Question



What is the required resolution for the technical issue called out in Technical Bulletin TB09-03-01?

- Ion detectors manufactured in 2008 must be replaced
- A firmware upgrade of the NFS-320 and NFS2-640 is required
- The NFS-320 CPU cannot be flashed with updated software
- Affected digital amplifiers must be replaced

NEXT ►

NFS-320 & NFS2-640 Quiz Question



What is an issue of concern with KAPS-24 power supply operating with Version 1 software?

- It is subject to intermittent ground faults
- It may result in overcharging of the batteries
- It may cause the control to enter a false "Battery Trouble" condition
- It is underpowered when used with two SLC Loops

NEXT ►

NFS-320 & NFS2-640 Quiz Question



What is an issue of concern with KAPS-24 power supply operating with Version 1 software?

- It is subject to intermittent ground faults
- It may result in overcharging of the batteries
- It may cause the control to enter a false "Battery Trouble" condition
- It is underpowered when used with two SLC Loops

NEXT ►

NFS-320 & NFS2-640 Quiz Question



Which Annunciator Group on an NFS-320 is used to communicate with NFV-25/50ZS FireVoice system?

- Group "M"
- Group "N"
- Group "F"
- Group "G"

NEXT ►

NFS-320 & NFS2-640 Quiz Question



Which Annunciator Group on an NFS-320 is used to communicate with NFV-25/50ZS FireVoice system?

- Group "M"
- Group "N"
- Group "F"
- Group "G"

NEXT ►

NFS-320 & NFS2-640 Quiz Question



Which software program is used to reconfigure a database from a legacy NOTIFIER system for use with an ONYX control panel?

- SpeciFire
- VeriFire
- Magni-Fire
- ComputiFire

NEXT ►

NFS-320 & NFS2-640 **Module Completed**

Congratulations - you have completed the module *NFS-320 & NFS2-640*.

Your score for this module: **Score: 80%**

EXIT

[NFS-640, NFS2-640, NFS-320 Series Panels](#)
[Releasing Type Codes with VeriFire Tools Version 5.0](#)

September 17, 2007

Document TB07-09-01

NOTIFIER has identified an anomaly affecting NFS-640, NFS2-640 and NFS-320 series panels used in Releasing Applications. It affects modules with **Releasing Type Code Labels** programmed using **VeriFire Tools Version 5.0**. VeriFire Tools version 5.0 was released to production on August 20, 2007. This issue affects SLC loops running in either FlashScan or CLIP protocol.

Programming a module with a Releasing Type Code Label using Point Programming Service Menu of VeriFire Tools version 5.0 will erroneously default the FlashScan Type to null (empty FlashScan Type combo box). If downloaded to the panel the affected modules will display Invalid Reply trouble on the panel. Also, using the Excel Spreadsheet programming option of VeriFire Tools 5.0 to program a module with a Releasing Type Code Label will erroneously default the FlashScan type to 'RELEASE'. If downloaded to the panel the affected modules will display Invalid Reply trouble on the panel.

This issue is specific to applications employing modules with Releasing Type Code Labels and programmed into the panel with VeriFire Tools version 5.0. Also, this affects databases upgraded with VeriFire Tools version 5.0 where modules with Releasing Type Code Labels have been edited or added. This issue affects VeriFire Tools version 5.0 run from any PC; personal laptop, NCS, or ONYXWorks.

An immediate correction for affected panels is to manually program a valid FlashScan Type, either 'CONTROL' or 'RELAY', for modules with Releasing Type Code Labels. **This must be accomplished with VeriFire Tools using the Excel Spreadsheet programming option; once the correction has been made the edited database must be downloaded to the panel.** After changes are made, the system must be tested in accordance with the Reacceptance Testing requirements of NFPA-72 and any applicable local AHJ requirements.

NOTIFIER engineering has developed a new VeriFire Tools database template that will address this issue. Please visit www.magni-fire.com and download the NTSRunTimeTpl.mdb and installation instructions. The next release of VeriFire Tools will include this new database template.

Technical questions regarding this notice should be addressed to NOTIFIER Technical Services.

NFS-320 and NFS2-640 Battery Trouble Conditions

December 7, 2007

Document TB07-12-01

NOTIFIER has identified an issue affecting NFS-320/C/E and NFS2-640/E fire alarm control panels with KAPS-24 version 1.0 power supply software installed. Any NFS-320 or CPU2-640 shipped before 11/30/2007 contains KAPS-24 version 1.0 software.

An anomaly has been identified that may cause an NFS-320 or NFS2-640 panel to enter into a false 'Battery Trouble' or 'Charger Failure' trouble condition. These troubles may be displayed even though the batteries are being charged properly.

The KAPS-24 software version of an installed panel can be identified by the label on the U12 EPROM located on the KAPS-24 power supply. Affected product will be marked with #KAPSV1.00. Please refer to the picture below for the location of U12.



KAPS-24 software version 1.1 corrects this issue. Products shipped after 12/03/2007 contain KAPS-24 version 1.1. The U12 EPROM label will be marked #KAPSV1.1. For installed units requiring this correction please order ROM-KAPS to obtain version 1.1 software. The ROM-KAPS EPROM will be marked with #RKAPS1.1.

The following should be checked prior to performing this upgrade as not every system is affected:

- Ensure the batteries are at least 18 AH and a maximum of 200 AH
- The batteries are less than three years old
- If the panel has been programmed with VeriFire Tools, make sure the correct battery charging parameters have been set

Our testing and reports from the field indicate this anomaly causes a nuisance trouble and does not compromise the backup battery operation of the system.

Technical questions regarding this bulletin should be addressed to NOTIFIER Technical Services.

NFS2-640 and NFS-320 Series Firmware Upgrade Notice

March 31, 2009

Document TB09-03-01

NOTIFIER has identified a potential issue that could affect NFS2-640 and NFS-320 series panels. The NFS-640 is not affected.

Through evaluation of product returns we have found that certain components of the CPU2-640 and NFS-320 power supply may be compromised if internal communications between the power supply and motherboard is interrupted. Over time these interruptions can cause the power supplies to switch to battery power and report an AC fail although AC power is present.

If this condition occurs the panel will continue to operate from backup battery power, display and annunciate the AC Fail trouble on the panel, plus any associated remote annunciation devices. The AC Fail trouble is communicated to Central and Remote Stations if connected. The system will continue to operate as long as standby power is available.

NOTIFIER requires the upgrade of all NFS2-640 and NFS-320 systems to firmware version 12.01.05 or higher at the next service interval. This firmware addresses the communication interruptions issue described above. Failure to perform the upgrade may result in reduced life expectancy of the power supply.

Version 12.01.05 is available for download from www.magni-fire.com. All panels manufactured after 04/06/2009, (date code 1509) contain version 12.01.05. The firmware version of an NFS2-640 or NFS-320 can be confirmed via panel lamp test, VeriFire Tools, NCS, or ONYXWorks.

If you have any questions or need assistance with performing the panel flash upgrade, please contact NOTIFIER Technical Service at 1-800-289-3473 or NOTIFIER.Tech@honeywell.com.

[NFS2-640 and NFS-320 Series Firmware Upgrade Notice – Second Notification](#)

December 7, 2009

Document TB09-12-01

NOTIFIER issued Technical Bulletin [TB09-03-01](#) on March 31, 2009 announcing the availability of firmware version 12.1.5 to address AC fail conditions on NFS2-640 and NFS-320 series panels. This notice is being sent as a reminder that NOTIFIER requires the upgrade of all NFS2-640 and NFS-320 panels to version 12.1.5. Failure to perform the upgrade may result in reduced life expectancy of the power supply. To date, NFS2-640 or NFS-320 panels running version 12.1.5 have NOT exhibited the AC fail condition and none have been returned for this condition.

For your reference, this is the text from [TB09-03-01](#):

NOTIFIER has identified a potential issue that could affect NFS2-640 and NFS-320 series panels. The NFS-640 is not affected.

Through evaluation of product returns we have found that certain components of the CPU2-640 and NFS-320 power supply may be compromised if internal communications between the power supply and motherboard is interrupted. Over time these interruptions can cause the power supplies to switch to battery power and report an AC fail although AC power is present.

If this condition occurs the panel will continue to operate from backup battery power, display and annunciate the AC Fail trouble on the panel, plus any associated remote annunciation devices. The AC Fail trouble is communicated to Central and Remote Stations if connected. The system will continue to operate as long as standby power is available.

NOTIFIER requires the upgrade of all NFS2-640 and NFS-320 systems to firmware version 12.01.05 or higher at the next service interval. This firmware addresses the communication interruptions issue described above. Failure to perform the upgrade may result in reduced life expectancy of the power supply.

Version 12.01.05 is available for download from www.magni-fire.com. All panels manufactured after 04/06/2009, (date code 1509) contain version 12.01.05. The firmware version of an NFS2-640 or NFS-320 can be confirmed via panel lamp test, VeriFire Tools, NCS, or ONYXWorks.

If you have any questions or need assistance with performing the panel flash upgrade, please contact NOTIFIER Technical Service at 1-800-289-3473 or NOTIFIER.Tech@honeywell.com.

[NFS2-640 Firmware Version 12.003.001 Upgrade Notice](#)

March 1, 2010

Document TB10-03-01

NOTIFIER has identified a potential issue that could affect NFS2-640 fire alarm control panels operating firmware version 12.000.004 through version 12.001.005.

Under certain circumstances, activation of a FCM-1-REL module on one SLC loop may interrupt regular SLC communication on the other loop, provided there are no modules present on the second loop. If a FCM-1-REL on SLC loop 1 is activated in a system with this configuration, polling will be inhibited on SLC loop 2 and no trouble will be indicated. Likewise, if a FCM-1-REL on SLC loop 2 is activated with no modules present on loop 1, polling will be inhibited on SLC loop 1 and a “No Devices Installed” trouble will be reported.

If all of the following conditions are present, there is a possibility for the anomaly to occur:

- The NFS2-640 must be a two loop configuration.
- The NFS2-640 must be operating with firmware version 12.000.004 through version 12.001.005.
- The NFS2-640 must be operating in FlashScan mode.
- The FCM-1-REL must be installed and activated on one loop and with **no** modules installed on the other loop.

The anomaly will cause the loop without modules to stop communicating until the NFS2-640 power is cycled.

This anomaly, if present, is likely to be discovered during testing of the suppression system.

Affected products were manufactured October 2008 through February 2010. This does not affect the NFS-320 or the NFS2-3030.

Because of the potential of a non-responsive loop, NOTIFIER recommends upgrade of all NFS2-640 systems operating version 12.000.004 through version 12.001.005 to version 12.003.001. If all four of the above conditions exist, the recommended upgrade should be performed immediately. Otherwise the firmware should be upgraded during the next scheduled service interval.

Version 12.003.001 is available for download from www.magni-fire.com. All panels manufactured after 03/01/2010 contain version 12.003.001. To confirm the NFS2-640 firmware version you may use the panel lamp test, VeriFire Tools, NCS or ONYXWorks.

Technical questions regarding this bulletin should be addressed to NOTIFIER Technical Services at 1-800-289-3473 or NOTIFIER.Tech@honeywell.com.

NFS2-3030 for Recertification

Learning Activity Details

Description:

This module overviews the changes that have been made to the NFS2-3030 Fire Alarm Systems since January 2006.



- SUPERVISORY
- SYSTEM TROUBLE
- OTHER EVENT
- SIGNALS SILENCED
- POINT DISABLED
- CPU FAILURE

The NFS2-3030 Intelligent Fire Alarm System

This self-paced module of study reviews the features, components, installation and operation of the NFS2-3030 Intelligent Fire Alarm System.

NEXT ►

NFS2-3030 Fire Alarm Control

Introduction

Page 2 of 20

This module will inform you of the changes that were made to the NFS2-3030 Fire Alarm System since January 2006.

For detailed and comprehensive information on this system, refer to the *Installation*, *Programming* and *Operation* manuals on the Magni-Fire.com website.



◀ BACK

NEXT ▶

NFS2-3030 Fire Alarm Control

ConvertiFire

Page 3 of 20

ConvertiFire software available to convert Legacy Series panel databases to ONYX Series panel databases.

- Converts AM2020 & AFP-1010 databases to the NFS2-3030 databases
- Eliminates significant programming time
- Generates reports detailing the conversion
- Identifies features/parameters requiring user intervention

[◀ BACK](#)[NEXT ▶](#)

NFS2-3030 Fire Alarm Control

AMPS-24/E

Page 4 of 20

The **AMPS-24/E** was released as the primary power supply for the NFS2-3030 in September of 2009.

- Uses same addressing as previous version.
- Additional power available for the main & auxiliary outputs (Aux power can be disabled).
- Charges 7 - 200 AH batteries
- Selectable charger current
- Five-point trouble reporting (added Charger Fault).
- Programmable via USB

Refer to Document 51907 for installation and maintenance instructions.



◀ BACK

NEXT ▶

NFS2-3030 Fire Alarm Control

AMPS-24/E

Page 5 of 20

AMPS-24/E is configured with dedicated programming software

PK-PPS

AMPS-24 Label

Please enter label for the AMPS-24:

NEW POWER SUPPLY PROGRAM

Note: Label is an optional field.

Programmable Power Supply

File Operations Help

- New ▾ ACPS-610
- Open ▾ AMPS-24
- Exit

Charger:
Main 24v:
Aux 24v:
Interface:
Reporting:

◀ Back Next > Cancel

◀ BACK

NEXT ▶

NFS2-3030 Fire Alarm Control Gas Detection

Page 6 of 20

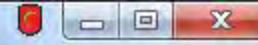
The NFS2-3030 Fire and Gas Detection System interfaces to industry standard 4-20 mA devices using NOTIFIER's FMM-4-20 module to provide a central point of annunciation.

The FMM-4-20 module connects to the NFS2-3030 via the SLC (Signaling Line Circuit) to collect, display, and act on the data received from gas or flame detection devices, as well as a number of other commonly used sensors.



◀ BACK

NEXT ▶



NFS2-3030 Fire Alarm Control

Gas Detection

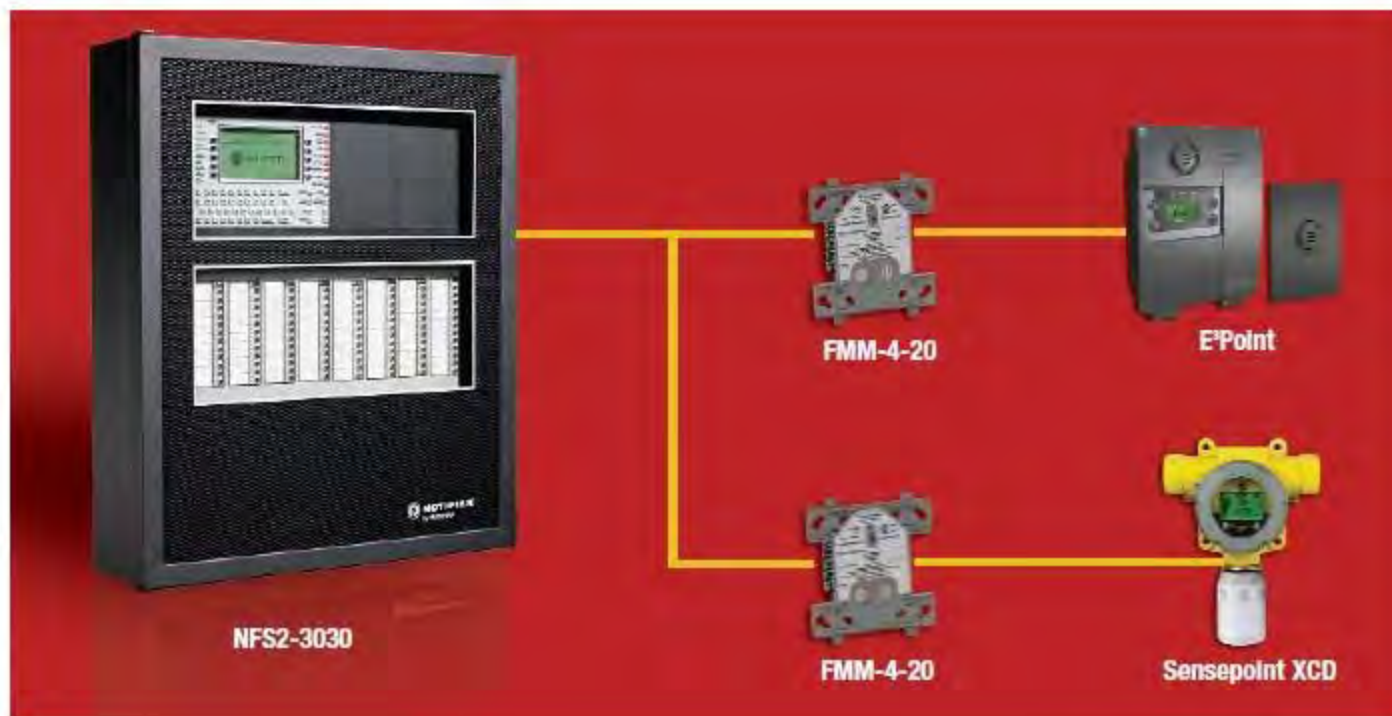
The FMM-4-20 module is user programmable for up to *five* different event thresholds, which are based on the concentration level of the gas being monitored.

When the gas reaches a designated threshold, the NFS2-3030 system responds by executing the appropriate pre-programmed response.

Events can be individually labeled as any one of the following conditions: Fire, Security, Supervisory, Non- Fire Trouble, Pre-Alarm, Non-Fire, and Critical Process.



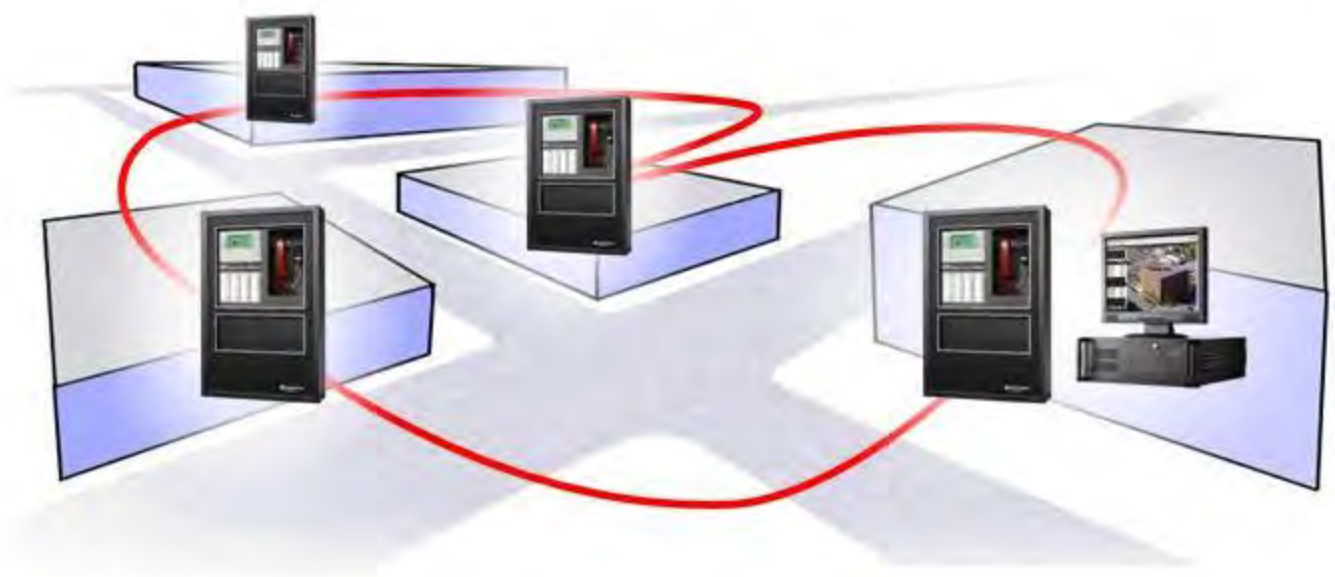
NFS2-3030 Fire Alarm Control Gas Detection Application

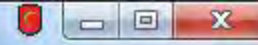


◀ **BACK**

NEXT ▶

NFS2-3030 Fire Alarm Control System 4.0





NFS2-3030 Fire Alarm Control

Network Display Mode

Page 10 of 20

System Release 4 adds an important feature to the NFS2-3030 panel - **Network Display Mode**. This optional mode of operation allows a NFS2-3030 panel to act as a network annunciator for up to four DVC nodes and one other ONYX fire alarm control panel. This eliminates the expense of adding a Network Control Annunciator (NCA-2) to a small network.

Mapping a network node to the NFS2-3030 on the Network Mapping menu will allow the NFS2-3030 to monitor and annunciate events for that node.

Drill Mapping for the NFS2-3030 can only be changed through VeriFire Tools.

In Network Display Mode, the NFS2-3030 has the ability to perform a network *Acknowledge*, *System Reset*, *Signal Silence* and *Drill*. Only the network nodes mapped to the NFS2-3030 will be affected. The *Auto Silence* feature also applies to any network nodes mapped to the NFS2-3030.

[◀ BACK](#)[NEXT ▶](#)

NFS2-3030 Fire Alarm Control

Network Display Mode

Page 10 of 20

System Release 4 adds an important feature to the NFS2-3030 panel - **Network Display Mode**. This optional mode of operation allows a NFS2-3030 panel to act as a network annunciator for up to four DVC nodes and one other ONYX fire alarm control panel. This eliminates the expense of adding a Network Control Annunciator (NCA-2) to a small network.

Mapping a network node to the NFS2-3030 on the Network Mapping menu will allow the NFS2-3030 to receive and display events for that node.

Initiating an Acknowledge, System Reset, Signal Silence or Drill on a network node mapped to the NFS2-3030 may affect nodes that are not participating in Network Display Mode through Logic Zone Programming.

can only be changed through VeriFire Tools.

has the ability to perform a network *Silence* and *Drill*. Only the network nodes mapped to *Silence* feature also applies to any network



◀ BACK

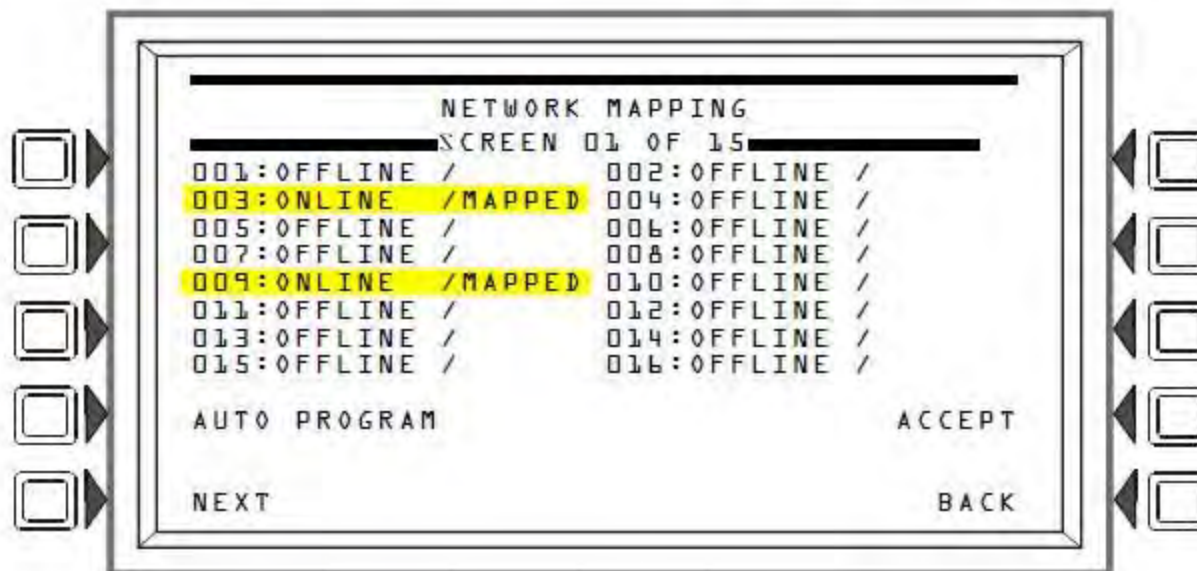
NEXT ▶

NFS2-3030 Fire Alarm Control

Network Display Mode

Page 11 of 20

The participating ONYX panel is mapped in the same manner as an NCA-2.



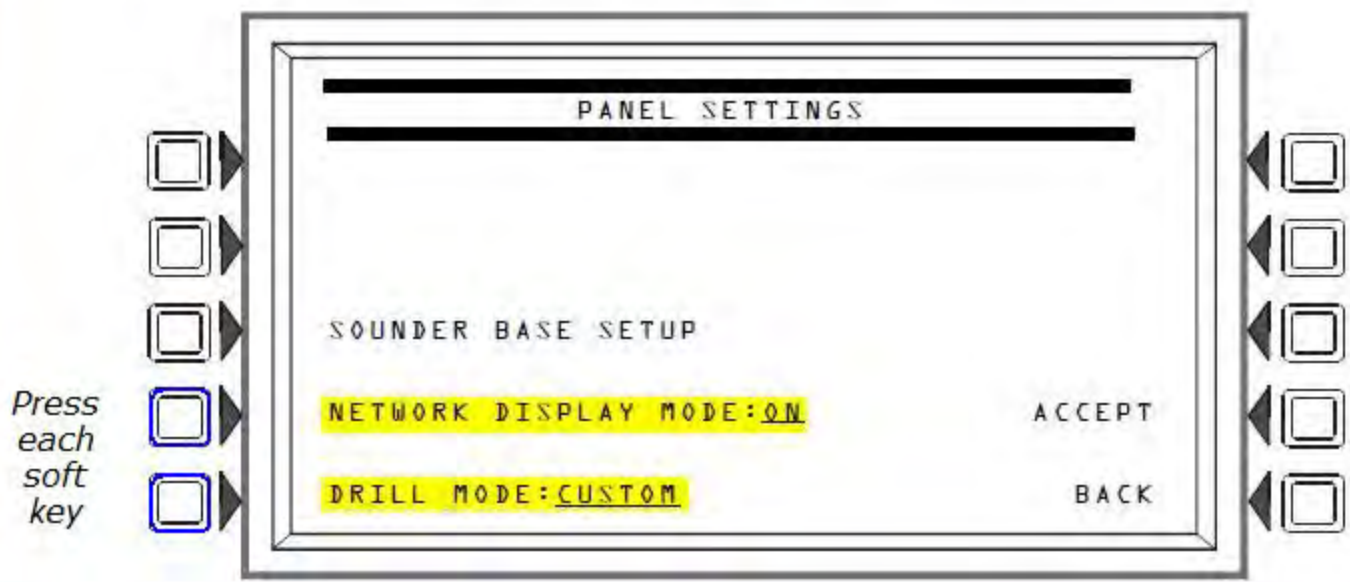
◀ BACK

NEXT ▶

NFS2-3030 Fire Alarm Control

Network Display Mode

A third *Panel Settings* screen has been added to the programming menu.



NFS2-3030 Fire Alarm Control

Reading Assignment

Page 13 of 20



Access the Magni-Fire.com website to download and/or read each of the four technical bulletins listed below. They are listed in chronological order beginning with the most recent.

Document TB10-07-02 FSB-200 and FSB-200S Addressable Beam Detectors.

Document TB09-09-01 LCM Firmware Version 3.2.4.

Document TB07-08-01 Acclimate Detectors Programmed for Alarm Verification.

Document TB07-04-01 Stand-offs for mounting an LEM-320.

[◀ BACK](#)[NEXT ▶](#)

NFS2-3030 Fire Alarm Control

Summary Page

Page 14 of 20

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.

[◀ BACK](#)[NEXT ▶](#)

NFS2-3030 Fire Alarm Control Panel

Quiz Question



When installing a Loop Expander Module (LEM-320) behind a Loop Control Module (LCM-320), what can go wrong?

- Standoffs mounted in the wrong spot can cause board damage
- The LCM-320 can mistakenly be mounted behind the LEM-320
- Capacitor C21 is prone to be broken off in the assembly process
- The ribbon cable is not connected prior to assembly of the boards

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



When installing a Loop Expander Module (LEM-320) behind a Loop Control Module (LCM-320), what can go wrong?

- Standoffs mounted in the wrong spot can cause board damage
- The LCM-320 can mistakenly be mounted behind the LEM-320
- Capacitor C21 is prone to be broken off in the assembly process
- The ribbon cable is not connected prior to assembly of the boards

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



An NFS2-3030 installed in 2007 is upgraded with Acclimate Smoke Detectors programmed for Alarm Verification. Which action is required to ensure proper operation?

- The detectors can only be installed on SLC Loops 1 - 6
- The SLC Loops must be operating in FlashScan mode
- Loop Control Modules must be using Version 2.16.3 or later software
- The Alarm Verification option can only be programmed in VeriFire

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



An NFS2-3030 installed in 2007 is upgraded with Acclimate Smoke Detectors programmed for Alarm Verification. Which action is required to ensure proper operation?

- The detectors can only be installed on SLC Loops 1 - 6
- The SLC Loops must be operating in FlashScan mode
- Loop Control Modules must be using Version 2.16.3 or later software
- The Alarm Verification option can only be programmed in VeriFire

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



Network Display Mode offers which of the capabilities listed below?

- Annunciation and control of any mapped network node
- Remote annunciation of up to four DVCs and one ONYX control panel
- The ability to program up to five nodes over the network
- Remote annunciation of up to five nodes on the network

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



Network Display Mode offers which of the capabilities listed below?

- Annunciation and control of any mapped network node
- Remote annunciation of up to four DVCs and one ONYX control panel
- The ability to program up to five nodes over the network
- Remote annunciation of up to five nodes on the network

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



What is unique about the FMM-4-20 Module?

- It can monitor up to five gas detection circuits simultaneously
- The ability to detect various types of gas
- The ability to generate up five different event thresholds
- It operates on very little power compared to other SLC modules

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



What is unique about the FMM-4-20 Module?

- It can monitor up to five gas detection circuits simultaneously
- The ability to detect various types of gas
- The ability to generate up five different event thresholds
- It operates on very little power compared to other SLC modules

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



When updating a legacy system database to an NFS2-3030 ONYX system database, what software tool is available to convert the databases?

- Magnifire
- Specifire
- Verifire
- Convertifire

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Quiz Question



When updating a legacy system database to an NFS2-3030 ONYX system database, what software tool is available to convert the databases?

- Magnifire
- Specifire
- Verifire
- Convertifire

NEXT ►

NFS2-3030 Fire Alarm Control Panel

Module Completed

Congratulations - you have completed module *NFS2-3030 Fire Alarm Control Panel*

Your score for this module:

Score: 100%

EXIT

LCM Firmware Version 3.2.4 Released: Addresses Open Circuit Conditions on XP10-M and FMM-1 Modules

September 28, 2009

Document TB09-09-01

LCM firmware 3.2.4, which addresses open circuit trouble conditions on XP10-M and FMM-1 modules, with **NFS2-3030** and **NFS-3030** panels, has been released.

LCM firmware 3.2.4 addresses the following possible two issues:

- XP10-M operating in FlashScan or CLIP mode: If wired as Class A, an open circuit on the initiating device circuit will initially cause an open circuit trouble condition on the panel, but will subsequently change to an invalid response trouble. Once in an invalid response trouble condition (due to an open circuit) the module will continue to process active events on the feed side of the circuit. Active event conditions on the return side of circuit will not be detected. This issue is specific to the Class A circuit with the open, other Class A circuits on the same XP10-M that do not have opens are not affected. Circuits wired Class B are not affected.
- FMM-1 wired Class A or Class B on heavily loaded SLC loops operating exclusively in CLIP mode: Event activations from CLIP mode FMM-1s with an open circuit trouble condition may be delayed in reporting to the panel. Delayed reporting depends upon the total number of detectors resident on the SLC loop. Testing indicates the SLC loop would need to have more than 80 detectors installed to significantly affect FMM-1 active event reporting times.

LCM firmware version 3.2.4 corrects this issue. Version 3.2.4 is available for download from www.magni-fire.com. NFS2-3030 requires upgrade of the LCM and CPU2-3030 firmware, see NFS2-3030 download. The NFS-3030 requires upgrade of just the LCM as the CPU-3030 firmware has not changed, see NFS-3030 download. All LCMs shipped after 9/28/2009 contain version 3.2.4.

If you have any questions please contact NOTIFIER Technical Service at 1-800-289-3473 or NOTIFIER.Tech@honeywell.com.

Use of Alarm Verification with FSB-200 Series Beam Detectors

NFS2-3030 and NFS-3030 LCM Firmware Upgrade Notice

July 12, 2010

Document TB10-07-02

The FSB-200 and FSB-200S addressable beam detectors have many advanced features built in. One of these features is a 20 second Alarm Verification timer intended to help reduce nuisance alarms. This internal verification should be taken into consideration if an FSB-200 series beam detector is required to participate in the Alarm Verification programming of the fire alarm control panel.

Our testing indicates that FSB-200 and FSB-200S beam detectors **programmed for Alarm Verification participation** in NFS-3030 and NFS2-3030 panels operating LCM firmware version 2.8.14 through 3.3.2 will not initiate an alarm when activated. FSB-200 and FSB-200S detectors NOT programmed for Alarm Verification participation are not affected and will operate properly. Default programming is no Alarm Verification participation. The NFS2-640 and NFS-320 are unaffected.

Note that this issue would be identified during initial acceptance testing when beam detectors have been programmed for Alarm Verification participation in NFS-3030 or NFS2-3030 panels.

Affected LCM-320 loop cards were manufactured May 2005 through June 2010.

LCM firmware version 4.1.3 corrects this issue and is available for download from www.magni-fire.com. We anticipate all LCMs manufactured after 08/01/2010 will contain version 4.001.003. To confirm the LCM firmware version you may use the panel lamp test, VeriFire Tools, NCS or ONYXWorks.

If your NFS-3030 or NFS2-3030 application requires Alarm Verification greater than the built-in 20 second internal verification of FSB-200 series beam detectors the LCM will require upgrade to firmware version 4.1.3. For applications that don't require Alarm Verification beyond the 20 second built-in timer of the FSB-200 series beam detectors Alarm Verification participation should not be programmed.

Technical questions regarding this bulletin should be addressed to NOTIFIER Technical Services at 1-800-289-3473 or NOTIFIER.Tech@honeywell.com.

Enclosures - Notifier for Recertification

Learning Activity Details

Description:

This self-paced module of study reviews the student to the equipment cabinets and battery enclosures for ONYX Fire Alarm Systems.

Next

Cancel

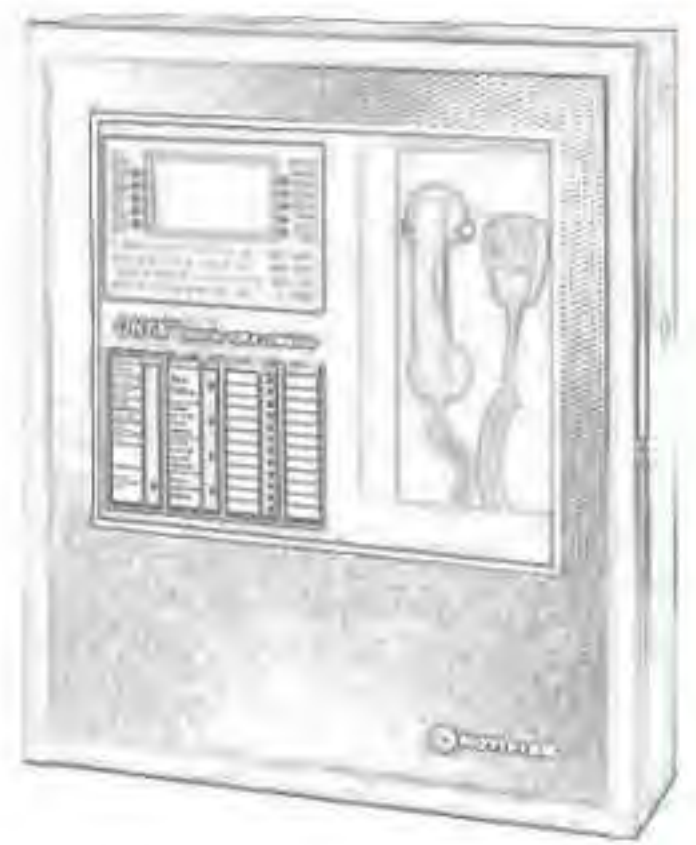
Enclosures

Introduction

All cabinets for ONYX fire alarm control panels are fabricated from 16-gauge steel. The cabinet assembly consists of two basic parts: a backbox and a locking door. Cabinets are available in either black or red, with or without LEXAN® windows.

This course module covers the following types of enclosures:

- CAB-4 Series Enclosures
- Audio Dress Doors
- EQ Equipment Enclosures
- Battery Boxes



B-Size Cabinet with Audio Door

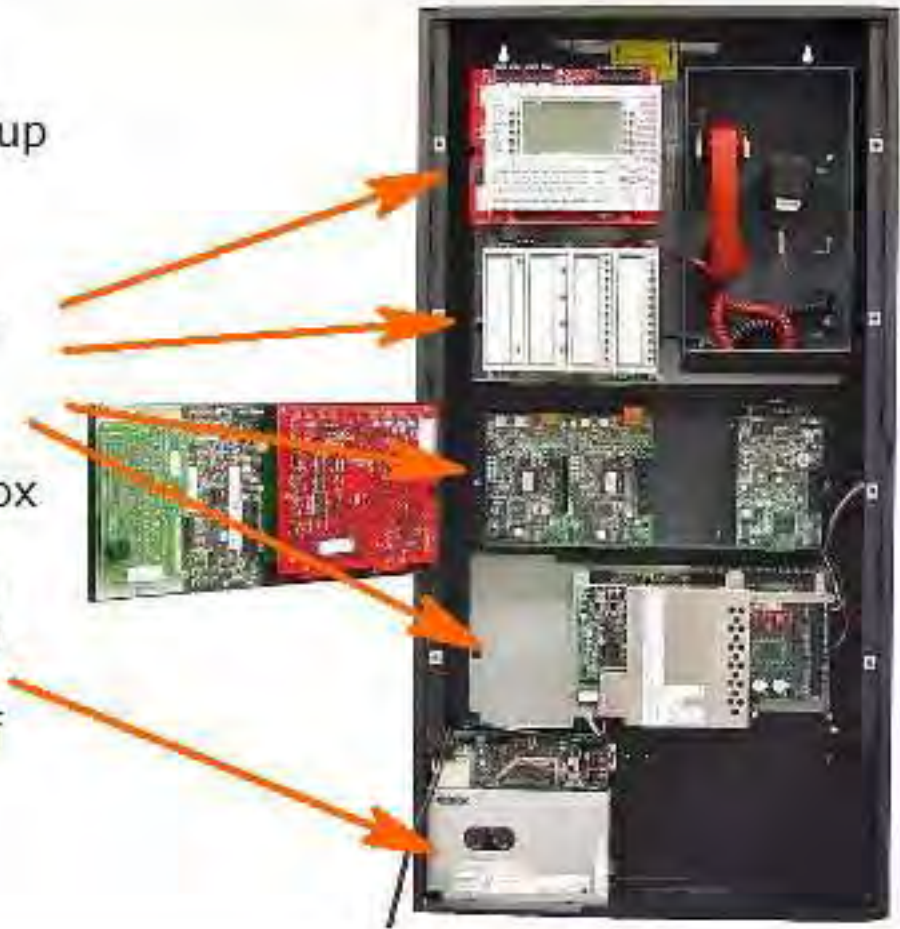
Enclosures

CAB-4 Series

The family of enclosures currently available for ONYX Fire Alarm Systems is referred to as the CAB-4 Series. An enclosure, or cabinet, is made up of a backbox and door.

Backboxes feature one to four rows available for the mounting of CPUs, chassis, amplifiers, etc.

The bottom row of each backbox is typically used to house a main power supply (if needed) and the batteries necessary to provide a secondary source of power to system during loss of the primary source of power - AC.



◀ BACK

NEXT ▶

Enclosures

CAB-4 Series

The family of enclosures currently available for ONYX Fire Alarm Systems is referred to as the CAB-4 Series. An enclosure, or cabinet, is made up of a backbox and door.

Back the

CAB-4 Series enclosures pertain to the NFS-320SYS, the NFS2-640 and NFS2-3030 Fire Alarm Control Panels.

The NFS-320 is packaged with it's own cabinet.

available for amplifiers, etc.

each backbox to house a main power supply (if needed) and the batteries necessary to provide a secondary source of power to system during loss of the primary source of power - AC.



Reminder!

◀ BACK

NEXT ▶

Enclosures

CAB-4 Series Backboxes

CAB-4 Series backboxes have been engineered to provide ease-of-entry for the installer with knockouts positioned at numerous points. These backboxes use the following nomenclature:



SBB-A4



Number of equipment rows*
 (excluding Power Supply row)
 A=1 B=2 C=3 D=4

* Click on the equipment row character above to view each backbox

◀ BACK **NEXT ▶**

Enclosures

CAB-4 Series Doors

CAB-4 Series doors feature a key-lock and right- or left-hand hinges, selectable in the field. The doors use the following nomenclature:



DR - A 4 B R



Number of equipment rows

(excluding Power Supply row)

A=1 B=2 C=3 D=4

Click on the hyperlinks above to view each option

◀ **BACK**

NEXT ▶

Enclosures

CAB-4 Series Doors

CAB-4 Series doors feature a key lock and hinges, selectable in the field. nomenclature:

A "B" in this position of the door part number indicates a blank door. When "B" is not present, it indicates a door with Lexan windows.



DR - A 4 B R

Door

CAB-4 Series

**Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4**

Style

Color

**Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4**

Click on the hyperlinks above to view each option

◀ **BACK**

NEXT ▶

Enclosures

CAB-4 Series Doors

CAB-4 Series doors feature a key-locked hinges, selectable in the field. The nomenclature:

A "R" in this position of the door part number indicates a **RED** door. When "R" is not present, it indicates an onyx-colored door.



DR - A 4 B R



Number of equipment rows

(excluding Power Supply row)

A=1 B=2 C=3 D=4

Click on the hyperlinks above to view each option

◀ **BACK**

NEXT ▶

Enclosures

Audio Dress Doors

For audio applications employing a [DVC in a CA-2 Audio Chassis](#), special doors are available that eliminate the divider over the first and second rows in the cabinet.



ADDR - B 4 B R

Audio Dress DooR

CAB-4 Series

Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4

Color
Style

Click on the hyperlinks above to view each option

◀ BACK

NEXT ▶

Enclosures

Audio Dress Doors

For audio applications employing a DVC in a CA Chassis, special doors are available that eliminate the divider over the first and second rows in the cabinet.



ADDR - B 4 B R

Audio Dress Door

CAB-4 Series

Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4

Color
Style

Click on the hyperlinks above to view each option

◀ **BACK**

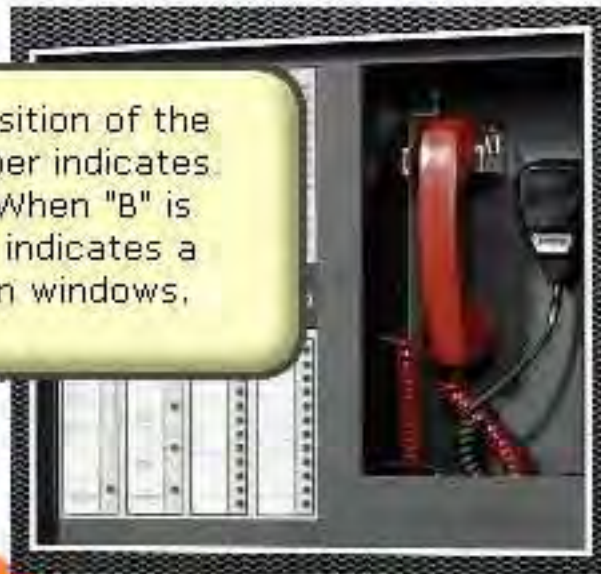
NEXT ▶

Enclosures

Audio Dress Doors

For audio applications employing Chassis, special doors are available divider over the first and second rows.

A "B" in this position of the door part number indicates a blank door. When "B" is not present, it indicates a door with Lexan windows.



ADDR - B 4 B R

Audio Dress DooR

CAB-4 Series

Color
Style

Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4

Click on the hyperlinks above to view each option

◀ BACK

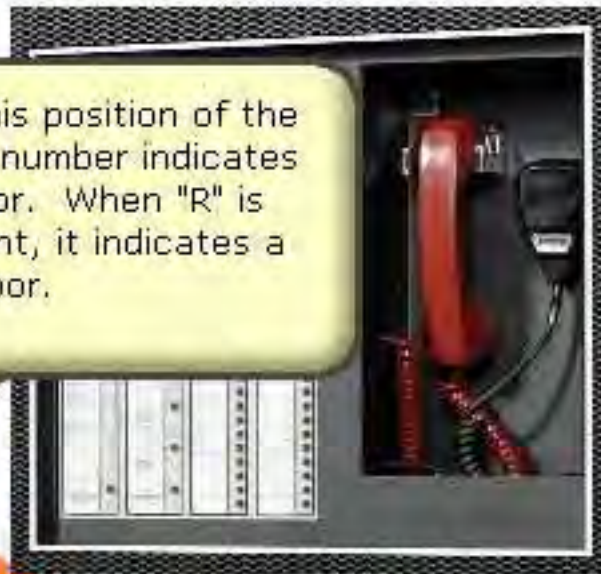
NEXT ▶

Enclosures

Audio Dress Doors

For audio applications employing a [D Chassis](#), special doors are available to divide over the first and second rows

A "R" in this position of the door part number indicates a **RED** door. When "R" is not present, it indicates a **BLACK** door.



ADDR - B 4 B R

Audio Dress DoorR

CAB-4 Series

Number of equipment rows
(excluding Power Supply row)
A=1 B=2 C=3 D=4

Color
Style

Click on the hyperlinks above to view each option

◀ **BACK**

NEXT ▶

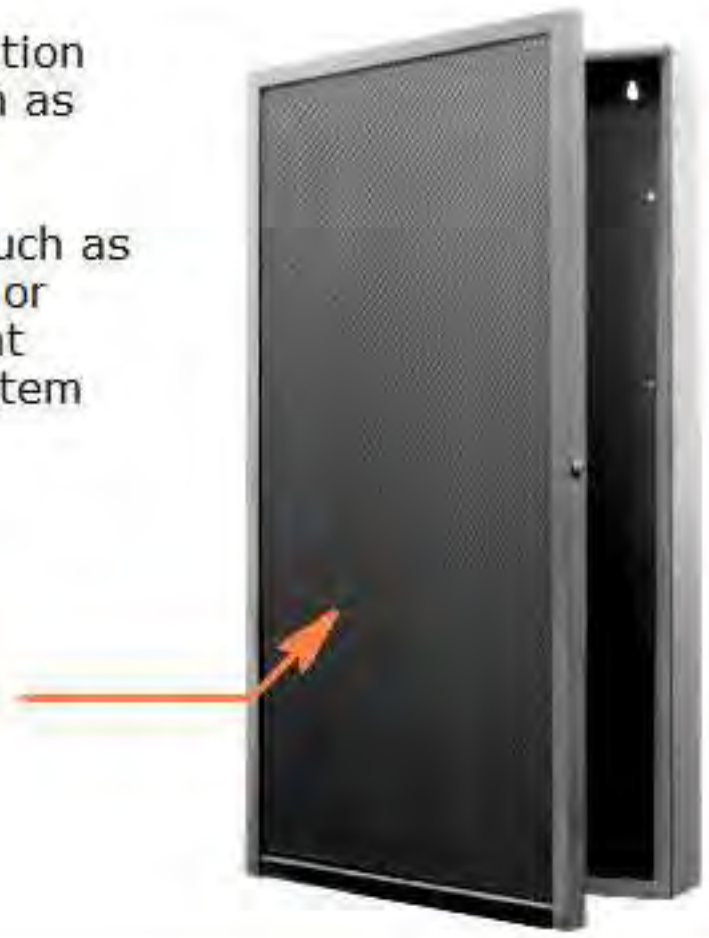
Enclosures

EQ Cabinets

EQ (Equipment) Series cabinets provide an effective solution for applications that require distributed components such as power supplies, amplifiers, and multiple I/O modules.

The EQ Series provides superior ventilation for devices such as amplifiers and field power supplies, ample room for wire or fiber-optic media between each row, and a space efficient package that allows for the consolidation of multiple system components in a single enclosure.

Perforated blank door for enhanced ventilation



◀ BACK

NEXT ▶

Enclosures

EQ Cabinets

EQ cabinets share the same external dimensions as CAB-4 Series cabinets.

By eliminating the space reserved for the battery row and spreading out the remaining tiers, additional space for equipment is provided.



SBB-C4



EQBB-C4

Enclosures

EQ Cabinets

EQ cabinets consist of a backbox and blank door and are offered in "B", "C" and "D" sizes. An optional trim ring is available for each of the three sizes.

Two Rows

- **EQDR-B4** Door assembly, vented door, black.
- **EQBB-B4** Backbox assembly, black.
- **TR-B4** Semi-flush-mount trim ring

Three Rows

- **EQDR-C4** Door assembly, vented door, black.
- **EQBB-C4** Backbox assembly, black.
- **TR-C4** Semi-flush-mount trim ring.

Four Rows

- **EQDR-D4** Door assembly, vented door, black.
- **EQBB-D4** Backbox assembly, black.
- **TR-D4** Semi-flush-mount trim ring.

EQ cabinets are designed to house the following equipment:

- AA-30 Audio Amplifiers**
- AA-100 Audio Amplifiers**
- AA-120 Audio Amplifiers**
- ACPS-610 Power Supply**
- AMPS-24 Power Supply**
- DAA-50 Series Amplifiers**
- DAA-75 Series Amplifiers**
- XP6-C Modules**
- XP6-MA Modules**
- XP6-R Modules**
- XP10-MA Modules**

◀ **BACK**

NEXT ▶

Enclosures

Summary Page

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.



◀ BACK

NEXT ▶

Enclosures

Quiz Question



When installing a BB-100 or BB-200 Battery Backbox, which of the following must be taken in consideration?

- Additional support may be required for the mounting
- The door only opens to the right side
- The door must be installed before the cabinet is flush-mounted
- All of the above

NEXT ►

Enclosures

Quiz Question



When installing a BB-100 or BB-200 Battery Backbox, which of the following must be taken in consideration?

- Additional support may be required for the mounting
- The door only opens to the right side
- The door must be installed before the cabinet is flush-mounted
- All of the above

NEXT ►

Enclosures

Quiz Question



What type of equipment cannot be mounted in an EQ Series Equipment Cabinet?

- Annunciators and CPU/Keypad assemblies
- Multiple-Circuit I/O Modules (XP6 Series)
- Batteries larger than 18 Amp Hours
- Audio Amplifiers

NEXT ►

Enclosures

Quiz Question



What type of equipment cannot be mounted in an EQ Series Equipment Cabinet?

- Annunciators and CPU/Keypad assemblies
- Multiple-Circuit I/O Modules (XP6 Series)
- Batteries larger than 18 Amp Hours
- Audio Amplifiers

NEXT ►

Enclosures

Quiz Question



Which statement applies to the mounting of the two CAB-4 Series door hinges and alignment tabs?

- Must be attached after all equipment is installed in the backbox
- Must be attached before any equipment is installed in the backbox
- They may be attached at any point during installation
- None of the above

NEXT ►

Enclosures

Quiz Question



Which statement applies to the mounting of the two CAB-4 Series door hinges and alignment tabs?

- Must be attached after all equipment is installed in the backbox
- Must be attached before any equipment is installed in the backbox
- They may be attached at any point during installation
- None of the above

NEXT ►

Enclosures

Quiz Question



Which position must the lock be in when installed in a CAB-4 Series door?

- The lock must be in the unlocked position with the key removed
- The lock must be in the locked position with the key installed
- The lock must be in the locked position with the key removed
- The lock must be in the unlocked position with the key installed

NEXT ►

Enclosures

Quiz Question



Which position must the lock be in when installed in a CAB-4 Series door?

- The lock must be in the unlocked position with the key removed
- The lock must be in the locked position with the key installed
- The lock must be in the locked position with the key removed
- The lock must be in the unlocked position with the key installed

NEXT ►

Enclosures

Quiz Question



Select the part number for the CAB-4 door shown.

- DR-C4
- DR-C4B
- ADDR-C4
- DR-B4BR



NEXT ►

Enclosures

Quiz Question



Select the part number for the CAB-4 door shown.

- DR-C4
- DR-C4B
- ADDR-C4
- DR-B4BR



NEXT ►

Enclosures

Module Completed

Congratulations - you have completed the module *Enclosures*.

Your score for this module:

Score: 100%

EXIT

Intelligent Detectors - Notifier for Recertification

Learning Activity Details

Description:

ONYX systems are capable of working in concert with today's sophisticated intelligent sensors to provide the highest level of smoke detection. This course module will introduce the student to these technologies.

Next

Cancel



Intelligent Detectors

ONYX systems are capable of working in concert with today's sophisticated intelligent sensors to provide the highest level of smoke detection. This course module will review these technologies.

NEXT ►

© Honeywell Int. 2010

Intelligent Detectors

Intelligent Detector Bases

Page 2 of 22

The **B224RB** Relay Base provides one Form-C dry-contact relay for the control of auxiliary functions such as door release and elevator recall.



The relay can operate in two different modes. In *Short Delay* mode (set JP1 to pins 1 & 2), the relay activates in 60-100 milliseconds. In *Long Delay* mode (set JP1 to pins 2 & 3), the relay activates in 6 - 10 seconds.



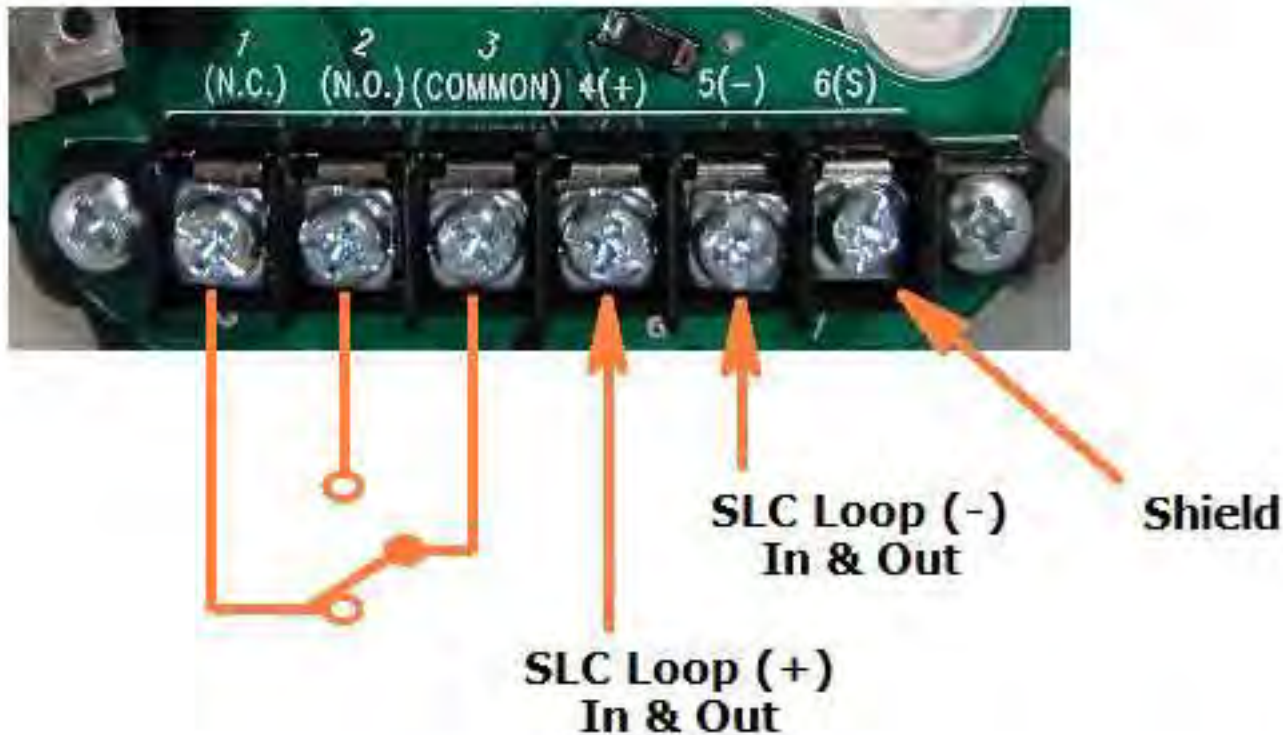
◀ BACK

NEXT ▶

Intelligent Detectors

Intelligent Detector Bases

B224RB Relay Base contact and SLC Loop connections



Intelligent Detectors

Multi-Criteria Detector

Page 4 of 22

The **FAPT-851** Acclimate™ Photoelectric/Thermal Detector is a multi-criteria Smoke Detector that uses a combination of photoelectric and thermal sensing technology to increase immunity to false alarms.

The internal microprocessor adjusts sensitivity based on the environment without human intervention or control panel programming. Photoelectric detector sensitivity to smoke increases when a rise in heat is sensed. This detector is capable of heat-only mode, enabled by special command from the control panel.

The **FAPT-851** can use the following [bases](#).

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Multi-Criteria Detector

Page 4 of 22

The **FAPT-851** Acclimate™ Photoelectric/Thermal Detector is a multi-criteria Smoke Detector that uses a combination of photoelectric and thermal sensing technology to increase immunity to false alarms.

The internal microprocessor adjusts sensitivity based on the environment without human intervention or control panel programming. Photoelectric detector sensitivity to smoke increases when a rise in heat is sensed. This detector is capable of heat-only mode, enabled by special command from the control panel.

The **FAPT-851** can use the following [bases](#)



- B710LP Low-Profile Base
- B501 Flangeless Base
- B501BH Sounder Base
- B501BH-2 Sounder Base
- B501BHT Sounder Base
- B501BHT-2 Sounder Base
- B224RB Intelligent Relay Base
- B224BI Intelligent Isolator Base

◀ BACK

NEXT ▶

Intelligent Detectors

Beam Detectors

Page 5 of 22

The **FSB-200** and **FSB-200S** are intelligent, addressable projected beam smoke detectors for protecting open areas with high and sloping ceilings, and wide-open areas, where spot-type smoke detectors are difficult to install and maintain.

The **FSB-200** and **FSB-200S** are a transmitter/receiver unit and a reflector. When smoke enters the area between the unit and the reflector, it causes a reduction in the signal strength. When the smoke level (signal strength) reaches the predetermined threshold, an alarm is activated.

The protection range is 16 to 328 feet and there are built-in isolators for Style 7 operation.



FSB-200 Cover

Reflector Grid

◀ **BACK**

NEXT ▶

Intelligent Detectors

Beam Detectors

The **FSB-200** and **FSB-200S** are intelligent, addressable projected beam smoke detectors for protecting open areas with high and sloping ceilings, and wide-open areas, where spot-type smoke detectors are difficult to install and maintain.

The **FSB-200** and **FSB-200S** are a transmitter/receiver unit and a reflector. When smoke enters the area between the unit and the reflector, it causes a reduction in the signal strength. When the smoke level (signal strength) reaches the predetermined threshold, an alarm is activated.

The protection range is 16 to 328 feet and there are built-in isolators for Style 7 operation.



- FSB-200 Cover
- Reflector Grid

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

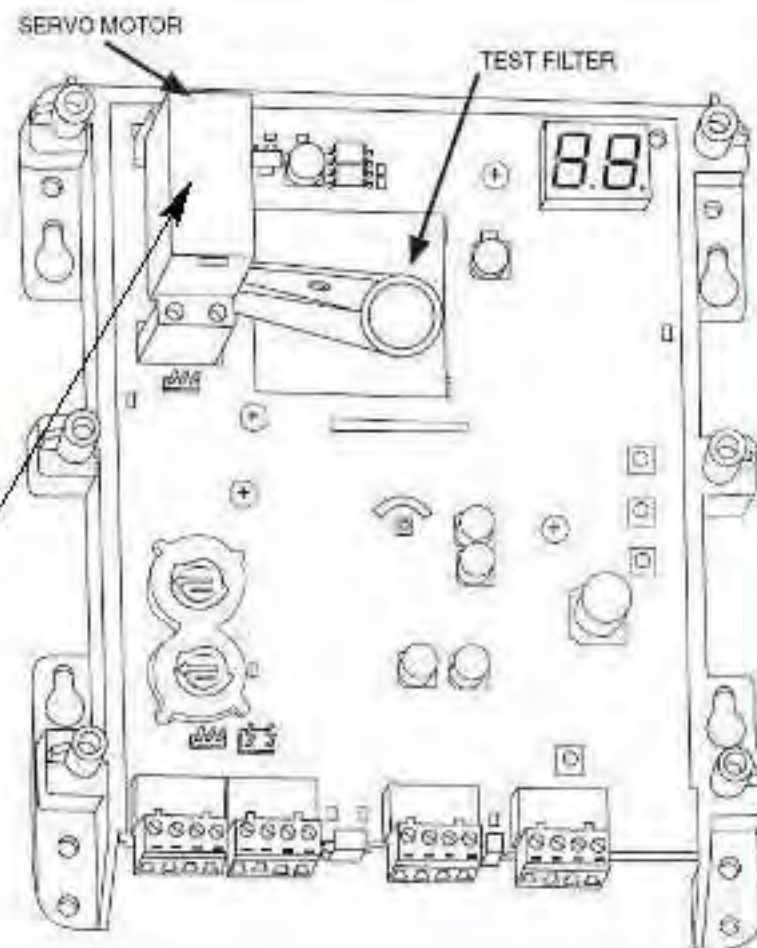
Beam Detectors

Page 6 of 22

The **FSB-200S** has an integral sensitivity test feature in the way of a filter attached to a servomotor inside the detector optics. Activation of an optional [RTS451](#) remote test station rotates the filter into the pathway of the light beam, obscuring the beam in testing the detectors sensitivity.

This sensitivity test feature allows the technician to quickly and easily meet the annual maintenance and test requirements of NFPA 72, without physical access to the detector.

The servomotor of the **FSB-200S** must be powered by a 24 VDC external source.



◀ BACK

NEXT ▶

Intelligent Detectors

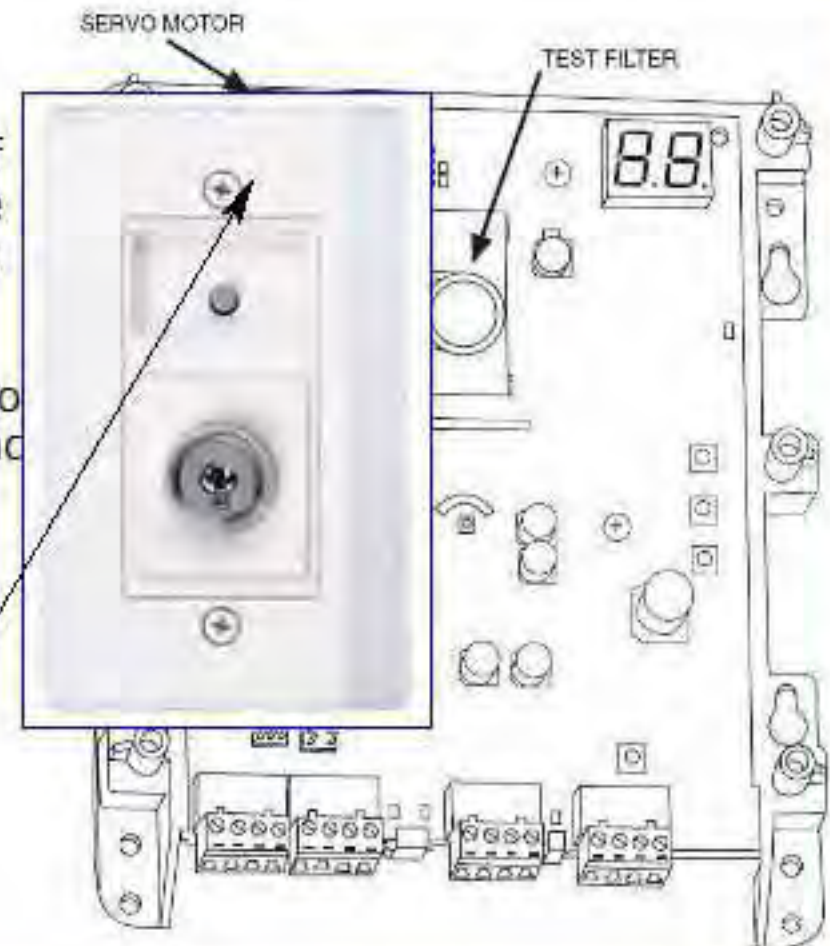
Beam Detectors

Page 6 of 22

The **FSB-200S** has an integral sensitivity test feature in the way of a filter attached to a servomotor inside the detector optics. Activation of an optional [RTS451](#) remote test station rotates the filter into the pathway of the light beam, obscuring the beam in testing the detectors sensitivity.

This sensitivity test feature allows the technician to quickly and easily meet the annual maintenance and test requirements of NFPA 72, without physical access to the detector.

The servomotor of the **FSB-200S** must be powered by a 24 VDC external source.

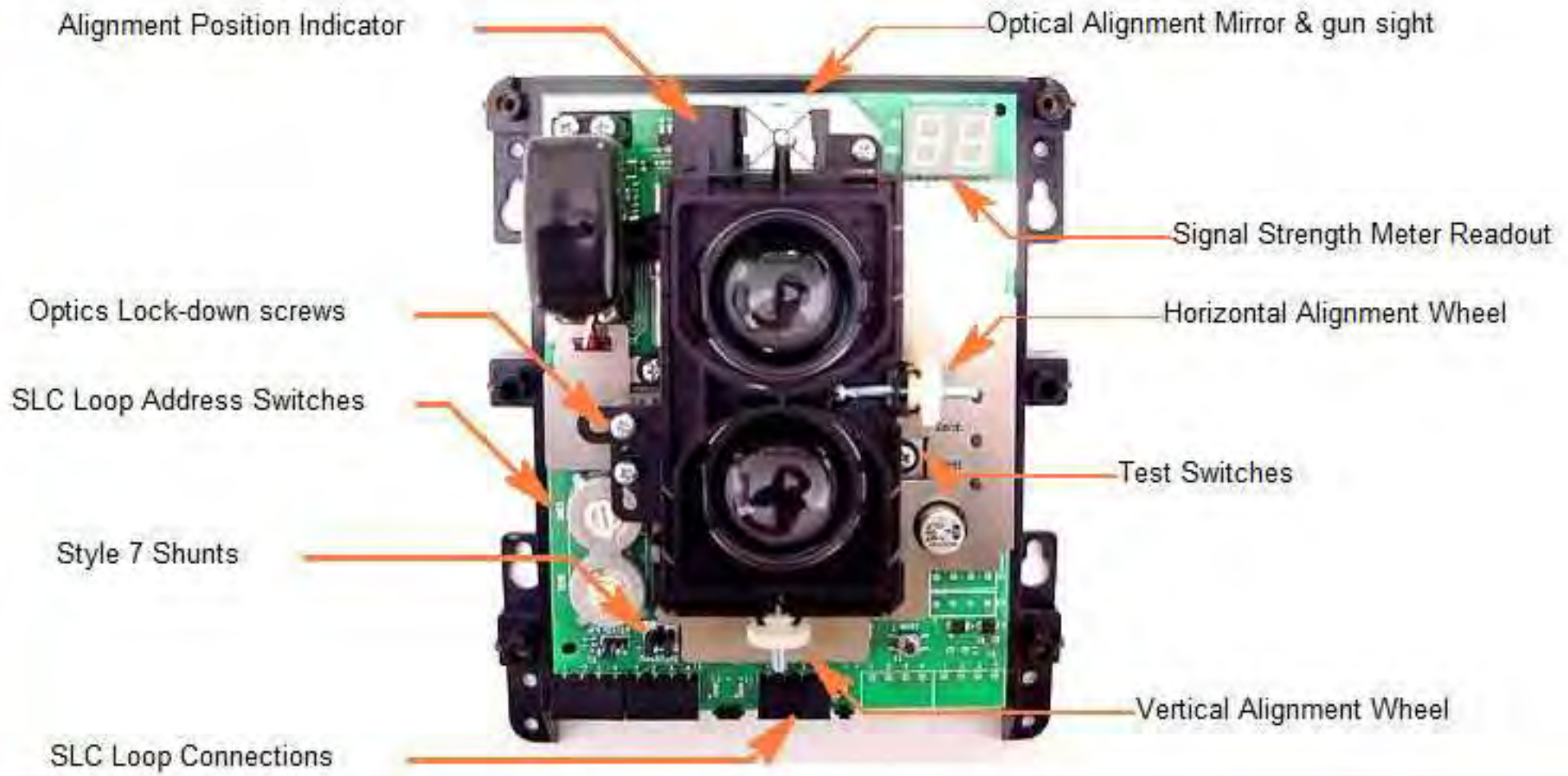


◀ BACK

NEXT ▶

Intelligent Detectors

Beam Detectors



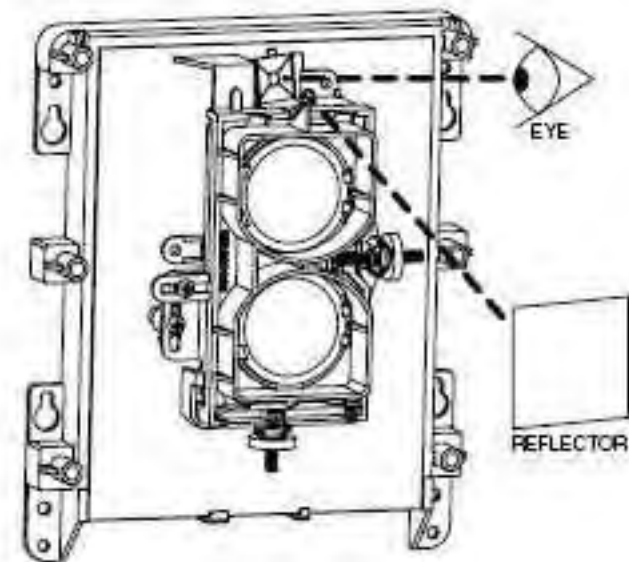
Intelligent Detectors

Reading Assignment



Installation of an **FSB Series Beam Detector** includes the completion of coarse and fine alignment procedures. These instructions are contained in the *Installation and Maintenance Instructions [I56-2544-004R]*. Review this entire document, concentrating on the following sections:

- Specifications
- Wiring Connections
- Pre-Alignment Checklist
- Coarse Alignment
- Fine Adjustment
- Final Gain Adjustment
- Final Verification
- Short Circuit Isolation
- Sensitivity Selection
- Reflector Test Card Procedure

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

D Series Duct Detectors

Page 9 of 22

The **DNR** Intelligent Photoelectric Smoke Duct Detector samples air currents passing through a duct and provides for the shutdown of fans, blowers, and air conditioning systems, preventing the spread of toxic smoke and fire gases through the protected area.

Low-flow technology can detect smoke at air speed velocities of 100 to 4,000 FPM.

The **DNRW** Duct Smoke Detector, with its NEMA 4 rating, is listed as a watertight enclosure providing protection against falling dirt, rain, windblown dust, splashing and hose-directed water, allowing it's use in the most extreme environments.

**DNR****DNRW**[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

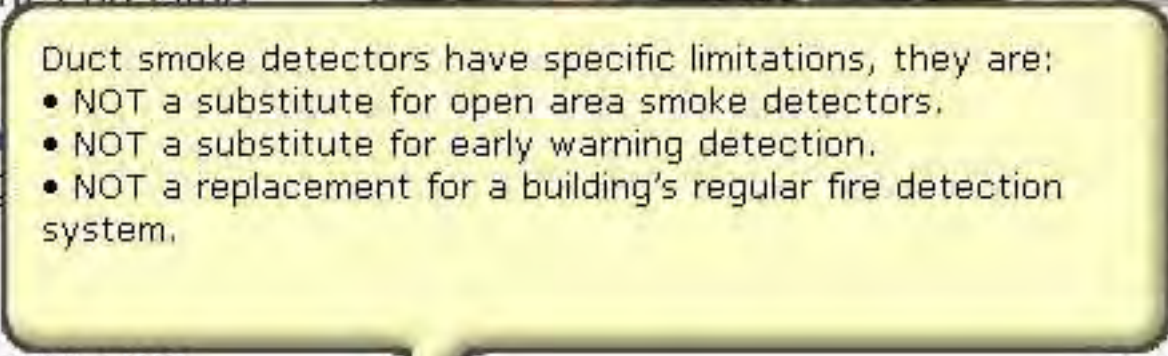
D Series Duct Detectors

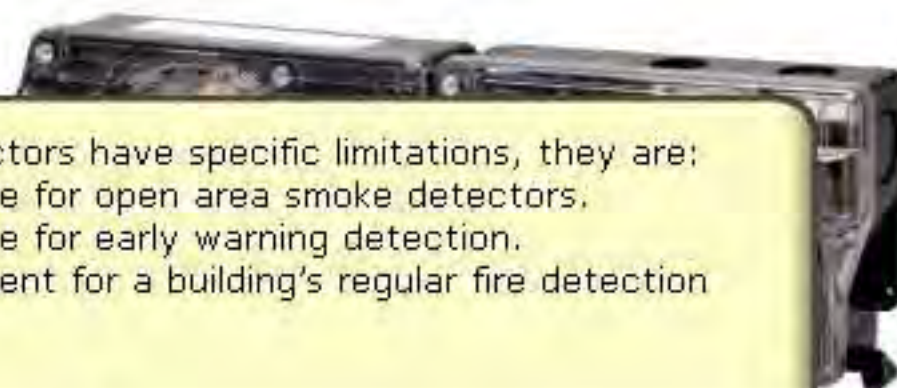
Page 9 of 22

The **DNR** Intelligent Photoelectric Smoke Duct Detector samples air currents passing through a duct and provides for shutdown of fans, blowers, and conditioning systems, preventing spread of toxic smoke and fire through the protected area.

Low-flow technology can detect air speed velocities of 100 to 4,000 FPM.

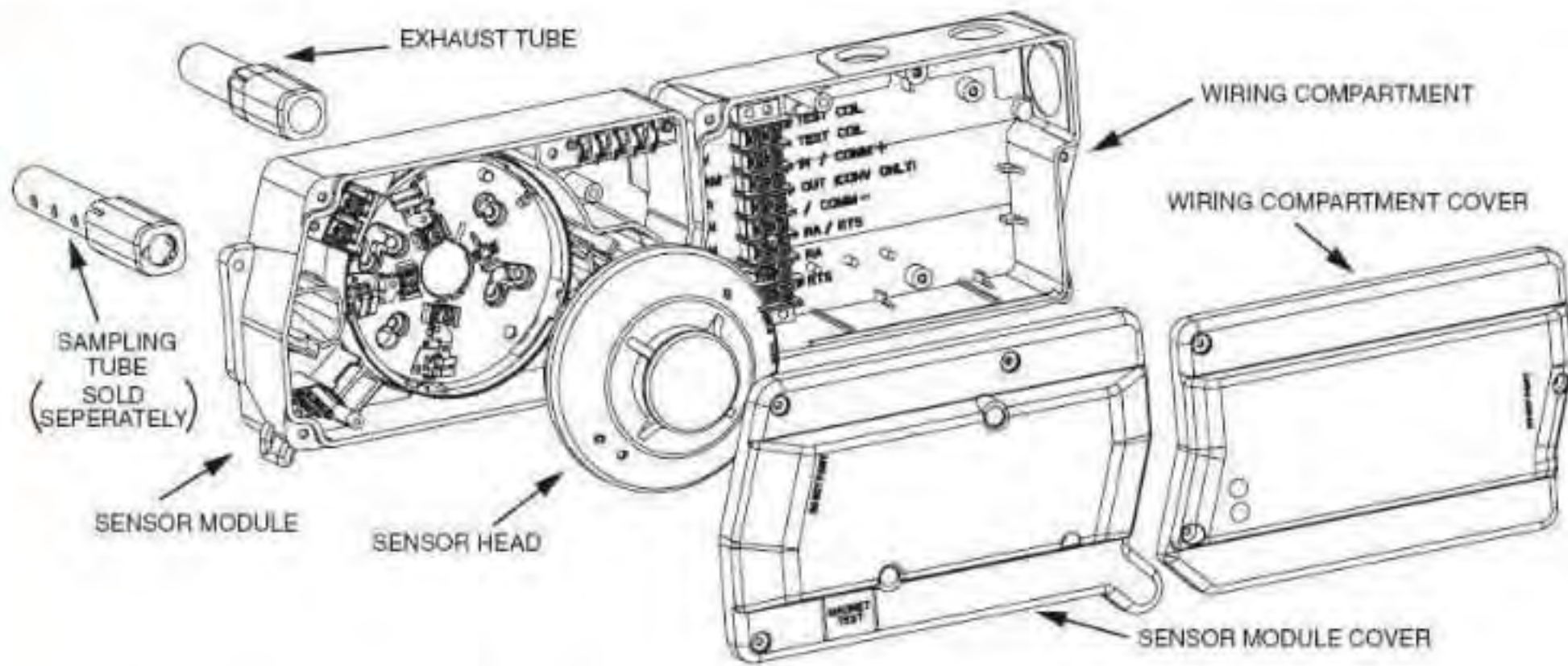
The **DNRW** Duct Smoke Detector, with its NEMA 4 rating, is listed as a watertight enclosure providing protection against falling dirt, rain, windblown dust, splashing and hose-directed water, allowing its use in the most extreme environments.

- 
- Duct smoke detectors have specific limitations, they are:
 - NOT a substitute for open area smoke detectors.
 - NOT a substitute for early warning detection.
 - NOT a replacement for a building's regular fire detection system.

**DNR****DNRW**[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

D Series Duct Detectors



Intelligent Detectors

D Series Duct Detectors

Tamper signal generated when cover is missing or improperly installed

Uses a standard Intelligent smoke head (sold separately)



An improved cover design isolates the sensor head from the low flow feature for simple maintenance.

Requires only two-wire SLC Loop for connection to smoke detector and optional addressable relay or control module. Note: Remote test devices require additional 2-wire power.

◀ BACK

NEXT ▶

Intelligent Detectors

D Series Duct Detectors

Page 12 of 22

The **DNR** detector features a unique pivoting housing that fits both square and rectangular footprints and mounts to both square and round ductwork.

The unit is secured in either position with a [simple procedure](#) using a pivot pin.



- Rectangular Mount
- Square Mount

[◀ BACK](#)[NEXT ▶](#)

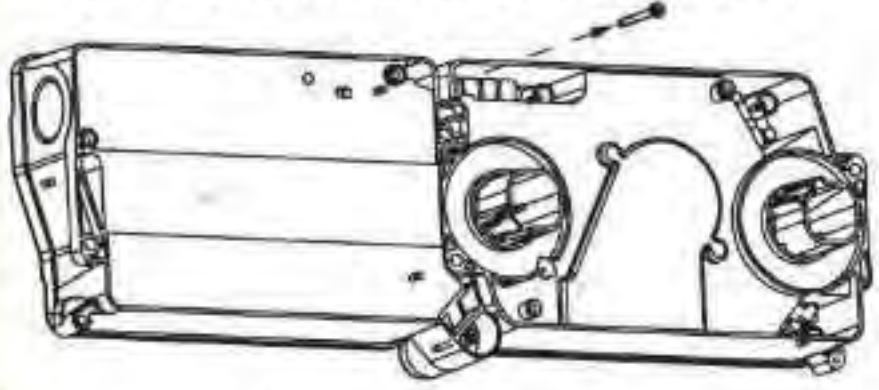
Intelligent Detectors

D Series Duct Detectors

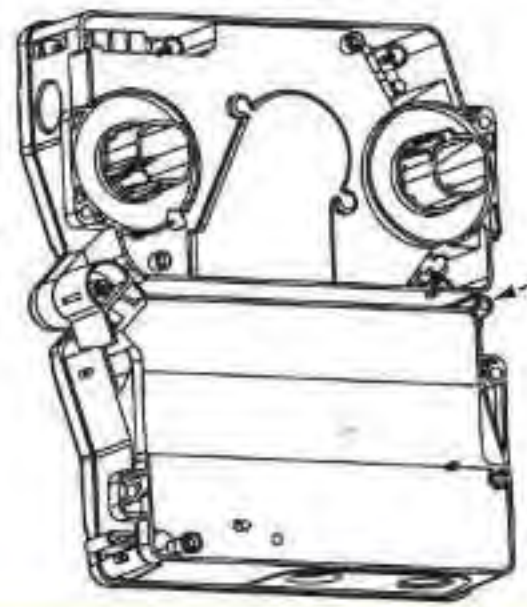
The **DNR** features pivoting fits both rectangular and square ductwork

The unit either pivots simple pivot a pivot p

REMOVE SCREW AND PIVOT DETECTOR AS SHOWN BELOW.



REPLACE SCREW TO SECURE DETECTOR IN PLACE.



unt

◀ BACK

NEXT ▶

Intelligent Detectors

D Series Duct Detectors

Page 12 of 22

The **DNR** detector features a unique pivoting housing that fits both square and rectangular footprints and mounts to both square and round ductwork.

The unit is secured in either position with a [simple procedure](#) using a pivot pin.



- Rectangular Mount
- Square Mount

[◀ BACK](#)[NEXT ▶](#)

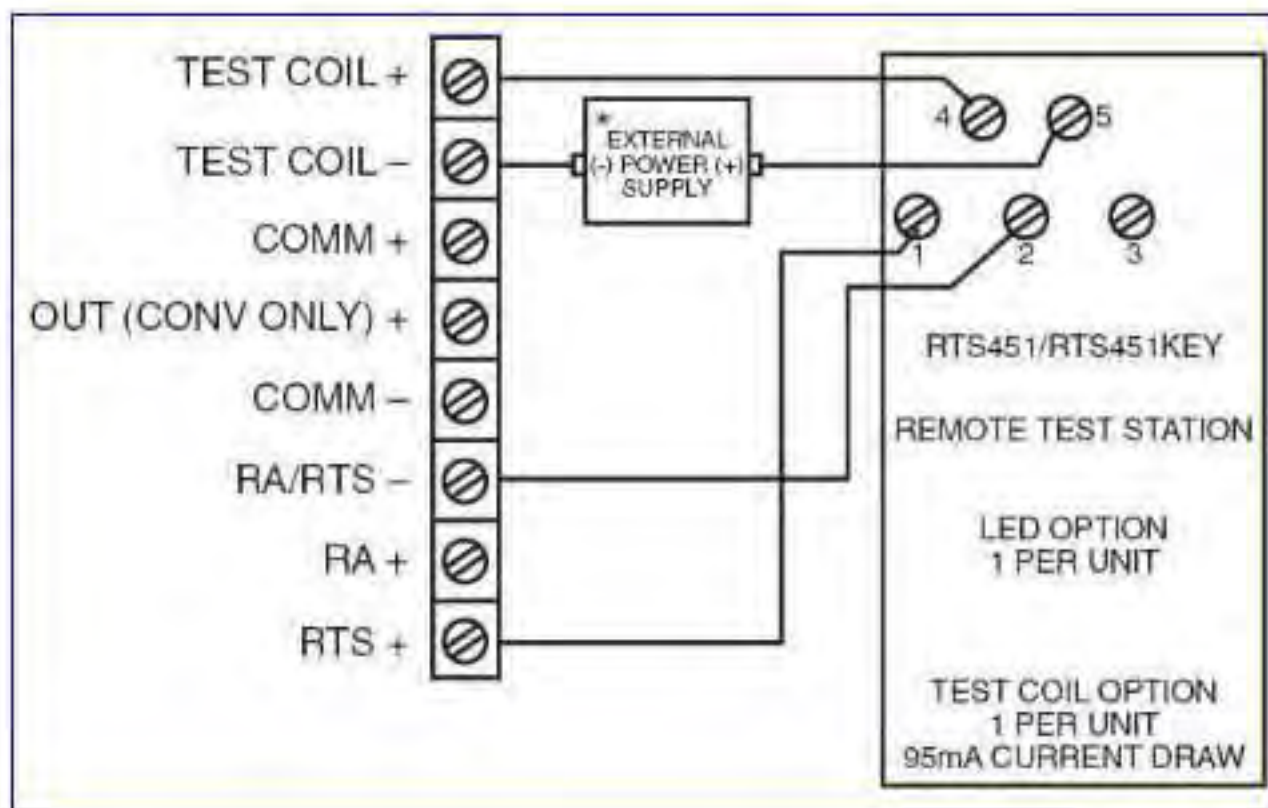
Intelligent Detectors

D Series Duct Detectors

Page 13 of 22

DNR Series Duct Detectors provide a remote alarm output for use with auxiliary devices, such as the RA400Z remote LED annunciator, as well as a remote test capability with the RTS451 and RTS451KEY Remote Test Stations. Verify system control panel alarm status and control panel execution of all intended auxiliary functions (i.e. fan shutdown, damper control, etc.).

[RTS connection diagram](#)

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

D Series Duct Detectors

Page 13 of 22

DNR Series Duct Detectors provide a remote alarm output for use with auxiliary devices, such as the RA400Z remote LED annunciator, as well as a remote test capability with the RTS451 and RTS451KEY Remote Test Stations. Verify system control panel alarm status and control panel execution of all intended auxiliary functions (i.e. fan shutdown, damper control, etc.).



RTS451



RTS451KEY



RA400Z

[RTS connection diagram](#)

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

D Series Duct Detectors

Page 14 of 22

The same features found in the DNR are also available in the DNRW as well as two and four-wire conventional versions.

D Series Duct Detectors Product Line

- **D2**: 2-wire conventional
- **D4120**: 4-wire conventional
- **D4120W**: 4-wire conventional watertight NEMA4
- **DNR**: Intelligent non-relay
- **DNRW**: Intelligent non-relay watertight NEMA4



D4120 Conventional
4-Wire Duct Detector

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- Photoelectric (smoke particles)
- Thermal (heat)
- Carbon Monoxide (CO).
- Infrared (IR - light from flame)

The FSP-851 Series detectors can use the following [bases](#).

View Multi-Criteria Detection demo below.

 **Sensor View** **Cutaway View**[Multi-Criteria Demo](#)[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- Photoelectric (smoke particles)
- Thermal (heat)
- Carbon Monoxide (CO).
- Infrared (IR - light from flame)

The FSP-851 Series detectors can use the following [bases](#).

View Multi-Criteria Detection demo below.

 Sensor View Cutaway View[Multi-Criteria Demo](#)[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- Photoelectric (smoke particles)
- Thermal (heat)
- Carbon Monoxide (CO)
- Infrared (IR - light)

The FSP-851 Series offers the following [bases](#).

[View Multi-Criteria](#)

- B710LP Low-Profile Base
- B501 Flangeless Base
- B501BH Sounder Base
- B501BH-2 Sounder Base
- B501BHT Sounder Base
- B501BHT-2 Sounder Base
- B224RB Intelligent Relay Base
- B224BI Intelligent Isolator Base

 Sensor View Cutaway View

Multi-Criteria Demo

◀ BACK

NEXT ▶

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- **Photoelectric (smoke particles)**

The FSC-851 does NOT generate four distinct signals at the control panel for each of its four sensors. Rather, the four sensing technologies are used to make a more intelligent decision than is possible with other detectors. If distinct CO or IR detection and signaling is required, use the appropriate sensor for that application.

 Sensor View Cutaway View

Multi-Criteria Demo

◀ BACK

NEXT ▶

Intelligent Detectors

Summary Page

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module, click the BACK button or select the subject from the list at right.



◀ BACK

NEXT ▶

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- Photoelectric (smoke particles)
- Thermal (heat)
- Carbon Monoxide (CO).
- Infrared (IR - light from flame)

The FSP-851 Series detectors can use the following [bases](#).

View Multi-Criteria Detection demo below.

 Sensor View Cutaway View[Multi-Criteria Demo](#)[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- Photoelectric (smoke particles)
- Thermal (heat)
- Carbon Monoxide (CO)
- Infrared (IR - light)

The FSP-851 Series follows following [bases](#).

[View Multi-Criteria](#)

- B710LP Low-Profile Base
- B501 Flangeless Base
- B501BH Sounder Base
- B501BH-2 Sounder Base
- B501BHT Sounder Base
- B501BHT-2 Sounder Base
- B224RB Intelligent Relay Base
- B224BI Intelligent Isolator Base

 Sensor View Cutaway View

Multi-Criteria Demo

◀ BACK

NEXT ▶

Intelligent Detectors

Multi-Criteria Detector

Page 15 of 22

The **FSC-851** IntelliQuad Multi-Criteria Detector employs four sensing technologies that work together to achieve the most accurate detection of the widest range of fire threats.

- **Photoelectric (smoke particles)**

The FSC-851 does NOT generate four distinct signals at the control panel for each of its four sensors. Rather, the four sensing technologies are used to make a more intelligent decision than is possible with other detectors. If distinct CO or IR detection and signaling is required, use the appropriate sensor for that application.

 Sensor View Cutaway View

Multi-Criteria Demo

◀ BACK

NEXT ▶

Intelligent Detectors

Summary Page

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module, click the BACK button or select the subject from the list at right.



◀ BACK

NEXT ▶

Intelligent Detectors

Quiz Question



D Series Intelligent Duct Detectors can detect smoke at air speed velocities of:

- 100 - 10,000 FPM
- 2,000 - 10,000 FPM
- 100 - 4000 FPM
- 1,000 - 15,000 FPM

◀ BACK

NEXT ▶

Intelligent Detectors

Quiz Question



D Series Intelligent Duct Detectors can detect smoke at air speed velocities of:

- 100 - 10,000 FPM
- 2,000 - 10,000 FPM
- 100 - 4000 FPM
- 1,000 - 15,000 FPM

Intelligent Detectors

Quiz Question



What is the maximum coverage distance of an FSB-200 Beam Detector?

- 250 feet
- 275 feet
- 328 feet
- 350 feet

◀ BACK

NEXT ▶

Intelligent Detectors

Quiz Question



What is the maximum coverage distance of an FSB-200 Beam Detector?

- 250 feet
- 275 feet
- 328 feet
- 350 feet

◀ BACK

NEXT ▶

Intelligent Detectors

Quiz Question



Which steps are necessary to ensure the proper alignment of the FSB-200 Projected Beam Smoke Detector?

- Installation, configuration, alignment, verification
- Initial alignment, fine adjustment, verification, programming
- Coarse alignment, fine adjustment, gain adjustment and verification
- None of the above - the detector is self-adjusting alignment

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Quiz Question



Which steps are necessary to ensure the proper alignment of the FSB-200 Projected Beam Smoke Detector?

- Installation, configuration, alignment, verification
- Initial alignment, fine adjustment, verification, programming
- Coarse alignment, fine adjustment, gain adjustment and verification
- None of the above - the detector is self-adjusting alignment

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Quiz Question



How long will it take a B224RB to activate its relay when set for Short Delay mode?

- 6 - 10 seconds
- 1 - 5 seconds
- 50 - 100 milliseconds
- 60 - 100 milliseconds

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Quiz Question



How long will it take a B224RB to activate its relay when set for Short Delay mode?

- 6 - 10 seconds
- 1 - 5 seconds
- 50 - 100 milliseconds
- 60 - 100 milliseconds

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Quiz Question



The FSC-851 IntelliQuad Multi-Criteria detector uses sensing of which threats to reach an intelligent alarm decision?

- Smoke and Heat
- Thermal Coefficient, Photo, Barometric Pressure and Light Intensity
- Smoke, Heat, Carbon Monoxide (CO) and Flame (IR)
- Ionization and Smoke particles

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Quiz Question



The FSC-851 IntelliQuad Multi-Criteria detector uses sensing of which threats to reach an intelligent alarm decision?

- Smoke and Heat
- Thermal Coefficient, Photo, Barometric Pressure and Light Intensity
- Smoke, Heat, Carbon Monoxide (CO) and Flame (IR)
- Ionization and Smoke particles

[◀ BACK](#)[NEXT ▶](#)

Intelligent Detectors

Module Completed

Congratulations - you have completed the module *Intelligent Detectors*.

Your score for this module: **Score: 100%**

EXIT

Addressable Monitor Modules - Notifier for Recertification

Learning Activity Details

Description:

This self-paced module of study reviews the student to the concept of the addressable monitor module - a most versatile compliment to the intelligent detector in modern fire alarm applications.

Next

Cancel



Addressable Monitor Modules

This self-paced module of study reviews the student to the concept of the addressable monitor module - a most versatile compliment to the intelligent detector in modern fire alarm. applications

NEXT ▶

Addressable Monitor Modules

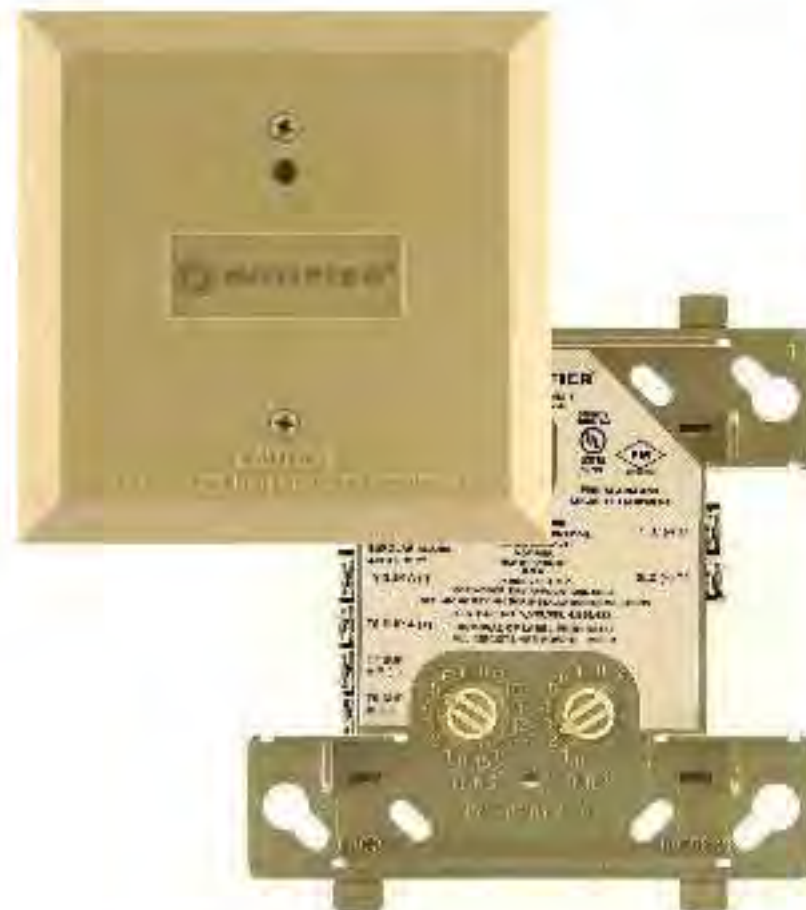
Introduction


Page 2 of 26

Addressable Modules provide ONYX systems with an interface to variety of conventional circuits and devices. They are convenient for retrofits of conventional fire alarm systems and for providing great versatility in meeting specific application needs.

Addressable Monitor Modules provide an interface to a variety of initiating devices:

- Normally-open contact type alarm devices.
- Two-wire smoke detectors
- Non-alarm devices
- Manual Fire Alarm Pull Stations

[← BACK](#)[NEXT →](#)

 **Java Update Available**
A new version of Java is ready
Click here to continue.

Addressable Monitor Modules

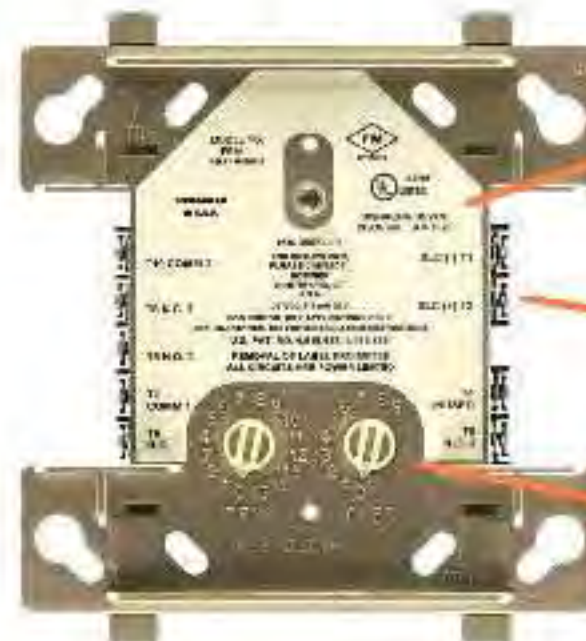
Introduction

Page 3 of 26

FlashScan Monitor Modules have recently undergone a design change. The new-style modules, referred to as "h-type", retain the same model numbers but offer several new features. This course will discuss both module types.



"v-type" Module



Terminal labeling
on front side

Side-mounted
Terminals for
ease of
installation

Reoriented
Address Switches

"h-type" Module

◀ BACK

NEXT ▶

Addressable Monitor Modules

Addressable Modules

The "h-type" Monitor Module has several basic circuit connections, address switches and an Activity LED.

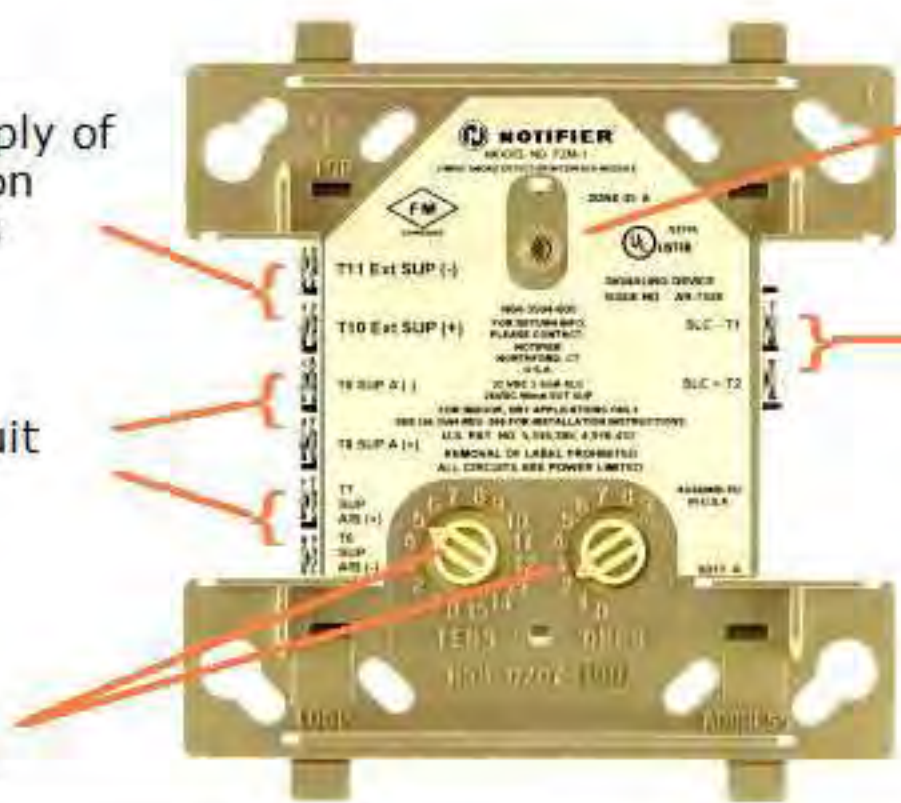
Some modules require the supply of 24 VDC power on these terminals

Activity LED

SLC Loop

Conventional circuit

Address on the SLC Loop



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Module

Page 5 of 26

The **FMM-1** is used to monitor a zone of normally open, dry contact, alarm initiation devices:

- Four-wire smoke detectors
- Manual fire alarm pull stations
- Waterflow alarm devices
- Supervisory (tamper) switches
- Heat detectors
- Non-alarm contact-type devices

By assigning a certain Software Type ID, normally-open supervisory devices may be monitored with special supervisory indication at the control panel.

[◀ BACK](#)[NEXT ▶](#)

Addressable Monitor Modules

FlashScan Monitor Module

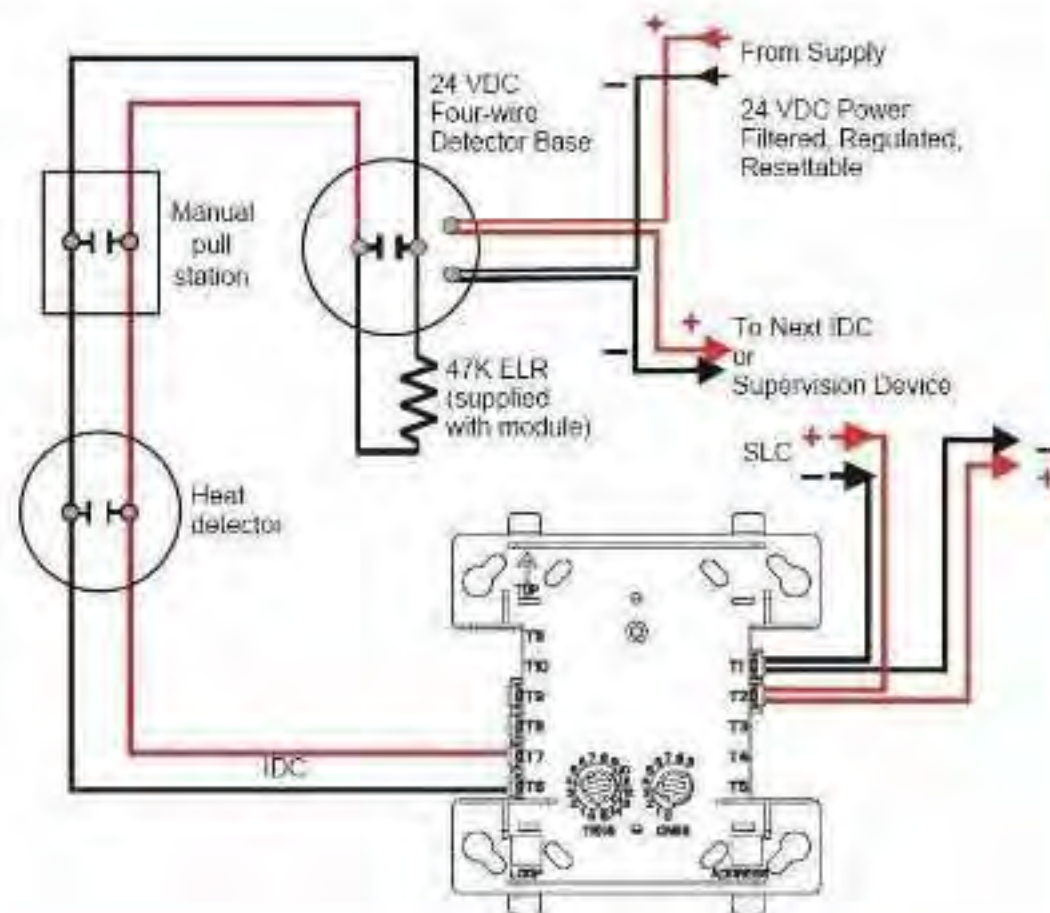
Page 6 of 26

The FMM-1 monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K End-of-Line Resistor (provided) terminates the Style B circuit.

No resistor is required for supervision of the Style D circuit.

Maximum IDC loop length is 2,500 feet (20 ohms maximum).

- **NFPA Style B Wiring**
- **NFPA Style D Wiring**



◀ **BACK**

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Module

Page 6 of 26

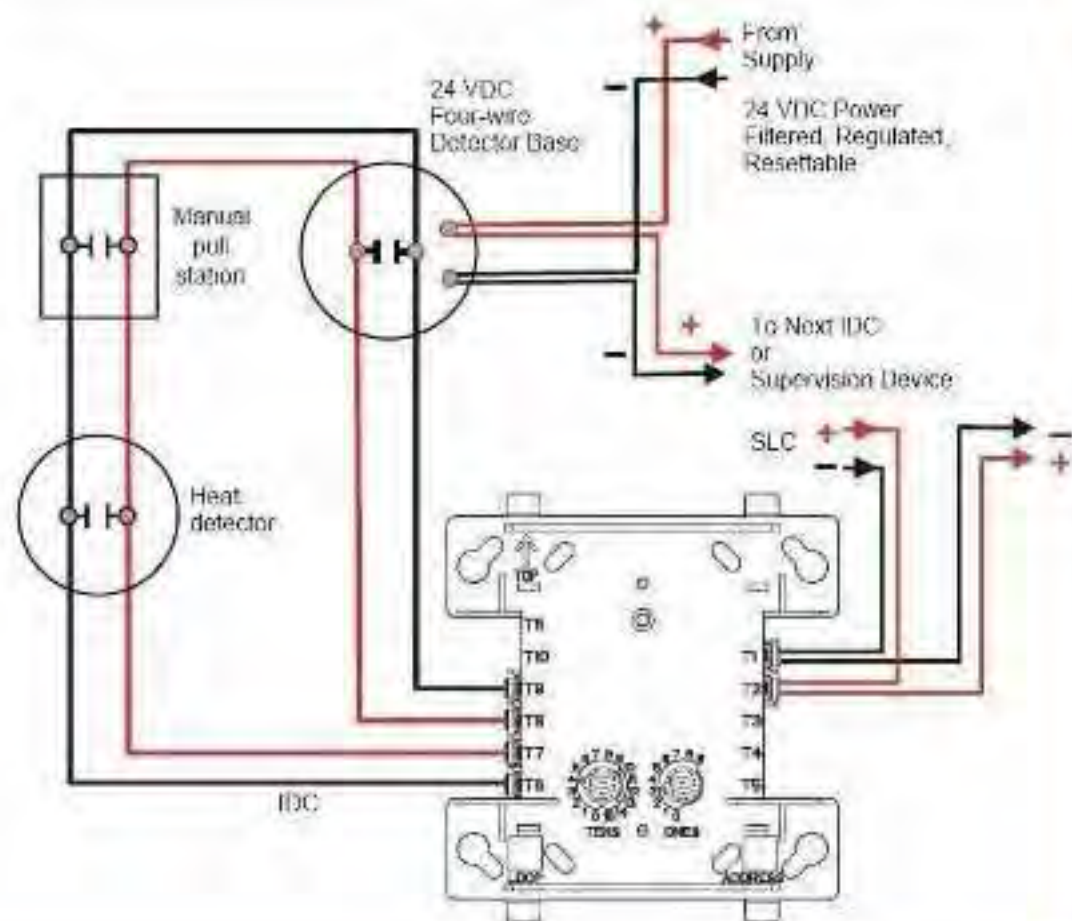
The FMM-1 monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K End-of-Line Resistor (provided) terminates the Style B circuit.

No resistor is required for supervision of the Style D circuit.

Maximum IDC loop length is 2,500 feet (20 ohms maximum).

NFPA Style B Wiring

NFPA Style D Wiring



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Dual Monitor Module

Page 7 of 26

The **FDM-1** FlashScan Dual Monitor Module is used to monitor and supervise two independent two-wire Style B (Class B) dry-contact Initiating Device Circuits (IDCs) at two separate, consecutive addresses.

The FDM-1 can be used to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open, dry-contact, alarm initiation devices.

The FDM-1 may also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel.

With two circuits, this module is ideal for monitoring a waterflow alarm switch and a tamper supervisory switch in the same proximity.

[◀ BACK](#)[NEXT ▶](#)

Addressable Monitor Modules

FlashScan Monitor Modules

Page 8 of 26

The **XP10-M** Monitor Module provides a multiple-circuit interface to the same [normally open contact devices](#) that are supported by the FMM-1. The module supports up to ten Style B or five Style D Initiating Device Circuits.

The XP10-M's initial address is set from 01 to 150 and the remaining modules automatically assume the next nine addresses in succession.

Each XP10-M module has panel-controlled green LED indicators. The panel can cause the LEDs to blink, latch on, or latch off.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

To configure the XP10-M for five Style D circuits, remove the A/B SLCT shunt. When configured for Style D, alternate circuits are paired together, and the address for each circuit is the base address +0, +2, +4, +6 or +8. For instance, if the module's base address is set to 28, the five circuits would assume addresses 28, 30, 32, 34 and 36. Addresses 29, 31, 33, 35 and 37 would be available for other devices on the SLC Loop.

With the A/B SLCT shunt in place, the module is configured for 10 Style B circuits. The address range set for the circuits would be the consecutive range of base address to base address + 9.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

To configure the XP10-M for five Style D circuits, remove the A/B SLCT shunt. When configured for Style D, alternate circuits are paired together, and the address for each circuit is the base address +0, +2, +4, +6 or +8. For instance, if the module's base address is set to 28, the five circuits would assume addresses 28, 30, 32, 34 and 36. Addresses 29, 31, 33, 35 and 37 would be available for other devices on the SLC Loop.



- 1) The module **MUST** be powered down to make changes to the shunts.
- 2) For either style of wiring, **DO NOT** set the base address above 150.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

It is possible to disable one or two circuits in a Style B configuration or one address in a Style D configuration by installing a shunt in the DISABLE 1 or DISABLE 2 positions of J1.

The modules are disabled from the highest address downward.

The XP10-M can be configured to send a signal to an NFS-320 or NFS2-640 to activate onboard Notification Appliance Circuits and the Alarm relay in the event of the failure of the control panel's CPU. A shunt placed over the CL pins of J1 enables this feature.

See [Degraded Mode](#).



Addressable Monitor Modules

FlashScan Monitor Modules

It is possible to disable one or two circuits in a Style B configuration or one address in a Style D configuration by installing a shunt.

Degraded Mode

If the system enters *degraded mode* due to failure of the microprocessor, the following operation will take effect.

NFS-320 & NFS2-640: General Alarm - initiation of any input results in the activation of all outputs system wide.

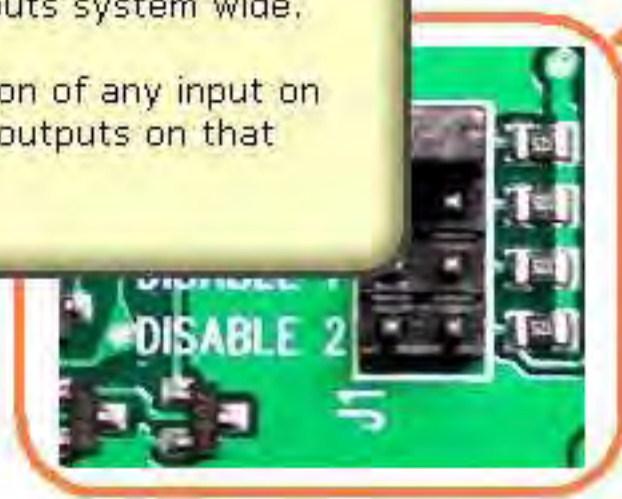
NFS2-3030: Per each SLC Loop, initiation of any input on that loop results in the activation of all outputs on that loop.

The m

ward.

The X
a sign
activa
Applia
in the
contro
over t
feature.

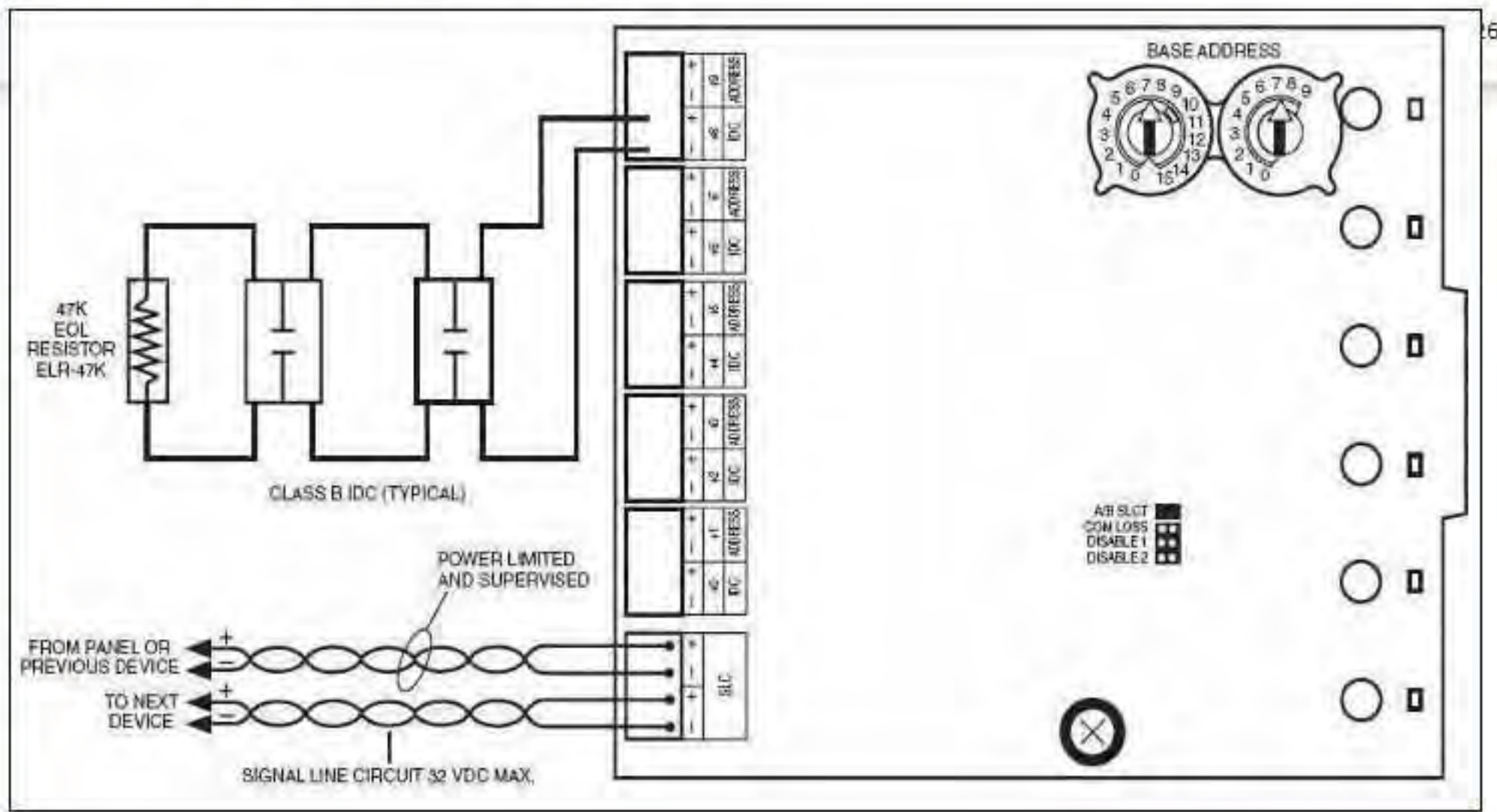
See [Degraded Mode](#).



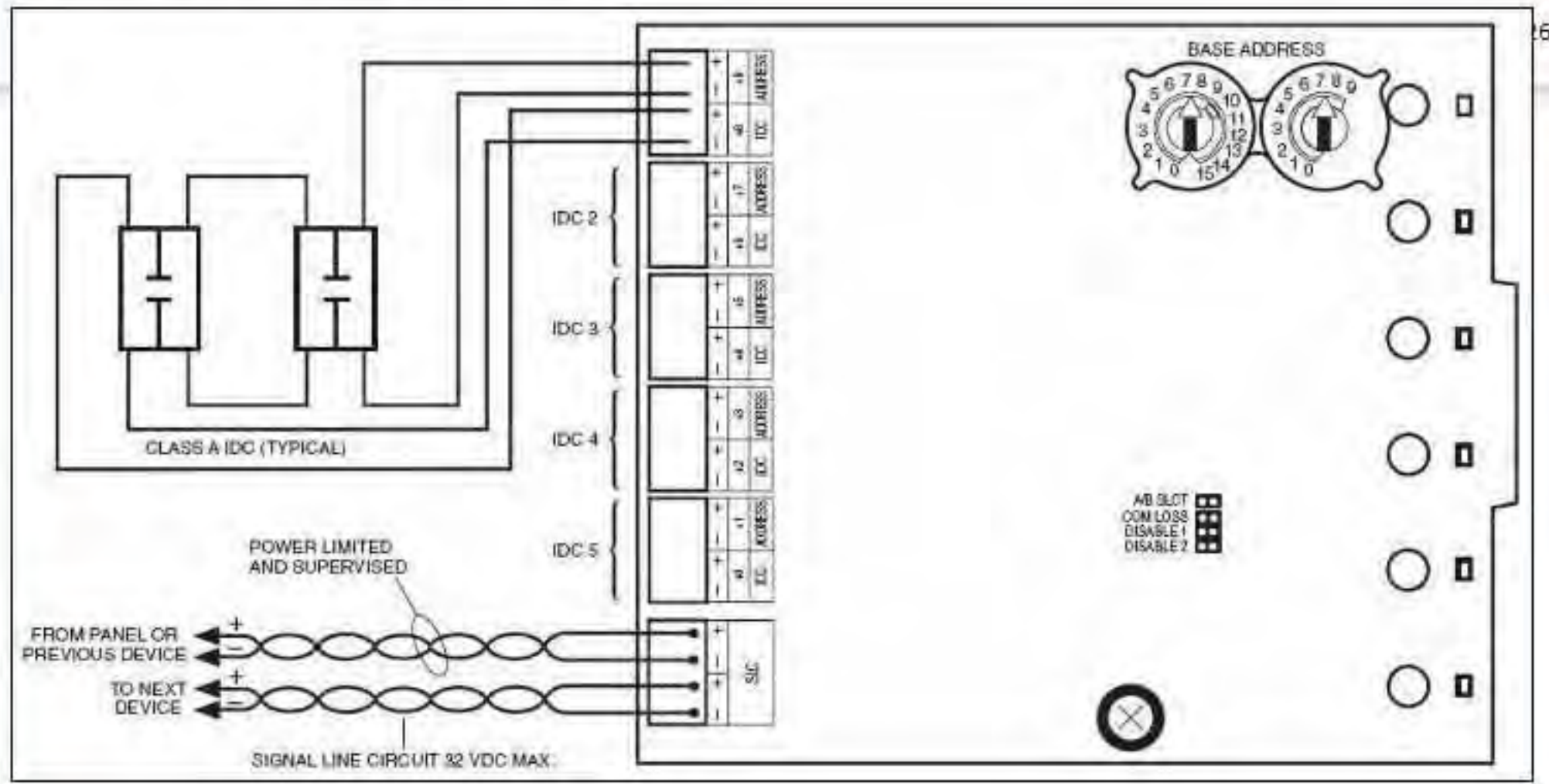
◀ BACK

NEXT ▶

Addressable Monitor Modules



Addressable Monitor Modules



Addressable Monitor Modules

FlashScan Monitor Modules

Page 11 of 26

The monitored circuits of the XP10-M may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit, but the module does not support any combination of Style B and Style D circuits.

A 47K End-of-Line Resistor terminates the end of each Style B circuit.

Any number of UL listed contact closure type devices may be installed on a circuit provided the maximum IDC wiring resistance of 1500 ohms is observed.

NFPA Style B Wiring

NFPA Style D Wiring



NEVER mix fire alarm and supervisory (tamper) devices on the same Initiating Device Circuit.

[◀ BACK](#)[NEXT ▶](#)

Addressable Monitor Modules

FlashScan Monitor Modules

Page 12 of 26

The **FZM-1** FlashScan Zone Module is used to monitor and supervise a zone of two-wire, 24 volt smoke detectors on a Style D (Class A) or Style B (Class B) circuit.

A list of two-wire detectors compatible with this module is found in the Notifier Device Compatibility Document on the *MagniFire* website.

The FZM-1 requires that separate 24 VDC power be supplied to the module to power the two-wire detectors on its circuit. The module inherently supervises the connection of this power.



◀ BACK

NEXT ▶

Addressable Monitor Modules

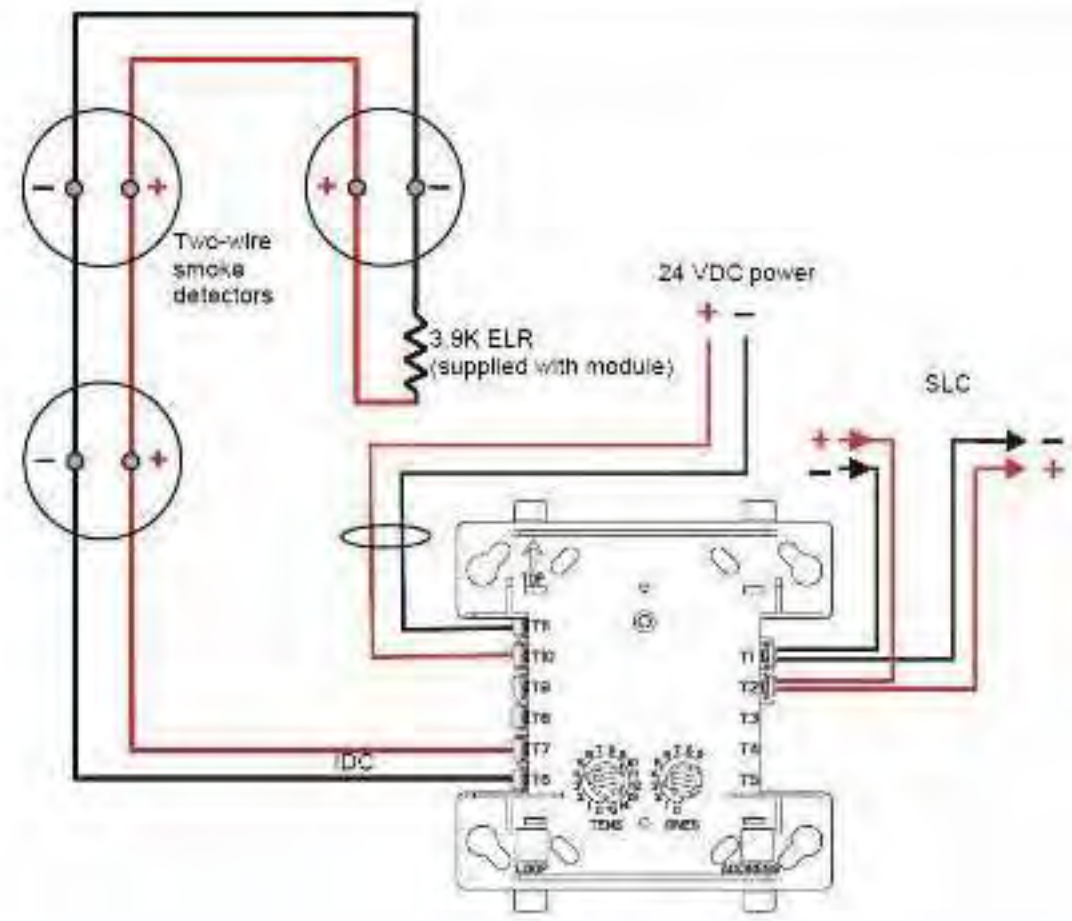
FlashScan Monitor Modules

The FZM-1 monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit.

A 3.9K End-of-Line Resistor terminates the end of the Style B or D circuit (maximum IDC loop resistance is 25 ohms).

Install ELR across Terminals 8 and 9 for Style D application.

- NFPA Style B Wiring
- NFPA Style D Wiring



Addressable Monitor Modules

FlashScan Monitor Modules

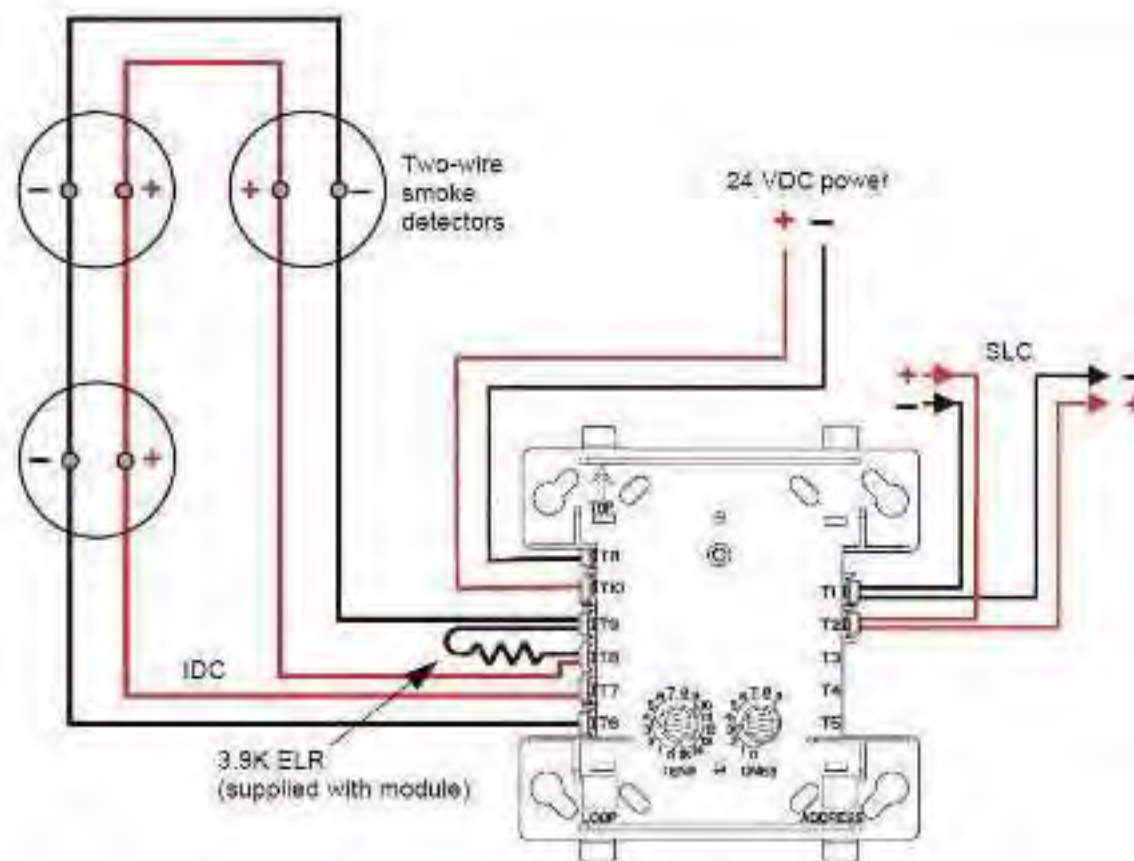
Page 13 of 26

The FZM-1 monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit.

A 3.9K End-of-Line Resistor terminates the end of the Style B or D circuit (maximum IDC loop resistance is 25 ohms).

Install ELR across Terminals 8 and 9 for Style D application.

- NFPA Style B Wiring
- NFPA Style D Wiring



Addressable Monitor Modules

FlashScan Monitor Modules

Page 14 of 26

The **XP6-MA** Six-Zone Monitor Module provides an interface between an ONYX fire alarm system and conventional two-wire smoke detection zones.

A common SLC input is used for all modules, and the initiating device circuits share a common external supervisory supply and ground. Otherwise, each module operates independently from the others.

The XP6-MA transmits the status of a zone of two-wire detectors to the fire alarm control panel. The interface module supervises the zone of detectors and the connection of the external power supply.

Each XP6-MA module has panel-controlled green LED indicators. The panel can cause the LEDs to blink, latch on, or latch off.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

The XP6-MA's initial address is set from 01 to 154 and the remaining module circuits automatically assume their addresses in numerical succession.

It is possible to disable *one or two* circuits in a Style B configuration or *one* address in a Style D configuration by installing a shunt in the DISABLE 1 or DISABLE 2 positions of J1.

The modules are disabled from the highest address downward.

Shown here is an XP6-MA configured for three Style D circuits with one circuit address disabled.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

The XP6-MA's initial address is set from 01 to 154 and the remaining module circuits automatically assume their addresses in numerical succession.

It is possible to disable *one or two* circuits in a Style B configuration or *one* address in a Style D configuration by installing a shunt in the DISABLE 1 or DISABLE 2 positions of J1.



TH
hi
Sh
fo
cir

- 1) The module **MUST** be powered down to make changes to the shunts,
- 2) For either style of wiring, **DO NOT** set the base address above 154.



◀ BACK

NEXT ▶

Addressable Monitor Modules

FlashScan Monitor Modules

To configure the XP6-MA for three Style D circuits, remove *both* A/B SELECT shunts. When configured for Style D, alternate circuits are paired together and the addresses consumed would be the base address +0, +2 and +4. For instance, if the module's base address is set to 28, the five circuits would assume addresses 28, 30 and 32. Addresses 29, 31 and 33 would be available for other devices on the SLC Loop.

With the A/B SELECT shunts in place, the module is configured for six Style B circuits. The address range set for the circuits would be the consecutive range of base address to base address + 5.



Addressable Monitor Modules

FlashScan Monitor Modules

The monitored circuits of the XP6-MA may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit, but the module does not support combinations of Style B and Style D circuits.

A 3.9K End-of-Line Resistor terminates the end of each Style B circuit.

All two-wire detectors being monitored must be two-wire-compatibility-listed with the XP6-MA. This information can be found in the *Notifier Device Compatibility Document* on the *MagniFire* website.

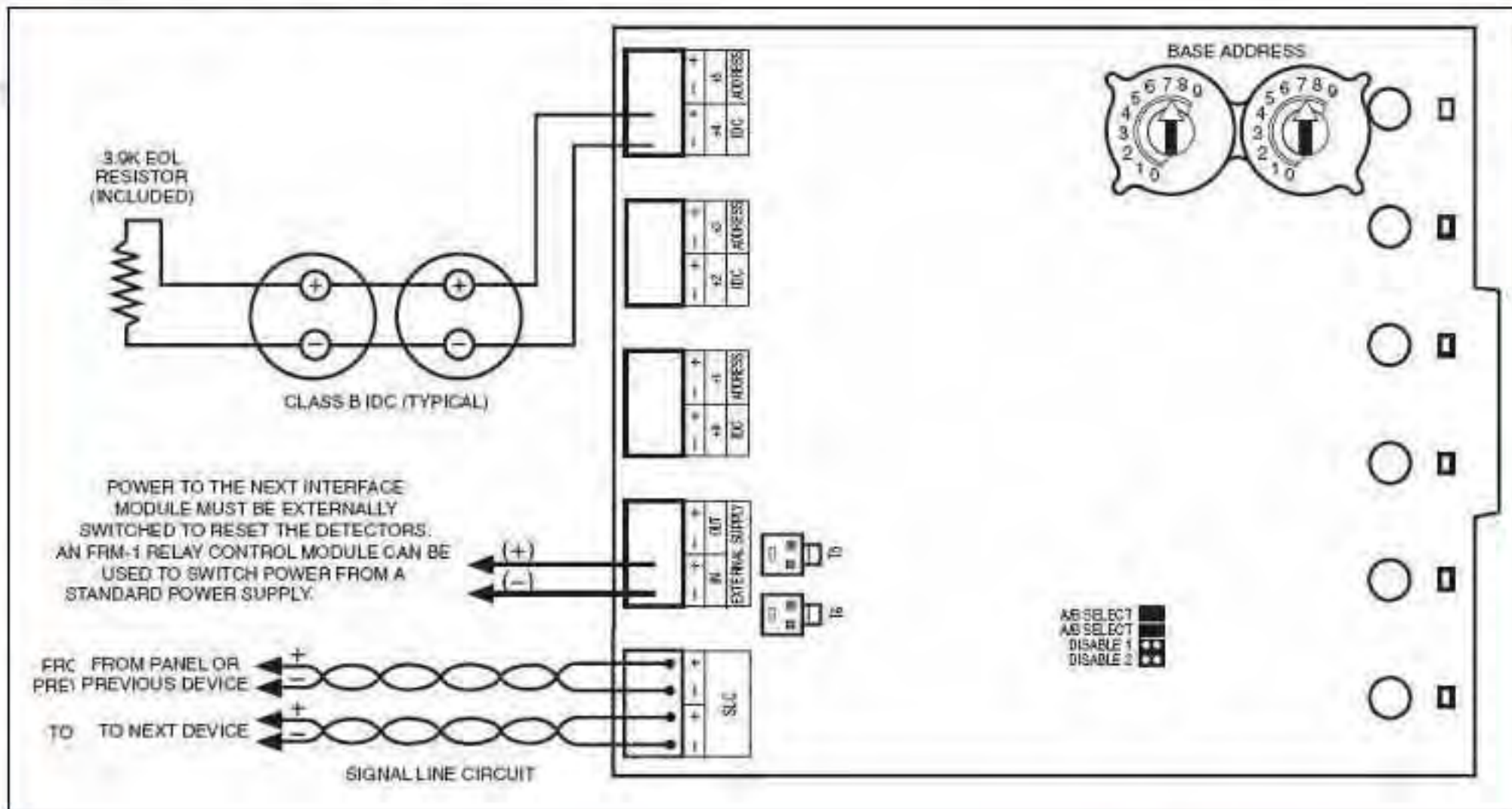
NFPA Style B Wiring

NFPA Style D Wiring

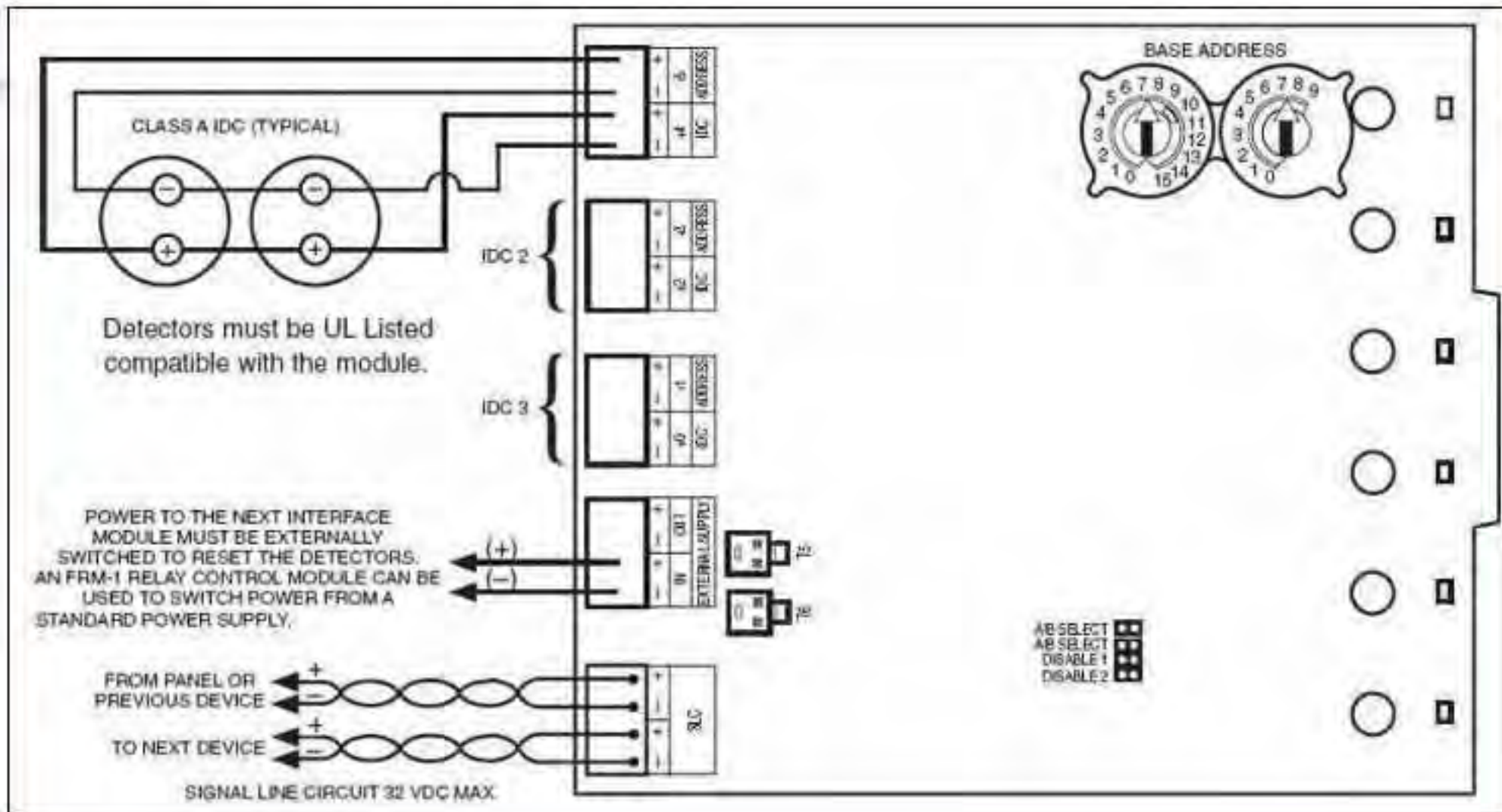
◀ **BACK**

NEXT ▶

Addressable Monitor Modules



Addressable Monitor Modules



Addressable Monitor Modules

FMM-4-20 Analog Input Module

Page 18 of 26

The **FMM-4-20** Monitor Module provides an interface between a 4-20 mA output sensor and an ONYX Fire Alarm Control Panel.

The module translates the [4-20mA signal](#) from a single two-wire or three-wire sensor and communicates that information to the panel in FlashScan protocol. It provides a unique non-alarm signal under a UL NM (non-monitored) listing.

The FMM-4-20 requires that separate 24 VDC power be supplied to the module to power the circuit. The module inherently supervises the connection of this power. It transmits the status of the sensor (normal, open or alarm) back to the control panel.

[◀ BACK](#)[NEXT ▶](#)

Addressable Monitor Mod

FMM-4-20 Analog Input

The **FMM-4-20** Monitor Module interface between a 4-20 mA output and an ONYX Fire Alarm Control Panel.

The module translates the **4-20mA** signal into a single two-wire or three-wire signal that communicates that information using the FlashScan protocol. It provides a 4-20 mA signal under a UL NM (non-monitored) signal.

The FMM-4-20 requires that separate power be supplied to the module. The module inherently senses the connection of this power. It translates the signal of the sensor (normal, open or closed) to the control panel.

4-20 mA is an analog electrical signaling standard for industrial instrumentation and communication.

The signal is the degree of circuit current in which 4 mA represents the 0% signal and 20 mA represents the 100% signal. Establishing 4 mA as the "zero" allows the receiving instrumentation to distinguish between a zero signal and a broken wire or a dead instrument.

4-20mA Signal	Description
0-1.5 mA	Fault
1.5 to 2.5 mA	Warning (offline or being calibrated)
2.5 to 3.2 mA	Fault (requires calibration)
3.2 to 4.0 mA	Drift dead band/suppression
4.0-20 mA	0-100% Full sensor detection
20-22 mA	Maximum over range

This feature allows low-power instruments to be directly powered from the loop, saving the cost of extra wires. The 4-20 mA standard was developed in the 1950's and is still widely used in industry today.

There are numerous sensors available in the marketplace that communicate using a 4-20 mA output, including gas sensors, temperature sensors, air speed sensors and more.

◀ BACK

NEXT ▶

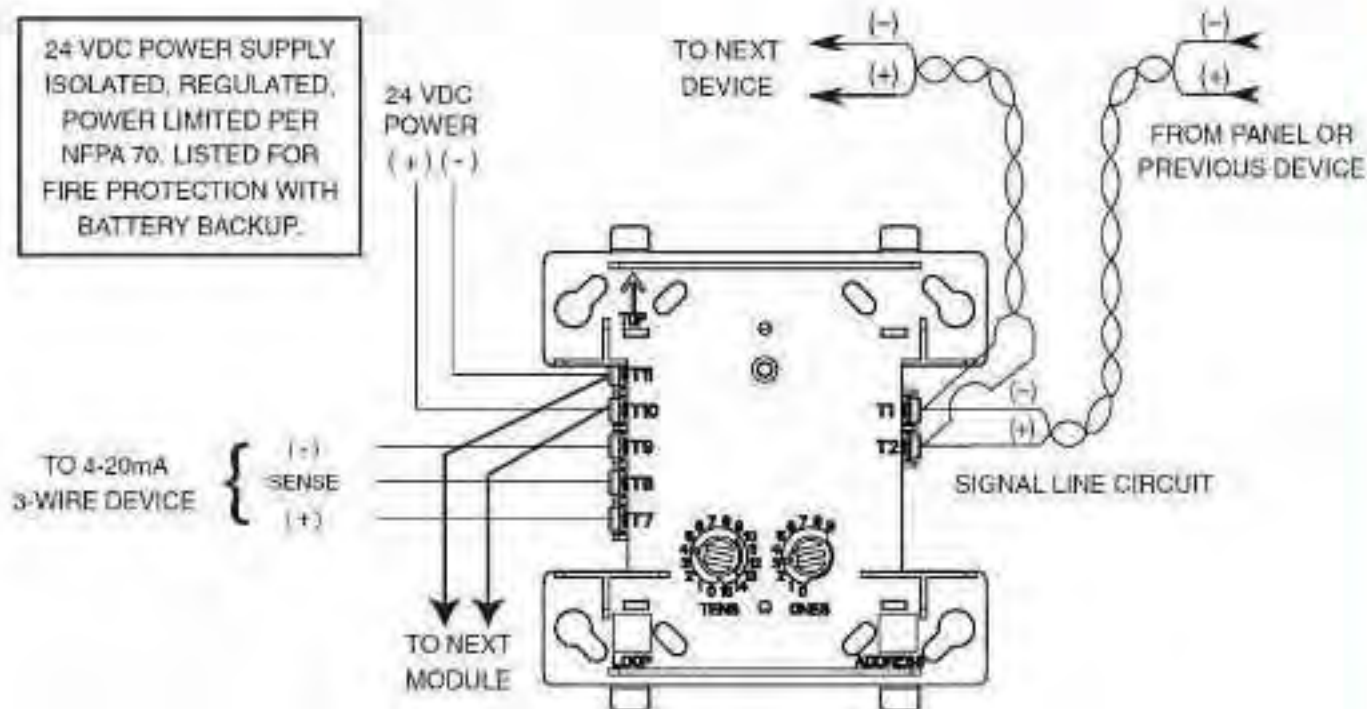
Addressable Monitor Modules

FMM-4-20 Analog Input Module

Page 19 of 26

Only one 4-20 mA sensor can be connected to the FMM-4-20. This sensor can be either a two-wire or a three-wire device.

- Two-Wire Sensor
- Three-Wire Sensor



◀ BACK

NEXT ▶

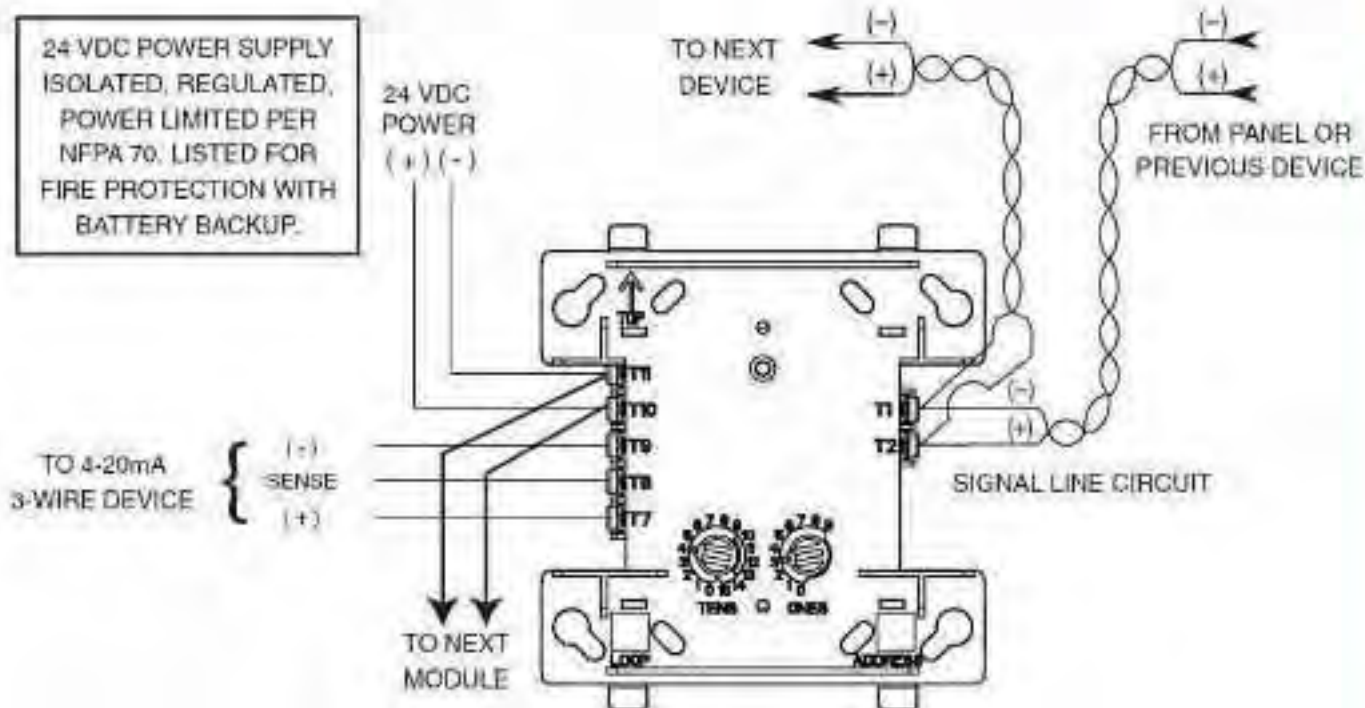
Addressable Monitor Modules

FMM-4-20 Analog Input Module

Page 19 of 26

Only one 4-20 mA sensor can be connected to the FMM-4-20. This sensor can be either a two-wire or a three-wire device.

- Two-Wire Sensor
- Three-Wire Sensor



◀ BACK

NEXT ▶

Addressable Monitor Modules

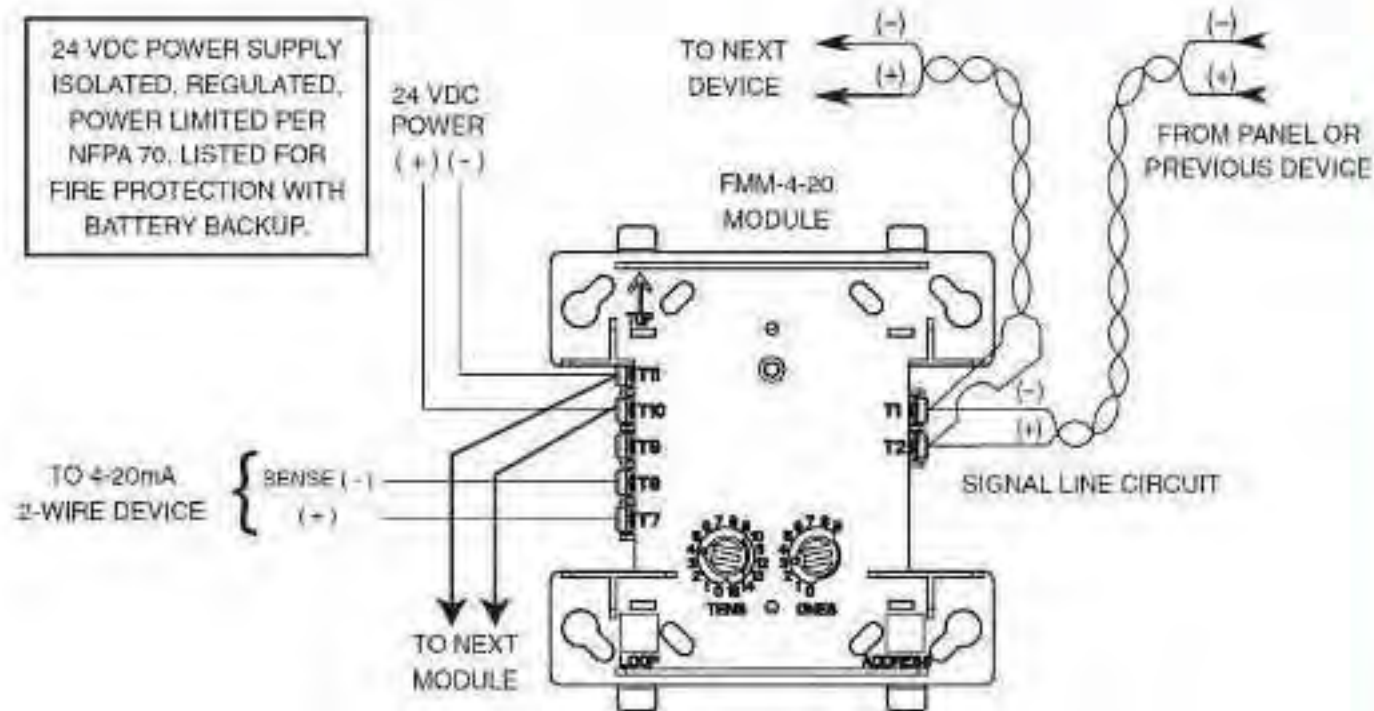
FMM-4-20 Analog Input Module

Page 19 of 26

Only one 4-20 mA sensor can be connected to the FMM-4-20. This sensor can be either a two-wire or a three-wire device.

Two-Wire Sensor

Three-Wire Sensor



◀ BACK

NEXT ▶

Addressable Monitor Modules

Summary Page

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module, click the BACK button or select the subject from the list at right.



◀ BACK

NEXT ▶

Addressable Control Modules

Quiz Question



How many 4-20 mA sensors can be connected to an FMM-420 Monitor Module?

- One sensor can be connected to the module
- Twenty sensors can be connected to the module
- The number specified in the Device Compatibility Document
- No limit as long as circuit voltage does not drop more than 10%

NEXT →

Addressable Control Modules

Quiz Question



How many 4-20 mA sensors can be connected to an FMM-420 Monitor Module?

- One sensor can be connected to the module
- Twenty sensors can be connected to the module
- The number specified in the Device Compatibility Document
- No limit as long as circuit voltage does not drop more than 10%

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following initiating devices cannot be monitored by the addressable FMM-1 Monitor Module?

- Supervisory (Tamper) switch
- 2-Wire Smoke Detector
- Heat Detector
- Waterflow alarm switch

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following initiating devices cannot be monitored by the addressable FMM-1 Monitor Module?

- Supervisory (Tamper) switch
- 2-Wire Smoke Detector
- Heat Detector
- Waterflow alarm switch

NEXT ►

Addressable Control Modules

Quiz Question



An XP10-M is configured for Style D circuits with a base address of 64 on the SLC Loop. What address range would be assumed by this module?

- SLC Addresses 65, 67, 69, 71, 73
- SLC Addresses 64, 65, 66, 67, 68
- SLC Addresses 64 - 73
- SLC Addresses 64, 66, 68, 70, 72

NEXT ▶

Addressable Control Modules

Quiz Question



An XP10-M is configured for Style D circuits with a base address of 64 on the SLC Loop. What address range would be assumed by this module?

- SLC Addresses 65, 67, 69, 71, 73
- SLC Addresses 64, 65, 66, 67, 68
- SLC Addresses 64 - 73
- SLC Addresses 64, 66, 68, 70, 72

NEXT ►

Addressable Control Modules

Quiz Question



Which letter in the photo below represents where the SLC Loop is connected to each addressable module?

- A
- B
- C
- D



NEXT ►

Addressable Control Modules

Quiz Question



Which letter in the photo below represents where the SLC Loop is connected to each addressable module?

- A
- B
- C
- D



NEXT ►

Addressable Control Modules

Quiz Question



The XP10-M has a unique feature that can be used in the event of CPU failure in an NFS-320 or NFS2-640. What is this feature?

- Initiates a system-wide TROUBLE condition.
- Activates Sounder Bases mapped to detectors in software zones
- Send a signal to to activate the panel's onboard NACs and Alarm relay
- Broadcasts a trouble condition to a Central Station

NEXT ►

Addressable Control Modules

Quiz Question



The XP10-M has a unique feature that can be used in the event of CPU failure in an NFS-320 or NFS2-640. What is this feature?

- Initiates a system-wide TROUBLE condition.
- Activates Sounder Bases mapped to detectors in software zones
- Send a signal to to activate the panel's onboard NACs and Alarm relay
- Broadcasts a trouble condition to a Central Station

NEXT ►

Addressable Monitor Modules

Module Completed

Congratulations - you have completed the module *Addressable Monitor Modules*.

Your score for this module: **Score: 100%**

EXIT

Addressable Control Modules - Notifier for Recertification

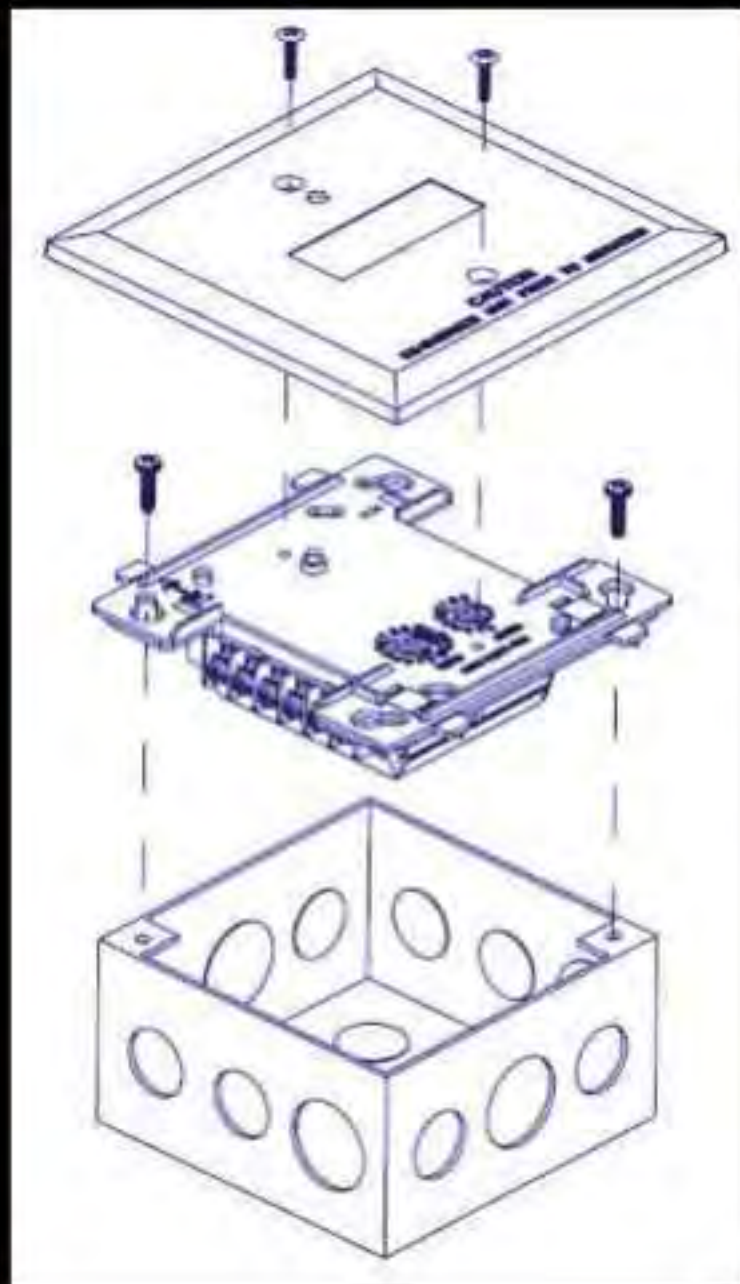
Learning Activity Details

Description:

This self-paced module of study reviews the functionality of addressable control modules - devices that extend the reach and increase the control capabilities of an intelligent fire alarm system

Next

Cancel



Addressable Control Modules

This self-paced module of study reviews the functionality of addressable control modules - devices that extend the reach and increase the control capabilities of an intelligent fire alarm system

NEXT ►

Addressable Control Modules

Module Redesign

FlashScan Control Modules have recently undergone a design change. The new-style modules, referred to as "h-type", retain the same model numbers but offer several new features. This course will discuss both module types.



"v-type" Module



"h-type" Module

- Terminal labeling on front side
- Side-mounted Terminals for ease of installation
- Reoriented Address Switches

◀ BACK

NEXT ▶

Addressable Control Modules

H-Type Module

Each "h-type" Control Module has several basic circuit connections, address switches and an Activity LED.

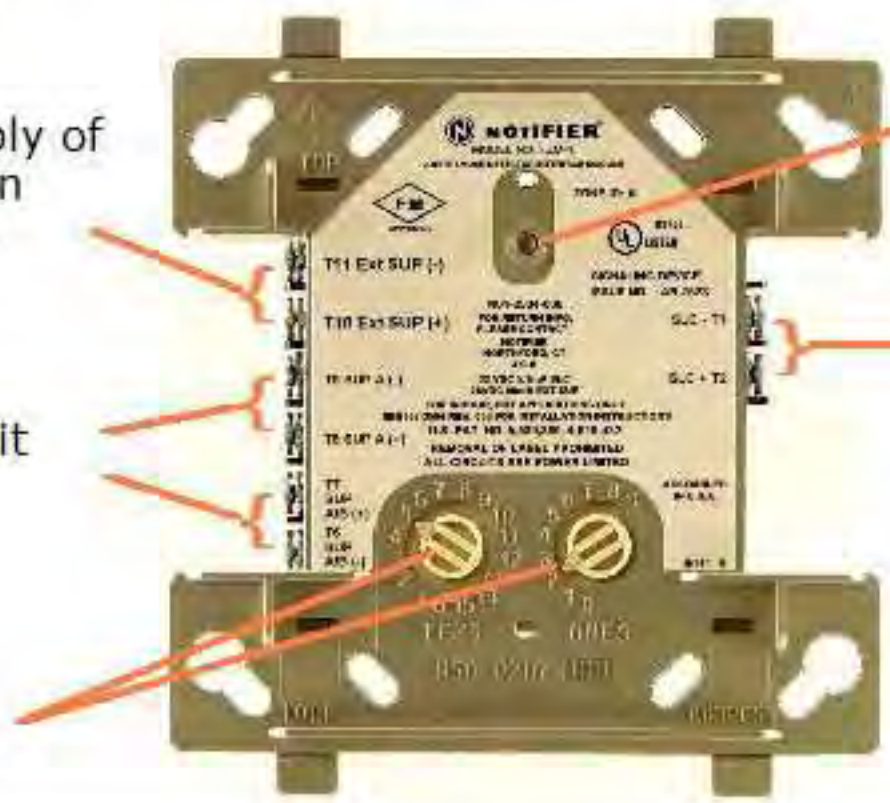
Some modules require the supply of 24 VDC power on these terminals

Activity LED

SLC Loop

Conventional circuit

Address on the SLC Loop



◀ BACK

NEXT ▶

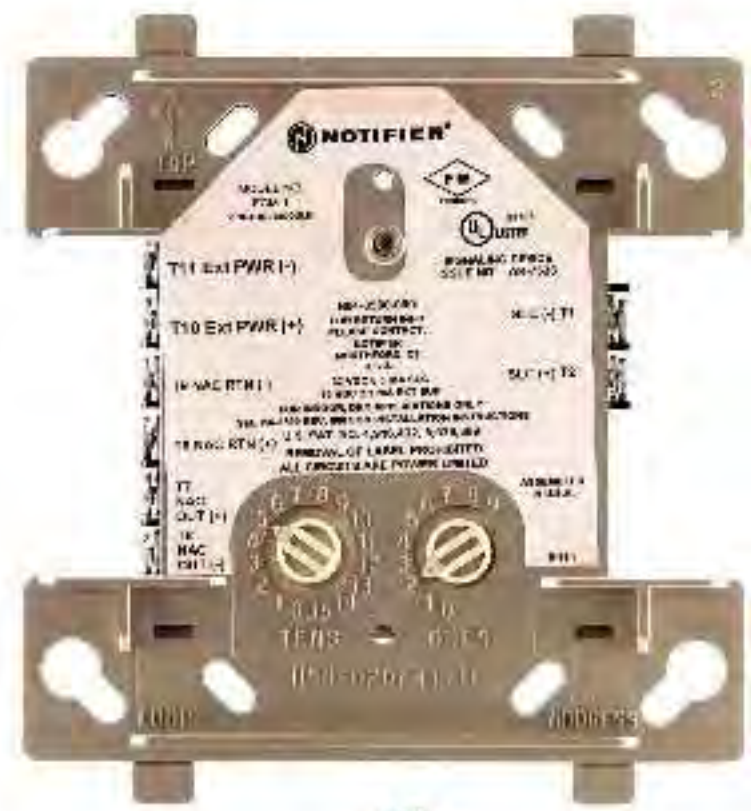
Addressable Control Modules

Control Module

The **FCM-1** Addressable Control Module provides NOTIFIER intelligent control panels a circuit for notification appliances (horns, strobes, speakers, etc.) or to monitor a telephone circuit.

Addressability allows the FCM-1 to be activated, either manually or through panel programming, on a select (zone or area of coverage) basis.

Each FCM-1 can support 2 amps of resistive load (electronic devices) or 1 amp of inductive load (mechanical bells and horns).



◀ BACK

NEXT ▶

Addressable Control Modules

Control Module

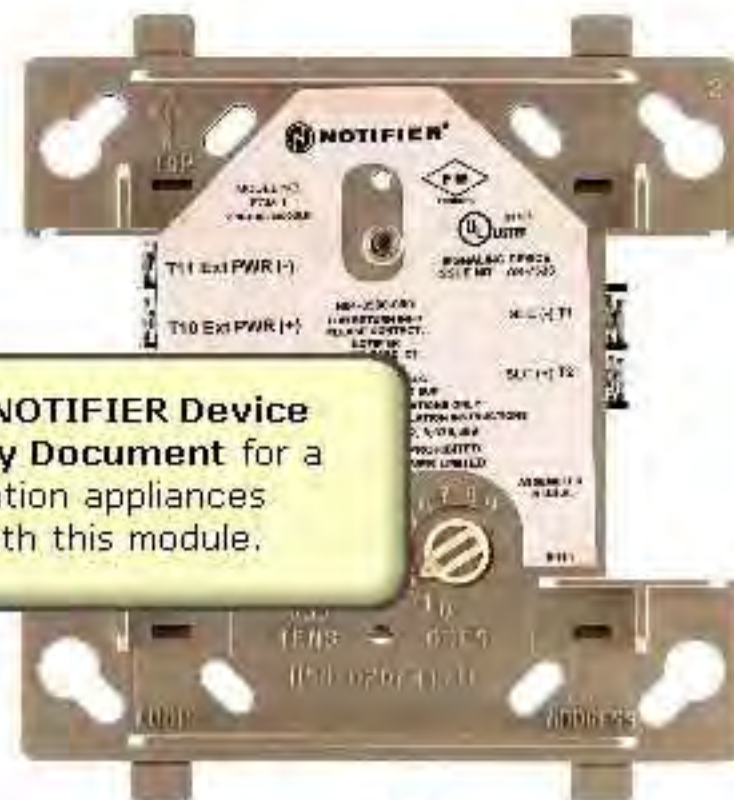
Page 4 of 35

The **FCM-1** Addressable Control Module provides NOTIFIER intelligent control panels a circuit for notification appliances (horns, strobes, speakers, etc.) or to monitor a telephone circuit.

Addressability allows the FCM-1 to be activated, either manually or through panel programming, on a select (zone or area of coverage) basis.

Each FCM-1 can support 2 amps of resistive (electronic devices) or 1 amp of inductive (mechanical bells and horns).

Refer to the **NOTIFIER Device Compatibility Document** for a list of notification appliances compatible with this module.



◀ BACK

NEXT ▶

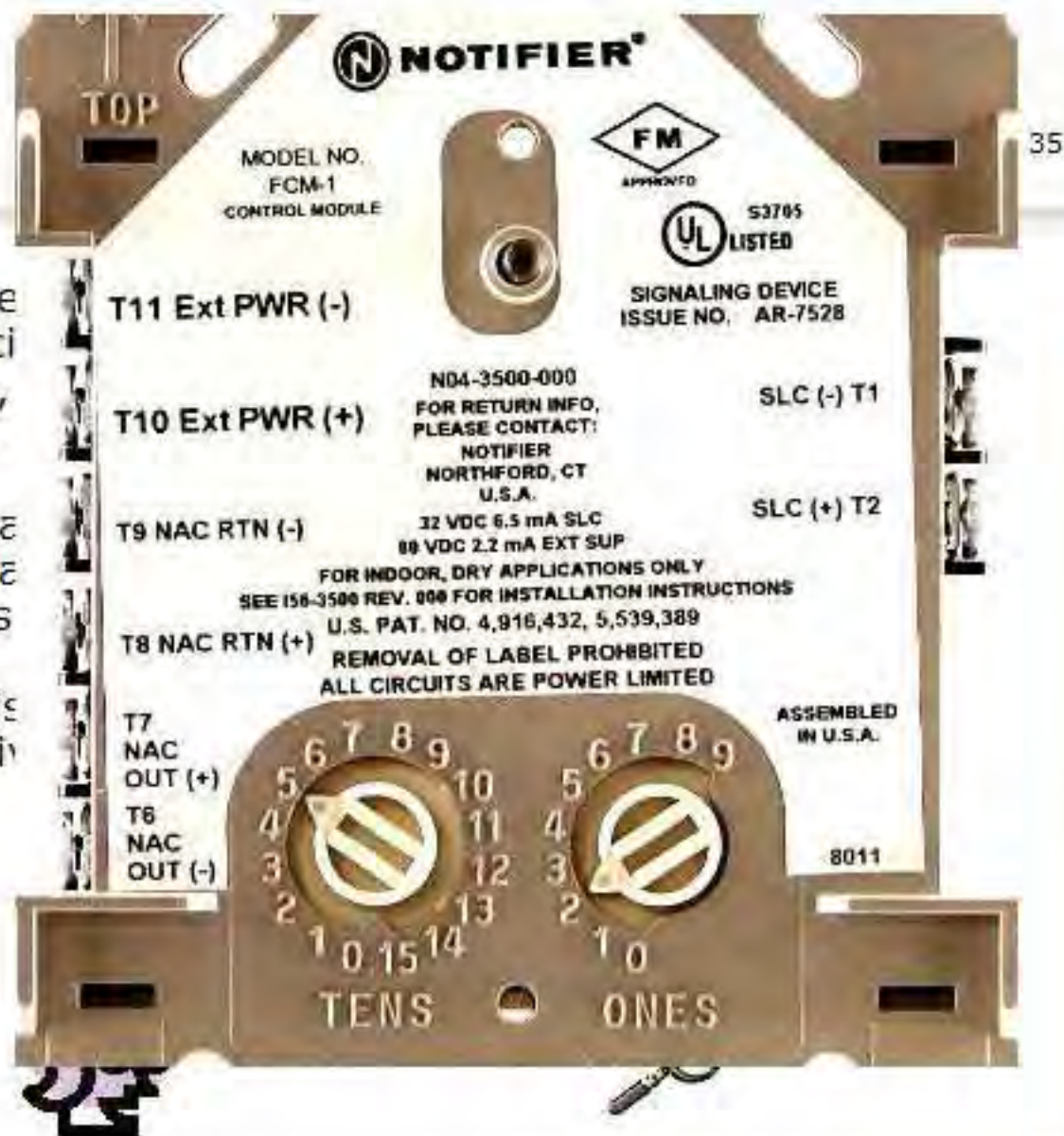
Addressable Control Modules

Control Module

The **FCM-1** Addressable Control Module NOTIFIER intelligent control panels a circuit notification appliances (horns, strobes, etc.) or to monitor a telephone circuit.

Addressability allows the FCM-1 to be set either manually or through panel programming a select (zone or area of coverage) base.

Each FCM-1 can support 2 amps of resistive (electronic devices) or 1 amp of inductive (mechanical bells and horns).



◀ BACK

NEXT ▶

Addressable Control Modules

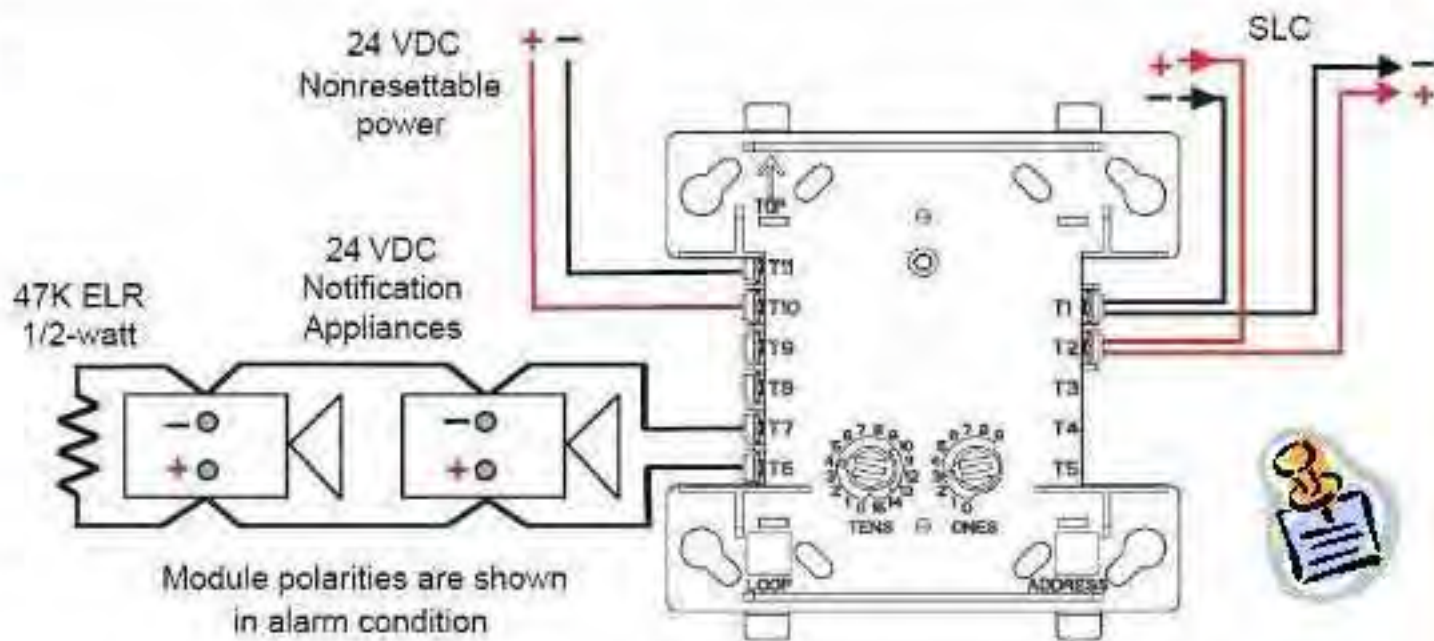
Control Module

Page 5 of 35

The FCM-1 monitored circuit may be wired as an NFPA Style Y (Class B) or Style Z (Class A) Notification Appliance Circuit.

Size NAC wiring using voltage drop calculations software.

A 47K End-of-Line Resistor terminates the end of the Style Y circuit.


 NFPA Style Y Wiring

 NFPA Style Z Wiring

Addressable Control Modules

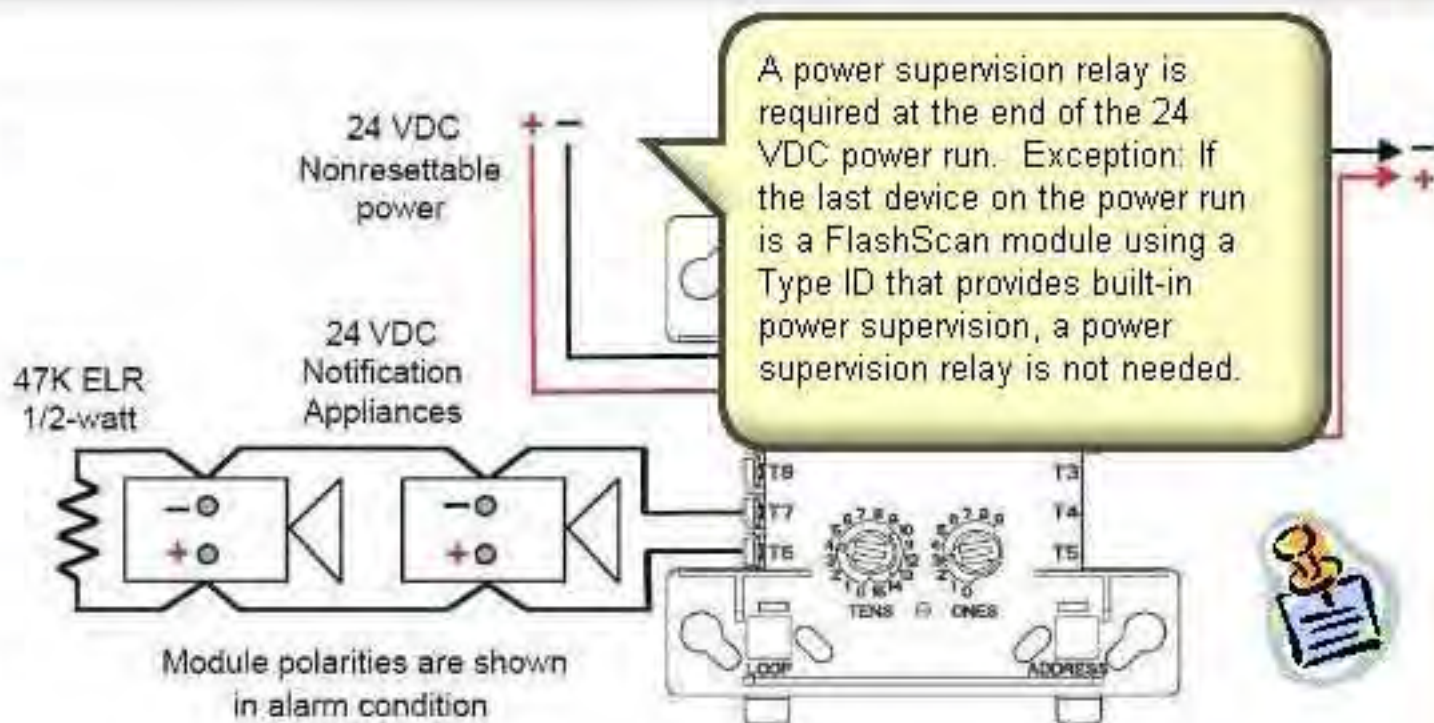
Control Module

Page 5 of 35

The FCM-1 monitored circuit may be wired as an NFPA Style Y (Class B) or Style Z (Class A) Notification Appliance Circuit.

Size NAC wiring using voltage drop calculations software.

A 47K End-of-Line Resistor terminates the end of the Style Y circuit.


 NFPA Style Y Wiring

 NFPA Style Z Wiring

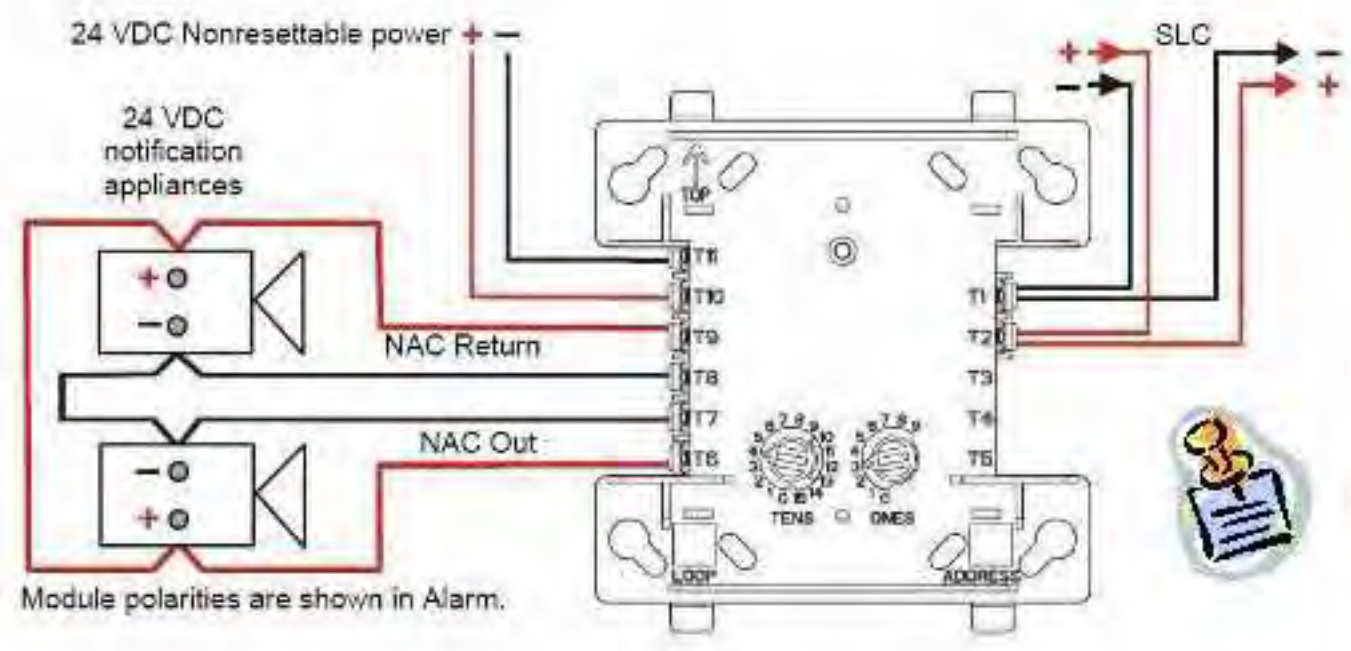
Addressable Control Modules

Control Module

The FCM-1 monitored circuit may be wired as an NFPA Style Y (Class B) or Style Z (Class A) Notification Appliance Circuit.

Size NAC wiring using voltage drop calculations software.

A 47K End-of-Line Resistor terminates the end of the Style Y circuit.



NFPA Style Y Wiring

NFPA Style Z Wiring

◀ BACK

NEXT ▶

Addressable Control Modules

Control Module

Page 6 of 35

The FCM-1 supports speaker circuits wired NFPA Style Y or Style Z.

For Style Y wiring, a 47K End-of-Line Resistor terminates the end of the circuit.

For Style Z wiring, 100 microfarad non-polarized capacitors are required across module terminals 6 & 9 and terminals 7 & 8 respectively.

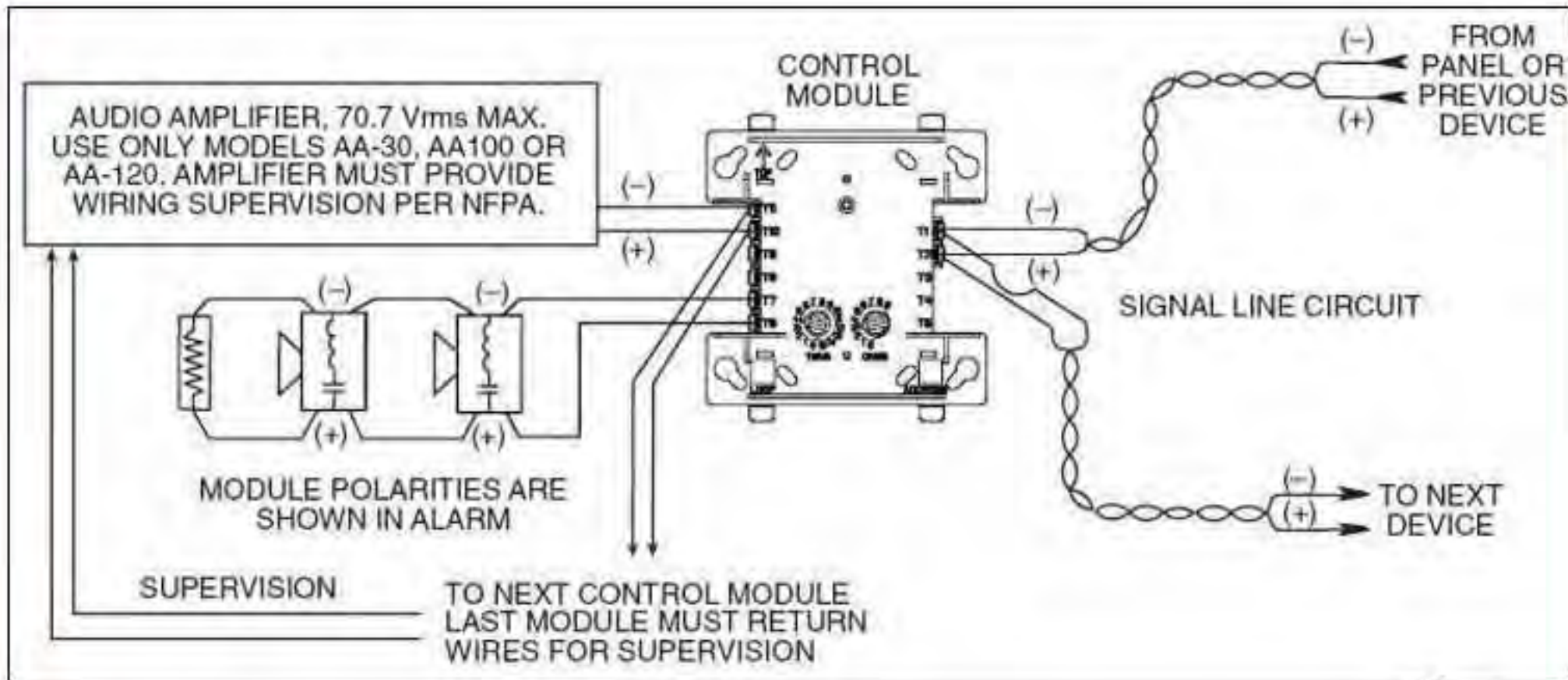
NFPA Style Y Wiring

NFPA Style Z Wiring

[◀ BACK](#)[NEXT ▶](#)

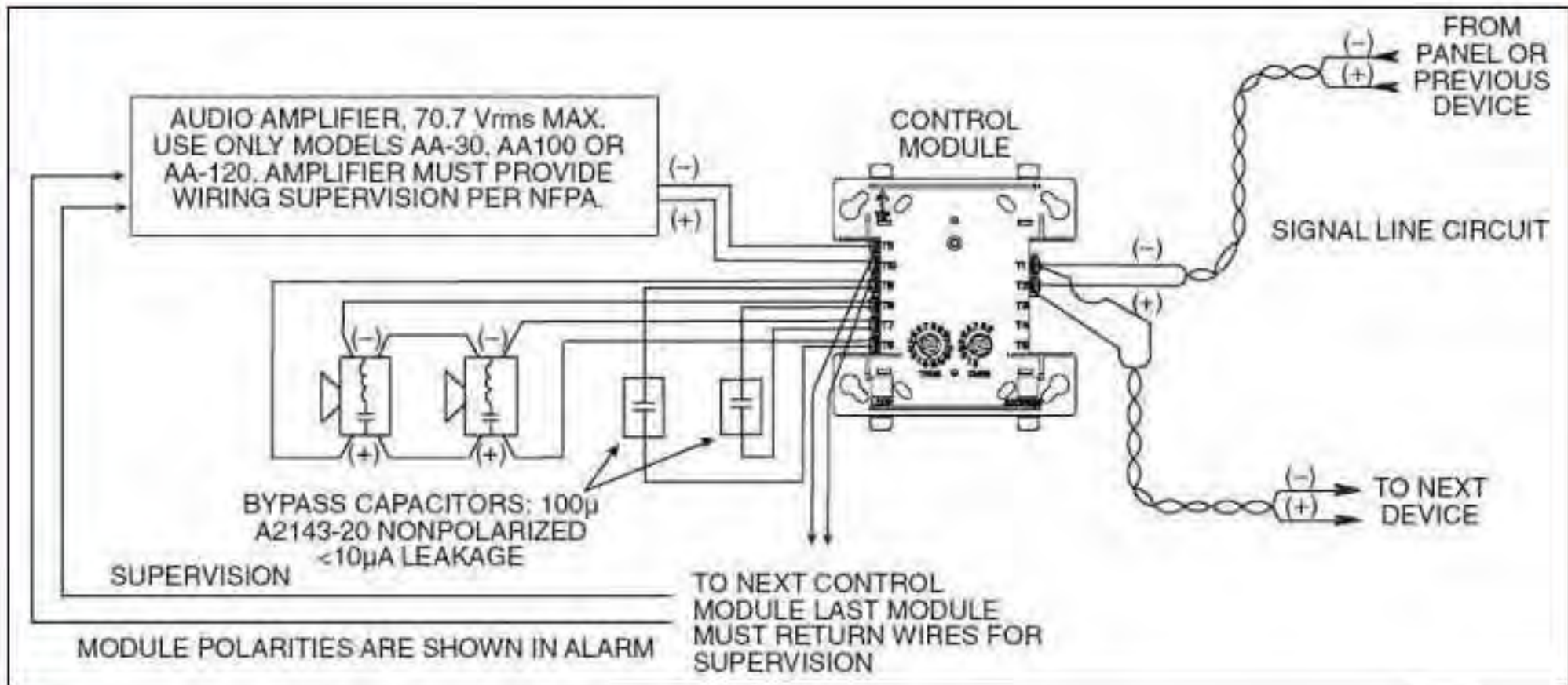
Addressable Control Modules

Control Module



Addressable Control Modules

Control Module



Addressable Control Modules

Control Module

Page 6 of 35

The FCM-1 supports speaker circuits wired NFPA Style Y or Style Z.

For Style Y wiring, a 47K End-of-Line Resistor terminates the end of the circuit.

For Style Z wiring, 100 microfarad non-polarized capacitors are required across module terminals 6 & 9 and terminals 7 & 8 respectively.

NFPA Style Y Wiring

NFPA Style Z Wiring

Audio circuit wiring must be twisted pair as a minimum.

Speakers must be listed for Fire Protection.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Control Module

Page 7 of 35

The FCM-1 can also be used to replace the "v-type" FCM-1 module in existing fire fighter telephone applications. However, the module does not provide a ring-back signal.

IMPORTANT - When using the FCM-1 for fire fighter telephone applications, remove Jumper J1.

The jumper is located in a recessed cavity on the back side of the module. It can be pried out with a small flathead screwdriver.



◀ BACK

NEXT ▶

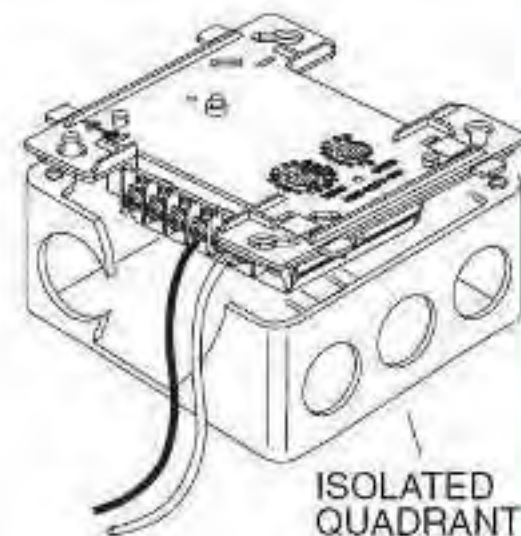
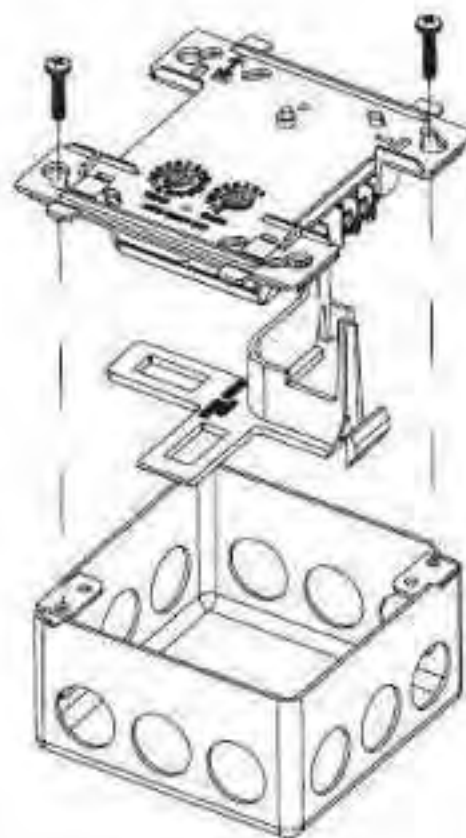
Addressable Control Modules

Module Barrier

Page 8 of 35

When using control modules in nonpower-limited applications, the CB500 Module Barrier must be used to meet UL requirements for the separation of power-limited and nonpower-limited terminals and wiring.

The barrier must be inserted into a 4×4×2-1/8 junction box, and the control module must be placed into the barrier and attached to the junction box.



The power-limited wiring must be placed into the isolated quadrant of the module barrier.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 9 of 35

The FlashScan **XP6-C** Control Module provides six supervised Style Y (or three Style Z) circuits for the control of notification appliances such as sounders, horns, strobes, bells and chimes. The module can also be used to control circuits of speakers or serve as a interface for firefighter's telephones

External power must be supplied to the module when using it to control notification appliances or speakers. Upon command from the control panel, the XP6-C will disconnect the supervision and connect the external power supply across the load devices.

The XP6-C's initial address is set from 01 to 154 and the remaining modules automatically assume the next five addresses in succession.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 10 of 35

With the A/B SELECT shunt in place, the module is configured for six Style Y circuits.

The address range set for the circuits would be the address set on the address switches plus the next five addresses in succession.

With the A/B SELECT shunt removed, the module is configured for three Style Z circuits. Alternate circuits are paired together, and the address for each circuit is the base address +0, +2, +4.

For instance, if the module is set to base address switch 28 and for Style Z, it would consume SLC address 28, 30 and 32. Addresses 29, 31 and 33 would be available for other devices on the SLC loop.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 11 of 35

It is possible to disable one, two or three modules on the XP6-C module by installing a shunt in corresponding position of J1. The modules are disabled from the highest address downward, freeing up these addresses to be used for other devices on the SLC Loop.

The number of modules disabled is affected by the A/B Select shunt.

QUESTION: If the XP6-C is configured for *Style Z* wiring and a shunt installed across the Disable 1 pins, how many addresses would the module consume?

[ANSWER](#)

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 11 of 35

It is possible to disable one, two or three modules on the XP6-C module by installing a shunt in corresponding position of J1. The modules are disabled from the highest address downward, freeing up these addresses to be used for other devices on the SLC Loop.

The number of modules disabled is affected by the A/B Select shunt.



QUESTION: If the XP6-C is configured for *Style Z* wiring and a shunt installed across the Disable 1 pins, how many addresses would the module consume?

ANSWER

Since three addresses are available under Style Z (Class A), the module would consume two SLC addresses.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 11 of 35

It is possible to disable one, two or three modules on the XP6-C module by installing a shunt in corresponding position of J1. The modules are disabled from the highest address downward, freeing up these addresses to be used for other devices on the SLC Loop.

The number of modules disabled is affected by the A/B Select shunt.

QUESTION: If the XP6-C is configured for *Style Z* wiring and a shunt installed across the Disable 1 pins, how many addresses would the module consume?

ANSWER



Remember that operating power for the module must be cycled before changes in shunt settings will take effect.

It is recommended that you remove power to the module, make the desired shunt changes, and reapply power.

Reminder!

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Reading Assignment

Page 12 of 35



Short circuit protection can be enabled on the XPC-6 to protect external power sources from short circuits on a Notification Appliance Circuit. The *Installation and Maintenance Instructions* for the XPC-6 contain information on how to use this feature.

Read the section describing *Active short circuit protection* (be sure to understand all the NOTES) and the section titled *Power Supply Wiring and Supervision* before continuing.



◀ BACK

NEXT ▶

Addressable Control Modules

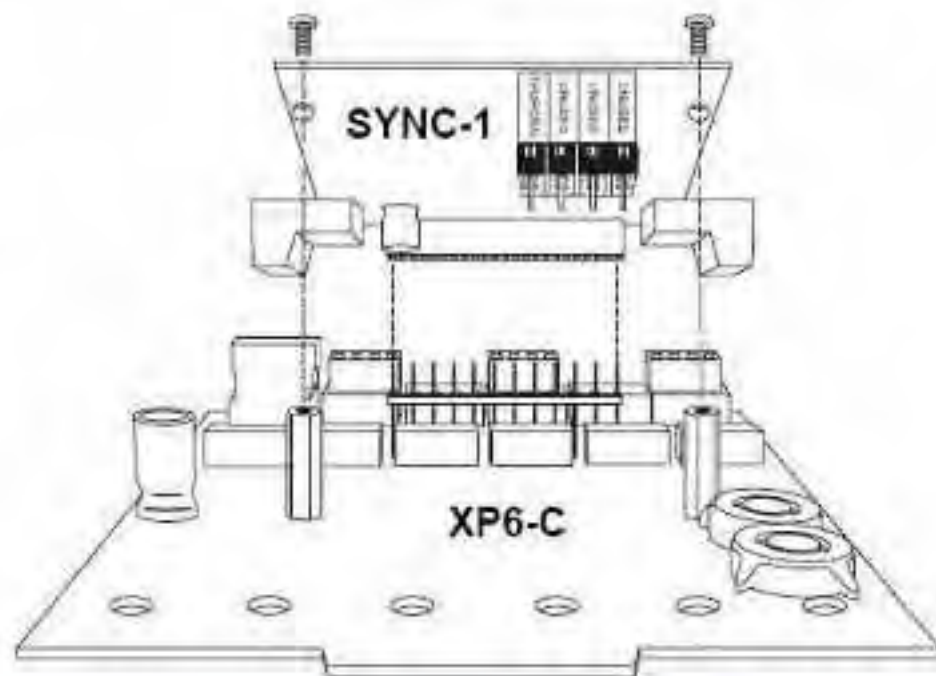
Multi-Circuit NAC Module

Page 13 of 35

Synchronization of Notification Appliances on the XPC-6 is possible with the optional SYNC-1 accessory card. It works with System Sensor's *SpectraAlert* and *SpectraAlert Advance* series to provide a means of synchronizing temporal-coded horns and the timing of strobe flashing.

The SYNC-1 also enables silencing of the horns in horn/strobe combinations over a two-wire circuit while leaving the strobes active. Each SYNC-1 accessory card is capable of synchronizing six Class B circuits or three Class A circuits.

Additional information may be found on the SYNC-1 Installation Manual (Document I56-2190).



◀ BACK

NEXT ▶

Addressable Control Modules

Multi-Circuit NAC Module

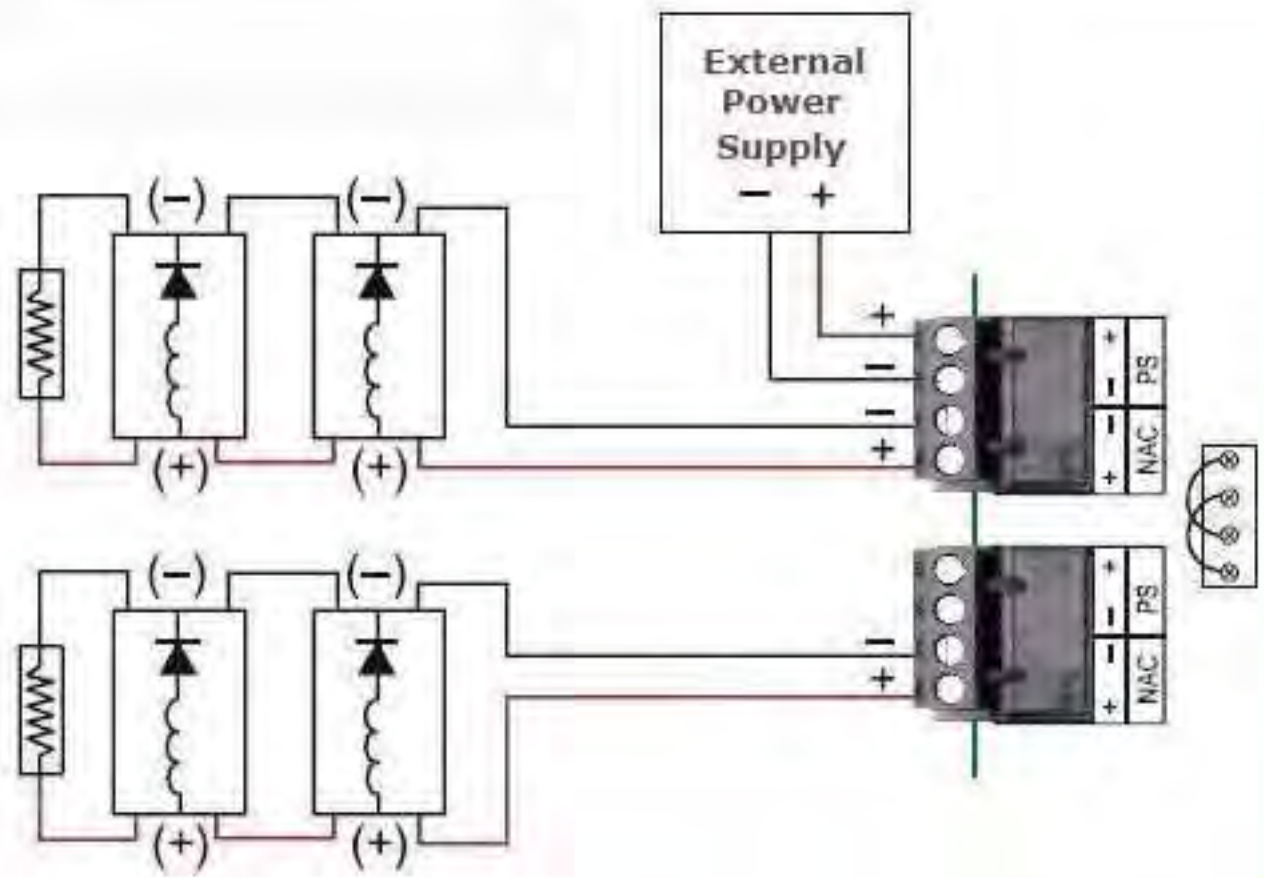
Each of the six Style Y circuits are wired to a dedicated terminal block and must be terminated by a 47K End-of-Line Resistor.

Each of the three Style Z circuits share two terminal blocks.

Alarm polarity shown.

NFPA Style Y Wiring

NFPA Style Z Wiring



◀ BACK

NEXT ▶

Addressable Control Modules

Multi-Circuit NAC Module

Page 14 of 35

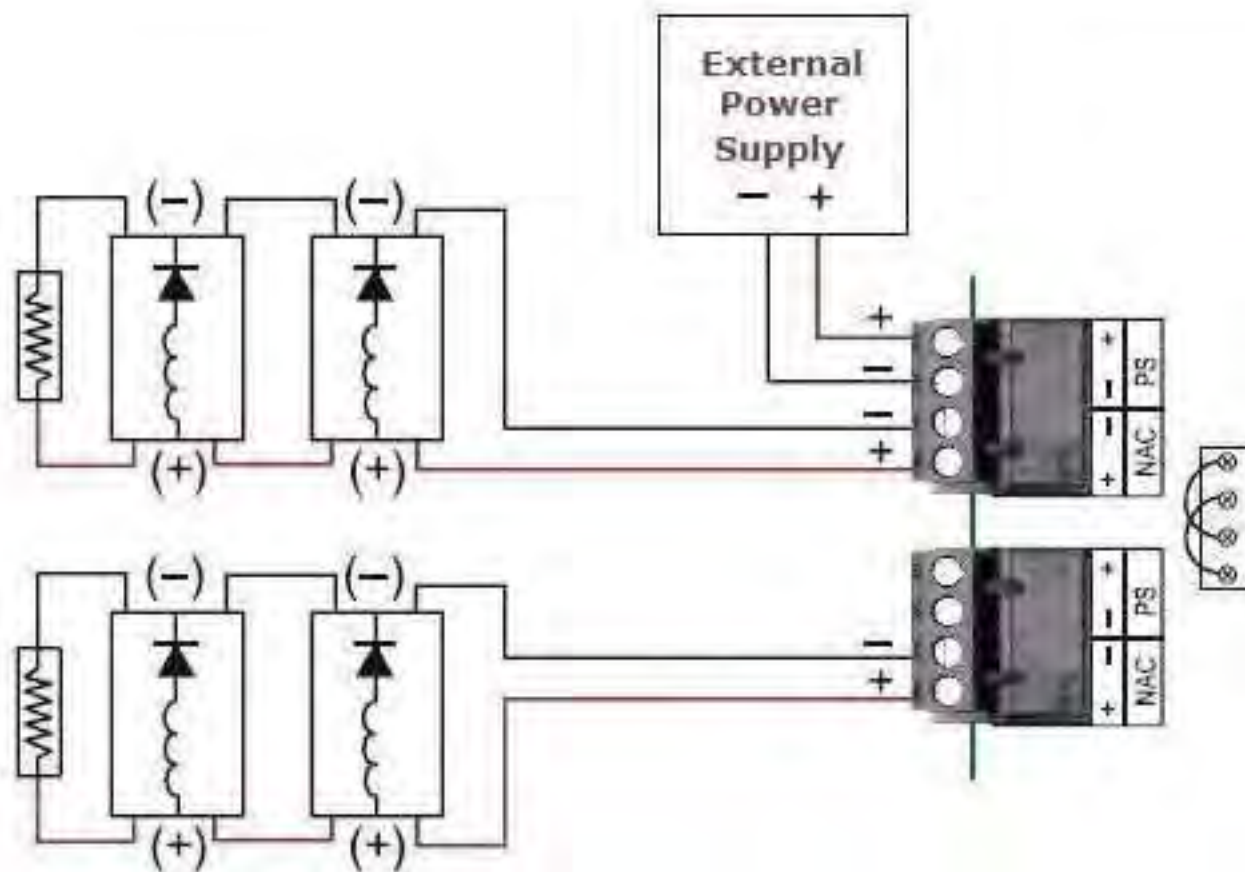
Each of the six Style Y circuits are wired to a dedicated terminal block and must be terminated by a 47K End-of-Line Resistor.

Each of the three Style Z circuits share two terminal blocks.

Alarm polarity shown.

NFPA Style Y Wiring

NFPA Style Z Wiring

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit NAC Module

Page 14 of 35

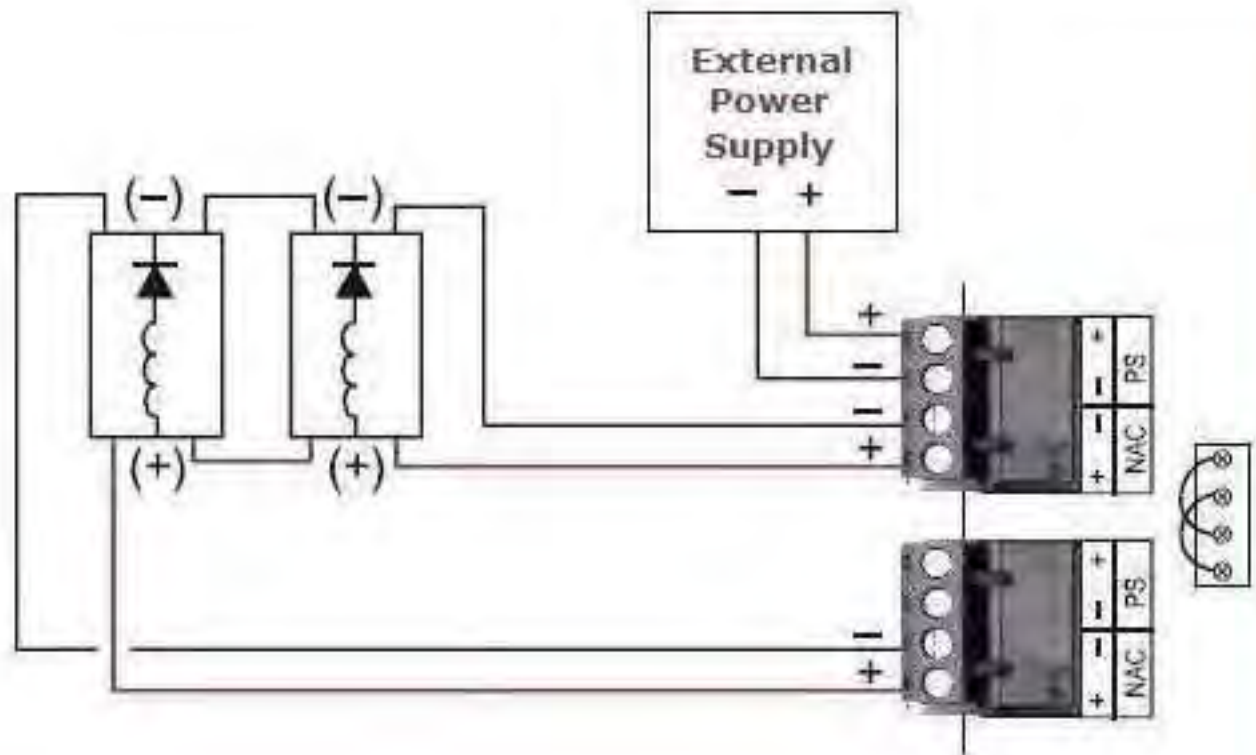
Each of the six Style Y circuits are wired to a dedicated terminal block and must be terminated by a 47K End-of-Line Resistor.

Each of the three Style Z circuits share two terminal blocks.

Alarm polarity shown.

NFPA Style Y Wiring

NFPA Style Z Wiring

**◀ BACK****NEXT ▶**

Addressable Control Modules

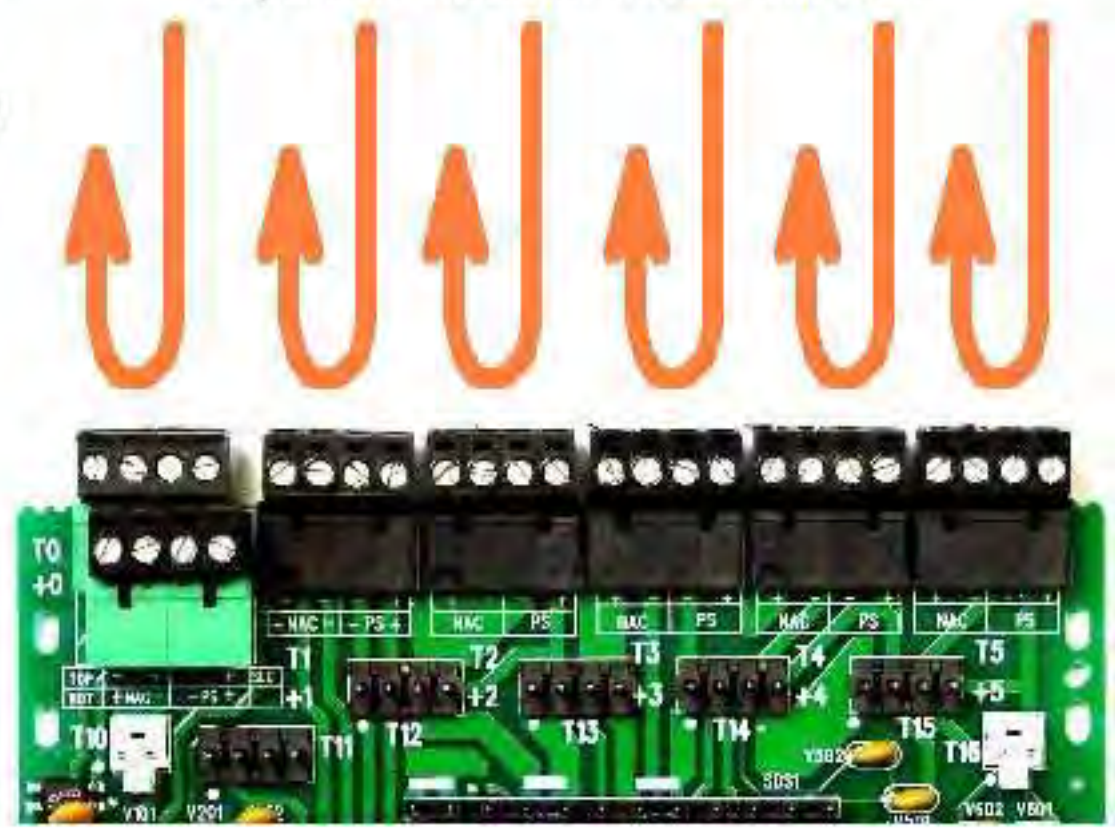
Multi-Circuit NAC Module

Each XP6-C circuit has a provision for the connection of external power if separate power sources are desired. All NACs can be wired to be powered by separate external supplies, or a single supply can be shared among multiple NACs.

In each illustration, note how the [power jumpers \(T11-T15\)](#) are configured.

- Ⓒ Supply per circuit
- Ⓒ One supply for all circuits
- Ⓒ Three-circuit supply pairs

Separate External Power Sources



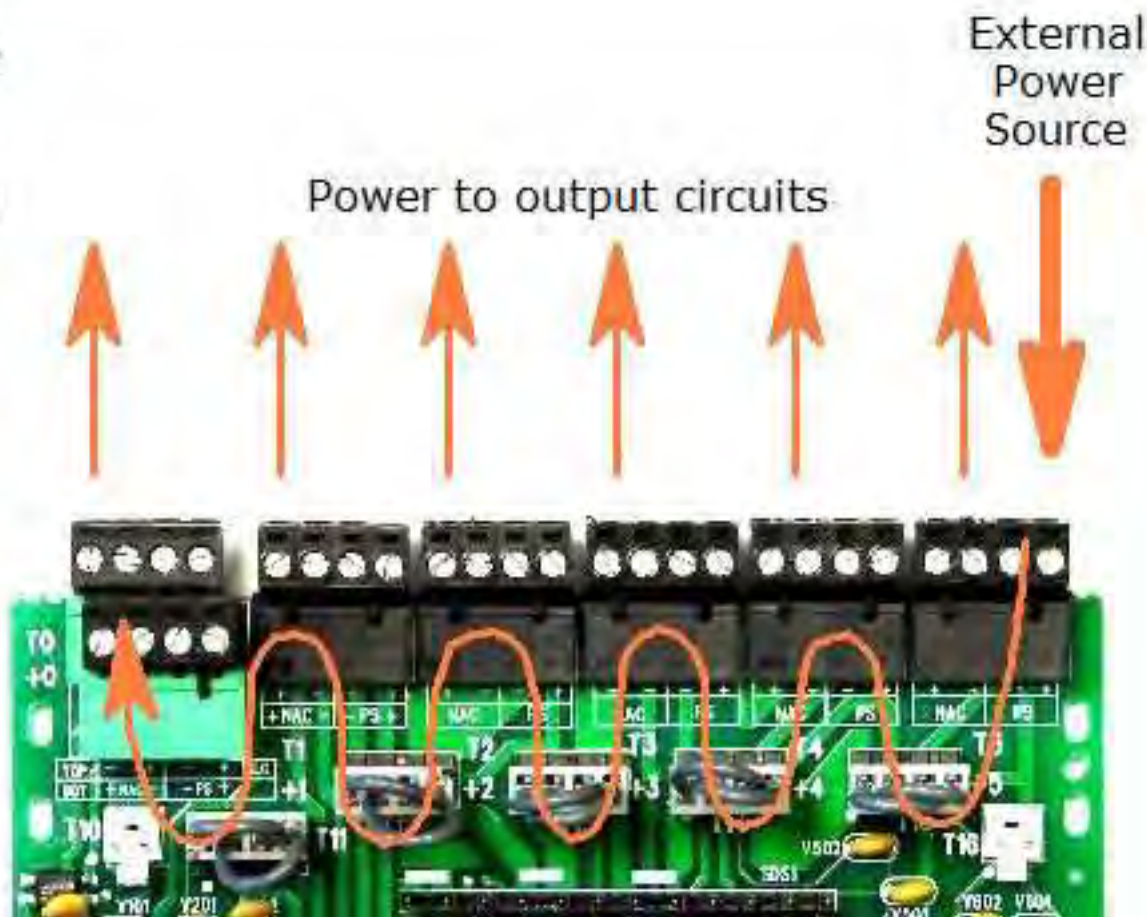
Addressable Control Modules

Multi-Circuit NAC Module

Page 15 of 35

Each XP6-C circuit has a provision for the connection of external power if separate power sources are desired. All NACs can be wired to be powered by separate external supplies, or a single supply can be shared among multiple NACs.

In each illustration, note how the [power jumpers \(T11-T15\)](#) are configured.



- Supply per circuit
- One supply for all circuits
- Three-circuit supply pairs

[◀ BACK](#)[NEXT ▶](#)

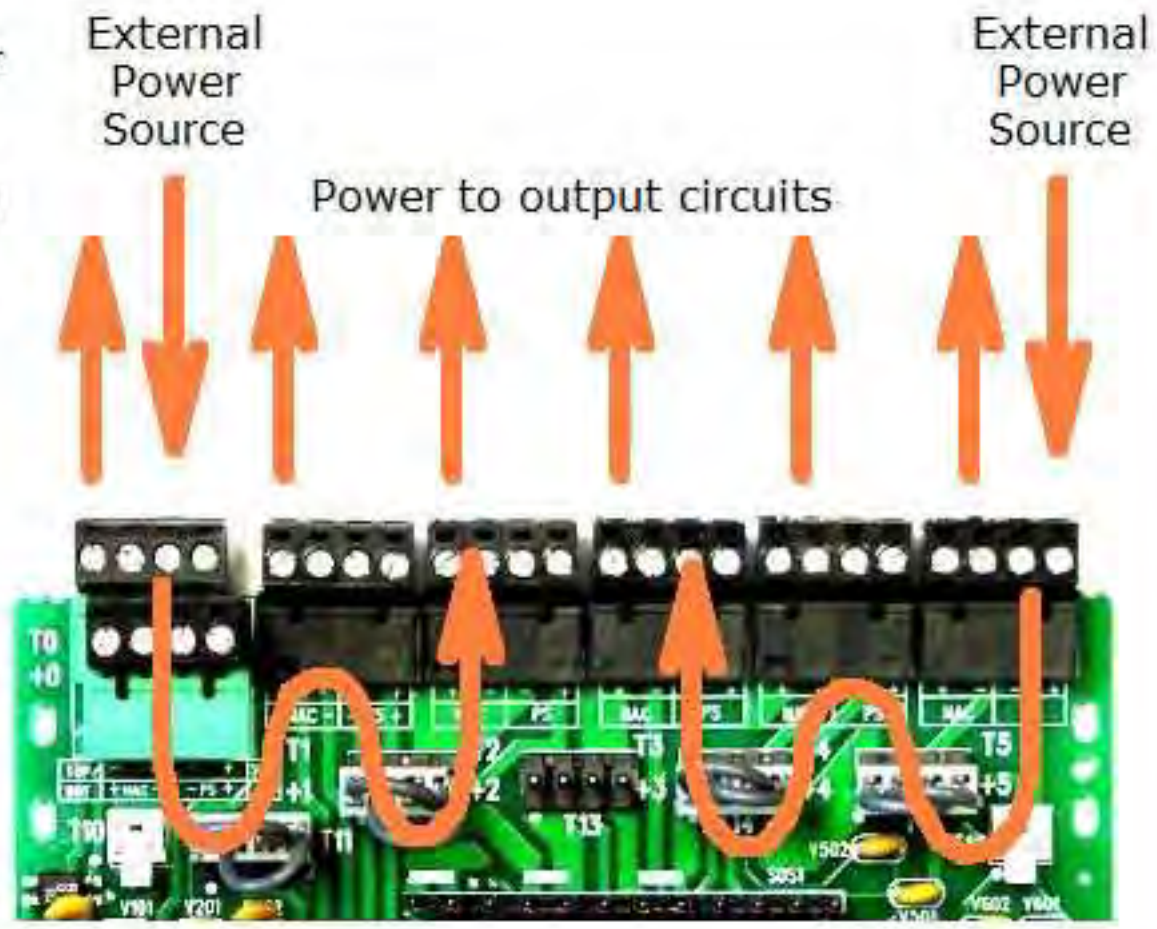
Addressable Control Modules

Multi-Circuit NAC Module

Each XP6-C circuit has a provision for the connection of external power if separate power sources are desired. All NACs can be wired to be powered by separate external supplies, or a single supply can be shared among multiple NACs.

In each illustration, note how the power jumpers (T11-T15) are configured.

- Supply per circuit
- One supply for all circuits
- Three-circuit supply pairs



Addressable Control Modules

Multi-Circuit NAC Module

Page 15 of 35

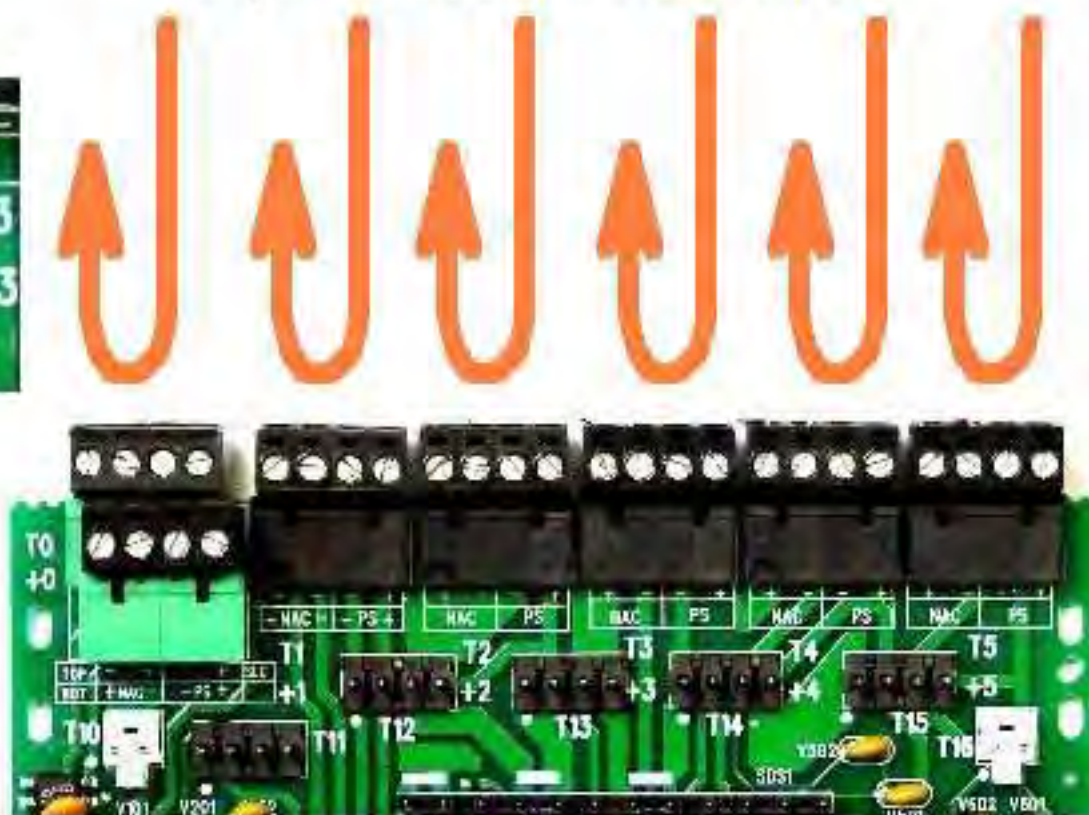
Each XP6-C circuit has a provision for the connection of external power if separate power sources are desired. All NACs can be wired to a single supply can be shared by multiple NACs.



In each illustration, note power jumpers (T11-T15) are configured.

- Ⓒ Supply per circuit
- Ⓒ One supply for all circuits
- Ⓒ Three-circuit supply pairs

Separate External Power Sources



◀ BACK

NEXT ▶

Addressable Control Modules

Relay Module

Page 16 of 35

The FlashScan **FRM-1** Addressable Relay Module provides the system with a set dual [dry-contact](#) outputs for activating a variety of auxiliary devices, such as fans, dampers, control equipment, elevator recall, door release, etc.

Both sets of contacts are [Form-C](#).

The two sets of contact switch together (DPDT) and are rated for 2 amps (resistive), 1 amp (inductive) or 0.5 amps ([Pilot Duty](#)).

Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Relay Module

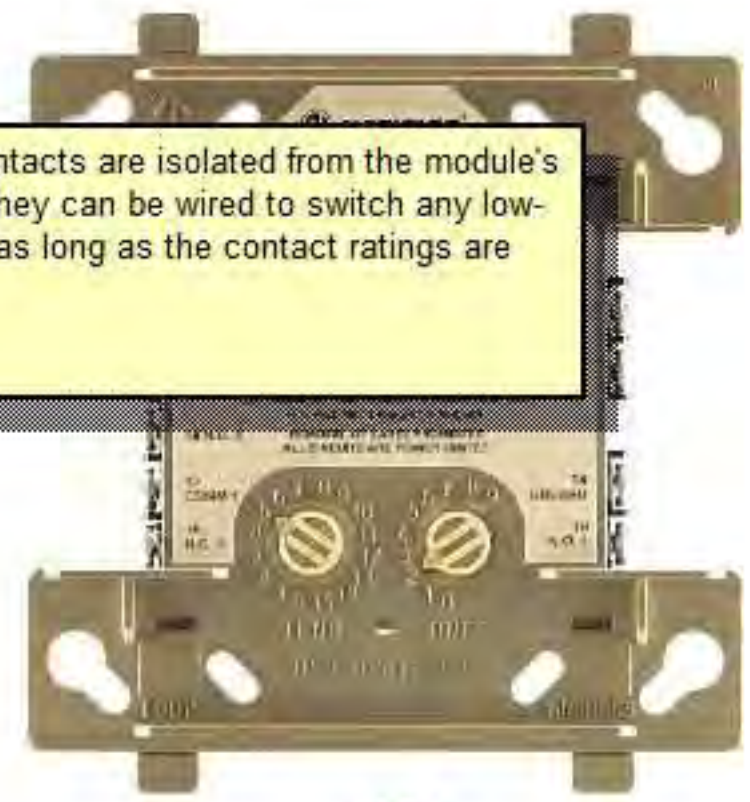
The FlashScan **FRM-1** Addressable Relay Module provides the system with a set dual dry-contact outputs for activating a variety of auxiliary devices, such as fans, dampers, control equipment, elevator recall, door release, etc

Both sets of contacts are Form-C.

The two sets of contact switch together (DPDT) and are rated for 2 amps (resistive), 1 amp (inductive) or 0.5 amps (Pilot Duty).

Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

The relay contacts are isolated from the module's circuitry so they can be wired to switch any low-voltage load as long as the contact ratings are observed.



◀ BACK

NEXT ▶

Addressable Control Modules

Relay Module

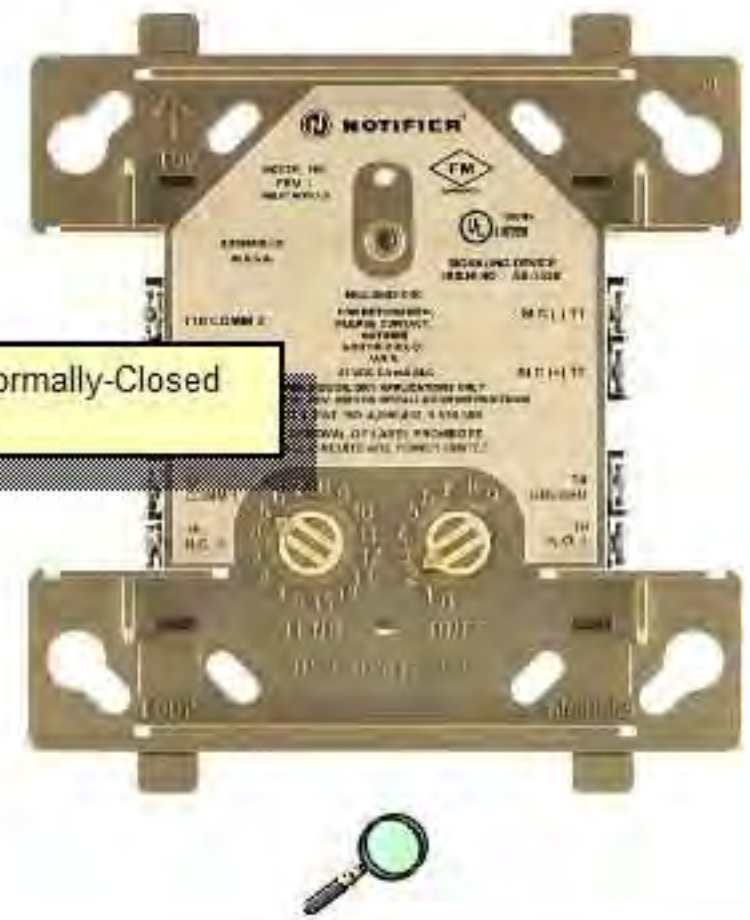
The FlashScan **FRM-1** Addressable Relay Module provides the system with a set dual dry-contact outputs for activating a variety of auxiliary devices, such as fans, dampers, control equipment, elevator recall, door release, etc.

Both sets of contacts are Form-C

Common, Normally-Open and Normally-Closed contacts.

The two sets of contact switch and are rated for 2 amps (resistive), 1 amp (inductive) or 0.5 amps (Pilot Duty).

Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.



◀ BACK

NEXT ▶

Addressable Control Modules

Relay Module

Page 16 of 35

The FlashScan **FRM-1** Addressable Relay Module provides the system with a set dual dry-contact outputs for activating a variety of auxiliary devices, such as fans, dampers, control equipment, elevator recall, door release, etc.

Both sets of contacts are Form-C.

The two sets of contact switch together (DDDT) and are rated for 2 amps (resistive), 1 amp (inductive) or 0.5 amps (Pilot Duty).

Addressability allows the dry contact to be activated, either manually or through programming, on a select basis.

Pilot Duty refers to the using of a relay to trigger another relay with larger contact ratings that is responsible for switching a heavier load than the original relay can support.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

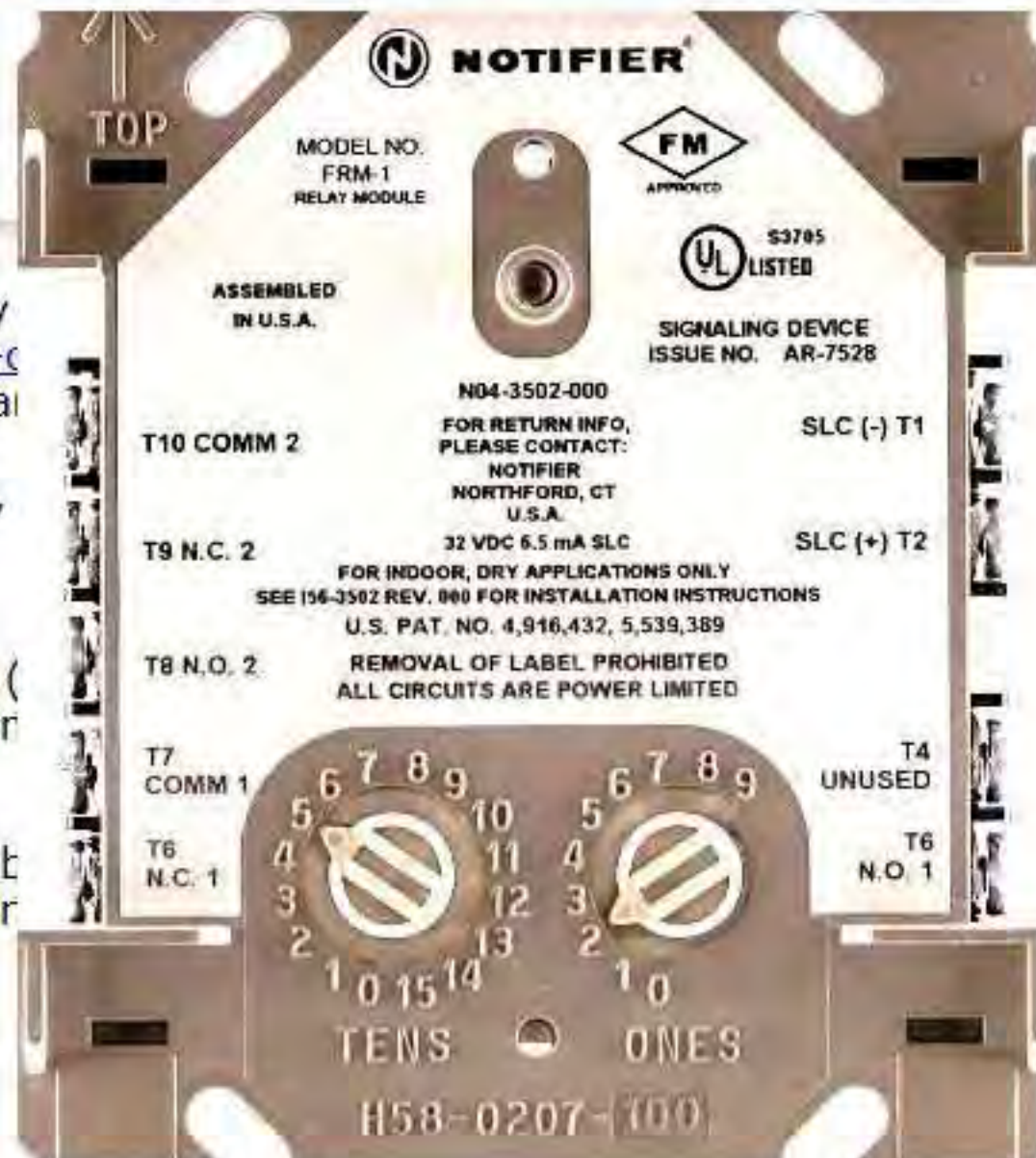
Relay Module

The FlashScan **FRM-1** Addressable Relay provides the system with a set dual [dry-c](#) outputs for activating a variety of auxilia devices, such as fans, dampers, control equipment, elevator recall, door release,

Both sets of contacts are [Form-C](#).

The two sets of contact switch together (and are rated for 2 amps (resistive), 1 an (inductive) or 0.5 amps ([Pilot Duty](#)).

Addressability allows the dry contact to b activated, either manually or through par programming, on a select basis.



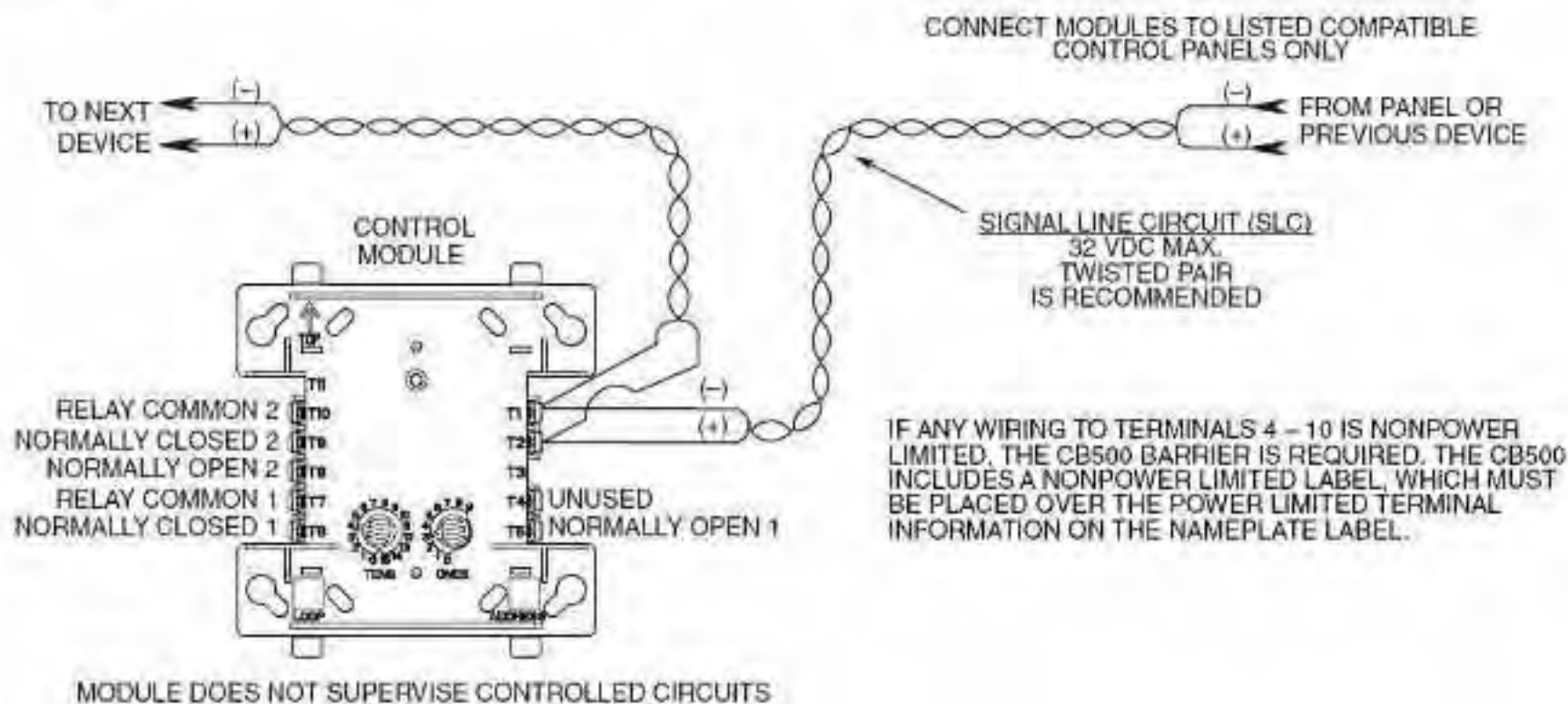
◀ BACK

NEXT ▶

Addressable Control Modules

Relay Module

The FRM-1 Relay Module Connections



Addressable Control Modules

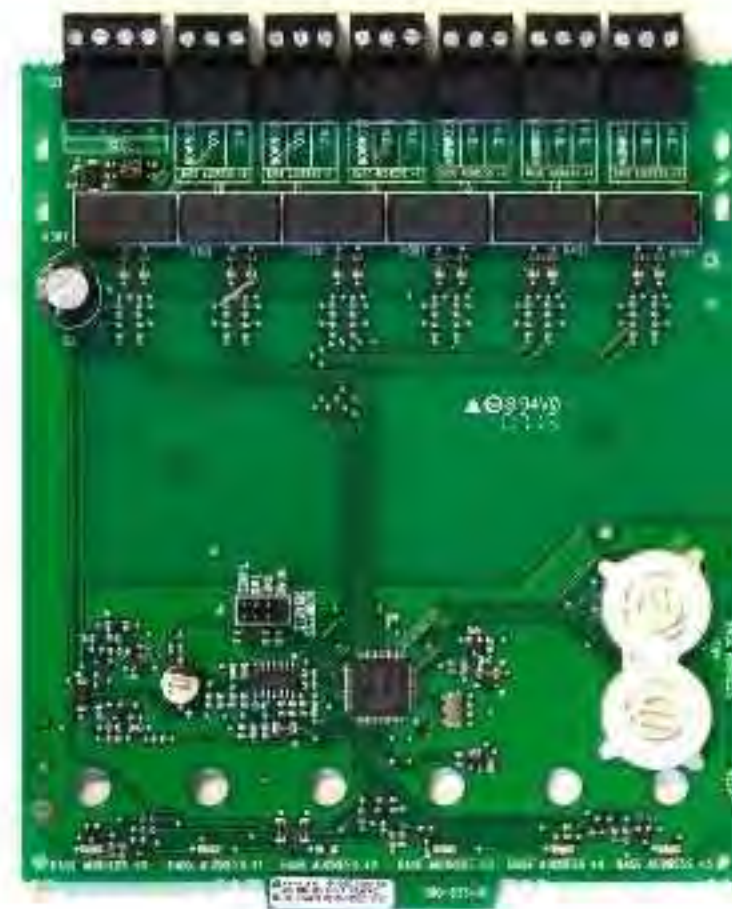
Multi-Circuit Relay Module

Page 18 of 35

The **XP6-R** features six separately-addressed Form-C relays. Each relay is useful for switching applications which do not require wiring supervision of the load circuit.

A single isolated set of dry relay contacts is provided for each module, which is capable of being wired for either normally open or normally closed contacts depending on the desired operation.

The XP6-R's initial address is set from 01 to 154 and the remaining modules automatically assume the next five addresses in succession.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Multi-Circuit Relay Module

The XP6-R's initial address is set from 01 to 154 and the remaining modules automatically assume the next five addresses in succession.

It is possible to disable one, two or three relays on the XP6-R by installing a shunt in a corresponding position of J1. The modules are disabled from the highest address downward, allowing these addresses to be used for other devices on the SLC Loop.



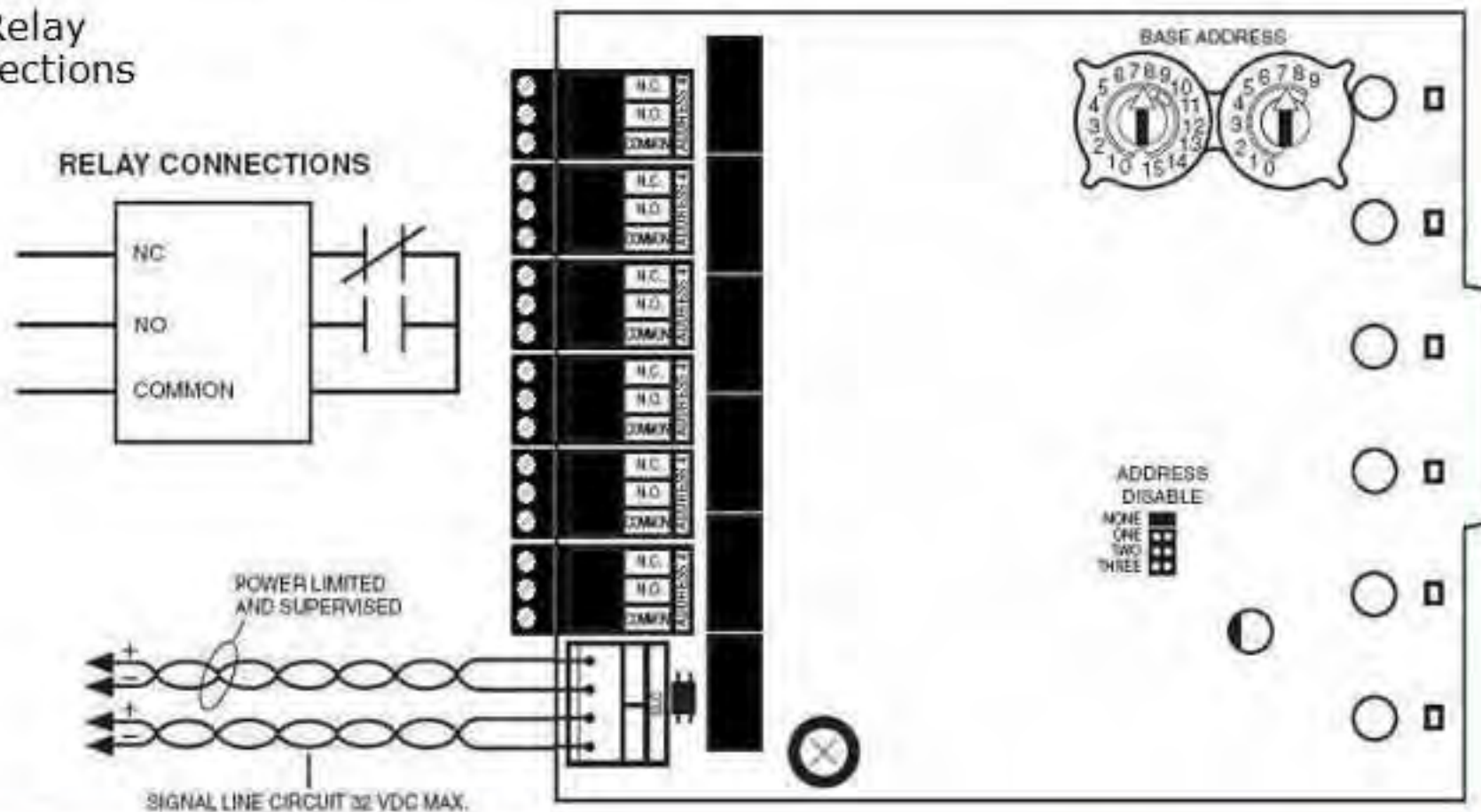
◀ BACK

NEXT ▶

Addressable Control Modules

Multi-Circuit Relay Module

The **XP6-R** Relay Module Connections

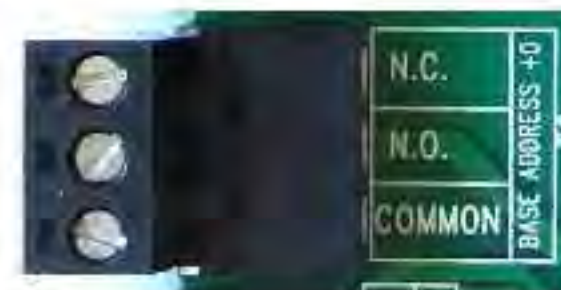


Addressable Control Modules

Multi-Circuit Relay Module

Page 21 of 35

The amount of current that the contacts of the XP6-R relays can support is affected by the amount of *voltage*, whether it's *DC* or *AC*, the type of loading (*resistive* versus *inductive*), and whether the signal being switched is *non-coded* (steady) or *coded* (pulsed).



The relay contact ratings are listed below.

- 3.0 A @ 30 VDC (resistive, non-coded)
- 2.0 A @ 30 VDC (resistive, coded)
- 0.9 A @ 110 VDC (resistive, non-coded)
- 0.9 A @ 125 VDC (resistive, non-coded)
- 0.5 A @ 30 VDC (inductive, coded, L/R = 5 ms)
- 1.0 A @ 30 VDC (inductive, coded, L/R = 2 ms)
- 0.3 A @ 125 VAC (inductive, PF = 0.35, non-coded)
- 1.5 A @ 25 VAC (inductive, PF = 0.35, non-coded)
- 0.7 A @ 70.7 VAC (inductive, PF = 0.35, non-coded)
- 0.2 A @ 25 VAC (inductive, PF = 0.35, non-coded)

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Releasing Module

Page 22 of 35

The **FCM-1-REL** Releasing Control Module provides additional safeguards and features specifically designed for fire suppression releasing applications. Power to the release agent solenoid(s) runs through the module for full-time supervision, ensuring sufficient minimum voltage to activate solenoids.

- In a Style D configuration, the device will continue to monitor the releasing solenoid, even in the event of a short on the releasing circuit.
- No End-of-Line Resistor is required.
- [Redundant protocol](#)
- One 24 VDC or two 12 VDC solenoids per circuit.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Releasing Module

Page 22 of 35

The **FCM-1-REL** Releasing Control Module provides additional safeguards and features specifically designed for fire suppression releasing applications. Power to the release agent solenoid(s) runs through the module for full-time supervision, ensuring sufficient minimum voltage to activate solenoids.

- In a Style D configuration, the device will continue to monitor the releasing solenoid, even in the event of a short on the releasing circuit.
- No End-of-Line Resistance
- [Redundant protocol](#)
- One 24 VDC or two solenoids per circuit.

Redundant protocol minimizes the likelihood of an unintentional release. The releasing module must be armed first with a pair of signals. It will then enter a 3-second window awaiting a pair of confirmation signals. If no confirmation is received, the module will automatically reset.



◀ BACK

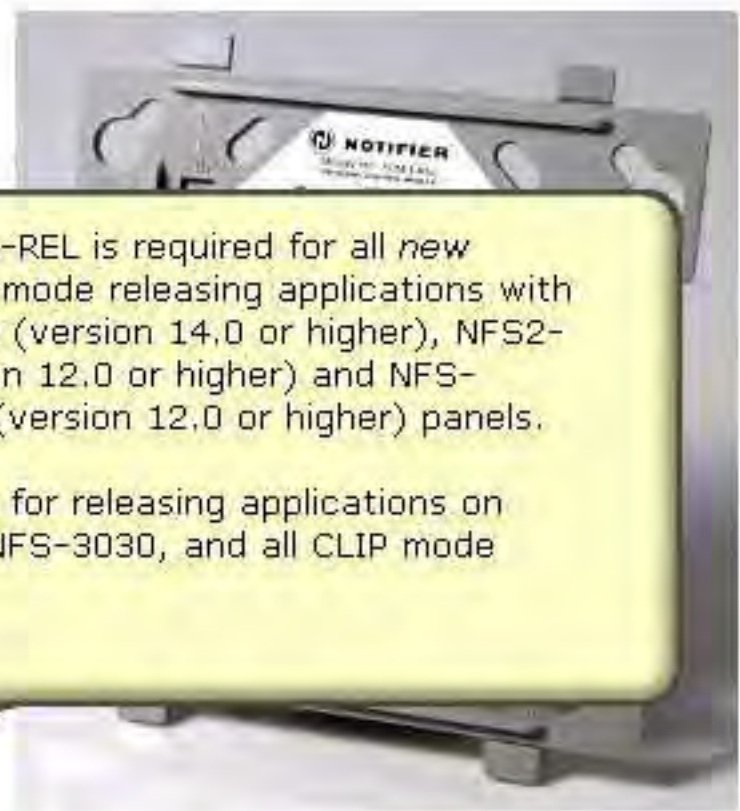
NEXT ▶

Addressable Control Modules

Releasing Module

The **FCM-1-REL** Releasing Control Module provides additional safeguards and features specifically designed for fire suppression releasing applications. Power to the release agent solenoid(s) runs through the module for full-time supervision, ensuring sufficient minimum voltage to activate solenoids.

- In a Style D configuration, the device will continue to monitor the releasing solenoid, even in the event of a short on the releasing circuit.
- No End-of-Line Resistor is required.
- [Redundant protocol](#)
- One 24 VDC or two 12 VDC solenoids per circuit.



The FCM-1-REL is required for all *new* FlashScan-mode releasing applications with NFS2-3030 (version 14.0 or higher), NFS2-640 (version 12.0 or higher) and NFS-320(E)(C) (version 12.0 or higher) panels.

Use FCM-1 for releasing applications on NFS-640, NFS-3030, and all CLIP mode panels.



◀ BACK

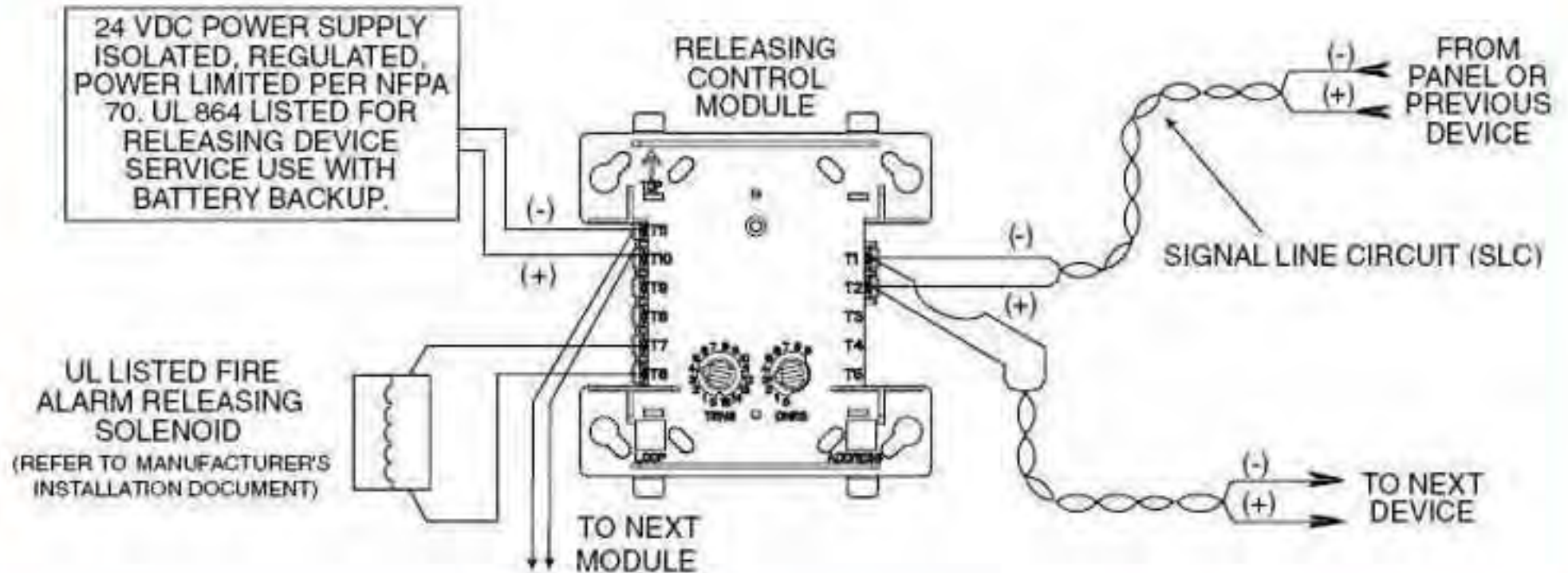
NEXT ▶

Addressable Control Modules

Releasing Module

© NFPA Style Y Wiring

© NFPA Style Z Wiring

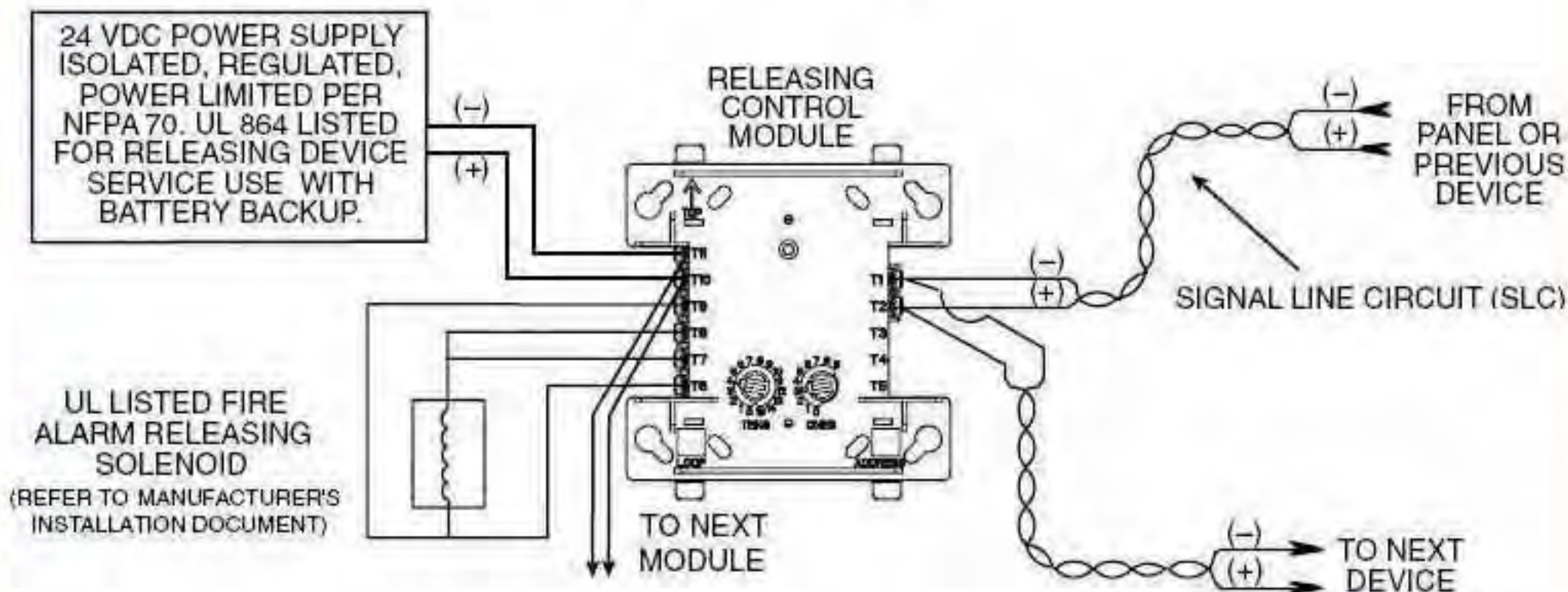


Addressable Control Modules

Releasing Module

NFPA Style Y Wiring

NFPA Style Z Wiring

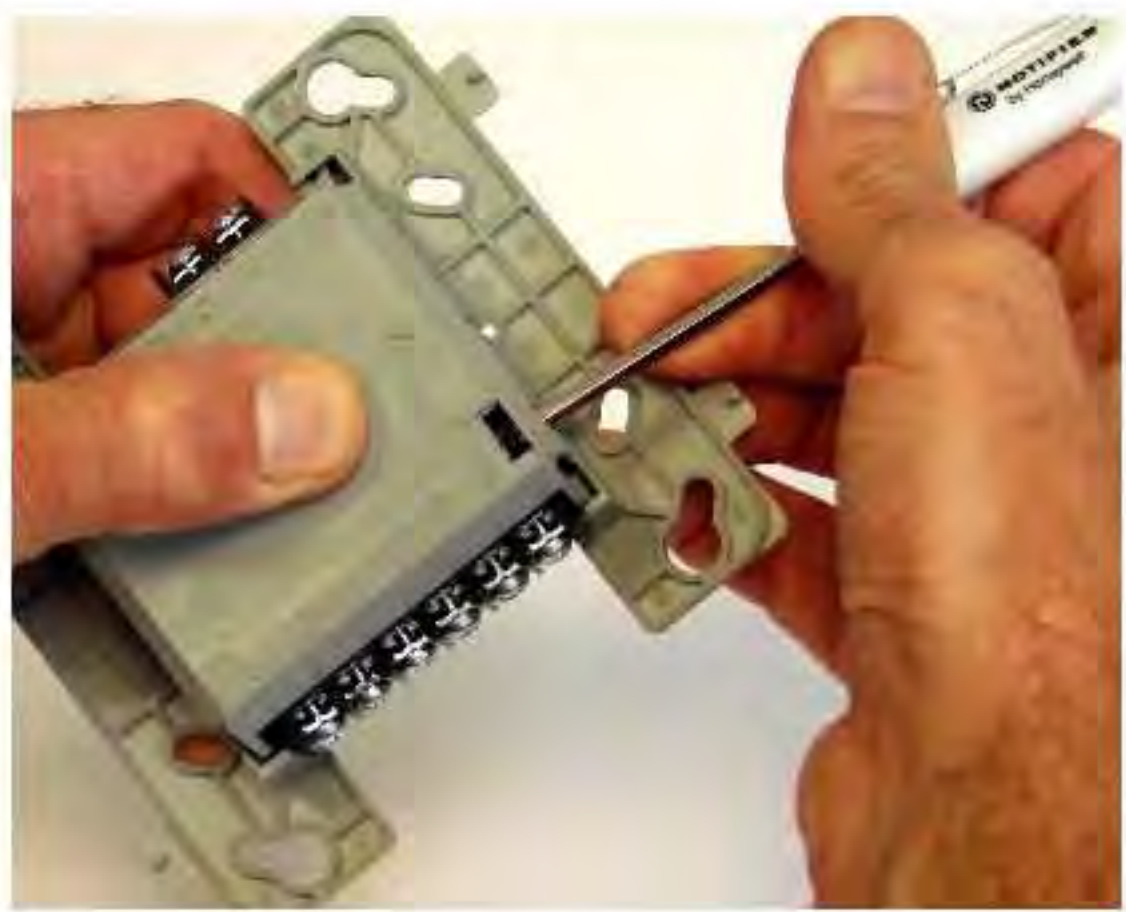
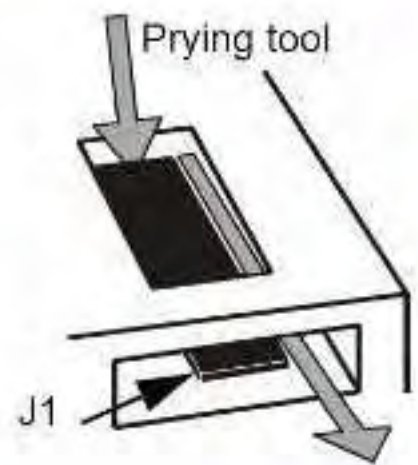


Addressable Control Modules

Releasing Module

IMPORTANT - When using the FCM-1-REL in a Style Y application, remove Jumper J1.

The jumper is located in a recessed cavity on the back side of the module. It can be pried out with a small flathead screwdriver.



Addressable Control Modules

Mounting Addressable Modules

Page 25 of 35

FlashScan addressable modules can mount to 4-inch square electrical boxes that have a minimum depth of 2-1/8 inches. Each module is supplied with a [plastic cover](#).

Notifier offers the plastic **SMB500** Surface Mount Box.

When connecting nonpower-limited circuitry to the the module, such as in the case of switching power with an FRM-1 Relay, the [CB500 Module Barrier](#) must be used. This barrier ensures the separation required by UL for power-limited and non-power limited circuits.



SMB500 Surface Mount Box

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Mounting Addressable Modules

Page 25 of 35

FlashScan addressable modules can mount to 4-inch square electrical boxes that have a minimum depth of 2-1/8 inches. Each module is supplied with a [plastic cover](#).

Notifier offers the plastic **SMB500** Surface Mount Box.

When connecting nonpower-limited circuitry to the the module, such as in the case of switching power with an FRM-1 Relay, the [CB500 Module Barrier](#) must be used. This barrier ensures the separation required by UL for power-limited and non-power limited circuits.



Plastic Module Cover

[◀ BACK](#)[NEXT ▶](#)

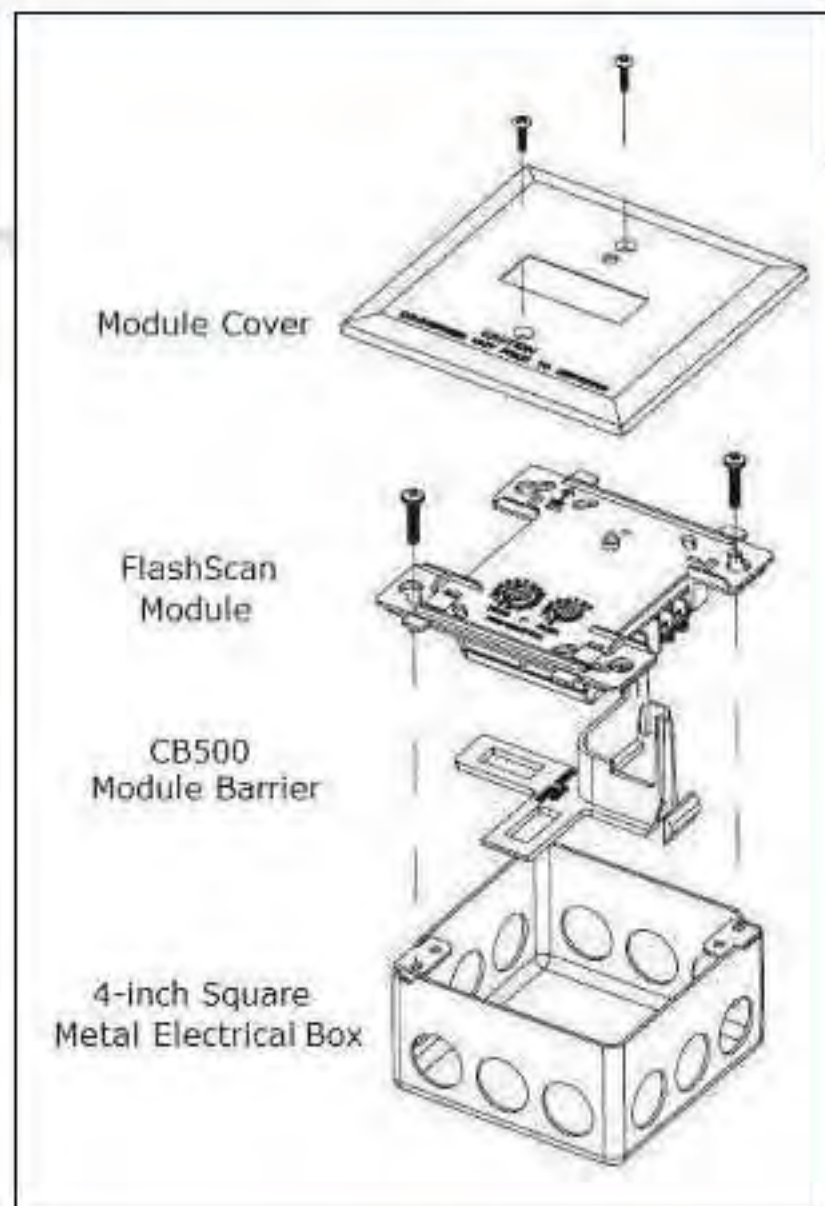
Addressable Control Modules

Mounting Addressable Modules

FlashScan addressable modules can mount to 4-inch square electrical boxes that have a minimum depth of 2-1/8 inches. Each module is supplied with a [plastic cover](#).

Notifier offers the plastic **SMB500** Surface Mount Box.

When connecting nonpower-limited circuitry to the the module, such as in the case of switching power with an FRM-1 Relay, the [CB500 Module Barrier](#) must be used. This barrier ensures the separation required by UL for power-limited and non-power limited circuits.

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Mounting Addressable Modules

Page 26 of 35

Three primary solutions are available for mounting the multi-circuit addressable modules.

- BB-XP Cabinet
- BB-25 Backbox
- CAB-4 Series Enclosures

Refer to the *Installation and Maintenance Instructions* for the respective module for mounting instructions.

BB-XP

One or two modules can be mounted in this enclosure. A internal chassis with an offset mount (included) permits the viewing of the status LEDs of the module installed on the back plane.

- BB-XP Door View** **BB-XP Backbox View**

[◀ BACK](#)[NEXT ▶](#)

Addressable Control Modules

Mounting Addressable Modules

Page 26 of 35

Three primary solutions are available for mounting the multi-circuit addressable modules.

- BB-XP Cabinet
- BB-25 Backbox
- CAB-4 Series Enclosures

Refer to the *Installation and Maintenance Instructions* for the respective module for mounting instructions.

BB-XP

One or two modules can be mounted in this enclosure. A internal chassis with an offset mount (included) permits the viewing of the status LEDs of the module installed on the back plane.

BB-XP Door View

BB-XP Backbox View



◀ **BACK**

NEXT ▶

Addressable Control Modules

Mounting Addressable Modules

Page 27 of 35

For larger applications requiring a greater number of circuits, the CHS-6 chassis supports the mounting of up to six multi-circuit module cards.

The [BB-25 Backbox](#) will hold one CHS-6 Chassis.

Up to four of these chassis may be mounted in a [CAB-4 Series enclosure](#). Two primary solutions are available for mounting multi-circuit addressable modules.

[◀ BACK](#)[NEXT ▶](#)

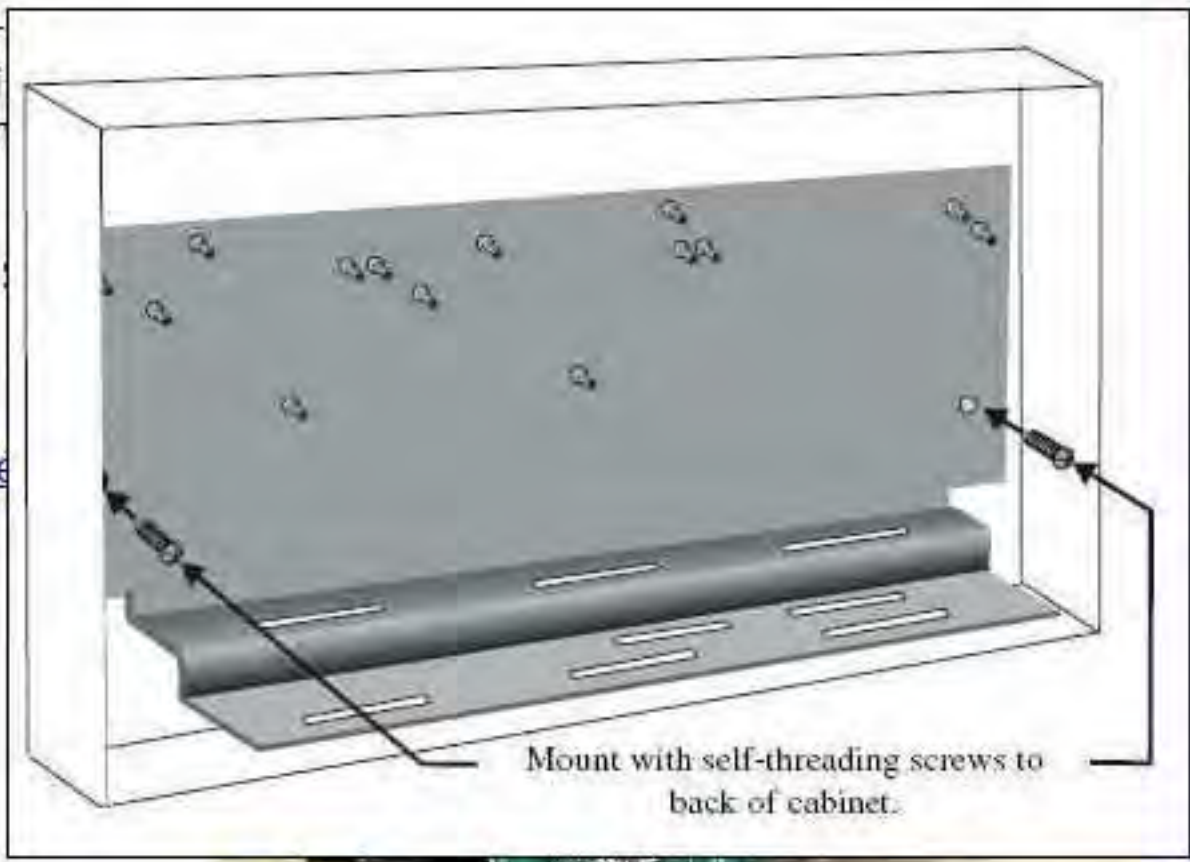
Addressable Control Modules

Mounting Addressable Modules

For larger applications requiring a greater number of circuits, the CHS-6 chassis supports the mounting of up to six multi-circuit module cards.

The [BB-25 Backbox](#) will hold one CHS-6 Chassis.

Up to four of these chassis may be mounted in a [CAB-4 Series enclosure](#). Two primary solutions are available for mounting multi-circuit addressable modules.



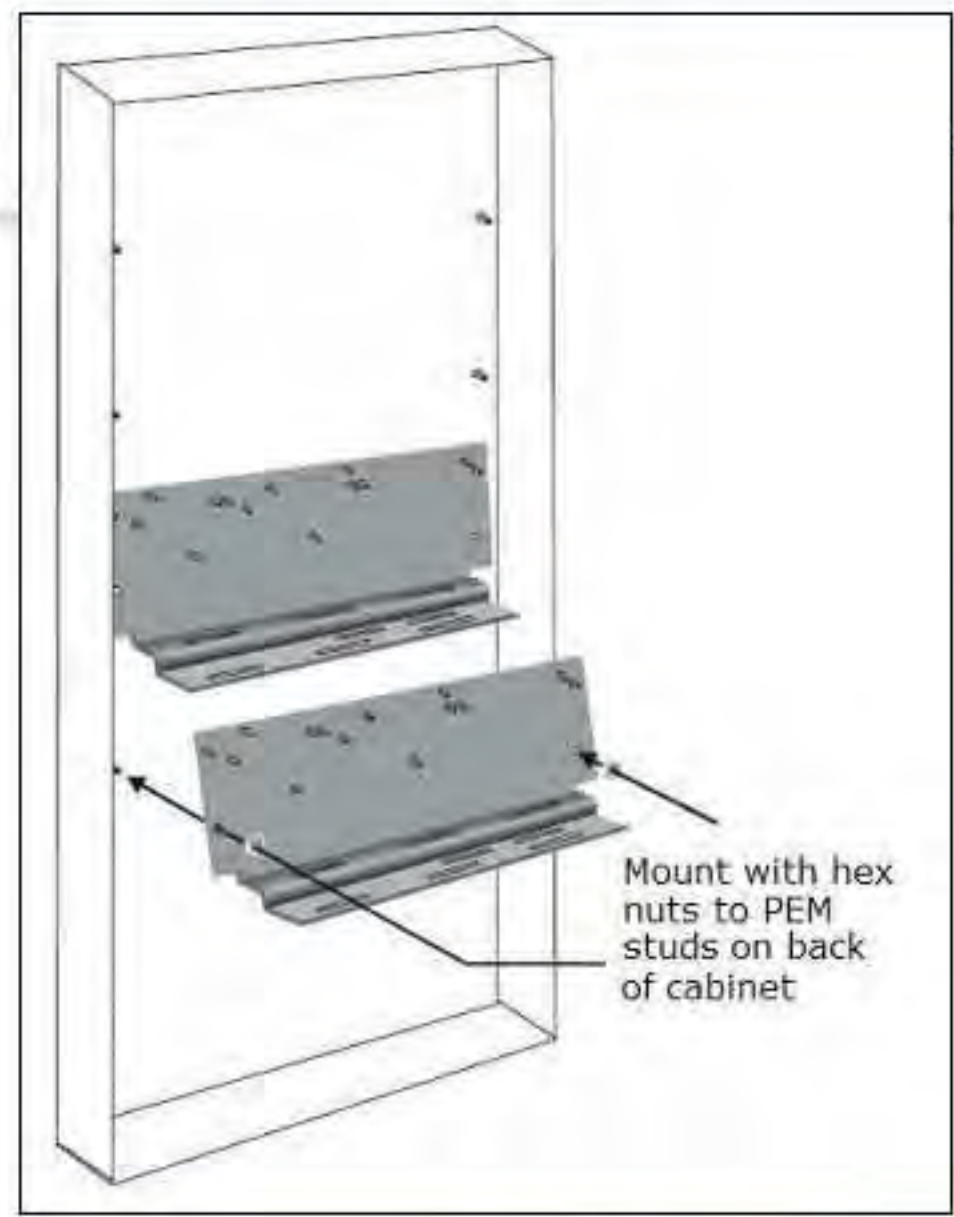
Addressable Control Modules

Mounting Addressable Modules

For larger applications requiring a greater number of circuits, the CHS-6 chassis supports the mounting of up to six multi-circuit module cards.

The [BB-25 Backbox](#) will hold one CHS-6 Chassis.

Up to four of these chassis may be mounted in a [CAB-4 Series enclosure](#). Two primary solutions are available for mounting multi-circuit addressable modules.



Addressable Control Modules

Retrofit Applications

The combination of XP6-MA initiating device circuit modules and the XP6-C control circuit modules make for an ideal retrofit solution of a conventional fire alarm control system.

By replacing only the conventional fire alarm panel, existing 2-wire smoke detector circuits, as well as the Notification Appliance Circuits, can be salvaged.

The multi-circuit modules can be mounted in a separate enclosure when used with the NFS-320 or inside the cabinet, if desired, with the NFS2-640 or NFS2-3030.



Conventional Application

Conventional Solution

◀ BACK

NEXT ▶

Addressable Control Modules

Retrofit Applications

The combination of XP6-MA initiating device circuit modules and the XP6-C control circuit modules make for an ideal retrofit solution of a conventional fire alarm control system.

By replacing only the conventional fire alarm panel, existing 2-wire smoke detector circuits, as well as the Notification Appliance Circuits, can be salvaged.

The multi-circuit modules can be mounted in a separate enclosure when used with the NFS-320 or inside the cabinet, if desired, with the NFS2-640 or NFS2-3030.



Conventional Application

Conventional Solution

◀ BACK

NEXT ▶

Addressable Control Modules

Summary Page

The five-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.



◀ BACK

NEXT ▶

Addressable Control Modules

Quiz Question



What device is used with an addressable control module to meet UL requirements for the separation of power-limited and nonpower-limited wiring?

- NPL Barrier
- CB-500
- XP6-C
- FRM-1

NEXT ►

Addressable Control Modules

Quiz Question



What device is used with an addressable control module to meet UL requirements for the separation of power-limited and nonpower-limited wiring?

- NPL Barrier
- CB-500
- XP6-C
- FRM-1

NEXT ►

Addressable Control Modules

Quiz Question



How many circuits and which NFPA Style would the XP6-C Multi-Circuit Control Module be configured for with the setting shown below?

- Four Style Z circuits
- Four Style Y circuits
- Two Style D circuits
- Three Style Y circuits



NEXT ►

Addressable Control Modules

Question

How many circuits and which NFPA Style would the XP6-C Multi-Circuit Control Module be configured for with the setting shown below?

- Four Style Z circuits
- Four Style Y circuits
- Two Style D circuits
- Three Style Y circuits



NEXT ►

Addressable Control Modules

Quiz Question



Which of the following statements is true about short circuit protection for XP6-C modules?

- Protection can only be enabled for audio applications
- Power supply monitoring must be enabled
- Must be disabled when multiple NACs share a single power supply
- None of the above

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following statements best describes the Redundant Protocol feature of the FCM-1-REL Releasing Module?

- Minimizes the likelihood of an unintentional release
- Module must be armed first with a pair of signals
- If no confirmation is received in 3 sec's, the module will be reset.
- All of the above

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following statements best describes the Redundant Protocol feature of the FCM-1-REL Releasing Module?

- Minimizes the likelihood of an unintentional release
- Module must be armed first with a pair of signals
- If no confirmation is received in 3 sec's, the module will be reset.
- All of the above

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following statements is true about the FCM-1 FlashScan Control Module when used as a FireFighters Telephone circuit?

- The FCM-1 cannot be used for telephone applications
- Jumper JP1 must be installed for telephone applications
- The module does not provide a ringback signal
- None of the above

NEXT ►

Addressable Control Modules

Quiz Question



Which of the following statements is true about the FCM-1 FlashScan Control Module when used as a FireFighters Telephone circuit?

- The FCM-1 cannot be used for telephone applications
- Jumper JP1 must be installed for telephone applications
- The module does not provide a ringback signal
- None of the above

NEXT ►

Addressable Control Modules

Module Completed

Congratulations - you have completed the module *Addressable Control Modules*.

Your score for this module:

Score: 60%

EXIT

TAKE AN EXTRA 10% OFF
PRICES ALREADY REDUCED UP TO 60% OFF

SHOP NOW ▶

Hurry, Limited Time Only



ZALES
THE DIAMOND STORE™

Smoke Control Modules - Notifier for Recertification

Learning Activity Details

Description:

This self-paced module reviews the SCS Series Smoke Control Modules and how they are used to perform smoke control functions in an ONYX Fire Alarm system.

Next

Cancel



Smoke Control Modules

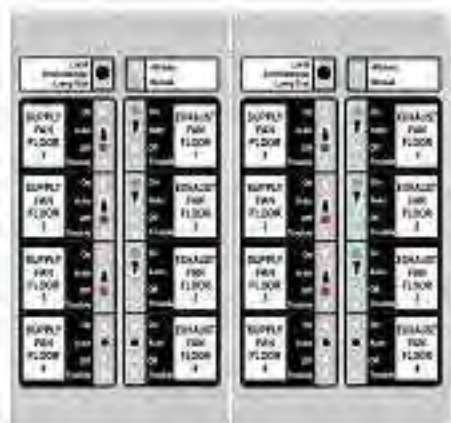
This self-paced module reviews the SCS Series Smoke Control Modules and how they are used to perform smoke control functions in an ONYX Fire Alarm system

NEXT ▶

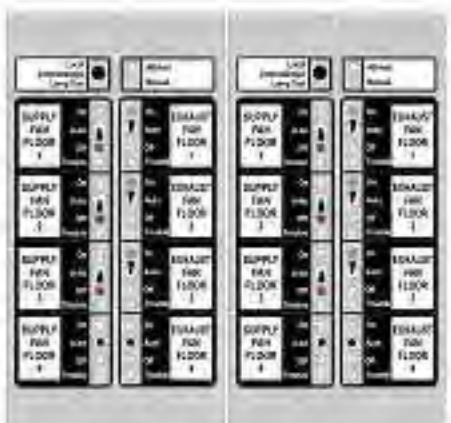
ONYX Systems - Smoke Control Modules

Introduction to the SCS Series

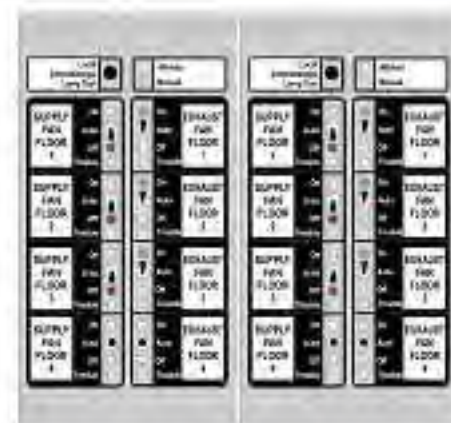
The diagram below illustrates three sets of SCS/SCE modules addressed 1, 2 and 3 on the EIA-485 circuit. A total of 48 fans/damper can be controlled/monitored by the configuration shown here.



SCS-8 & SCE-8 Expander
Up to 16 fans or dampers
EIA-485 Address 1



SCS-8 & SCE-8 Expander
Up to 16 fans or dampers
EIA-485 Address 2



SCS-8 & SCE-8 Expander
Up to 16 fans or dampers
EIA-485 Address 3



ONYX Systems - Smoke Control Modules

FSCS Mode

The SCS is capable of two modes of operation: Firefighter's Smoke Control Station (FSCS) or Heating, Ventilation & Air Conditioning (HVAC).

FSCS mode (supported by the NFS2-3030 and NCA-2 only)

- Helps maintain a tenable environment in evacuation routes during the time required to evacuate people from the area.
- Helps restrict the movement of smoke from the fire area.
- Helps provide conditions in non-smoke areas that will help fire officials conduct search and rescue operations and to find and combat the fire.
- In this mode, the SCS is intended to have the highest priority over associated fan and damper functions and **REQUIRES control and verification of a particular device.**



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

FSCS Mode

The SCS is capable of two modes of operation: Firefighter's Smoke Control Station (FSCS) or Heating, Ventilation & Air Conditioning (HVAC).

FSCS mode (supported by the NFS2-3030 and NCA-2 only)

- Helps maintain a tenable environment in evacuation routes during the time required to evacuate people from the area.
- Helps restrict the movement of smoke
- Helps provide conditions in non-smoke fire officials conduct search and rescue operations and combat the fire.
- In this mode, the SCS is intended to have priority over associated fan and damper control. **REQUIRES control and verification of a panel**



While the NFS2-3030 is directly compatible with the SCS Series for use in FSCS mode, the NFS2-640 can only accomplish this if SCS modules are connected to an NCA-2 Network Annunciator. This capability does not exist when the NCA-2 is being used as a primary display for the NFS2-640 [not functioning as a network annunciator].



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

HVAC Mode

In **HVAC mode**, the SCS has the capability of monitoring and controlling the building heating, ventilation and air conditioning equipment, either separately or by overriding normal building usage.

Before the development of smoke control, HVAC systems were shut down during a fire because the system frequently transported smoke to every area that it serves and also supplied air to the fire space, which has a tendency to fuel a fire.

When used for smoke control, an HVAC system can provide the following capabilities:

- Supply outside air to a space
- Return air from a space
- Exhaust air from a space to the outside.

HVAC mode *does not require* the control and verification of a particular device.



ONYX Systems - Smoke Control Modules

HVAC Mode

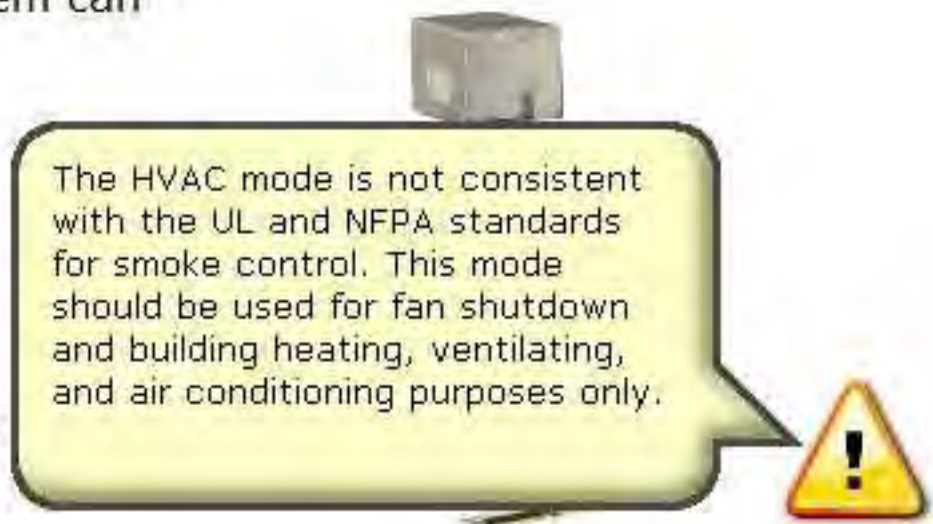
In **HVAC mode**, the SCS has the capability of monitoring and controlling the building heating, ventilation and air conditioning equipment, either separately or by overriding normal building usage.

Before the development of smoke control, HVAC systems were shut down during a fire because the system frequently transported smoke to every area that it serves and also supplied air to the fire space, which has a tendency to fuel a fire.

When used for smoke control, an HVAC system can provide the following capabilities:

- Supply outside air to a space
- Return air from a space
- Exhaust air from a space to the outside.

HVAC mode *does not require* the control and verification of a particular device.



The HVAC mode is not consistent with the UL and NFPA standards for smoke control. This mode should be used for fan shutdown and building heating, ventilating, and air conditioning purposes only.

ONYX Systems - Smoke Control Modules

Switch Groups

Each SCS-8/SCE-8 has eight switch groups, each with two LEDs and one momentary switch with the following functions:

- Green ON LED
- 3-position toggle switch (ON/AUTO/OFF)
- Yellow OFF LED
- Amber Trouble LED



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Switch Groups

Each SCS-8/SCE-8 annunciator contains an *Acknowledge* switch that also acts as an LED *Lamp Test*. An illuminated Green LED indicates that the Annunciator is working in *Automatic Mode*. If any switches have been changed to *Manual Mode*, the Green LED extinguishes followed by illumination of the Amber LED.



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Switch Groups

Each controlled/monitored fan or damper has one associated *switch group* on the SCS/SCE. Each switch group has up to four EIA-485 protocol points that could potentially be used to control and monitor a fan or damper.

- Turn a fan on (open a damper)
- Turn a fan off (close a damper)
- Monitor & verify when the fan is on (or when damper is open)
- Monitor & verify when the fan is off (or when damper is closed)

If a fan or damper requires all four of these capabilities, then two control modules and two monitor modules must be connected to the device and one protocol point would be associated with each of the four functions.



ONYX Systems - Smoke Control Modules

Switch Groups

The control of the Control and Monitor Modules assigned to a group is determined by the position of the group switch.

- Switch on Auto
- Switch on Open
- Switch on Closed



If the switch is in the AUTO position and there is an Alarm condition in the FACP, the control and monitor modules will function according to the automatic programming in the FACP.

ONYX Systems - Smoke Control Modules

Switch Groups

The control of the Control and Monitor Modules assigned to a group is determined by the position of the group switch.

- Switch on Auto
- Switch on Open
- Switch on Closed



If the switch is in the ON (OPEN) position the SCS-8 sends a signal over the EIA-485 circuit that overrides the automatic programming, ensuring the ON or OPEN condition of the fan or damper.

ONYX Systems - Smoke Control Modules

Switch Groups

The control of the Control and Monitor Modules assigned to a group is determined by the position of the group switch.

- Switch on Auto
- Switch on Open
- Switch on Closed



If the switch is in the OFF (CLOSED) position, the SCS-8 sends a signal over the EIA-485 circuit, overriding the automatic programming and ensuring the OFF or CLOSED position of the fan or damper.

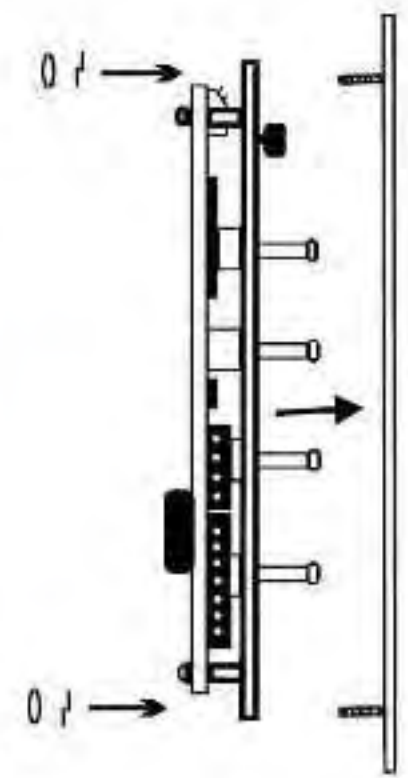
ONYX Systems - Smoke Control Modules

Installation

SCS-8/SCE-8 modules can be mounted inside a CAB-4 Series enclosure using the ADP-4 Annunciator Dress Plate. Each plate can hold up to four modules and consumes one row in the cabinet.



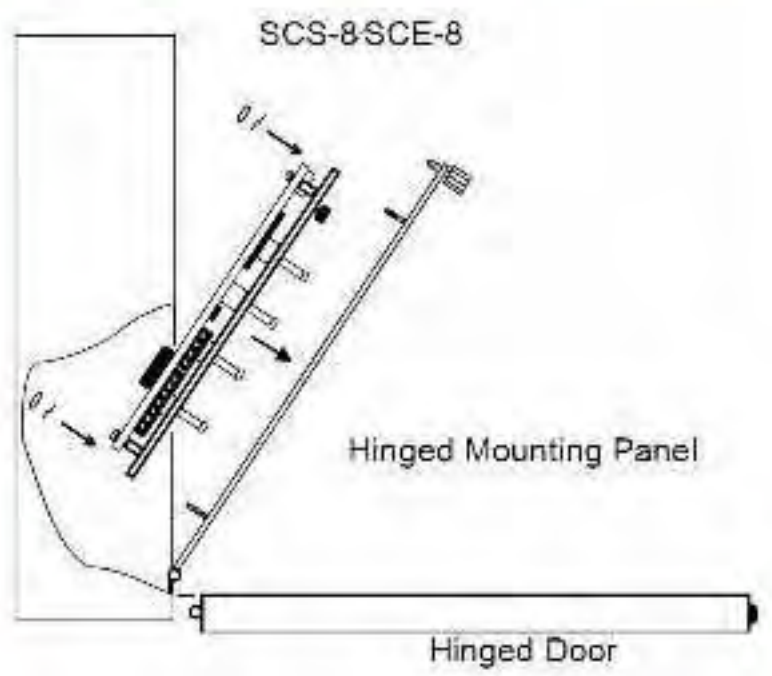
ADP-4 Annunciator Dress Plate with three ACS Annunciators and an SCS-8



ONYX Systems - Smoke Control Modules

Installation

SCS-8/SCE-8 modules can also be mounted inside an ABS-4D Annunciator Surface Box.



ABS-4D Annunciator Surface Box shown with four ACS Series Annunciators

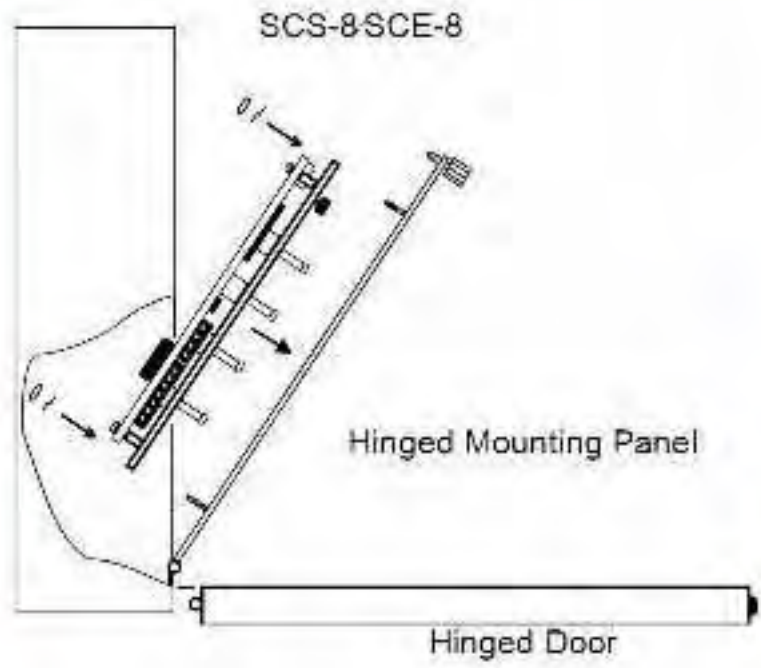
◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Installation

SCS-8/SCE-8 modules can also be mounted inside an ABS-4D Annunciator Surface Box.



All SCS/SCE modules configured for FSCS mode must be installed in the same room as the FACP or Network Annunciator to which they are connected.



ABS-4D Annunciator Surface Box shown with four ACS Series Annunciators

◀ BACK

NEXT ▶

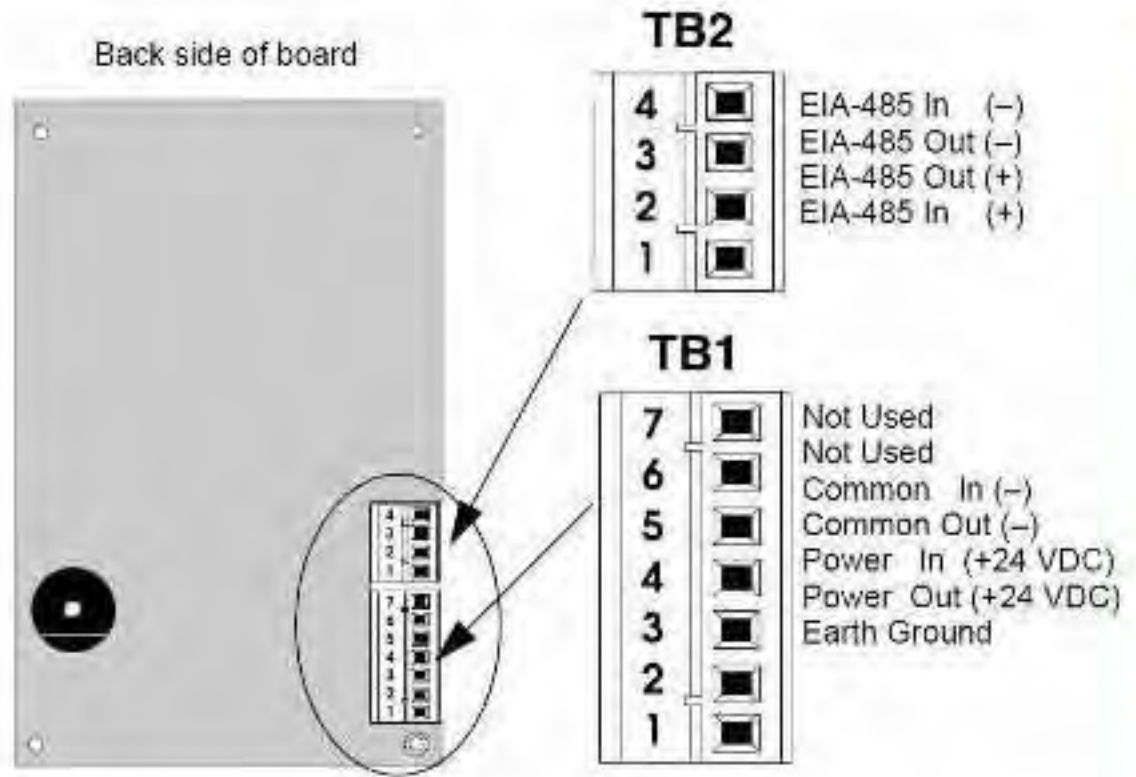
ONYX Systems - Smoke Control Modules

Installation

As EIA-485 devices, the SCS-8 is subject to the same wiring requirements as ACS Series annunciators.

Filtered, regulated 24 VDC power listed for fire protective signaling must be supplied to each module.

Connection between the SCS-8 and an SCE-8 expander is accomplished with a [ribbon cable](#).



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

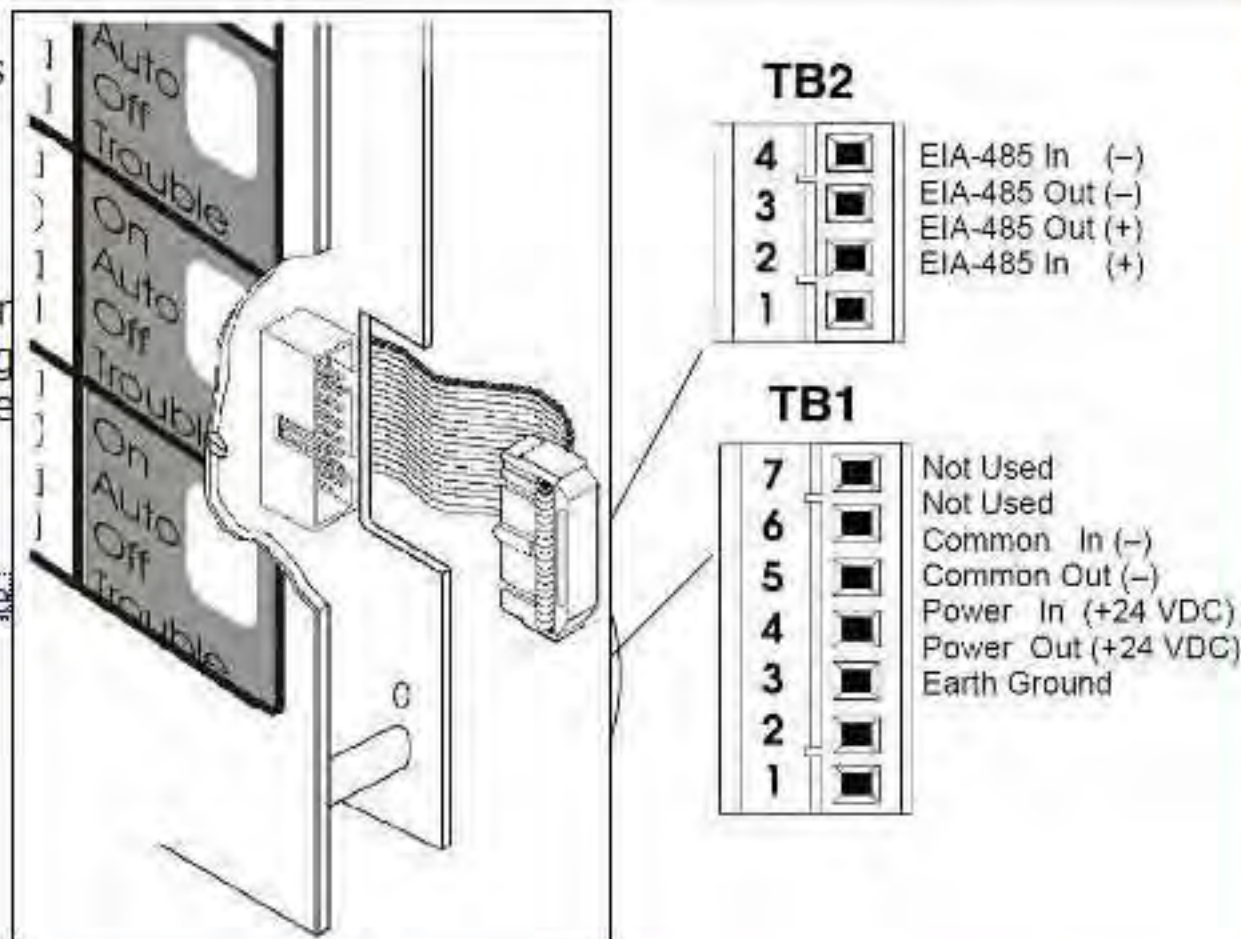
Page 12 of 41

Installation

As EIA-485 devices, the SCS-8 is subject to the same wiring requirements as ACS Series annunciators.

Filtered, regulated 24 VDC power listed for fire protective signaling must be supplied to each module.

Connection between the SCS-8 and an SCE-8 expander is accomplished with a ribbon cable.



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

SCS Documentation

The *SCS Series Operation and Installation Manual [Doc # 15712]* documents these modules and their use in smoke control applications.

The manual also provides drawing and programming information for a number of detailed smoke control applications. It is sometimes best to review these wiring diagrams first – then decide which application meets your specific needs.

A solid familiarity with this document is critical for any installer, programmer or applications specialist.

The next section of this course is intended to aid in the understanding of some of the material that is contained within the that manual.

5.2 Air Flow Switches

Any air flow device used in a smoke control system must be capable of withstanding the high temperatures and pressures that may be encountered in a fire. The manufacturer's instructions should be followed for the proper installation and use of the device.

Model	Material	Notes
Model 1000	Stainless Steel	See Note 1
Model 2000	Aluminum	See Note 2
Model 3000	Aluminum	See Note 3

5.3 Dedicated Smoke Control System Wiring Diagrams

5.3.1 Fans

Figure 5.1 Fan Control, Dedicated System - EIOS (w/stop Circuit Type 1)

Figure 5.1 illustrates a fan control system with the optional stop circuit and interlocking of the stop circuit. The fan motor is connected to the fan control panel. The fan control panel has terminals for 'FAN', 'STOP', and 'START'. The fan motor is connected to the 'FAN' terminal. The fan control panel also has a 'FAN STOP' button connected to the 'STOP' terminal. The fan control panel also has a 'FAN START' button connected to the 'START' terminal. The fan control panel also has a 'FAN STOP' button connected to the 'STOP' terminal. The fan control panel also has a 'FAN START' button connected to the 'START' terminal. The fan control panel also has a 'FAN STOP' button connected to the 'STOP' terminal. The fan control panel also has a 'FAN START' button connected to the 'START' terminal.

◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

SCS Documentation

Specific nomenclature is used within the SCS Series manual to refer to these four functions.

CON_{ON/OP} - A **Control** Module used to turn **on** a fan or **open** a damper.

CON_{OFF/CL} - A **Control** Module used to turn **off** a fan or **close** a damper.

VER_{ON/OP} - A **Monitor** Module used to **verify** that a fan is **on** or a damper is **open**.

VER_{OFF/CL} - A **Monitor** Module used to **verify** that a fan is **off** or a damper is **closed**.

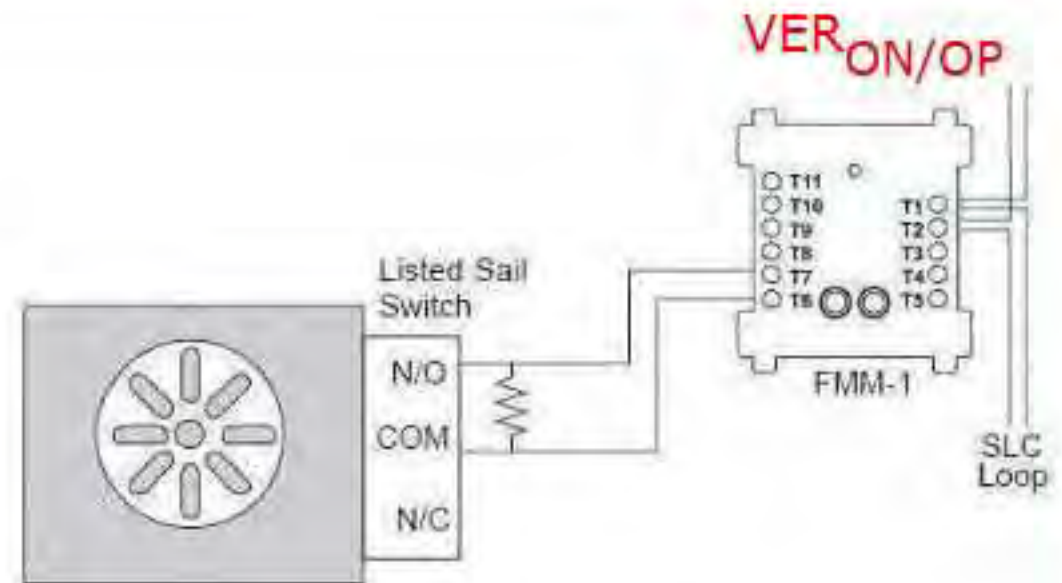
ONYX Systems - Smoke Control Modules

Verification

Normally, addressable monitor modules are used to monitor the state of a particular alarm initiating device.

When used in a smoke control application, they monitor the ON/OFF state of a fan or the OPEN/CLOSED state of a damper. This provides essential verification of a function that is critical to smoke control operations.

The particular contacts connected to the Sail Switch determine if the module is to monitor ON/OPEN or OFF/CLOSED status.



- Verify Fan in OFF state (NC contact)
- Verify Fan in ON state (NO contact)

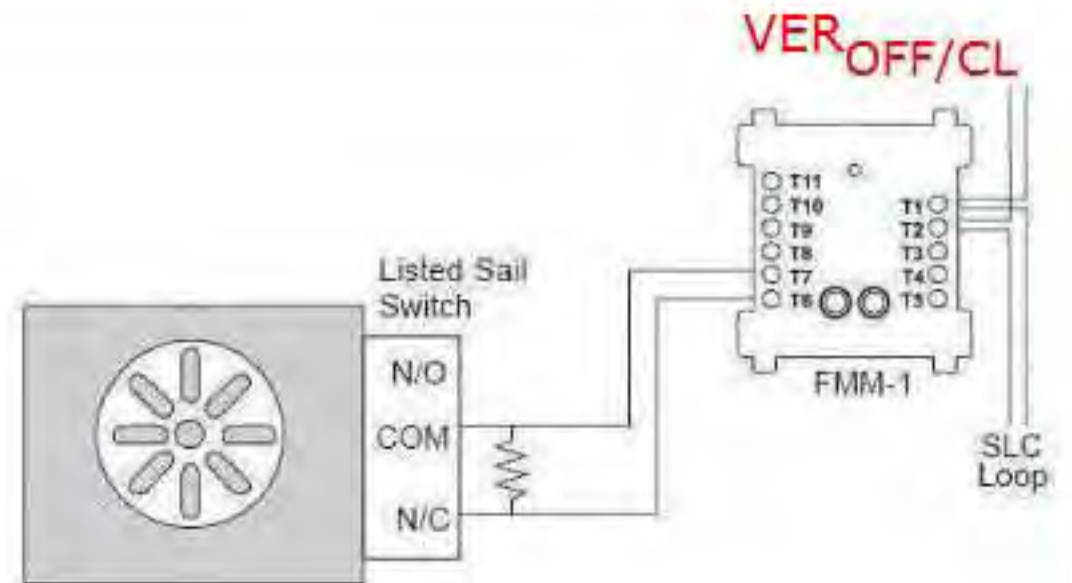
ONYX Systems - Smoke Control Modules

Verification

Normally, addressable monitor modules are used to monitor the state of a particular alarm initiating device.

When used in a smoke control application, they monitor the ON/OFF state of a fan or the OPEN/CLOSED state of a damper. This provides essential verification of a function that is critical to smoke control operations.

The particular contacts connected to the Sail Switch determine if the module is to monitor ON/OPEN or OFF/CLOSED status.



- Verify Fan in OFF state (NC contact)
- Verify Fan in ON state (NO contact)

ONYX Systems - Smoke Control Modules

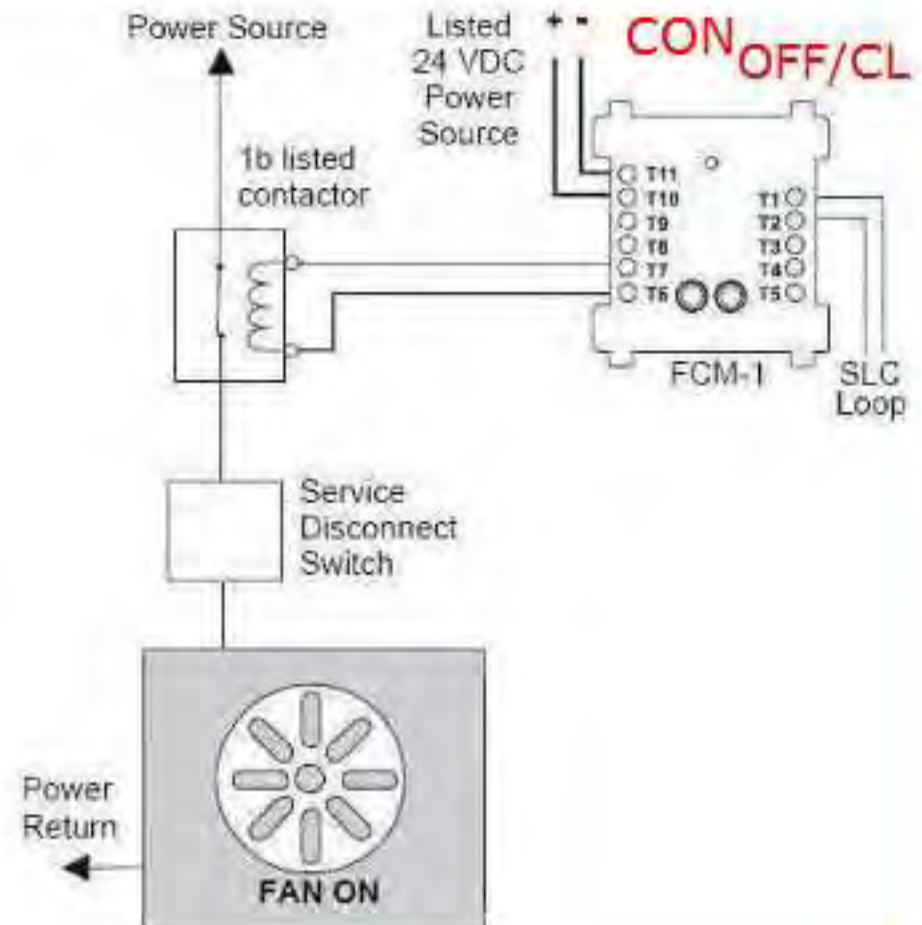
Page 16 of 41

Control

Normally, addressable control modules are used to activate and deactivate notification appliances. When used in a smoke control application, they control the ON/OFF state of a fan or the OPEN/CLOSED state of a damper.

- 1) ON/OPEN Control ($CON_{ON/OP}$) - turn a fan on (or open a damper).
- 2) OFF/CLOSED Control ($CON_{OFF/CL}$) - turn a fan off (or close a damper) ON or OFF.

- Control Fan ON
- Control Fan OFF

[◀ BACK](#)[NEXT ▶](#)

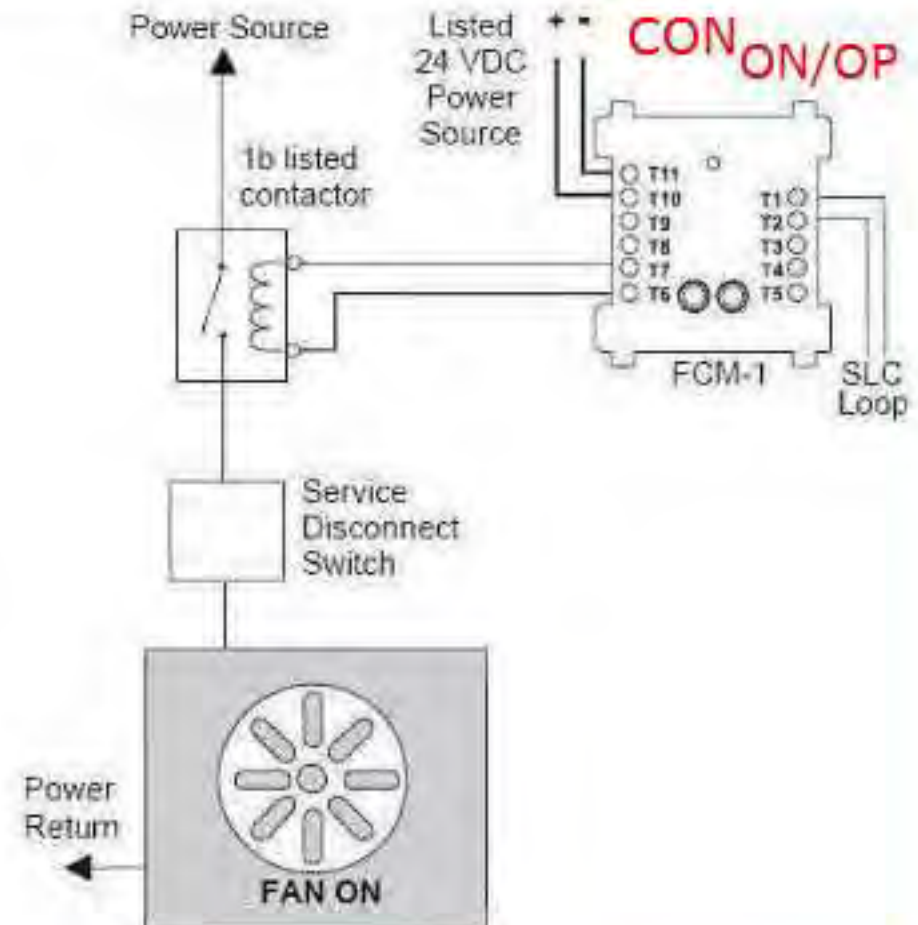
ONYX Systems - Smoke Control Modules

Control

Normally, addressable control modules are used to activate and deactivate notification appliances. When used in a smoke control application, they control the ON/OFF state of a fan or the OPEN/CLOSED state of a damper.

- 1) ON/OPEN Control ($CON_{ON/OP}$) - turn a fan on (or open a damper).
- 2) OFF/CLOSED Control ($CON_{OFF/CL}$) - turn a fan off (or close a damper) ON or OFF.

- Control Fan ON
- Control Fan OFF



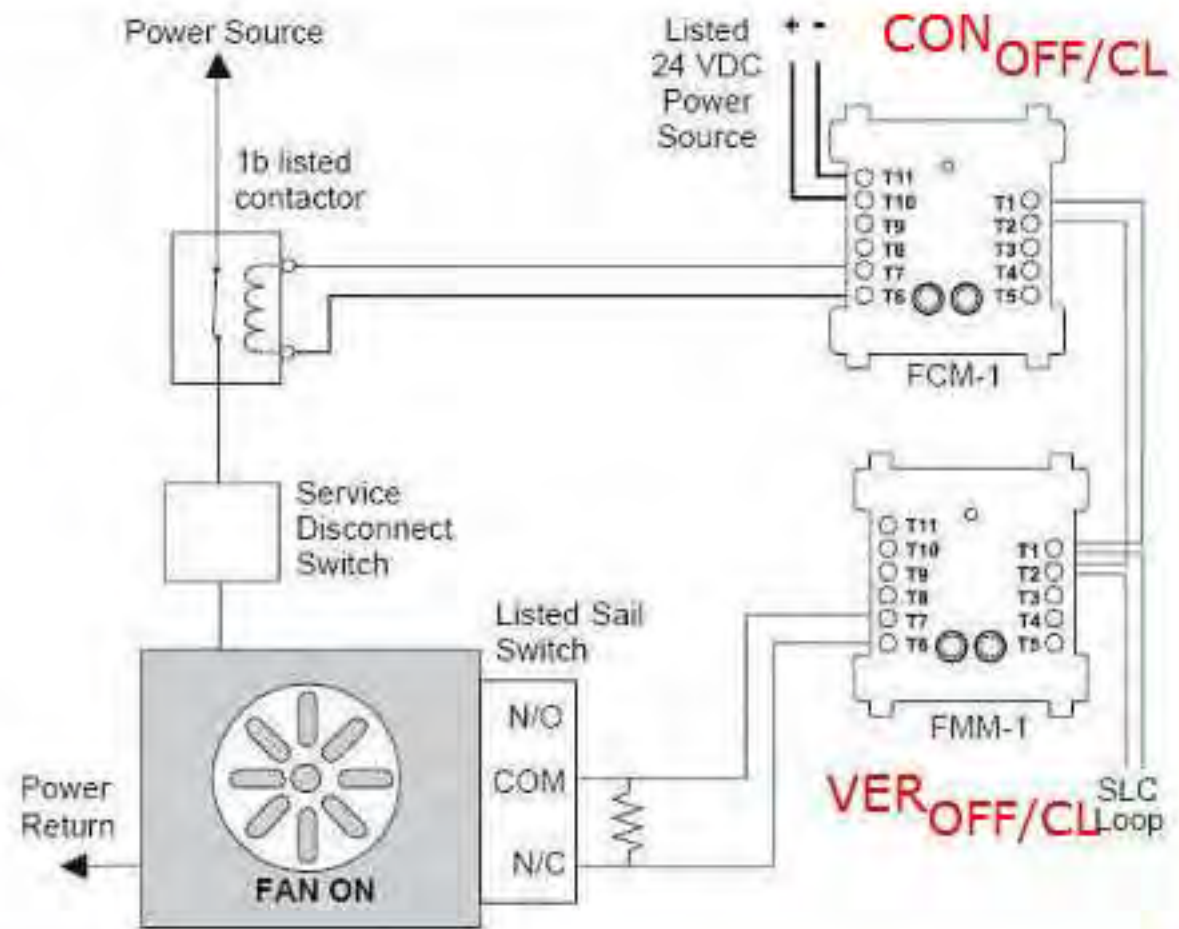
ONYX Systems - Smoke Control Modules

Control and Verification

This example illustrates both the control and verification of a fan.

The FCM-1 is wired and configured to break power to the fan upon activation (Control OFF).

Once the fan is turned off, the FMM-1 is activated by a change in the state of the fan's Sail Switch (contact close). This is the function Verify OFF.



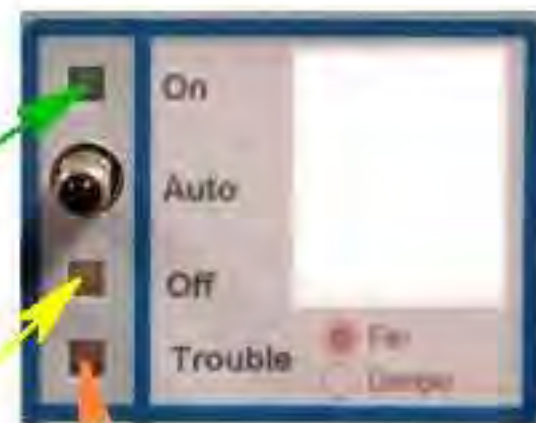
◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Type Combinations

An SCS-8 or SCE-8 can be configured for a number of Switch Group Type combinations. For instance, there are 9 different group types for an SCS operating in non-dedicated FCSC mode (non alarm condition). Study the functioning of Type 4 shown below.



SWITCH GROUP TYPE	FSCS NON-DEDICATED SYSTEM TOGGLE SWITCH POSITION		
	ON	AUTO	OFF
4	Activates CON _{ONOP} CM	Deactivates CON _{ONOP} CM	Deactivates CON _{ONOP} CM
SWITCH GROUP TYPE	Green LED turns ON when	Yellow LED turns ON when	Amber LED turns ON when
4	VER _{OFFCL} MM Deactivates	VER _{ONOP} MM Activates	see FSCS Trouble Conditions

ONYX Systems - Smoke Control Modules

Reading Assignment



All nine FSCS Switch Group Types as well as the 15 HVAC types are defined in the *Configuration* section of the *SCS Series Operation and Installation Manual [Doc # 15712]*. Review each type for both modes before continuing.

- Table 3.6 FSCS Toggle Switch Functions (Non-Alarm Condition)
- Table 3.7 FSCS Toggle Switch Functions (Alarm Condition)
- Table 3.8 FSCS Toggle Switch Group LED Operation
- Table 3.11 HVAC Toggle Switch Function
- Table 3.12 HVAC Toggle Switch Group LED Operation

ONYX Systems - Smoke Control Modules

DIP Switch Settings

Page 20 of 41

The table below describes the DIP switch settings necessary to configure the SCS/SCE for many variations of controlling smoke. Each description of a DIP switch setting follows the format shown below:

Reference Number

This diagram depicts the layout of the switch groups and the group type associated with each switch group for the particular dipswitch setting on the right.

This text describes the functions, capabilities, and limitations of the SCS/SCE for the particular dipswitch setting.

This diagram depicts the dipswitch setting necessary to configure the SCS/SCE for the capabilities mentioned to the left.

18

8	8	8	8
1	1	1	1
1	1	1	1
8	8	8	8

SCS-8 SCE-8

When used with an SCE, eight switch groups are available for group type 8 operation and eight are available for group type 1 operation in the format shown to the left. Type 8 switch groups require two control modules and one monitor module. Type 8 switch groups are usually only used for fans. One control module is used for the ON control of the fan, the other control module is used for the OFF control. The monitor module is used for the ON verification of the fan. Type 1 switch groups require one control module and one monitor module. Type 1 switch groups can be used for fans or dampers. The control module is used for OFF control of a fan and the monitor module is used for the OFF verification of the fan.

OFF

ON

1 2 3 4 5 6 7 8

Switches 1-5 select the SCS/SCE for a particular configuration of switch group types.

Switch 6, when in the ON position, selects FSCS Mode.

See Table 3.3 for settings of switches 7 and 8.



 ◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

DIP Switch Settings

As an example, Configuration number "3" defines SCS Switch Groups 1-4 and SCE groups 1-4 for *Type 7* operation. SCS groups 5-8 and SCE groups 5-8 are defined for *Type 5* operation.

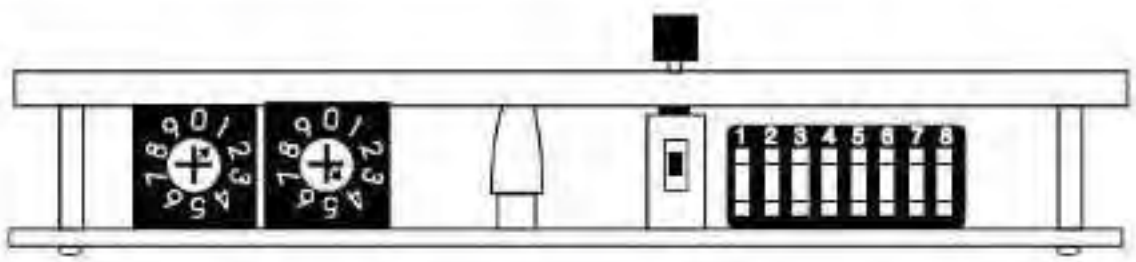
Referring back to the FSCS Switch Group Types tables (most recent Reading Assignment), it is shown that Type 7 groups require two control modules for ON and OFF fan control and one monitor module to verify that the fan is OFF.

The Type 5 groups require only one control module for ON control of a fan and one monitor module for ON verification of the fan.



ONYX Systems - Smoke Control Modules

Reading Assignment



DIP switch settings for the various group combinations are show in the *Configuration* section of the *SCS Series Operation and Installation Manual*. Review this material before continuing.

- Table 3.5 FSCS Mode DIP switch Settings (six tables)
- Table 3.10 HVAC DIP switch Settings (five tables)

Take note of the differing number of control and monitor modules required for each group type.

ONYX Systems - Smoke Control Modules

Programming

SCS Series modules are in fact, special EIA-485 control annunciators. Their annunciator points must be mapped to the control module and monitor module assigned to each switch group.

This is accomplished by first defining the required EIA-485 addresses as "FSCS" or ""HVAC."

The EIA-485 circuit can support up to 32 addresses for ACS, SCS, LDM Series annunciators and the UDACT Digital Communicator.

```

ACS PROGRAMMING
AD1:UDACT      AD2:FSCS      AD3:96PT      AD4:TM4
AD5:NO         AD6:NO         AD7:NO         AD8:NO
AD9:NO         AD10:NO        AD11:NO        AD12:NO
AD13:NO        AD14:NO        AD15:NO        AD16:NO
AD17:NO        AD18:NO        AD19:NO        AD20:NO
AD21:NO        AD22:NO        AD23:NO        AD24:NO
AD25:NO        AD26:NO        AD27:NO        AD28:NO
AD29:NO        AD30:NO        AD31:NO        AD32:NO

ANNUNCIATOR TYPE                                ACCEPT
POINT PROGRAMMING                                BACK
  
```

EIA-485 address "2" programmed for FSCS annunciation in an NFS2-3030 control panel or NCA-2 Network Annunciator

◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Programming

Each address supports up to 64 points on an NFS-320 or NFS2-640 and up to 96 points on the NFS2-3030 and NCA-2 Network Annunciator. Each annunciator point mapped to an SCS module must be programmed, *whether it is used or not.*

POINT: Point 1 of 64 (or 96) at EIA-485 address 2.

Mode: Control for a control module to be used for ON/OPEN or OFF/CLOSED control of a fan or damper.

SOURCE: SLC Loop address of the control module. Note: "N003" in this address refers to the network node to which the module is attached.

```

ACS PROGRAMMING
POINT: AD2PD1
MODE: CONTROL
SOURCE: N003E01M001
NEXT POINT ACCEPT
PREVIOUS POINT BACK
  
```

Additional programming of smoke control will be discussed in the ONYX University.

ONYX Systems - Smoke Control Modules

Review



Reveiwing the SLC Loop devices used in Smoke Control:

- The Control Module serves as a CONTROL device. Note: *Relay Modules may also be used for certain control applications.*
- The Monitor Module serves as a VERIFICATION device.
- This will be true in every Smoke Control circuit.
 - Relay Module = Control
 - Control Module = Control
 - Monitor Module = Verify

◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

SCS-8L and SCE-8L

The **SCS-8L** Smoke Control Lamp Driver and **SCE-8L** Expander module are also used in conjunction with the ONYX systems. However, unlike the SCS-8/SCE-8, they are designed to interface to a custom Graphic Annunciator.

Each SCS-8L has the capability to *control and monitor* eight AHU fans or dampers. A single SCE-8L expands the SCS-8L by another eight fans or dampers.

The SCS-8L Series is capable of operating in the same two modes of operation as the SCS-8 Series: Firefighter's Smoke Control Station (FSCS) or Heating, Ventilation & Air Conditioning (HVAC).

With the maximum configuration of 32 pairs, the system has the capability to control and display the status of up to 512 separate AHU fans or dampers. [Important Note](#)



ONYX Systems - Smoke Control Modules

SCS-8L and SCE-8L

The **SCS-8L** Smoke Control Lamp Driver and **SCE-8L** Expander module are also used in conjunction with the ONYX systems. However, unlike the SCS-8/SCE-8, they are designed to interface to a custom Graphic Annunciator.

Each SCS-8L has the capability to *control and monitor* eight AHU fans or dampers. A single SCE-8L expands the SCS-8L by another eight fans or dampers.

The SCS-8L Series is capable of operating in the same two modes of operation as the SCS-8 Series: Control Station (FSCS) or Heating, Ventilation and Air Conditioning (HVAC).

With the maximum configuration of 32 modules, the capability to control and display the status of 32 separate AHU fans or dampers. [Important](#)

The addresses consumed by SCS modules come from the pool of 32 ACS addresses available to a single ONYX control panel.

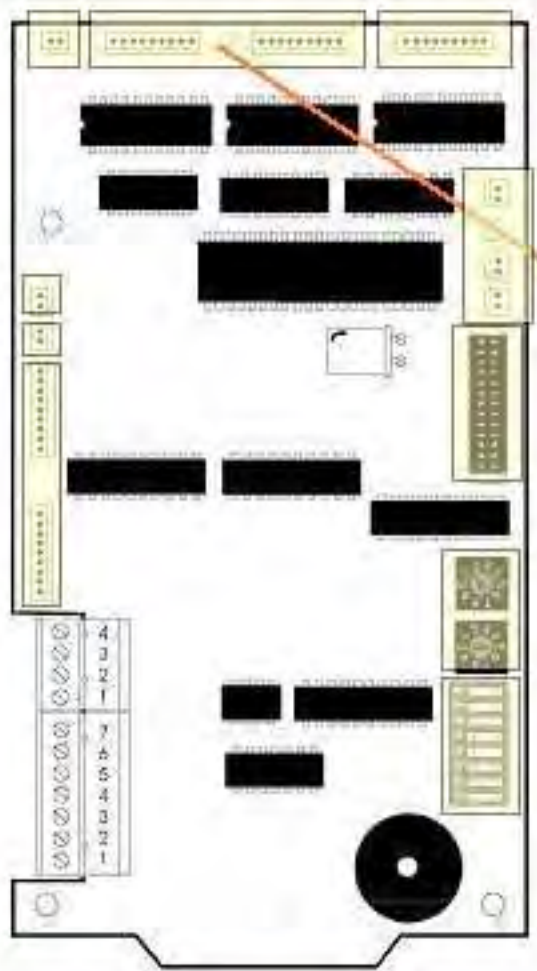


◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

SCS-8L Installation



Cable header for connection to graphic annunciator's **On/Off LEDs** (J3 = Groups 1-4; J4 = Groups 5-8)

Click on each highlighted area to view details

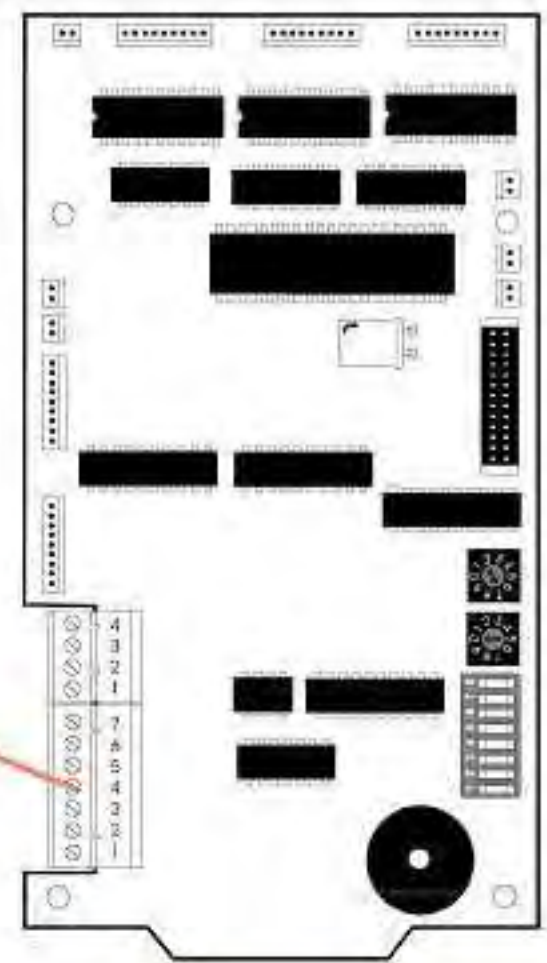
◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

SCS-8L Installation

EIA-485 Address and +24 VDC operating power are connected to terminal blocks TB2 and TB1 respectively. Filtered, regulated 24 VDC power listed for fire protective signaling must be supplied to each module.



ONYX Systems - Smoke Control Modules

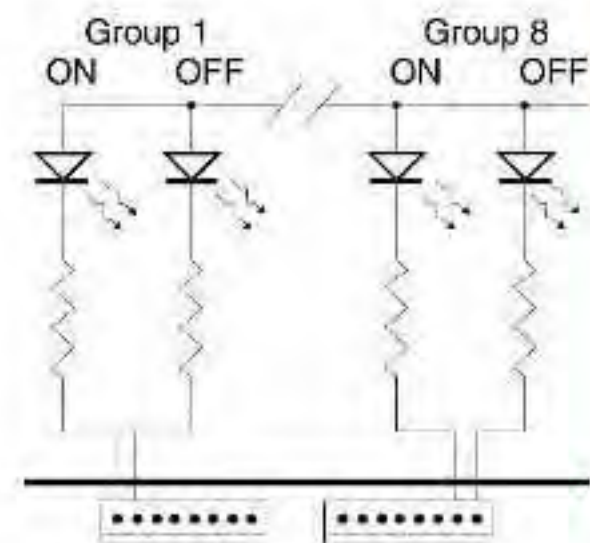
Reading Assignment

Page 29 of 41



Mounting and wiring instructions for the SCS-8L Series are outlined in the *Installation* section of the *SCS Series Operation and Installation Manual*. Review this material before continuing.

- SCS-8L/SCE-8L Installation
- CHS-4L Installation
- Wiring the Switches
- Installing Relay Modules

[◀ BACK](#)[NEXT ▶](#)

ONYX Systems - Smoke Control Modules

Summary Page

The ten-question quiz for this module begins on the next page.

You will not be able to return to this module after clicking the NEXT button.

If you wish to review any material in this module before beginning the quiz, click the BACK button now.



◀ BACK

NEXT ▶

ONYX Systems - Smoke Control Modules

Quiz Question



Which of the following statements is true about mounting SCS-8L and SCE-8L modules?

- In FSCS Mode they must be mounted inside the custom annunciator
- They must be mounted in the same room as the control panel
- They must be mounted inside the control panel
- In HVAC Mode they must be mounted inside the custom annunciator

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



Which of the following statements is true about mounting SCS-8L and SCE-8L modules?

- In FSCS Mode they must be mounted inside the custom annunciator
- They must be mounted in the same room as the control panel
- They must be mounted inside the control panel
- In HVAC Mode they must be mounted inside the custom annunciator

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



How many addressable modules and which types are required for each SCS Switch Group when set for FSCS Mode Configuration #10?

- One Control Module and two Monitor Modules
- Two Control Modules and one Monitor Module
- Two Control Modules and two Monitor Modules
- One Control Module and one Monitor Module

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



How many addressable modules and which types are required for each SCS Switch Group when set for FSCS Mode Configuration #10?

- One Control Module and two Monitor Modules
- Two Control Modules and one Monitor Module
- Two Control Modules and two Monitor Modules
- One Control Module and one Monitor Module

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



For a fan or damper to be used in a smoke control system in HVAC, which of the following statements is true?

- Verification is not a requirement but may be used if desired
- Control and verification of device functioning must be ensured
- Control of the fan or damper is not allowed - only verification.
- Four modules must be used with each Switch Group

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



For a fan or damper to be used in a smoke control system in HVAC, which of the following statements is true?

- Verification is not a requirement but may be used if desired
- Control and verification of device functioning must be ensured
- Control of the fan or damper is not allowed - only verification.
- Four modules must be used with each Switch Group

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



Which of the following statements is true about the SCS-8 Series?

- Each SCS module consumes 32 EIA-485 addresses
- SCS-8 can operate on unfiltered, unregulated power
- Each SCS module may consume up to 4 annunciator points
- SCS-8 must be installed in the same room as the control panel

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



Which of the following statements is true about the SCS-8 Series?

- Each SCS module consumes 32 EIA-485 addresses
- SCS-8 can operate on unfiltered, unregulated power
- Each SCS module may consume up to 4 annunciator points
- SCS-8 must be installed in the same room as the control panel

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



One SCS-8 with two SCE-8 expanders has the capability to control and monitor a maximum of how many AHU fans or dampers?

- A single SCS-8 can only use one SCE-8 expander
- 24 fans and/or dampers
- The answer depends on which mode, HVAC or FSCS, is used
- 72 fans and/or dampers

NEXT ►

ONYX Systems - Smoke Control Modules

Quiz Question



One SCS-8 with two SCE-8 expanders has the capability to control and monitor a maximum of how many AHU fans or dampers?

- A single SCS-8 can only use one SCE-8 expander
- 24 fans and/or dampers
- The answer depends on which mode, HVAC or FSCS, is used
- 72 fans and/or dampers

NEXT ►

ONYX Systems - Smoke Control Modules

Module Completed

Congratulations - you have completed module *Smoke Control Modules*.

Your score for this module:

Score: 80%

EXIT

Programming Basics - Notifier for Recertification

Learning Activity Details

Description:

This self-paced module of study reviews the student to the principles of programming ONYX Fire Alarm Systems



Programming Basics

This self-paced module of study reviews the student to the principles of programming ONYX Fire Alarm Systems

NEXT ►

Programming Basics

Objective

A critical portion of the ONYX University resident training program is dedicated to classroom instruction on programming principles and practical exercises using [VeriFire™ Tools](#) software.

Programming Basics provides the student with the foundational skills required for successful completion of those practical exercises.

Specifically, this prerequisite course module introduces the concept of *Type Codes*, the basic principles of *Boolean Logic* and programming value of *Software Zones*.



Programming Basics

Objective

A critical portion of the ONYX University resident training program is dedicated to classroom instruction of the basic principles and practical application of [VeriFire™ Tools](#) software.

VeriFire Tools is a programming and test utility with offline and online capabilities that can greatly reduce installation programming time. This Windows based utility provides advanced capabilities to aid the system programmer. The entire program for a control panel can be created in the office, stored in a backup file and brought to the site for later downloading from a laptop.

Programming Basics provides the foundation for successful completion of the following exercises.

Specifically, this pre-assignment module introduces the student to the following: *Codes*, the basic principles of *Boolean Logic* and programming value of *Software Zones*.



Programming Basics

Type IDs

Type Codes are software selections for SLC Loop devices (detectors and modules). Some Type Codes are self-explanatory and essentially serve to provide a device label for status changes. Other Type Codes are associated with very specific functions for special applications.

Type Codes apply to the three basic categories of SLC devices - detectors, monitor (input) modules and control (output) modules.

Type Codes allow the applications specialist to accomplish very specific operational requirements using a small set of definable SLC devices. Without Type Codes, manufacturers would have to offer dozens of different dedicated device models, each with a specific function to perform.



"SMOKE (PHOTO)"



"PULL STATION"



"MONITOR"

◀ BACK

NEXT ▶

Programming Basics

Type IDs

Type Codes do not actually change the manner in which the device itself operates. Rather, the codes define how the control panel is to respond to the activation of an input device (detector or monitor module) or control the functioning of an output device (control module).

Type Codes allow the control panel to assign a device to one of five basic threat categories:

- Alarm
- Supervisory
- Security
- Trouble
- Other Event (NFS2-3030 only)

In addition, the codes further define whether a device's change in status should latch or be tracked by the control panel.



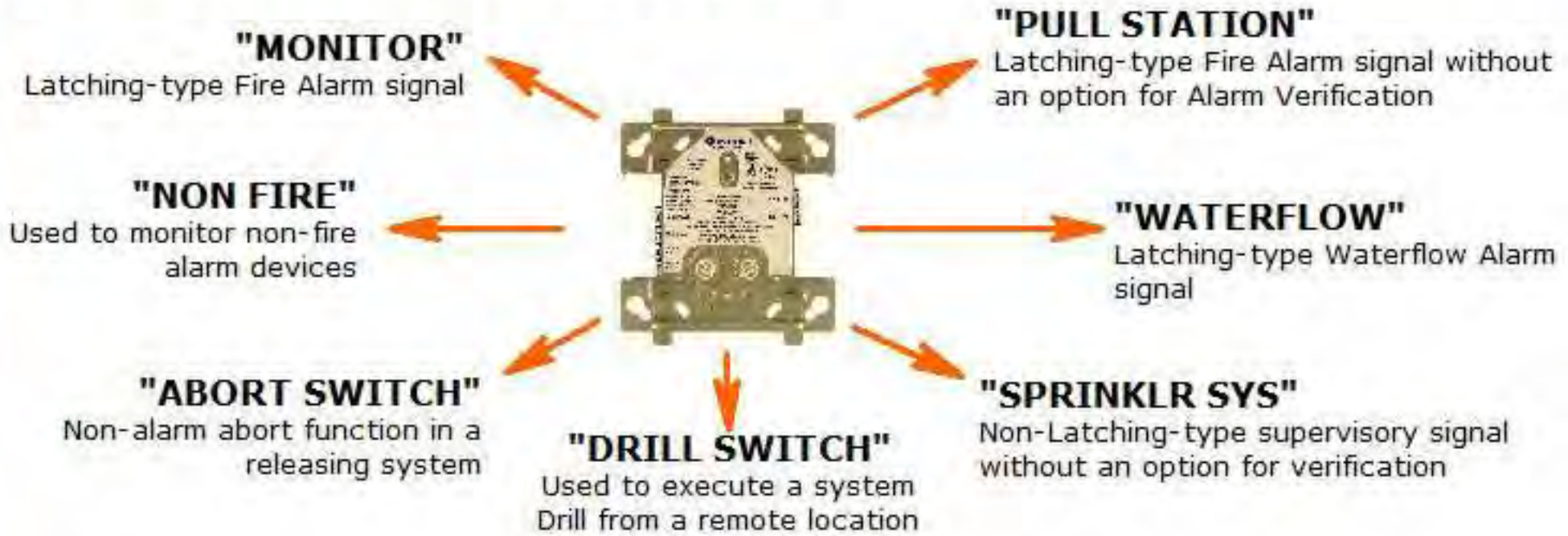
◀ BACK

NEXT ▶

Programming Basics

Type IDs

Below are just a few of the more than three dozen Type Codes that can be assigned to a Monitor Module to define its specific operation. *A complete listing of all codes is found in the respective programming manual.*

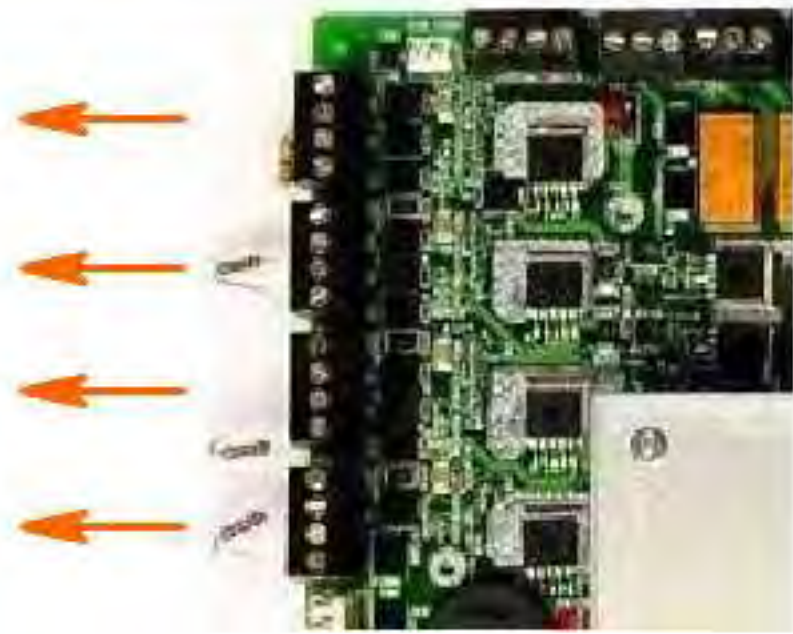


Programming Basics

Type IDs

The NFS-320 and NFS2-640 contain four onboard conventional Notification Appliance Circuits. As with addressable control modules, these NACs can be programmed with certain Software Codes to define their operation or just serve as a more specific label for the circuit. Some of those types are listed below.

- "CONTROL"
- "STROBE CIRCUIT"
- "HORN CIRCUIT"
- "SPEAKER"
- "RELEASE CKT"
- "ALARMS PEND"



Programming Basics

Type IDs



The NFS2-3030 Programming Manual contains a *Type Codes* appendix. It describes the various codes for intelligent detectors and addressable modules.

Review this appendix before continuing. Take note of the table entries for the *Point Type*, *Latching* setting and whether or not each type code activates *CBE*. *CBE* or Control-By-Event, is the method by which the control panel performs output functions in response to specific input conditions.

Point Characteristics				
Type Code	Point Type	Latching (Y=yes N=no)	Activates CBE	Device/Point Function
SMOKE (ION)	fire	Y	Y	Ionization smoke detector
SUP L(ION)	supervisory	Y	Y	Ionization smoke detector
SUP T(ION) [†]	supervisory	N	Y	Ionization smoke detector
SMOKE(DUCTI)	fire	Y	Y	Duct ionization smoke detector
SUP L(DUCTI)	supervisory	Y	Y	Duct ionization smoke detector

[◀ BACK](#)[NEXT ▶](#)

Programming Basics

Boolean Logic

Boolean logic (or **Boolean algebra**) is a variation of standard algebra that deals with variables that may assume a value of only "0" or "1." These values are logical rather than numerical and as such, may be viewed as truth values - "TRUE" or "FALSE", "ON" and "OFF", "YES" or "NO".



When Boolean logic is used in modern electrical circuit design, 0 and 1 represent the two possible states of one bit in a digital circuit, typically high and low voltage. Inputs to the digital circuit serve as the variables, and the state of each output is determined by the particular combination of logic gates employed.

Boolean logic is implemented in the form of the [logic gates](#). Basic logic gates are "AND", "OR" and "NOT." These gates may be used alone or in combinations to arrive at a specific result. [series or parallel](#) wiring of these gates is used to control the [precedence](#) of the operations.

Programming Basics

Boolean Logic

Boolean logic (or **Boolean algebra**) is a variation of standard algebra that deals with variables that may assume a value of only two states: true and false. These values are logical rather than numerical. Such values may be viewed as true or false, "ON" and "OFF", "Y

Logic gates are primarily implemented electronically using diodes or transistors, but can also be constructed using electromagnetic relays, fluidics, optics, molecules, or even mechanical elements. In electronic logic, a logic level is represented by a voltage or current, (which depends on the type of electronic logic in use).

Each logic gate requires power so that it can source and sink currents to achieve the correct output voltage. In logic circuit diagrams the power is not shown, but in a full electronic schematic, power connections are required.

Click [here](#) to view an "AND" gate in both schematic and logic form.

When Boolean logic is used in circuit design, 0 and 1 represent states of one bit in a digital system, high voltage and low voltage. Inputs to gates are treated as the variables, and the state of the output is determined by the particular logic gates employed.

Boolean logic is implemented in the form of the [logic gates](#). Basic logic gates are "AND", "OR" and "NOT." These gates may be used alone or in combinations to arrive at a specific result. [series or parallel](#) wiring of these gates is used to control the [precedence](#) of the operations.

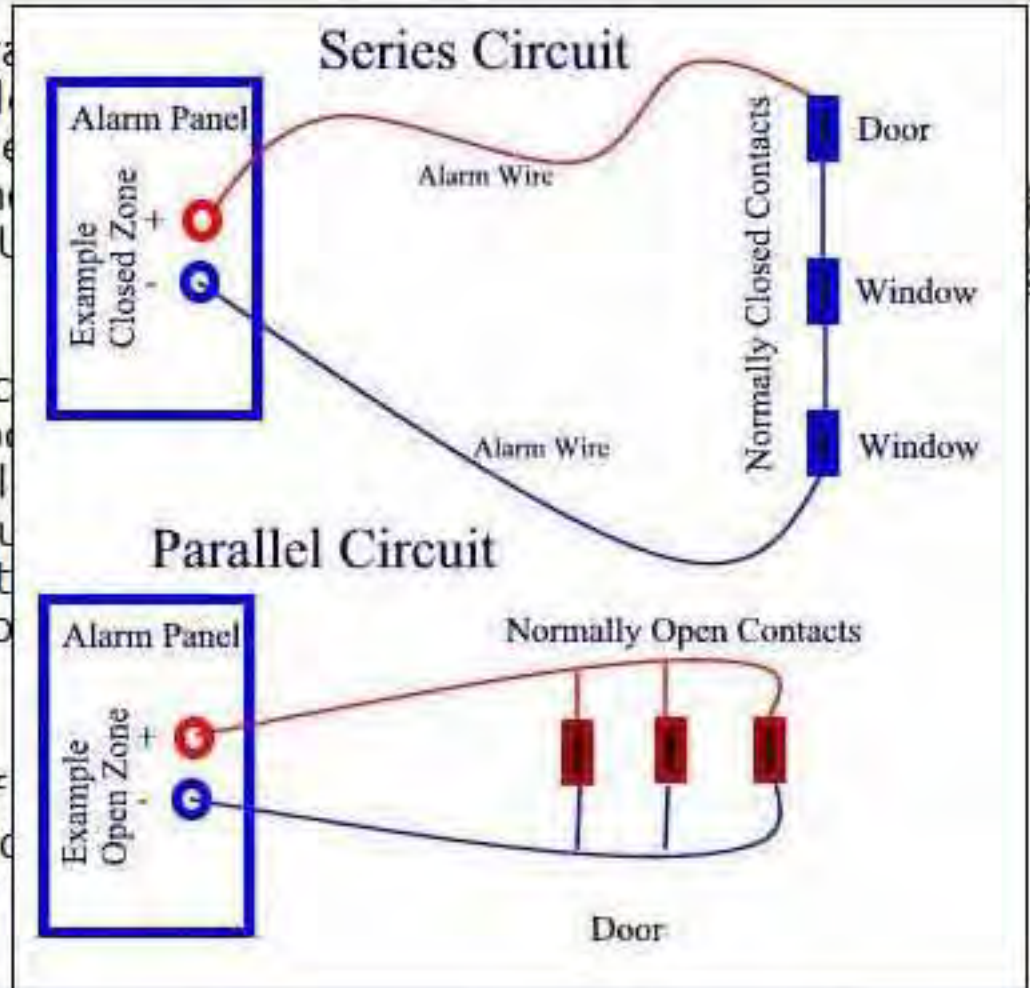
Programming Basics

Boolean Logic

Boolean logic (or **Boolean algebra**) is a variety of standard algebra that deals with variables that may assume a value of only "0" or "1." The values are logical rather than numerical and, such, may be viewed as truth values - "TRUE", "FALSE", "ON" and "OFF", "YES" or "NO".

When Boolean logic is used in modern electronic circuit design, 0 and 1 represent the two possible states of one bit in a digital circuit, typically high and low voltage. Inputs to the digital circuit are the variables, and the state of each output is determined by the particular combination of logic gates employed.

Boolean logic is implemented in the form of "AND" and "OR." These gates may be used to achieve a specific result. series or parallel wiring of the operations.



Programming Basics

Boolean Logic

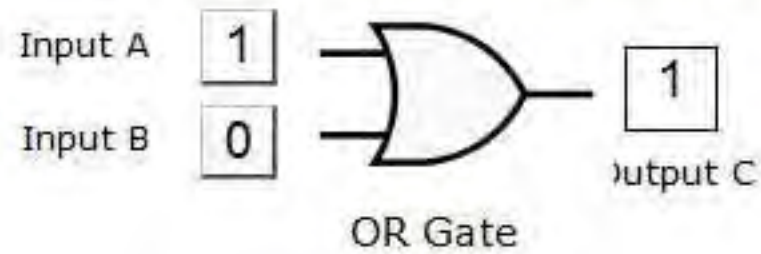
The **OR** gate is a digital logic gate that implements *logical disjunction*. It behaves according to the truth table shown to the right.

A HIGH output (1) results for C if one or both the inputs to the gate (A or B) are HIGH (1). If neither input is HIGH, a LOW output (0) results.

A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

Truth Table for a two-input OR Gate

Click on each input to change its value and observe the effect on the output



Programming Basics

Boolean Logic

The **OR** gate is a digital logic gate that implements logical disjunction. It behaves according to the

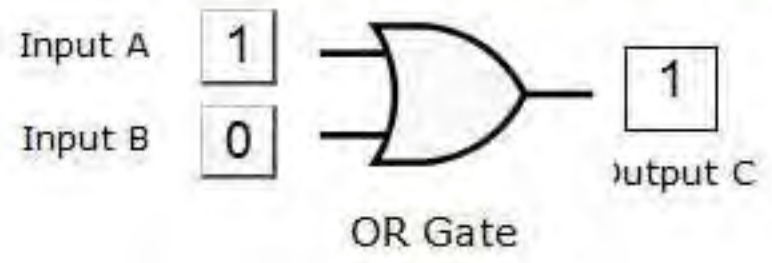
Logical disjunction results in a true state for the output whenever one or more of the inputs are true

A HIGH output (1) results if either or both inputs to the gate are HIGH. If neither input is HIGH, a LOW output (0) results.

A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

Truth Table for a two-input OR Gate

Click on each input to change its value and observe the effect on the output



◀ BACK

NEXT ▶

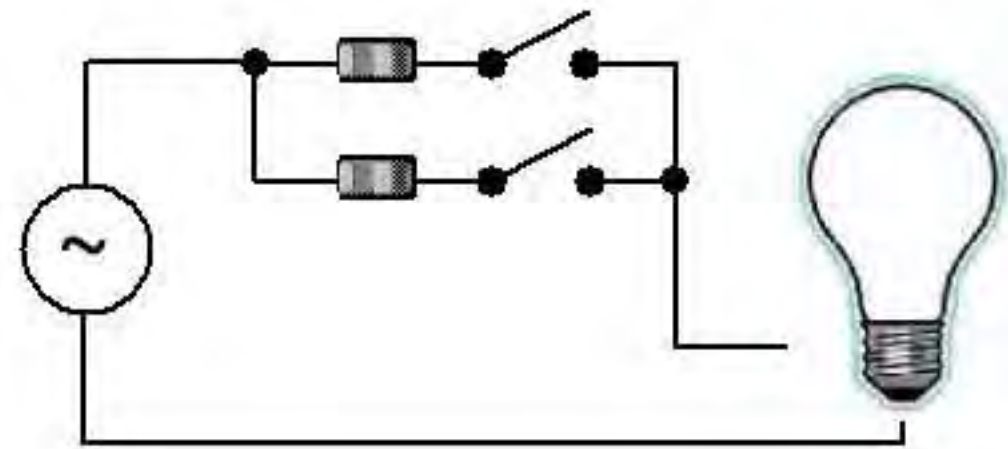
Programming Basics

Boolean Logic

The diagram at right illustrates the **OR** function using two switches to turn a light on and off.

Either switch will turn on the light but both switches must be opened to turn the light off.

Click on each switch to demonstrate the functioning of an OR gate.



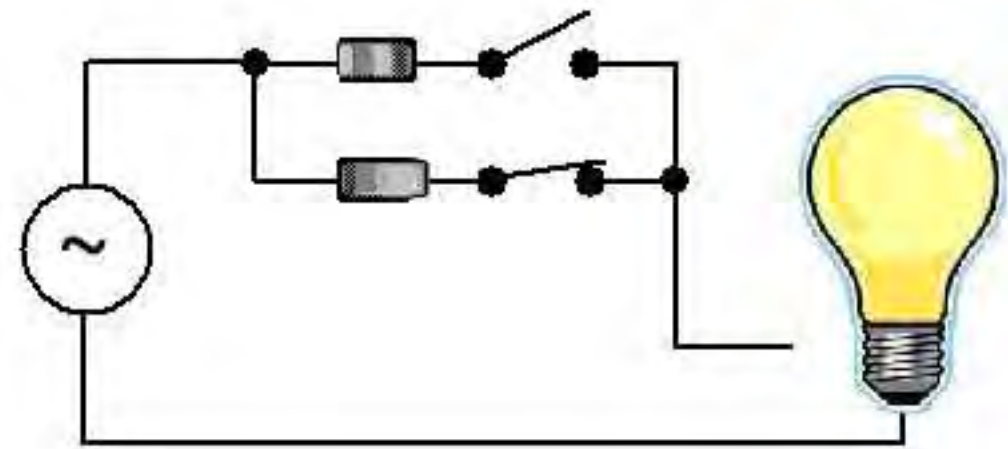
Programming Basics

Boolean Logic

The diagram at right illustrates the **OR** function using two switches to turn a light on and off.

Either switch will turn on the light but both switches must be opened to turn the light off.

Click on each switch to demonstrate the functioning of an OR gate.



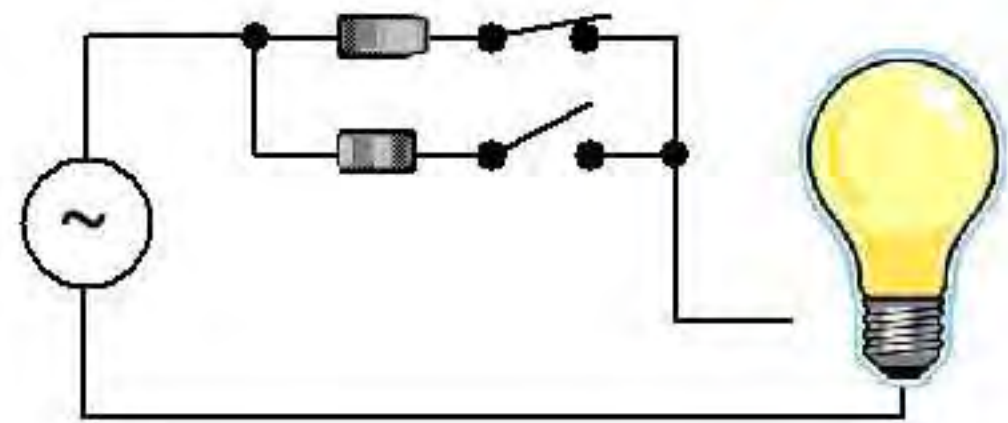
Programming Basics

Boolean Logic

The diagram at right illustrates the **OR** function using two switches to turn a light on and off.

Either switch will turn on the light but both switches must be opened to turn the light off.

Click on each switch to demonstrate the functioning of an OR gate.



Programming Basics

Boolean Logic

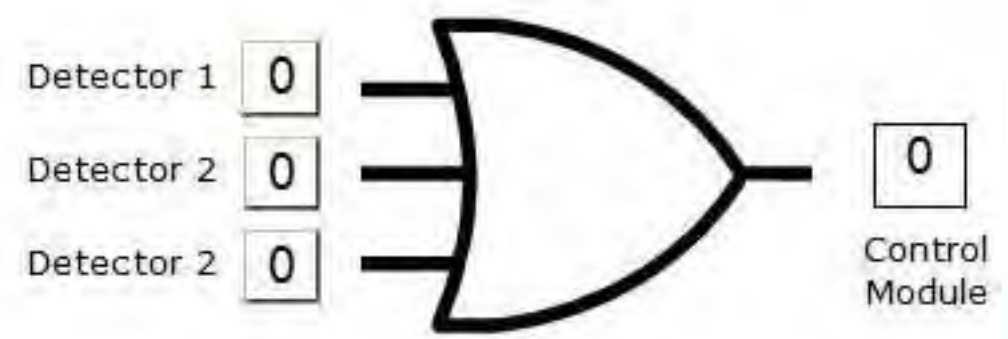
The **OR** function is typically employed in a fire alarm system when you have a simple input-to-output relationship.

Consider the activation of a control module in response to the initiation of an alarm from any one of three detectors.

The resultant programming solution for a control module would involve "ORing" the three detectors together.

Essentially, General Alarm is accomplished by ORing all initiating devices with all output devices.

Click on each input to change its value and observe the effect on the output



Three-input OR Gate

Programming Basics

Boolean Logic

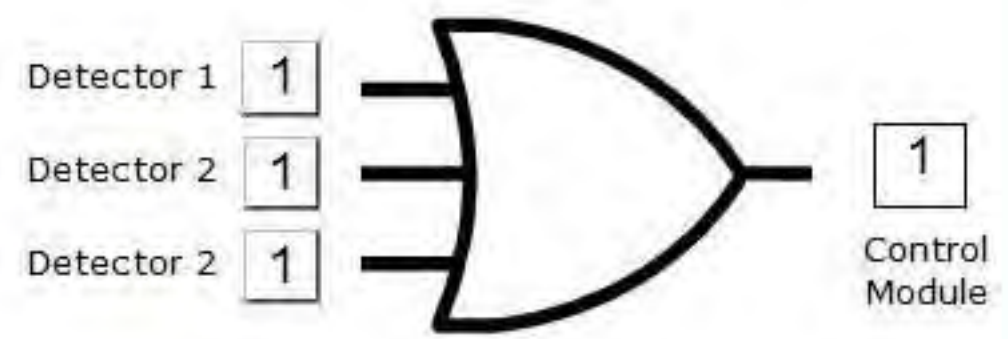
The **OR** function is typically employed in a fire alarm system when you have a simple input-to-output relationship.

Consider the activation of a control module in response to the initiation of an alarm from any one of three detectors.

The resultant programming solution for a control module would involve "ORing" the three detectors together.

Essentially, General Alarm is accomplished by ORing all initiating devices with all output devices.

Click on each input to change its value and observe the effect on the output



Three-input OR Gate

Programming Basics

Boolean Logic

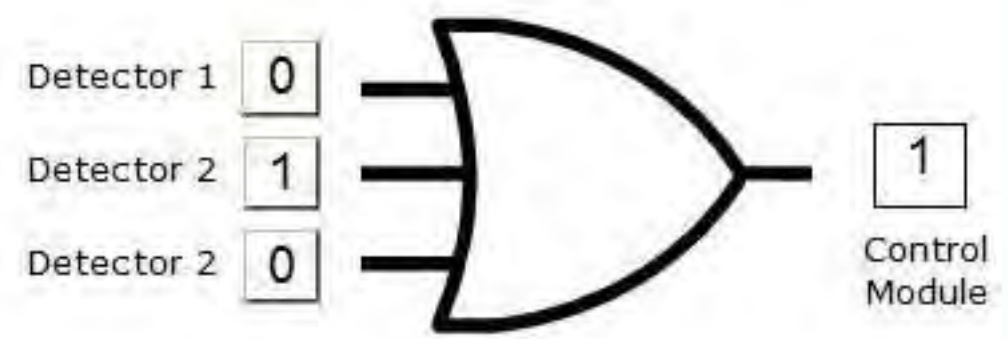
The **OR** function is typically employed in a fire alarm system when you have a simple input-to-output relationship.

Consider the activation of a control module in response to the initiation of an alarm from any one of three detectors.

The resultant programming solution for a control module would involve "ORing" the three detectors together.

Essentially, General Alarm is accomplished by ORing all initiating devices with all output devices.

Click on each input to change its value and observe the effect on the output



Three-input OR Gate

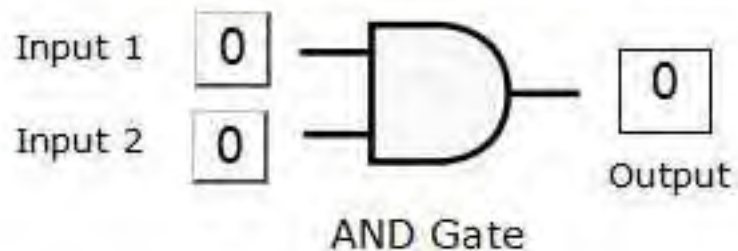
Programming Basics

Boolean Logic

The **AND** gate is a digital logic gate that implements [logical conjunction](#) - it behaves according to the truth table to the right.

A HIGH output (1) results for C only if both the inputs A and B are HIGH (1). If neither or only one input to the AND gate is HIGH, a LOW output results.

*Click on each input to change its value
observe the effect on the output*



A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

Truth Table for a two-input AND Gate

[◀ BACK](#)[NEXT ▶](#)

Programming Basics

Boolean Logic

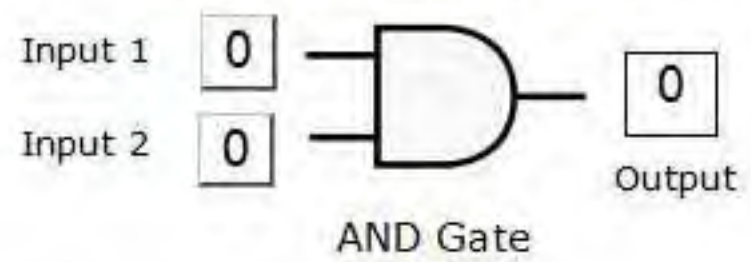
The **AND** gate is a digital logic gate that implements logical conjunction - it behaves according to the truth table below.

Logical conjunction is a two-place logical operation that results in a value of true if both of its operands are true, otherwise a value of false.

A HIGH output (1) results if both inputs A and B are HIGH (1). If either input is LOW (0), the output results in a LOW (0).

A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

*Click on each input to change its value
observe the effect on the output*



Truth Table for a two-input AND Gate

◀ BACK

NEXT ▶

Programming Basics

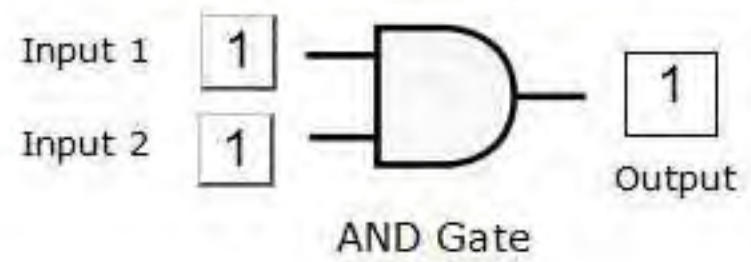
Boolean Logic

The **AND** gate is a digital logic gate that implements logical conjunction - it behaves according to the truth table to the right.

A HIGH output (1) results for C only if both the inputs A and B are HIGH (1). If neither or only one input to the AND gate is HIGH, a LOW output results.

A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

*Click on each input to change its value
observe the effect on the output*



Truth Table for a two-input AND Gate

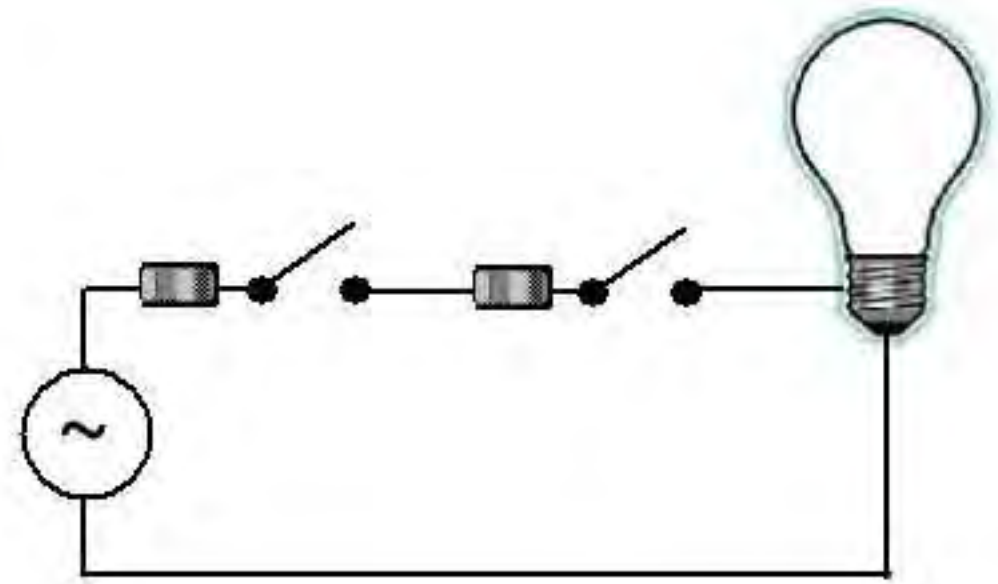
Programming Basics

Boolean Logic

The diagram at right illustrates the **AND** function using two switches that are wired in Series with each other.

Both switches must be closed in order to turn on the light.

Click on each switch to demonstrate the functioning of an AND gate.



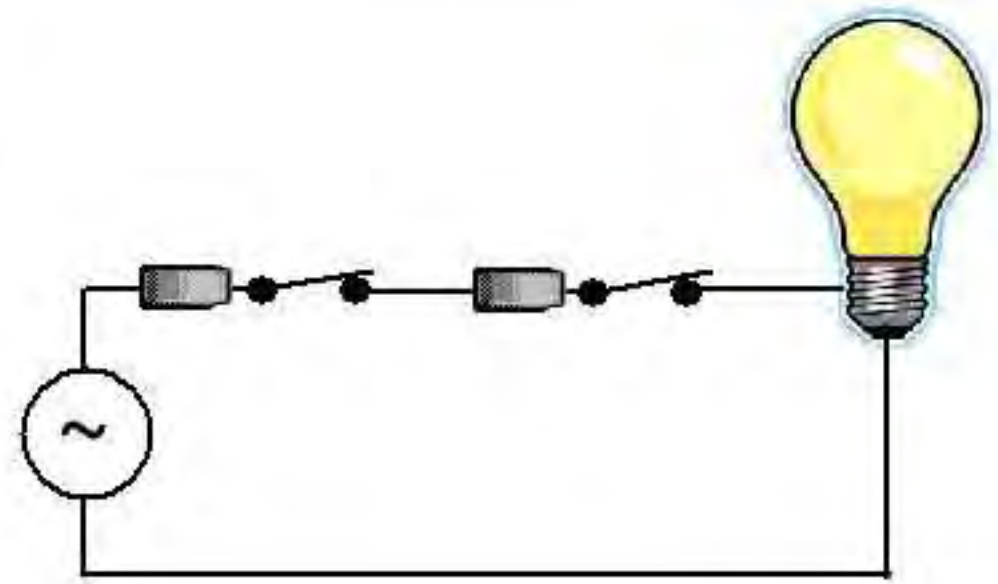
Programming Basics

Boolean Logic

The diagram at right illustrates the **AND** function using two switches that are wired in Series with each other.

Both switches must be closed in order to turn on the light.

Click on each switch to demonstrate the functioning of an AND gate.



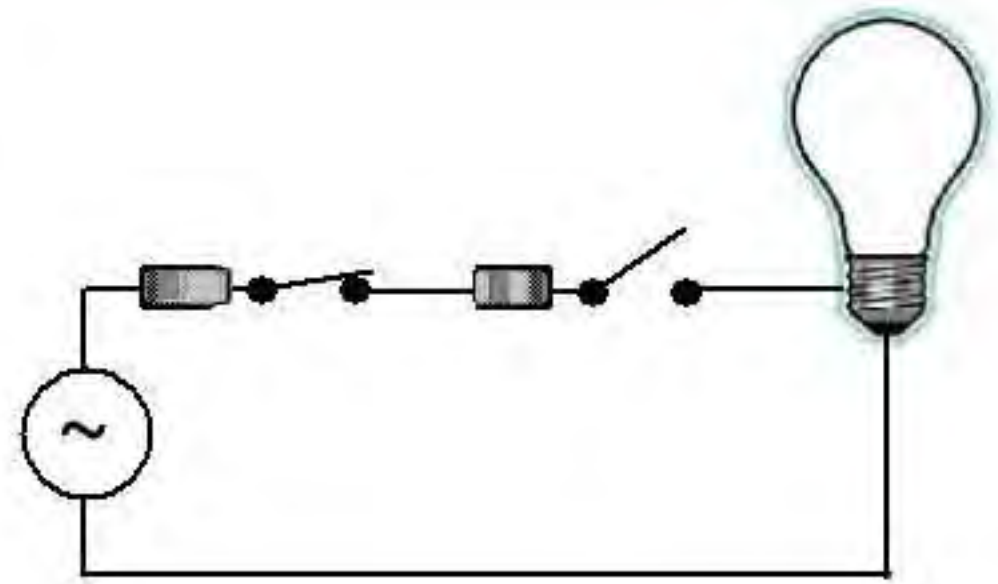
Programming Basics

Boolean Logic

The diagram at right illustrates the **AND** function using two switches that are wired in Series with each other.

Both switches must be closed in order to turn on the light.

Click on each switch to demonstrate the functioning of an AND gate.



Programming Basics

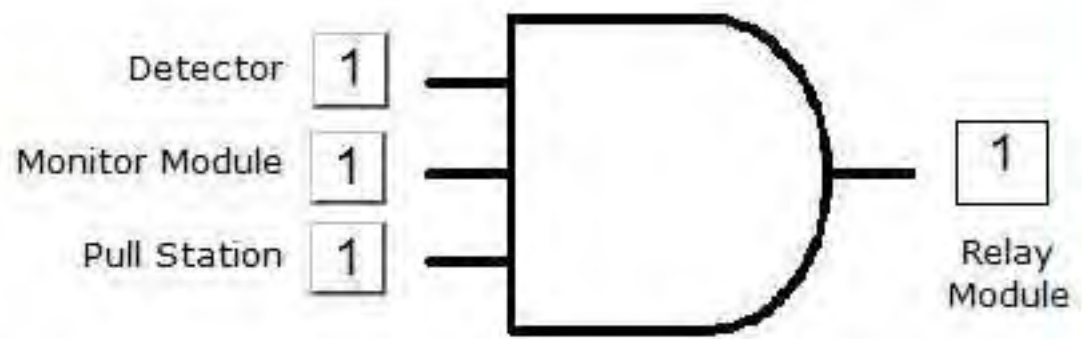
Boolean Logic

In a fire alarm system, the **AND** function is used when the activation of an output must result from the initiation of more than one input device.

In the example here, the activation of a relay module occurs only after the initiation of an alarm from the detector, the monitor module and the pull station.

The resultant programming solution for the relay module is referred to as "ANDing" the three devices together.

Click on each input to change its value and observe the effect on the output



Three-input AND Gate

Programming Basics

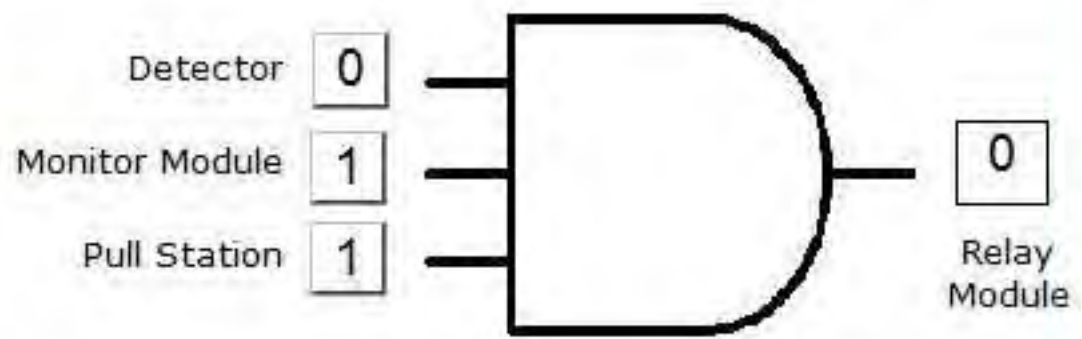
Boolean Logic

In a fire alarm system, the **AND** function is used when the activation of an output must result from the initiation of more than one input device.

In the example here, the activation of a relay module occurs only after the initiation of an alarm from the detector, the monitor module and the pull station.

The resultant programming solution for the relay module is referred to as "ANDing" the three devices together.

Click on each input to change its value and observe the effect on the output



Three-input AND Gate

Programming Basics

Boolean Logic

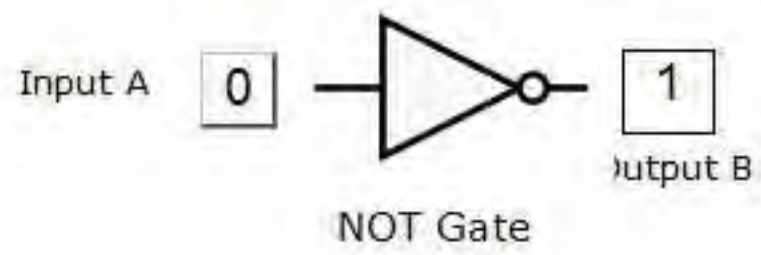
The **NOT** gate or *inverter* is a digital logic gate that implements logical negation. It behaves according to the truth table to the right.

A HIGH (1) results for output B if the input A is LOW (0). If the input is HIGH (1), a LOW output (0) results

A	B
0	1
1	0

Truth Table for a NOT Gate

*Click on each input to change its value
observe the effect on the output*



A See Saw illustrates the inverse relationship of the NOT gate

◀ BACK

NEXT ▶

Programming Basics

Boolean Logic

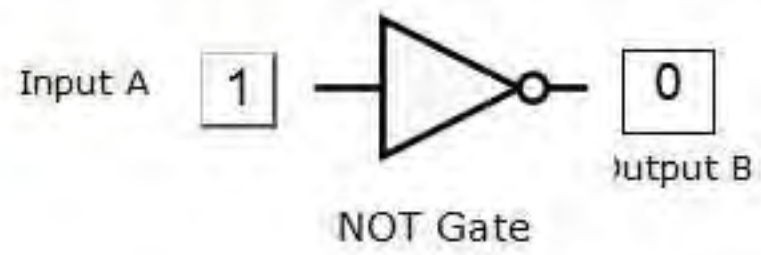
The **NOT** gate or *inverter* is a digital logic gate that implements logical negation. It behaves according to the truth table to the right.

A HIGH (1) results for output B if the input A is LOW (0). If the input is HIGH (1), a LOW output (0) results

A	B
0	1
1	0

Truth Table for a NOT Gate

Click on each input to change its value observe the effect on the output



A See Saw illustrates the inverse relationship of the NOT gate

◀ BACK

NEXT ▶

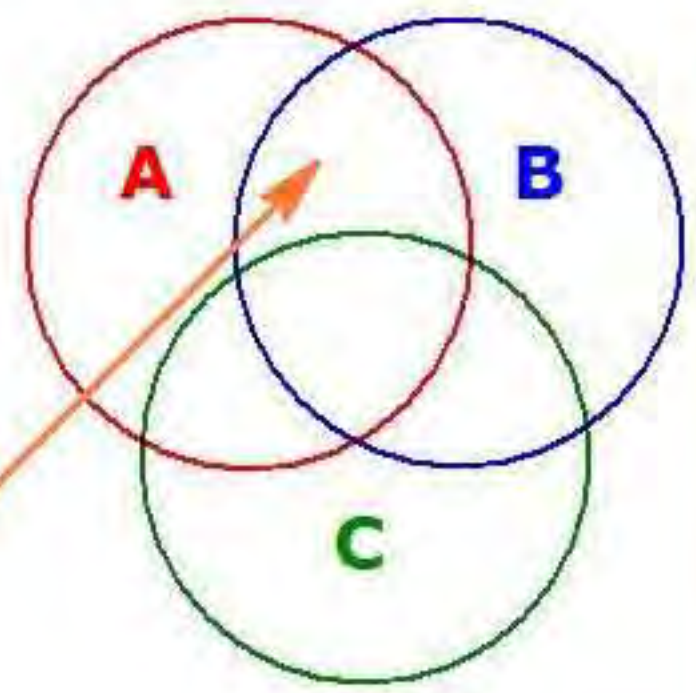
Programming Basics

Boolean Logic

Venn diagrams can be used to graphically represent the results of combining basic Boolean operators (AND, OR, NOT). Equations can be written to represent each area of the diagram, shared by the sets or mutually exclusive.

The equation below defines the area of the Venn diagram that is shared (ANDed) by sets A and B but not set C.

$$(A \text{ AND } B) \text{ NOT } C$$



Programming Basics

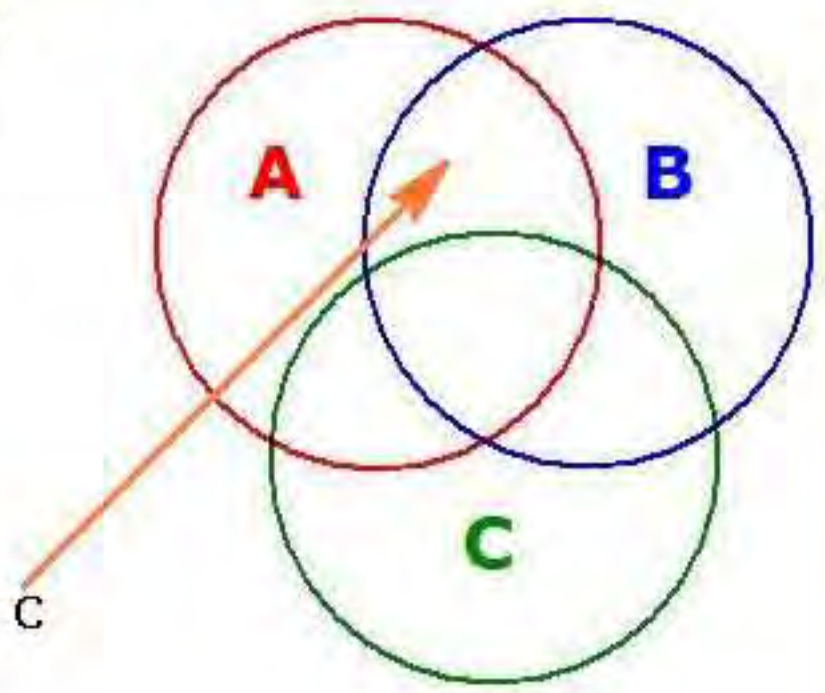
Boolean Logic

Venn diagrams can be used to graphically represent the results of Boolean operations (AND, OR, NOT) on sets. Venn diagrams are used to compare the relationships of various sets to each other. Each circle represents a set or mutually exclusive sets.

Venn diagrams are used to compare the relationships of various sets to each other.

The equation below defines the area of the Venn diagram that is shared (ANDed) by sets A and B but not set C.

$$(A \text{ AND } B) \text{ NOT } C$$



Programming Basics

Boolean Logic

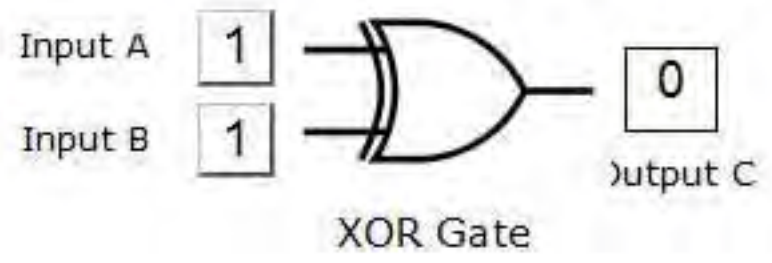
The XOR gate (sometimes EOR gate) is a digital logic gate that implement exclusive disjunction. It behaves according to the truth table shown to the right.

A HIGH output (1) results if one, and only one, of the inputs A or B are HIGH (1). If both inputs are LOW (0) or both are HIGH (1), a LOW output (0) results.

A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

Truth Table for a two input XOR Gate

*Click on each input to change its value
observe the effect on the output*



◀ BACK

NEXT ▶

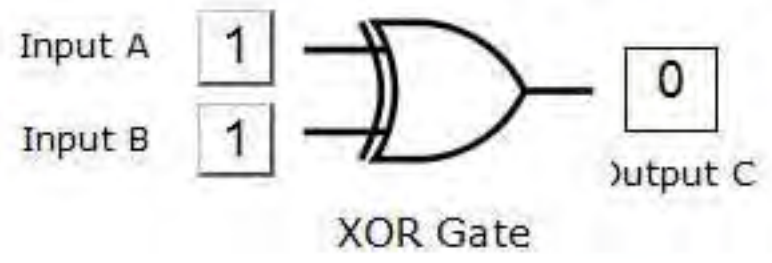
Programming Basics

Boolean Logic

The XOR gate (sometimes EOR gate) is a digital logic gate that implement exclusive disjunction. It behaves according to the truth table shown to the right.

A HIGH output (1) results if one, and only one, of the inputs A or B are HIGH (1). If both inputs are LOW (0) or both are HIGH (1), a LOW output (0) results.

*Click on each input to change its value
observe the effect on the output*



When more than two inputs are employed in logical "XORing," a HIGH output results when there are an odd number of HIGHS on the inputs. Study the truth table below for a 3-Input XOR function.

A	B	C	D
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

ONYX Systems employ a functional variation of the XOR gate referred to as "ONLY 1." Regardless of the number of inputs, the output will go active if *only* 1 of the inputs are active.

Programming Basics

Boolean Logic

The XOR gate (sometimes EOR gate) is a digital logic gate that implement exclusive disjunction. It behaves according to the truth table shown right.

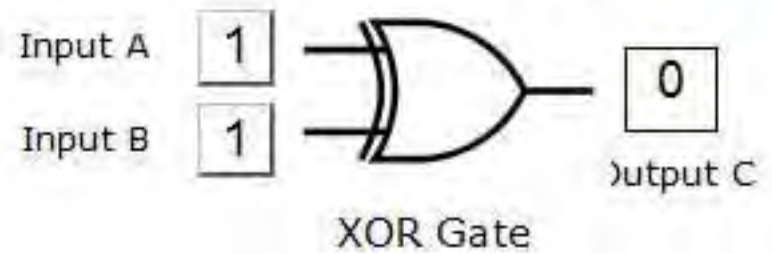
A HIGH output (1) results if one, and only one, of the inputs A or B are HIGH (1). If both inputs are LOW (0) or both are HIGH (1), a LOW output results.

A	B	C
---	---	---

The logical operation exclusive disjunction is a type of logical disjunction on two operands that results in a value of true if and only if exactly one of the operands has a value of true.

Truth Table for a two input XOR Gate

Click on each input to change its value observe the effect on the output



◀ BACK

NEXT ▶

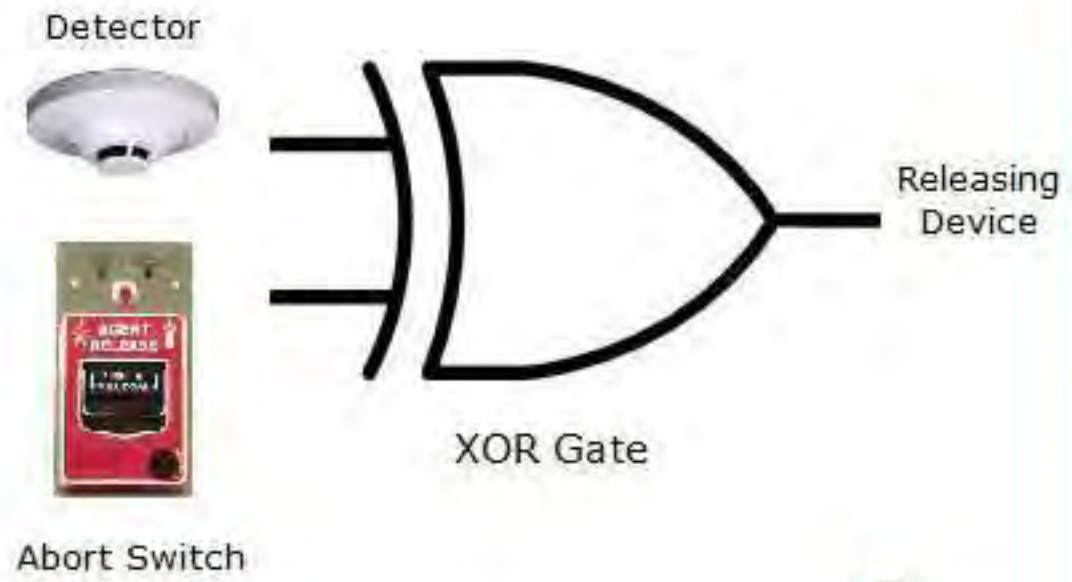
Programming Basics

Boolean Logic

The XOR function may be illustrated in a simple application where it is used to "gate" the activation of a releasing mechanism with an Abort Switch.

If pulled within a certain period of time following the activation of the detector, the switch aborts the pending activation of the releasing device.

If not pulled within the initial delay period, release occurs and the pull station becomes ineffective.



◀ BACK

NEXT ▶

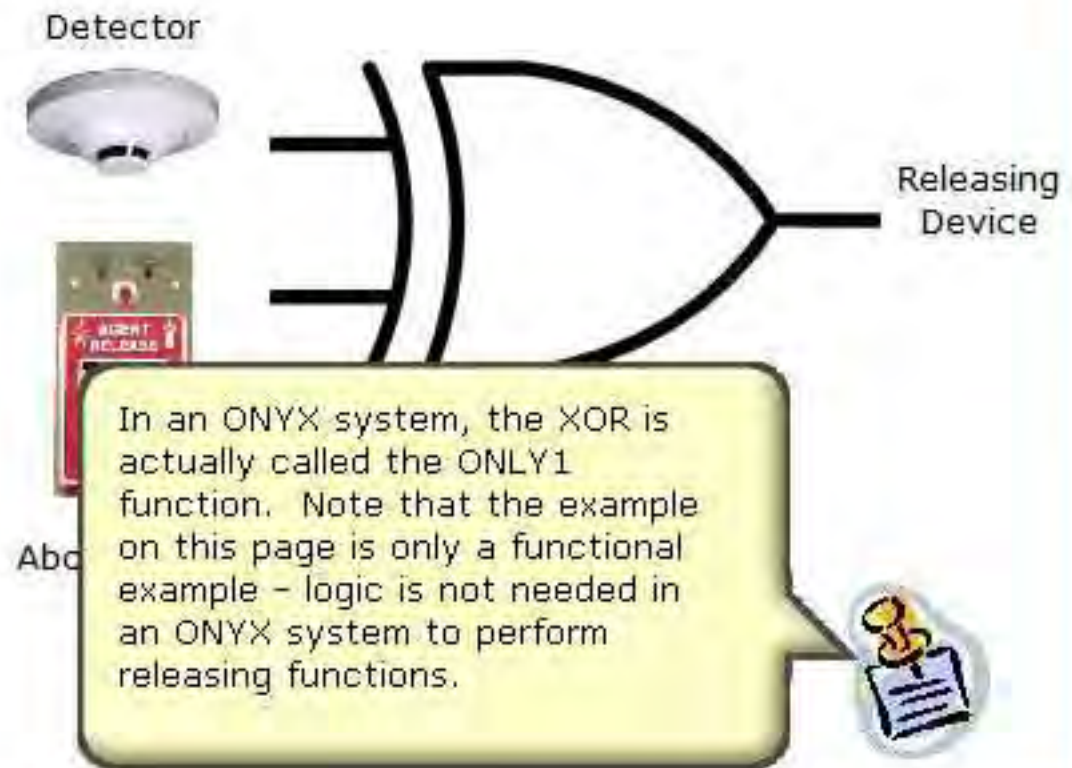
Programming Basics

Boolean Logic

The XOR function may be illustrated in a simple application where it is used to "gate" the activation of a releasing mechanism with an Abort Switch.

If pulled within a certain period of time following the activation of the detector, the switch aborts the pending activation of the releasing device.

If not pulled within the initial delay period, release occurs and the pull station becomes ineffective.



Programming Basics

Software Equations

Software equations are written to define the relationship between input and output devices in a fire system. The equations help convert human language instructions into a format that can be understood by the fire alarm system.

We begin with the following requirement:

"If this detector OR this pull station is activated, turn on these strobes"

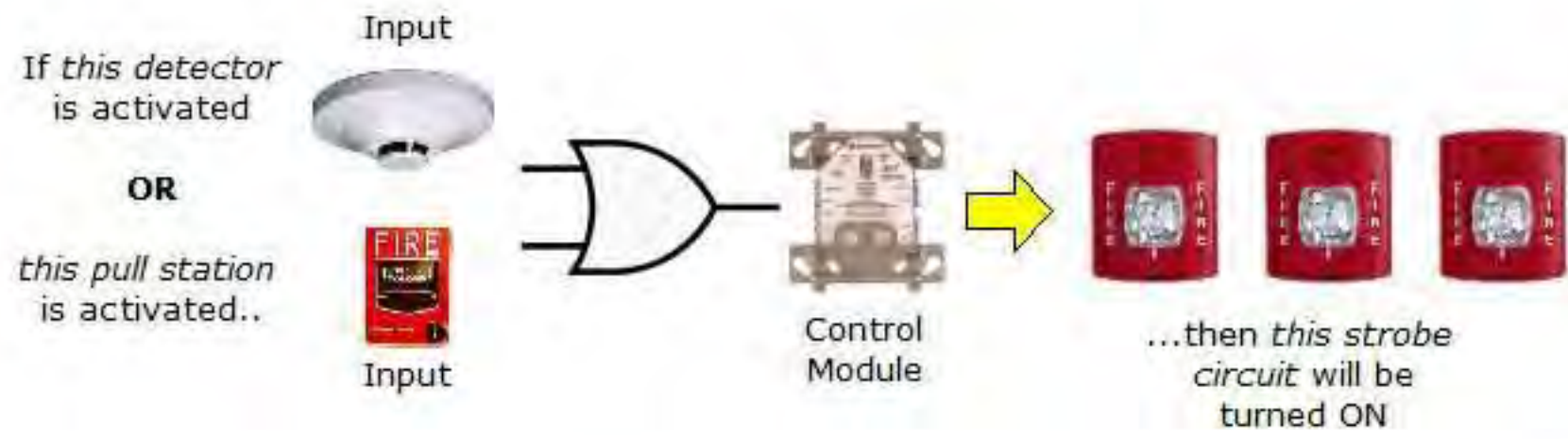


Programming Basics

Software Equations

In a fire alarm system, the LOW (0) state refers to the normal (inactivated) state of a device. The HIGH (1) state corresponds with a device that has been activated.

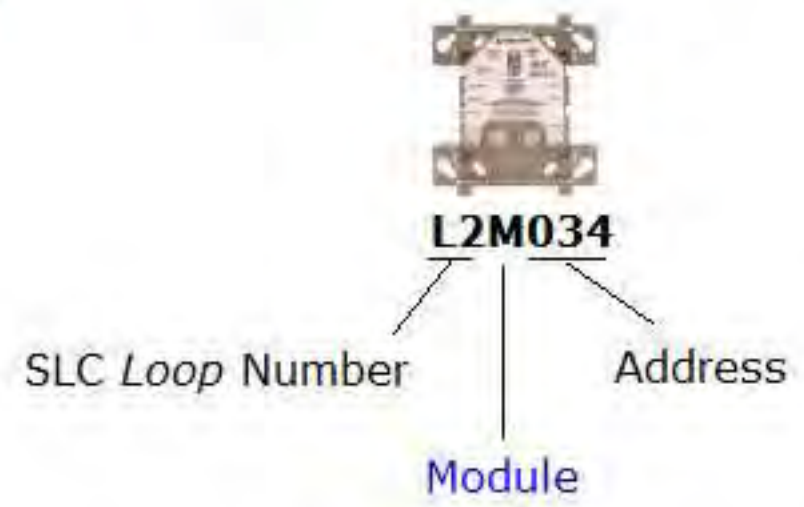
Subsequently, the inputs to a logic gate and its output can be thought of as fire alarm devices that are either *on/off* or *activated/deactivated*.



Programming Basics

Software Equations

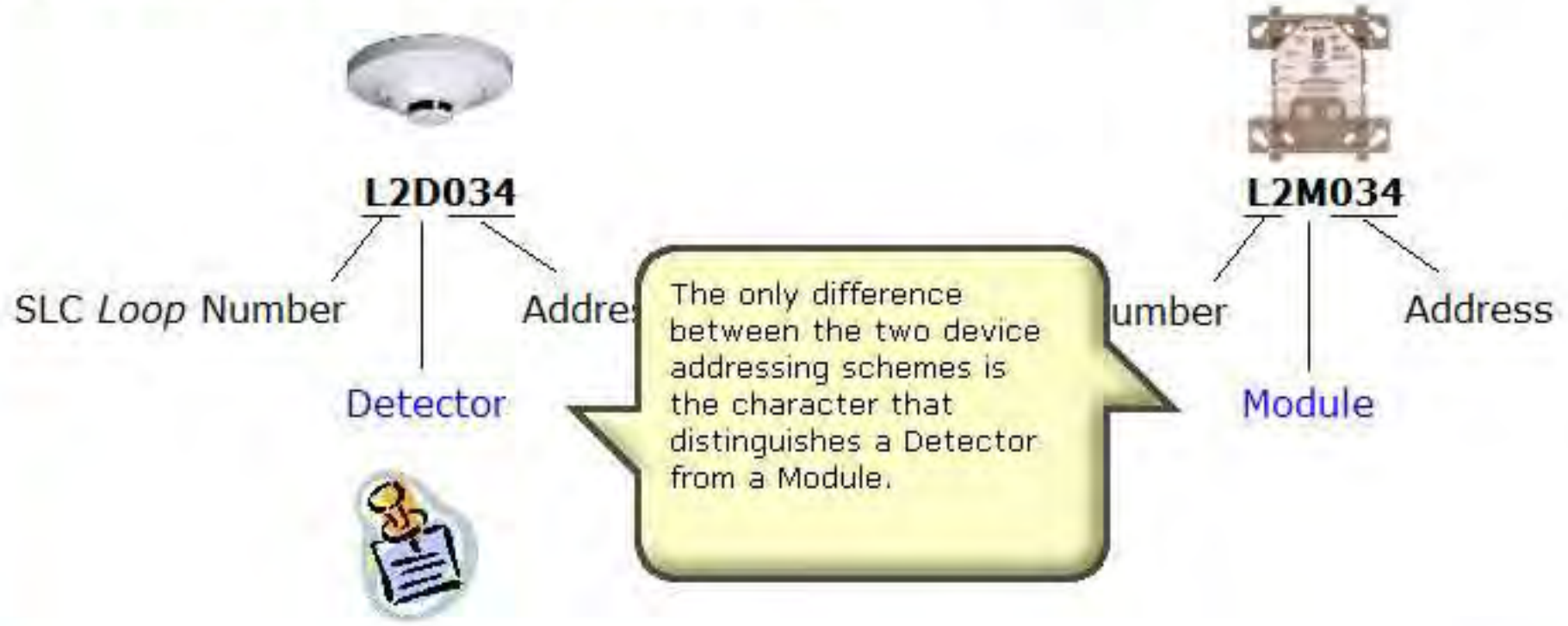
The first challenge is in referencing each device - "this detector" won't work. SLC Loop devices in an ONYX system have unique addresses, set on each device with Decade Switches. Examine the two examples below.



Programming Basics

Software Equations

The first challenge is in referencing each device - "this detector" won't work. SLC Loop devices in an ONYX system have unique addresses, set on each device with Decade Switches. Examine the two examples below.



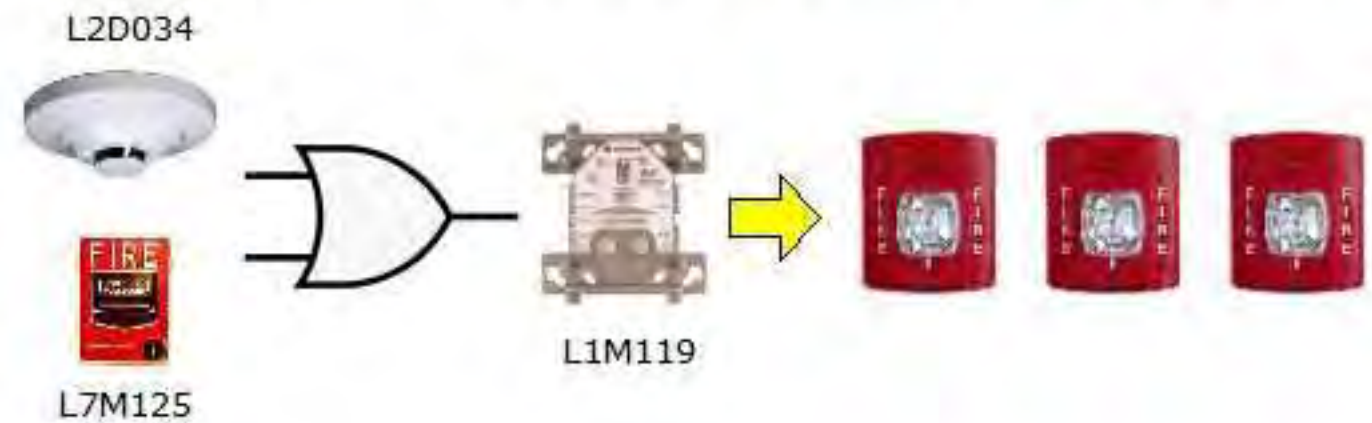
Programming Basics

Software Equations

Now the statement...

"If this **detector** is activated **OR** this **pull station** is activated, turn on these **strobes**"
...can be now revised to read:

"If **L2D034** is activated **OR** **L7M125** is activated, turn on **L1M119**"

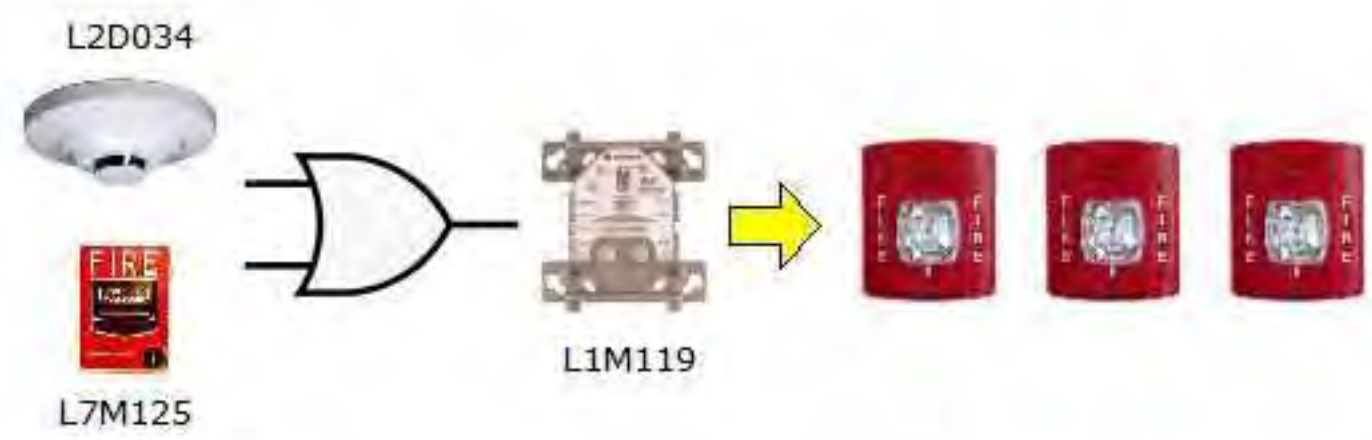


Programming Basics

Software Equations

Given that this equation defines control of the output module L1M119, we do not need to call out this module directly. The final syntax of a programming equation assigned to module L1M119 in a format that can be understood by an ONYX fire alarm panel is shown below:

OR(L2D034,L7M125)

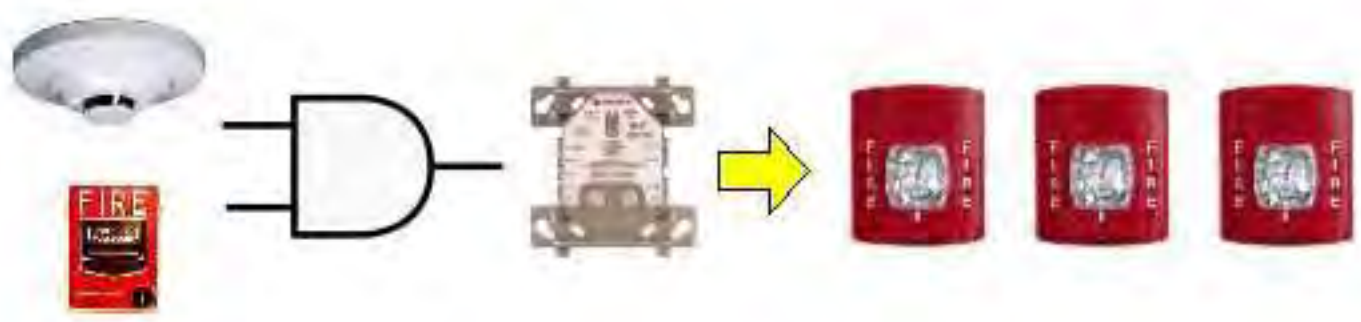


Programming Basics

Software Equations

Let's look at the language for the AND function.

"If this **detector AND** this **pull station** are activated, turn on these **strobes**"

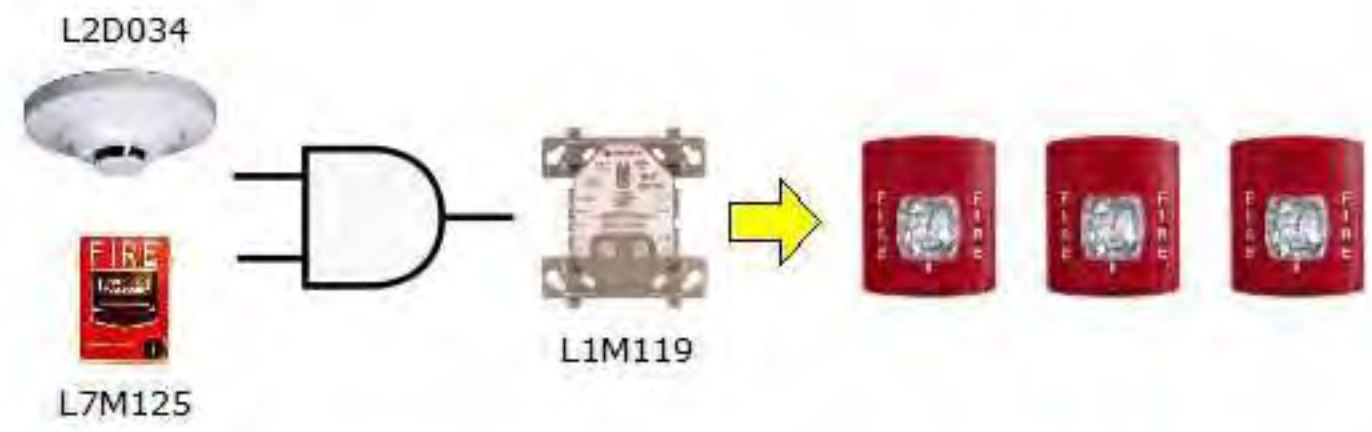


Programming Basics

Software Equations

Using the unique device addresses, the instruction becomes...

"If **L2D034** is activated **AND** **L7M125** is activated, turn on **L1M119**"

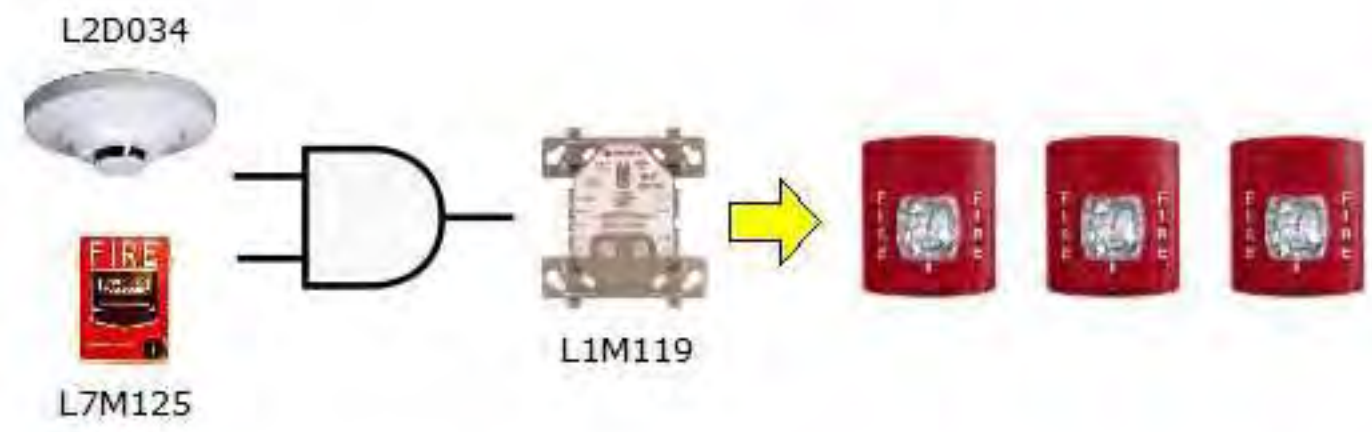


Programming Basics

Software Equations

Finally, defining the equation for the output module L1M119, the instruction becomes the following:

AND(L2D034,L7M125)



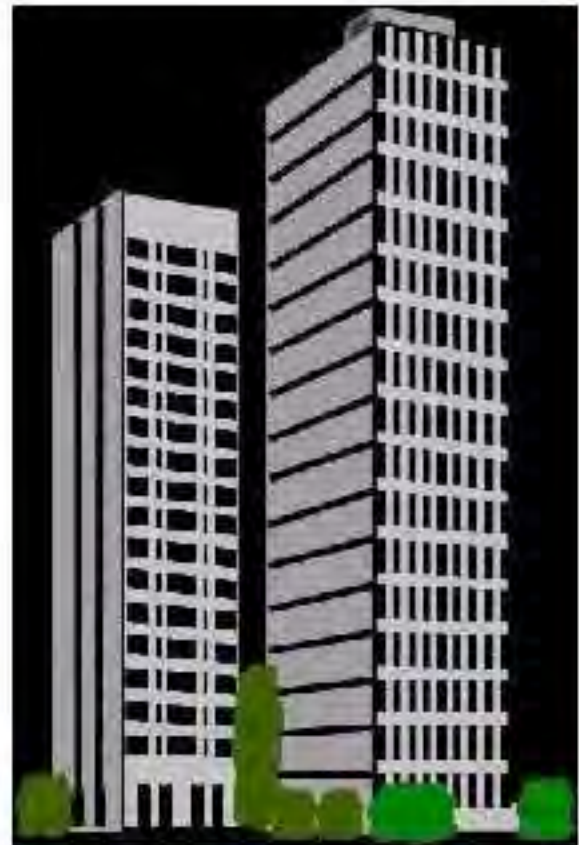
Programming Basics

Control-By-Event

This method of controlling outputs by the activation of specific inputs is referred to as **Control-By-Event**, or CBE.

Often there is more than one method to program the same application. Some approaches are conceptually simple but labor-intensive. Other approaches take some thought to develop but result in much more efficient programming.

Consider a [voice evacuation](#) application employing the requirement Floor-Above, Floor Below. Detectors on a given floor are required to activate the speaker circuits on the floor of alarm, as well as the floors above and below it. This is typically found in high rises where the immediate evacuation of occupants on dozens of floors would result in wide-spread panic and possibly unnecessary harm to the evacuees.



Programming Basics

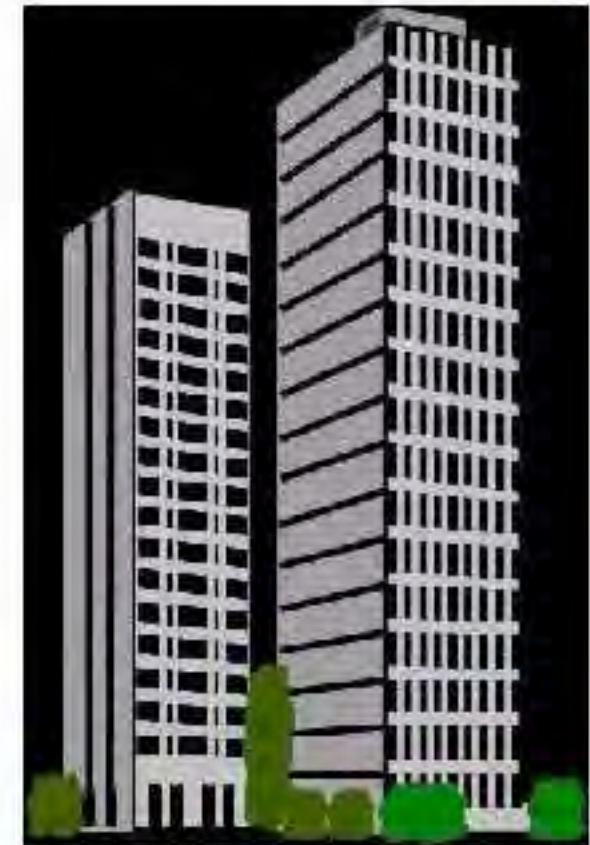
Control-By-Event

This method of controlling outputs by the activation of specific inputs is referred to as **Control-By-Event**, or CBE.

Often there is more than one method to program the same application. Some approaches are conceptually simple but labor-intensive. Other approaches take some thought to develop but result in much more efficient programming.

Consider a voice evacuation requirement Floor-Above, Floor floor are required to activate floor of alarm, as well as the it. This is typically found in h evacuation of occupants on d wide-spread panic and possib evacuees.

A system for emergency notification that uses speakers located throughout a facility to communicate specific instructions to building occupants during a fire emergency.



◀ BACK

NEXT ▶

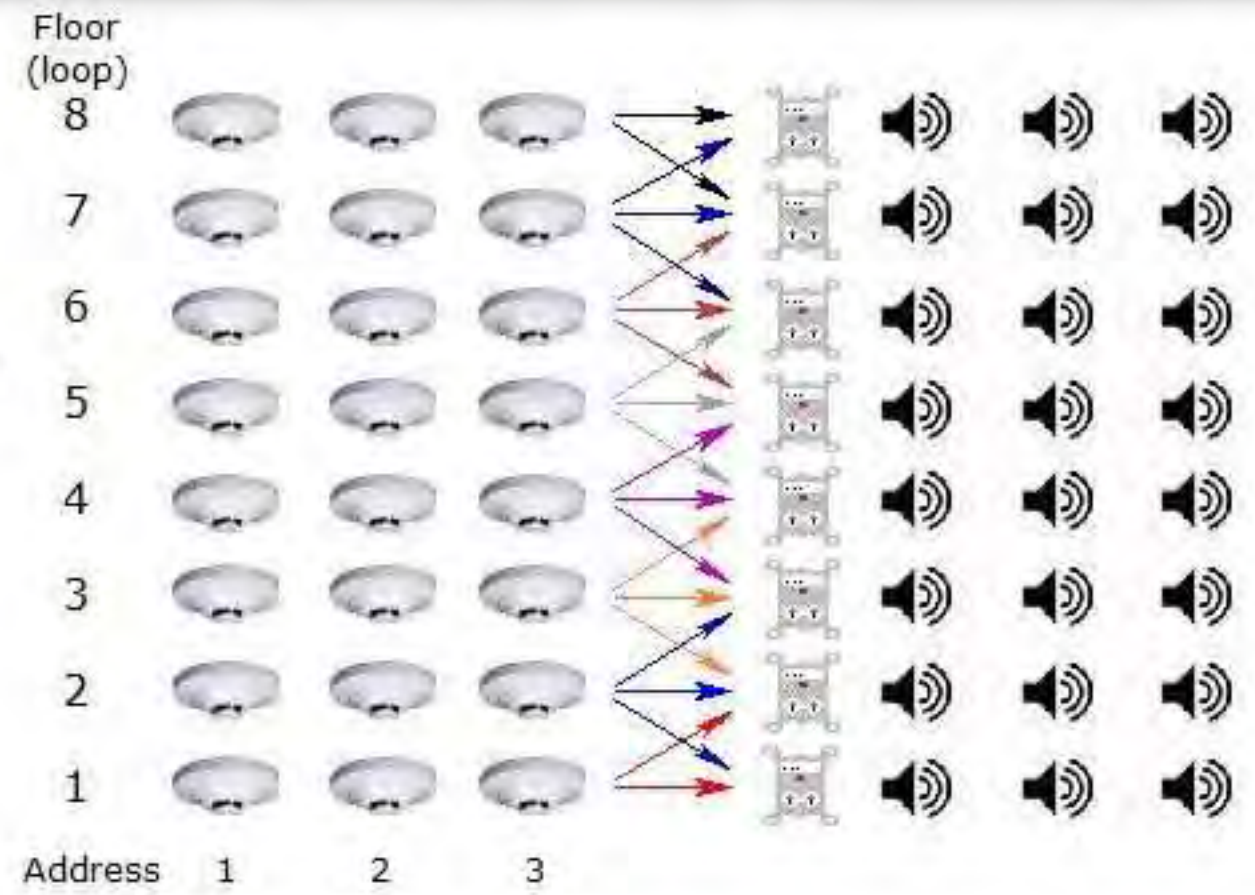
Programming Basics

Control-By-Event

Each of the detectors on a certain floor result in the activation of the control modules shown by the color-coded arrows.

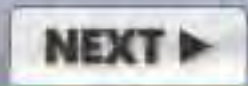
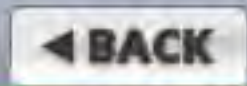
Click on any control module to see its Control-By-Event equation.

To simplify the example, each floor has been given its own SLC Loop.



CBE:

Click on any control module to view it's CBE



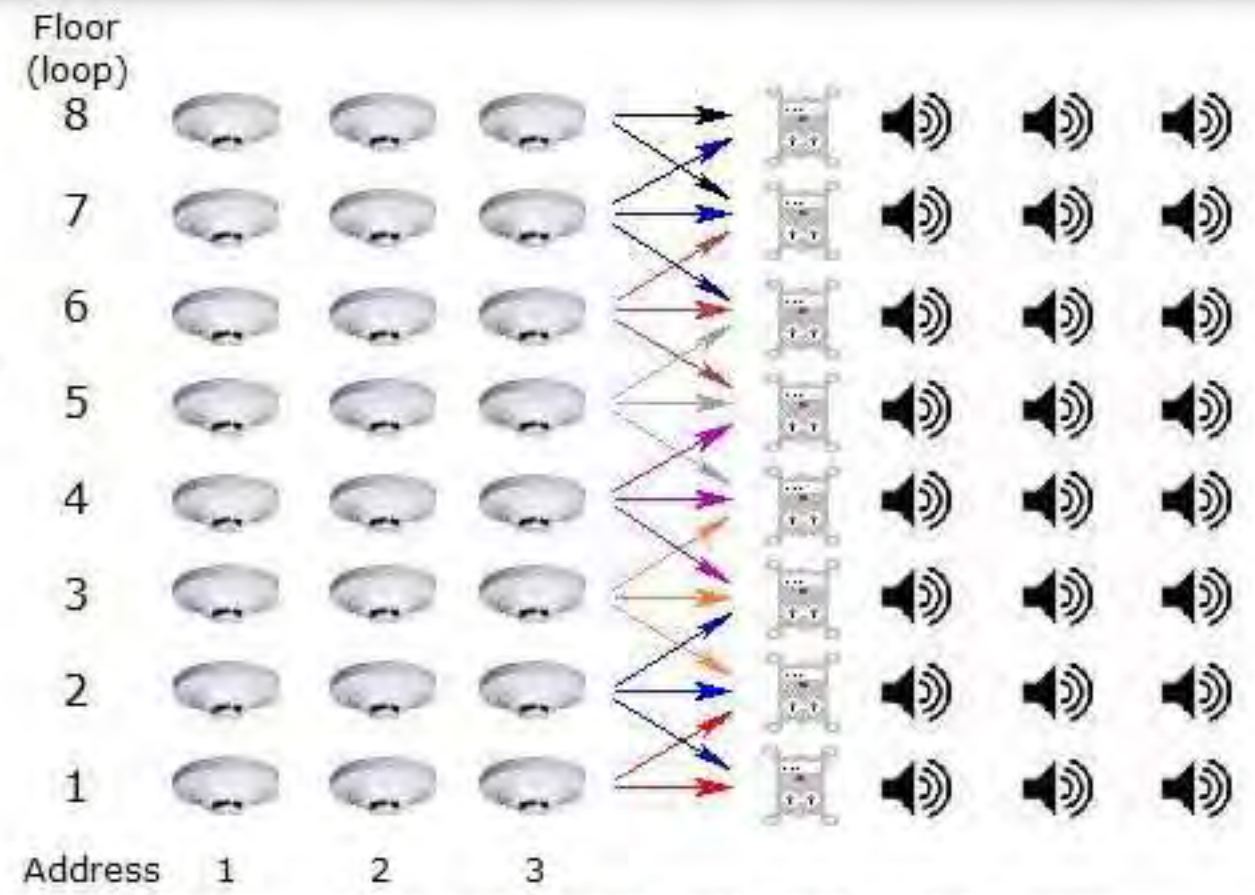
Programming Basics

Control-By-Event

Each of the detectors on a certain floor result in the activation of the control modules shown by the color-coded arrows.

Click on any control module to see its Control-By-Event equation.

To simplify the example, each floor has been given its own SLC Loop.



CBE:

Click on any control module to view it's CBE

◀ BACK NEXT ▶

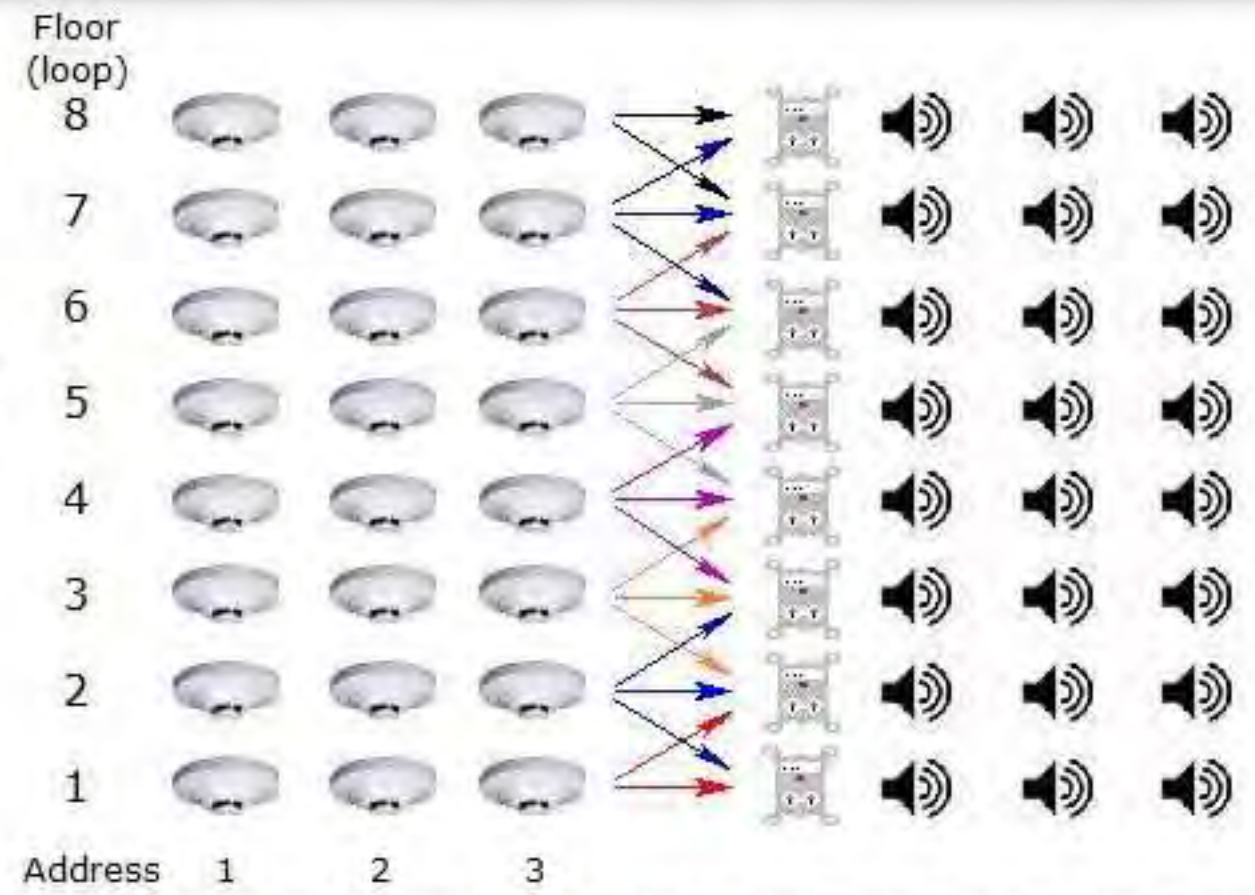
Programming Basics

Control-By-Event

Each of the detectors on a certain floor result in the activation of the control modules shown by the color-coded arrows.

Click on any control module to see its Control-By-Event equation.

To simplify the example, each floor has been given its own SLC Loop.



CBE:

Click on any control module to view it's CBE

◀ BACK NEXT ▶

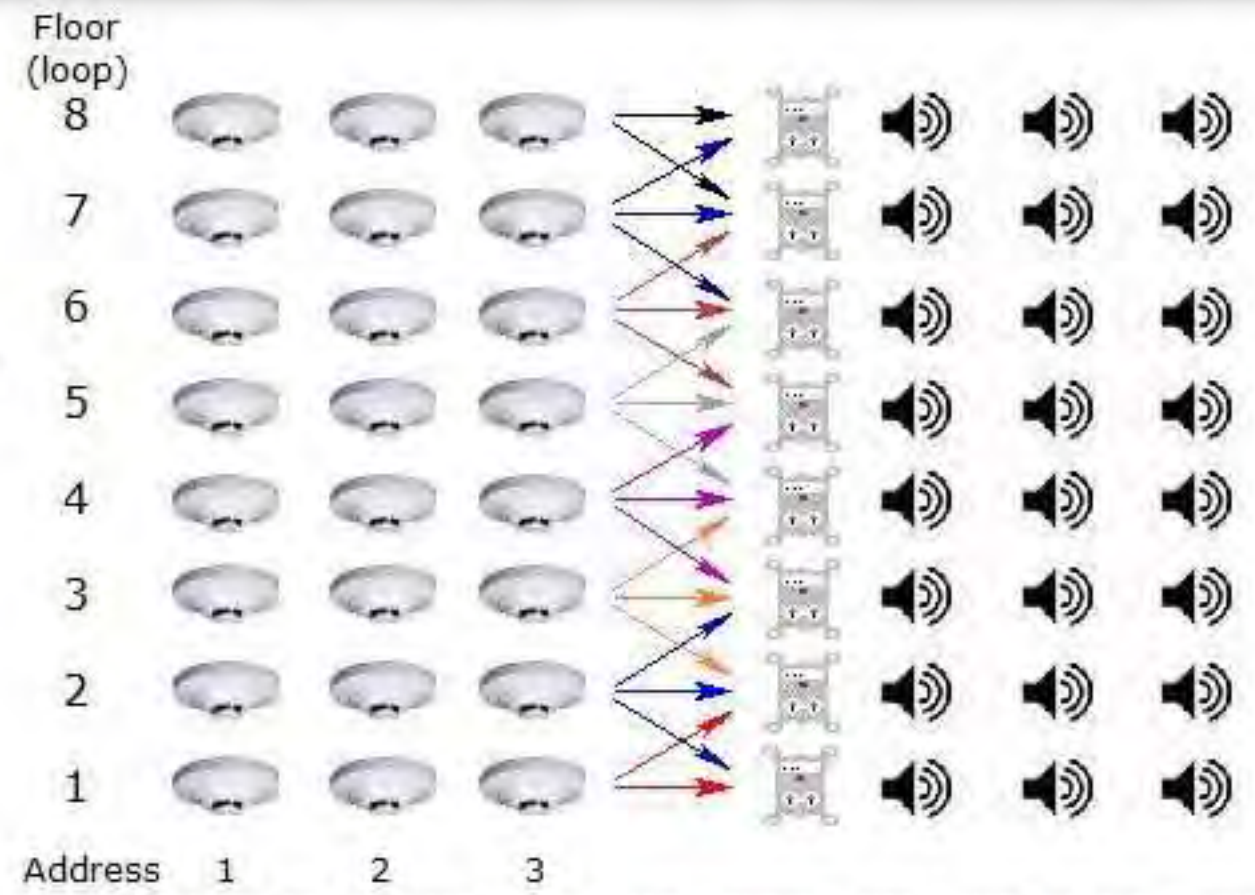
Programming Basics

Control-By-Event

Each of the detectors on a certain floor result in the activation of the control modules shown by the color-coded arrows.

Click on any control module to see its Control-By-Event equation.

To simplify the example, each floor has been given its own SLC Loop.



CBE:

Click on any control module to view it's CBE

◀ BACK **NEXT ▶**

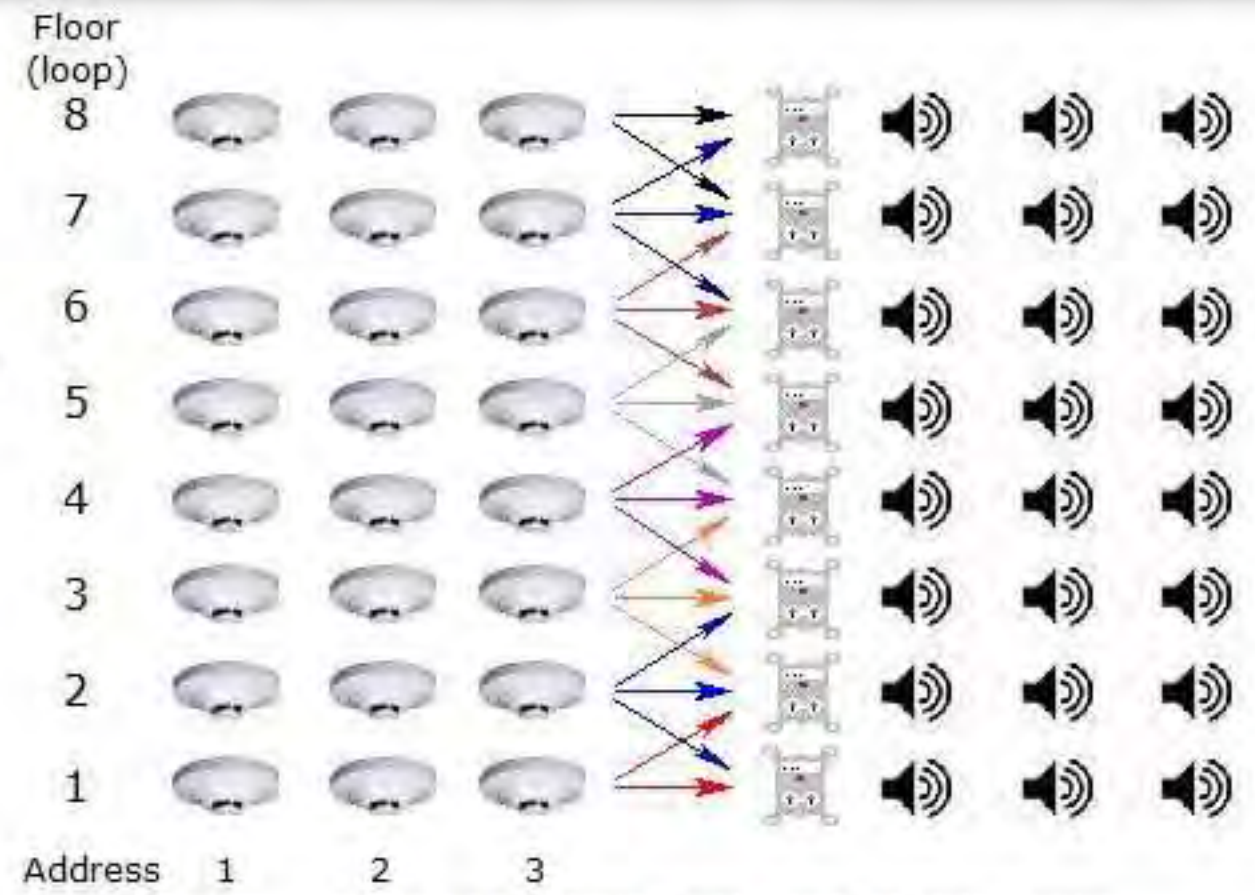
Programming Basics

Control-By-Event

Each of the detectors on a certain floor result in the activation of the control modules shown by the color-coded arrows.

Click on any control module to see its Control-By-Event equation.

To simplify the example, each floor has been given its own SLC Loop.



CBE:

Click on any control module to view it's CBE

◀ BACK NEXT ▶

Programming Basics

Control-By-Event

It is apparent from even this very small application that considerable programming is required using a simple List.

```
OR(L2D1,L2D2,L2D3,L3D1,L3D2,L3D3,L4D1,L4D2,L4D3)
```

In fact, there is a finite limit to the number of elements that can be in a CBE equation.

A CBE equation can hold a maximum number of characters, which includes Boolean Logic Functions, commas and parenthesis.

- NFS2-3033: 80 characters
- NFS-320 & NFS2-640: 73 characters

In contrast, the *Software Zone* can be used to accomplish the same programming objective but with much less effort.

Programming Basics

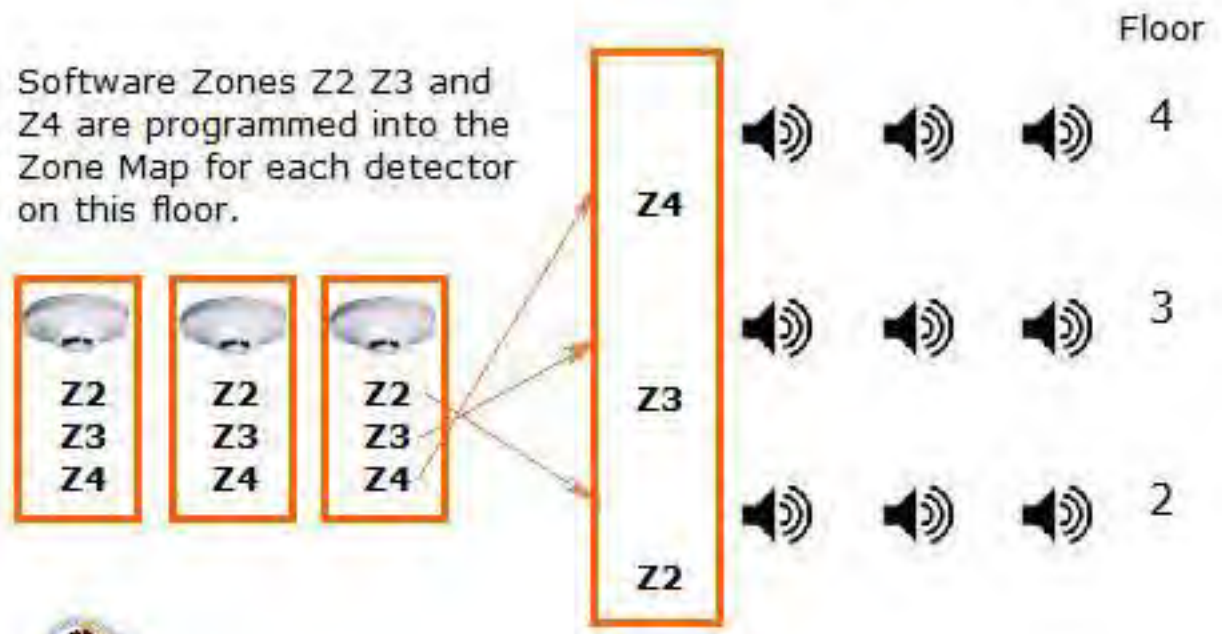
Control-By-Event

Using the same Floor-Above, Floor Below example, lets examine the programming necessary for the 3rd Floor.

Once programmed as shown here, each detector activates the Software Zones controlling the modules on the floor of alarm and the floors above and below it.

The approach is used to program the entire system saving valuable effort.

Each module is programmed with one Software Zone representing its floor.



Programming Basics

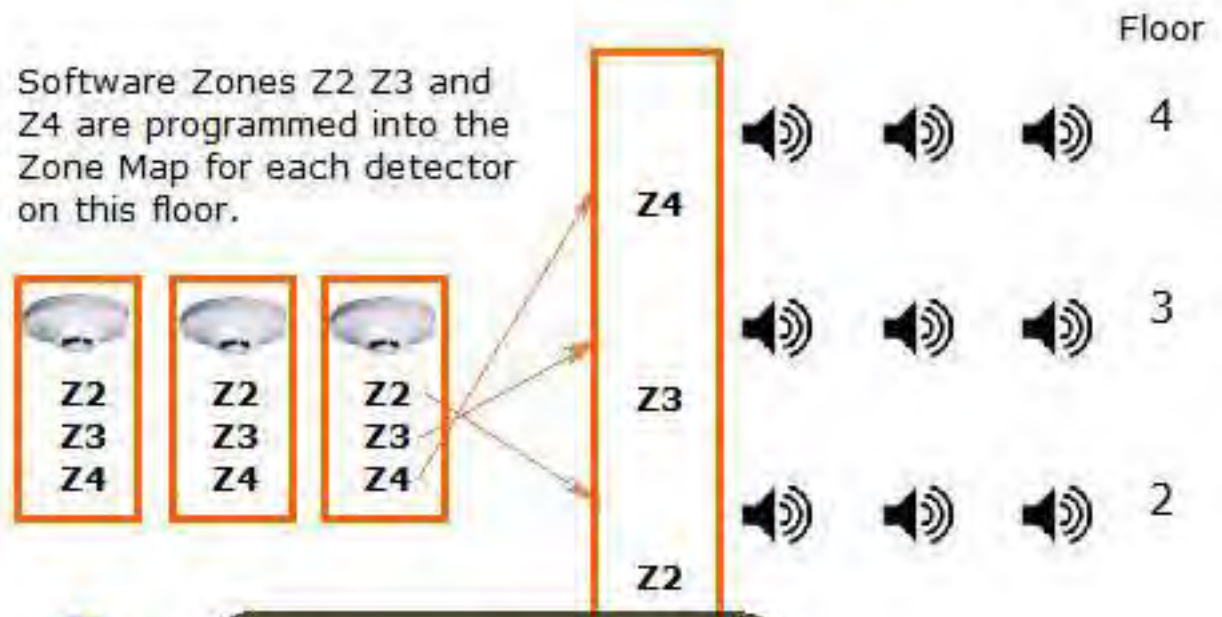
Control-By-Event

Using the same Floor-Above, Floor Below example, lets examine the programming necessary for the 3rd Floor.

Once programmed as shown here, each detector activates the Software Zones controlling the modules on the floor of alarm and the floors above and below it.

The approach is used to program the entire system saving valuable effort.

Each module is programmed with one Software Zone representing its floor.



In this example, no logic functions were used.

Programming Basics

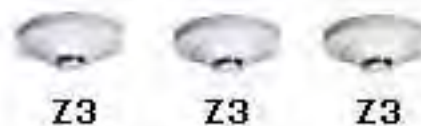
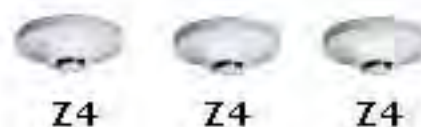
Control-By-Event

Page 31 of 55

In applications employing many more detectors and initiating devices than control modules or other output circuits, it would be even more efficient to use the programming approach demonstrated here.

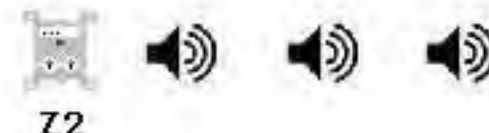
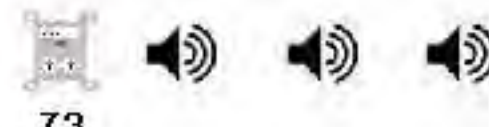
Each detector activates a single Software Zone. The control modules are linked to the activation of zones associated with the floor of alarm and the floors above and below it.

Click on any detector group to observe this Control-By-Event solution.



Each detector is programmed with a single Software Zone representing that floor.

RESET



Each control module is programmed with the zones for the floor of alarm and floors above and below.

◀ **BACK**

NEXT ▶

Programming Basics

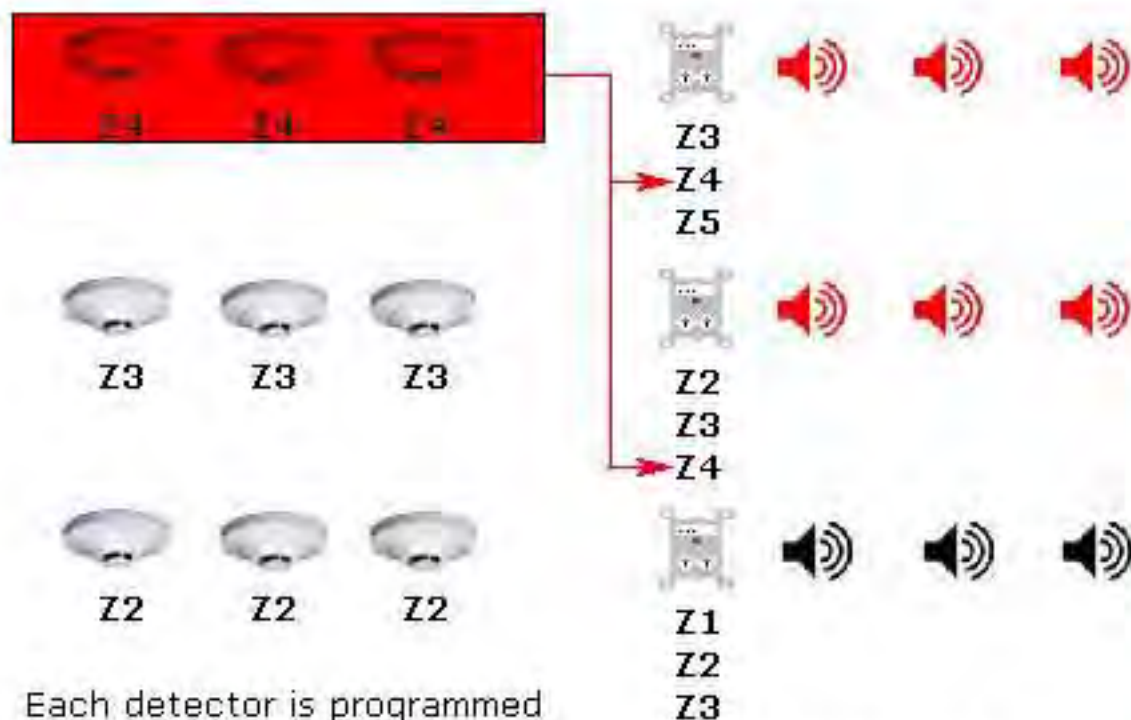
Control-By-Event

Page 31 of 55

In applications employing many more detectors and initiating devices than control modules or other output circuits, it would be even more efficient to use the programming approach demonstrated here.

Each detector activates a single Software Zone. The control modules are linked to the activation of zones associated with the floor of alarm and the floors above and below it.

Click on any detector group to observe this Control-By-Event solution.



Each detector is programmed with a single Software Zone representing that floor.

RESET

Each control module is programmed with the zones for the floor of alarm and floors above and below.

◀ **BACK**

NEXT ▶

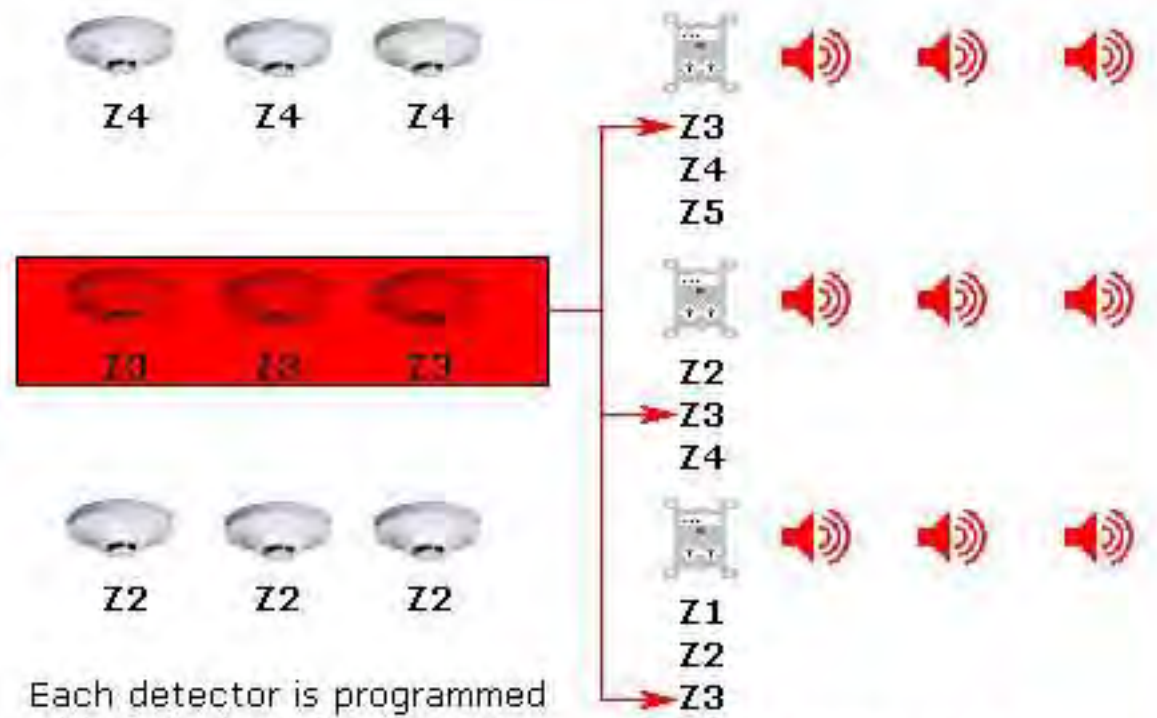
Programming Basics

Control-By-Event

In applications employing many more detectors and initiating devices than control modules or other output circuits, it would be even more efficient to use the programming approach demonstrated here.

Each detector activates a single Software Zone. The control modules are linked to the activation of zones associated with the floor of alarm and the floors above and below it.

Click on any detector group to observe this Control-By-Event solution.



Each detector is programmed with a single Software Zone representing that floor.

Each control module is programmed with the zones for the floor of alarm and floors above and below.

RESET

◀ **BACK**

NEXT ▶

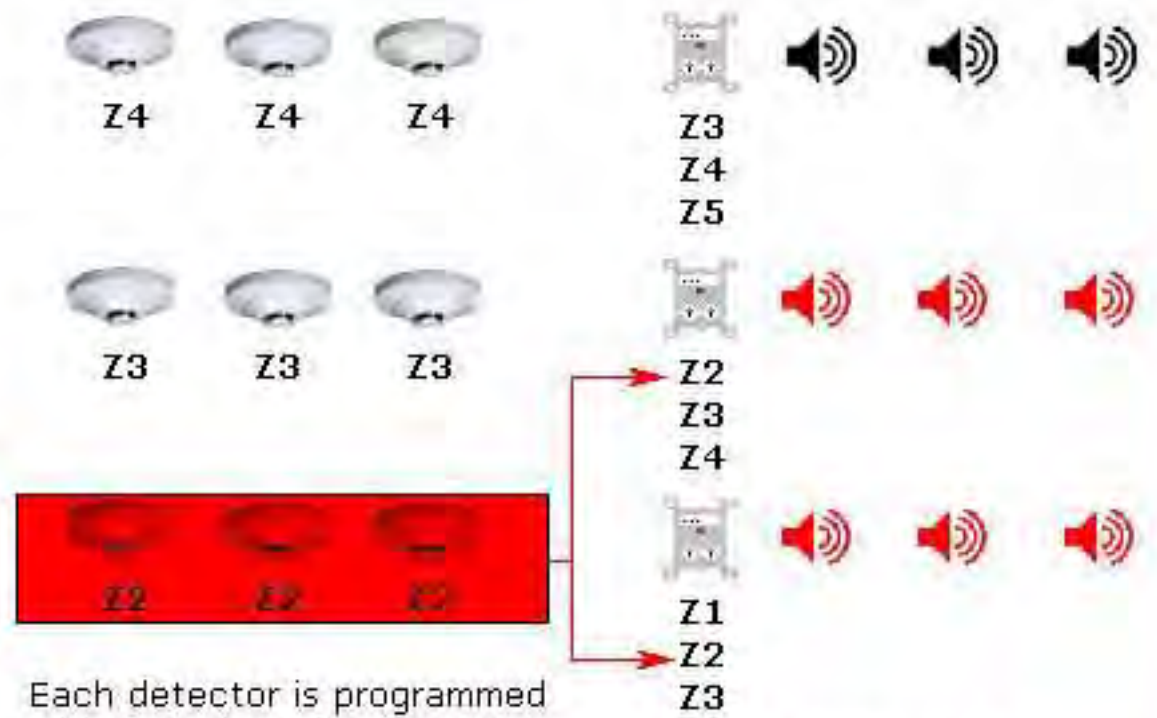
Programming Basics

Control-By-Event

In applications employing many more detectors and initiating devices than control modules or other output circuits, it would be even more efficient to use the programming approach demonstrated here.

Each detector activates a single Software Zone. The control modules are linked to the activation of zones associated with the floor of alarm and the floors above and below it.

Click on any detector group to observe this Control-By-Event solution.



Each detector is programmed with a single Software Zone representing that floor,

Each control module is programmed with the zones for the floor of alarm and floors above and below.

RESET

◀ BACK

NEXT ▶

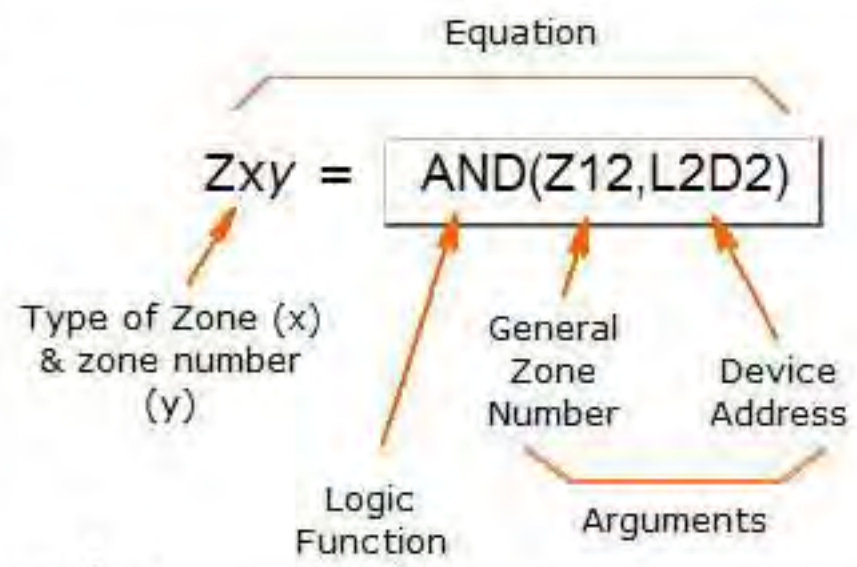
Programming Basics

Logic Zones

ONYX systems can take advantage of five different software zone types. The previous examples used "General Zones," which are used to directly link input and output devices.

General Zones can be used as an arguments in logic equations, implemented using *Logic Zones*, which employ the Boolean logic functions.

In addition to General and Logic Zones, ONYX systems offer *Trouble Zones* (NFS2-3030 only), *Releasing Zones* and *Special Zones*.



The arguments of an equation can be thought of as variables or inputs.

◀ BACK

NEXT ▶

Programming Basics

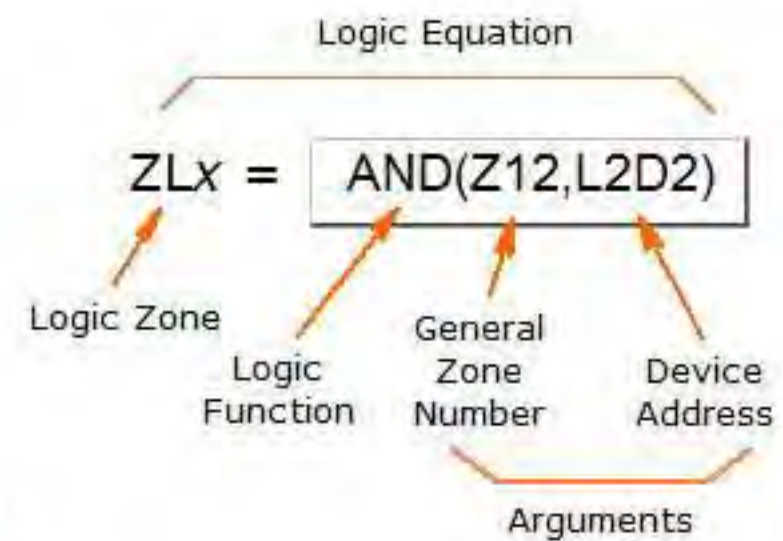
Logic Zones

Logic Zones are defined by a *Logic Equation*, which is any Control-By-Event equation that employs a logic function (AND, OR, etc).

Whenever the logic equation becomes TRUE, all output points mapped to that logic zone will activate. The Logic Zone can then be programmed into the Zone Map for each device it is intended to control.

The **NFS-320 & NFS2-640** have the capability of 20 Logic Zones, numbered ZL1-ZL20 (in Verifire Tools). [Important Note](#)

The **NFS2-3030** has the capability of 1000 Logic Zones, numbered ZL1 - Z1000.



Note that the right-hand side of a Logic Equation always begins with a Logic Function

◀ BACK

NEXT ▶

Programming Basics

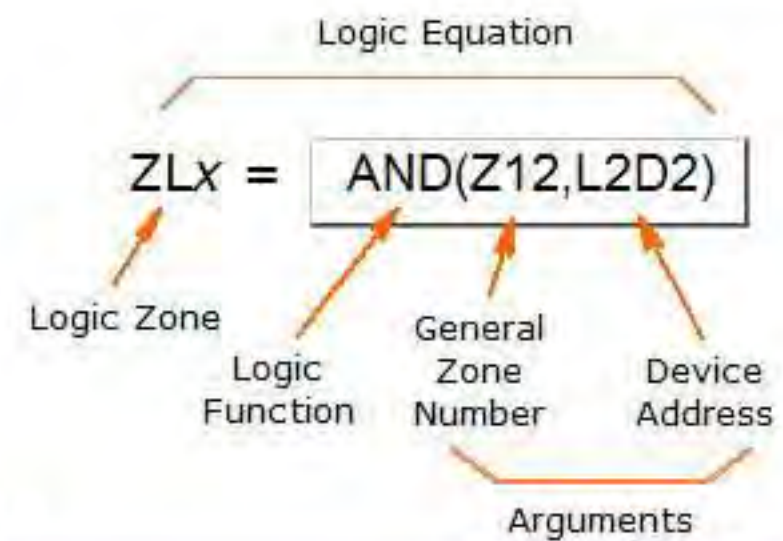
Logic Zones

Logic Zones are defined by a *Logic Equation*, which is any Control-By-Event equation that employs a logic function (AND, OR, etc).

Whenever the logic equation becomes TRUE, all output points mapped to that logic zone will activate. The Logic Zone can then be programmed into the Zone Map for each device it is intended to control.

The **NFS-320 & NFS2-640** have the capability of 20 Logic Zones, numbered ZL1-ZL20 (in Verifire Tools). [Important Note](#)

The **NFS2-3030** has the capability of 1000 Logic Zones, numbered ZL1 - Z1000.



Due to space limitations in the KDM-R2 80-character display, the display shows "E0" to "E9" for logic zones 1-10 and "L0" to "L9" for logic zones 11-20.

◀ BACK

NEXT ▶

Programming Basics

Logic Zones

Once this logic zone has been added to the Zone Map for an output device, we have a Control-By-Event solution.

In the equation below, activation of both the General Zone (Z12) and the detector (L2D2) will result in the activation of output module to which ZL10 would be mapped.

$$ZL10 = \text{AND}(Z12, L2D2)$$

PROGRAM	STROBE	INT	MODULE	ADDR	1M003
91	E9				*F* 1M000



If you don't know what E9 means, go back one page and see the [Important Note](#).

- NFS2-3030 Zone Map
- NFS-320/NFS2-640 Zone Map

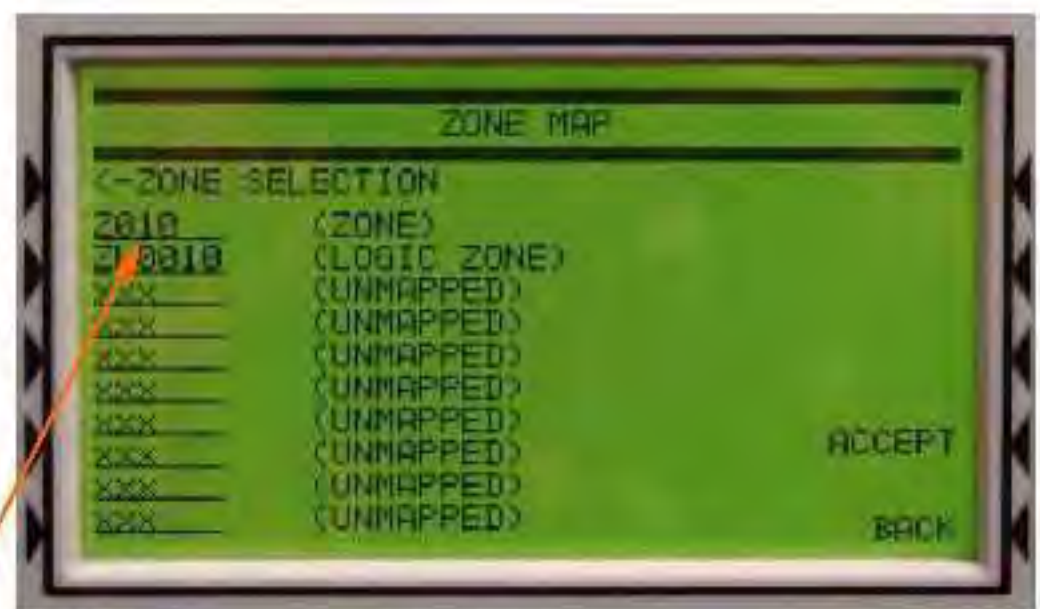
Programming Basics

Logic Zones

Once this logic zone has been added to the Zone Map for an output device, we have a Control-By-Event solution.

In the equation below, activation of both the General Zone (Z12) and the detector (L2D2) will result in the activation of output module to which ZL10 would be mapped.

$$ZL10 = \text{AND}(Z12, L2D2)$$



- NFS2-3030 Zone Map
- NFS-320/NFS2-640 Zone Map

Programming Basics

Trouble Zones

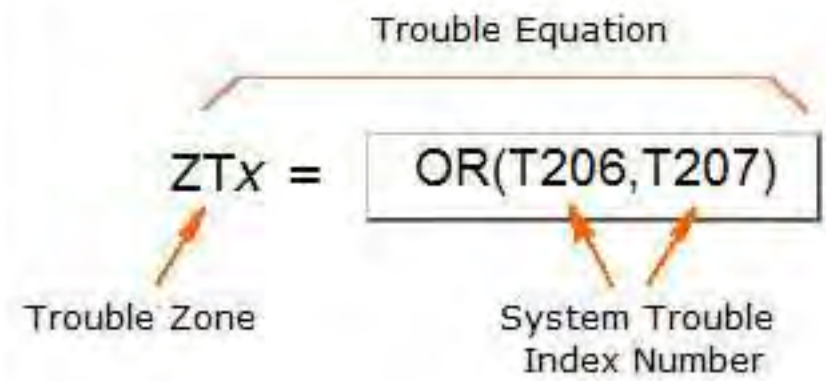
As with Logic Zones, a **Trouble Zone** is defined by an equation with logic, but it is referred to as a *Trouble Equation*.


Whenever the trouble equation becomes TRUE, all output points mapped to that trouble zone will activate.

The Trouble Zone is programmed into the Zone Map for each *output* device it is intended to control.

The **NFS-320 & NFS2-640** do not have Trouble Zone capability.

The **NFS2-3030** has the capability of 100 Trouble Zones, numbered ZT1 - ZT100.



What are Trouble Zones used for 

◀ BACK

NEXT ▶

Programming Basics

Reading Assignment



The *NFS2-3030 Programming Manual* contains the appendix *System Troubles*.

This section contains a listing of the troubles codes for all trouble events in the system as well as a description of each trouble type.

Take a few moments and review this appendix before continuing.

System Trouble Index	System Trouble Name	System Trouble Index
0	GROUND FAULT	62
1	AC FAIL	63
2	BATTERY	64
3	STYLE 6 POS LOOP 1	65
4	STYLE 6 POS LOOP 2	66
5	CORRUPT LOGIC EQUAT	67
6	RESERVED	68
7	EPROM ERROR	69
8	INTERNAL RAM ERROR	70
9	EXTERNAL RAM ERROR	71
10	PROGRAM CORRUPTED	72
11	NO DEV INST ON L1	73
12	PANEL DOOR OPEN	74
13	AUXILIARY TROUBLE	75
14	RESERVED	76
15	ANNUN 1 TROUBLE	77

[◀ BACK](#)[NEXT ▶](#)

Programming Basics

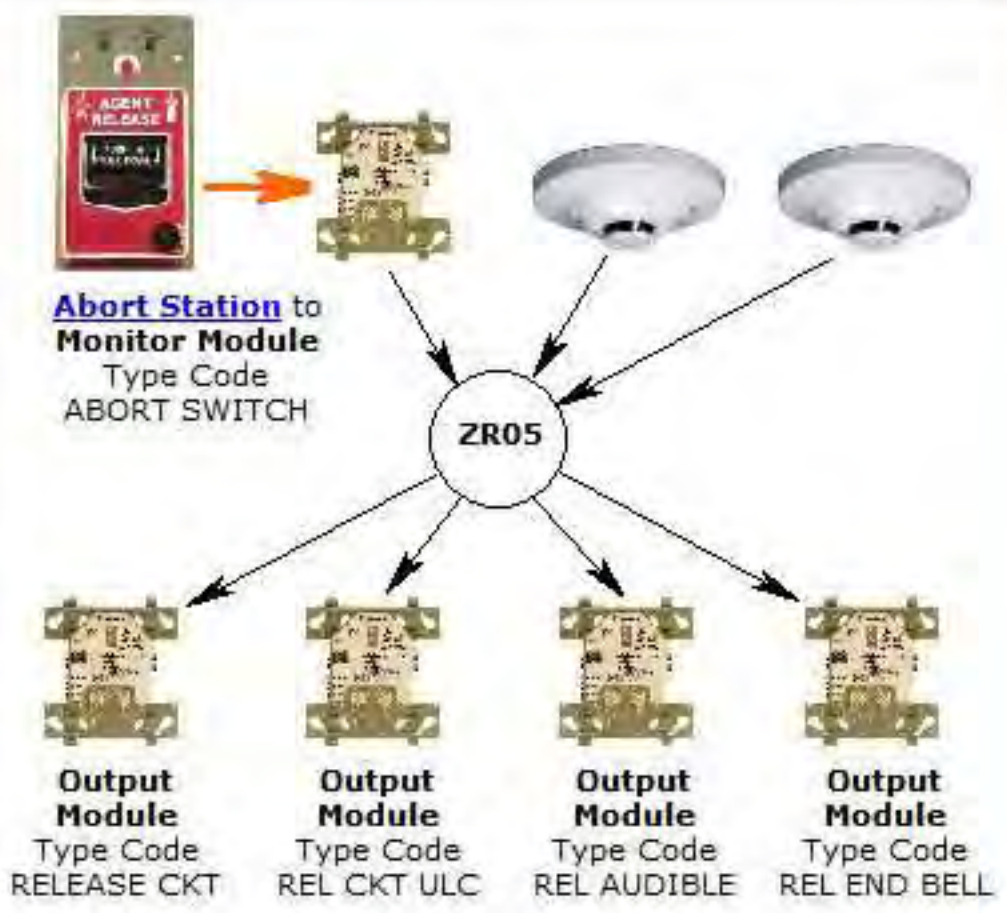
Releasing Zones

Releasing Zones are used to control releasing operations.

Releasing operations can get very detailed. This section will introduce the fundamentals of programming releasing operations. Additional instruction on releasing service will be provided during the resident phase of the ONYX University.

The NFS-320 and NFS2-640 have 10 Releasing Zones, numbered R0-R9.

The NFS2-3030 has 10 Releasing Zones, numbered ZR0 - ZR9.



Programming Basics

Releasing Zones

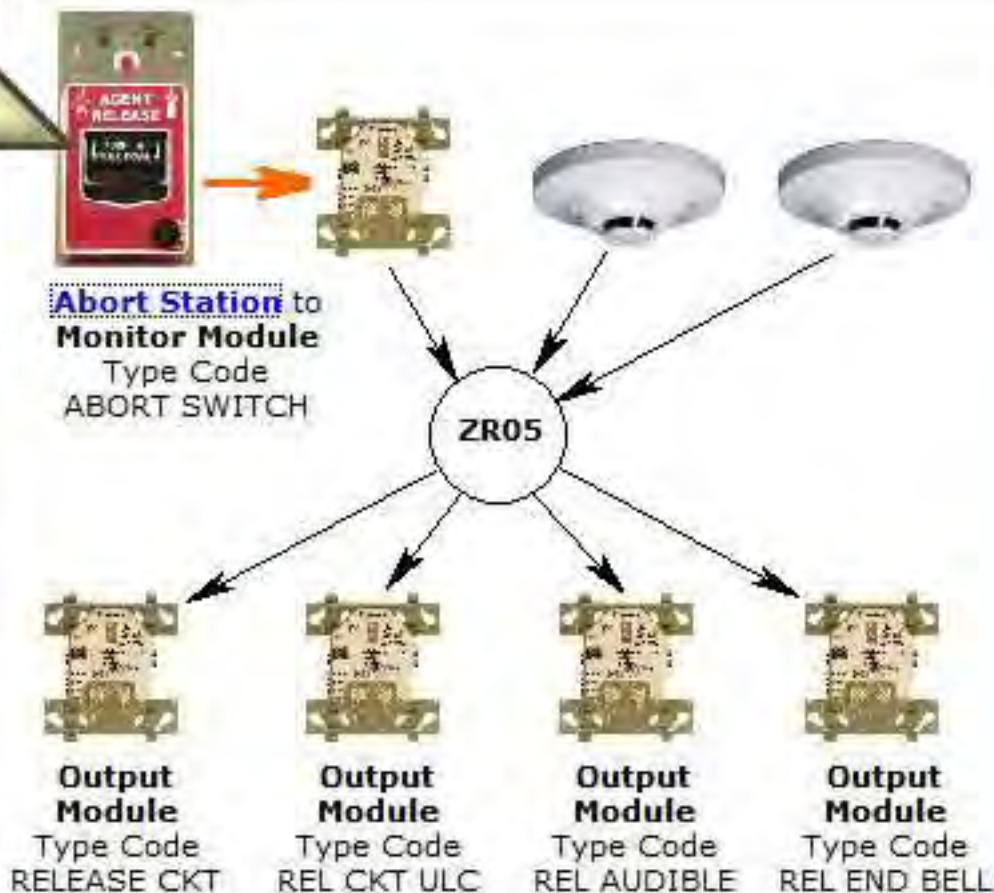
Releasing Zones

releasing operation is detailed. This section covers the fundamentals of releasing operations. Additional instruction on releasing service will be provided during the resident phase of the ONYX University.

The NFS-320 and NFS2-640 have 10 Releasing Zones, numbered R0-R9.

The NFS2-3030 has 10 Releasing Zones, numbered ZR0 - ZR9.

An abort station includes a manual agent release mechanism to alarm the station, an abort switch to hold off release, a System Normal LED and a System Activated LED.



Programming Basics

Releasing Zones

Page 38 of 55

ONYX control panels can be used to perform two types of releasing functions - **Agent Release** and **PreAction/Deluge** control.

Agent Release

The process of controlling the release of agents designed to suppress, extinguish and/or prevent the reignition of fires. The agents include Carbon Dioxide (CO₂), halon, halon replacements, foam, dry chemical mixtures and wet chemical solutions. Specific agents are used to combat specific types of fire threats.



PreAction

An automatic sprinkler system similar to a dry-pipe system, but air pressure may or may not be used. The main sprinkler system control valve is opened by a Fire Alarm Control Panel, which allows water to flow to individual sprinkler heads. Only the sprinkler heads exposed to the heat of the fire will open and begin sprinkling the fire. This type of system is generally used in areas where piping systems are subject to mechanical damage and where it is important to prevent accidental discharge of water.

◀ BACK

NEXT ▶

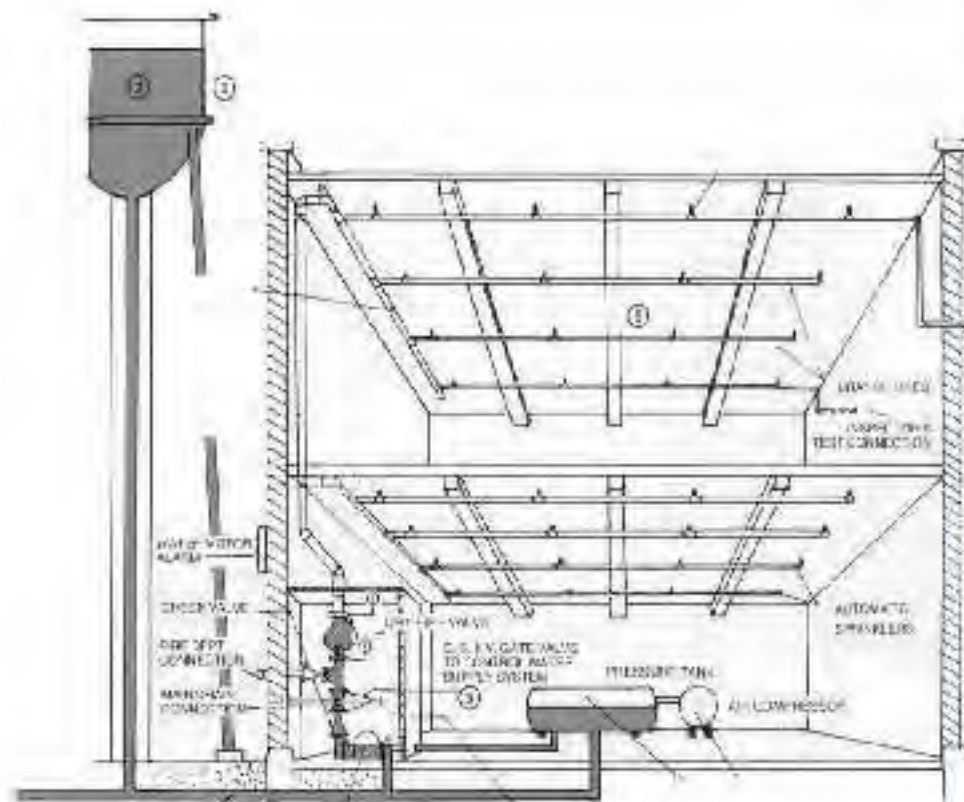
Programming Basics

Releasing Zones

Page 39 of 55

Deluge Control

An automatic sprinkler system where all the sprinkler heads are open and the water is held back at a main (deluge) valve. When the valve is triggered, water is discharged from all the sprinkler heads simultaneously. The triggering device is usually a heat or smoke detector



◀ BACK

NEXT ▶

Programming Basics

Releasing Zones

DELAY TIME: The time that elapses between activation of an initiating device and the activation of all outputs mapped through the Releasing Zone. The Delay Time can be a value from 0 (immediate) to 60 seconds of delay.

ABORT SWITCH: This type code setting (ULI, IRI, NYC or AHJ) defines the specific operation of an abort switch connected to a monitor module.

CROSS ZONE: This setting ([NFS2-3030: YES, ZONE, HEAT or NO; NFS-320 & NFS2-640: Y,Z,H or N](#)) defines the activation of initiating devices mapped to the software zone.

SOAK TIME: This setting (0 - 9999 seconds) defines the length of time to dump releasing agents upon activation of a releasing zone. If set to 0, the releasing solenoids will remain active until the system is reset.

NFS-320/NFS2-640

NFS2-3030



A releasing operation is programmed by setting each of the four parameters in one of the 10 releasing zones followed by mapping that releasing zone to the appropriate inputs and outputs.

◀ BACK

NEXT ▶

Programming Basics

Releasing Zones

Page 40 of 55

DELAY TIME: The time that elapses between activation of an initiating device and the activation of all outputs mapped through the Releasing Zone. The Delay Time can be a value from 0 (immediate) to 60 seconds of delay.

ABORT SWITCH: This type code setting (ULI, IRI, NYC or AHJ) defines the specific operation of an abort switch connected to a monitor module.

CROSS ZONE: This setting (NFS2-3030: YES, ZONE, HEAT or NO; NFS-320 & NFS2-640: Y,Z,H or N) defines the activation of initiating devices mapped to the software zone.

SOAK TIME: This setting (0 - 9999 seconds) defines the length of time to dump releasing agents upon activation of a releasing zone. If set to 0, the releasing solenoids will remain active until the system is reset.

 NFS-320/NFS2-640 NFS2-3030

Y, YES - Release requires the alarming of two or more detectors mapped to a certain *releasing* zone.

Z, ZONE - Release requires the alarming of two or more detectors that are mapped to a certain *releasing* zone and also mapped to different *software* zones.

H, HEAT - Release requires the alarming of at least one smoke detector and one heat detector mapped to the same releasing zone.

N, NO - The Cross-Zone feature is not selected. Release will occur from the alarming of one or more detectors mapped to a certain release zone.

appropriate inputs and outputs.

[◀ BACK](#)[NEXT ▶](#)

Programming Basics

Releasing Zones

Page 40 of 55

DELAY TIME: The time that elapses between activation of an initiating device and the activation of all outputs mapped through the Releasing Zone. The Delay Time can be a value from 0 (immediate) to 60 seconds of delay.

ABORT SWITCH: This type code setting (ULI, IRI, NYC or AHJ) defines the specific operation of an abort switch connected to a monitor module.

CROSS ZONE: This setting (NFS2-3030: YES, ZONE, HEAT or NO; NFS-320 & NFS2-640: Y,Z,H or N) defines the activation of initiating devices mapped to the software zone.

SOAK TIME: This setting (0 - 9999 seconds) defines the length of time to dump releasing agents upon activation of a releasing zone. If set to 0, the releasing solenoids will remain active until the system is reset.

 NFS-320/NFS2-640 NFS2-3030

Y, YES - Release requires the alarming of two or more detectors mapped to a certain *releasing* zone.

Z, ZONE - Release requires the alarming of two or more detectors that are mapped to a certain *releasing* zone and also mapped to different *software* zones.

H, HEAT - Release requires the alarming of at least one smoke detector and one heat detector mapped to the same releasing zone.

N, NO - The Cross-Zone feature is not selected. Release will occur from the alarming of one or more detectors mapped to a certain release zone.

appropriate inputs and outputs.

[◀ BACK](#)[NEXT ▶](#)

Programming Basics

Releasing Zones

Page 40 of 55

DELAY TIME: The time that elapses between activation of an initiating device and the activation of all outputs mapped through the Releasing Zone. The Delay Time can be a value from 0 (immediate) to 60 seconds of delay.

ABORT SWITCH: This type code setting (ULI, IRI, NYC or AHJ) defines the specific operation of an abort switch connected to a monitor module.

CROSS ZONE: This setting ([NFS2-3030: YES, ZONE, HEAT or NO; NFS-320 & NFS2-640: Y,Z,H or N](#)) defines the activation of initiating devices mapped to the software zone.

SOAK TIME: This setting (0 - 9999 seconds) defines the length of time to dump releasing agents upon activation of a releasing zone. If set to 0, the releasing solenoids will remain active until the system is reset.

 NFS-320/NFS2-640 NFS2-3030

```
FG RELEASE FUNCT  RELEASE CONTROL
DELAY=20  ABORT=ULI  CROSS=Y  SOAK=0000  F33
```

A releasing operation is programmed by setting each of the four parameters in one of the 10 releasing zones followed by mapping that releasing zone to the appropriate inputs and outputs.

[◀ BACK](#)[NEXT ▶](#)

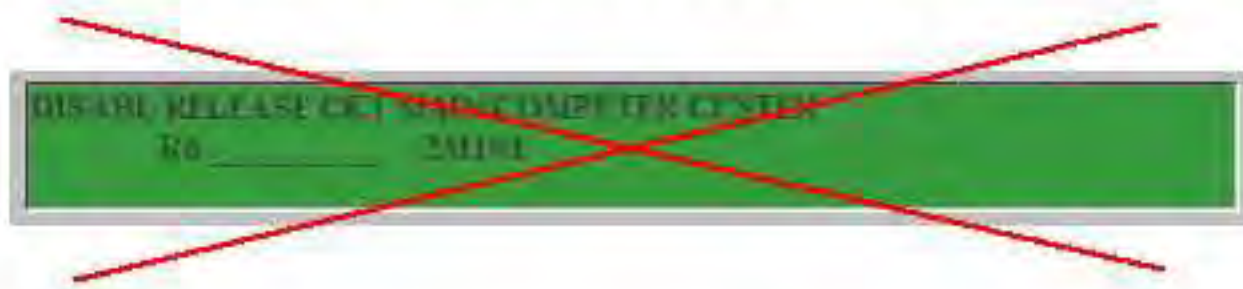
Programming Basics

Releasing Zones



Safety is of utmost importance when working with Releasing Zones. When used for CO2 releasing applications, observe proper precautions as stated in NFPA 12. Do not enter the protected space unless a physical lockout and other safety precautions are employed.

Do not use software disable functions in the control panel as a lockout.



NFS-320 & NFS2-640: Do not enable the BACKUP option switch for any of the four Notification Appliance Circuits if they are used for releasing functions.

◀ BACK

NEXT ▶

Programming Basics

Evaluating Equations



There are finite limits to the size of equations in the programming of ONYX systems.

For the NFS-320 & NFS2-640 the limitation is 73 characters, including parenthesis & commas. For the NFS2-3030, the limitation is 80 characters, also including parenthesis & commas.

All have the limitation of 20 arguments with 10 functions (or only one time delay function).

How many characters are contained in the equation below? Enter your answer in the box below and press the ENTER key on your keyboard.

◀ BACK

NEXT ▶

Programming Basics

Evaluating Equations

For the ONYX programmer who will work with complex equations, an essential skill is the ability to properly evaluate an equation. The order in which the equation's argument are evaluated is essential. Begin by evaluating arguments associated with the innermost sets of brackets and work outward from there. Click GO! to start.

GO!

OR(L1M39,AND(L2D6,NOT(L2M4),ANYX(2,L4D1,L4D2,L4D3)))

RESET!

◀ BACK

NEXT ▶

Programming Basics

Evaluating Equations

For the ONYX programmer who will work with complex equations, an essential skill is the ability to properly evaluate an equation. The order in which the equation's argument are evaluated is essential. Begin by evaluating arguments associated with the innermost sets of brackets and work outward from there. Click GO! to start.

GO!

OR(L1M39,AND(L2D6,NOT(L2M4,ANYX(2,L4D1,L4D2,L4D3)))

RESET!



◀ BACK

NEXT ▶

Programming Basics

Evaluating Equations

For the ONYX programmer who will work with complex equations, an essential skill is the ability to properly evaluate an equation. The order in which the equation's argument are evaluated is essential. Begin by evaluating arguments associated with the innermost sets of brackets and work outward from there. Click GO! to start.

GO! OR (L1M39 AND (L2D6 NOT (L2M4 ANYX(2 (L4D1 L4D2 L4D3))) RESET!

10 9 8 7 2 1 6 3 4 5

IP Communicator - Notifier for Recertification

Learning Activity Details

Description:

This self-paced module of study reviews the capabilities, features, components and operation of the IP Communicator, a product that enables reporting and monitoring of fire alarm systems over the internet.



IP Communicator

This self-paced module of study reviews the capabilities, features, components and operation of internet communications with the IP Communicator.

NEXT ►

Onyx Systems - IP Communicator

Introduction

Page 2 of 26

The IP Communicator module allows ONYX systems to use a customer's existing IP network (LAN, WAN) and/or existing internet connection (cable, DSL,...) as a communication path to transmit alarms.

System Features

- Eliminates the cost of dedicated phone lines.
- Increased supervision from once-a-day test signal to every 30-90 seconds.



- Requires no change to the existing panel configuration - connects directly to the panel's primary and secondary dialer outputs.
- Works over any type of customer-provided Ethernet 10/100 Base-T network connection (LAN, WAN, DSL Modem, Cable Modem).
- Supports both Dynamic (DHCP) or Static IP Addressing.
- Less than 10 second alarm transmission time.
- Auto-register feature allows the IP Communicator to be pre-configured in advance of installation at job site.

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Introduction

Page 3 of 26

- The IP Communicator can connect to both the Primary & Secondary output of a fire panel's DACT.
- Optionally, the Secondary DACT output can be connected to a phone line if local code requires.
- Communicates [Contact ID](#) information to compatible TELDAT Corp. receiver via the internet.
- Connection can be supervised every 30 - 90 seconds.

IPDACT-2UD

VisorALARM Plus
Receiver

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Introduction

Page 3 of 26

- The IP Communicator can connect to both the Primary & Secondary output of a fire panel's DACT.
- Optionally, the Secondary DACT output can be connected to a phone line if local code requires.
- Communicates [Contact ID](#) information to compatible TELDAT Corp. receiver via the internet.
- Connection can be supervised

This is the ONLY format the IP Communicator supports.

IPDACT-2UD



VisorALARM Plus Receiver



◀ BACK

NEXT ▶

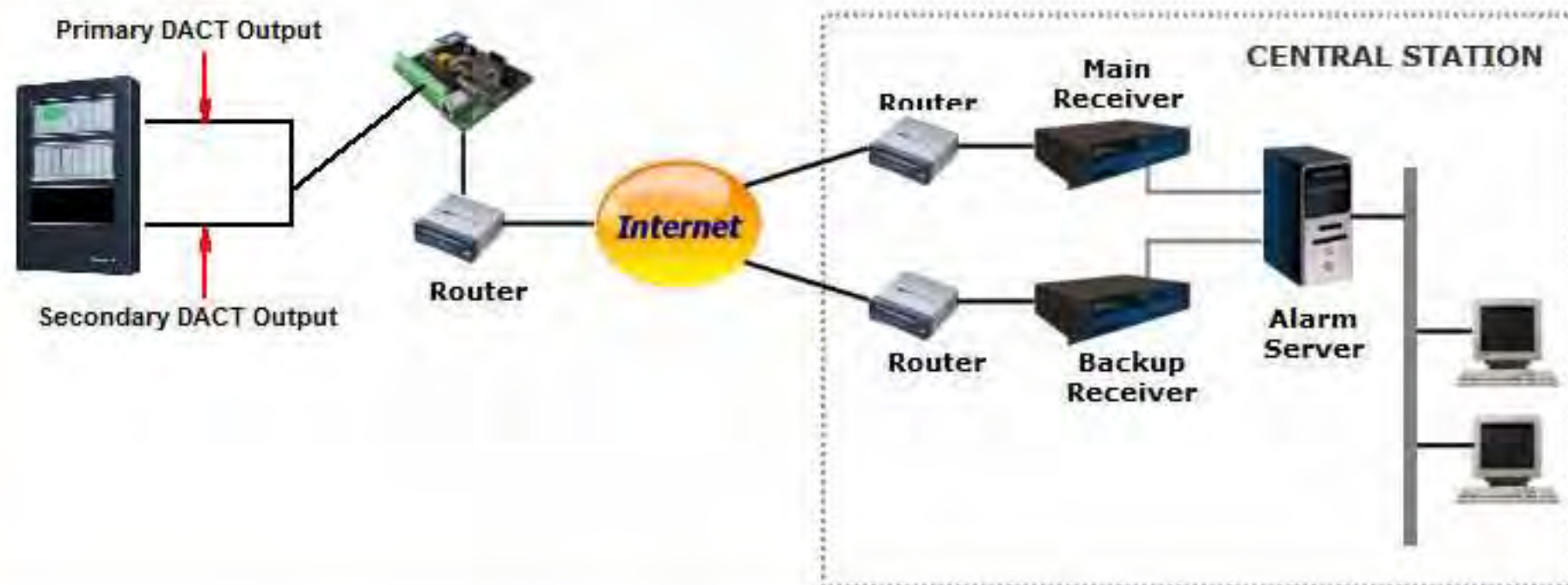
Onyx Systems - IP Communicator

Introduction

Page 4 of 26

The IP Communicator is UL-864 9th Edition listed for signaling type "OT - Other Transmission Technologies", PSDN (Packet Switched Data Network) for both proprietary and commercial central stations.

This listing meets all the requirements for a single communications line (no redundant communications required) under NFPA 72 Section 8.5.4 (2002) and 8.6.4 (2007).



◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.
- [If communications](#) cannot be established with the supervising station, an indication of this failure shall be annunciated at the protected premises.
- [If a portion](#) of the communications path cannot be monitored for integrity, a redundant communications path shall be provided.
- [Failure of both](#) the primary and redundant communications paths shall be annunciated at the supervising station within not more than 24 hours of the failure.
- [System units](#) at the supervising station shall be restored to service within 30 minutes of the failure.
- [The transmission](#) technology shall be designed so that upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

Click on each hotlink for details

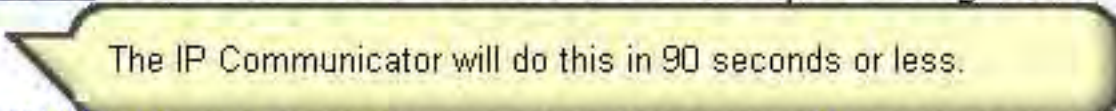
[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.  The IP Communicator will do this in 90 seconds or less.
- [If communications](#) cannot be established with the supervising station, an indication of this failure shall be annunciated at the protected premises.
- [If a portion](#) of the communications path cannot be monitored for integrity, a redundant communications path shall be provided.
- [Failure of both](#) the primary and redundant communications paths shall be annunciated at the supervising station within not more than 24 hours of the failure.
- [System units](#) at the supervising station shall be restored to service within 30 minutes of the failure.
- [The transmission](#) technology shall be designed so that upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

Click on each hotlink for details

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.

- [If communications](#) of this failure shall be

The fire panel will go into Trouble indicating loss of IP connectivity.

- [If a portion](#) of the communications path

When the IP Communicator loses IP connection to the receiver, it removes voltage from its simulated phone line connection to the panel's DACT. This results in a Telco fault on the panel.

- [Failure of both](#) the primary and redundant communications paths shall be annunciated at the supervising station within not more than 24 hours of the failure.

- [System units](#) at the supervising station shall be restored to service within 30 minutes of the failure.

- [The transmission](#) technology shall be designed so that upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

Click on each hotlink for details

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.
- [If communications](#) cannot be established with the supervising station, an indication of this failure shall be annunciated at the protected premises.
- [If a portion](#) of the communications path cannot be annunciated for integrity, redundant communication shall be annunciated at the protected premises.
- [Failure of both](#) paths shall be annunciated at the supervising station within not more than 24 hours of the failure.
- [System units](#) at the supervising station shall be restored to service within 30 minutes of the failure.
- [The transmission](#) technology shall be designed so that upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

The communications path is supervised every 90 seconds for integrity therefore there is no need for a redundant communications path.

Click on each hotlink for details

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.
- [If communications](#) cannot be established with the supervising station, an indication of this failure shall be annunciated at the protected premises.
- [If a portion](#) of the communications path cannot be monitored for integrity, a redundant communications path shall be provided.
- [Failure of both](#) the primary and redundant communications paths shall be annunciated at the supervising station. Failure of the communications path is annunciated at the supervising station in 90 seconds or less.
- [System units](#) at the protected premises shall be annunciated within 30 minutes of the failure.
- [The transmission](#) technology shall be designed so that upon failure of a transmission channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

Click on each hotlink for details

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

NFPA Requirements

Page 5 of 26

Click on hotlink to learn how the IP Communicator meets or exceeds NFPA 72 requirements.

- [Any failure](#) shall be annunciated at the supervising station within 5 minutes of the failure.
- [If communications](#) cannot be established with the supervising station, an indication of this failure shall be annunciated at the protected premises.
- [If a portion](#) of the communications path cannot be monitored for integrity, a redundant communications path shall be provided.
- [Failure of both](#) the primary and redundant communications paths shall be annunciated at the supervising station within not more than 24 hours of the failure.
- [System units](#) at the supervising station shall be restored to service within 30 minutes of the failure.
- [The transmission](#) channel serving a system unit at the supervising station, the loss of the ability to monitor shall not affect more than 3,000 transmitters.

A hot backup receiver is specified for the Central Station but any receiver can be restored via Smartcard within 30 seconds.

Click on each hotlink for details

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Theory of Operation

Page 6 of 26

- The IP Communicator simulates a standard PSTN analog line.
- During an event, it senses off-hook status, counts the digits of the dialed phone number then begins collecting Contact ID data.
- The IP Communicator "frames" the Contact ID data using [UDP](#) packets with 512 bit AES encryption and forwards it to the receiver.
- The receiver decrypts and un-packetizes the data and presents ASCII data to the automation software in a predefined format.
- The automation software or the receiver can provide the "kiss-off" signal to the panel.

[Click here for an example](#)

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Theory of Operation

Page 6 of 26

- The IP Communicator simulates a standard PSTN analog line.
- During an event, it senses off-hook status, counts the digits of the dialed phone number then begins collecting Contact ID data.
- The IP Communicator "frames" the Contact ID data using **UDP** packets with 512 bit AES encryption and forwards it to the receiver.
- The receiver decrypts and un-packetizes the data automatically.

UDP - User Datagram Protocol

The IP Communicator uses UDP/IP to transmit information to the receiver.

UDP/IP is used as an alternative to TCP/IP when very small amounts of data need to be sent.

[Click here for an example](#)

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Introduction

Page 7 of 26

The IP Communicator ships with the following:



- One prepared 30" telephone cable
 - Two ferrite rings
 - Two 1 Kohm Resistors
 - Manuals & Software CD
 - Quick Programming Guide

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Introduction

Page 7 of 26

The IP Communicator ships with the following:



- One prepared 30" telephone cable
 - Two ferrite rings
 - Two 1 Kohm Resistors
 - Manuals & Software CD

For phone cable connection to both Primary and Secondary DACT outputs, an IPSPLT phone line splitter may be required.



Reminder!

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Introduction

Page 7 of 26

The IP Communicator ships with the following:



- One prepared 30" telephone cable
- Two ferrite rings
- Two 1 Kohm resistors
- Manuals & Software CD
- Quick Program

Although a Manuals & Software CD is included, it is recommended that you check the Magni-Fire website for the latest updates.

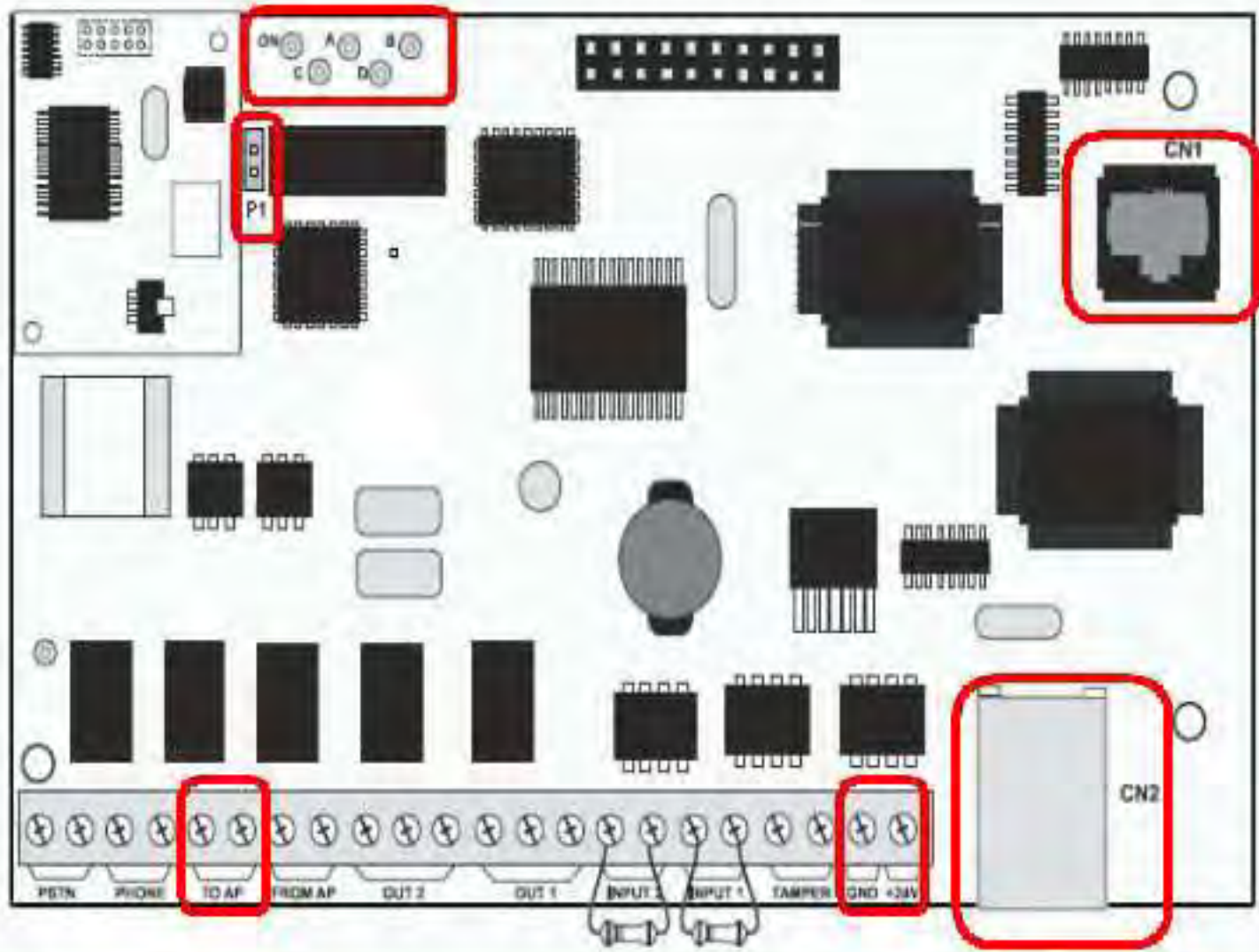


◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Introduction



Click on each highlighted region for details

◀ BACK NEXT ▶

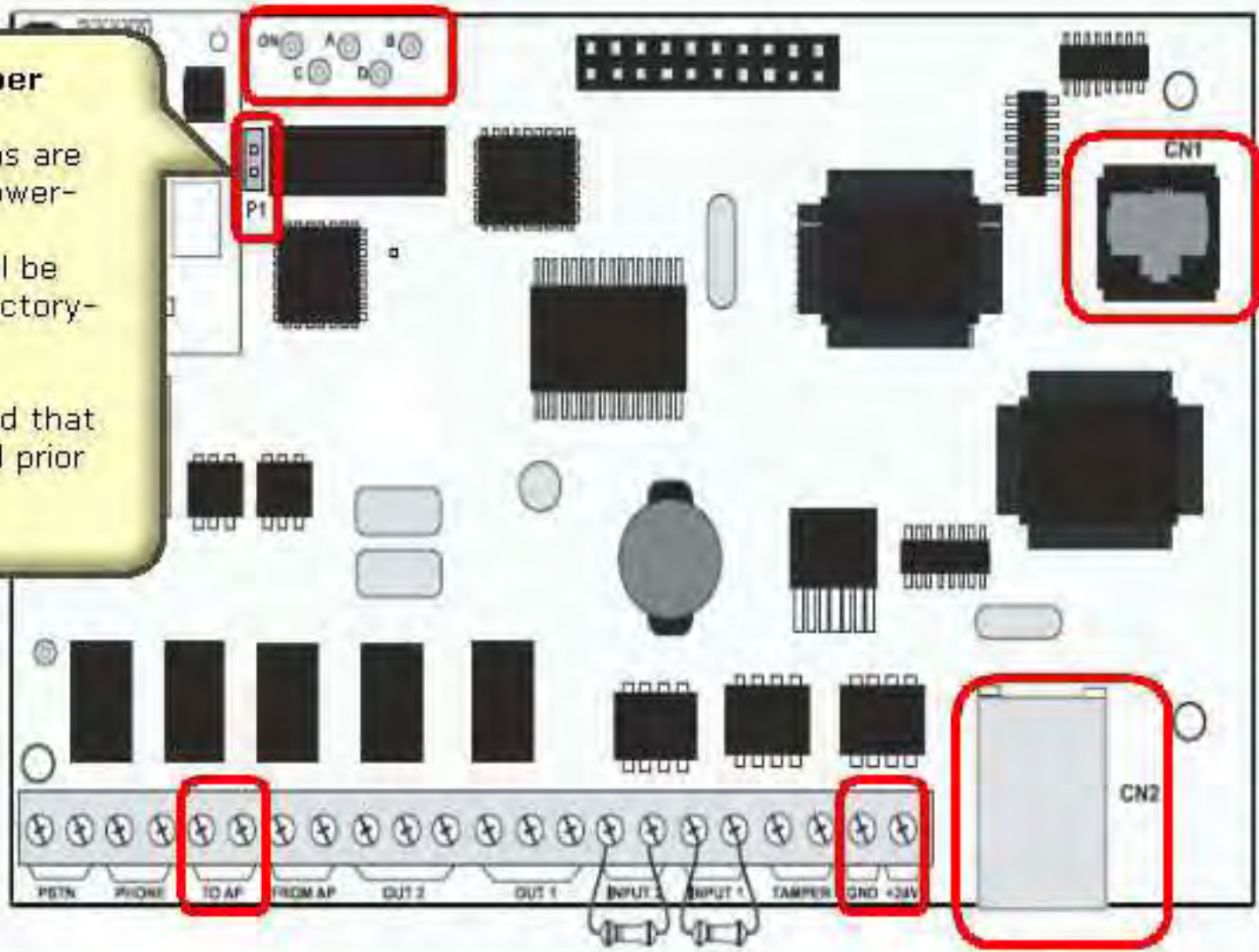
Onyx Systems - IP Communicator

Introduction

P1 - Reset Jumper

When these 2 pins are shorted during power-up, the IP Communicator will be returned to its factory-default settings.

It is recommended that this be performed prior to programming.



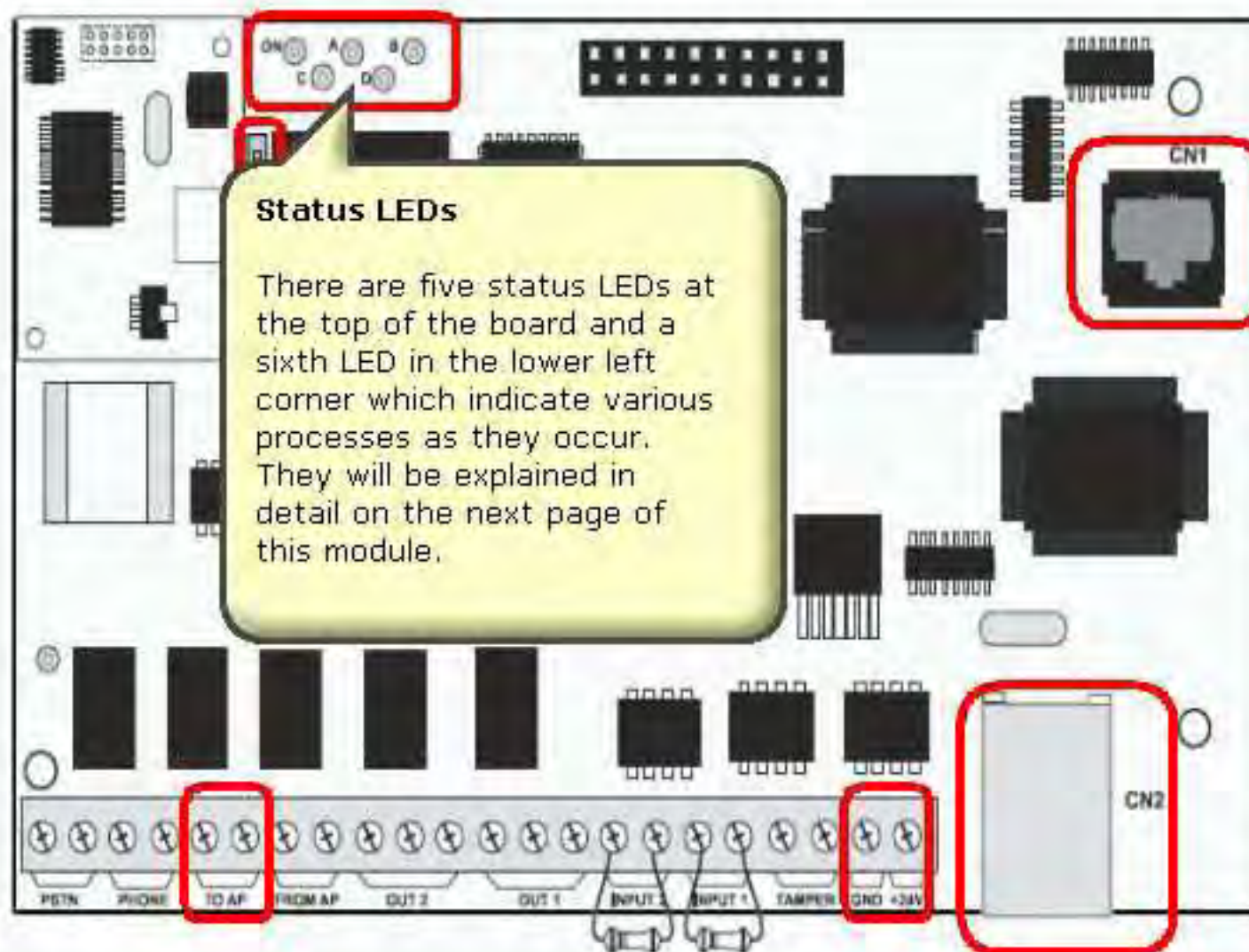
Click on each highlighted region for details

◀ BACK NEXT ▶

Onyx Systems - IP Communicator

Introduction

Page 8 of 26



Click on each highlighted region for details

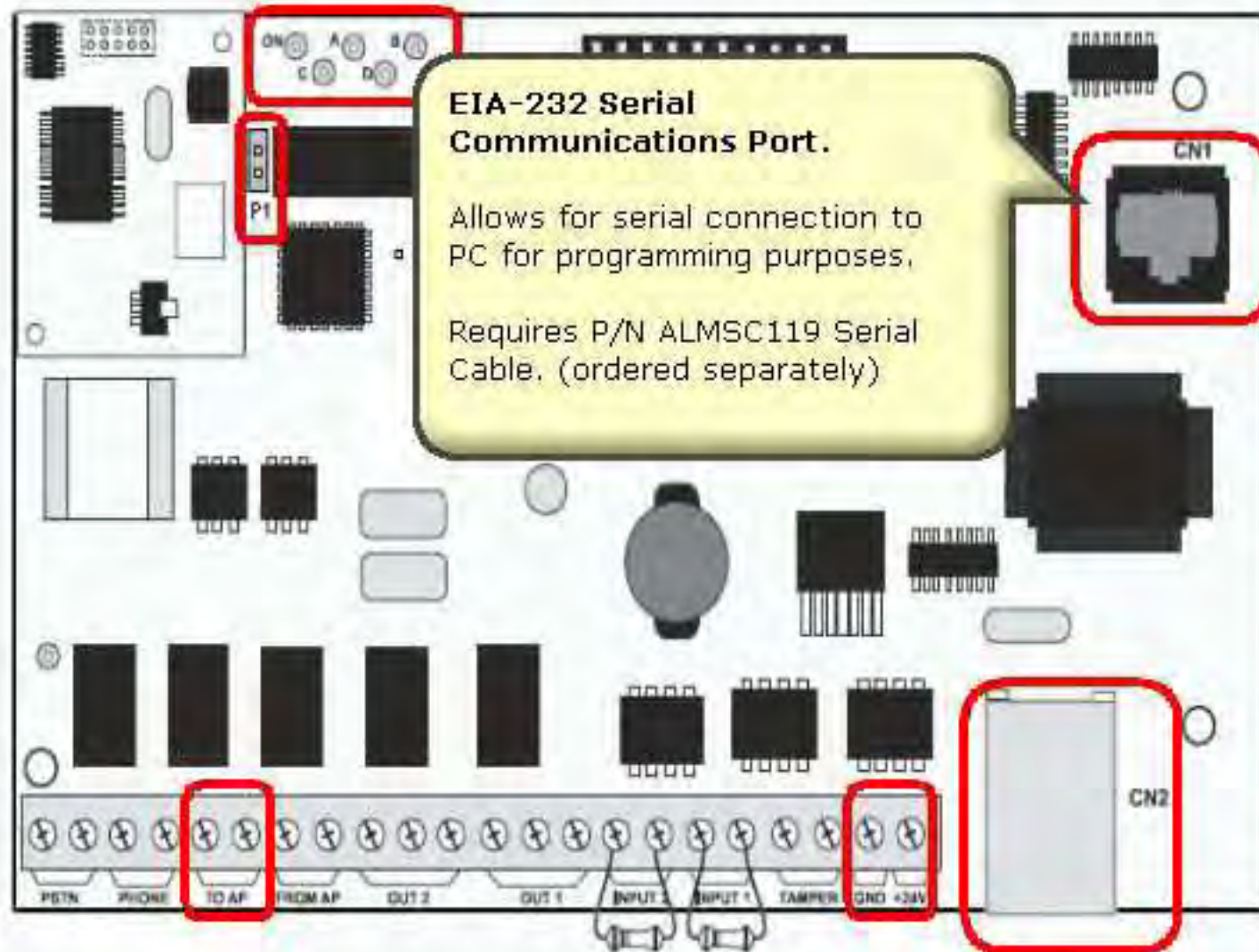
◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Introduction

Page 8 of 26



Click on each highlighted region for details

◀ BACK

NEXT ▶

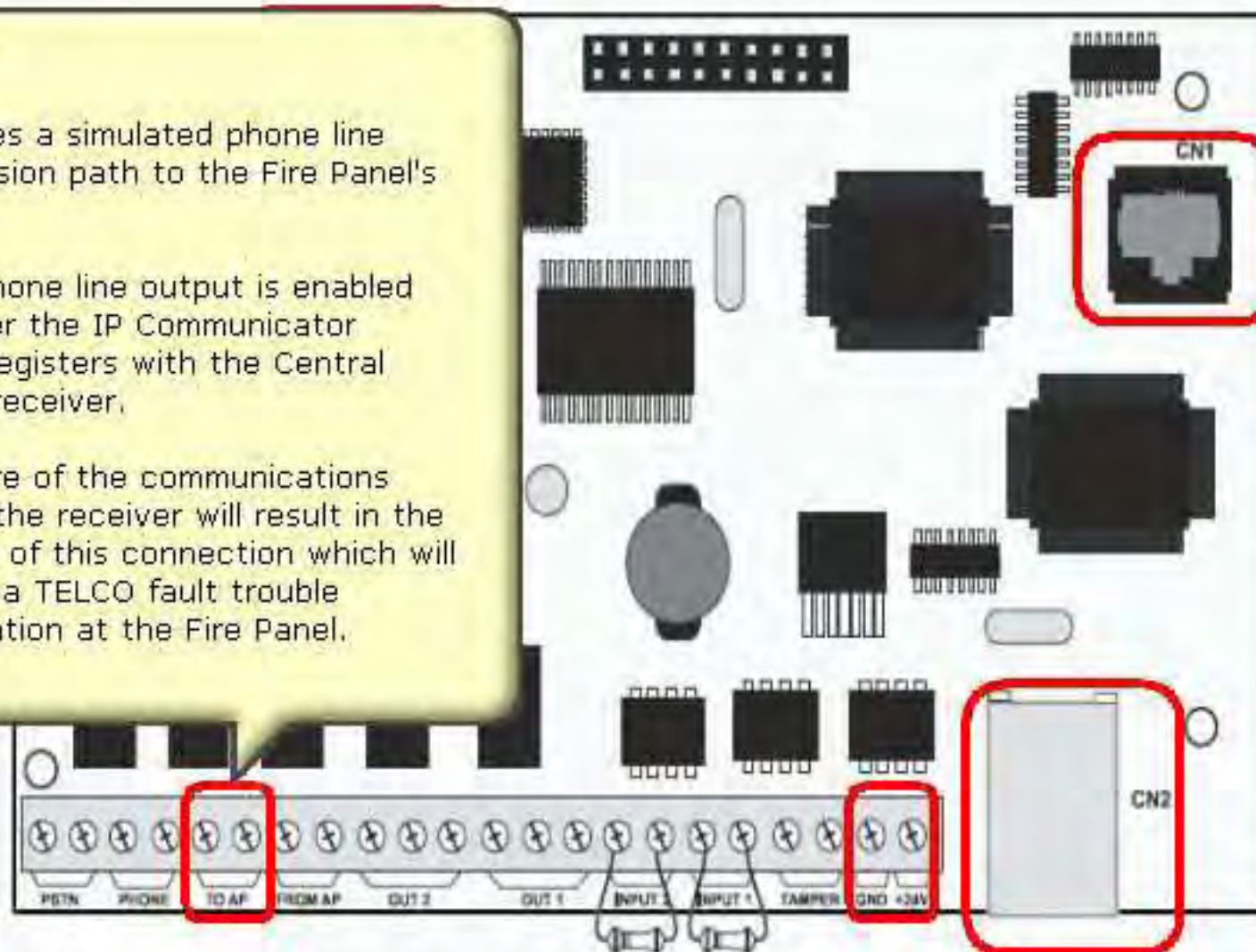
Onyx Systems - IP Communicator

Introduction

Page 8 of 26

TO AP

- Provides a simulated phone line transmission path to the Fire Panel's DACT.
- This phone line output is enabled only after the IP Communicator initially registers with the Central Station receiver.
- A failure of the communications path to the receiver will result in the disabling of this connection which will result in a TELCO fault trouble annunciation at the Fire Panel.



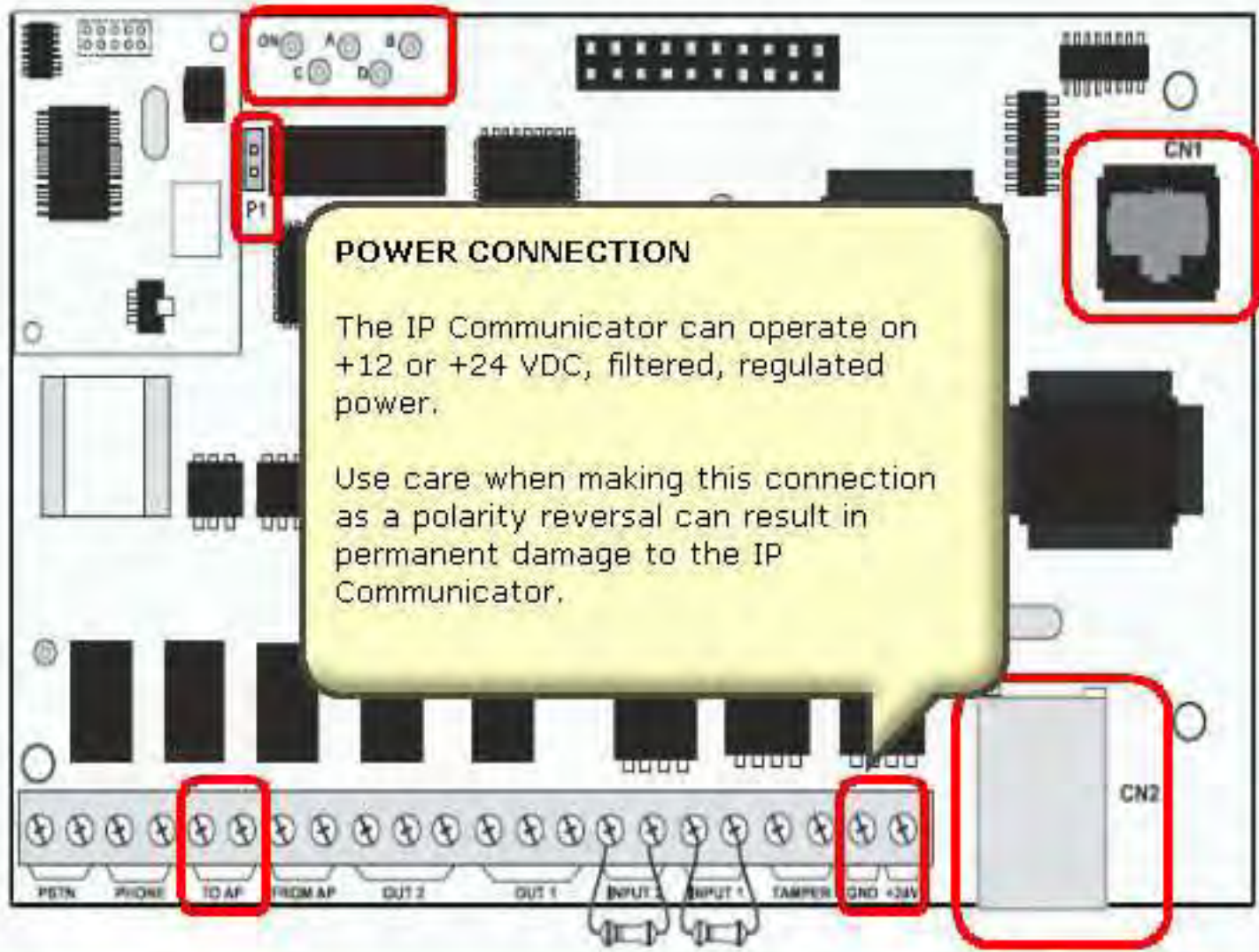
Click on each highlighted region for details

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Introduction

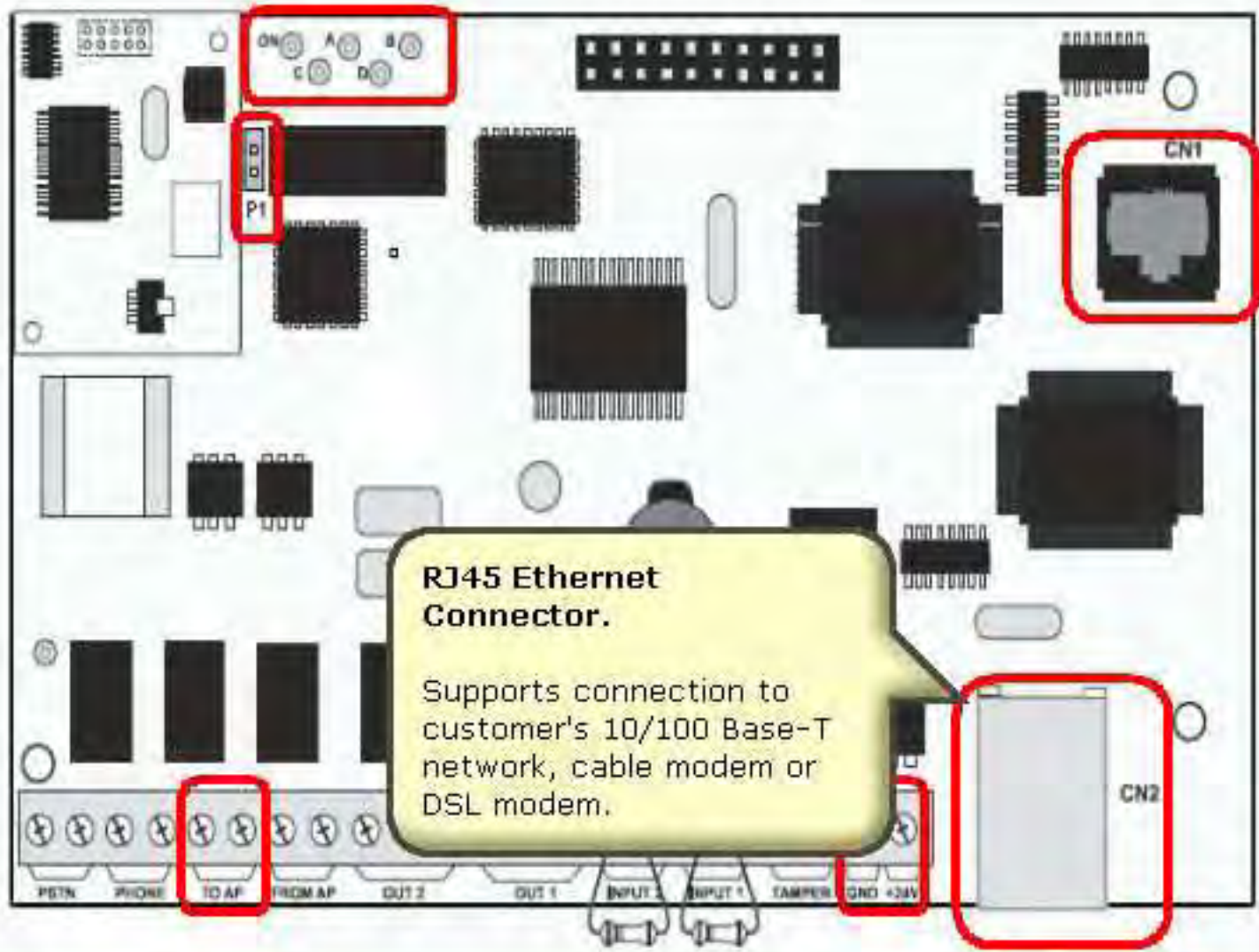


Click on each highlighted region for details

◀ BACK NEXT ▶

Onyx Systems - IP Communicator

Introduction



Click on each highlighted region for details

◀ BACK NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

Page 9 of 26

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.



Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.



LD1
This LED is on when power is applied to the IP Communicator



Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

Page 9 of 26

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.

LD2

This LED indicates that a UDP Polling frame is being sent to the VisorALARM receiver. The LED goes out when an Acknowledgement is received.

If blinking, this LED indicates that an IP Communicator has been programmed and is ready to Auto-Register with the receiver.



Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

Page 9 of 26

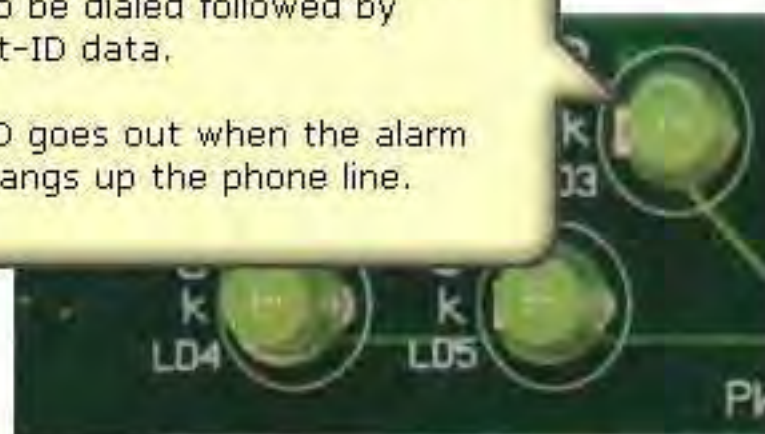
The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.

LD3

This LED lights when the alarm panel seizes the phone line. At this point, the IP Communicator is waiting for the correct number of digits to be dialed followed by Contact-ID data.

The LED goes out when the alarm panel hangs up the phone line.



Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

Page 9 of 26

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.

LD4

This LED lights when the IP packet of alarm information is sent out on the network/internet.

It goes out when an Acknowledgement is received from the VisorALARM receiver.



Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.



LD5

This lamp indicates that a bi-directional maintenance call has been established with the alarm panel.



Click on each LED

◀ BACK

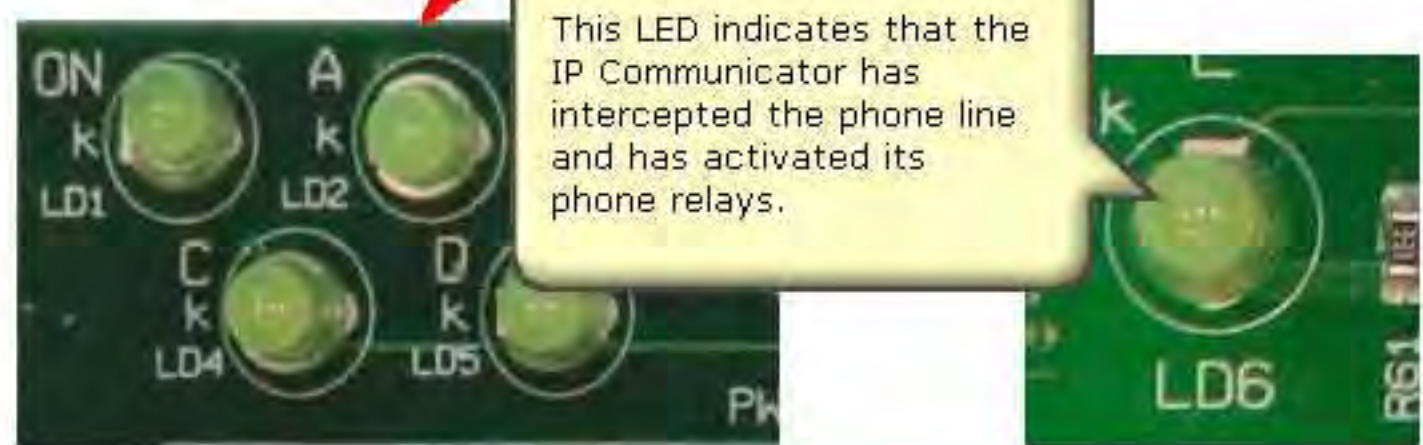
NEXT ▶

Onyx Systems - IP Communicator

LED Indicators

The IP Communicator has six LEDs that light during various phases of alarm transmission and supervision.

Click on each LED below for a functional description.



LD6
This LED indicates that the IP Communicator has intercepted the phone line and has activated its phone relays.

Click on each LED

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Installation

Page 10 of 26

Mounting the IP Communicator

Mounting options include:

- Mounted in separate enclosure using p/n IP-ENC. The IP-ENC is available in [RED](#) or [BLACK](#).
- Mounted in an [HP300ULX](#) Power Supply.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Installation

Page 10 of 26

Mounting the IP Communicator

Mounting options include:

- Mounted in separate enclosure using p/n IP-ENC. The IP-ENC is available in [RED](#) or [BLACK](#).
- Mounted in an [HP300ULX](#) Power Supply.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Installation

Page 10 of 26

Mounting the IP Communicator

Mounting options include:

- Mounted in separate enclosure using p/n IP-ENC. The IP-ENC is available in [RED](#) or [BLACK](#).
- Mounted in an [HP300ULX](#) Power Supply.

The IP Communicator can draw as much as 98mA in standby mode and up to 155 mA in alarm. If the fire panel cannot supply sufficient auxiliary power, the HP300ULX auxiliary power supply can be used.

The IPBRKT can be installed inside the enclosure of the power supply as shown.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Phone Line Connection

Page 11 of 26

Make the phone line connection as follows:

1. Loop the supplied phone cable through the larger ferrite rings two times.
2. Connect the bare-wire ends of the phone cable to the terminals marked "TO AP" on the IP Communicator.
3. Plug the phone cable's RJ45 connector into the [IPSPLT](#) splitter.
4. Connect two 9" flat phone cables supplied with the IPSPLT to the [Primary and Secondary dialer outputs](#).

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Phone Line Connection

Page 11 of 26

Make the phone line connection as follows:

1. Loop the supplied phone cable through the larger ferrite rings two times.
2. Connect the bare-wire ends of the phone cable to the terminals marked "TO AP" on the IP Communicator.
3. Plug the phone cable's RJ45 connector into the [IPSPILT](#) splitter.
4. Connect two 9" flat phone cables supplied with the IPSPILT to the [Primary and Secondary dialer outputs](#).



◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Phone Line Connection

Page 11 of 26

Make the phone line connection as follows:

1. Loop the supplied phone cable through the larger ferrite rings two times.
2. Connect the bare-wire ends of the phone cable to the terminals marked "TO AP" on the IP Communicator.
3. Plug the phone cable's RJ45 connector into the [IPSPLT](#) splitter.
4. Connect two 9" flat phone cables supplied with the IPSP to the [Primary and Secondary dialer outputs](#).



If the fire panel's DACT does not have RJ45 connectors, simply make 2-wire connections from the IP Communicator's "TO AP" terminals to both the Primary and Secondary DACT outputs.

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Phone Line Connection

Page 11 of 26

Make the phone line connection as follows:

1. Loop the supplied phone cable through the larger ferrite rings two times.
2. Connect the bare-wire ends of the phone cable to the terminals marked "TO AP" on the IP Communicator.
3. Plug the phone cable's RJ45 connector into the [IPSPLT](#) splitter.
4. Connect two 9" flat phone cables to the [dialer](#) d



The phone line connection is not polarity sensitive.



◀ BACK

NEXT ▶

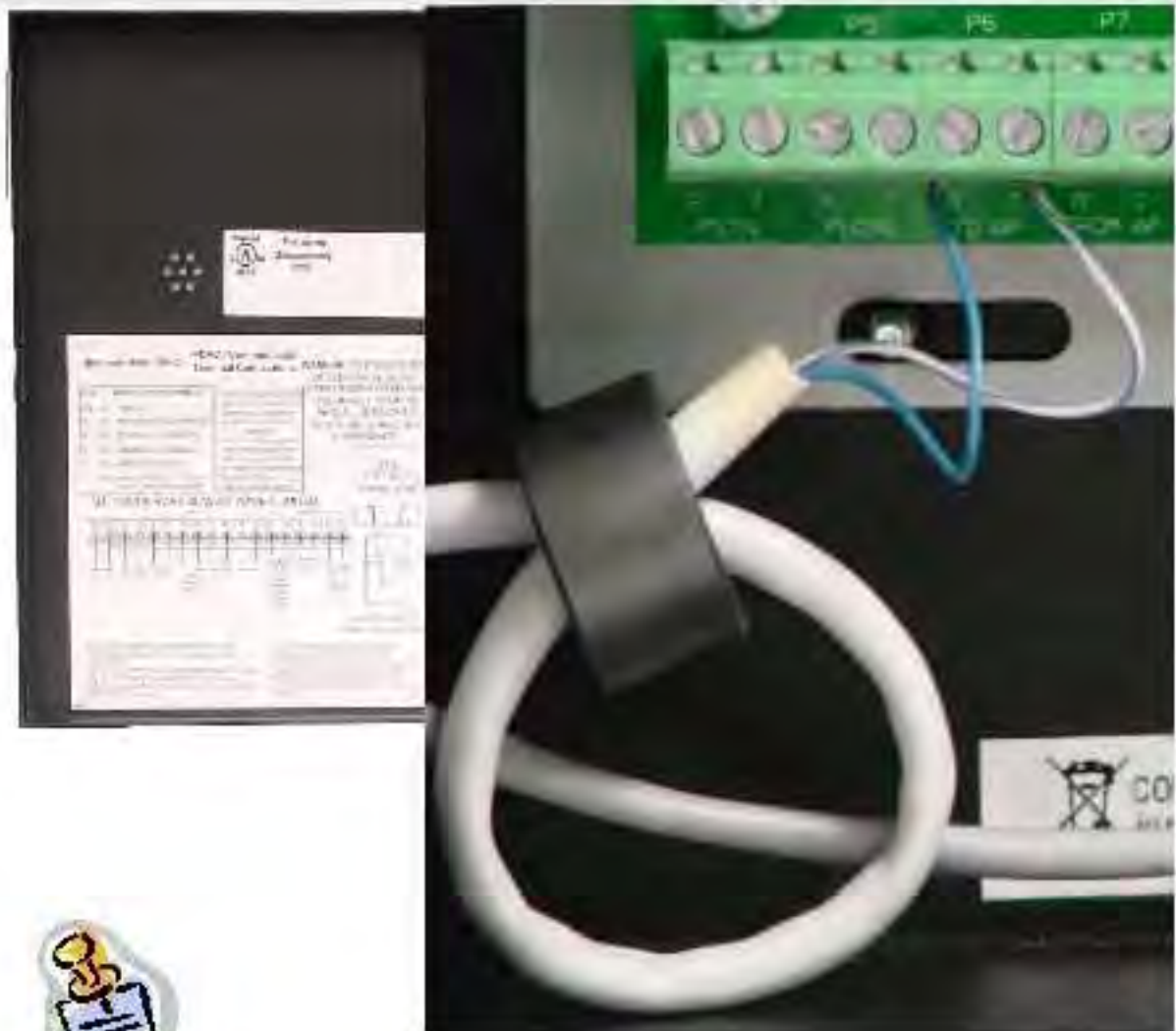
Onyx Systems - IP Communicator

Phone Line Connection

Page 11 of 26

Make the phone line connection as follows:

1. Loop the supplied phone cable through the larger ferrite rings two times.
2. Connect the bare-wire ends of the phone cable to the terminals marked "TO AP" on the IP Communicator.
3. Plug the phone cable's RJ45 connector into the [IPSPILT](#) splitter.
4. Connect two 9" flat phone cables supplied with the IPSPILT to the [Primary and Secondary dialer outputs](#).



◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Power Connection

Page 12 of 26

The IP Communicator can operate on +12 or +24 VDC filtered, regulated power.

Make power connection as follows:

1. Loop power cable through the smaller of the two supplied ferrite rings two times.
2. Connect power cable to terminals marked GND and +12/24 VDC observing proper polarity.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Power Connection

Page 12 of 26

The IP Communicator can operate on +12 or +24 VDC filtered, regulated power.

Make power connection as follows:

1. Loop power cable through the smaller of the two supplied ferrite rings two times.
2. Connect power cable to terminals marked GND and +12/24 VDC observing proper polarity.



CAUTION!

Failure to observe proper polarity on the IP Communicator can result in permanent damage.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Network Connection

Page 13 of 26

Plug a straight-through CAT5 Ethernet Patch cable into the Ethernet jack on the IP Communicator.

Plug the other end of the patch cable into the network access point assigned by the Network Administrator.

If the IP Communicator has been pre-programmed with an Auto-Register password, it will register itself with the receiver within several seconds.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Network Connection

Page 13 of 26

Plug a straight-through CAT5 Ethernet Patch cable into the Ethernet jack on the IP Communicator.

Plug the other end of the patch cable into the network access point assigned by the Network Administrator.

If the IP Communicator has been pre-programmed with an Auto-Register password, it will register itself with the receiver within several seconds.



The maximum distance for any Ethernet cable is 328 feet (100 meters). Check with the Network Administrator to ensure that there is a network access point within this distance limitation.

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Programming

Page 14 of 26

Programming an IP Communicator can be accomplished via a serial connection or from a Telnet (Ethernet) connection.

Programming requires a Windows-based PC with any one of the following:

- 9-pin serial COM Port.
- USB to Serial converter.
- Network Interface Card (NIC)

Programming via serial connection requires a Serial Console Cable - **P/N ALMSC119**.



ALMSC119 Serial Programming Cable

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

Programming

Page 14 of 26

Programming an IP Communicator can be accomplished via a serial connection or from a Telnet (Ethernet) connection.

Programming requires a Windows-based PC with any one of the following:

- 9-pin serial COM Port.
- USB to Serial converter.
- Network Interface Card (NIC)

Programming via serial connection requires a Serial Console Cable - **P/N ALMSC119**.



ALMSC119 Serial Programming Cable

There are two supported USB/Serial converters:

- Belkin - Model # F5U409
- Targus - Model # PA-088

 **BACK****NEXT** 


Onyx Systems - IP Communicator

Programming

Page 15 of 26

To program via telnet, an Ethernet connection must be made between the PC and the IP Communicator using one of the following methods:

- Using an Ethernet [switch or hub](#) and two straight-through CAT5 Ethernet patch cables.
- Direct-connect using a CAT5 Ethernet [crossover cable](#).

 **BACK****NEXT** 

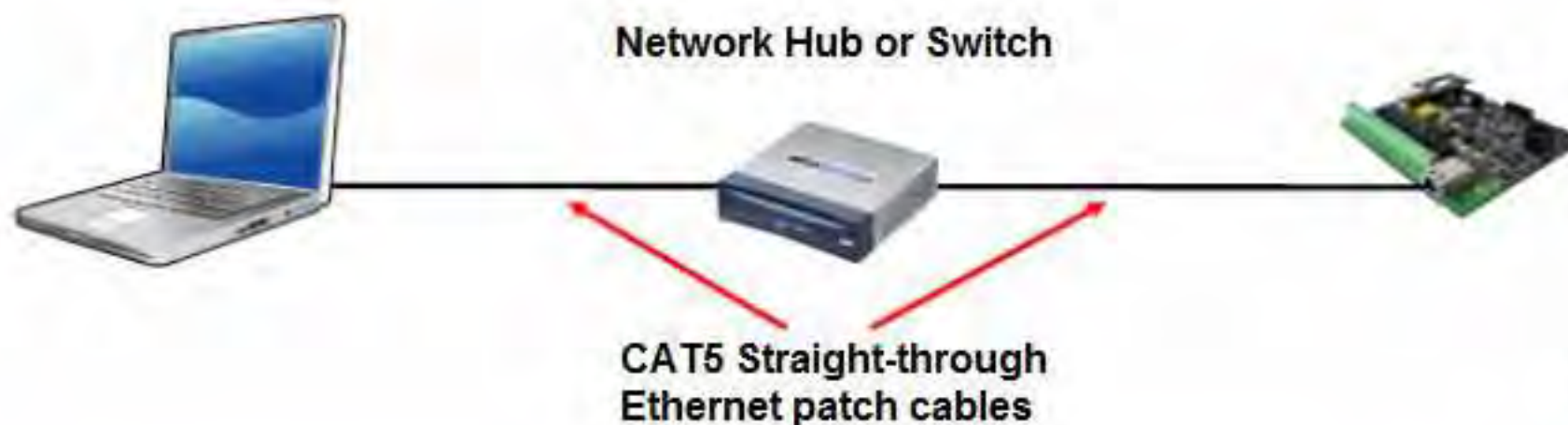
Onyx Systems - IP Communicator

Programming

Page 15 of 26

To program via telnet, an Ethernet connection must be made between the PC and the IP Communicator using one of the following methods:

- Using an Ethernet [switch or hub](#) and two straight-through CAT5 Ethernet patch cables.
- Direct-connect using a CAT5 Ethernet [crossover cable](#).



◀ BACK

NEXT ▶

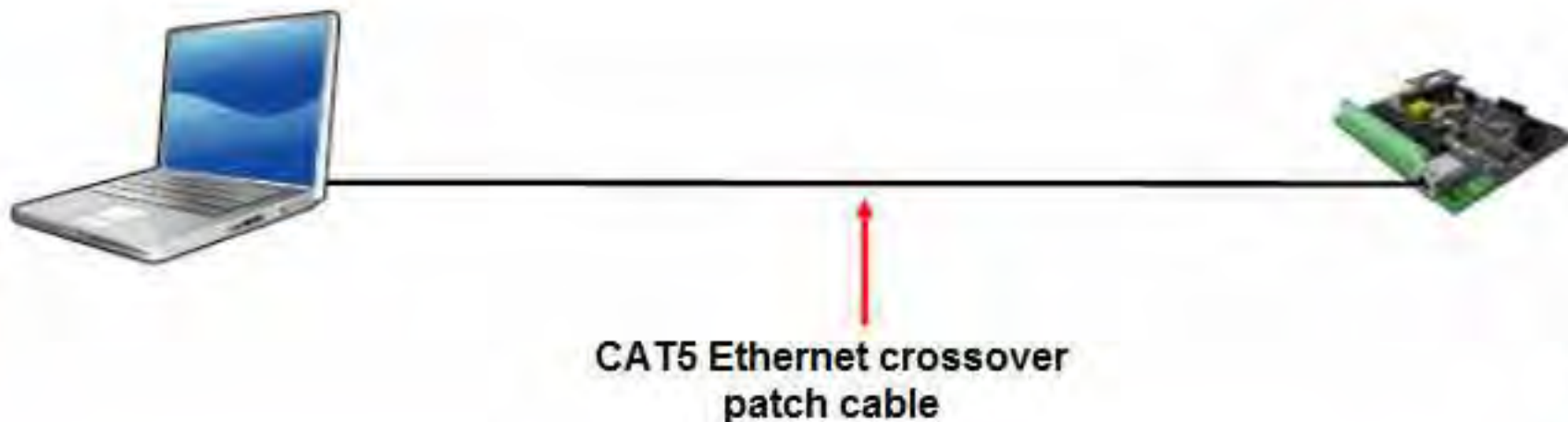
Onyx Systems - IP Communicator

Programming

Page 15 of 26

To program via telnet, an Ethernet connection must be made between the PC and the IP Communicator using one of the following methods:

- Using an Ethernet [switch or hub](#) and two straight-through CAT5 Ethernet patch cables.
- Direct-connect using a CAT5 Ethernet [crossover cable](#).



◀ BACK

NEXT ▶

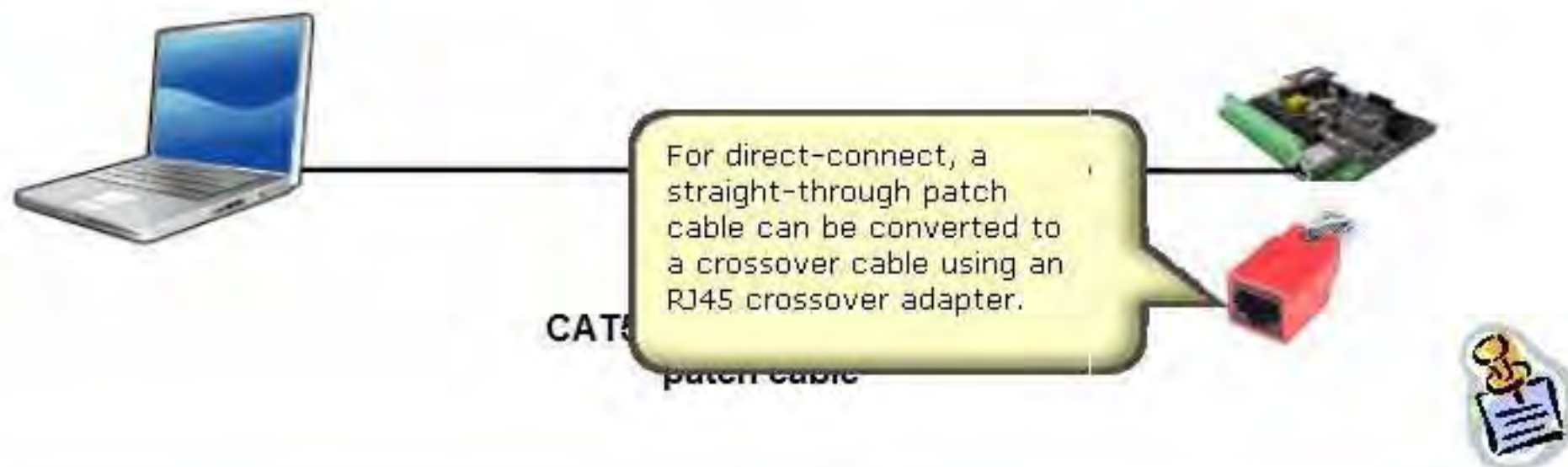
Onyx Systems - IP Communicator

Programming

Page 15 of 26

To program via telnet, an Ethernet connection must be made between the PC and the IP Communicator using one of the following methods:

- Using an Ethernet [switch or hub](#) and two straight-through CAT5 Ethernet patch cables.
- Direct-connect using a CAT5 Ethernet [crossover cable](#).



◀ BACK

NEXT ▶

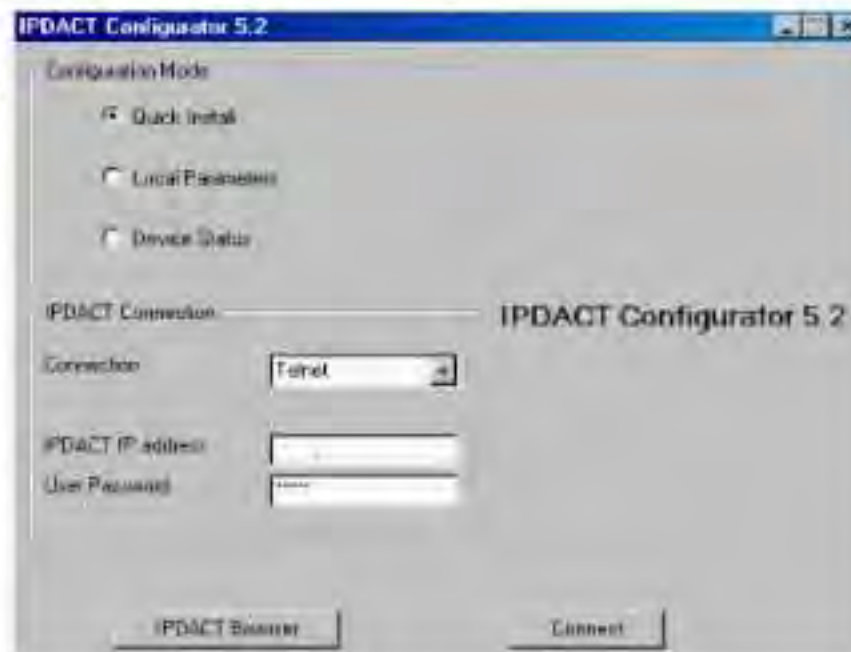
Onyx Systems - IP Communicator

Programming - IPDACT Configurator

The IPDACT Configurator is a Microsoft Windows based application designed for easy configuration of an IP Communicator. Programming can also be performed using HyperTerminal or comparable serial communications software.

Features include:

- Your choice for programming using a serial connection or a telnet (Ethernet) connection.
- For Telnet programming, the IP Configurator has a browser function that queries the connection for IP Communicators.
- An Auto-Register feature allows for pre-configuration in advance of installation at job site.

[◀ BACK](#)[NEXT ▶](#)

Onyx Systems - IP Communicator

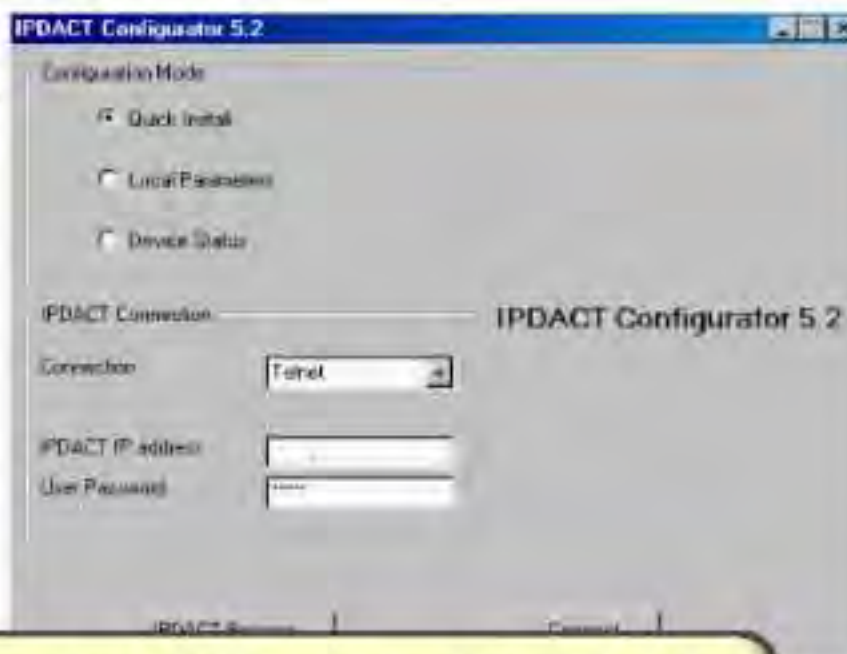
Programming - IPDACT Configurator

Page 16 of 26

The IPDACT Configurator is a Microsoft Windows based application designed for easy configuration of an IP Communicator. Programming can also be performed using HyperTerminal or comparable serial communications software.

Features include:

- Your choice for programming using a serial connection or a telnet (Ethernet) connection.
- For Telnet programming, the IP Communicator has a browser function that queries the connection for IP Communicators.
- An Auto-Register feature allows for configuration in advance of installation site.



For programming via telnet, you will need to change your PC's IP Address to a static address in the same IP Scheme of the IP Communicator's default address (192.168.0.100). Use IP Address 192.168.0.nnn where nnn = any number between 1 - 255 except 100. Refer to the IP Configurator Setup Instructions document # DM379-1v2.

**◀ BACK****NEXT ▶**

Onyx Systems - IP Communicator **Programming**

Minimum PC Requirements

- Processor: Pentium III or higher
- RAM Memory: 128 Mbytes
- Operating System: Windows 2000, XP or [Vista](#)
- Hard Disk Space: 30 Mbytes
- Screen Resolution: 800x600, 256 Colors
- Network Interface Card: Ethernet 10/100 Base-T



Onyx Systems - IP Communicator Programming

Minimum PC Requirements

- Processor: Pentium III or higher
- RAM Memory: 128 Mbytes
- Operating System: Windows 2000, XP or Vista
- Hard Disk Space: 30 Mbytes
- Screen Reso
- Network Inte



The IPDACT Configurator was developed for Windows XP and may not work properly with certain versions of Windows Vista.

Support will be provided only for Windows Vista Home Edition, 32-bit version.

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26


Prior to programming an IP Communicator, information must be obtained from the customer's and Central Station's IT Departments.


Fields labeled in **green** text are for customer provided information while fields labeled in **red** are for Central Station provided information.

Quick Install

Quick Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.100
Account Number (D-FFFFFFF)	0
Main VisioALARM IP Address	
Backup VisioALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

 Data provided by your central station

 Data to be obtained at the installation site

IPDACT s/r: **0563/00490**

Firmware version: **6.0 US**

< Back Configure

Click within each highlighted area for detailed information

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

Prior
IP C
info
obta
cust
Stat

Fiel
text
prov
whi
red
Stat
info

The IP Communicator can operate using an automatically assigned IP Address (DHCP), or with a static (fixed, manually assigned) address.

The customer's Network Administrator will decide which method they prefer.

If a static IP Address is to be used, this box must be unchecked to allow the subsequent three fields to be enabled for input.

Install

Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.100
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

■ Data provided by your central station
■ Data to be obtained at the installation site

IPDACT s/r: **0563/00490**
 Firmware version: **6.0 US**

Click within each highlighted area for detailed information

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

These three fields are used for configuring a static (fixed) IP Address.

The Enable DHCP Client checkbox must be unchecked in order to use these fields.

Information to be entered includes the following Network Administrator provided items:

- IP Address and associated Subnet Mask for the IP Communicator.
- IP Address of the Gateway (or Router) used to access the internet.

Quick Install

Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.100
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

Legend:

- Data provided by your central station
- Data to be obtained at the installation site

IPDACT s/r: 0563/00490

Firmware version: 6.0 US

< Back Configure

Click within each highlighted area for detailed information

[← BACK](#)[NEXT →](#)

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

Prior to programming an IP Communicator, information must be obtained from the customer's and Central Station's IT Departments

Fields labeled in **green** text are for customer provided information while fields labeled in **red** are for Central Station provided information.

The account number assigned by the Central Station or monitoring agency.

Quick Install

Quick Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.300
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

■ Data provided by your central station
■ Data to be obtained at the installation site

IPDACT s/r: **0563/00490**

Firmware version: **6.0 US**

< Back Configure

Click within each highlighted area for detailed information

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

Prior to programming an IP Communicator, information must be obtained from the customer's and Central Station's IT Departments.

Fields that are highlighted in red are text provided by the Central Station while fields highlighted in green are information provided by the customer's IT Department.

These two fields are used to enter the Central Station-provided IP Addresses of the Main (Primary) and Backup (Secondary) VisorALARM receivers.

Quick Install

Quick Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.100
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

■ Data provided by your central station
■ Data to be obtained at the installation site

IPDACT s/r: **0563/00490**

Firmware version: **6.0 US**

< Back Configure

Click within each highlighted area for detailed information

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

Prior to programming an IP Communicator, information must be obtained from the customer's and Central Station's IT Departments.

Fields labeled in **green**

text a
provid
while
red a
Static
inform

The receivers must have one UDP Port opened for receiving IP Communicator traffic.

Port 80 is open by default.

If the Central Station has opened a different port, enter the new one in this field.

Quick Install

Quick Install Parameters

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.300
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

■ Data provided by your central station
■ Data to be obtained at the installation site

IPDACT s/r: **0563/00490**

Firmware version: **6.0 US**

Click within each highlighted area for detailed information

◀ **BACK**

NEXT ▶

Onyx Systems - IP Communicator

Quick Install

Page 18 of 26

Prior to programming an

Quick Install

A password is required for the IP Communicator to initially register with the Central Station receiver before it can send events.

There are two ways to use this field:

- **On-Site:** Entering a password when configuring an IP Communicator on-site will result in registration as part of the configuration process when the Configure button is clicked.
- **Off-Site:** When configuring an IP Communicator in advance of installation, enter the registration password and complete the configuration process by clicking the Configure button. When done, LED 2 will flash. This indicates that device is programmed and will automatically register itself with the receiver when connected to the customer's network/internet connection.

Install Parameters:

Enable DHCP Client	<input checked="" type="checkbox"/>
IPDACT IP Address	192.168.0.100
IPDACT Mask	255.255.255.0
IPDACT Gateway	192.168.0.100
Account Number (D-FFFFFFF)	0
Main VisorALARM IP Address	
Backup VisorALARM IP Address	
UDP Port (1-65535)	80
AutoRegister Password	

Data provided by your central station

Data to be obtained at the installation site

Version: 0563/00490

Version: 6.0 US

< Back

Configure

Click within each highlighted area for detailed information

◀ BACK

NEXT ▶

Onyx Systems - IP Communicator

IPDACT Configurator

Click the button below to view a demonstration of using the IPDACT Configurator.

IPDACT Configurator Demo

◀ **BACK**

NEXT ▶

Notifier Phase II Instructions

Quiz Question NFS2-640

There are two volume setting for the Intelligent Sounder Base. 75dba and _____?

55 dba

65 dba

85 dba

95 dba

When using the new Intelligent Sounder Base, what is the maximum amount of pulses that can be programmed?

32

64

128

255

◀ BACK

NEXT ▶

Notifier Phase II Instructions

Quiz Question NFS2-640

Special Zone F10 will appear on the LCD display of the NFS2-640 as "F10"?

True

False

Quiz Question NFS2-3030

Page 13 of 25

When utilizing the NFS2-3030 in Network Display mode how many DVC's maximum are allowed?

 1 2 4 8[◀ BACK](#)[NEXT ▶](#)

Quiz Question NFS2-3030

Page 14 of 25

An Intelligent Sounder Base installed on the SLC of an NFS2-3030 can be programmed with two separate tones activated by two different General Zones?

True

False

Windows XP Snipping Tool

Capture

◀ BACK

NEXT ▶

Quiz Question NFS2-3030

When an NFS2-3030 is setup for Network Display Mode and the Auto Silence timer has been programmed, the nodes that have been mapped to the NFS2-3030 will have their outputs "Auto Silence" when the NFS2-3030 Auto Silence timer expires?

True

False

◀ BACK

NEXT ▶

Notifier Phase II Instructions

Quiz Question NFS2-3030

The new DAX and DAA2 amplifiers cannot be connected to the same DVC?

True

False

Notifier Phase II Instructions

Quiz Question NFS2-3030

The new DS-FM wire to fiber module is available for retrofit into old style DAA's?

True

False

Notifier Phase II Instructions

Quiz Question NFS2-3030

Page 23 of 25

When a DAA2 has a BDA (Backup Digital Amplifier) installed the BDA can act as a Backup amplifier or Alternate channel but not both simultaneously?

True

False

Notifier Phase II Instructions

Quiz Question NFS2-3030

The BDA can act as a second channel for the DAA2 series of amplifiers. It cannot provide a second channel for the DAX series of amplifiers?

True

False

Module Completed

Congratulations - you have completed the phase II webinar!

Your score for this module:

Score: 100%

EXIT