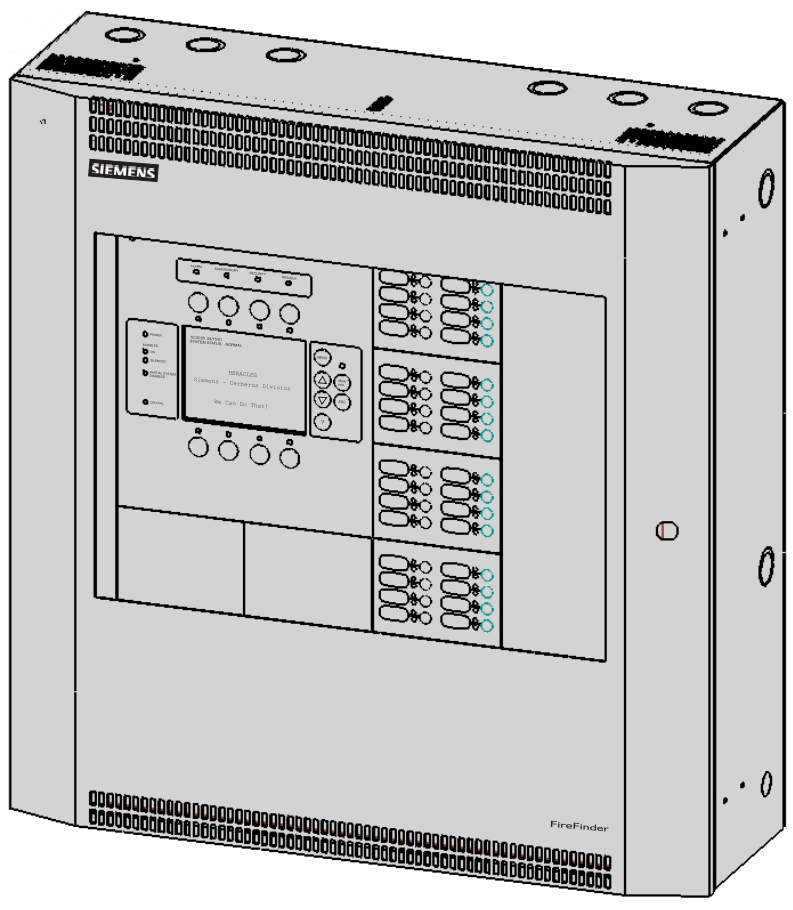


SIEMENS

FIREFINDER-XLS CONTROL PANEL

Installation, Operation and Maintenance Manual



CAUTION

ALL WIRING MUST BE DONE AS DESCRIBED BELOW TO OBTAIN SAFE AND PROPER SYSTEM OPERATION.

1. Earth ground the FireFinder-XLS enclosure properly; see the latest edition of the National Electrical Code or CAN/ULC-S524-01 Canadian Electrical Code for approved methods. Conduit ground is NOT adequate.
2. To wire the System in compliance with NEC Article 760, refer to the Power Limited Wiring Instructions for the CAB1 Enclosure, P/N 315-033007, or the CAB2-BB/CAB3-BB, P/N 315-033009, as applicable.
3. INSULATE ALL CABLE DRAIN WIRES from any conduit or earth grounded electrical box, including those in the FireFinder-XLS enclosure.
4. Connect shield cable drain wire ONLY inside the FireFinder-XLS enclosure.
5. For wiring outside the building, refer to the FireFinder-XLS Wiring Compatibility Guide, P/N 315-034786.

For additional wiring information, refer to this manual or call Siemens Industry, Inc. Technical Support Department at 1-800-248-7976.

CYBER SECURITY DISCLAIMER

Siemens provides a portfolio of products, solutions, systems and services that includes security functions that support the secure operation of plants, systems, machines and networks. In the field of Building Technologies, this includes building automation and control, fire safety, security management as well as physical security systems.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art security concept. Siemens' portfolio only forms one element of such a concept.

You are responsible for preventing unauthorized access to your plants, systems, machines and networks which should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place. Additionally, Siemens' guidance on appropriate security measures should be taken into account. For additional information, please contact your Siemens sales representative or visit <https://www.siemens.com/global/en/home/company/topicareas/future-of-manufacturing/industrial-security.html>.

Siemens' portfolio undergoes continuous development to make it more secure. Siemens strongly recommends that updates are applied as soon as they are available and that the latest versions are used. Use of versions that are no longer supported, and failure to apply the latest updates may increase your exposure to cyber threats. Siemens strongly recommends to comply with security advisories on the latest security threats, patches and other related measures, published, among others, under

<https://www.siemens.com/cert/en/cert-security-advisories.htm>.

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INTRODUCTION

The *FireFinder-XLS*™ Control System from Siemens Industry, Inc. is a powerful intelligent fire alarm control system with in-building mass notification capabilities. *FireFinder-XLS* utilizes *FirePrint*—the most advanced fire detection technology in the world.

FireFinder-XLS is designed to provide the most reliable life safety and property protection at the lowest system life cycle cost available anywhere. *FireFinder-XLS* has been architected to be easy to install, commission and operate. The *FireFinder-XLS* System is totally modular to satisfy *any size building's* fire alarm and mass notification needs.

A basic *FireFinder-XLS* control system consists of a PMI, a PMI-2, or a PMI-3 operator interface and central processor, a PSC-12 power supply and battery charger, a PTB power termination board, a DLC intelligent device loop controller or MLC MXL line card loop driver, and ZIC-4A zone indicating card.

The basic two DLC loop system can monitor up to 252 intelligent detectors and devices; the MLC's two circuits can each monitor up to 60 MXL intelligent field devices and device accessories (relay bases, audible bases, and remote lamps) for a total of 120 devices. A basic *FireFinder-XLS* system provides up to 12 Amps of 24VDC power for use in driving the basic 4 notification appliance circuits. These supervised notification appliance circuits can be software configured for a wide variety of functions—such as standard NAC operation (bells, horns, chimes), strobes (synchronized or non-synchronized), coded audibles (Temporal Code 3, Marchtime, Zone Coded, etc.), Municipal Tie, Leased Line, Extinguishing agent releasing (HFC-227ea or Halon) or sprinkler pre-action and deluge applications. The PMI/PMI-2/PMI-3's large easy-to-read VGA display simplifies system operator control.

By adding intelligent loop controller cards, a basic *FireFinder-XLS* system can be expanded to support up to 2500 intelligent detectors and devices spread across a flexible number of DLC or MLC (Fire only) loops. The system can also be expanded by adding additional CC-5 cardcages and power supplies to support conventional Form C relay modules, network interface cards for remote enclosure communication, conventional detectors and devices and solid state output modules—typically for use in driving graphic annunciators.

The *FireFinder-XLS* system's operator interface is designed to make status information presentation clear and system control functions simple to operate. Through the use of soft function buttons on the system's display, the user can easily "Acknowledge" events, "Silence" or "Unsilence" building audibles, or "Reset" the system. The system status presentation is structured to allow the different types of system events (such as Alarm, Supervisory, and Trouble) to be viewed independently. Each system event presents the user with a custom message describing the location and the type of event (eg. manual alarm, smoke, heat or waterflow). If additional details about the nature of the alarm report or its location are required, the user can depress the illuminated "More Info" button. Additional text messages, device specific details and simple graphic maps tell the user where they are in the building relative to the

alarm report for ease in locating the source of the alarm. For fire fighters using the system, standard NFPA Fire Service icons are presented to alert them to the availability of fire service equipment (stand pipe locations, sprinklers, building fire hoses, fire hydrants, etc.). Standard HazMat icons are also presented to notify responding officials of possible hazards or people in that area of the building. Standard NFPA 704 Hazard rating icons can also be used.

The microprocessor CPU at the heart of FireFinder-XLS rapidly processes logical decisions based on the status of the smoke detection and other initiating devices to control the system outputs. The object oriented software configuration tool, *Zeus*, is used to configure the FireFinder-XLS system's operation based on the customer specified operating requirements.

The System continuously checks all software and hardware for proper operation. It checks all System memory components, control panel electronic hardware, and the System program. A hardware watchdog circuit is provided to ensure that System programs are functioning properly. If a problem develops with the program or processor, the watchdog circuit places the System into a trouble condition and resets it. Each module in the FireFinder-XLS System has its own microprocessor. To ensure reliable operation, if the main panel's central processing unit stops, these modules, operating in degrade, still annunciate alarms and troubles through common lines called *Any Alarm* and *Any Trouble*. All of the modules communicate with the main FireFinder-XLS central processor through an RS-485 network communications system.

While FireFinder-XLS is designed for multiple applications, such as security point monitoring, the fire alarm operation is always processed as the highest priority over all other operating modes. The exception to this is when the XLS is configured as a combined fire and mass notification system, in which case it can be configured to allow fire emergency events to have priority over mass notification events or vice versa.

The XNET and DNET networks allow connection of multiple FireFinder XLS panels into a single networked system and provide support for the optional Global Voice system.

The GCNET (Global Control Network) may be used to connect multiple XNET/DNET networks (each called a "Building") into a single network. GCNET provides Galactic Voice Control across multiple Buildings from a single point, and provides support for galactic display of Fire events via Management Stations. GCNET is carried on a single Multimode or Single mode optical fiber.

The XLS Voice System with a ZAC-40 amplifier, when used in conjunction with Siemens Hi-Fidelity speakers, meets the requirement for low frequency signal tone as described in the section for Determination of Low Frequency Signal Format, in UL464, Standard for Audible Signal Appliance, suitable for sleeping areas as required by NFPA 72 Chapter 18.4.5 (2013 Edition). Refer to the Compatible Notification Appliances list, P/N 315-096363, for compatible speakers.

CONFIGURATION The table below presents the minimum configuration necessary to meet NFPA 72 Local, Municipal Tie, Remote Station, Proprietary and Central Station, UL 1076, NFPA 13 and 2001, ULC S527, UL2572, and ULC S576.

MINIMUM FIREFINDER-XLS CONFIGURATION TO MEET NFPA 72, UL1076, NFPA 13, 2001, ULC S527, UL2572, AND ULC S576

Module	Description	NFPA Minimum Quantity								Voice US and Canada	Canada
		Proprietary	Local	Auxiliary	Remote Station	Central Station ⁹	UL 1076 ^{1,10}	13 or 2001	UL 2572- ULC S576		ULC S527
PMI/PMI-2/PMI-3 ²	Person Machine Interface	1	1	1	1	1	1	1	1	§	1
PSC-12	Power Supply	1	1	1	1	1	1	1	1	§	1
PTB	Power Termination Board	1	1	1	1	1	1	1	1	§	1
RPM/PAL-1/TSP-40A	Remote Printer Interface	1	X	X	X	X	1	X	X	§	X
CC-5	Card Cage	1	1	1	1	1	1	1	1	§	1
ZIC-4A ³	Zone Indicating Card	¹²	¹²	1	⁴	¹³	¹²	¹¹	¹²	§	¹²
ZIC-8B/2C	Zone Indicating Card/ 2 Channel Audio Enhancement	¹²	¹²	X	X	X	¹²	X	¹²	§	¹²
HCP/ICP-B6	Intelligent Control Point	¹²	¹²	X	X	X	¹²	X	¹²	§	¹²
DLC	Device Loop Card	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	1	§	¹⁵
MLC	MXL Line Card	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	¹⁵	X	§	¹⁵
—	Batteries ^{5,6,7}	1	1	1	1	1	1	1	1	§	1
HTSW-1	Tamper Switch	X	X	X	X	X	1	X	X	§	X
NIC-C	Network Interface Card	X ⁸	X ⁸	X ⁸	X ⁸	X ⁸	X ⁸	X ⁸	X ⁸	§	X ⁸
DAC-NET	Digital Audio Card - DNET	X	X	X	X	X	X	X	1	1	X
LPB	Local Page Board	X	X	X	X	X	X	X	1	1	X
LVM	Live Voice Module	X	X	X	X	X	X	X	1	1	X
ZAC-40	Zone Amplifier Card	X	X	X	X	X	X	X	¹⁶	¹⁶	X
ZAM-180	Zone Amplifier Module	X	X	X	X	X	X	X	¹⁶	¹⁶	X
MDOACT/FCA2015-U1 ¹⁷	Multi Point Digital Alarm Com	¹⁴	X	X	¹³	¹³	X	X	X	§	X

X=Not required §=Refer to system classification column for either NFPA or Canada minimum quantity.

- Only HTRI-S, HTRI-D, HTRI-R (DLC); and TRI-60, TRI-S, TRI-B6, TRI-60R, TRI-R, TRI-B6R, TRI-60D, TRI-D and TRI-B6D (MLC) can be used as security initiating devices.
- The PMI/PMI-2/PMI-3 must be programmed by the Zeus programming tool for all System configurations (See the Zeus Quick Start Manual, P/N 315-033875).
- Caution: Disarm all ZIC-4A circuits configured for Releasing Device Service prior to system maintenance.
- One ZIC-4A circuit must be configured for alarm transmission. In addition, depending on the local authority having jurisdiction, additional circuits may be required for Supervisory or Trouble transmission.
- Reference the System Label, P/N 575-234411, for battery maintenance and replacement schedule.
- The batteries available are BP-61, BTX-1, BTX-2 and BTX-3. The BP-61 is a 24V 15 AH battery. The BTX-1 batteries are a pair of 12V, 33 AH batteries. The BTX-2 are a pair of 12V, 75 AH batteries. The BTX-3 are a pair of 12V, 100 AH batteries. Actual battery size depends on System configuration.
- See the PSC-12 Installation Instructions, P/N 315-033060, for Battery Calculations.
- For multi-enclosure systems, one NIC-C is required in each enclosure.
- For Central Station, see Appendix E.
- UL 1076 requires a Model HTSW-1 Tamper Switch and an RPM Remote Printer Module or a TSP-40A Logging Printer.
- Refer to the ZIC-4A Installation Instructions (P/N 315-033050) for programming.
- At least one ZIC-4A / ZIC-8B / HCP / ICP-B6 must be installed.
- Use either the ZIC-4A, MDOACT, or FCA2015-U1 depending on the communication circuit type.
- Refer to the MDOACT Installation Instructions, P/N 315-099351, or FCA2015-U1 Installation Instructions, Document ID A6V10334254, for compatible head-end equipment. Only required for DAC (Digital Alarm Communicator) Type Signaling.
- One DLC or one MLC is required.
- At least one ZAC-40/ZAM-180 must be installed.
- The FCA2015-U1 requires the XDOACT-ASSY mounting bracket, Document ID A6V10807278.

BASIC SYSTEM

The basic FireFinder-XLS Control Panel consists of the following components:

- PMI/PMI-2/PMI-3 Person Machine Interface
- PSC-12 Power Supply and Charger
- PTB Power Termination Board
- CC-5 Card Cage
- DLC Device Loop Card *or* MLC MXL Line Card (Fire only)
- HCP Intelligent Control Point (DLC) or ICP-B6 Intelligent Control Point (MLC)
- ZIC-4A or ZIC-8B Zone Indicating Card
- RPM Remote Printer Module / TSP-40A Logging Printer (NFPA 72 Proprietary and UL 1076 configurations)
- CAB1 Enclosure
- HTSW-1 Tamper Switch (UL 1076 configuration only)
- BP-61, BTX-1, BTX-2 or BTX-3 Batteries

PMI/PMI-2/PMI-3 Interface

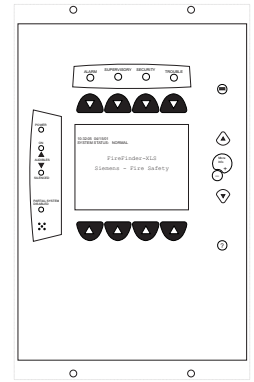
The PMI/PMI-2/PMI-3 Person Machine Interface has the following features:

- Central processing unit (CPU)
- “Soft Function Button” operator interface
- VGA LCD display
- Touch screen and surrounding keys for menu navigation and system control
- Discrete LEDs for Alarm, Trouble, Security, and Supervisory event indication, CPU Fail (PMI-2/PMI-3) and state of audibles
- System random-access memory (RAM)
- FLASH memory stores operating firmware and site-specific database
- Watchdog circuitry

PMI/PMI-2/PMI-3

The PMI/PMI-2/PMI-3 is the primary user interface for the FireFinder-XLS system. It includes a VGA LCD display with a touch screen and surrounding keys used for menu navigation and system control. There are also LEDs for indication of the Alarm, Trouble, Security (PMI/PMI-2 only), and Supervisory events as well as the state of the Audibles.

The PMI/PMI-2/PMI-3 display continuously updates information about the System status. If there are more events in the system than can be displayed on a single screen, a scroll bar appears to the right of the event list. Pressing the up and down navigation buttons to the right of the LCD allows the operator to move through the list.

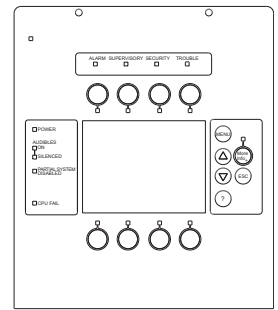


PMI

Along the top and bottom of the LCD are rows of four soft keys. The use of these keys is controlled by software and backlit with a green LED which guides the operator to the next action.

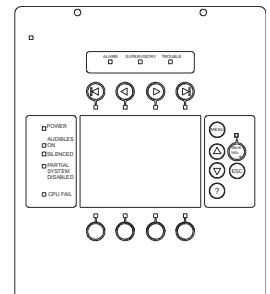
On the right hand side of the LCD are four navigation buttons. These buttons allow scrolling up or down or entering in and out of event detail screens. Also on the right are three function-specific buttons: one for help, one for menu access, and one for selecting the highlighted item on the LCD.

The PMI-1 displays four event queues (Alarm, Trouble, Security, and Supervisory). The PMI-2/PMI-3 displays up to nine queues, as configured in the Zeus programming tool.



PMI-2

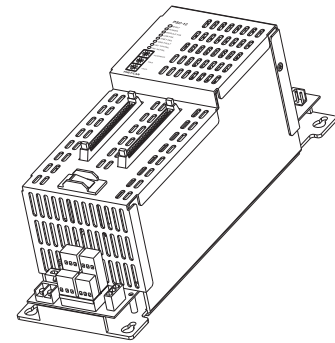
When replacing a PMI-1, it is recommended to use a PMI-3 in order to benefit from all the latest features and fixes. If more than four event queues are required (eg. MNS1, EMG), a PMI-3 *must* be used.



PMI-3

PSC-12 Power Supply

The PSC-12 is a high current power supply that provides the FireFinder-XLS system with primary regulated 24VDC. It is rated at 12A and has a built-in charger that is capable of charging up to 100AH batteries. It also has a microprocessor-controlled transfer circuit that allows the PSC-12 to switch the system power to stand-by batteries during loss or reduction of the AC power.

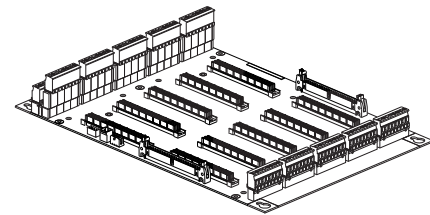


The PSC-12 incorporates an 18A circuit breaker on the battery input. It provides connection to a tamper switch and terminal tie points for system signals.

The PSC-12 communicates directly to the PMI to report fault conditions and allows the PMI/PMI-2/PMI-3 to query the status of the power supply. It has four program-mable single pole double throw relays. Two relays are defaulted to activate when the degrade ALARM bus or degrade TROUBLE bus is asserted.

CC-5 Card Cage

The CC-5 provides a central point for mounting up to five circuit card assemblies. If a card requires power, it is applied through the removable terminal block at the bottom of the cardcage. All external devices for the card are connected to the card through the two removable terminal blocks at the top of the cardcage .



CC-2 Card Cage

The CC-2 provides a central point for mounting up to two circuit card assemblies. If a card requires power, it is applied through the removable terminal block at the bottom of the cardcage. All external devices for the card are connected to the card through the two removable terminal blocks at the top of the cardcage .

DLC Device Loop Card

The DLC supports one loop (two isolated parallel zones) of up to 252 FireFinder-XLS intelligent field devices as well as device accessories (relay bases, audible bases, and remote lamps) in any combination. The DLC initializes, operates, and maintains all devices residing on the loop and communicates all relevant device and event information, such as alarms and troubles, to the System CPU. The DLC allows the System polarity insensitive devices to be connected without generating errors.

The microprocessor controls the on-board isolator to isolate either zone from the loop if one of them is shorted. When one zone is isolated from the loop, the other zone will still work. The on-board microprocessor provides the DLC with the ability to function and initiate alarm conditions even if the main FireFinder-XLS CPU fails.

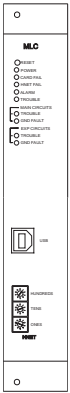


MLC MXL Line Card

The MLC MXL line card loop driver allows MXL intelligent addressable smoke detectors, manual stations, monitor devices, and control devices to interface to the FireFinder-XLS System. The MLC uses two addresses on the HNET network. The application program that is loaded into the on-board microprocessor controls the MLC operation.

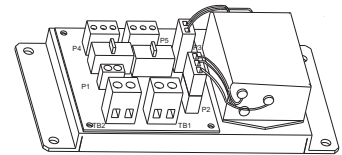
The MLC initializes, operates, and maintains all devices residing on the loop. The MLC communicates all relevant device and event information, such as alarms and troubles, to the System CPU. The sensitivity of any intelligent smoke detector and the logic functions of any intelligent output devices can be checked and adjusted from the PMI/PMI-2/PMI-3 through the MLC. All information about the devices on the loop can be displayed on the PMI/PMI-2/PMI-3.

The MLC supports two separate circuits. Each circuit can monitor and control up to 60 MXL intelligent field devices as well as device accessories (relay bases, audible bases, and remote lamps) in any combination for a total of 120 devices per MLC. The on-board microprocessor provides the MLC with the ability to function and initiate alarm conditions even if the main FireFinder-XLS CPU fails.



PTB Power Termination Board

The PTB filters the power from the incoming AC mains and distributes it to the PSC-12 power supply and the optional PSX-12 power supply extender.

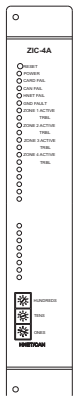


ZIC-4A Zone Indicating Card

The Model ZIC-4A is a zone indicating card that provides notification appliance circuits. It has 4 outputs that can be configured for Class A or Class B and control of audible and visual notification appliances such as horns, speakers, bells, strobes, etc. Its outputs can also be configured as connection to Municipal Tie, Releasing Service per NFPA 13, and 2001 or as a connection to a Leased Line remote monitoring circuit.

Each zone can be configured independently for different usages as programmed in the Zeus tool and can be controlled automatically by program logic or manually using the PMI.

The ZIC-4A supports synchronized and non-synchronized strobes. This selection is available in the Zeus tool under the detail properties for each ZIC-4A circuit. Audible synchronization across multiple ZIC-4A cards is automatic as a part of the FireFinder-XLS operating characteristics and strobe synchronization is done on a card basis (strobe circuits within a ZIC card). Refer to document P/N 315-096363 for a list of strobes that support synchronization.



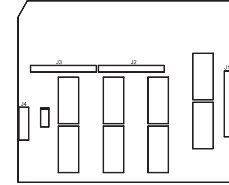
ZIC-8B Zone Indicating Card

The Model ZIC-8B is a zone indicating card that provides notification appliance circuits. It has 8 outputs that can be configured as Class B only for control of audible and visual notification appliances such as horns, speakers, bells, strobes, etc. Each zone can be configured independently for different usages as programmed in the Zeus tool and can be controlled automatically by program logic or manually using the PMI/PMI-2/PMI-3.

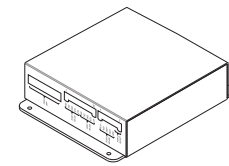


The ZIC-8B supports synchronized and non-synchronized strobes. This selection is available in the Zeus tool under the detail properties for each ZIC-8B circuit. Audible synchronization across multiple ZIC-8B cards is automatic as a part of the FireFinder-XLS operating characteristics and strobe synchronization is done on a card basis (strobe circuits within a ZIC card). Refer to document P/N 315-096363 for a list of strobes that support synchronization.

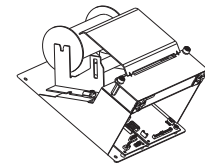
ZIC-2C Zone Indicating Card The Model ZIC-2C adds support for 2 channel audio to the ZIC-8B. The ZIC-2C replaces the signal routing board that is installed on the ZIC-8B in the factory. It mounts in the same location as the signal routing card and utilizes the same mounting hardware. Three 8 pin headers and one 20 pin header are also reused with the ZIC-2C.



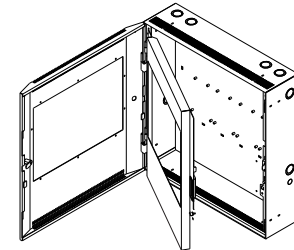
RPM Printer Interface The RPM Printer Interface provides a parallel port to the FireFinder-XLS system. The RPM is compatible with the PAL-1 printer.



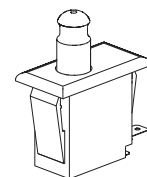
TSP-40A The TSP-40A Logging Printer provides a paper record of the activity of the system. You may install one printer for each PMI/ PMI-2/PMI-3 interface on your FireFinder-XLS System. In addition to the TSP-40A module, the TSP-XB U-Shaped Bracket and Front Plate (P/N 500-849949) and TSP-XC Cable Kit (P/N 500-849950) must be ordered and installed.



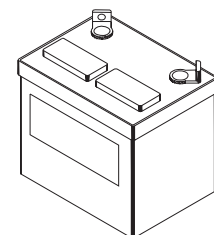
CAB Enclosures The FireFinder-XLS system can be housed in one of three enclosures: CAB1, CAB2, or CAB3. The CAB1 is a single-row enclosure that consists of a backbox, front door and inner door that is shipped assembled. The CAB2 and CAB3 are two-row and three-row enclosures respectively with the backbox and doors (inner and outer) shipped separately.



HTSW-1 Tamper Switch The HTSW-1 Tamper Switch is a three-position switch that monitors the opening of the FireFinder-XLS enclosure and reports a security condition. Closing the door automatically returns the switch to its normal operating position. The switch can be pulled out to indicate a closed position for maintenance purposes.



Batteries The BP-61 is a 24V 15 AH battery. The BP-61 is recommended for the NFPA 72 Local and 72 Proprietary and the UL 1076 Systems. Battery size selection depends on System configuration. See the Battery Calculation section of the PSC-12 Installation Instructions, P/N 315-033060, for further information.



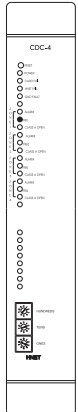
The BTX-1 batteries are a pair of 12V, 33 AH batteries that are housed in the bottom of the CAB enclosure. The BTX-2 batteries are a pair of 12V, 75 AH batteries. The BTX-3 batteries are a pair of 12V, 100 AH batteries. Battery size selection depends on System configuration. See the Battery Calculation section of the PSC-12 Installation Instructions, P/N 315-033060, for further information.

OPTIONAL MODULES

The modules listed below are available as options to the FireFinder-XLS system.

CDC-4 Conventional Detector Card

The Model CDC-4 is a card that allows conventional devices to be used on the FireFinder-XLS system. It provides four Class A or Class B conventional zones. Each zone can support two-wire photoelectric or ionization compatible smoke detectors and an unlimited number of normally open circuit closure devices. The module also supports Siemens Industry, Inc. flame and beam detectors. The relay base, remote lamp and audible base may also be used with the CDC-4. The CDC-4 uses one network address on the FireFinder-XLS system. It has diagnostic LED indicators showing module status and the status of each zone.



CRC-6 Relay Module

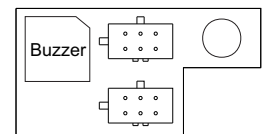
Each CRC-6 module provides six fully programmable relays. Each relay contains one set of SPDT contacts rated at 4A, 30 VDC/120 VAC resistive and 3.5A, 120 VAC (0.6 PF) inductive. All relay coils are supervised to ensure proper operation.

Individual relays can be automatically activated or deactivated through control by event and time based logic contained in FireFinder-XLS. Each relay may also be either manually controlled or may be disarmed through the PMI/PMI-2/PMI-3.



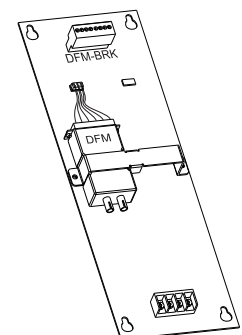
CSB CAN Sounder Board

The CSB is a module that contains a sounder (buzzer) that can be used with the SCM-8 or FCM-6 to provide audible feedback to indicate that a switch closed properly and communication was successful. The CSB requires no programming.



DFM/DFM-BRK Fiber Optic Interface/Bracket For DNET

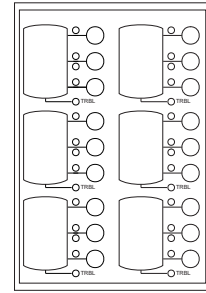
The DFM-BRK provides a fiber optic interface for the Fire-Finder XLS digital audio network (DNET) which interconnects the DAC-NET modules. The DFM-BRK can be connected either Style 4 or Style 7 and utilizes the Telebyte model DFM fiber optic converter. The DFM uses 62.5/125 um fiber at distances up to 2KM. Standard ST connectors are provided for connection of the optical fiber.



In Canada, ULC S524 requires that all interconnecting data communications links for networks be wired DCLC (style 7) except for dedicated network communication to annunciators.

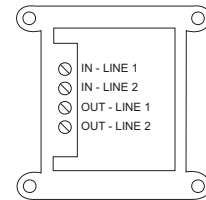
FCM-6 Control Module

The FCM-6 contains six sets of three pushbutton switches and their corresponding LEDs. The ON and AUTO switches both have one bi-color (red/green) LED while the OFF switch has one bi-color and one yellow LED. The functions of the switches and LEDs are programmed using the Zeus Tool (Refer to the Zeus Quick Start Guide, P/N 315-033875). All LEDs can be programmed ON, OFF, or FLASHING.



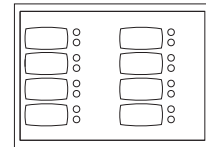
HLIM Loop Isolator Module

The HLIM Loop Isolator Module isolates short circuits on FireFinder-XLS intelligent loops. By placing devices between HLIMs during installation, a short in the wiring within that group is disconnected from the rest of the loop. The remainder of the devices continue to operate. The HLIM operates in both Style 6 (Class A) and Style 4 (Class B) circuits.



LCM-8 LED Control Module

The LCM-8 contains eight pairs of LEDs. Each pair contains one bi-color (red/green) and one yellow LED. The functions of the LEDs are programmed using the Zeus Tool (Refer to the Zeus Quick Start Guide, P/N 315-033875). All LEDs can be programmed ON, OFF, or FLASHING. These LEDs are used for system status annunciation.



MDACT Multi-Point Digital

The MDACT is a multipoint serial dialer for use in FireFinder-XLS Alarm Communicator systems where point identification of alarm, supervisory, status or trouble indication is required at central stations.

XDACT (FCA2015-U1)

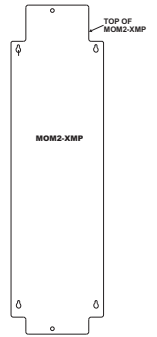
The XDACT (FCA2015-U1) enables remote transmission of alarms and events via the public telephone system. The module is installed next to the PMI as per the XDACT-ASSY Installation Instructions, Document ID A6V10807278, and is controlled by the PMI. When replacing an MDACT with a FCA2015-U1, the Zeus configuration will need to be updated accordingly. Features include temporarily storing alarm messages, supervision of two independent circuits, and setting of the alarm message priority.

K-CBL (Printer Interface Cable)

The K-CBL is an RS232C printer interface cable which is used to connect a user supplied Keltron 90 Series Miniprinter model VS4095/5 to a XLS-FireFinder System. The Keltron 90 Series Miniprinter and its associated cabinet must be mounted externally in the same room and within 6 feet from the XLS-FireFinder System. The K-CBL Printer Interface Cable and the Keltron 90 Series Miniprinter model VS4095/5 can only be used in UL864 installations.

MOM2-XMP
MOM2 Mounting Plate

The MOM2-XMP is used in CAB1, CAB2, and CAB3 enclosures for mounting MOM-2 modules. A MOM2-XMP mounts in one position on a CAB-MP system mounting plate.



NIC-C Network Interface Card

The NIC-C is a card that provides HNET or XNET and CAN network communication. The HNET/XNET network can be wired either Style 4 or Style 7. For HNET one NIC-C is required in each enclosure. For XNET one NIC-C is required per system. This NIC-C must be installed in the same enclosure as the PMI/PMI-2/PMI-3. Each NIC-C occupies one HNET address. The CAN network can be isolated within a given enclosure or extended external to the enclosure. External CAN networks require either an RNI, OCM-16 or SIM-16 in the remote enclosure. The CAN address of the NIC-C does not need to be set.



In Canada, ULC S524 requires that all interconnecting data communications links for networks be wired DCLC (style 7) except for dedicated network communication to annunciators.



The NIC-C supervises the network to insure proper operation. Any faults that are detected by the NIC-C are reported to the PMI/PMI-2/PMI-3 for annunciation. In addition, the NIC-C has diagnostic LEDs that indicate which faults have been found. Individual LEDs are included for Loop A and Loop B faults, as well as an LED for complete failure of the network. The NIC-C can also be configured to perform ground fault detection on the network.

NRC Network Ring Card

The NRC Network Ring card connects FireFinder-XLS panels together to form a Class X (Style 7) ring. The NRC can also be configured for Class B (Style 4) operation in panels where a ring is not required as an alternative to the NIC-C card.



In Canada, ULC S524 requires that all interconnecting data communications links for networks be wired DCLC (style 7) except for dedicated network communication to annunciators.



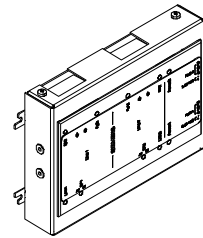
It provides communication between its host FireFinder-XLS panel and other FireFinder-XLS panels and replaces the NIC-C when a ring connection is needed. One NRC is required in each FireFinder-XLS panel. This NRC must reside in the same enclosure as the PMI/PMI-2/PMI-3.

The NRC supervises the network to ensure the proper operation. Any faults that are detected by the NRC are reported to the PMI/PMI-2/PMI-3 for annunciation. In addition, the NRC has diagnostic LEDs that indicate which faults have been found. The NRC also performs ground fault detection on its outgoing ring port. The NRC isolates faults to the individual link in trouble. Communication continues unaffected (Style 7 only).

In some cases, a reset at the PMI/PMI-2/PMI-3 is required to clear network troubles. The XLS network can be wired using copper wire, single-mode fiber, multi-mode fiber, or any combination of the three.

FN2006-U1, FN2007-U1
Fiber Network Module

The FN2007-U1 multi-mode (MM) fiber network module and the FN2006-U1 single-mode (SM) fiber network module can be used to network FireFinder-XLS panels over large distances using glass fiber optic cables. They are listed for use only with systems that include NRC cards, but not NIC-C cards. Each module mounts to a COM-BRK bracket. The COM-BRK takes up the same space as the CC-2 card cage.



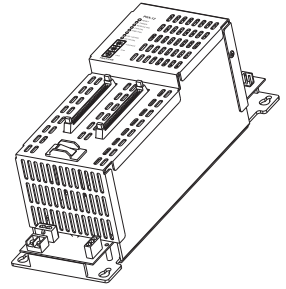
OCM-16 Output Control
Module

The OCM-16 is a remotely located, general purpose output module. It provides sixteen open collector outputs to drive LEDs, incandescent lamps, or external relays. There is an additional output for a local audible and two inputs for momentary lamp test and local audible silence switches.



PSX-12 Power Supply Extender

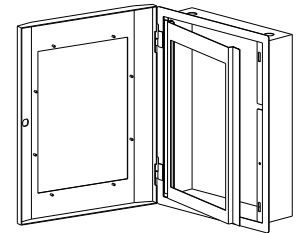
The PSX-12 is a high current power supply extender. The power supply extender works in conjunction with the PSC-12 power supply to provide an additional 12A of regulated 24VDC for internal or external system use. Up to three PSX-12 modules may be connected to one PSC-12 power supply and one set of batteries. The PSX-12 has a microprocessor-controlled transfer circuit that allows it to switch the system power to stand-by batteries during loss or reduction of the AC power.



REMBOX 2/4 Remote System Enclosure

The REMBOX2 and REMBOX4 Enclosures are used to house a remote PMI/PMI-2/PMI-3 or CAN modules (FCM/LCM/SCM/OCM/SIM). The REMBOX consists of an outer door, an inner door, and a backbox.

The outer door and inner door are permanently hinged left. The REMBOX has a 3/4 inch flange on all four sides of the enclosure which is used for flush mounting applications. The backbox is mounted on a flat surface with four user-supplied bolts that are a maximum of 1/4 inch in diameter.



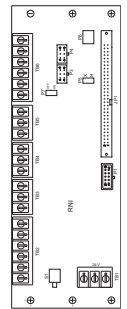
RNI Remote Network Interface

The RNI allows for the remote installation of the PMI/PMI-2/PMI-3 (on HNET) and the LCM-8/SCM-8/FCM-6/SIM-16/OCM-16 (on CAN) modules. The HNET can be wired either Style 4 or Style 7. The RNI may be placed in the middle or at the end of either the HNET or CAN networks.



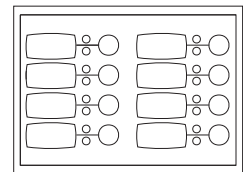
In Canada, ULC S524 requires that all interconnecting data communications links for networks be wired DCLC (style 7) except for dedicated network communication to annunciators.

The RNI mounts in the rear of either the REMBOX2 or REMBOX4 enclosures. The RNI provides terminal blocks for all field wiring connections. Internal connections are made to plug in connectors specifically provided for each of the installed modules.



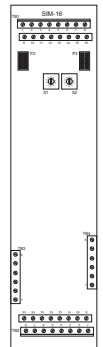
SCM-8 Switch Control

The SCM-8 contains eight switches and eight pairs of LEDs. Each pair contains one bi-color (red/green) and one yellow LED. The functions of the switches and LEDs are programmed using the Zeus Tool (Refer to the Zeus Quick Start Guide, P/N 315-033875). All LEDs can be programmed ON, OFF, or FLASHING. The SCM is used for manual control of the systems.



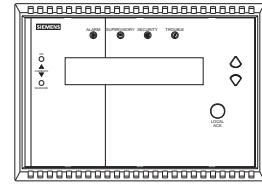
SIM-16 Supervised Input

The SIM-16 is a remotely located, general purpose input module. It provides sixteen input circuits for remote system monitoring. Each input can be individually programmed as supervised (dry contacts only) or unsupervised (general-purpose input). The SIM-16 has two Form C relays. The relays and the inputs are programmable using the Zeus programming tool.



SSD System Status Display

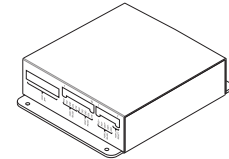
The SSD displays the Alarm, Trouble, Security, and Supervisory event status of a system remotely from the PMI/PMI-2/PMI-3. It has four 40 character alphanumeric LCD character lines, backlit upon status change or display toggling. This module is supervised by the main panel and also has LEDs and an optional sounder to indicate the status of the system. The SSD has the capability to store up to 1500 event messages and has pushbuttons to scroll through these events. Its display is independent from the display on the PMI/PMI-2/PMI-3 and during the SSD initial power up, it is configured as a Display Only module. SSD-C and SSD-C-REM models have the capability to control the system remotely from the PMI/PMI-2/PMI-3.



The SSD, SSD-C, or SSD-C-REM must be operated in display-only mode if the system is configured for expanded queue mode.

VPM VESDA® Peripheral Module

The VPM is an HNET module that interfaces to a VESDA HLI High Level Interface. The VPM must be mounted on a VPM-MP mounting plate (S54430-F95-A2) inside a CAB enclosure with an HLI card and a socket card (VESDA-HLI-Kit S54430-F99-A2). This equipment will support VESDA LaserFOCUS™, LaserCOMPACT™, LaserPLUS™, LaserSCANNER™, LaserINDUSTRIAL and FireTRACER detectors. One VPM can support two VESDA-HLI-Kits and a total of 200 VESDA detectors. The VPM uses one network address on the FireFinder-XLS System. All VESDA detectors connected to the VPM are addressed using a VESDA programmer. The VPM communicates the status of the VESDA devices over HNET to the FireFinder-XLS System where it can be displayed on the PMI/PMI-2/PMI-3.



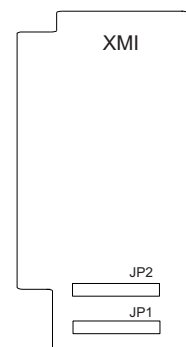
XDMC XLS Digital Digital Message Card

The XDMC has a library of factory-recorded phrases which the user may leverage to form custom messages. This operation is performed with the XDMC Message Composer tool, which is available both within the Zeus programming tool and as a standalone application. The user may also provide a library of custom phrases using the Composer tool. An XDMC can store up to 300 prerecorded messages and 60 minutes of audio.



XMI FireFinder-XLS to MDACT Interface

The XMI provides an interface between the FireFinder-XLS System and the MDACT Digital Alarm Communicator. Both the XMI and the MDACT must be installed in the same MOM-2 cardcage. Mounting plate Model MOM2-XMP is required to install the MOM-2 into the FireFinder-XLS enclosure models CAB-1/-2/-3. The XMI has two 60-pin receptacles for the FireFinder-XLS data bus allowing the MOM-2 containing the XMI to be installed into any module location in the rear of a CAB-1/-2/-3. The XMI receives 24V power from the PSC-12 and produces a local 5VDC and 24VDC for the MOM-2 which in turn provides power to the MDACT.



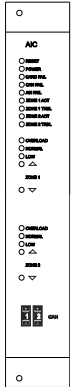
VOICE SYSTEM MODULES

AIC Audio Input Card

The AIC (Audio Input Card) is a card that provides two external isolated analog audio inputs to the voice system. External audio sources can be any of the following: tape recorder, CD player, radio, PBX interface (for convenience paging through the telephone system), etc.

The AIC contains two dry contact inputs to activate the two audio inputs separately.

Each input can be configured independently for different usages via the Zeus programming tool. Each input can be controlled automatically via system logic dependant on its individual configuration or manually by using the voice control panel. The input levels can be adjusted via the Zeus tool or manually with push buttons at the AIC front panel. During the initial power-up condition, each input is shut off.



ALCC Audio Level Conversion Card

The ALCC is an Audio Level Conversion Card that contains two audio channels. Each channel is capable of accepting speaker-level audio at 70VRMS from Siemens amplifier model ZAC-40. There is a single output channel of line-level audio for connection to the AIC (Audio Input Card).

The ALCC adds system-wide live emergency paging capability to networked XLSM systems. Located on the receiving end in up to 63 remote XLS nodes, the ALCC converts the audio signal generated by the amplifiers located in the primary and secondary paging stations into a form that is compatible with AICs located in the remote stations.

The ALCC is transparent to the host system. As such, it supports all styles of wiring supported by ZAC-40 amplifiers. It provides supervision by constantly monitoring its two audio channels, reporting faults both visually and through the downstream AIC. Furthermore, the ALCC contains audio detection and channel selection circuitry that prioritizes incoming audio, enables the appropriate channel, closes the AIC audio active contact, or cuts the output of the ALCC to generate an AIC trouble, depending on the presence of incoming audio or circuit faults. Finally, all XLS functions are configured in the Zeus programming tool via standard logic functions with no need for special software or hardware upgrades.



DAC-NET (D-NET)

The DAC-NET is the CAN-BUS master for all CAN modules. One DAC-NET is required in each enclosure. It is the source point for eight digital audio channels and communicates audio data via the ASI-BUS to all digital audio cards. It communicates all instructions and messages directly with the PMI/PMI-2/PMI-3.

The DAC-NET contains an optional LPB (Local Page Interface Board) which has to be mounted piggyback. This CAN module with a fixed CAN address provides the microphone input from the LVM, the telephone riser input from the FMT, and an output for the monitor speaker on the LVM. It provides network communication (D-NET) between enclosures (nodes). The network can be wired either Style 4 or Style 7. Each DAC-NET occupies one D-NET address.

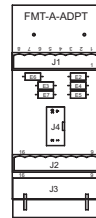


In Canada, ULC S524 requires that all interconnecting data communications links for networks be wired DCLC (style 7) except for dedicated network communication annunciators.

The DAC-NET contains various on-board tones and audio messages.

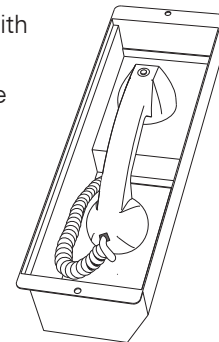
FMT-A-ADPT Class A Riser Module

The FMT-A-ADPT provides the FMT with Class A riser capability. The telephone riser is supervised by the primary FMT.



FMT Fireman's Master Telephone

The FMT Fireman's Master Telephone provides first responders with an emergency telephone system for communication with remote locations. The FMT is located in the main FireFinder-XLS enclosure and includes a handset for the operator of the telephone system.

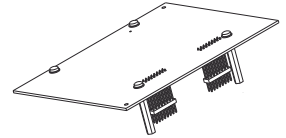


FTS Series Telephone Stations

The FTS Series of Telephone Stations consists of the FTS, FTS-P, FTS-C, FTS-CL and FTS-PCL models. Any of the models in the FTS Series can mount into either the FB-300 flush backbox or the FB-301S surface backbox. The backboxes are mounted on the wall of the facility in accordance with local mounting codes in locations that provide easy access.

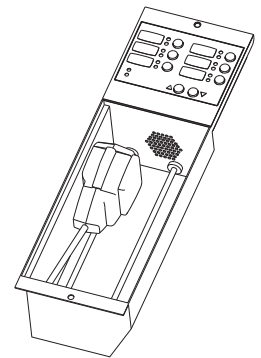
LPB Local Page Board

The LPB (Local Page Board) is used to connect the alarm microphone, mounted in the LVM (Live Voice Module), and the voice system internal telephone system. The LPB converts the two analog input signals into the system's internal digital format. Additionally the LPB provides one analog output to connect the monitor speaker, mounted in the LVM. This output signal is one of the eight internal voice audio channels selectable at the voice control panel.



The microphone signal wiring between LVM and LPB is supervised. The microphone audio input of the LPB is not transformer isolated (each LVM microphone output is transformer isolated). The audio input from the telephone riser is transformer isolated.

Each of the three audio channels can be configured independently via the Zeus tool. Each audio channel can be controlled automatically via system logic, dependent on its individual configuration or manually by using the voice control panel.



LVM Live Voice Module

The LVM Live Voice Module provides first responders with a means of sending live voice messages to specified audio zones. The LVM has a push-to-talk switch on the microphone, as well as a retractable coiled cord. Both the push-to talk switch and the microphone are supervised. The LVM has a built-in speaker to preview active tones and messages.

PFT Series

The PFT Series Telephones include models PFT and PFT-P. Both models have a jack at the end of the phone that plugs into either an FJ-303(SS) or FJ-304(SS) plate. Model PFT-P has a "push-to-talk" button.

TZC-8B Telephone Zone Card

The TZC-8B Telephone Zone Card provides a way for emergency response personnel located throughout a building to speak with one another during emergency situations. The card is located in any FireFinder-XLS enclosure and is connected to jacks or FTS Telephone Stations located throughout the building. Portable phones (Models PFT and PFT-P) that plug into these jacks or FTS Telephone Stations (Model FTS) can communicate to the FMT Master Telephone located at the main enclosure or to telephones connected to the system.



ZAC-40 Zone Amplifier Card

The ZAC-40 is a CAN data bus card that contains two speaker zones and one 40 Watt audio amplifier capable of operating at 25, 70 or 100 VRMS. The two speaker zones can be wired to operate as either a single Class A zone, a single Class B zone, or as two Class B zones independently protected to provide split zone or interleaved speaker zones.

The ZAC-40 can also be used as a backup amplifier to serve as a backup for other ZAC-40 amplifiers in a one to one backup or one to many backup.

The ZAC-40 contains a local external audio input circuit (0 dB) and a dry contact input to switch on the amplifier and activate the two zones as configured in the Zeus programming tool. The ZAC-40 is capable of amplifying any one of the 8 audio channels that transmit from the DAC-NET (Digital Audio Card-NET) via the internal digital audio ASI bus (Audio Serial Interface).



ZAM180 Zone Amplifier Module

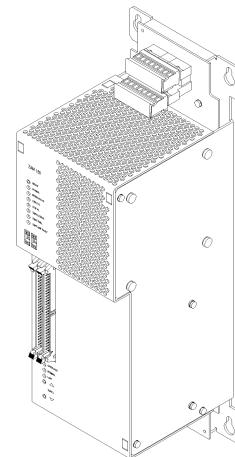
The ZAM-180 is a CAN data bus module that contains two speaker zones and one 180 Watt audio amplifier capable of operating at 25, 70 or 100 VRMS.

The two speaker zones can be wired to operate as either a single Class A zone, a single Class B zone, or as two Class B zones independently protected to provide split zone or interleaved speaker zones.

The ZAM-180 can also be used as a backup amplifier to serve as a backup for other ZAM-180 amplifiers in a one to one backup or one to many backup.

The ZAM-180 contains a local external audio input circuit (0 dB) and a dry contact input to switch on the amplifier and activate the zones as configured via the Zeus programming tool. The ZAM-180 is capable of amplifying any one of the eight audio channels that transmit from the DAC (Digital Audio Card) via the internal digital audio ASI bus (Audio Serial Interface).

The ZAM-180 mounts on a CAB-MP Mounting Plate and occupies one space.



VIRTUAL NETWORK TUNNEL (VNT)

VNT

The VNT (Virtual Network Tunnel) is a network interface computer that connects an XLS system (a "Building") to the GCNET network. When used to connect a Building to GCNET, the VNT routes XNET, HNET, CAN, and VoIP audio over GCNET. In addition to connecting Buildings to GCNET, the VNT operates Fire Command Centers (FCC), which feature Galactic Voice and paging stations using SCMs, LVMs, SIMs, and OCMs. The VNT contains two NCC-2F cards for connection of HNET and XNET, and it supports an additional USB-based XND for connection of an additional HNET. Audio is connected to the VNT via a custom audio cable. The VNT is mounted on the backplane using the VNT-MP mounting bracket.

X204-2 Multimode Ethernet Switch	The X204-2 Multimode Ethernet Switch is used to connect VNTs and NCCs to the GCNET fiber ring when Multimode fiber is utilized.
X204-2LD Single Mode Ethernet Switch	The X204-2LD Single Mode Ethernet Switch is used to connect VNTs and NCCs to the GCNET fiber ring when Single Mode fiber is utilized.
LIA	The LIA (LVM Interface Adapter) is a connector for the LVM that allows direct connection of the VNT audio cable to the LVM located in the Fire Command Center (FCC). The LIA plugs into the the LVM-PMI audio cable socket and provides screw terminals for the VNT audio cable.
IIC	The IIC (Interface Isolation Card) is utilized for two purposes. First, in NRC-based XNET systems, it isolates the NRC-NIC bridge required for XNET connection to the VNT. Second, in Standalone FCCs requiring more than 99 CAN modules, it separates the two NIC-Cs utilized to operate the CAN buses.

DLC INTELLIGENT ANALOG DEVICES

The intelligent devices described below are available for use with a DLC loop controller on the FireFinder-XLS System. The UL identifiers for compatibility are the same as the model names specified below.

ABHW-4B and ABHW-4S Audible Bases

The ABHW-4S supports the 520Hz tone generation. When used with DLC firmware 6.01.xxxx and later, the ABHW-4 Audible Bases communicate with supported intelligent detectors to generate six different tones:

- March Time 30
- March Time 120
- Steady
- Temporal 3
- Temporal 4 (for CO)
- Temporal 4 Low Power

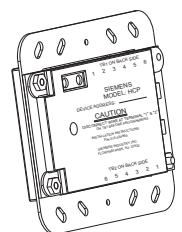
The supported detectors are:

- FDOT421/OH921
- FDO421/OP921
- FDOOT441/OOH941
- FDOOTC441/OOHC941
- FDT421/HI921

Note that in Walk Test Mode, the Audible Bases sound at the reduced 45dB.

HCP Intelligent Control Point

The HCP provides remote, independent control of a notification appliance circuit (NAC), a telephone zone, or a speaker zone (25V or 70.7V RMS). The HCP communicates through the DLC device loop card of the FireFinder-XLS System. Each HCP uses one device address on the device loop.



HFP-11 Intelligent/Analog Photoelectric Detector The HFP-11 is an intelligent photoelectric detector with 135° fixed temperature thermal assist that can be used as an area or duct detector [HFP-11(d)]. The HFP-11 is also a combination photo/thermal detector using our exclusive FirePrint™ technology. It uses either a DB-11 low profile mounting base, a DB-HR mounting base with relay, an ADBH-11 audible base, or an AD-11P or AD-HR air duct housing.

FDOT421/OH921 Multi-Criteria Smoke Detector When used with DLC firmware 6.xx and later, the FDOT421 and OH921 are advanced multi-criteria fire detectors that incorporate a redundant, optical/thermal sensor. They use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box.

The FDOT421/OH921 multi-criteria smoke detector is an exchangeable detector for the HFP-11 in XLS systems when DLC firmware 5.05.0006 is used. Use the DPU programmer/tester (DPU revision 9.00.0009 or higher) with the FC20 system option to program the FDOT421/OH921 to replace an HFP-11 detector in the DLC line. The XLS system will recognize the FDOT421/OH921 as an HFP-11 and display HFP-11 in the system’s PMI/PMI-2/PMI-3 interface and Zeus programming tool. The DLC supports all functions and specifications of the HFP-11 for FDOT421/OH921 except the following:

- Sensitivity Adjustment
- IEC Compensation Report
- Sensitivity Change through PMI/PMI-2/PMI-3
- ASD Disable (ASD can be temporarily disabled at the PMI/PMI-2/PMI-3 when testing is required.)
- ASD Disable with Alarm Verification
- Thermal Element Permanently Disabled
- ASD Duct with Alarm Verification

An EEPROM trouble is generated when ASD is disabled or Alarm Verification is enabled.

The FDOT421/OH921 is NOT compatible with the following accessories:

- AD-11P AD-HR
- DB-HR AD2 Series Duct Detectors

FDCIO422 Addressable Input/Output Module The FDCIO422 is used for the connection of up to 2 independent Class A or 4 independent Class B dry N/O configurable contacts. Input lines can be supervised for open, short, and ground fault conditions (depending on EOL termination resistor and class configuration).

FDO421/OP921 Photoelectric Smoke Detector The FDO421 and OP921 are photoelectric smoke detectors that use state-of-the-art microcontroller circuitry and surface-mount technology for maximum reliability. They use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box.

FDOOT441/OOH941 Multi-Criteria Smoke Detector The FDOOT441 and OOH941 are advanced, multi-criteria fire detectors that incorporate a redundant, optical/thermal sensor. They use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box.

FDOOTC441/OOHC941 Multi-Criteria Detector	The FDOOTC441 and OOHC941 are advanced, multi-criteria fire/CO detectors that incorporate a redundant, optical/thermal sensor with a carbon monoxide (CO) sensor. They use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box.
SBGA-34 Audible Base	The SBGA-34 Audible Base, connected to a ZIC-4A or ZIC-8B, can generate Temporal 4 tones when used with the FDOOTC441/OOHC941 detectors.
FDT421/HI921 Thermal (Heat) Detectors	The FDT421 and HI921 are intelligent, thermal (heat) detectors that provide an advanced method of detection, address programming and supervision - combined with sophisticated FACP communication. They use a surface-mounting base (Model DB-11 or Model DB-11E), which mounts on a 4-inch octagonal, square or single-gang electrical box.
HFPT-11 Intelligent Thermal Detector	The HFPT-11 is an intelligent fixed-temperature or fixed temperature /rate-of-rise thermal detector. It can only be used as an area detector. It uses either a DB-11 low profile mounting base, a DB-HR mounting base with relay or an ADBH-11 audible base.
HLIM Loop Isolator Module	<p>The HLIM isolates short circuits on FireFinder-XLS analog loops. By placing devices between HLIMs during installation, a short in the wiring within that group is disconnected from the rest of the loop. The remainder of the devices continue to operate. The HLIM operates in both Class A and Class B circuits.</p> <p>A yellow LED flashes when the HLIM detects a short circuit. The HLIM then isolates that part of the loop. When the short is removed, the HLIM automatically restores the loop to normal operation. The HLIM does not have a loop address and therefore does not require address programming nor does it reduce the loop capacity below 252 devices.</p>
HMS-2S and HMS-SA Intelligent Manual Station	<p>The HMS-2S/-SA is an intelligent manual station designed to interface with a DLC loop. The HMS-2S/-SA manual station housing has a pull down lever that locks in position after releasing a spring loaded switch. To indicate the manual station is activated, the pull down lever remains down and locked until the station is physically reset. The HMS-SA manual station has a set of normally closed auxiliary contacts which are available for releasing door holders and magnetic door locks.</p> <p>The HMS-2S has a keyswitch which can activate a second component.</p>
HMS-S/-D Intelligent Manual Station	The HMS-S/-D is an intelligent manual station designed to interface with a DLC loop. The HMS-S is a single-action station; the HMS-D is a double-action station. The HMS can be flush mounted or surface mounted using the SB-5R mounting box.
HMS-M Intelligent Manual Station with Metal Housing	The HMS-M is an intelligent metal manual station designed to interface with a DLC loop. The HMS-M is a single action station; when used with the Model HMS-FD Adapter, the HMS-M is double action.

HTRI-M Intelligent Interface Module The HTRI-M intelligent interface module interfaces direct shorting contact devices, such as panic buttons, with the DLC loops. The HTRI-M can monitor a normally open or closed dry contact and it can report the status of the contact.

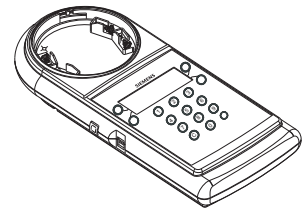
HTRI-S, HTRI-R and HTRI-D Intelligent Interface Modules The HTRI-S/R-D series modules are intelligent interface modules that interface direct shorting contact devices, such as panic buttons, with the DLC loops. The HTRI-S is a single-input module; the HTRI-R is a single-input module with an independently controllable Form C relay; the HTRI-D is a dual-input module.

HZM Remote Conventional Zone Module The HZM is a FireFinder-XLS intelligent device that connects a single zone of conventional devices to a DLC device loop card. The HZM can power up to fifteen compatible 2-wire, ionization or photoelectric smoke detectors or it can power one PB-1191 Beam Detector. It can also monitor an unlimited number of shorting devices such as waterflow switches, thermal detectors, manual stations, etc.

The HZM supports Class A and Class B wiring. The module uses one address on the device loop. It does not require any mechanical address programming. Use the DPU Device Programming Unit to program and test the module.

The HZM cannot be used for mass notification applications.

DPU Device Programming Unit The DPU is used to program and test detectors and devices for MXL and FireFinder-XLS systems. In a FireFinder-XLS installation, the DPU may be used to check wiring loops for ground faults and short circuits as well as to check communication of the installed devices by displaying the device types and addresses of all devices on the loop.



MLC INTELLIGENT ANALOG DEVICES

Refer to the MLC Installation Instructions, Document ID A6V10328217, for a list of devices compatible with the MLC line card.

VPM DEVICES

Refer to the VPM Installation Instructions, Document ID A6V10347523, for a list of VESDA devices compatible with the VPM.

2

INTRODUCTION

This section provides general instructions for mounting and wiring the FireFinder-XLS Control Panel.

Read this section before installing the equipment to ensure proper installation. If you are not familiar with the FireFinder-XLS System, also read the first section of the manual. Be sure to ask Siemens Industry, Inc. Technical Support or an authorized Representative if you have any questions.

Install and use the FireFinder-XLS System in accordance with the appropriate Local, NFPA and NEC Code requirements.

INSTALLATION GUIDELINES



Always remove power (battery and AC) and wait at least 10 seconds to allow the supply voltages to decay before installing or removing any module, cable or wiring.

Follow Steps 1 through 21 for installation. Each step is thoroughly explained in the referenced installation instructions. A description of all compatible FireFinder-XLS system modules and devices can be found in the FireFinder-XLS Installation Instructions Index, P/N 315-034242.

1. Install the desired enclosure; CAB1, CAB2 or CAB3. Refer to the CAB Enclosure Components table on page 2-2 to select the appropriate installation instructions. Refer also to Figure 2-1 on page 2-3 for information on CAB rows and module placement.

When converting an MXL panel to an XLS panel, refer to the FireFinder-XLS Adapter Kits table on page 2-3.

2. Install the HTSW-1 Tamper Switch where required (Refer to the HTSW-1 Installation Instructions, P/N 315-033350).
3. Pull the field wiring into the backbox and dress it to approximately where it will go.
4. Install the PMI, PMI-2, or PMI-3 on the inner door (Refer to the PMI Installation Instructions, P/N 315-033070, the PMI-2 Installation Instructions, P/N 315-050636, or the PMI-3 Installation Instructions, Document ID A6V10446194, as applicable).
5. Install the CC-5/CC-2 on the studs in the backbox or an optional CAB-MP mounting plate (Refer to the CC-5/CC-2 Installation Instructions, P/N 315-033035). Do not install the card guides in the CC-5/CC-2 at this time. The CC-5/CC-2 may be installed on the optional mounting plate outside of the enclosure or with the plate installed in the enclosure (Refer to the CC-5/CC-2 Installation Instructions, P/N 315-033035). If the Mounting Plate is located inside the enclosure you will have to gain access to it by opening the enclosure Inner and Outer doors. If the CC-5/CC-2 is installed on the optional mounting plate outside of the enclosure, place it in front of you so that the word "TOP" is at the top and away from you.

FIREFINDER-XLS ENCLOSURE COMPONENTS

Component	Description / Color	Installation Instruction Part Number
CAB1 CAB1R	Complete CAB1 Single Row* Enclosure - Black Complete CAB1 Single Row Enclosure - Red	315-033007
CAB2-BB CAB3-BB	CAB2 Two Row Backbox - Black CAB3 Three Row Backbox - Black	315-033009
CAB2-BD CAB2-RD CAB3-BD CAB3-RD	CAB2 Two Row Inner and Outer Doors - Black CAB2 Two Row Inner and Outer Doors - Red CAB3 Three Row Inner and Outer Doors - Black CAB3 Three Row Inner and Outer Doors - Red	315-033008
CAB2-XBD CAB3-XBD	CAB2 Transponder Door for Two Row Backbox - Black CAB3 Transponder Door for Three Row Backbox - Black	315-033768
CAB-BATT	Battery Box for BTX-2 or BTX-3 batteries	315-033917
CAB-MP	Optional Mounting Plate for CAB enclosures -Silver (One CAB-MP is used for each CAB Row)	315-033012
MOM2-XMP	MOM2 Mounting Plate for CAB1, CAB2 and CAB3 Enclosures	315-034822
CAB1-TK CAB1R-TK CAB2-TK CAB2R-TK CAB3-TK CAB3R-TK	Flush Trim Kit for CAB1 - Black Flush Trim Kit for CAB1R - Red Flush Trim Kit for CAB2 - Black Flush Trim Kit for CAB2R - Red Flush Trim Kit for CAB3 - Black Flush Trim Kit for CAB3R - Red	315-033013
OD-LP OD-BP OD-GP	Outer Door Full Row Clear Lens Outer Door Full Row Blank Plate - Black Outer Door Full Row Grill Plate (Louvered Door Vents) - Black	315-033008
ID-FP ID-SP	Inner Door Full Row Blank Plate - Black Inner Door Single Module Position Blank Plate - Black	315-033008
ID-MP BCM	Inner Door Mounting Plate Control Module Blank Plate	315-033040
REMBOX2 REMBOX4	Remote Enclosures - Black	315-033772
REMBOX2-MP REMBOX4-MP	Mounting Plate for REMBOX2 - Black Mounting Plate for REMBOX4 - Black	315-034211
VPM-MP	Mounting Plate for VPM, HLI(s) and socket card(s)	A6V10347523
VNT-MP	Mounting Plate for VNT	315-050489
*A Single Row has the capacity to mount up to 4 modules using the CAB-MP Mounting Plate.		

6. Install the PSC-12 on the studs in the backbox or on an optional CAB-MP mounting plate (Refer to the PSC-12 Installation Instructions, P/N 315-033060).
7. Install the PTB in the bottom of the CAB enclosure (Refer to the PTB Installation Instructions, P/N 315-034877).

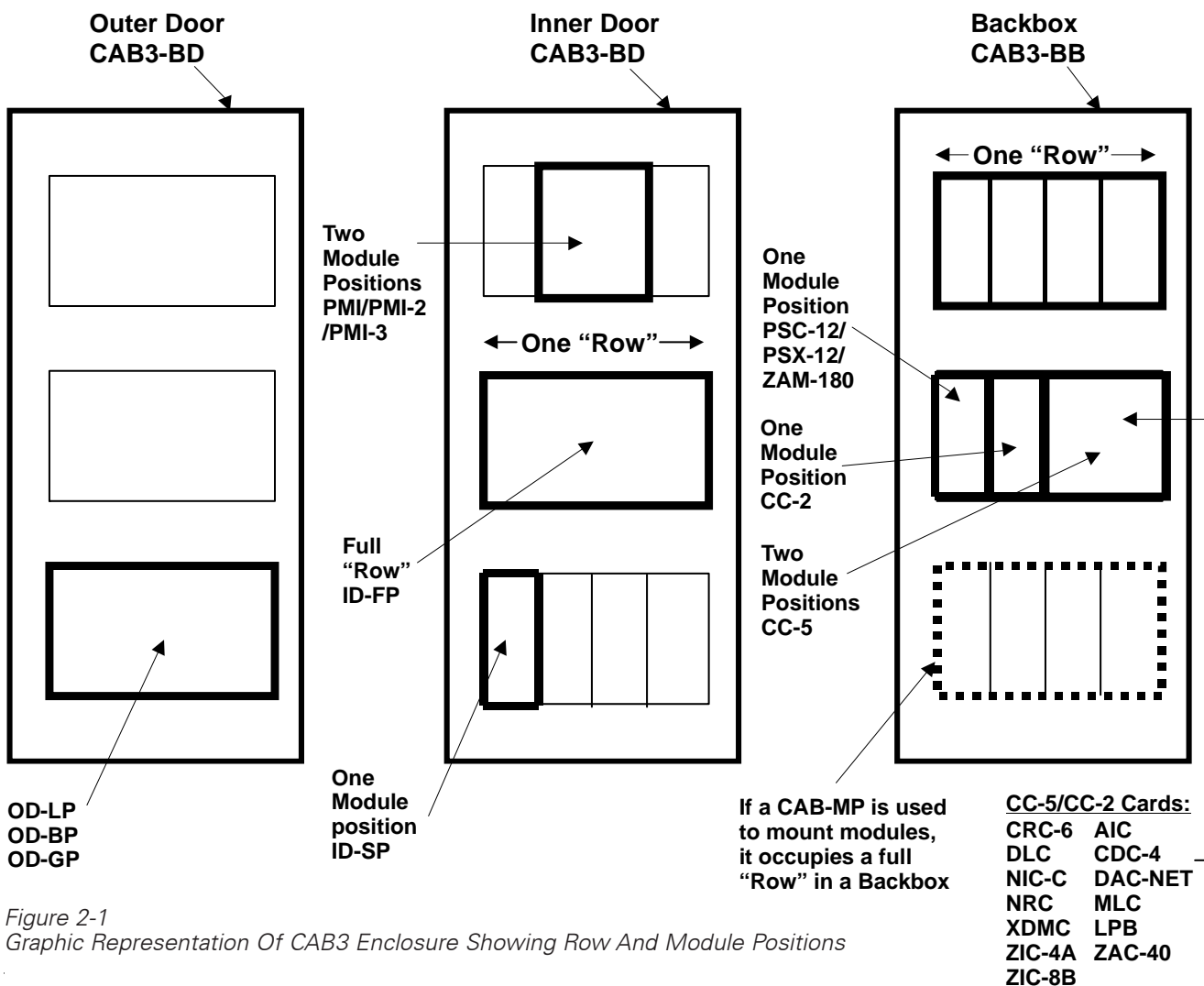


Figure 2-1
Graphic Representation Of CAB3 Enclosure Showing Row And Module Positions

FIREFINDER-XLS ADAPTER KITS

Component	Description / Color	Installation Instruction Part Number
XLS-MLE6-ADPT XLS-MLE6R-ADPT	Three Row Adapter Kit for MLE-6 Enclosure - Black Three Row Adapter Kit for MLE-6R Enclosure - Red	A6V10328630
XLS-MME3-ADPT XLS-MME3R-ADPT	Two Row Adapter Kit for MME-3 or MBR-2 Enclosure - Black Two Row Adapter Kit for MME-3R or MBR-2R Enclosure - Red	A6V10328632
XLS-MSE2-ADPT XLS-MSE2R-ADPT	Single Row Adapter Kit for MSE-2 Enclosure - Black Single Row Adapter Kit for MSE-2R Enclosure - Red	A6V10328634
XLS-MSE3-ADPT XLS-MSE3R-ADPT	Single Row Adapter Kit for MSE-3 Enclosure - Black Single Row Adapter Kit for MSE-3R Enclosure - Red	A6V10328636
XLS-RCC13-ADPT	RCC-1, RCC-3 or RCC-3R to SSD Adapter Kit - Black	A6V10330016
XLS-RCC13F-ADPT XLS-RCC13FR-ADPT	RCC-1F or RCC-3F to SSD Adapter Kit - Black RCC-1FR or RCC-3FR to SSD Adapter Kit - Red	A6V10328638
XLS-EXT-CABLE-PKG	Extension Cable Kit for XLS-MLE6(R)-ADPT Extension Cable Kit for XLS-MME3(R)-ADPT Extension Cable Kit for XLS-MSE-2(R)-ADPT	A6V10329594

8. Install Field Wiring.

Dress the field wiring that will be going to the CC-5. Strip the insulation from the wiring, but **do not connect** the wires to the screw terminals.

9. Check Field Wiring.

Initiating Devices—Install all initiating device bases and end-of-line devices where applicable. Install all initiating devices. Refer to the specific installation instructions provided with each device. Connect the DPU to initiating devices and test FireFinder-XLS loops. The DPU checks that all of the devices are communicating and also checks for ground faults and short circuits. Refer to the DPU User's Manual, P/N 315-033260, for further information.

Notification Appliances—Install all notification appliances (bells, strobes, etc.) Refer to the specific installation instructions provided with each device.

10. If the PSC-12 and CC-5/CC-2 were installed on the optional CAB-MP outside of the enclosure, mount the complete assembly in the CAB row.

11. Connect Field Wiring to CC-5/CC-2 screw terminals, as appropriate.

12. Install card guides in CC-5/CC-2.

13. Install the required modules. Refer to the Installation Instruction Index, P/N 315-034242 for a list of all compatible FireFinder-XLS system modules.

Do not place any modules behind the LVM and the FMT, specifically the PSC-12, PSX-12, CC-5, CC-2 and ZAM-180.

14. On the PSC-12, set the circuit breaker for the battery to the OFF position.

Verify that the AC dedicated circuit breaker is turned off at the mains.

15. Connect the AC mains and battery wiring to the PTB.

16. Connect the PTB output to the PSC-12.

17. Turn on the dedicated circuit breaker.

18. Turn on the PSC-12 circuit breaker for the battery.

19. The System will initialize in default mode.

20. Using the Zeus programming tool, transfer the site-specific program to the FireFinder-XLS system. Refer to the Zeus Quick Start Manual, P/N 315-033875, for further information. Upon completion, the system will automatically initialize. FireFinder-XLS will interrogate the system and verify that the system agrees with the Zeus configuration.

21. Any problem found will be reported in the PMI/PMI-2/PMI-3. Identify all discrepancies and correct them until the system reports SYSTEM STATUS: NORMAL.



3

INTRODUCTION

The PMI is the primary user interface for the FireFinder-XLS system. When the PMI is installed, the display, LEDs and control keys/buttons are visible from behind a locked door. Unlock and open the door to gain access to those keys and buttons.

From the PMI the operator can acknowledge events, control the system notification appliance circuits and reset the system. Detailed information about the nature and location of events can also be displayed.

The PMI contains the site specific program as developed in the Zeus programming tool. All system logic and supervision is provided by the controller in the PMI. The PMI and the Zeus programming tool require compatible firmware/software. The tool will give a warning if the user attempts to use incompatible software to configure a system.

The PMI/PMI-2/PMI-3 contains a VGA LCD, Touch Screen and LEDs for displaying system status. An audible sounds when there are unacknowledged events on the PMI/ PMI-2/PMI-3. This screen is surrounded by keys that are used to control the displayed information and to navigate through these screens. If more items are present than can be displayed on a single screen, a scroll bar appears to the right of the list. Press the up and down navigation buttons to the right of the LCD to move through the list. The selected listing is highlighted in the display. Buttons are also provided to obtain help and to enter into the menu features of the PMI (Refer to Figure 3-1) and/or PMI-2 (Refer to Figure 3-2).

The PMI displays four event types (Alarm, Trouble, Security, and Supervisory). The PMI-2/PMI-3 can display up to nine types, which are configurable in Zeus. In "legacy mode" (configurable at the node level in Zeus), a PMI-3 or PMI-2 running firmware version 12 or above will display only the four event types that are valid for the PMI (Alarm, Supervisory, Security, and Trouble). This allows a PMI-3 to be installed as a replacement for a

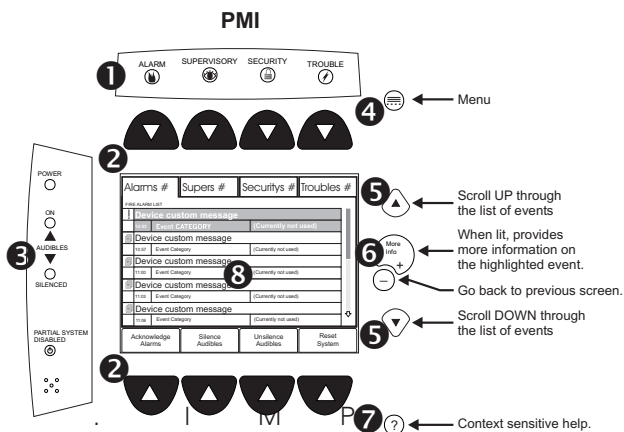


Figure 3-1
PMI User Interface

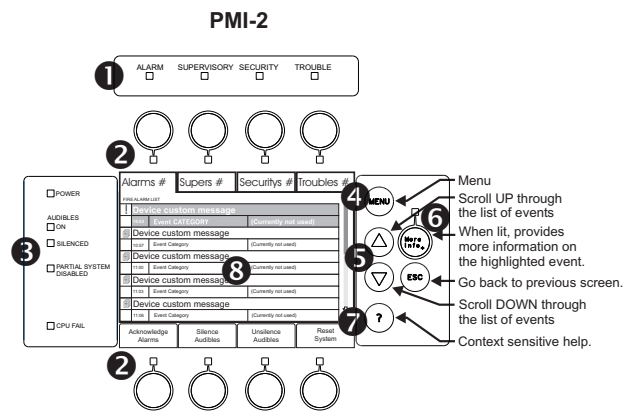


Figure 3-2
PMI-2 User Interface

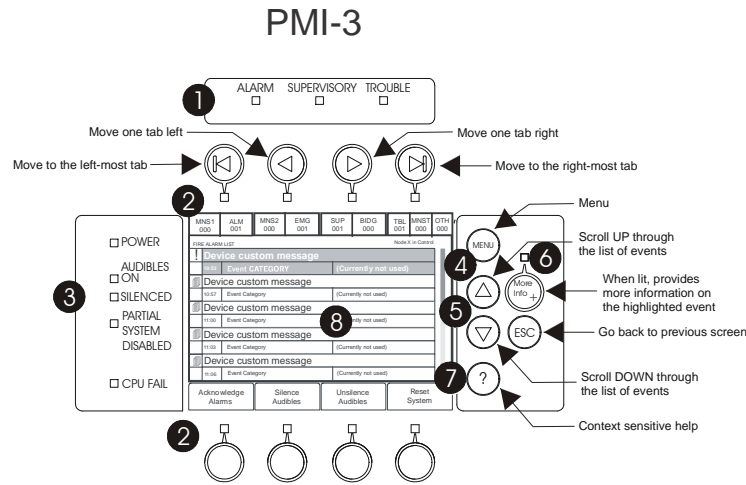


Figure 3-3
PMI-3 User Interface

Interface Overview





- ❶ LEDs blink when an event is reported and unacknowledged (ALARM: red, SUPERVISORY: yellow, SECURITY (PMI/PMI-2 only): yellow, TROUBLE: yellow). The LEDs glow steady if all events in the class/queue are acknowledged. An internal audible alarm sounds steady when there is an unacknowledged fire alarm. It pulses if all alarms are acknowledged, but there is at least one security, supervisory, or trouble condition.
- ❷ Along the top and bottom of the LCD are rows of four soft keys. The function of these keys depends on the screen that is currently displayed. Each of the soft keys has a green LED that is used to guide the operator to the available actions.


For the PMI-3 and the PMI-2 in 'expanded' queue mode, the keys at the top of the LCD are used for scrolling through the various event queues. The navigation buttons are only selectable if the LEDs under them are lit. Only those tabs with one or more events can be selected by scrolling. A tab will blink if there are any unacknowledged events under it. The tab that is currently being viewed is identified by a red outline.
- ❸ POWER - Power LED glows steady green to indicate that the AC power is on; blinks when the System is on battery backup.



AUDIBLES - Audibles ON or Audibles SILENCED glows steady yellow.

PARTIAL SYSTEM DISABLED - Partial System Disabled glows steady yellow when any module/device is disabled or the system is in walktest.

CPU FAIL (PMI-2/PMI-3 only) - CPU Fail glows steady yellow when a main processor failure occurs in the PMI-2.

- ④ Press  (PMI) or  (PMI-2/PMI-3) to display a MENU of available information.
- ⑤ Scroll UP / Scroll DOWN - Use the scroll up button  to navigate up or the scroll down button  to navigate down a list to choose a specific entry from the list of information displayed on the screen. If the button remains depressed, the list scrolls progressively faster until it reaches ten items at a time.
- ⑥ MORE INFO + - Use *More Info/+* to navigate or drill down through the levels of detail about a selected entry. When viewing a report that is longer than one screen, pressing (+) highlights the first entry of the report.

MORE INFO— (PMI) or  (PMI-2) - Use *More Info/-* or *ESC* to navigate or drill up through the levels of detail about a selected entry. When viewing a report that is longer than one screen, pressing — or ESC highlights the last entry of the report.

- ⑦ HELP - Press  for context-sensitive help. Press  again or press the Exit Help soft key to return to your previous position. If no key presses are made for 60 seconds, the help will time out and return to the previous screen.
- ⑧ Touch screen display - Touch selections on the screen when there are options that are not selectable using the soft keys. Use of the touch screen is not required in Alert mode.



The model PMI-2 and PMI-3 are direct replacements for the model PMI, therefore in the screens that display system information, the model name PMI represents the PMI, PMI-2, and PMI-3.

NORMAL MODE

Normal mode is the absence of any event conditions.

The screen displays SYSTEM STATUS: NORMAL with the time and date. If a custom message has been programmed using the Zeus tool (refer to Zeus Quick Start Guide, P/N 315-033875), the node custom message also displays in this mode. See Figure 3-4.

The POWER LED glows steady green in Normal mode when the System has AC power. The ALARM, AUDIBLE ON, AUDIBLE SILENCE, SUPERVISORY, TROUBLE, SECURITY (PMI/PMI-2 only), and PARTIAL SYSTEM DISABLE LEDs are off and the internal audible is off.

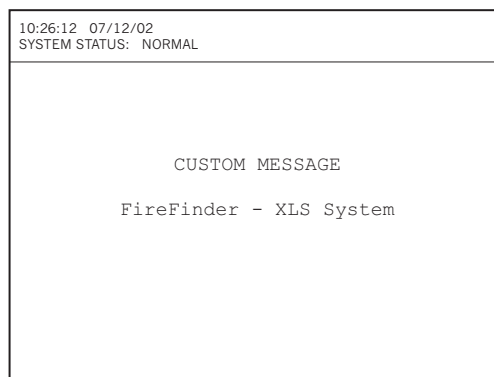


Figure 3-4
Normal Mode Display

Menu

Press the Menu button (see 4 above) to display a menu of all PMI/PMI-2/PMI-3 options. See Figure 3-5. The currently available options are described below.



The alternate language is only visible/present if the Zeus programming tool has set the PMI/PMI-2/PMI-3 for two languages - a base language and an alternate language.

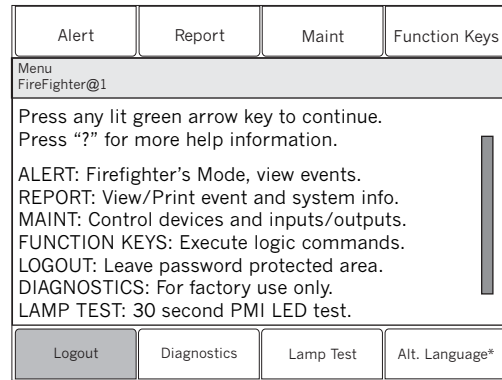


Figure 3-5
PMI Menu Screen

ALERT MODE

When an event occurs in the system, the display enters the Alert or Firefighter’s mode automatically. The events are displayed in priority order (as shown in the table below), the local audible sounds and the appropriate LED blinks. If the event caused notification appliances to sound, the Audibles On indicator lights. At the bottom of the screen an Acknowledge soft key is displayed. Pressing this key acknowledges the event and silences the local audible. A Silence Audibles soft key is displayed at the bottom of the screen. Once all events are acknowledged and audibles are silenced, a Reset System soft key becomes available in the lower right side of the display. If Fire notification appliances were active, two additional soft keys become available at the bottom of the screen. These allow the operator to silence or unsilence the notification appliances (audibles). When fire notification appliances are silenced the Audibles Silenced LED lights. A separate user-configured LED on an SCM-8, LCM-8, or LVM is required for indicating the silenced state for notification appliances used for MNS purposes.

Press the *More Info/+* button to display a screen showing details relating to the selected event. Additional soft keys appear at the bottom of this screen, including one that displays a map of the area in which the event occurred, provided this information has been programmed using the Zeus tool. The operator can return to the previous screen by pressing the (-) or ESC button, which is adjacent to the More Info/+ button.

Unlike the PMI, which displays a fixed set of four event queues on the Alert screen (Alarm, Supervisory, Security, and Trouble), the PMI-3 and PMI-2 version 12 and above support the display of up to nine event queues. The following table shows the default and configurable event types by Country mode.

Canadian (Non-Legacy mode)	USA (Non-Legacy mode)	Europe/Asia Pacific	Legacy mode
MNS1*	MNS1*	ALM	Alarm
ALM	ALM	TBL	Supervisory
MNS2*	MNS2*		Security
EMG	GAS*		Trouble
SUP	SUP		
BLDG	SEC		
TBL	TBL		
MNST*	MNST*		
OTH**			

*If enabled
**User configurable

Meaning of Acronyms:

Acronym	Meaning
MNS1	MNS events as highest priority
ALM	Fire Alarm events
MNS2	MNS event with lower priority than Fire Alarm
EMG	Emergency
GAS	Gas events
SUP	Supervisory
BLDG	Building safety
SEC	Security
TBL	Trouble
MNST	MNS Trouble
OTH	Other - custom event type

For installations that must comply with ULC S527, discrete indicators are to be provided for each event type. This requires configuring LEDs on an LCM for each of the following purposes:

Event Type	Color	Label
MNS1	Red	User defined
MNS2	User defined	User defined
EMG	Yellow	"Emergency"
BLDG	Yellow	"Building Safety" or "BLDG Safety"
MNST	Yellow	User defined

Additionally, if two-stage operation is supported, a red LED must be provided that represents the Alert signal and must be labeled "XXX Alert Signal Activation," where XXX is replaced with a location code and/or a device specific description.

An LED is not required for OTH events.

An additional yellow LED (on an LCM-8) must be configured that indicates the presence of a ground fault. This LED must be present on each node in the system.



Event counts in PMI/PMI-2/PMI-3s and SSDs may differ because SSDs currently display only “primitive” (individual) events, while a PMI/PMI-2/PMI-3 whose devices are programmed into groups in Zeus will display only one queue event per group.



In a GCNET (Global Control Network) system, each PMI can be configured to display local events or all events in the Building, but it cannot display events from different Buildings.



The SSD is only capable of displaying Alarm, Supervisory, Security, and Trouble events. It will not be able to acknowledge those events if unacknowledged higher priority events which cannot be displayed on the SSD are active, such as MNS-1. If the node is configured to display expanded queues, its SSDs must be configured as Display-only.

Alarm

When an alarm is detected, the red Alarm LED blinks, the System’s internal audible sounds steady, the *Audibles On* LED glows steady, and the alarm event displays on the screen with a blinking exclamation mark (!) See Figure 3-6. The event listing displays the Event Custom Message, the Time of the event occurrence and the Alarm Event Category (refer to the Alarm Event: Category Cross Reference Table).

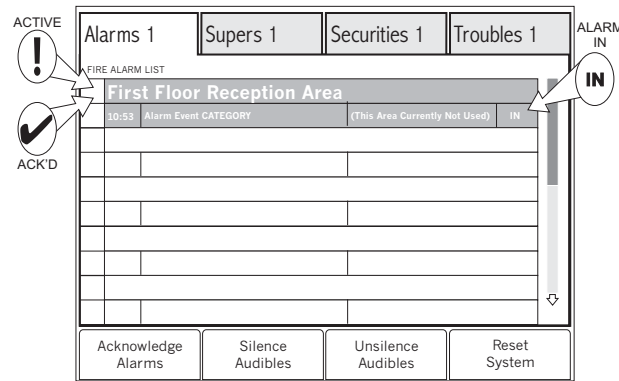


Figure 3-6 Alarm Event Screen (Legacy Mode shown for example)

ALARM EVENT: CATEGORY CROSS-REFERENCE

Category	DLC Physical Device	MLC Physical Device	VESDA Physical Device
SMOKE	HFP-11, HZM, FDO421, FDOT421, FDOOT441, FDOOTC441, OP921, OH921, OOH941, OOHC941	FP-11, ID-60I Series, ID-60P, ILI-1 Series, ILP-1, ILPT-1, ILP-2, CZM-1/-1B6	VLF-250/-500, VLC-505, VLP-400/-010/-002/-012, VLI-885, VFT-15, VLS-200/-300/-600/-700/-204/-304/-310/-214/-314/-210
HEAT	HFPT-11, HTRI, HZM, FDCIO422 Input, FDT421, OP921	FPT-11, ID-60PT, ID-60T, ILPT-1, ILT-1	N/A
MANUAL	HMS, HTRI, FDCIO422 Input, HZM	MSI-1/-10/-10B, MSI-2/-20/-20B, MSI-30B(C) TRI-2/-60/-B6/-S, TRI-2R/-60R/-B6R/-R, TRI-2D/-60D/-B6D/-D, TRI-B6M, CZM-1/-1B6	N/A
CONV. ZONE	HZM (for mixed device usage on a conventional zone)	CZM-1/-1B6 (for mixed device usage on a conventional zone)	N/A
WATERFLOW	HTRI, HZM, FDCIO422	TRI-2/-60/-B6/-S, TRI-2R/-60R/-B6R/-R, TRI-2D/-60D/-B6D/-D, TRI-B6M, CZM-1/-1B6	N/A
GAS	FDOOTC441, OOHC941		

NOTE: Categories are fixed for some devices and selectable for others, based on the application selected in the Zeus programming tool. (i.e., HMS is always MANUAL, but HTRI is selectable.)

In addition, the System responds to alarms with other output functions (as programmed in the Zeus tool) such as other audible signals.

An Acknowledge Alarms soft key displays in the bottom left corner of the screen. Press this key to acknowledge each alarm and to silence the local audible. The blinking exclamation point (!) then changes to a check mark (✓). See Figure 3-6. (If the system is programmed as NFPA 72D in the Zeus tool, it is necessary to individually acknowledge each alarm.)

Highlight an event and press the *More Info/+* button to go to the Devices screen, as shown in Figure 3-7. If the selected item is part of a group, the device list will show the primitive (individual) devices currently off-normal in the event queue. All events in a group of the same type (i.e., Alarm, Trouble) display together in the devices screen. Primitive devices that are not part of a group display by themselves. Depending on how the system is programmed in Zeus, the top event can be a device or a group.

WHERE:
 First Floor Reception Area is the Group Message
 ! is an active event; ✓ is an acknowledged event
 HFP-11 @ address 3:15 is the device custom message
 HFP11 is the event device
 10:56 is the event time
 3:15 is the event device address
 Smoke is the component category
 Photoelectric sensor is the event device component

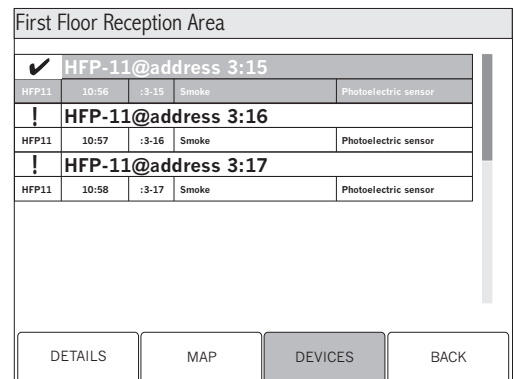


Figure 3-7
Alarm Devices Screen

Pressing the Details soft key takes you to the Details screen as shown in Figure 3-8. The Details screen contains information that has been entered using the Zeus programming tool, such as additional information about the alarm location, the number of devices in alarm (this number can be more than one when the device is part of a group), the alarm types, the name and phone number of a contact person, icons showing the fire equipment in the area and icons showing special conditions.

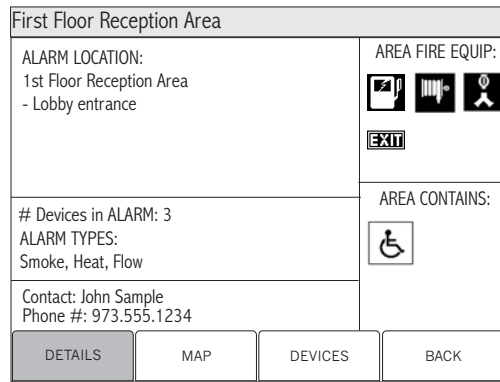


Figure 3-8 Alarm Details Screen

Press the Map soft key to display a map showing the location of the event, provided the information has been programmed using the Zeus tool. Refer to Figure 3-9. Maps can be programmed to provide icons showing the event type. These icons are the same ones that represent Alarm, Security, Supervisory and Trouble on the PMI panel. The map can also be programmed to show the location of the PMI/PMI-2/PMI-3 (“You are here”). All members of a group will display the same map.

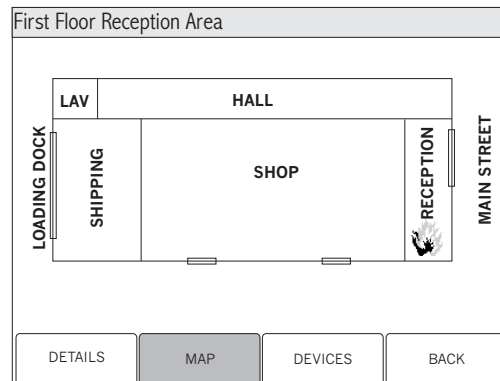


Figure 3-9 Sample Map Screen

List of Icons:

	MNS event (priority 1 and 2)		Fire Alarm
	Emergency (ULC) Gas (UL)		Supervisory
	Other (ULC)		Trouble (Fire or MNS)

Security (PMI/PMI-2 only)

When a security is detected, the yellow Security LED blinks, the System’s internal audible pulses, and the event(s) display on the screen with a blinking exclamation mark (!). This event listing displays the Event Custom Message, the Time of the event occurrence and the Security Event Category (i.e., Door, Monitor Point, etc.).

In addition, the System responds to securities with other output functions (as programmed in the Zeus tool).

An Acknowledge Security soft key displays in the bottom left corner of the screen. Press this key to acknowledge each security and to silence the local audible. The blinking exclamation point (!) then changes to a check mark (✓). See Figure 3-6.

Supervisory

When a supervisory is detected, the yellow Supervisory LED blinks, the System's internal audible pulses, and the event(s) display on the screen with a blinking exclamation mark (!). This event listing displays the Event Custom Message, the Time of the event occurrence and the Supervisory Event Category (i.e., Security, Sprinkler, etc.). In addition, the System responds to supervisorys with other output functions (as programmed in the Zeus tool).

An Acknowledge Supervisory soft key displays in the bottom left corner of the screen. Press this key to acknowledge each supervisory and to silence the local audible. The blinking exclamation point (!) then changes to a check mark (✓).

Trouble

When a trouble is detected, the yellow Trouble LED blinks, the System's internal audible pulses, and the event(s) display on the screen with a blinking exclamation mark (!). This event listing displays the Event Custom Message, the Time of the event occurrence and the Trouble Event Category (refer to the Trouble Event: Category Cross Reference Table below).

TROUBLE EVENT: CATEGORY CROSS-REFERENCE

Category	Physical Device
DEVICE	Any supervised input device on a DLC, VPM or MLC loop, or zone/circuit trouble report -i.e., HFP-11, FDOOTC441, OOH941, HFPT-11, HTRI and FDCIO422 devices, FP-11, FPT-11, TRI devices, HMS, OCM, SIM-16 individually supervised circuits.
ZONE	ZIC zones, ZAC zones, ZAM zones, HZM zones, CZM-1/-1B6 zones
MODULE	Any supervised module trouble - i.e., PMI/PMI-2/PMI-3, DLC, MLC, VPM, ZIC, ZAM, PSC, PSX, NIC.
SYSTEM	Any System-related trouble/failures that are not pinpointed to a specific module, zone or device.
NETWORK	XNET / HNET
NOTE: All of these categories are pre-defined by the factory and are not field selectable.	

In addition, the System responds to troubles with other output functions (as programmed in the Zeus tool).

An Acknowledge Trouble soft key displays in the bottom left corner of the screen. Press this key to acknowledge each trouble and to silence the local audible. The blinking exclamation point (!) then changes to a check mark (✓). See Figure 3-6.

If acknowledged troubles remain in the queue, the system will sound the local audible every 24 hours as a reminder. A message will appear on the PMI/PMI-2/PMI-3 and the sounder will remain on until it is silenced.

Reset Procedures

There are two types of reset procedures that can be performed on the FireFinder-XLS System: Hard Reset and Soft Reset.

Hard Reset

Other terms for Hard Reset are Power-up, Initialization, and Cold Reset. Applying power to the system performs a Hard Reset. Doing so initializes the entire system.

What Is Lost:

- All event conditions (Alarm, supervisory, etc. provided they have returned to the normal state).
- Arm/disarm.
- Manual sensitivity adjustment.

What Is Not Lost:

- Zeus program/database.
- Time and date.
- History log.
- Time-based control.

Soft Reset

A Soft Reset is performed by pressing the Reset System soft key. There two sets of Soft Reset soft keys: one of the Fire system and one for the MNS system. The keys for the Fire system are displayed as “Fire Reset” and those for MNS are displayed as “MNS Reset.” The system can only be reset when all events for that sub-system (Fire or MNS) are acknowledged and the notification appliances are silenced.

What Is Lost:

- All event conditions (Alarm, supervisory, etc, provided they have returned to the normal state).

What Is Not Lost:

- Any user entries such as time and date.
- Arm/disarm.
- Zeus program/database.
- History log.
- Time and Date.
- Manual sensitivity adjustment.
- Time-based control.

XNET Networked System

When the FireFinder-XLS is part of a network of FireFinder nodes communicating over the XNET communication protocol, the PMI/PMI-2/PMI-3's Alert capabilities can be adjusted in several ways to provide the required level of oversight.

Global PMI/PMI-2/PMI-3

With the appropriate hardware upgrade and the proper configuration in the Zeus tool, a PMI/PMI-2/PMI-3 can be given global capability over an XNET network of XLS, MXL and MXLIQ nodes.

A PMI/PMI-2/PMI-3 with global capability is referred to as a Global PMI/PMI-2/PMI-3, and it displays events for all nodes within the XNET network. In contrast, a PMI/PMI-2/PMI-3 that does not have global capability is referred to as a local (or standard) PMI/PMI-2/PMI-3. In a Global PMI/PMI-2/PMI-3, the event device address in the Devices screen is displayed as a global address. The first number in a global address is the address of the node that owns the device, followed by the module and device address of the device.

Whether configured as a Global PMI/PMI-2/PMI-3 or not, a PMI/PMI-2/PMI-3 always displays all events pertaining to its local node. However, a Global PMI/PMI-2/PMI-3 can be configured to selectively display the events for remote XNET nodes for specific event types only. For example, a security-only Global PMI/PMI-2/PMI-3 displays all local events, but it only displays the security events that are posted by remote nodes.



A PMI or PMI-2/PMI-3 set to “Legacy Mode” can only be configured as a Global PMI if all other PMI-2/PMI-3s in the network are also set for “Legacy Mode,” since a Global PMI must be able to display all of the information present on any other node.

Scope of Control

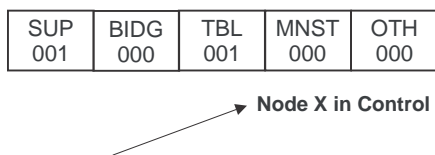
A PMI/PMI-2/PMI-3 that is configured as Display Only does not provide the ability to acknowledge events, to silence or unsilence the notification appliances, nor to reset the system. When an event occurs in a PMI/PMI-2/PMI-3 with Display Only, a Silence Buzzer soft key displays in the bottom left corner of the screen. Pressing this key silences the system’s internal audible.

A Global PMI/PMI-2/PMI-3 that is configured as a PMI/PMI-2/PMI-3 with Control provides control over the entire network of XLS, MXL and MXLIQ nodes. When pressing the soft keys that are available at the bottom of the screen (Acknowledge Events, Silence Audibles, Unsilence Audibles and Reset System), the specific command is executed on all the nodes where it is applicable.

A Global PMI/PMI-2/PMI-3 that is configured as Display Only may retain control over its local node, if configured this way in the Zeus tool. In this case, it behaves as a PMI/PMI-2/PMI-3 with Control with regard to its local node, and as a PMI/PMI-2/PMI-3 with Display Only with regard to the remote nodes. The soft keys at the bottom of the screen are relabeled Local Acknowledge, Local Silence, Local Unsilence and Local Reset, respectively. These control commands apply only to the events and notification appliances in the local node.

Single Point of Control

When configured for Single Point of Control in Zeus (version 12 and above), if an XLS node is granted control of the network, only that node will have Voice, Fire, and MNS control over the entire network. Control is managed by global Voice Command stations associated with the node in control via its Request/Grant/Deny switches. Any Global PMI in the network that does not have control via one of its Voice Command Stations will behave as a Display-Only Global PMI without local control. The PMI will indicate when the node has global control, as follows:



*Figure 3-10
Node X in Control*

In addition, an LCM-16 or SCM-8 LED representing each display and control centre on the network can be configured using the Zeus tool. This should be done on each display and control centre in the network. At each centre, there will be one LED lit to indicate which centre is in control.

For example, if viewing node 1:

Node in control is Node1 in a three node network system



Node in control is Node2 in a three node network system



*Figure 3-11
Control Centre*

A local Command Station can only request access if its node is in network standalone mode (that is, if it has lost communication with the global node that is in control).

In Canada, if a network is configured to include multiple Display and Control centres, it is recommended to configure the network for Single Point of Control. If MNS support is enabled in Zeus, the system must be configured for Single Point of Control.

In Canada, ULC S524 requires that each control unit and transponder for Large-Scale networks (greater than 1000 points, with more than one control panel or transponder) include visual indicators for Stand-alone and Degraded operating modes. This can be accomplished using LEDs on an LCM module.

REPORT MODE (Reporting Detector Sensitivities)

Press the *Menu* button on the PMI/PMI-2/PMI-3 (upper right) and select the *Report* option by pressing the key with the lit green LED pointing to the Report label.

Press the *More Info/+* button on the PMI/PMI-2/PMI-3 to navigate to the desired loop or specific device. When *More Info* is pressed once it displays the FireFinder-XLS node.

- Press the *More Info/+* button again to display a list of FireFinder-XLS modules; use the up and down buttons to select the desired module.
- Press the *More Info/+* button again to display a list of FireFinder-XLS sub-modules (provided your system has sub-modules installed); use the up and down buttons to select the desired sub-module.
- Press the *More Info/+* button again to display a list of FireFinder-XLS devices; use the up and down buttons to select the desired device.

There are four options that can be selected in the Report Mode: Configuration, Status, Queue and History.

For more details on Reports, refer to the PMI Operation Manual, P/N 315-033874.

4

INTRODUCTION

The eight-channel digital evacuation FireFinder-XLS Voice system can be added to the basic FireFinder-XLS fire alarm system. This is accomplished with the addition of the DAC-NET Digital Audio card and its accompanying submodules (ZAC, LVM/LPB, SCM-8, ZIC, FMT, TZC-8B) and zone-installed equipment (speakers, strobes, telephones).

The system is capable of automatically or manually signaling to its installed speaker zone circuits (ZAC). The signal can be up to eight channels of prerecorded messages and/or tones including up to two simultaneous channels of live paging. The tones and prerecorded messages are configurable in the Zeus programming tool and are available for upload to each installed DAC-NET. A maximum of 32 DAC-NET modules can be installed in each FireFinder-XLS stand-alone voice system. Each DAC-NET may input either its own tone/message to a channel, or it may be programmed to use a tone/message from another DAC-NET in the system. The system can be configured via the Zeus tool to provide an LED that lights when a message is being played.

Individual zone circuits (speaker, strobe, telephone) are bundled into geographic groups during system configuration. These groups are either automatically controlled by pre-programmed system logic, or manually controlled by the switches located on one or more Command Stations. Paging, manual control, or monitoring of the speaker or telephone groups can be performed from any location where an LVM/LPB microphone, SCM switch control module, or PMI/PMI-2/PMI-3 is installed.

This chapter describes the operation of a Voice System with the scope of a single XLS node. Separate chapters will describe Global Voice (which extends to all nodes in an XNET network) and Galactic Voice (which extends across multiple Buildings via GCNET).



For U.S. installation only, reference to Power Limited is deemed Class 2 and reference to Power Limited 70V speaker circuits is deemed Class 3. Class 2 and Class 3 designations do not apply to Canadian installations. Please refer to the appropriate product installation instructions for further details.

EQUIPMENT

The Control and Indicating equipment of a FireFinder-XLS Voice system consists of the following components:

- LED Control Module (LCM)
- Switch Control Module (SCM)
- Live Voice Microphone (LVM)
- Firefighters Master Telephone (FMT)
- Telephone Zone Card (TZC-8B)
- Person Machine Interface (PMI/PMI-2/PMI-3)

COMMAND STATIONS

Each FireFinder-XLS Command Station configuration is unique. The requirements of the project determine the modules needed to achieve the desired functionality. The Control view of the Zeus Programming tool is used to configure the Command stations. Each switch on the LVM, SCM and FCM may be configured for any of the manual operations (See page 4-4).



For mass notification applications, “command stations” refer to ACUs. Refer to the “MNS” section of this document for details.



Figure 4-1
Typical FireFinder-XLS Command Station

A voice system may have one or more different locations of control over the same installed equipment. Each control station will generally use Request/Grant/Deny Access switches for managing controls in emergencies, but access restrictions are Zeus-programmable to the degree allowed by the authority having jurisdiction (AHJ).

A location of voice system control (command station) consists of the following:

1. A list of Speaker Groups to be controlled/monitored.
2. A set of Voice Applications to be performed on the Speaker Groups (for example, ALL CALL, SELECT EVAC, DISPLAY ALERT, etc.).
3. An LVM microphone.
4. An optional list of telephone groups and an FMT master phone.
5. Request/Grant/Deny access.

SYSTEM OPERATION

System Indication

All voice system faults are reported at the PMI/PMI-2/PMI-3, and at the programmed speaker group control switch. The operator at the PMI/PMI-2/PMI-3 is able to ACK, SILENCE/UNSILENCE and RESET voice system events. For example, in the event of an ALL EVAC, the Audibles LED on the PMI/PMI-2/PMI-3 comes on and the Silence Audibles soft key displays on the PMI/PMI-2/PMI-3 so the system can be silenced from the PMI/PMI-2/PMI-3.

Automatic Operation

The voice system interfaces automatically to the fire alarm/mass notification system using the speaker functions in the Function view of the Zeus Programming tool. In reaction to events from the fire alarm/mass notification system (DLC devices), the voice alarm system activates its pre-programmed alarm procedures. In fire applications, the voice alarm system typically broadcasts an alarm signal, which is immediately followed with a prerecorded message on the fire floor, the floor above and the floor below. It is common to have two stage alarms, with evacuation in some areas and alert in others. LEDs indicate the current system status and the floors in which the evacuation or alert signal is sounding.

Since this sequence has occurred automatically, only the events that were predetermined in the original system evacuation plan and programmed into the system configuration program will occur.

Evacuation Signal (EVAC)	<p>EVAC sends the evacuation tone or message (predetermined in system design) to all or selected speaker groups in the building requesting that the occupants evacuate. A steady red LED indicates whether the evacuation signal (tone or message) is being sent to the entire building or to selected areas of the building.</p> <p>It is possible to have two different evacuation signals, EVAC 1 and EVAC 2. EVAC 2 will be overridden by EVAC 1 to the same speaker group. Either EVAC signal will be overridden by an emergency page to the same speaker group.</p>
Alert Signal	<p>Alert signal sends the alert tone or message (predetermined in system design) to all or selected speaker groups in the building to alert occupants to the alarm condition. A flashing red LED indicates whether the ALERT signal (tone or message) is being sent to the entire building or selected areas.</p> <p>It is possible to have two different alert signals, ALERT 1 and ALERT 2. ALERT 2 will be overridden by ALERT 1 to the same speaker group. The alert signal will be overridden by an emergency page or an evacuation signal to the same speaker group.</p>
Manual Operation	<p>After a few minutes of automatic operation, the voice alarm system can be taken over manually by authorized personnel.</p> <p>Manual voice operation functions such as emergency paging, evacuation or alert signal activation, firefighters' telephone operation, multiple voice system command center operation, as well as convenience page or background music operation are possible at any time.</p>
Emergency Page	<p>Emergency Page allows a live voice page from the emergency microphone to all or selected speaker groups in the building. An optional preannouncement tone precedes emergency pages for a duration of time set in the Zeus programming tool.</p>
Convenience Page	<p>Convenience Page allows a live voice page from the convenience page microphone to all or selected speaker groups in the building. Convenience pages are a low priority function and will be overridden by an emergency page, an evacuation or an alert signal to the same speaker group.</p>
Background Music	<p>Background Music sends background music from an external audio input to all or selected speaker groups in the building. Background Music is the lowest priority and will be overridden by an emergency page, an evacuation or alert signal and a convenience page to the same speaker group.</p>



Convenience Page and Background Music may only be used in Legacy Mode.

SYSTEM PRIORITIES

The priority of requests to a speaker group in the case that multiple signals (audio channels) are requested at the same time are as follows:

- | | |
|--------------------------------------|---------------------------------------|
| 1. Emergency Page (highest priority) | 2. Warden's (Phone) Page |
| 3. Evacuation Signal 1 (EVAC 1) | 4. Evacuation Signal 2 (EVAC 2) |
| 5. Alert Signal 1 (ALERT 1) | 6. Alert Signal 2 (ALERT 2) |
| 7. Convenience Page | 8. Background Music (lowest priority) |

OPERATION PROCEDURE

Switch Control Module The SCM Switch Control Module is used for manual control of the system. The SCM-8 contains eight switches and eight pairs of LEDs. Each LED pair contains one bi-color (red/green) and one yellow LED. The functions of the switches and LEDs are programmed using the Zeus programming tool. All LEDs can be programmed ON, OFF, or FLASHING.

An "Acknowledge Tone" sounds on a local sounder for any switch press when a CAN Sounder Board is installed.

An "Invalid Tone" from the LVM or CAN Sounder Board sounds on a local sounder for an invalid switch press. For example, a switch press at a non-active control station produces an invalid tone.

Assigning MNS Node Reset usage to an SCM or LVM switch via the Zeus programming tool allows it to be used to reset the MNS sub-system without affecting the Fire sub-system. Assigning it to Node Reset usage allows it to reset the Fire sub-system without affecting the MNS sub-system.

Live Voice Module The LVM Live Voice Module provides first responders with a means of sending live voice messages to specified audio zones. The LVM has a push-to-talk switch on the microphone, as well as a retractable coiled cord. Both the push-to talk switch and the microphone are supervised. The LVM has a built-in speaker to preview active tones and messages at any speaker group. Each of the six switches is programmable in the Zeus tool.

LED Colors

LED COLORS	
Emergency Page	Steady green or flashing green (based on the state of paging function)
Evacuation Signal (EVAC)	Steady red
Alert Signal (ALERT)	Flashing red
Convenience Page	Steady green or flashing green (based on the state of paging function)
Background Music	Steady green (present only when Select Background Music is active)
	Steady yellow indicates a trouble exists in system that is associated with functionality of switch next to LED
	Flashing yellow is used for display functions

MANUAL OPERATION

Emergency Page The Emergency page operation consists of the following functions which are described below: All Page, Select Page, Page to Evacuation, Page to Alert, and Page to Background Music.

All Page

All Page sends the emergency page message from the microphone on the LVM to all speaker groups in the system with a single switch press. Selecting All Page overrides All Evacuation, All Alert, All Convenience Page and All Background Music.

To select All Page, follow the steps listed below.

1. Pick up the Live Voice Microphone.
2. Depress the All Page switch.
3. The All Page switch and All Speaker Group switch LEDs flash green.
4. Depress the key on the Live Voice Microphone
5. The All Speaker Group switch LEDs turn steady green, indicating that all speaker groups are now turned on.
6. Once the microphone is keyed, a preannouncement tone sounds on all speaker groups for approximately 3 seconds (0-10 seconds is programmable in Zeus).
7. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give visual indication to the operator of what is currently sounding.
8. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
9. The operator can now speak and make the page to all speaker groups.
10. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
11. To end the page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
12. All Speaker Group switch LEDs turn from steady green to flashing green.
13. To return the system to normal, the operator depresses the All Page switch; otherwise, the system will automatically return to normal in approximately 1-2 minutes and turn off the All Page and Speaker Group LEDs.



This sequence of operation assumes the system is normal and no alarms exist. If there were alarms in the system, the All Page would operate the exact same way - except that the speaker groups that were receiving an evacuation or alert signal would be overridden by the Page. Once the Page ends, the previously sounding evacuation or alert signals would resume on the floors/groups that were sounding before the page.

Select Page

Select Page sends the emergency page message from the microphone on the LVM to selected speaker groups in the system. Choosing Select Page overrides Select Evacuation, Select Alert, Select Convenience Page and Select Background Music.

To select Select Page, follow the steps listed below.

1. Pick up the Live Voice Microphone.
2. Depress the Select Page switch and then the switch for the desired individual speaker group.
3. The Select Page switch and the selected Speaker Group switch LEDs flash green.

4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. Depress the key on the Live Voice Microphone.
6. The LED on the selected Speaker Group switch turns steady green indicating that the speaker group is now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker group for approximately 3 seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page to the selected speaker groups.
11. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
12. To end the page the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
13. The Select Page and the selected Speaker Group switch LEDs turn from steady green to flashing green.
14. To return the system to normal, the operator first depresses the selected Speaker Group switches, then Select Page. If these switches are not deselected, the system will return to normal automatically in approximately 1-2 minutes and turn off the Select Page and selected Speaker Group LEDs.



This sequence of operation assumes the system is normal and no alarms exist. If there were alarms in the system, the Select Page would operate the exact same way - except that the speaker groups that were receiving an evacuation or alert signal would be overridden by the page. Once the page ends, the previously sounding evacuation or alert signals would resume on the floors/groups that were sounding before the page.

Page to Evacuation

Page to Evacuation sends the emergency page message with a single switch press from the microphone on the LVM to all speaker groups in the system that are receiving an evacuation signal.

To select Page to Evacuation, follow the steps listed below.

1. The LEDs of the selected speaker groups receiving an evacuation signal are steady red.
2. Pick up the Live Voice Microphone.
3. Depress the Page to Evacuation switch.
4. The Page to Evacuation switch LED and the LEDs of the selected Speaker Groups receiving an EVAC signal flash green.
5. Depress the key on the Live Voice Microphone.

6. The selected Speaker Group switch LEDs turn steady green indicating that the speaker groups are now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker groups for approximately 3 seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page.
11. During the page the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) without re-initiating the pre-announce tone.
12. To end the page, the operator can simply unkey and replace the microphone, the Ready to Page LED turns off.
13. The Page to Evacuation and the Speaker Group switch LEDs turn from steady green to flashing green.
14. To cancel Page to Evacuation, the operator depresses the Page to Evacuation switch; otherwise, the system will return to its previous state automatically in approximately 1-2 minutes and turn off the Page to Evacuation LED.
15. The selected speaker groups resume receiving an evacuation signal.

Page to Alert

Page to Alert sends the emergency page message, with a single switch press, from the microphone on the LVM to all speaker groups in the system currently receiving an alert signal.

To select Page to Alert, follow the steps listed below.

1. The LEDs of the selected speaker groups receiving an alert signal are flashing red.
2. Pick up the Live Voice Microphone.
3. Depress the Page to Alert switch.
4. The Page to Alert switch and selected Speaker Group switch LEDs flash green.
5. Depress the key on the Live Voice Microphone.
6. The selected Speaker Group switch LEDs turn steady green indicating that the speaker groups are now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker groups for approximately 3 seconds (0-10 seconds is programmable in Zeus)).
8. While the preannouncement tone is sounding the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.

10. The operator can now speak and make the page.
11. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) without re-initiating the pre-announce tone.
12. To end the page, the operator simply unkeys and replaces the microphone, the Ready to Page LED turns off.
13. The Page to Alert and the Speaker Group switch LEDs turn from steady green to flashing green.
14. To return the system to normal, the operator depresses the Page to Alert switch; otherwise, the system will return to normal automatically in approximately 1-2 minutes and turn off the Page to Alert LED.
15. The selected speaker groups resume receiving an Alert signal.

Page to Background Music

Page to Background Music sends the emergency page message with a single switch press from the microphone on the LVM to all speaker groups in the system currently receiving background music.

To select Page to Background Music, follow the steps listed below.

1. The LEDs of the selected speaker groups receiving background music are normally off.
2. Pick up the Live Voice Microphone.
3. Depress the Page to Background Music switch.
4. The Page to Background Music switch and selected Speaker Group switch LEDs flash green.
5. Depress the key on the Live Voice Microphone.
6. The selected Speaker Group switch LEDs turn steady green indicating that the speaker groups are now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker groups for approximately 3 seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page.
11. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) without re-initiating the pre-announce tone.
12. To end the page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
13. The Page to Background Music and the Speaker Group switch LEDs turn from steady green to flashing green.

14. To return the system to normal, the operator depresses the Page to Background Music switch; otherwise, the system will return to normal automatically in approximately 1-2 minutes and turn off the Page to Background Music LED.
15. The selected speaker groups resume receiving background music.

Evacuation (EVAC)

The Evacuation operation consists of the following functions which are described below: All Evacuation and Select Evacuation.

All Evacuation

All Evacuation sends, with a single switch press, the evacuation tone or message (predetermined in the system design) to all speaker groups in the system. Selecting All Evacuation overrides All Alert, All Convenience Page and All Background Music.

To select All Evacuation, follow the steps listed below.

1. Depress the All Evacuation switch.
2. The All Evacuation, Display Evacuation and all Speaker Group switch LEDs turn on steady red.
3. All speaker groups sound the evacuation tone or message.
4. To end All Evacuation, depress the All Evacuation switch again.
5. The evacuation signal turns off (assuming no automatic alarms exist).
6. The All Evacuation, Display Evacuation and all Speaker Group switch LEDs turn off.

Select Evacuation

Select Evacuation sends the evacuation tone or message (predetermined in the system design) to selected speaker groups in the system. Choosing Select Evacuation overrides Select Alert, Select Convenience Page and Select Background Music.

To select Select Evacuation, follow the steps listed below.

1. Depress the Select Evacuation switch, the LED turns on steady red.
2. Depress the individual Speaker Group switches.
3. The selected Speaker Group and the Display Evacuation switch LEDs turn on steady red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the evacuation tone or message.
6. To end Select Evacuation, depress the Select Evacuation and the selected Speaker Group switches again.
7. The evacuation signal turns off (assuming no automatic alarms exist).
8. The Select Evacuation, Display Evacuation and all Speaker Group switch LEDs turn off.

Alert

The Alert operation consists of the following functions which are described below: All Alert and Select Alert.

All Alert

All Alert sends, with a single switch press, the alert tone or message (predetermined in the system design) to all speaker groups in the system. Selecting All Alert overrides All Convenience Page and All Background Music.

To select All Alert, follow the steps listed below.

1. Depress the All Alert switch.
2. The All Alert, Display Alert and all Speaker Group switch LEDs turn on flashing red.
3. All speaker groups sound the alert tone or message.
4. To end All Alert, depress the All Alert switch again.
5. The alert signal turns off (assuming no automatic alarms exist).
6. The All Alert, Display Alert and all Speaker Group switch LEDs turn off.

Select Alert

Select Alert sends the alert tone or message (predetermined in the system design) to selected speaker groups in the system. Choosing Select Alert overrides Select Convenience Page and Select Background Music.

To select Select Alert, follow the steps listed below.

1. Depress the Select Alert switch, the LED flashes red.
2. Depress the desired individual Speaker Group switches.
3. The selected Speaker Group and Display Alert switch LEDs flash red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the alert tone or message.
6. To end Select Alert, first depress the selected Speaker Group switches, then Select Alert.
7. The alert signal turns off (assuming no automatic alarms exist).
8. The Select Alert, Display Alert and all Speaker Group switch LEDs turn off.

Convenience Page

The Convenience Page operation consists of the following functions which are described below: All Convenience Page and Select Convenience Page.

All Convenience Page

All Convenience Page sends the page message, with a single switch press, from the convenience page microphone (e.g. external microphone) to all speaker groups in the system. Selecting All Convenience Page overrides All Background Music.

To select All Convenience Page, follow the steps listed below.

1. Pick up the convenience page microphone.
2. Depress the All Convenience Page switch.
3. The All Convenience Page switch, all Speaker Group switch and the Display Convenience Page switch LEDs flash green.
4. Depress the key on the convenience page microphone.
5. All Speaker Group switch LEDs turn steady green indicating that all speaker groups are now turned on.
6. The operator can now speak and make the page.
7. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
8. To end the convenience page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
9. All Speaker Group switch LEDs turn from steady green to flashing green.
10. To return the system to normal, the operator depresses the All Convenience Page switch; otherwise, the system will automatically return to normal in approximately 1-2 minutes and turn off the All Convenience Page and Speaker Group LEDs.

Select Convenience Page

Select Convenience Page sends the page message from the convenience page microphone (e.g. external microphone) to selected speaker groups in the system. Selecting Select Convenience Page overrides Select Background Music.

To select Select Convenience Page, follow the steps listed below.

1. Pick up the convenience page microphone.
2. Depress the Select Convenience Page switch. The LED flashes green.
3. Depress the individual Speaker Group switches.
4. The selected Speaker Group and Display Convenience Page switch LEDs flash green. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. Depress the key on the convenience page microphone.
6. The LED on the selected Speaker Group switch turns steady green indicating that the speaker group is now turned on.
7. The operator can now speak and make the page to the selected speaker groups.
8. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
9. To end the convenience page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.

10. All Speaker Group switch LEDs turn from steady green to flashing green.
11. To return the system to normal, the operator first depresses the selected Speaker Group switches, then Select Page. If these switches are not deselected, the system will return to normal automatically in approximately 1-2 minutes and turn off the Select Page and selected Speaker Group LEDs.

Background Music

The Background Music operation consists of the following functions which are described below: All Background Music and Select Background Music.

All Background Music

All Background Music sends the background music, with a single switch press, from an audio source (CD player, tuner or tape recorder, etc.) to all speaker groups in the system.

To select All Background Music, follow the steps listed below.

1. Turn on the background music source.
2. Depress the All Background Music switch.
3. The All Background Music, Display Background Music, Select Background Music and the Speaker Group switch LEDs turn on steady green.
4. All speaker groups sound background music.
5. After 120 seconds the Speaker Group switch LEDs turn off and the Display Background Music switch LED automatically turns on.
6. To end the background music depress the All Background Music switch again.
7. The All Background Music, the Display Background Music, Select Background Music and the Speaker Group switch LEDs turn off.

Select Background Music

Select Background Music sends the background music from an audio source (CD player, tuner or tape recorder, etc.) to selected speaker groups in the system.

To select Select Background Music, follow the steps listed below.

1. Turn on the background music source.
2. Depress the Select Background Music switch. The LED turns on steady green.
3. Depress the desired individual Speaker Group switches.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The Display Background Music and the selected Speaker Group LEDs are on steady green.
6. The selected Speaker Groups sound background music.
7. After 120 seconds the Select Background Music and Speaker Group switch LEDs turn off and Display Background Music switch LED automatically turns on.

8. To end the background music, first depress the selected Speaker Group switches, then Select Background Music.
9. The Select Background Music, the Display Background Music and the Speaker Group switch LEDs turn off.

Speaker Groups

Speaker Groups are formed in the Geographic View of the Zeus Programming tool and consist of all voice equipment (e.g. amplifiers, strobes, telephones) descending from a group.

A Speaker Group is a switch comprised of one or more speaker and/or strobe circuits in an area of a building. These loudspeaker and/or strobe circuits can be activated and deactivated with a switch press.

Pressing the Speaker Group switch when the speaker group is normal and a SELECT function switch is active places the speaker group into the current SELECT state. If the current SELECT state is EVAC1, it sends the EVAC1 message to that zone. Setting a speaker group to a higher priority state places the speaker group in the new state. Pressing the switch again removes the speaker group from the state. If a lower priority state is still active, the switch reverts to that state.

If the speaker group was automatically activated, pressing the switch silences the speaker group.

Audible Silence/Unsilence

Audible Silence

Audible Silence allows the user to silence all active speaker groups by pressing the Audible Silence switch.

To enable Audible Silence, follow the steps listed below.

1. Speaker groups are in an active state.
2. Depress the Audible Silence switch (the Audible Silence switch LED glows steady yellow).
3. All silenced Speaker Group switch LEDs turn off.
4. All active speaker groups are silenced.

Audible Unsilence

Audible Unsilence allows the user to unsilence all silenced active speaker groups by pressing the Audible Silence button again. (The Audible Silence button toggles between silence and unsilence with each repeated press.)

To enable Audible Unsilence, follow the steps listed below.

1. Speaker groups are in a silenced state.
2. Depress the Audible Silence button.
3. The Audible Silence button LED and all silenced active Speaker Group switch LEDs turn off.
4. All silenced active speaker groups are active again.

Silence Individual

Silence Individual allows the user to silence an individual active speaker group by pressing the individual Speaker Group switch, whether it is manually or automatically activated.

To enable Silence Individual, follow the steps listed below.

1. The individual speaker group is in an active state.
2. Depress the individual Speaker Group switch.
3. The Speaker Group switch LED turns off.
4. The individual Speaker Group is silenced.

Cancel Silence Individual

A new automatic event or a manual switch press to an individual Speaker Group that cancels the individual silence for that speaker group (i.e., toggles silence individual from silence to unsilence).

Speaker Group Non-Silence A speaker group programmed as non-silenceable cannot be silenced by a switch press of either the speaker group (when in Alert or Evacuation) or the PMI/PMI-2/PMI-3 Audible Silence switch.

Display If there are several audio signals sounding on different speaker groups in the system, it can be beneficial to indicate which audio signal is sounding on which individual speaker group. The Display switches provide more detailed information about the state of the group than the primary red/green LEDs. They announce additional information about speaker group display functions.

Display Auto

Display Auto allows the user to visually determine the speaker groups that are currently in automatic mode, both silenced and unsilenced.

To enable Display Auto, follow the steps listed below.

1. The speaker groups are in automatic mode.
2. Depress the Display Auto switch.
3. The Display Auto switch LEDs and all Speaker Group switch LEDs that are currently in automatic mode flash yellow.
4. To deactivate Display Auto, depress the Display Auto switch again or select one of the other Display switches.
5. The Display Auto switch LEDs and all Speaker Group switch LEDs that are currently in automatic mode (yellow) turn off.

Display Silenced

Display Silenced allows the user to visually determine the speaker groups that are silenced and in automatic mode.

To enable Display Silenced, follow the steps listed below.

1. The speaker groups are silenced and in automatic mode.
2. Depress the Display Silenced switch.
3. The Display Silenced switch LED and all Speaker Group switch LEDs that are currently in automatic mode and silenced flash yellow.
4. To deactivate Display Silenced, depress the Display Silenced switch again or select one of the other Display switches.
5. The Display Silenced LED and all Speaker Group switch LEDs that are currently in automatic mode and silenced turn off yellow.

Display Evacuation

Display Evacuation allows the user to visually determine the speaker groups sounding an evacuation signal.

1. Speaker groups are sounding an Evacuation signal.
2. Depress the Display Evacuation switch.
3. The Display Evacuation switch LED and all Speaker Group switch LEDs currently sounding an Evacuation signal flash yellow.
4. To deactivate Display Evacuation, depress the Display Evacuation switch again or select one of the other Display switches.
5. The Display Evacuation switch LED and all Speaker Group switch LEDs currently sounding an Evacuation signal turn off yellow.

Display Alert

Display Alert allows the user to visually determine the speaker groups sounding an Alert signal.

1. Speaker groups are sounding an alert signal.
2. Depress the Display Alert switch.
3. The Display Alert switch LED and all Speaker Group switch LEDs currently sounding an Alert signal flash yellow.
4. To deactivate Display Alert, depress the Display Alert switch again or select one of the other Display switches.
5. The Display Alert switch LED and all Speaker Group switch LEDs currently sounding an Alert signal turn off yellow.

Display Convenience Page

Display Convenience Page allows the user to visually determine the speaker groups that are sounding a convenience page.

1. Speaker groups are sounding a Convenience Page.
2. Depress the Display Convenience Page switch.
3. The Display Convenience Page switch LED and all Speaker Group switch LEDs currently sounding a convenience page flash yellow.
4. To deactivate Display Convenience Page, depress the Display Convenience Page switch again or select one of the other Display switches.
5. The Display Convenience Page switch LED and all Speaker Group switch LEDs currently sounding a convenience page turn off yellow.

Display Background Music

Display Background Music allows the user to visually determine the speaker groups that are sounding background music. Speaker group switch LEDs are normally off.

1. Speaker groups are sounding Background Music.
2. Depress the Display Background Music switch.
3. The Display Background Music switch LED and all Speaker Group switch LEDs currently sounding background music flash yellow.
4. To deactivate Display Background Music, depress the Display Background Music switch again or select one of the other Display switches.
5. The Display Background Music switch LED and all Speaker Group switch LEDs currently sounding background music turn off yellow.

Select Audio Preview

Select Audio Preview allows the user to listen to the audio signal currently sounding on a speaker group on the local internal speaker of the LVM. This feature does not affect the audio signal currently sounding on the speaker group. Selecting Audio Preview overrides Select Evacuation, Select Alert, Select Convenience Page and Select Background Music without affecting any speaker group.

1. Depress the Select Audio Preview and then the individual Speaker Group switch.
2. The Audio Preview switch LED and the selected Speaker Group switch LEDs flash yellow.
3. The current audio signal of the selected speaker group sounds on the local speaker.
4. The system automatically returns to normal in approximately 1-2 minutes.
5. To deactivate, depress the Select Audio Preview switch.
6. The Audio Preview switch LED and the selected Speaker Group switch LEDs turn off.

Audio to Local Speaker

The Audio to Local Speaker operation consists of the following functions which are described below: Page to Local Speaker, Evacuation to Local Speaker, Alert to Local Speaker, Convenience Page to Local Speaker and Background Music to Local Speaker.

Page to Local Speaker

Page to Local Speaker allows the user to preview the audio of the Emergency Page to the local internal speaker of the LVM.

1. Depress the Page to Local Speaker switch.
2. The Page to Local Speaker switch LED is on steady green.
3. The Emergency Page is sounding on the local speaker.
4. To deactivate Page to Local Speaker, depress the Page to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Page to Local Speaker switch LED turns off.

Evacuation to Local Speaker

Evacuation to Local Speaker allows the user to preview the audio of the Evacuation signal to the local internal speaker of the LVM.

1. Depress the Evacuation to Local Speaker switch.
2. The Page to Local Speaker switch LED is on steady red.
3. The Evacuation signal is sounding on the local speaker.
4. To deactivate Evacuation to Local Speaker, depress the Evacuation to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Page to Local Speaker switch LED turns off.

Alert to Local Speaker

Alert to Local Speaker allows the user to preview the audio of the alert signal to the local internal speaker.

1. Depress the Alert to Local Speaker switch.
2. The Alert to Local Speaker switch LED flashes red.
3. The Alert signal is sounding on the local speaker.
4. To deactivate Alert to Local Speaker, depress the Alert to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Alert to Local Speaker switch LED turns off.

Convenience Page to Local Speaker

Convenience Page to Local Speaker allows the user to preview the audio of the Convenience Page to the local internal speaker of the LVM.

1. Depress the Convenience Page to Local Speaker switch.
2. The Convenience Page to Local Speaker switch LED is on steady green.
3. The Convenience Page is sounding on the local speaker.
4. To deactivate Convenience Page to Local Speaker, depress the Convenience Page to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Convenience Page to Local Speaker switch LED turns off.

Background Music to Local Speaker

Background Music to Local Speaker allows the user to preview the audio of the Background Music to the local internal speaker of the LVM.

1. Depress the Background Music to Local Speaker switch.
2. The Background Music to Local Speaker switch LED is on steady green.
3. The Background Music is sounding on the local speaker.
4. To deactivate Background Music to Local Speaker, depress the Background Music to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Background Music to Local Speaker switch LED turns off.

Audio Volume Control

The Audio Volume Control operation consists of the following functions which are described below: Convenience Page Volume Up, Convenience Page Volume Down, Background Music Volume Up, and Background Music Volume Down.

Convenience Page Volume Up

Convenience Page Volume Up or Down allows the user to increase or decrease the volume of the Convenience Page until the maximum or minimum volume level is reached. The Speaker Group switch's LED will light green for volume up or red for volume down for one second when the volume change occurs. When the speaker group reaches the minimum or maximum volume, additional presses of the group switch have no effect.

Selecting Convenience Page Volume Up / Down overrides Select Page, Select Evacuation, Select Alert, Select Convenience Page, Select Background Music, Select Audio Preview and Background Music Volume Up / Down.

To select Convenience Page Volume Up, follow the steps listed below.

1. Depress the Convenience Page Volume Up switch, the switch's LED flashes green.
2. Depress the selected Speaker Group switch. The switch's LED flashes green for one second.

3. The audio volume increases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Convenience Page Volume Up, depress the Convenience Page Volume Up switch again.
6. The Convenience Page Volume Up switch LED turns off.

Convenience Page Volume Down

To select Convenience Page Volume Down, follow the steps listed below.

1. Depress the Convenience Page Volume Down switch. The switch's LED flashes green.
2. Depress the selected Speaker Group switch. The switch's LED flashes red for one second.
3. The audio volume decreases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Convenience Page Volume Down, depress the Convenience Page Volume Down switch again.
6. The Convenience Page Volume Down switch LED turns off.

Background Music Volume Up

Background Music Volume Up or Down allows the user to increase or decrease the volume of the Background Music until the maximum or minimum volume level is reached. The Speaker Group switch's LED will light green for volume up or red for volume down for one second when the volume change occurs. When the speaker group reaches the minimum or maximum volume, additional presses of the group switch have no effect.

Selecting Background Music Volume Up / Down overrides Select Page, Select Evacuation, Select Alert, Select Convenience Page, Select Background Music, Select Audio Preview and Convenience Page Volume Up / Down.

To select Background Music Volume Up, follow the steps listed below.

1. Depress the Background Music Volume Up switch, the switch's LED lights steady green.
2. Depress the selected Speaker Group switch, the switch's LED flashes green for one second.
3. The audio volume increases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Background Music Volume Up, depress the Background Music Volume Up switch again.
6. The Background Music Volume Up switch LED turns off.

Background Music Volume Down

To select Background Music Volume Down, follow the steps listed below.

1. Depress the Background Music Volume Down switch, the switch's LED lights steady green.
2. Depress the selected Speaker Group switch, the switch's LED flashes red for one second.
3. The audio volume decreases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Background Music Volume Down, depress the Background Music Volume Down switch again.
6. The Background Music Volume Down switch's LED will turn off.

Command Station Access

Command Station Access has three modes—Request, Grant, Deny—and status display. A description of each follows.

Request Access—Request access from a command station.

When the command station has access, the LED is steady green. When requesting access from another command station, the LED flashes Green.

Grant Access—Grant access to a command station.

When a command station requests control, the Grant Access LED in the command station with control flashes green. Pressing the switch will grant access to the caller command station.

Deny Access—Deny access to a command station.

When a command station requests control, the Deny Access LED in the command station with control flashes red. Pressing the switch will deny access to the caller and control will remain with the current command station. When a command station is denied access, the Deny LED in the command station requesting control will light red for 5 seconds to indicate that access was denied.

Access Status—Displays the Access status of Command Station X.

Access Status allows the state of Command Station X to be displayed in any command station. For example, Command Station 2 may include a Command Station 1 Access Status switch/LED. The operator at Command Station 2 is able to determine if Command Station 1 has control or is requesting control. The LED is steady green for the command station in control and flashing green if the command station is requesting control. The switch is not used for Command Station Access Status.

Lamp Test

Lamp Test allows the user to test all visible terminal indications.

To perform a Lamp Test, follow the steps listed below.

1. Depress the Lamp Test switch.
2. All LEDs will be on steady red, then steady green followed by steady yellow, each for approximately 3 seconds.
3. The Lamp Test automatically shuts off after cycling through the LED colors.

Clear Manual

Clear Manual allows the user to cancel all manually activated functions with a single switch press.

To clear all manually activated functions, follow the steps listed below.

1. Depress the Clear Manual switch.
2. The Emergency Page, Evacuation, Alert, Convenience Page and Background Music will be canceled.
3. All activated LEDs turn off.

TELEPHONE SYSTEM

Phone Group

Phone Groups allow the user to add or delete remote telephones calling into the telephone system party line.

To add or remove remote telephones, follow the steps listed below.

1. A remote telephone is calling in; the Phone Group switch's LED flashes green and the buzzer sounds.
2. Depress the Phone Group switch to add the remote telephone to the party line.
3. The Phone Group switch's LED changes to steady green.
4. The operator can now talk to the caller.
5. If a second user in another area of the building calls in, he will hear a busy signal which indicates that the call-in is going through, but someone is already talking.
6. The LED next to the new Phone Group that is calling in starts to flash green.
7. The operator will hear the buzzer sounding which indicates the new telephone group call-in.
8. When the operator answers the second call-in, the second caller will be connected to the operator and the first caller on a party line connection.
9. All three users can now carry on a conversation.
10. Pressing the Phone Group switch again removes the remote phone from the party line.
11. Phone Group switch LED changes to flashing green.
12. If the remote phone hangs up, the LED turns off.

Phone Page

Phone Page allows the user to send the emergency page message from the party line to all speaker groups in the system. Keying the microphone on the Emergency Page microphone will shut off the Phone Page.

To perform a Phone Page, follow the steps listed below.

1. Depress the All Page switch (or depress Select Page and selected Speaker Group switches).
2. The All Page and all Speaker Group switch LEDs flash green.
3. Depress the Phone Page switch.
4. The Phone Page, All Page and Speaker Group switch LEDs turn on steady green.
5. The operator now can speak and make the page to the speaker groups.
6. To end Phone Page, depress the Phone Page and the All Page switch again.
7. The Phone Page, All Page and Speaker Group switch LEDs turn off.

Warden's Page

Warden's Page allows a remote first responder located anywhere in the building to make a live voice page. Keying the microphone on the Emergency Page microphone will shut off the Warden's Page.

To perform a Warden's Page, follow the steps listed below.

1. A remote first responder lifts a Warden's Telephone Station telephone off-hook or plugs in a Portable Telephone.
2. The Master Telephone (FMT) handset starts to beep indicating a call-in.
3. The LED next to the Phone Group switch flashes green.
4. The remote first responder calling in hears a dial tone.
5. The operator picks up the master telephone handset.
6. The operator depresses the Phone Group switch that is calling in.
7. The operator and the remote first responder can now talk to each other.
8. The first responder requests that the operator patch the phone group he is calling in from onto the speaker group serving the area of the building that he is calling from.
9. The operator depresses the Select Page switch and the Speaker Group switch.
10. The operator depresses the Warden's Page switch—the LED turns on steady green.
11. The remote first responder can now make his live voice page to the speaker group.
12. The operator can monitor the page from the local internal speaker.
13. The operator can interrupt, override or stop the Warden's Page.
14. To end the Warden's page, de-select all depressed switches.
15. The Warden's Page and the Speaker Group switch LEDs turn off.
16. The first responder that called in can hang up or unplug his remote telephone.
17. The Phone Group switch LED turns off.

5

INTRODUCTION

A FireFinder-XLS system can be either a Single Node Voice system (as described in Chapter 4) or a Global Voice system. For a Single Node Voice system, multiple command stations (an Autonomous Control Unit [ACU] in Mass Notification systems) are controlled by a single PMI/PMI-2/PMI-3. The Global Voice system is a network of multiple voice systems that can be controlled throughout the system from a single point. It also enables voice control, paging and synchronized audio between multiple XLS nodes. Zeus Version 7.0 or higher is required for a Global Voice system. An XLS network cannot contain both Single Node Voice and Global Voice.

A Global Voice system supports five Global Command Stations per network. Global Command Stations allow annunciation and control over phone and speaker groups across all FireFinder-XLS nodes in the system. There are two types of Global Command Stations: Primary and Secondary.

- Primary Global Command Stations require coverage of all speaker and phone groups across all FireFinder-XLS nodes in the system.
- Secondary Global Command Stations allow a selectable group of speaker and phone groups. The groups are selected using the Zeus tool.

Global Command Stations may also have “Global All” applications and related global control switches.

FMTs and LVMs are allowed only in Global Command Stations. A maximum of 59 DAC-NETs can be networked together across XLS nodes. Each DAC-NET is controlled by and associated with their own parent PMI/PMI-2/PMI-3 (one DAC-NET per PMI/PMI-2/PMI-3). There can be a maximum of 10 Global PMI/PMI-2/PMI-3s.

Global Command Stations are unrelated to Global PMI/PMI-2/PMI-3s. In Global Voice only, each PMI/PMI-2/PMI-3 node does not need a command station. However, at least one Primary command station (ACU in Mass Notification systems) is required in each Global Voice System.



The most important difference in the system configuration between Single Node Voice and Global Voice is that in a global system, there is one DAC-NET per PMI/PMI-2/PMI-3. The DNET between all DACs is connected. Also note that XLSV nodes must be networked in a ring using NRCs. These NRCs are to be used in place of XNET NIC-Cs.



Global Voice cannot be used on hybrid systems (those with MXL, MXL-IQ or MXLV).



Some features are not available before Zeus 8 or 9.

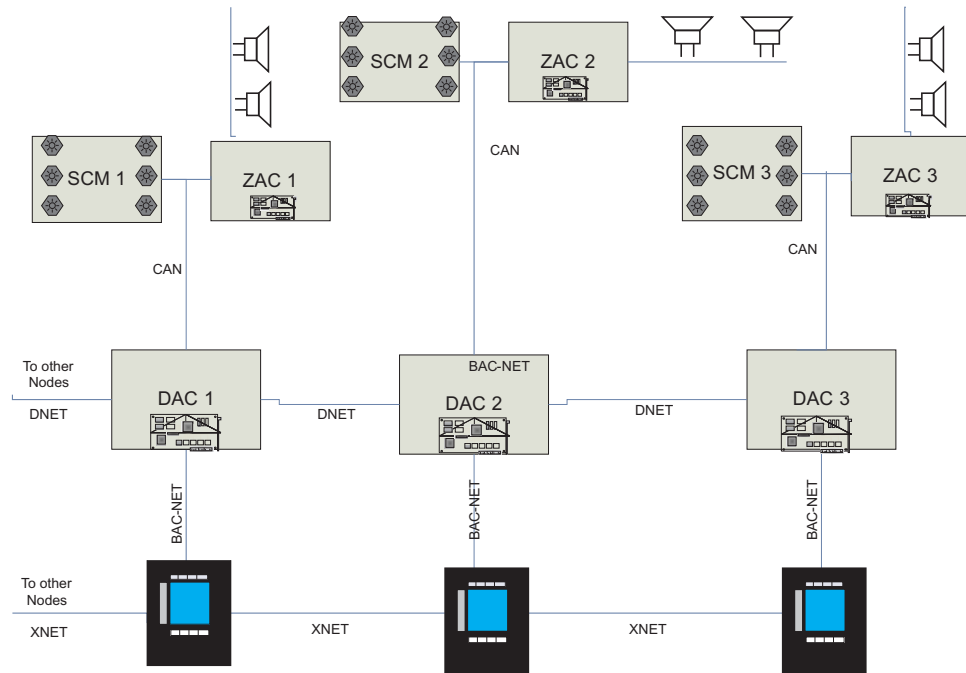


Figure 5-1
Global Audio View

The eight-channel digital evacuation FireFinder-XLS Global Voice system can be added to the basic FireFinder-XLS fire alarm/mass notification system. This is accomplished with the addition of the DAC-NET Digital Audio card and its accompanying submodules (ZAC, LVM/LPB, SCM-8, ZIC, FMT, TZC-8B, NRC) and zone-installed equipment (speakers, strobes, telephones). Figure 5-1 is a block diagram of Global Audio.

The system is capable of automatically or manually signaling to its installed speaker zone circuits (ZAC). The signal can be up to eight channels of prerecorded messages and/or tones including up to two simultaneous channels of live paging. The tones and prerecorded messages are configurable in the Zeus programming tool and are available for upload to each installed DAC-NET. A maximum of 32 DAC-NET modules can be installed in each FireFinder-XLS system. Each DAC-NET may input either its own tone/message to a channel, or it may be programmed to use a tone/message from a DAC-NET designated as the Global Audio source.

Individual zone circuits (speaker, strobe, telephone) are bundled into geographic groups during system configuration. These groups are either automatically controlled by pre-programmed system logic, or manually controlled by the switches located on one or more Command Stations. Paging, manual control, or monitoring of the speaker or telephone groups can be performed from any location where an LVM/LPB microphone, SCM switch control module, or PMI/PMI-2/PMI-3 is installed.

EQUIPMENT

The Control and Indicating equipment of a FinderFinder-XLS Global Voice system consists of the following components:

- LED Control Module (LCM)
- Switch Control Module (SCM)
- Live Voice Module (LVM)
- Firefighters Master Telephone (FMT)
- Telephone Zone Card (TZC-8B)
- Person Machine Interface (PMI/PMI-2/PMI-3)

COMMAND STATIONS

Each FireFinder-XLS Command Station configuration is unique. The requirements of the project determine the modules needed to achieve the desired functionality. The Control view of the Zeus Programming tool is used to configure the Command stations. Each switch on the LVM, SCM and LCM may be configured for any of the manual operations (See page 5-6).

A Global Voice system may have one or more different locations of control over the same installed equipment. Each control station will use Global Request/Grant/Deny Access switches for managing controls in emergencies. Access control is required in Global Voice systems via the use of Global Request/Grant/Deny switches.

A location of Global Voice system control (command station) consists of the following:

1. A list of Speaker Groups to be controlled/monitored.
2. A set of Global Voice Applications to be performed on the Speaker Groups (for example, ALL CALL, SELECT EVAC, DISPLAY ALERT, etc.).
3. An LVM microphone.
4. An optional list of telephone groups and an FMT master phone.
5. Global Request/Grant/Deny access.

SYSTEM OPERATION**System Indication**

All Global Voice system faults are reported at the PMI/PMI-2/PMI-3, and at the programmed speaker group control switch. The operator at the PMI/PMI-2/PMI-3 is able to ACK, SILENCE/UNSILENCE and RESET voice system events. For example, in the event of an ALL EVAC, the Audibles LED on the PMI/PMI-2/PMI-3 comes on and the Silence Audibles soft key displays on the PMI/PMI-2/PMI-3 so the system can be silenced from the Global PMI/PMI-2/PMI-3.

Automatic Operation

The Global Voice system interfaces automatically to the fire alarm/mass notification system using the speaker functions in the Function view of the Zeus Programming tool. In reaction to events from the fire alarm/mass notification system (DLC devices), the voice alarm system activates its pre-programmed alarm procedures. In fire applications, the voice alarm system typically broadcasts an alarm signal, which is immediately followed with a prerecorded message on the fire floor, the floor above and the floor below. It is common to have two stage alarms, with evacuation in some areas and alert in others. LEDs indicate the current system status and the floors in which the evacuation or alert signal is sounding. Since this sequence has occurred automatically, only the events that were predetermined in the original system evacuation plan and programmed into the system configuration program will occur.

Evacuation Signal (EVAC)	<p>EVAC sends the evacuation tone or message (predetermined in system design) to all or selected speaker groups in the building requesting that the occupants evacuate. A steady red LED indicates whether the evacuation signal (tone or message) is being sent to the entire building or to selected areas of the building.</p> <p>It is possible to have two different evacuation signals, EVAC 1 and EVAC 2. EVAC 2 will be overridden by EVAC 1 to the same speaker group. Either EVAC signal will be overridden by an emergency page to the same speaker group.</p>
Alert Signal	<p>Alert signal sends the alert tone or message (predetermined in system design) to all or selected speaker groups in the building to alert occupants to the alarm condition. A flashing red LED indicates whether the ALERT signal (tone or message) is being sent to the entire building or selected areas.</p> <p>It is possible to have two different alert signals, ALERT 1 and ALERT 2. ALERT 2 will be overridden by ALERT 1 to the same speaker group. The alert signal will be overridden by an emergency page or an evacuation signal to the same speaker group.</p>
Manual Operation	<p>Once the first few minutes have been dealt with automatically, the voice alarm system can be taken over manually by authorized personnel.</p> <p>Manual voice operation functions such as emergency paging, evacuation or alert signal activation, telephone operation, multiple voice system command center operation, as well as convenience page or background music operation are possible at any time.</p>
Emergency Page	<p>Emergency Page allows a live voice page from the emergency microphone to all or selected speaker groups in the building. An optional preannouncement tone precedes emergency pages for a duration of time set in the Zeus programming tool.</p>
Convenience Page	<p>Convenience Page allows a live voice page from the convenience page microphone to all or selected speaker groups in the building. Convenience pages are a low priority function and will be overridden by an emergency page, an evacuation or an alert signal to the same speaker group.</p>
Background Music	<p>Background Music sends background music from an external audio input to all or selected speaker groups in the building. Background Music is the lowest priority and will be overridden by an emergency page, an evacuation or alert signal and a convenience page to the same speaker group.</p>

SYSTEM PRIORITIES

The priority of requests to a speaker group in the case that multiple signals (audio channels) are requested at the same time are as follows:

1. Emergency Page (highest priority)
2. Warden's (Phone) Page
3. Evacuation Signal 1 (EVAC 1)
4. Evacuation Signal 2 (EVAC 2)
5. Alert Signal 1 (ALERT 1)
6. Alert Signal 2 (ALERT 2)
7. Convenience Page
8. Background Music (lowest priority)

Global ALL applications (such as Global All Evac 1) apply the application to all speaker groups throughout the system.

OPERATION PROCEDURE

Switch Control Module

The SCM Switch Control Module is used for manual control of the system. The SCM-8 contains eight switches and eight pairs of LEDs. Each LED pair contains one bi-color (red/green) and one yellow LED. The functions of the switches and LEDs are programmed using the Zeus programming tool. All LEDs can be programmed ON, OFF, or FLASHING.

An “Acknowledge Tone” sounds on a local sounder for any switch press when a CAN Sounder Board is installed.

An “Invalid Tone” from the LVM or CAN Sounder Board sounds on a local sounder for an invalid switch press. For example, a switch press at a non-active control station produces an invalid tone.

Live Voice Module

The Live Voice Module (LVM) provides first responders with a means of sending live voice messages to specified audio zones. The LVM has a push-to-talk switch on the microphone, as well as a retractable coiled cord. Both the push-to talk switch and the microphone are supervised. The LVM has a built-in speaker to preview active tones and messages at any speaker group. Each of the six switches is programmable in the Zeus tool.

Assigning an SCM or LVM switch to MNS Node Reset usage via the Zeus programming tool allows it to be used to reset the MNS sub-system without affecting the Fire sub-system. Assigning it to Node Reset usage allows it to reset the Fire sub-system without affecting the MNS sub-system.

LED Colors

LED COLORS	
Emergency Page	Steady green or flashing green (based on the state of paging function)
Evacuation Signal (EVAC)	Steady red
Alert Signal (ALERT)	Flashing red
Convenience Page	Steady green or flashing green (based on the state of paging function)
Background Music	Steady green (present only when Select Background Music is active)
	Steady yellow indicates a trouble exists in system that is associated with functionality of switch next to LED
	Flashing yellow is used for display functions

MANUAL OPERATION

Emergency Page

The Emergency page operation consists of the following functions which are described below: All Call or Global Call, Select Page, Page to Evacuation, Page to Alert, and Page to Background Music.

All Call or Global All Call

All Call sends the emergency page message from the Live Voice Module (LVM) to all speaker groups in the local PMI/PMI-2/PMI-3 only with a single switch press. Selecting All Call overrides All Evacuation, All Alert, All Convenience Page and All Background Music.

Global All Call sends an emergency page message from the LVM to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system.

To select All Call, follow the steps listed below.

1. Pick up the Live Voice Module.
2. Depress the All Call switch.
3. The All Call switch and All Speaker Group switch LEDs flash green.
4. Depress the key on the Live Voice Microphone
5. The All Speaker Group switch LEDs turn steady green, indicating that all speaker groups are now turned on.
6. Once the microphone is keyed, a preannouncement tone sounds on all speaker groups for approximately three seconds (0-10 seconds is programmable in Zeus).
7. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give visual indication to the operator of what is currently sounding.
8. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
9. The operator can now speak and make the call to all speaker groups.
10. During the call, the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
11. To end the call, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
12. All Speaker Group switch LEDs turn from steady green to flashing green.
13. To return the system to normal, the operator depresses the All Call switch; otherwise, the system will automatically return to normal in approximately 1-2 minutes and turn off the All Call and Speaker Group LEDs.

NOTE 

This sequence of operation assumes the system is normal and no alarms exist. If there were alarms in the system, the All Call would operate the exact same way - except that the speaker groups that were receiving an evacuation or alert signal would be overridden by the Call. Once the Call ends, the previously sounding evacuation or alert signals would resume on the floors/groups that were sounding before the page.

NOTE 

All Call LED must be configured Red if used in Canada.

Select Page

Select Page sends the emergency page message from the Live Voice Module (LVM) to all Selected speaker groups in the system. Choosing Select Page overrides Select Evacuation, Select Alert, Select Convenience Page and Select Background Music.

To select Select Page, follow the steps listed below.

1. Pick up the Live Voice Module.
2. Depress the Select Page switch and then the switch for the desired individual speaker group.
3. The Select Page switch and the selected Speaker Group switch LEDs flash green.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. Depress the key on the Live Voice Module.
6. The LED on the selected Speaker Group switch turns steady green indicating that the speaker group is now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker group for approximately three seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page to the selected speaker groups.
11. During the page, the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
12. To end the page the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
13. The Select Page and the selected Speaker Group switch LEDs turn from steady green to flashing green.
14. To return the system to normal, the operator first depresses the selected Speaker Group switches, then Select Page. If these switches are not deselected, the system will return to normal automatically in approximately 1-2 minutes and turn off the Select Page and selected Speaker Group LEDs.



This sequence of operation assumes the system is normal and no alarms exist. If there were alarms in the system, the Select Page would operate the exact same way - except that the speaker groups that were receiving an evacuation or alert signal would be overridden by the page. Once the page ends, the previously sounding evacuation or alert signals would resume on the floors/groups that were sounding before the page.

Page to Evacuation

Page to Evacuation sends the emergency page message, with a single switch press, from the Live Voice Module (LVM) to all speaker groups in the local PMI/PMI-2/PMI-3 only currently receiving an EVAC1 or EVAC2 signal.

Global Page to Evacuation sends an emergency page message from the LVM to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system currently receiving an EVAC signal.

To select Page to Evacuation, follow the steps listed below.

1. The LEDs of the selected speaker groups receiving an evacuation signal are steady red.
2. Pick up the Live Voice Module.
3. Depress the Page to Evacuation switch.
4. The Page to Evacuation switch LED and the LEDs of the selected Speaker Groups receiving an EVAC signal flash green.
5. Depress the key on the Live Voice Module.
6. The selected Speaker Group switch LEDs turn steady green indicating that the speaker groups are now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker groups for approximately three seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page.
11. During the page the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) without re-initiating the pre-announce tone.
12. To end the page, the operator can simply unkey and replace the microphone, the Ready to Page LED turns off.
13. The Page to Evacuation and the Speaker Group switch LEDs turn from steady green to flashing green.
14. To cancel Page to Evacuation, the operator depresses the Page to Evacuation switch; otherwise, the system will return to its previous state automatically in approximately 1-2 minutes and turn off the Page to Evacuation LED.
15. The selected speaker groups resume receiving an evacuation signal.

Page to Alert

Page to Alert sends the emergency page message, with a single switch press, from the Live Voice Module (LVM) to all speaker groups in the local PMI/PMI-2/PMI-3 only currently receiving an alert signal.

Global Page to Alert sends an emergency page message from the LVM to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system currently receiving an alert signal.

To select Page to Alert, follow the steps listed below.

1. The LEDs of the selected speaker groups receiving an alert signal are flashing red.
2. Pick up the Live Voice Module.
3. Depress the Page to Alert switch.
4. The Page to Alert switch and selected Speaker Group switch LEDs flash green.
5. Depress the key on the Live Voice Module.
6. The selected Speaker Group switch LEDs turn steady green indicating that the speaker groups are now turned on.
7. Once the microphone is keyed, a preannouncement tone sounds on the speaker groups for approximately three seconds (0-10 seconds is programmable in Zeus).
8. While the preannouncement tone is sounding the Pre-Announce Tone LED is on steady to give the operator a visual indication of what is sounding.
9. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
10. The operator can now speak and make the page.
11. During the page, the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) without re-initiating the pre-announce tone.
12. To end the page, the operator simply unkeys and replaces the microphone, the Ready to Page LED turns off.
13. The Page to Alert and the Speaker Group switch LEDs turn from steady green to flashing green.
14. To return the system to normal, the operator depresses the Page to Alert switch; otherwise, the system will return to normal automatically in approximately 1-2 minutes and turn off the Page to Alert LED.
15. The selected speaker groups resume receiving an Alert signal.

Evacuation (EVAC)

The Evacuation operation consists of the following functions which are described below: All Evacuation and Select Evacuation.

All Evacuation

All Evacuation sends, with a single switch press, the evacuation tone or message (predetermined in the system design) to all speaker groups in the local PMI/PMI-2/PMI-3 only. Selecting All Evacuation overrides All Alert, All Convenience Page and All Background Music.

Global All Evacuation sends the evacuation tone or message to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system.

To select All Evacuation, follow the steps listed below.

1. Depress the All Evacuation switch.
2. The All Evacuation, Display Evacuation and all Speaker Group switch LEDs turn on steady red.
3. All speaker groups sound the evacuation tone or message.
4. To end All Evacuation, depress the All Evacuation switch again.
5. The evacuation signal turns off (assuming no automatic alarms exist).
6. The All Evacuation, Display Evacuation and all Speaker Group switch LEDs turn off.

Select Evacuation

Select Evacuation sends the evacuation tone or message (predetermined in the system design) to selected speaker groups in the system. The user can select local or remote speaker groups—the selected group determines the scope. Choosing Select Evacuation overrides Select Alert, Select Convenience Page and Select Background Music.

To select Select Evacuation, follow the steps listed below.

1. Depress the Select Evacuation switch, the LED turns on steady red.
2. Depress the individual Speaker Group switches.
3. The selected Speaker Group and the Display Evacuation switch LEDs turn on steady red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the evacuation tone or message.
6. To end Select Evacuation, first depress the selected Speaker Group switches, then Select Evacuation.
7. The evacuation signal turns off (assuming no automatic alarms exist).
8. The Select Evacuation, Display Evacuation and all Speaker Group switch LEDs turn off.

Alert

The Alert operation consists of the following functions which are described below: All Alert and Select Alert.

All Alert

All Alert sends, with a single switch press, the alert tone or message (predetermined in the system design) to all speaker groups in the local PMI/PMI-2/PMI-3 only. Selecting All Alert overrides All Convenience Page and All Background Music.

Global All Alert sends the alert tone or message (predetermined in the system design) to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system.

To select All Alert, follow the steps listed below.

1. Depress the All Alert switch.
2. The All Alert, Display Alert and all Speaker Group switch LEDs turn on flashing red.
3. All speaker groups sound the alert tone or message.
4. To end All Alert, depress the All Alert switch again.
5. The alert signal turns off (assuming no automatic alarms exist).
6. The All Alert, Display Alert and all Speaker Group switch LEDs turn off.

Select Alert

Select Alert sends the alert tone or message (predetermined in the system design) to selected local or remote speaker groups in the system. Choosing Select Alert overrides Select Convenience Page and Select Background Music.

To select Select Alert, follow the steps listed below.

1. Depress the Select Alert switch, the LED flashes red.
2. Depress the desired individual Speaker Group switches.
3. The selected Speaker Group and Display Alert switch LEDs flash red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the alert tone or message.
6. To end Select Alert, first depress the selected Speaker Group switches, then Select Alert.
7. The alert signal turns off (assuming no automatic alarms exist).
8. The Select Alert, Display Alert and all Speaker Group switch LEDs turn off.

Convenience Page

The Convenience Page operation consists of the following functions which are described below: All Convenience Page and Select Convenience Page.

All Convenience Page

All Convenience Page sends the page message, with a single switch press, from the convenience page microphone (e.g. external microphone) to all speaker groups in the local PMI/PMI-2/PMI-3 node. Selecting All Convenience Page overrides All Background Music.

Global All Convenience Page sends the page message from the convenience page microphone to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system.

To select All Convenience Page, follow the steps listed below.

1. Pick up the convenience page microphone.
2. Depress the All Convenience Page switch.
3. The All Convenience Page switch, all Speaker Group switch and the Display Convenience Page switch LEDs flash green.
4. Depress the key on the convenience page microphone.
5. All Speaker Group switch LEDs turn steady green indicating that all speaker groups are now turned on.
6. The operator can now speak and make the page.
7. During the page, the operator can briefly (for up to 5 seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
8. To end the convenience page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
9. All Speaker Group switch LEDs turn from steady green to flashing green.
10. To return the system to normal, the operator depresses the All Convenience Page switch; otherwise, the system will automatically return to normal in approximately 1-2 minutes and turn off the All Convenience Page and Speaker Group LEDs.

Select Convenience Page

Select Convenience Page sends the page message from the convenience page microphone (e.g. external microphone) to selected speaker groups in the system. Selecting Select Convenience Page overrides Select Background Music.

To select Select Convenience Page, follow the steps listed below.

1. Pick up the convenience page microphone.
2. Depress the Select Convenience Page switch. The LED flashes green.
3. Depress the individual Speaker Group switches.
4. The selected Speaker Group and Display Convenience Page switch LEDs flash green.

5. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
6. Depress the key on the convenience page microphone.
7. The LED on the selected Speaker Group switch turns steady green indicating that the speaker group is now turned on.
8. The operator can now speak and make the page to the selected speaker groups.
9. During the page, the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone.
10. To end the convenience page, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
11. All Speaker Group switch LEDs turn from steady green to flashing green.
12. To return the system to normal, the operator first depresses the selected Speaker Group switches, then Select Convenience Page. If these switches are not deselected, the system will return to normal automatically in approximately 1-2 minutes and turn off the Select Convenience Page and selected Speaker Group LEDs.

Background Music

The Background Music operation consists of the following functions which are described below: All Background Music and Select Background Music.

All Background Music

All Background Music sends the background music, with a single switch press, from an audio source (CD player, tuner or tape recorder, etc.) to all speaker groups in the local PMI/PMI-2/PMI-3 only.

Global All Background Music sends the background music from an audio source to all speaker groups across all PMI/PMI-2/PMI-3 nodes in the system.

To select All Background Music, follow the steps listed below.

1. Turn on the background music source.
2. Depress the All Background Music switch.
3. The All Background Music, Display Background Music, Select Background Music and the Speaker Group switch LEDs turn on steady green.
4. All speaker groups sound background music.
5. After 120 seconds the Speaker Group switch LEDs turn off and the Display Background Music switch LED automatically turns on.
6. To end the background music depress the All Background Music switch again.
7. The All Background Music, the Display Background Music, Select Background Music and the Speaker Group switch LEDs turn off.

Select Background Music

Select Background Music sends the background music from an audio source (CD player, tuner or tape recorder, etc.) to selected speaker groups in the system. The user can select local or remote speaker groups—the selected group determines the scope. There is no global version of Select Background Music.

To select Select Background Music, follow the steps listed below.

1. Turn on the background music source.
2. Depress the Select Background Music switch. The LED turns on steady green.
3. Depress the desired individual Speaker Group switches.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The Display Background Music and the selected Speaker Group LEDs are on steady green.
6. The selected Speaker Groups sound background music.
7. After 120 seconds the Select Background Music and Speaker Group switch LEDs turn off and Display Background Music switch LED automatically turns on.
8. To end the background music, first depress the selected Speaker Group switches, then Select Background Music.
9. The Select Background Music, the Display Background Music and the Speaker Group switch LEDs turn off.

Speaker Groups

Speaker Groups are formed in the Geographic View of the Zeus Programming tool and consist of all voice equipment (e.g. amplifiers, strobes, telephones) descending from a group.

A Speaker Group is a switch comprised of one or more speaker and/or strobe circuits in an area of a building. These loudspeaker and/or strobe circuits can be activated and deactivated with a switch press.

Pressing the Speaker Group switch when the speaker group is normal and a SELECT function switch is active places the speaker group into the current SELECT state. If the current SELECT state is EVAC1, it sends the EVAC1 message to that zone. Setting a speaker group to a higher priority state places the speaker group in the new state. Pressing the switch again removes the speaker group from the state. If a lower priority state is still active, the switch reverts to that state.

If the speaker group was automatically activated, pressing the switch silences the speaker group.

Audible Silence/Unsilence *Audible Silence*

Audible Silence allows the user to silence all active speaker groups by pressing the Audible Silence switch. Audible Silence is available on local command stations only and will silence and/or unsilence only the local PMI/PMI-2/PMI-3 node.

To enable Audible Silence, follow the steps listed below.

1. Speaker groups are in an active state.
2. Depress the Audible Silence switch (the Audible Silence switch LED glows steady yellow).
3. All silenced Speaker Group switch LEDs turn off.
4. All active speaker groups are silenced.



Audible Silence SCM/LCM/SIM is only available on local command stations.

Audible Unsilence

Audible Unsilence allows the user to unsilence all silenced active speaker groups by pressing the Audible Silence button again. (The Audible Silence button toggles between silence and unsilence with each repeated press.)

To enable Audible Unsilence, follow the steps listed below.

1. Speaker groups are in a silenced state.
2. Depress the Audible Silence button.
3. The Audible Silence button LED and all silenced active Speaker Group switch LEDs turn off.
4. All silenced active speaker groups are active again.

Silence Individual

Silence Individual allows the user to silence an individual active speaker group by pressing the individual Speaker Group switch, whether it is manually or automatically activated.

To enable Silence Individual, follow the steps listed below.

1. The individual speaker group is in an active state.
2. Depress the individual Speaker Group switch.
3. The Speaker Group switch LED turns off.
4. The individual Speaker Group is silenced.

Cancel Silence Individual

A new automatic event or a manual switch press to an individual Speaker Group that cancels the individual silence for that speaker group (i.e., toggles silence individual from silence to unsilence).

Speaker Group Non-Silence A speaker group programmed as non-silenceable cannot be silenced by a switch press of either the speaker group (when in Alert or Evacuation) or the PMI/PMI-2/PMI-3 Audible Silence switch.

Display If there are several audio signals sounding on different speaker groups in the system, it can be beneficial to indicate which audio signal is sounding on which individual speaker group. The Display switches provide more detailed information about the state of the group than the primary red/green LEDs. They announce additional information about speaker group display functions.

Display usages are not available on Global Command Stations. They are available on Local Command Stations.

Display Auto

Display Auto allows the user to visually determine the speaker groups that are currently in automatic mode, both silenced and unsilenced.

To enable Display Auto, follow the steps listed below.

1. The speaker groups are in automatic mode.
2. Depress the Display Auto switch.
3. The Display Auto switch LEDs and all Speaker Group switch LEDs that are currently in automatic mode flash yellow.
4. To deactivate Display Auto, depress the Display Auto switch again or select one of the other Display switches.
5. The Display Auto switch LEDs and all Speaker Group switch LEDs that are currently in automatic mode (yellow) turn off.

Display Silenced

Display Silenced allows the user to visually determine the speaker groups that are silenced and in automatic mode.

To enable Display Silenced, follow the steps listed below.

1. The speaker groups are silenced and in automatic mode.
2. Depress the Display Silenced switch.
3. The Display Silenced switch LED and all Speaker Group switch LEDs that are currently in automatic mode and silenced flash yellow.
4. To deactivate Display Silenced, depress the Display Silenced switch again or select one of the other Display switches.
5. The Display Silenced LED and all Speaker Group switch LEDs that are currently in automatic mode and silenced turn off yellow.

Display Evacuation

Display Evacuation allows the user to visually determine the speaker groups sounding an evacuation signal.

1. Speaker groups are sounding an Evacuation signal.
2. Depress the Display Evacuation switch.
3. The Display Evacuation switch LED and all Speaker Group switch LEDs currently sounding an Evacuation signal flash yellow.
4. To deactivate Display Evacuation, depress the Display Evacuation switch again or select one of the other Display switches.
5. The Display Evacuation switch LED and all Speaker Group switch LEDs currently sounding an Evacuation signal turn off yellow.

Display Alert

Display Alert allows the user to visually determine the speaker groups sounding an Alert signal.

1. Speaker groups are sounding an alert signal.
2. Depress the Display Alert switch.
3. The Display Alert switch LED and all Speaker Group switch LEDs currently sounding an Alert signal flash yellow.
4. To deactivate Display Alert, depress the Display Alert switch again or select one of the other Display switches.
5. The Display Alert switch LED and all Speaker Group switch LEDs currently sounding an Alert signal turn off yellow.

Display Convenience Page

Display Convenience Page allows the user to visually determine the speaker groups that are sounding a convenience page.

1. Speaker groups are sounding a Convenience Page.
2. Depress the Display Convenience Page switch.
3. The Display Convenience Page switch LED and all Speaker Group switch LEDs currently sounding a convenience page flash yellow.
4. To deactivate Display Convenience Page, depress the Display Convenience Page switch again or select one of the other Display switches.
5. The Display Convenience Page switch LED and all Speaker Group switch LEDs currently sounding a convenience page turn off yellow.

Display Background Music

Display Background Music allows the user to visually determine the speaker groups that are sounding background music. Speaker group switch LEDs are normally off.

1. Speaker groups are sounding Background Music.
2. Depress the Display Background Music switch.
3. The Display Background Music switch LED and all Speaker Group switch LEDs currently sounding background music flash yellow.
4. To deactivate Display Background Music, depress the Display Background Music switch again or select one of the other Display switches.
5. The Display Background Music switch LED and all Speaker Group switch LEDs currently sounding background music turn off yellow.

Select Audio Preview

Select Audio Preview allows the user to listen to the audio signal currently sounding on a speaker group on the local internal speaker of the LVM. This feature does not affect the audio signal currently sounding on the speaker group. Selecting Audio Preview overrides Select Evacuation, Select Alert, Select Convenience Page and Select Background Music without affecting any speaker group. Select Audio Preview is not available on Global Command Stations. It is only available on Local Command Stations.

1. Depress the Select Audio Preview and then the individual Speaker Group switch.
2. The Audio Preview switch LED and the selected Speaker Group switch LEDs flash yellow.
3. The current audio signal of the selected speaker group sounds on the local speaker.
4. The system automatically returns to normal in approximately 1-2 minutes.
5. To deactivate, depress the Select Audio Preview switch.
6. The Audio Preview switch LED and the selected Speaker Group switch LEDs turn off.

Audio to Local Speaker

The Audio to Local Speaker operation consists of the following functions which are described below: Page to Local Speaker, Evacuation to Local Speaker, Alert to Local Speaker, Convenience Page to Local Speaker and Background Music to Local Speaker. Audio to Local Speaker is not available on a Global Command Station. It is only available on a Local Command Station.

Page to Local Speaker

Page to Local Speaker allows the user to preview the audio of the Emergency Page to the local internal speaker of the LVM.

1. Depress the Page to Local Speaker switch.
2. The Page to Local Speaker switch LED is on steady green.
3. The Emergency Page is sounding on the local speaker.

4. To deactivate Page to Local Speaker, depress the Page to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Page to Local Speaker switch LED turns off.

Evacuation to Local Speaker

Evacuation to Local Speaker allows the user to preview the audio of the Evacuation signal to the local internal speaker of the LVM.

1. Depress the Evacuation to Local Speaker switch.
2. The Page to Local Speaker switch LED is on steady red.
3. The Evacuation signal is sounding on the local speaker.
4. To deactivate Evacuation to Local Speaker, depress the Evacuation to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Page to Local Speaker switch LED turns off.

Alert to Local Speaker

Alert to Local Speaker allows the user to preview the audio of the alert signal to the local internal speaker.

1. Depress the Alert to Local Speaker switch.
2. The Alert to Local Speaker switch LED flashes red.
3. The Alert signal is sounding on the local speaker.
4. To deactivate Alert to Local Speaker, depress the Alert to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Alert to Local Speaker switch LED turns off.

Convenience Page to Local Speaker

Convenience Page to Local Speaker allows the user to preview the audio of the Convenience Page to the local internal speaker of the LVM.

1. Depress the Convenience Page to Local Speaker switch.
2. The Convenience Page to Local Speaker switch LED is on steady green.
3. The Convenience Page is sounding on the local speaker.
4. To deactivate Convenience Page to Local Speaker, depress the Convenience Page to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Convenience Page to Local Speaker switch LED turns off.

Background Music to Local Speaker

Background Music to Local Speaker allows the user to preview the audio of the Background Music to the local internal speaker of the LVM.

1. Depress the Background Music to Local Speaker switch.
2. The Background Music to Local Speaker switch LED is on steady green.
3. The Background Music is sounding on the local speaker.
4. To deactivate Background Music to Local Speaker, depress the Background Music to Local Speaker switch again or select one of the other Audio to Local Speaker switches.
5. The Background Music to Local Speaker switch LED turns off.

Audio Volume Control

The Audio Volume Control operation consists of the following functions which are described below: Convenience Page Volume Up, Convenience Page Volume Down, Background Music Volume Up, and Background Music Volume Down. Audio Volume Control is available on Global Command Stations.

Convenience Page Volume Up

Convenience Page Volume Up or Down allows the user to increase or decrease the volume of the Convenience Page until the maximum or minimum volume level is reached. The Speaker Group switch's LED will light green for volume up or red for volume down for one second when the volume change occurs. When the speaker group reaches the minimum or maximum volume, additional presses of the group switch have no effect.

Selecting Convenience Page Volume Up / Down overrides Select Page, Select Evacuation, Select Alert, Select Convenience Page, Select Background Music, Select Audio Preview and Background Music Volume Up / Down.

To select Convenience Page Volume Up, follow the steps listed below.

1. Depress the Convenience Page Volume Up switch, the switch's LED flashes green.
2. Depress the selected Speaker Group switch. The switch's LED flashes green for one second.
3. The audio volume increases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Convenience Page Volume Up, depress the Convenience Page Volume Up switch again.
6. The Convenience Page Volume Up switch LED turns off.

Convenience Page Volume Down

To select Convenience Page Volume Down, follow the steps listed below.

1. Depress the Convenience Page Volume Down switch. The switch's LED flashes green.
2. Depress the selected Speaker Group switch. The switch's LED flashes red for one second.
3. The audio volume decreases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Convenience Page Volume Down, depress the Convenience Page Volume Down switch again.
6. The Convenience Page Volume Down switch LED turns off.

Background Music Volume Up

Background Music Volume Up or Down allows the user to increase or decrease the volume of the Background Music until the maximum or minimum volume level is reached. The Speaker Group switch's LED will light green for volume up or red for volume down for one second when the volume change occurs. When the speaker group reaches the minimum or maximum volume, additional presses of the group switch have no effect.

Selecting Background Music Volume Up / Down overrides Select Page, Select Evacuation, Select Alert, Select Convenience Page, Select Background Music, Select Audio Preview and Convenience Page Volume Up / Down.

To select Background Music Volume Up, follow the steps listed below.

1. Depress the Background Music Volume Up switch, the switch's LED lights steady green.
2. Depress the selected Speaker Group switch, the switch's LED flashes green for one second.
3. The audio volume increases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Background Music Volume Up, depress the Background Music Volume Up switch again.
6. The Background Music Volume Up switch LED turns off.

Background Music Volume Down

To select Background Music Volume Down, follow the steps listed below.

1. Depress the Background Music Volume Down switch, the switch's LED lights steady green.
2. Depress the selected Speaker Group switch, the switch's LED flashes red for one second.
3. The audio volume decreases on the selected speaker group.
4. If no Speaker Group switch is pressed for 120 seconds, the system automatically returns to normal.
5. To end Background Music Volume Down, depress the Background Music Volume Down switch again.
6. The Background Music Volume Down switch's LED will turn off.

Command Station Access

Access control for Global Voice systems is via a single Global Request / Grant / Deny scheme. In order for a local command station to have control of its own voice functions and speaker zones, it needs to request control from the command station that currently has it. Only one command station can be active at a time.

The single access control method only allows a single page to occur at any given time. The page will be a global page, which may either be limited in scope to a single node (simulating a local page) or performed across multiple nodes.

The following options are configurable in Zeus 7.0 or higher to change access:

1. Instant—Access is automatically granted on request (Global Request).
2. No Time Out—Press Global request. Must wait until access is granted by station having control. If user with control does not grant or deny access before time out, then the requesting command station is given access.
3. Specific Time Out—(The time period is selectable in Zeus.) Gain control when time out occurs or person grants control.



In a Global Voice system, the requesting Command Station determines the Time Out period.

In a Stand Alone Voice system, the Time Out is determined by the active Command Station.

The active command station is indicated by a solid green Global Request LED. When the Global Request switch is selected on a non-active command station, it will flash green until the completion (or denial) of the request. In addition, the Global Grant and Global Deny switches will be lit on the active command station while a request is in progress (with the access control sounder active).

The Global Request / Grant / Deny scheme follows the same rules, including the same rules for LED control, as the existing single-node Voice system.



Since access control is required and only a single command station (local or global) may have access control, concurrent operation (as allowed on existing single-node Voice systems via multiple command stations without access control) is not provided.

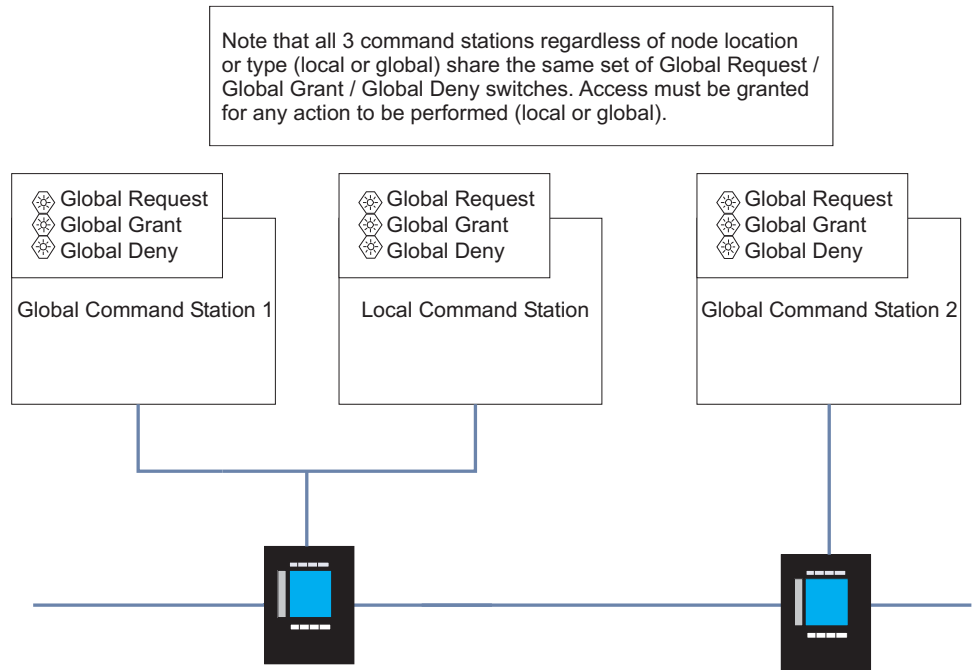


Figure 5-2
Global Access Control Concept

Lamp Test

Lamp Test allows the user to test all visible terminal indications.

To perform a Lamp Test, follow the steps listed below.

1. Depress the Lamp Test switch.
2. All LEDs will be on steady red, then steady green followed by steady yellow, each for approximately 3 seconds.
3. The Lamp Test automatically shuts off after cycling through the LED colors.

Clear Manual and Global Clear Manual

Clear Manual allows the user to cancel all manually activated functions with a single switch press.

1. Clear Manual only removes manual activations from the local node.
2. Global Clear Manual removes all manual activations from all nodes in the system.

To clear all manually activated functions, follow the steps listed below.

1. Depress the Clear Manual switch.
2. The Emergency Page, Evacuation, Alert, Convenience Page and Background Music will be canceled.
3. All activated LEDs turn off.

TELEPHONE SYSTEM

Phone Group

Phone Group allows the user to add or delete remote telephones calling into the party line.

To add or remove remote first responders telephones, follow the steps listed below.

1. A remote first responder telephone is calling in; the Phone Group switch's LED flashes green and the buzzer sounds.
2. Depress the Phone Group switch to add the remote telephone to the party line.
3. The Phone Group switch's LED changes to steady green.
4. The operator can now talk to the caller.
5. If a second user in another area of the building calls in, he will hear a dial tone which indicates that the call-in request is going through.
6. The LED next to the new Phone Group that is calling in starts to flash green.
7. The operator will hear the buzzer sounding which indicates the new telephone group call-in.
8. When the operator answers the second call-in, the second caller will be connected to the operator and the first caller on a party line connection.
9. All three callers can now carry on a conversation.
10. Pressing the Phone Group switch again removes the remote phone from the party line.
11. Phone Group switch LED changes to flashing green.
12. If the remote phone hangs up, the LED turns off.

Warden's Page

Warden's Page allows a remote first responder located anywhere in the building to make a live voice page. Keying the microphone on the Emergency Page microphone will shut off the Warden's Page.



A Global Warden's Page may not be initiated by a Local Command Station.

To perform a Warden's Page, follow the steps listed below.

1. A remote first responder lifts a Warden's Telephone Station telephone off-hook or plugs in a Portable Telephone.
2. The Master Telephone (FMT) handset starts to beep indicating a call-in.
3. The LED next to the Phone Group switch flashes green.
4. The remote first responder calling in hears a dial tone.
5. The operator picks up the master telephone handset.
6. The operator depresses the Phone Group switch that is calling in.
7. The operator and the remote first responder can now talk to each other.

8. The remote first responder requests that the operator patch the phone group he is calling in from onto the speaker group serving the area of the building the first responder is calling from.
9. The operator depresses the Select Page switch and the Speaker Group switch.
10. The operator depresses the Warden's Page switch—the LED turns on steady green.
11. The remote first responder can now make his live voice page to the speaker group.
12. The operator can monitor the page from the local internal speaker.
13. The operator can interrupt, override or stop the Warden's Page.
14. To end the Warden's page, de-select all depressed switches.
15. The Warden's Page and the Speaker Group switch LEDs turn off.
16. The first responder that called in can hang up or unplug his remote telephone.
17. The Phone Group switch LED turns off.

6

INTRODUCTION

The GCNET network (Global Control Network) allows the connection of multiple, independent XLS networked systems (each called a “Building”) on a fiber optic backbone ring. The GCNET provides the following functionalities:

- Connection to NCC Management Stations with full site-wide event display and control.
- FCCs (Fire Command Center) with Galactic Voice Stations for site-wide paging and Voice system status annunciations and control.
- Inter-Building logic between XLS nodes.



In a GCNET system, each Building may have any of the following:

- 1) A Standalone Voice system
- 2) A Global Voice system
- 3) No Voice system

The Voice system topologies do not need to match across Buildings.



Zeus 11.05 or greater is required for GCNET functionality.

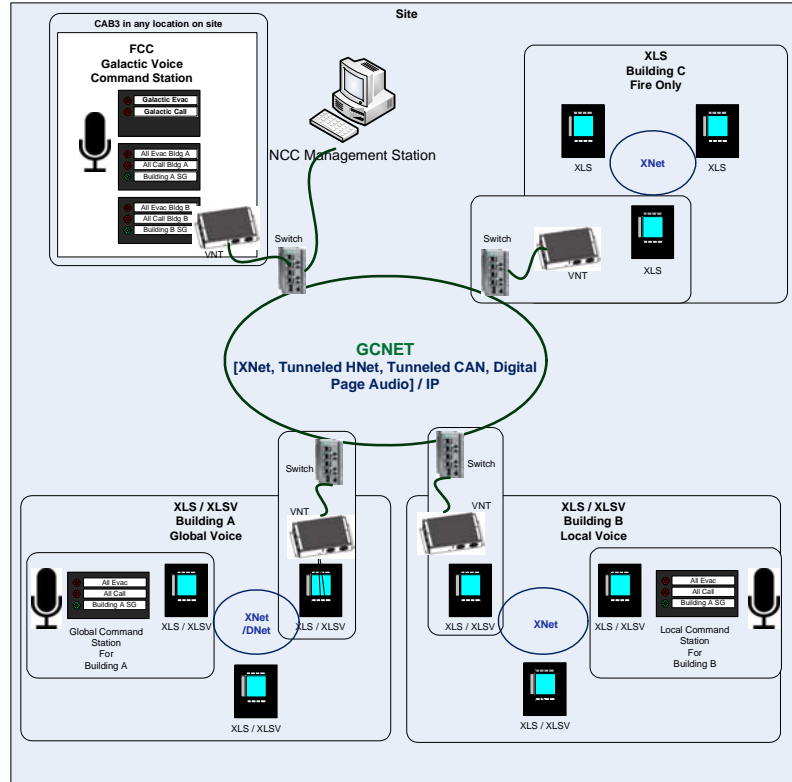


Figure 6-1
GCNET System View

NCC MANAGEMENT STATIONS

GCNET provides connection of multiple independent XLS configurations (“Buildings”) to NCC Management Stations for event annunciation and control from all nodes in all Buildings.



Desigo CC and Cerberus DMS Management Stations are not supported on GCNET.

The NCC Management Station additionally provides display of the connection state and status of each VNT and of the XNET network associated with each VNT.

Each Node in a GCNET system is assigned a logical address in the Management Station.

FIRE COMMAND CENTERS (FCC)

The FCC provides a Galactic Voice station for single-point paging and control and annunciation of the Voice system of a site. The FCC functionality is provided by GCNET, which connects multiple independent XLS network configurations (each called a “Building”).

Each FCC consists of two parts:

1. The Galactic Switches, Galactic SCM and LVM, which operate on the switches provided by each Building and provide the Galactic paging microphone.
2. The VLinks for each Building, which are the switches assigned to the FCC by each Building through the Building’s Zeus configuration.

The Galactic switches typically consist of the following:

1. Galactic Request/Galactic Grant/Galactic Deny switches
2. Galactic Page
3. Galactic Evac 1, Galactic Evac 2, Galactic Alert 1, and Galactic Alert 2
4. Galactic Clear Manual
5. Lamp Test
6. FCC Trouble Sounder

The VLinks for each Building typically contains the following:

1. A list of Speaker Groups to be controlled/monitored
2. A set of Voice Applications to be performed on the Speaker Groups (for example, ALL CALL, SELECT EVAC, etc.)
3. Request/Grant/Deny access switches

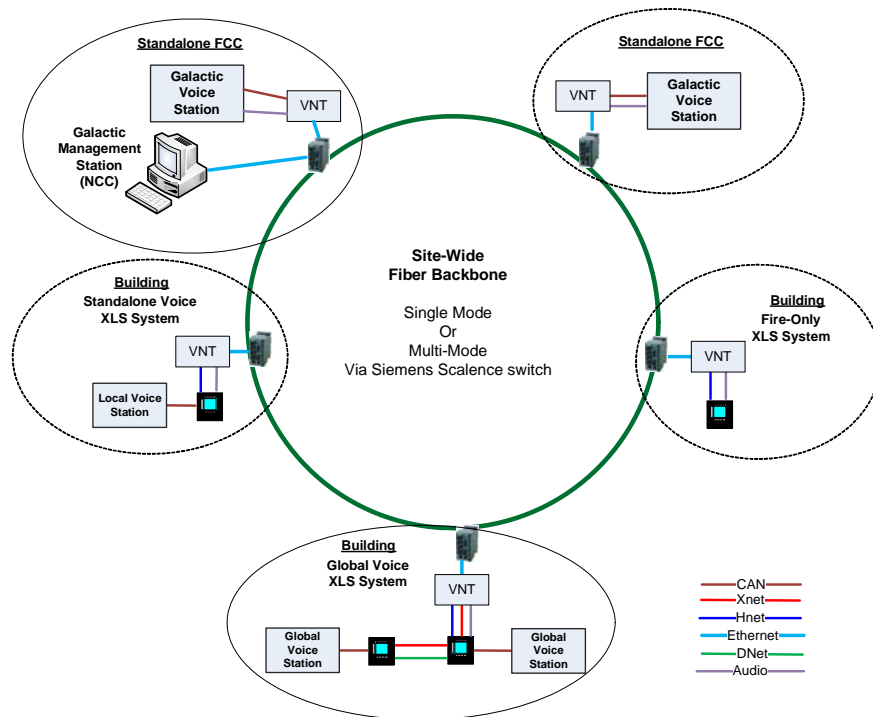


Figure 6-2
GCNET Network Overview

SYSTEM OPERATION

System Event Indication	All Voice system faults are reported at the PMI/PMI-2/PMI-3, and at the programmed speaker group control switch. The operator at the PMI/PMI-2/PMI-3 is able to ACK, SILENCE/UNSILENCE, and RESET voice system events. For example, in the event of an ALL EVAC, the Audibles LED on the PMI/PMI-2/PMI-3 comes on and the Silence Audibles soft key displays on the PMI/PMI-2/PMI-3, so the system can be silenced from the Global PMI/PMI-2/PMI-3.
FCC Trouble Sounder	<p>An “FCC Trouble Sounder” may be configured on the FCC. The Trouble Sounder annunciates, via a Flashing Yellow LED, the existence of any trouble or fault with the FCC with the FCC hardware, or of any functionality provided by the FCC. When it is on, an audible sounder is repeated with a nine second Off and one second On cycle.</p> <p>When active, the Trouble Sounder may be silenced by pressing the button. Once pressed, the LED changes to Solid Yellow and the sounder is deactivated. Silencing the Trouble Sounder does not Acknowledge the corresponding trouble events on the event displays.</p> <p>A silenced Trouble Sounder will be reactivated after 24 hours if trouble conditions remain.</p>

Automatic Operation	<p>The Global Voice system interfaces automatically to the fire alarm system using the speaker functions in the Function view of the Zeus programming tool. In reaction to events from the fire alarm system (DLC devices), the voice alarm system activates its pre-programmed alarm procedures. Typically, the voice alarm system broadcasts an alarm signal, which is immediately followed with a prerecorded message on the fire floor, the floor above, and the floor below. It is common to have two stage alarms, with evacuation in some areas and alert in others. LEDs indicate the current system status and the floors in which the evacuation or alert signal is sounding.</p> <p>Since this sequence has occurred automatically, only the events that were predetermined in the original system evacuation plan and programmed into the system configuration program will occur.</p>
Evacuation Signal (EVAC)	<p>A steady red LED indicates that an evacuation signal (tone or message) is being sent to the entire building or to selected areas of the building requesting that the occupants evacuate. It is possible to have two different evacuation signals, EVAC 1 and EVAC 2. EVAC 2 will be overridden by EVAC 1 to the same speaker group.</p>
Alert Signal	<p>Alert signal sends the alert tone or message (predetermined in system design) to all or selected speaker groups in the building. The alert signal will be overridden by an emergency page or an evacuation signal to the same speaker group.</p> <p>A flashing red LED indicates that an ALERT signal (tone or message) is being sent to the entire building or selected areas to alert occupants. It is possible to have two different alert signals, ALERT 1 and ALERT 2. ALERT 2 will be overridden by ALERT 1 to the same speaker group.</p>
Manual Operation	<p>After a few minutes of automatic operation, the voice alarm system can be taken over manually by authorized personnel.</p> <p>Manual voice operation functions such as emergency paging, evacuation or alert signal activation, firefighters' telephone operation, multiple voice system command center operation, as well as convenience page or background music operation are possible at any time.</p>
Emergency Page	<p>Emergency Page allows a live voice page from the emergency microphone to all or selected speaker groups in the building. An optional preannouncement tone precedes emergency pages for a duration of time set in the Zeus programming tool.</p>

SYSTEM PRIORITIES The priority of requests to a speaker group in the case that multiple signals (audio channels) are requested at the same time are as follows:

1. Emergency Page (highest priority)
2. Evacuation Signal 1 (EVAC 1)
3. Evacuation Signal 2 (EVAC 2)
4. Alert Signal 1 (ALERT 1)
5. Alert Signal 2 (ALERT 2)

Galactic ALL applications (such as Galactic All Evac 1) apply the application to all speaker groups across all Buildings throughout the site.

 OPERATION PROCEDURE

Switch Control Module The SCM Switch Control Module is used for manual control of the fire system. The SCM-8 contains eight switches and eight pairs of LEDs. Each LED pair contains one bi-color (red/green) and one yellow LED. The functions of the switches and LEDs are programmed using the Zeus programming tool. All LEDs can be programmed ON, OFF, or FLASHING.

An "Acknowledge Tone" sounds on a local sounder for any switch press when a CAN Sounder Board is installed.

An "Invalid Tone" from the LVM or CAN Sounder Board sounds on a local sounder for an invalid switch press. For example, a switch press at a non-active control station produces an invalid tone.

Live Voice Module The LVM Live Voice Module provides first responders with a means of sending live voice messages to specified audio zones. The LVM has a push-to-talk switch on the microphone, as well as a retractable coiled cord. Both the push-to talk switch and the microphone are supervised. Each of the six switches is programmable in the Zeus tool.

LED Colors

LED COLORS	
Emergency Page	Steady green or flashing green (based on the state of paging function)
Evacuation Signal (EVAC)	Steady red
Alert Signal (ALERT)	Flashing red
	Steady yellow indicates a trouble exists in system that is associated with functionality of switch next to LED

 MANUAL OPERATION AT FCC

Emergency Page at FCC The Emergency page operation at the FCC consists of the Galactic Page function and the supporting functions in the VLinks: Global All Call and All Call.

Galactic All Call

Galactic All Call sends the emergency page message from the Live Voice Microphone (LVM) to all speaker groups in the local PMI/PMI-2/PMI-3 only with a single switch press. Selecting All Call overrides All Evacuation, All Alert, All Convenience Page and All Background Music.

Galactic All Call sends an emergency page message from the LVM to all speaker groups across all nodes, across all Buildings in the system.

To select All Call, follow the steps listed below.

1. Pick up the Live Voice Microphone.
2. Depress the Galactic All Call switch.
3. The Galactic All Call switch, the Global All Call and All Call switches in all VLinks, and All Speaker Group switch LEDs flash green.
4. Depress the key on the Live Voice Microphone.
5. The Galactic All Call switch, the Global All Call and All Call switches in all VLinks, and All Speaker Group switch LEDs turn steady green, indicating that all speaker groups are now turned on.
6. Once the microphone is keyed, a preannouncement tone sounds on all speaker groups for approximately three seconds (0-10 seconds is programmable in Zeus).
7. While the preannouncement tone is sounding, the Pre-Announce Tone LED is on steady to give visual indication to the operator of what is currently sounding.
8. When the preannouncement tone ends, the Pre-Announce Tone LED turns off and the Ready to Page LED turns on telling the operator to proceed with the page.
9. The operator can now speak and make the call to all speaker groups.
10. During the call, the operator can briefly (for up to five seconds) unkey and then re-key the microphone (for example, to cough) - without re-initiating the pre-announce tone. During this delay time, the Ready to Page LED will be flashing.
11. To end the call, the operator simply unkeys and replaces the microphone. The Ready to Page LED turns off.
12. All Speaker Group switch LEDs turn from steady green to flashing green.
13. To return the system to normal, the operator depresses the All Call switch; otherwise, the system will automatically return to normal in approximately 1-2 minutes and turn off the All Call and Speaker Group LEDs.



This sequence of operation assumes the system is normal and no alarms exist. If there were alarms in the system, the All Call would operate the exact same way - except that the speaker groups that were receiving an evacuation or alert signal would be overridden by the Call. Once the Call ends, the previously sounding evacuation or alert signals would resume on the floors/groups that were sounding before the page.



Selective Page is not available from FCCs.

Evacuation (EVAC) at FCC

The Evac operation consists of the following functions which are described as: Galactic All Evac, Global All Evac, All Evac, and Select Evac.

Galactic All Evac 1/2

The FCC may be configured with a Galactic All Evac 1/2 All Evac send which, with a single switch press, sends the Evac tone or message (predetermined in the system design) to all speaker groups on all PMIs in all Buildings.

To select Galactic All Evac, follow the steps listed below.

1. Depress the Galactic All Evac switch.
2. The All Evac, Global All Evac, and all Speaker Group switch LEDs turn on flashing red.
3. All speaker groups sound the Evac tone or message.
4. To end Galactic All Evac, depress the All Evac switch again.
5. The Evac signal turns off (assuming no automatic alarms exist).
6. The All Evac, Display Evac, and all Speaker Group switch LEDs turn off.

All Evac/Global All Evac 1/2

The All Evac 1/2 and Global All Evac 1/2 switches in the FCC VLinks sends, with a single switch press, the Evac tone or message (predetermined in the system design) to all speaker groups in the Building:

To select All Evac/Global All Evac, follow the steps listed below:

1. Depress the All Evac or Global All Evac 1/2 switch.
2. The All Evac, Global All Evac, and all Speaker Group switch LEDs in the Building's VLinks turn on flashing red.
3. All speaker groups sound the Evac tone or message.
4. To end All Evac, depress the All Evac or Global All Evac 1/2 switch again.
5. The Evac signal turns off (assuming no automatic alarms exist).
6. The All Evac, Global All Evac, and all Speaker Group switch LEDs turn off.



Selective Evac and Alert switches on FCCs only operate on Speaker Groups from the same Building. Each Building must have its own Selective switch set on the FCC.

Select Evac 1/2

Select Evac sends the Evac tone or message (predetermined in the system design) to selected local or remote speaker groups in the system. On an FCC, each VLinks may be configured with a Selective Evac 1 and 2 for control of Speaker Groups within the same Building's VLinks.

To select Select Evac, follow the steps listed below:

1. Depress the Select Evac 1 and 2 switch in a VLinks, the LED flashes red.
2. Depress the desired individual Speaker Group switches in the same VLinks.
3. The selected Speaker Group and Display Evac switch LEDs flash red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the Evac tone or message.
6. To end Select Evac, first depress the selected Speaker Group switches, then Select Evac.

7. The Evac signal turns off (assuming no automatic alarms exist).
8. The Select Evac and all Speaker Group switch LEDs turn off.

Alert at FCC

The Alert operation consists of the following functions which are described as: Galactic All Alert, Global All Alert, All Alert, and Select Alert.

Galactic All Alert 1/2

The FCC may be configured with a Galactic All Alert 1/2 All Alert send which, with a single switch press, sends the alert tone or message (predetermined in the system design) to all speaker groups on all PMIs in all Buildings.

To select Galactic All Alert, follow the steps listed below:

1. Depress the Galactic All Alert switch.
2. The All Alert, Global All Alert, and all Speaker Group switch LEDs turn on flashing red.
3. All speaker groups sound the alert tone or message.
4. To end Galactic All Alert, depress the All Alert switch again.
5. The alert signal turns off (assuming no automatic alarms exist).
6. The All Alert, Display Alert, and all Speaker Group switch LEDs turn off.

All Alert/Global All Alert 1/2

The All Alert 1/2 and Global All Alert 1/2 switches in the FCC VLinks sends, with a single switch press, the alert tone or message (predetermined in the system design) to all speaker groups in the Building.

To select All Alert/Global All Alert, follow the steps listed below:

1. Depress the All Alert or Global All Alert 1/2 switch.
2. The All Alert, Global All Alert, and all Speaker Group switch LEDs in the Building's VLinks turn on flashing red.
3. All speaker groups sound the alert tone or message.
4. To end All Alert, depress the All Alert or Global All Alert 1/2 switch again.
5. The alert signal turns off (assuming no automatic alarms exist).
6. The All Alert, Global All Alert, and all Speaker Group switch LEDs turn off.

Select Alert 1/2

Select Alert sends the alert tone or message (predetermined in the system design) to selected local or remote speaker groups in the system. On an FCC, each VLinks may be configured with a Selective Alert 1 or 2 for control of Speaker Groups within the same Building's VLinks.

To select Select Alert, follow the steps listed below:

1. Depress the Select Alert 1 or 2 switch in a VLinks, the LED flashes red.

2. Depress the desired individual Speaker Group switches in the same VLinks.
3. The selected Speaker Group and Display Alert switch LEDs flash red.
4. If no Speaker Group switches are pressed for 120 seconds, the system automatically returns to normal.
5. The selected speaker groups sound the alert tone or message.
6. To end Select Alert, first depress the selected Speaker Group switches, then Select Alert.
7. The alert signal turns off (assuming no automatic alarms exist).
8. The Select Alert, Display Alert and all Speaker Group switch LEDs turn off.

Speaker Groups at the FCC Speaker Groups are formed in the Geographic View of the Zeus Programming tool and consist of all voice equipment (e.g. amplifiers, strobes, telephones) descending from a group.

On the FCC, each Building configuration may provide Speaker Groups to the Building's VLinks on each FCC.

Pressing the Speaker Group switch when the speaker group is normal and a SELECT function switch is active on the same VLinks places the speaker group into the current SELECT state. If the current SELECT state is EVAC1, it sends the EVAC1 message to that zone. Setting a speaker group to a higher priority state places the speaker group in the new state. Pressing the switch again removes the speaker group from the state. If a lower priority state is still active, the switch reverts to that state.

If the speaker group was automatically activated, pressing the switch silences the speaker group.

Audible Silence/Unsilence at FCC

Silence Individual

Silence Individual allows the user to silence an individual active speaker group by pressing the individual Speaker Group switch, whether it is manually or automatically activated.

To enable Silence Individual, follow the steps listed below:

1. The individual speaker group is in an active state.
2. Depress the individual Speaker Group switch.
3. The Speaker Group switch LED turns off.
4. The individual Speaker Group is silenced.

Cancel Silence Individual

A new automatic event or a manual switch press to an individual Speaker Group that cancels the individual silence for that speaker group (i.e., toggles silence individual from silence to unsilence).

Speaker Group Non-Silence A speaker group programmed as non-silenceable cannot be silenced by a switch press of either the speaker group (when in Alert or Evacuation) or the PMI/PMI-2/PMI-3 Audible Silence switch.

FCC Access Control For Voice systems, access control is managed independently in each Building. In order to have access control of the entire site, the FCC must request and acquire access control from each Building.

To each Building XLS Node, each VLinks appears simply as an additional Command Station in the node. Therefore, each Building XLS node will support transfer of access control between all of its Command Stations (real, local Command Stations and VLinks stations).

In Galactic Voice, there will not be a separate access control mechanism. Instead, each FCC will aggregate the state of access control on all of its VLinks in order to display the “galactic” status of access control on the FCC’s Galactic Command Station. Similarly, presses of Galactic Request, Galactic Grant, and Galactic Deny switches will be managed through propagation of the button press to the appropriate VLinks’ buttons.

Site-wide access control may be requested through the following FCC switches:

1. Galactic Request Access
2. Galactic Grant Access
3. Galactic Deny Access

These switches, which utilize the Request/Grant/Deny and Global Request/Global Grant/Global Deny switches in each VLinks to perform operations in the Building and to view the status of access to the Building.

To facilitate access transfer between FCCs, the Request switches in the VLinks can be assigned either a low timeout or no timeout.



Since access control is acquired independently for each Building, an FCC may have only partial access to the site. When it does not have full access, the Galactic Request LED is Off, and only the Request Access LEDs in VLinks for which the FCC has access control are on.

FCC Lamp Test Lamp Test allows the user to test all visible terminal indications.

To perform a Lamp Test, follow the steps listed below:

1. Depress the Lamp Test switch.
2. All LEDs on the FCC will be on steady red, then steady green followed by steady yellow, each for approximately three seconds.
3. The Lamp Test automatically shuts off after cycling through the LED colors.

Galactic Clear Manual Galactic Clear Manual allows the user to cancel all manually activated functions in all Buildings with a single switch press.

To clear all manually activated functions, follow the steps listed below:

1. Depress the Galactic Clear Manual switch.
2. All Emergency Page, Evacuation, and Alert activations will be canceled.
3. All activated LEDs turn off.

FCC Trouble Sounder Switch When a trouble exists on the FCC or with any FCC hardware, the FCC Trouble Sounder will be flashing yellow, and an audible will beep for one second every nine seconds. Pressing the button will silence the audible for 24 hours. When silenced, the LED will change to a solid yellow.

VIRTUAL LOGIC

GCNET provides virtual, supervised Inter-Building programmable logic via the virtual VLIS and VLOS submodules. A logic output in one Building may be associated with one or more logic inputs in one or more Buildings. The logic inputs provide both Active criteria (indicating that the logic output in the other Building is active) and Trouble criteria (indicating failure of the Inter-Building logic link).

VLIS Virtual Logic Input Submodule has 16 inputs which can be programmed for inter-building logic when combined with VLOS output devices.

VLOS Virtual Logic Output Submodule has 16 relays which can be programmed for inter-building logic when combined with VLIS input devices.

INTRODUCTION AND OPERATION

Starting from version 12, FireFinder-XLS can be configured as a combined Fire Alarm and Mass Notification system. Although they use many of the same elements (PMI, SCM switches, etc), the MNS and Fire Alarm systems operate independently. The MNS is reset separately from the Fire system, and vice versa. Audibles may also be silenced and unsilenced independently. Troubles generated from the MNS are displayed under an MNS-specific tab (MNST) on the PMI display, allowing them to be acknowledged separately from other troubles. Troubles from the Fire system are displayed under the general Trouble tab.



Troubles on devices or modules that are used by both systems are displayed under the general Trouble tab. Examples of this are HTRI-Ds where one input is used as a Fire input and the other as an MNS input, and DLCs that host a mixture of devices that are used by either system.

Resetting the MNS can be accomplished by pressing the Reset soft-key under any of the MNS tabs on the PMI. Similarly, resetting the Fire system can be accomplished by pressing the Reset soft-key under any of the non-MNS tabs on the PMI.

There is no “MNS silence” softkey on the PMI screen. Instead, SCM-8 switches are used to accomplish the silencing of MNS audibles. These audibles can also be silenced via the Node Control menu. In either case, logic must be written in Zeus to enable this functionality.

MNS events that have higher priority than Fire events are given the “MNS1” event type in Zeus, and those with lower priority than Fire events are given the “MNS2” event type. The PMI will only display the MNS1 and MNS2 tabs if there are initiating devices configured for those event types in Zeus.

MNS1 and MNS2 events are latching-type, meaning that after an active device used for the MNS returns to normal, the corresponding event remains visible at the panel until MNS reset is performed. Note that when a MNS device is restored to normal, the LED on the device changes back from red to green as soon as any reset type is issued (Fire reset or MNS reset). Likewise, the red “zone active” LED on a CDC-4 card turns off once the zone is restored to normal state and any reset type is performed. This behavior occurs also on the DLC card.

When an ‘MNS’ message is activated, the assigned pre-recorded message is played in a continuous loop until deactivated by the operator.

If a voice message from one system is active when the other system is reset, the message will not be canceled.



For MNS applications, pre-recorded messages are on an all-call, all-zone basis. Not selective per zone.

ACUs

A location of mass notification system control (ACU) consists of the following:

1. A list of Speaker Groups to be controlled/monitored.
2. A set of Voice Applications to be performed on the Speaker Groups (for example, ALL CALL, SELECT EVAC, DISPLAY ALERT, etc.).
3. An LVM microphone.
4. An optional list of telephone groups and an FMT master phone.
5. Request/Grant/Deny access.

A mass notification system may have one or more different locations of control over the same installed equipment. In a single-node system, a command station with a PMI located in a CAB enclosure is considered an Autonomous Control Unit (ACU). A single-node combined system (Fire Alarm + MNS) can only have one ACU.

In a multi-node system with MNS enabled, a Global Voice configuration is required. An ACU is then synonymous with Display and Control Centre (i.e. a Global command station including a Global PMI with control). Zeus allows up to five ACUs (i.e. Display and Control Centres configured as Global command stations including a Global PMI with control) on a Global Voice network.



In order to maintain a single point of control over the entire system, local nodes must be configured as display only, and their local command station can only be used in the advent of a network degrade situation (i.e. when there is no longer a Display and Control Centre that is able to control the local node).

CONFIGURATION

The MNS application uses the FireFinder-XLS Voice system to accomplish its functionality via switches (e.g. SCM). Individual zone circuits (speaker, strobe) are bundled into geographic groups during system configuration. These groups are either automatically controlled by pre-programmed system logic, or manually controlled by the switches located on Autonomous Control Units (ACUs). They can be dedicated to Fire annunciation only, to MNS annunciation only, or they can be used to annunciate messages from MNS and from Fire audio channels alike, based on audio channel priorities. Paging, manual control, or monitoring of the speaker groups can be performed from any location where an LVM/LPB microphone, SCM switch control module, or PMI is installed.

If a command station’s node contains speaker groups used by the MNS system, Zeus requires an MNS Audible Silence switch and an MNS Audible Unsilence switch in each local control station. SCM-8 switches can be used for this purpose. Similarly, each global PMI with control capabilities must have a Global MNS Audible Silence switch and a Global MNS Audible Unsilence switch if MNS is enabled in the configuration.

If a Global Voice configuration with MNS enabled includes multiple Display and Control Centres (i.e. more than one Global PMI with Control), a single global control policy must be used. This is configured in Zeus.

Desigo CC/Cerberus DMS prior to version 3.0 is not allowed in a combined Fire Alarm and Mass Notification System.

All zones on a given CDC-4 card must have the same usage (either “Conventional Zone” or “Mass Notification”). Mixing of zone usages on a card is not permitted.

UL 2572 Guidelines

The following special considerations should be observed when configuring an XLS Mass Notification System.

1. Request/Grant/Deny access must be set up in Zeus between Autonomous Control Units (ACUs).
2. The pre-announce tone may only be set to 1-3 seconds in Zeus even though Zeus will allow 0-10 seconds.
3. All EVAC, All Alert and Emergency Page must activate an alarm condition.
4. If Background Music and/or Convenience Page option(s) are selected, they must be disabled during an alarm condition. This is accomplished by writing custom logic using the Zeus tool.



Convenience Page and Background Music may only be used in Legacy mode.

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control and Communication Units for Mass Notification Systems, UL 2572, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program feature or option	Permitted in UL 2572? (Y/N)	Possible Settings	Settings permitted in UL 2572
Request Access Timeout	Y	0 - 5 minutes	1 - 90 seconds
Pre-announce Tone	Y	0 - 10 seconds	1 - 3 seconds

XLS SYSTEM SECURITY LEVELS	
Communication Security	Level 1
Stored Data Security	Level 0
Access Control Security	Level 1
Physical Security	Level 1
Audit Control	Level 0

NOTIFICATION APPLIANCE CIRCUITS

There are four types of MNS outputs: Speaker zones (which include amplifiers and ZIC circuits), NAC/strobe ZIC Circuits, Relays, and Pseudo Points.

Manual control of MNS must be configured for highest priority. Automatic MNS events can be configured either above or below Fire Alarm events in priority. They should be annunciated via audio channels that are configured for an MNS usage and have a matching priority compared to the audio channels that annunciate the other event types. For example, if there is a message associated with a Fire Event playing on a speaker zone and an MNS1 event is initiated, the speaker group will automatically switch over to the MNS1 message. Any speaker groups that were playing the Fire event's message but are not configured to play the MNS1 message will automatically become silenced. If an MNS2 event was initiated instead of the MNS1 event, the group will continue to play the Fire message. It is the user's responsibility to configure speaker zones that annunciate both Fire and MNS events with the correct priorities. An important consideration is described below in the MNS AND RELEASING section.

This automatic controlling of Fire audibles in the presence of higher-priority MNS events results in the following:

- Audible LED shows "Silenced" until the MNS is reset, because this LED represents Fire silence only, not system silence.
- Once an MNS message is silenced, the entire system becomes silent (i.e. the Fire message does not resume).
- There is no ability to manually unsilence the Fire system until the MNS is reset.

NACs that are configured for use by the MNS and have devices other than speakers on them are required to be non-silenceable. This is enforced by the Zeus programming tool.

Notification appliances used in MNS applications differ in appearance from those used in Fire applications. For example, the word "Fire" is displayed on notification appliances used for Fire applications, but not those used for MNS applications.

MNS notification appliance circuits support zone coding.

If outputs are dedicated to Fire only:

If Fire outputs were activated by an event other than a Fire alarm or gas/emergency (e.g. manual activation, or in response to an event with Supervisory priority or lower), then they are not silenced.

Non-silenceable audible circuits would still play their Fire message even though the system has higher-priority MNS events and the Audibles Silenced LED is on.

MNS and Releasing

Even though the MNS operates independently of the Fire system, Releasing events must always have priority over MNS events. It is required that the MNS does not override notification appliances that are required to provide suppression pre-discharge notification. In other words, if a notification appliance circuit is currently playing a message related to the releasing application and an MNS1 event occurs, the circuit will continue to play the releasing application message. This must be taken into consideration when configuring the system using the Zeus programming tool.

A

ALARM VERIFICATION

Alarm verification provides FireFinder-XLS with a way to verify an alarm from area-type addressable smoke detectors connected directly to the intelligent DLC loop or the analog MLC loop. Alarm verification can also be enabled for addressable HZM or CZM devices, providing initiating loops to conventional non-addressable detectors.

This feature reduces the incidence of false alarms. Alarm verification is only applicable to detectors that do not contain an integral alarm verification feature provided by Application Specific Detection (ASD). You can select alarm verification for none, all or any combination of addressable smoke detectors or Conventional Zone modules. The alarm verification cycle on each device is independent from alarm verification cycles on the other devices.

Addressable detectors connected to DLC / MLC loops indicate that an alarm condition has been detected. If a device is subject to alarm verification, the DLC / MLC module alerts the control panel that the device has entered verification but is not yet considered to be in alarm. The DLC / MLC starts a timer using the FireFinder-XLS system Retard-Reset Period programmed in the Zeus tool allowing conditions at the device to stabilize.

Devices connected to the HZM / CZM-1B6 behave in a similar manner, but unlike addressable devices they must be powered down and re-powered as shown in the RETARD-RESET-RESTART PERIOD in the alarm verification timing diagram.

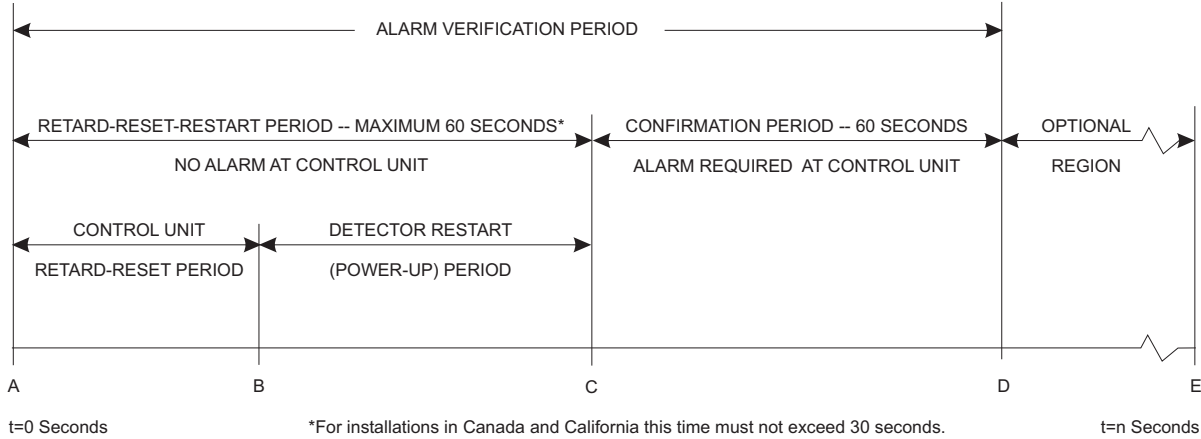
When the RETARD-RESET-RESTART PERIOD timer expires, the DLC / MLC begins the fixed 60-second alarm confirmation period. If the device is no longer in alarm during the confirmation period, the verification cycle is considered complete and detection of a subsequent alarm from that device results in the verification cycle restarting. If the device still reports in the alarm state during this confirmation period, the alarm condition is reported to the control panel and the system annunciates the alarm condition.



Alarm verification shall not be used in initiating device circuits intended for cross-zone operation.

See the figure on the following page for a graphic illustration of alarm verification.

ALARM VERIFICATION TIMING DIAGRAM



*For installations in Canada and California this time must not exceed 30 seconds.

A – Smoke detector goes into alarm.

AB– RETARD-RESET PERIOD (Control Unit) – Control unit senses detector in alarm and retards (delays) alarm signal, usually by de-energizing power to the detector. Length of time varies with design.

- For detectors on a DLC loop, the period is configurable in the range of 11 to 55 seconds.
- For photoelectric and ionization detectors on an MLC loop, the periods can be configured separately in the range of 10 to 45 seconds.

BC– RESTART PERIOD (Detector Power-up Time) – Power to the detector is reapplied and time is allowed for detector to become operational for alarm. Time varies with detector design.

- For detectors with alarm verification connected to the DLC, the detector RESTART PERIOD is 0 seconds.
- For detectors with alarm verification connected to the MLC, the detector RESTART PERIOD is 11 seconds.
- For HZM and CZM-1B6, the RETARD-RESET PERIOD is not configurable and RETARD-RESET-RESTART PERIOD time varies up to a maximum 60 seconds.

AC– RETARD-RESET-RESTART PERIOD – No alarm obtained from control unit. Maximum permissible time is 60 seconds.

CD– CONFIRMATION PERIOD – Detector is operational for alarm at point C. If detector is still in alarm at point C, control unit will alarm. If detector is not in alarm, system returns to standby at point D. If the detector re-alarms at any time during the confirmation period the control unit will alarm.

DE– OPTIONAL REGION – Either an alarm can occur at control unit or restart of the alarm verification cycle can occur.

AD– ALARM VERIFICATION PERIOD – Consists of the retard-reset-restart and confirmation periods.



For devices connected to the DLC, the Detector Restart period is 0 seconds.



Use only detectors which are subject to air velocities of less than 100 feet per minute with alarm verification. Under dynamic air velocity conditions, smoke may be swept from a smoke detector after the initial alarm. That may cause a long delay before verification. Do not select alarm verification for such applications.

HZM or
CZM-1/-1B6 Compatibility

Table A-1 contains compatibility data for the HZM or CZM-1/-1B6 when the HZM or CZM-1/-1B6 is configured to perform alarm verification. Each detector model is listed with the allowable Zeus alarm verification delay range in seconds. This setting is made in Zeus. In the Physical View, select the panel. In the Detail View, select the Properties tab. Make the appropriate setting in the field labeled "DLC Alarm Verification Delay Time (sec)," as shown in Figure A-1.

TABLE A-1 HZM or CZM-1/-1B6 ALARM VERIFICATION COMPATIBILITY		
Detector Model	Allowable MLC/DLC Alarm Verification Delay Time (sec.)	Category
DI-3/3H	23-54 (23-30 in Canada and California)	A
DI-A3/A3H	23-54 (23-30 in Canada and California)	A
DI-B3/B3H	23-54 (23-30 in Canada and California)	A
DT-3P-135	Not Compatible	--
DT-11	Not Compatible	--
PB-1191	Not Compatible	--
PE-3	39-54 (Cannot be used in Canada or California)	B
PE-11/11T	Not Compatible	--

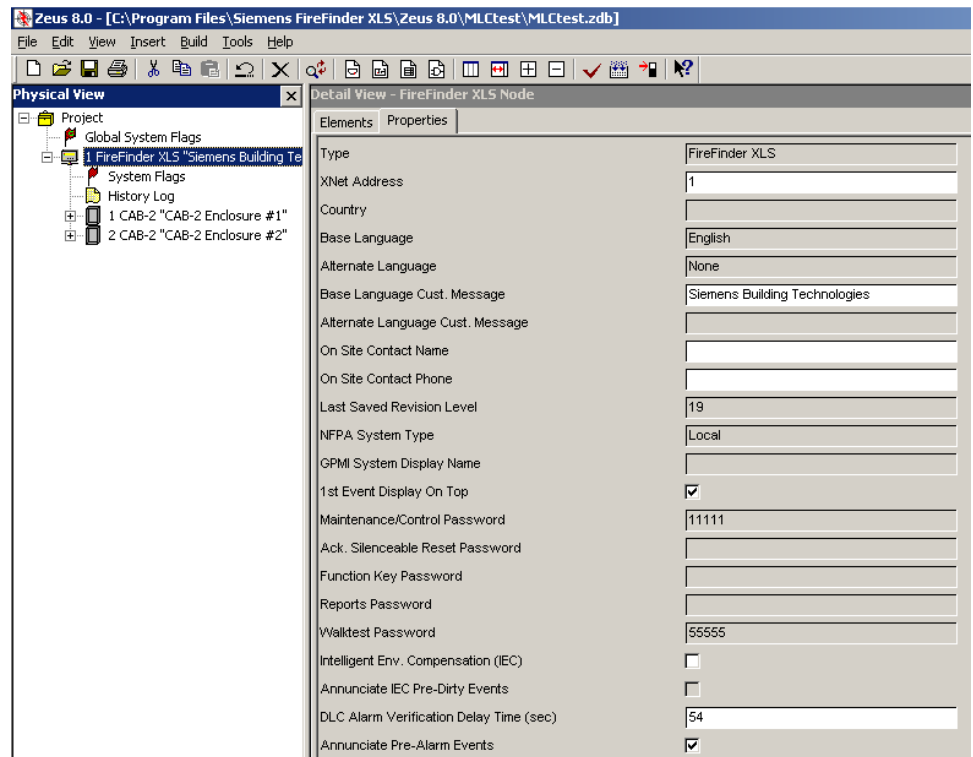


Figure A-1
Selecting "DLC Alarm Verification Delay Time (sec.)"

Detectors with "Not Compatible" cannot be used with the HZM or CZM-1/-1B6 alarm verification feature, but can be used when alarm verification is disabled.

Each detector is assigned a category. Do not mix detectors from different categories on the same circuit.

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B

APPLICATION SPECIFIC DETECTION

Application Specific Detection (ASD) allows the system designer (and anyone with Control menu access) to program an HFP-11, FDOT421 or OH921 detector on a DLC loop or an FP-11 detector on an MLC loop for the detector's sensitivity, pre-alarm threshold, and other alarm-related parameters using English descriptions of the detector's environment (application). This eliminates the need for detailed knowledge of smoke detector terminology and operation. The designer can set all of the critical detector parameters by simply selecting an application description that closely fits the one where the detector is to be installed.

For example, to use ASD to select the optimal parameters for a detector in a hotel lobby, select the LOBBY application in the Zeus tool for that device. The system will automatically transmit the factory determined sensitivity, pre-alarm threshold, and detection algorithm (R-algorithm) to the corresponding device. This eliminates the guesswork of selecting these parameters for different environments.

ASD APPLICATIONS

Zeus ASD Application	ASD Description
Disable	No Applications (Standard Photo/thermal Detector)
Office (Retail)	Reasonably clean, climate controlled atmosphere
Warehouse (Light Manufacturing)	Airborne dust, equipment, fork truck and light to medium dock area exhaust fumes
Lobby	Relatively clean area, temperature changes, cellular phones, smoking
Computer Room	Very controlled environment, clean, temperature closely regulated, high cost clean machinery operating, no smoking, high air velocity
Dormitory	Airborne dust and temperature changes, living quarters, cooking fumes, smoking
Healthcare	Higher level risk, relatively clean, electronic equipment
Parking Garage	Airborne dust, car and diesel fumes, temperature swings
Utility (Transformer) Room	Normal to somewhat dirty environment, heat from running equipment
Precious Storage (Sensitive Environment)	Sensitive materials or equipment storage, clean dust-free environment, earliest warning desired
Hostile Environment	Dirty, dusty, humid, operating equipment, RF present, wide temperature swings
Duct (Open air or duct housing)	Dirty, dusty, humid, wide temperature swings, high air velocity

MAPPING OF ASD SETTINGS

HFP-11 ASD Settings	FDOT421/OH921 ASD Settings
Computer Room, Healthcare and Precious Storage	Sensitive
Office, Lobby, Dormitory and Utility Room	Standard (default)
Warehouse, Parking Garage and Hostile Environment	Robust
Disabled and Duct	Not Supported

Testing ASD Devices

Since ASD is transmitted to the detector to adjust the detection algorithm to reduce false alarms, it is necessary to bypass ASD when smoke testing devices for which ASD has been enabled. The Bypass ASD menu option, located in the Control Menu, has been supplied for this purpose. When ASD devices are to be smoke tested, ASD must first be bypassed (disabled) on the DLC or MLC module which contains the devices to be tested. This disables the application specific detection algorithm on all of the detectors on that DLC or MLC so the detector will alarm using the standard test gas method. An "ASD Disabled for Test" trouble will be issued when ASD is bypassed (disabled) on one or more detectors. If ASD is not bypassed (disabled) prior to smoking the device, the tester may find it extremely difficult to alarm the detector since the algorithms are designed not to be fooled by a deceptive phenomenon such as test gas.

Once ASD has been bypassed using the test menu, the tester should wait 3 minutes before attempting to test the ASD devices. This will ensure that the ASD algorithm has been bypassed at each device. Once ASD has been bypassed (disabled) on detectors, it will remain bypassed (disabled) through a Panel Reset. To restore the ASD algorithm, the Enable ASD option must be selected on the Control panel at the DLC or MLC. When ASD has been reenabled on all devices, an OUT will be issued for the ASD trouble.

C

INTELLIGENT ENVIRONMENTAL COMPENSATION (IEC)

Intelligent Environmental Compensation (IEC) is an optional feature that permits the FireFinder-XLS system to compensate automatically for environmental changes (such as dirt and dust buildup) in the analog voltage of an HFP-11 detector on a DLC loop or an I-Series photo or ion detector on an MLC loop. The selection of IEC devices is made in the Zeus programming tool.

For the FDOOTC441/OOHC941, FDOOT441/OOH941, FDOT421/OH921, FDT421/HI921, and FDO421/OP921 detectors, the IEC must be enabled on the XLS node level.

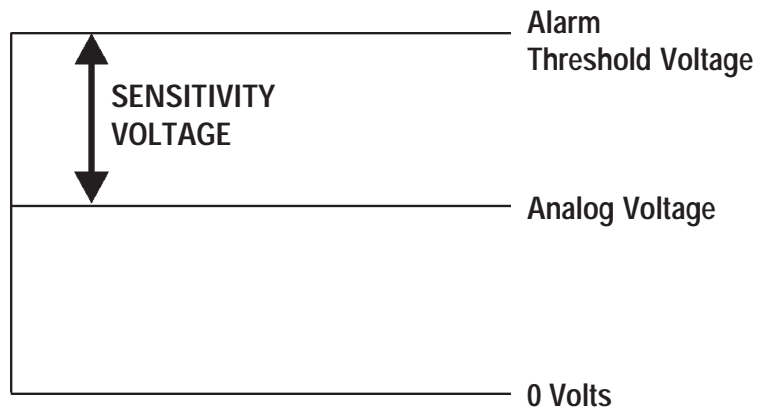
Once a detector is chosen to be covered by IEC, FireFinder-XLS stores and analyzes the analog readings of the smoke detector and adjusts the detector's threshold upward or downward, as necessary, to maintain a constant sensitivity.

As the analog voltage increases due to environmental factors, an equivalent increase in the detector's alarm threshold prevents factors other than smoke from causing an alarm. This method maintains the selected detector's sensitivity.

Typically, the analog voltage changes slowly over long periods of time for environmental factors, but changes quickly over short periods of time for actual smoke.

Initial System Power-Up

When a new or modified Zeus configuration is loaded into a system, the FireFinder-XLS PMI/PMI-2/PMI-3 goes through an initial system power-up. FireFinder-XLS does not keep the IEC option where it was formerly applied when this new system powers up. The IEC memory re-initializes, and then FireFinder-XLS begins adjusting the alarm thresholds wherever IEC is selected in the new Zeus configuration.



Adjusting the Alarm Threshold When a New Zeus is Uploaded

After FireFinder-XLS checks that the actual ID of a device with IEC agrees with Zeus, it adjusts the detector's alarm threshold according to the data stored. The first adjustment occurs after 100 hours of data accumulation. In the case of power cycling or resetting, adjustments begin within 90 seconds.

If a detector with IEC reports an alarm condition before the detector's alarm threshold is adjusted, the alarm delays until the alarm threshold is adjusted. If the device continues to report an alarm condition once its alarm threshold is adjusted, the alarm reports.

If the Zeus and the device ID do not agree, the IEC for that device does not activate until the trouble condition is removed from the system and the panel is reset.

Ongoing Adjustments of the Alarm Threshold

Environmental conditions usually cause a small change in the analog voltage over a long period of time. At regular intervals FireFinder-XLS collects analog data for each detector with IEC and adjusts the alarm threshold accordingly. FireFinder-XLS adjusts for both up and down changes in the analog voltage. In addition, if system power is lost, FireFinder-XLS adjusts the alarm thresholds as needed by using stored data.

IEC Trouble Conditions

A trouble condition involving the IEC may be annunciated by the FireFinder-XLS PMI/PMI-2/PMI-3 as:

PRE-DIRTY ANALOG VOLT. REACHED
OR
IEC LIMIT REACHED. SERVICE REQ

The trouble conditions shown above are annunciated on a detector-by-detector basis as each detector is checked.

FireFinder-XLS annunciates a trouble condition for a detector when its alarm threshold reaches a predetermined limit. The operator should acknowledge the trouble, clean the detector if possible, and reset the control panel. If the detector is not cleaned, the control panel annunciates this trouble condition after every panel reset until the detector is cleaned.

D

SECURITY POINT INSTALLATION



These circuits are intended for 24 hour alarm monitoring only.

UL 1076 requires an HTSW-1 tamper switch as well as a PAL-1 printer. Only Models HTRI-S/-D/-R may be used as security points. A COMMUNICATION FAILURE with an HTRI device configured for SECURITY results in a SECURITY EVENT as well as a communication trouble. When installing an HTRI device in the Zeus tool, be sure to set the device usage to security; otherwise, the device usage defaults to fire alarm.

If any input or output on a device is configured for Security usage in the Zeus tool, all other inputs and outputs on that device must be set for Security usage. It is not permitted to mix Security and other usages on the same device. This limitation does not apply to Canada.



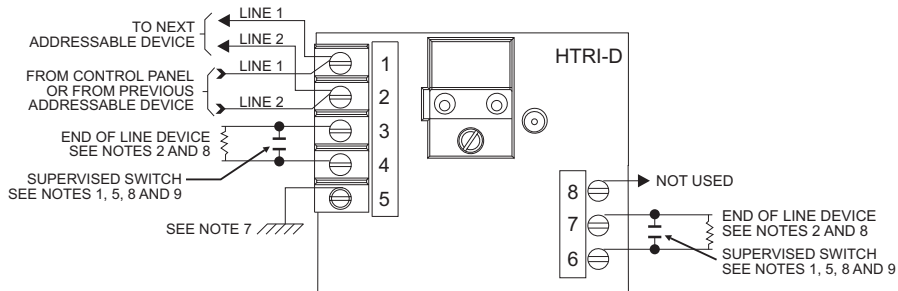
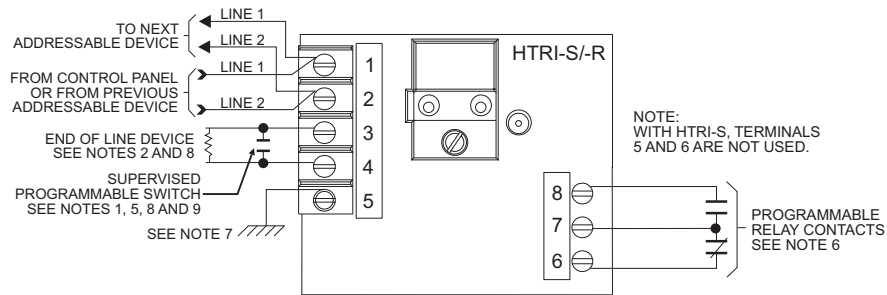
- When setting the device address using the DPU, select the normally closed alarm causing input.
- Connect only one switch per HTRI input.

For proprietary burglary application (UL 1076):

- Use an HTSW-1 tamper switch to monitor the main enclosure.
- Monitor each HTRI-S/-D/-R related to this application for 24 hours by using a listed motion detector (to prevent tampering).
- Monitoring of security points is performed at the PMI/PMI-2/PMI-3. The PMI/PMI-2/PMI-3 is suitable for installation at either the protected premises or remotely as a receiving unit.

NOTES:

1. All supervised switches must be held closed and/or open for at least a quarter of a second to guarantee detection.
2. End of line device: 470 ohm, ¼W resistor, P/N 140-820164. For Canadian applications, use Model EL-33 with 470 ohm, ¼W resistor.
3. HTRI is polarity insensitive. Line 1 and Line 2 can be either line of the loop.
4. Electrical ratings:
Voltage maximum: 30 VDC
Current maximum:
 1.3mA during polling
5. Supervised switch ratings:
Voltage maximum: 27 VDC
Current maximum: 6mA during polling
Contact resistance maximum:
 10 ohms
Maximum cable length:
 200 feet (18 AWG)
C_{Line to line}: 0.02uF
C_{Line to shield}: 0.04uF
Max line size: 14 AWG
Min line size: 18 AWG
6. Relay contact ratings:
 4A, 125 VAC resistive
 4A, 30 VDC resistive
Inductive:
 3.5A, 120 VAC (0.6PF.)
 3.0A, 30 VDC (0.6 PF.)
 2.0A, 120 VAC (0.4 PF.)
 2.0A, 120VAC (0.35 PF.)
 2.0A, 30VDC (0.35 PF.)
The relay is shown in standby condition.
7. Terminal 5 must be connected to earth ground.
 - a. Use wire nuts to pass the shield wire through the electrical box with **NO** connection to the device terminal block or to local ground.
 - b. Use shielded wire to connect the switch wiring.
 - c. Tie the switch wiring shield to terminal 5 or the local earth ground.
8. For proprietary burglary application:
 - a. Use an HTSW-1 tamper switch to monitor the main enclosure.
 - b. Monitor each HTRI-S/-R/-D related to this application continuously by using a listed motion detector (to prevent tampering).
9. In supervisory:
 HTRI-S-R draws 1.3mA
 HTRI-D draws 1.3mA
10. Positive and negative ground fault detected at <60K ohms for terminals 3 and 4.



Terminal 5 of the HTRI-S/-D/-R must be connected to a known good earth ground for proper operation.

E

SILENT KNIGHT MODEL 5129 AND COMPATIBLE ALARM COMMUNICATORS

Electrical Connections

The FireFinder-XLS system connects to the Silent Knight Model 5129 Digital Fire Communicator using the Alarm, Trouble, and Supervisory dry contacts on the PSC-12.

Refer to the *Silent Knight 5129 Fire Slave Communicator Installation Manual*, P/N 150805, provided with Silent Knight Model 5129 for dialer instructions.

The Silent Knight Model 5129 monitors all System troubles through the PSC-12 trouble relay. FireFinder-XLS delays the AC fail trouble signal in accordance with NFPA and UL requirements.

In NFPA 72 Remote Station install batteries to provide 60 hour standby capacity. For signalling service DACT wire according to the diagram on the following page.

In NFPA 72 Central Station connections AC fail reporting is delayed. The delay is set in Zeus and can be set between 0 and 1440 minutes.

AC power must be present for a full minute before the system switches back to AC power from the battery.

Using the optional AC monitor input, the Silent Knight Model 5129 monitors AC fail trouble. When the FireFinder-XLS system reports an AC fail trouble, the Silent Knight Model 5129 sends a specific code to the Central Station that identifies the trouble as AC fail.

Mounting

The Silent Knight Model 5129 is shipped with an enclosure. Mount the 5129 within 20 feet of the enclosure containing the PSC-12 and connect it with rigid conduit.

Compatible Alarm Communicators

The MDACT/FCA2015-U1 module is also compatible with alarm communicators that utilize different communication technologies (IP and GSM technologies) to connect to compatible receivers using compatible protocol.

Manufacturer	Model Number	Communication Technology	Installation Part Number
Tellular	TG7GFS04	GSM	56044102
Bosch	C900V2	IP	F01U087780-01
DSC	TL300CF	IP	29007636/29007842
DSC	3G3070-CF	GSM	29008179



MDACT/FCA2015-U1 is configured with the alarm communicator for other transmission technologies and off-premise signaling for UL. MDACT/FCA2015-U1 is used for off-premise transmission for ULC.

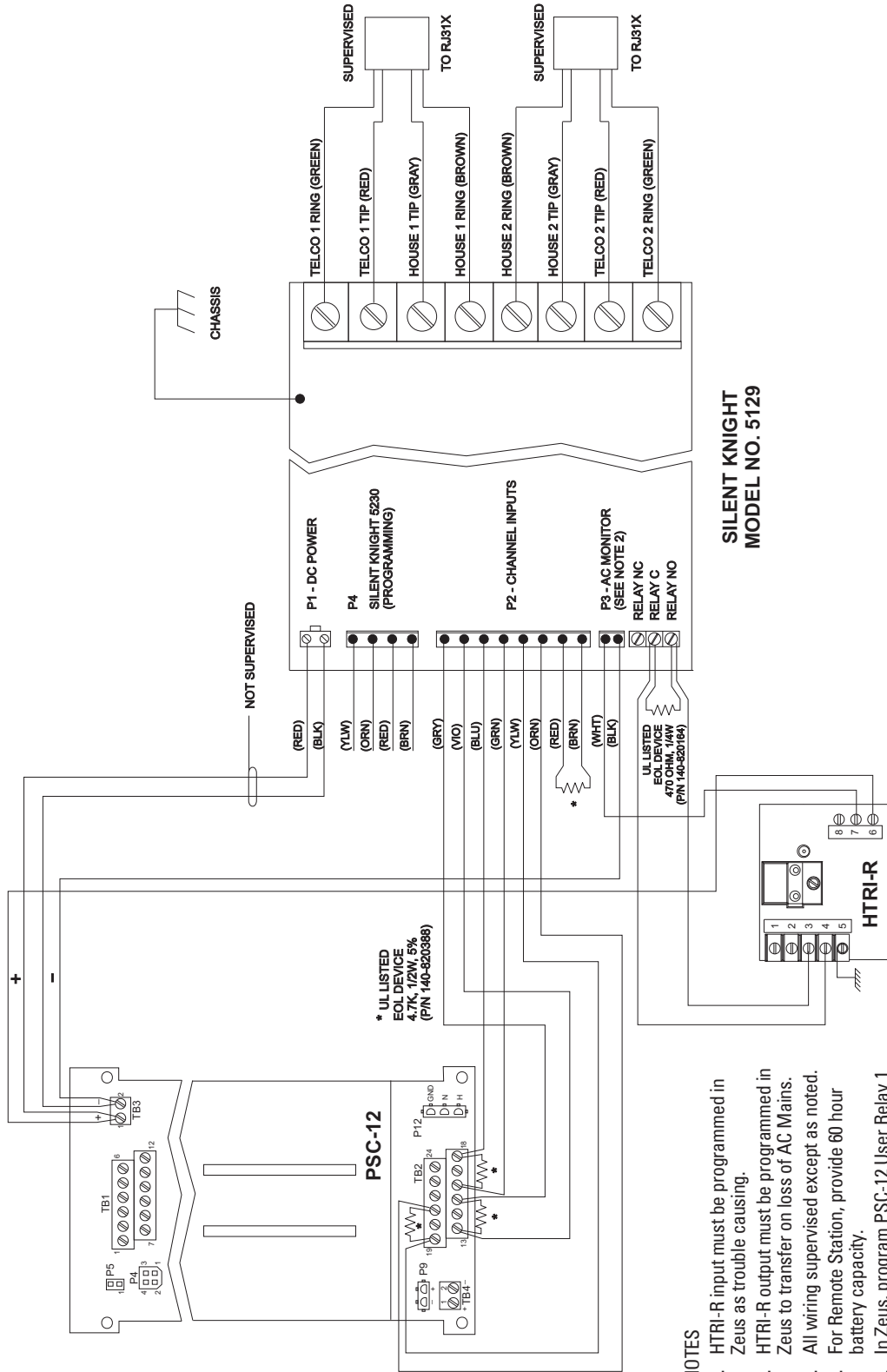
When using these alarm communicators, the MDACT/FCA2015-U1 shall be configured for Contact ID format.

Refer to the Alarm Communicator Installation Instructions for compatible receivers.

Wiring between the MDACT/FCA2015-U1 and the alarm communicator shall be within 20 ft and in conduit.

The C900V2 shall be installed in accordance with its installation instructions.

Electrical Ratings	Supervisory	18-40 VDC 60mA
	Alarm	18-40 VDC 130mA



- NOTES**
- HTRI-R input must be programmed in Zeus as trouble causing.
 - HTRI-R output must be programmed in Zeus to transfer on loss of AC Mains.
 - All wiring supervised except as noted.
 - For Remote Station, provide 60 hour battery capacity.
 - In Zeus, program PSC-12 User Relay 1 to activate on any supervisory.
 - All wiring Power Limited to NFPA 70 per NEC 760.

F

TESTING / MAINTENANCE If the system is connected to the fire department, etc., or actuates an internal system, disarm the appropriate outputs before servicing to prevent actuation. (See PMI/PMI-2/PMI-3 Operation for procedures.) Notify the fire department and personnel at your facility that a System test is being performed so that any alarm sounding can be ignored during the test. Notify the fire department before resetting the system.

Inspection, Testing, and Maintenance of the fire alarm system should be performed in accordance with NFPA 72, The National Fire Alarm Code and all applicable local codes.

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G

TROUBLE MESSAGES

The trouble messages for the FireFinder-XLS system will be displayed on the PMI/ PMI-2/PMI-3. Up to five trouble messages may be displayed on the screen at one time. Each trouble message will show the TIME that the trouble occurred, the SOURCE of the trouble and the TYPE of trouble.

The trouble LED will flash whenever new troubles are reported and will turn steady when the troubles have been acknowledged by pressing the appropriate button on the PMI/PMI-2/PMI-3.

MESSAGE	DESCRIPTION
24V 12amp Supply Shutdown	Indicates that the 24 volt 12 amp non-power limited output has shut down due to overload.
24V 4amp Supply Shutdown	Indicates that the 24 volt 4 amp supply that supplies the power limited output has shut down due to overload.
AC Brownout Detected	Indicates that the AC mains feeding the PSC or PSX have fallen below the brownout threshold.
AC Fail	Indicates that the AC mains feeding the PSC or PSX are disconnected.
Audible Base Missing	Indicates that the ABHW-4 is not installed. ABHW-4 is expected as part of the [Zeus] configuration; however is physically absent.
Audible Base not Configured	Indicates that the ABHW-4 is not part of the configuration . ABHW-4 is installed physically; however it is not part of the [Zeus] configuration.
Audible Base Defective	Indicates that the installed ABHW-4 is defective.
AuxCard Config Mismatch	Indicates Zeus config identifies ZIC8B AuxCard presence (Yes or No) and the physical module disagree.
Backplane Power Shutdown	Indicates that the 6.2 volt supply that supplies the backplane has shut down due to overload.
Battery Fuse/Wiring Open	The circuit breaker connecting to the battery is open.
Class A Fault	A fault has been detected on a Class A loop.
Communications Error	Indicates a fault on the ASI or CAN bus or DNET
Daily Det. Test Abnormal	Detector test trouble
Det. Chamber Compromised	Detector chamber compromised / Background light trouble.
Dev. Comm. Error	Communications error trouble
Dev. Detected Waveform Err	Indicates a waveform error.
Dev. LED Dead	Indicates a dead device LED trouble.
Device Receive Error	Indicates a receive error.
Dialer Acct. X Comm Fault (X = 1-4)	The dialer was able to communicate with the receiver, but did not transmit successfully. Possible faulty phone line.
Dialer Configuration Fault	Dialer configuration by the PMI was unsuccessful. Try powering the panel off, then on.
Dialer Acct. X Data Lost (X = 1-4)	The panel is unable to send messages to the FCA2015-U1 because its message buffer is full. This typically occurs because the dialer has been unable to communicate events to the receiver.
Dialer Acct. X Unreachable (X = 1-4)	The dialer did not receive a response from the receiver. The receiver may be off-line, wrong number configured for account, etc.
Dialer Buffer Full	MDACT message buffer is full since it has been unable to communicate events via dialer.

MESSAGE	DESCRIPTION
Dialer Fatal Fault	Indicates a fault that has rendered the dialer inoperable. If a reset of the system does not clear the trouble, the dialer must be replaced.
Dialer Line 1 Dead / Dialer Line 2 Dead	Indicates the phone line connected to the dialer is either not connected, no dial tone, etc.
Dialer Line 1 Off Hook / Dialer Line 2 Off Hook	Indicates the phone line connected to the dialer is off hook so the MDACT is not able to call.
Dialer Missing Phone Number	Dialer portion of the MDACT has not been programmed with a phone number.
Disarmed	This message is generated as a reminder to the operator that an input or an output has been disarmed.
FP-11 NTC Trouble	Indicates an FP-11 NTC trouble.
GCNET Config Mismatch (GCNET Systems only)	The GCNET configurations do not match on all VNTs in the site.
GCNET Upload Needed (GCNET Systems only)	The GCNET configuration is out-of-date on the specified VNT.
General Dialer Trouble	Indicates communication fail, Line 1 fail or Line 2 fail.
Ground Fault	Indicates a ground fault on the wiring to the module.
Ground Fault Minus	A connection to ground on the minus side of the power supply.
Ground Fault Plus	A connection to ground in the plus side of the power supply.
IEC Limit Reached - Service Req.	Indicates an IEC limit trouble.
IEC Pre-dirty Level Reached	Indicated an IEC voltage trouble.
Incorrect ID	Is displayed when the incorrect module is placed at an address.
Input Dev. Req. Service	Indicates a dust threshold trouble.
Input Dev. Resp. Too Low	Indicates a device response too low.
Input Voltage Too Low	The voltage on the input of the ZIC is too low.
Low Battery Voltage	Indicates that the voltage on the battery is low.
MDACT To Dialer Link Fault	Indicates a communication failure between the dialer and HNET portions of the MDACT.
MIC Input Trouble	Indicates that the supervision of the microphone has failed or has been disconnected.
Module Not Responding	The module at the specified address is not responding.
Module RAM Fail	Indicates that the RAM test has failed.
Module ROM Fail	Indicates that the checksum of the ROM is incorrect.
Network A Pair Failure	HNET communication has failed on the A pair.
Network B Pair Failure	HNET communication has failed on the B pair.
No Battery Detected	Indicates that the charger could not detect a battery connected.
Not Responding	This message indicates that a module in the configuration is not responding at the address that it was expected.
Open Circuit	Indicates that the module identified in the message has detected and open circuit on it's input or on it's output.

MESSAGE	DESCRIPTION
Overcurrent	Indicates that an excessive current has been detected on the output of the ZIC.
Panel Tamper	A trouble caused by the door being open on the cabinet when the tamper switch is installed.
PMI Upload Needed (GCNET Systems only)	The XLS configuration is out-of-date on the specified PMI.
Power Source Mismatch	Indicates that the Zeus config setting and physical module setting do not agree with regard to the ZIC-4A and ZIC-8B capability for getting external power rather than backplane power.
Printer Off Line	The printer on the RPM is off line.
Printer Out Of Paper	The printer connected to the RPM is out of paper.
Reset Operation Pending. Wait!	Indicates a CZM-1 reset pending trouble.
RTC Battery Trouble	The real time clock battery on the PMI module needs to be replaced.
Short Circuit	Indicates that the module identified in the message has detected a short circuit on it's input or on it's output.
Submodule Multiple Response	Indicates that there is more than one CAN bus submodule responding at the same address.
SubModule Not Responding	Indicates that one of the submodules on the CAN bus is not responding.
Submodule Unspecified Responding	Indicates that there is a submodule on the CAN bus that is responding which is not in the configuration.
Unspecified Module Responding	A module which has not been included in the configuration is responding.

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WARNING:

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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