10-2751

FCC Digital Paging Assembly

Fike®

SOLUTIONS

/ **Fire Protection**

/ **Explosion Protection**

/ **Overpressure Protection**

/ **Pressure Activation**

TABLE OF CONTENTS

LIST OF EXHIBITS

1.0   ABOUT THIS MANUAL

This manual is intended to be a complete reference for the installation, operation, and service of the FCC Digital Paging Assembly (P/N 10-2751). The information contained in this manual shall be used by factory trained service technicians who are authorized to work on this product. This manual also serves as the Operations Manual for the component.

The first-time installer and/or user should thoroughly read and understand the instructions contained within this manual before using this device. These instructions must be followed to avoid damage to the equipment itself or adverse operating conditions caused by improper installation and programming.

1.1   Document History

Document Title: FCC Digital Paging Assembly, Product Manual

Document Reorder Number: 06-564

Revision	Section	Date	Reason for Change
0	All Sections	05/2010	Initial Release
1	All Sections	06/2011	Voice MNS Additions
2	Sections 1.4, 2.0, 3.1, 3.2, 6.4.7, 7.0, 7.1, 8.1 and 8.4	04/2013	City of Chicago Changes to FCC Paging Control Card, and Audio Synchronization
3	All Sections	09/2015	Clarifications and General Updates
4	1) Updated to new Fike document style. 2) Revised Section 3.1, Terminal block P6 specification removing Belden 9841 wire reference.	10/2019	Clarification of fire phone bus field wiring.

1.2   Product Support

If you have a question or encounter a problem not covered in this manual, you should first try to contact the distributor who installed the Fike system. Fike has a worldwide distribution network. Each distributor sells, installs, and services Fike equipment. Look on the back of the cabinet door, there should be a sticker with an indication of the distributor who installed the system. If you cannot locate the distributor, please call Fike Customer Service for locating your nearest distributor, or go to our web-site at www.fike.com. If you are unable to contact your installing distributor or you simply do not know who installed the system, you can contact Fike Technical Support at (800) 979-3453, Option 21, Monday through Friday, 8:00 am to 4:30 pm CST.

1.3   Safety Information

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment.

⚠**Caution**
Cautions are used to indicate the presence of a hazard which will or may cause damage to the equipment if safety instructions are not followed or if the hazard is not avoided.
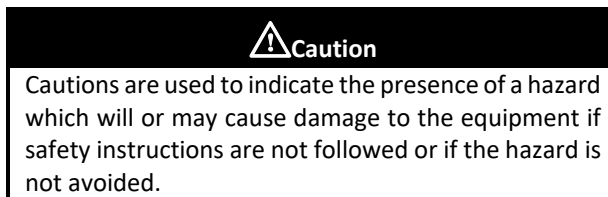
ⓘ **Note:** Provides information on installation, operation, maintenance, performance or general tips that are important but not hazardous to anything or anyone.

1.4   Terms Used In This Manual

Authority Having Jurisdiction – The organization, office, or individual responsible for approving equipment, materials, and installation, or a procedure.

Configure – Panel set-up to properly recognize and supervise a device as the design requires.

Dead-Front – An inner door panel designed to isolate the live parts of the control panel from a person on the operating side of the system.

Emergency Communication System (ECS) – A mass notification system facility(s) with communications and control equipment serving one or more buildings where responsible authorities receive and disseminate appropriate information to a building, multiple buildings, outside campus areas, or a combination of these in accordance with the emergency response plan prepared for the premises.

Fire Alarm Control Unit (Panel) – A system component that receives inputs from automatic and manual fire alarm devices and might supply power to detection devices and to a transponder(s) or off-premises transmitter(s). The control unit might also operate releasing circuits or solenoids, provide transfer of power to the notification appliances, or transfer of condition to relays or devices connected to the control unit. The fire alarm control unit can be a local fire alarm control unit or a master control unit.

Fire Command Center (FCC) – The principal attended or un-attended location where the status of the detection, alarm communications, and control systems is displayed and from which the system(s) can be manually controlled.

Mass Notification System (MNS) – A system used to provide information and instructions to people in a building(s) or other space using intelligible voice communications and including visible signals, text, graphics, tactile, or other communication methods.

Power-Limited – A circuit designation given for wiring purposes. The amount of current flowing through the circuit is limited versus being unlimited, or non-power limited.

RS485 – A data communication standard produced by the Electronics Industry Association (EIA). This standard was developed to allow for reasonable success in transferring data over specified distances and/or data rates. Maximum cable length is 4,000 feet (1,200 m) using Belden 9841 or equivalent twisted pair shielded low capacitance cable.

Zone – A defined area within the protected premises. A zone can define an area from which a signal can be received, an area to which a signal can be sent, or an area in which a form of control can be executed. This term is used to create the relationship between activation inputs to notification outputs and peripherals.

Synchronization – A means of coordinating notification appliances so that they operate in unison.

2.0 PRODUCT DESCRIPTION

The 10-2751, FCC Digital Paging Assembly (See Exhibit 1) is the primary audio component of the fire command center (FCC). The assembly includes the FCC digital paging card (P/N 10-2727), FCC paging control card (P/N 10-2741), 20-pin ribbon cable (P/N 10-2764), and FCC microphone housing (P/N 10-2757). The assembly is the primary source of live audio signals distributed by the emergency communication system (ECS). The assembly must be installed on all emergency communication systems that incorporate multiple amplifiers serving separate zones or systems that require firefighter's telephone capabilities.
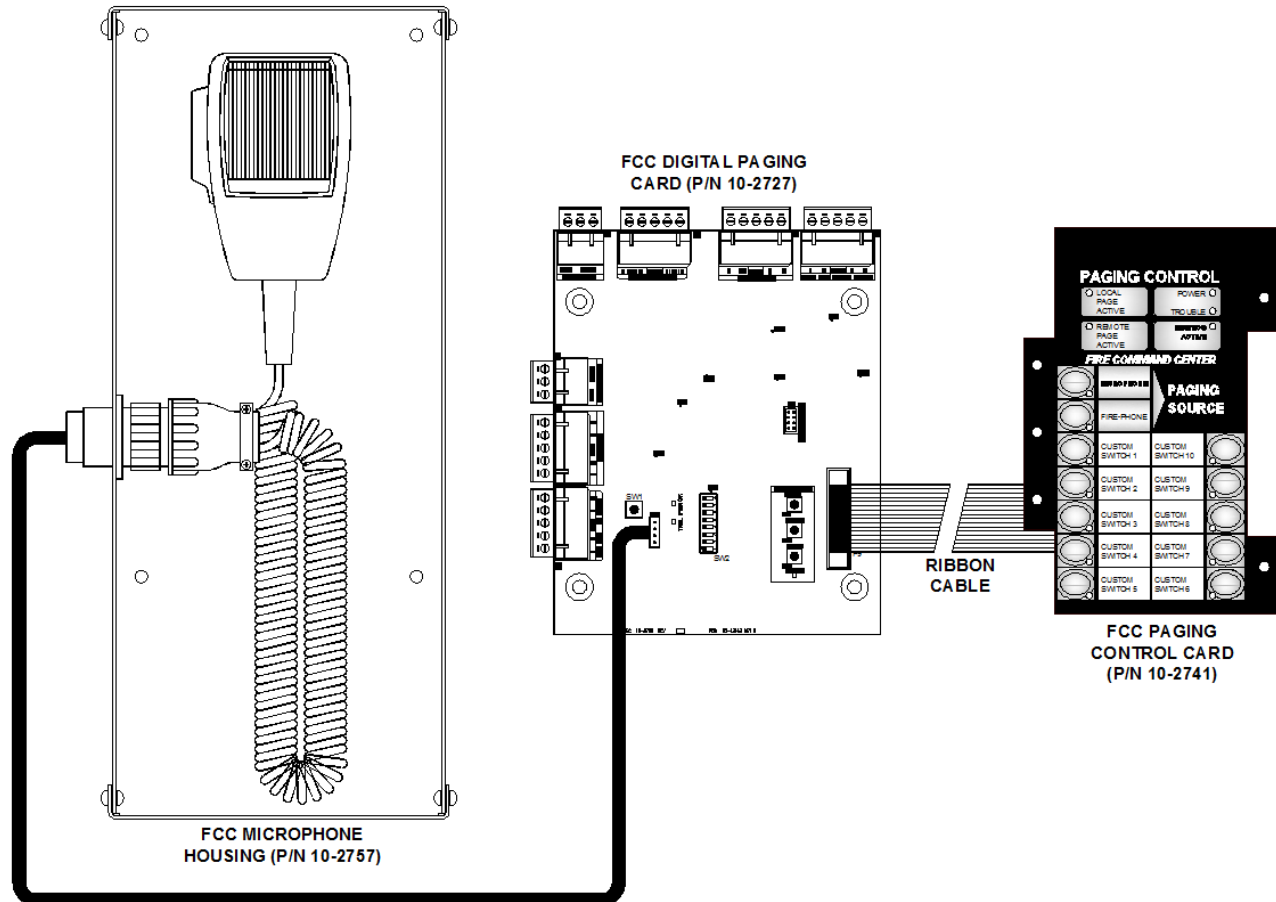
Exhibit 1: FCC Digital Paging Assembly

2.1 Ordering Information

The FCC digital paging assembly can be ordered with either a red or black microphone housing using the following ordering format:

Part Number: 10-2751-**c**, where **c** = enclosure color (**R**ed or **B**lack)

ⓘ **Note:** Only one FCC digital paging assembly is required or ALLOWED per system. This includes a Networked Control Panel system or an Audio Bus system.

2.2   Compatibility

The FCC digital paging assembly is compatible with Fike's CyberCat 254 and CyberCat 1016 intelligent control panels equipped with firmware version 5.XX and higher.

The assembly can be mounted in any of the following voice systems enclosures:

- CyberCat 1016 fire command center enclosure with 19 card dead-front (P/N 10-2483-x-x-19)

- CyberCat 254 fire command center enclosure with 19 card dead-front (P/N 10-2527-x-x-19)

2.3   Related Documentation

Further details about the product referenced in this document can be found in the following manuals.

Document Title	Part Number
CyberCat 254/1016 Product Manual	06-326
CyberCat 254/1016 Operation & Maintenance Manual	06-326-2
FCC Enclosure Installation Instructions	06-570
FCC Microphone Housing Installation Instructions	06-569
FCC Paging Control Card Installation Instructions	06-575
Audio Control Card Product Manual	06-558
Input/Output Control Card Product Manual	06-446
Amplifier Card Product Manual	06-576
Fire-Phone Housing Installation Instructions	06-568
Fire-Phone Card Product Manual	06-559
Supplemental Fire-Phone Card Product Manual	06-560

Exhibit 2: Related Documentation

3.0   ASSEMBLY COMPONENTS

This section provides a complete description of the components that make up the FCC digital paging assembly.

3.1   FCC Digital Paging Card (P/N 10-2727)

The FCC digital paging card (See Exhibit 3) provides removable plug-in terminal blocks (accepts 12 – 26 awg) that provide the primary connection points for the emergency communication system's live audio bus, firefighter's telephone riser, integral paging microphone, and integral firefighter's telephone. The specification for each of the card's terminal block connections is provided as follows:
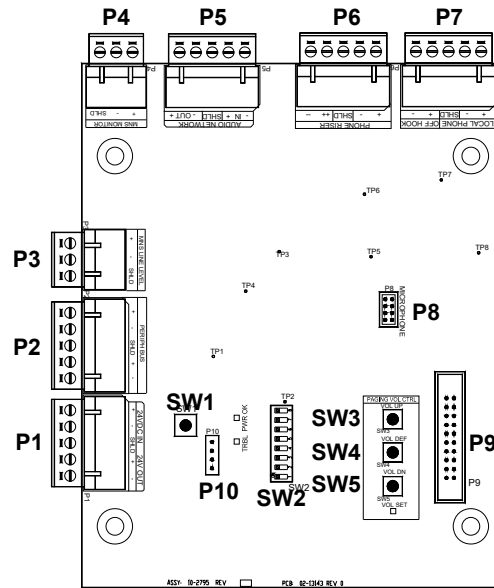
Exhibit 3: FCC Digital Paging Card Layout

Exhibit 4: FCC Digital Paging Card Specifications

Terminal Block	Terminal Labels	Function and Electrical Ratings/Requirements	Wiring Requirements
P1	24 VDC IN/OUT (+, -, SHLD, +, -)	• 15-30 VDC power input and output to next device (feed through) • Power-limited and Supervised • Operating Voltage: 15-30 VDC • Current Draw: Standby = 103 mA (power LED on) Alarm = 140 mA (all LEDs on)	• Power must be supplied by the host fire alarm control panel or by a battery backed, regulated, power-limited power supply listed for Fire Protective Signaling Use
P2	PERIPH BUS (+, -, SHLD, +, -)	• RS485 peripheral input • Class A or Class B • 9600/38400 Baud, 1 start bit, 2 stop bits, 8 data bits • Power-limited and Supervised • Connection to Peripheral Terminal P5 on CyberCat	• Belden 9841 wire or equivalent; maximum 4,000 ft. (1,219 m), panel to last device • 96 ohms max. line resistance • 100 ohm termination resistor on last device (Class B), P/N 02-2519 • No t-tapping
P3	MNS LINE LEVEL (+, -, SHLD)	• MNS/ECS audio input • Triggered by P4 contact monitor input • 1 Vpp maximum input level • Non-supervised	• ***NOT CONNECTED*** • Contact Fike for further information

Exhibit 5: FCC Digital Paging Card Specifications – Continued

Terminal Block	Terminal Labels	Function and Electrical Ratings/Requirements	Wiring Requirements
P4	MNS CONTACT (+, -, SHLD)	• MNS contact monitor input (NO/NC) used to trigger line-level input P3 • Rated 5 VDC @ 2.1 mA • Power-limited and Supervised • Maximum ground fault impedance value = 0 ohms	Requires 4.7K end-of-line resistor, P/N 02-1769
P5	AUDIO NETWORK (IN-, IN+, SHLD, OUT-, OUT+)	• Digital audio network input/output; used for live paging • Power-limited and Supervised • 128 devices maximum connected to audio network	• OUT on one component connects to IN on another (Class-A only) • Belden 9841 wire or equal; maximum 4,000 ft. (1,219 m) between audio network components. • No t-tapping
P6	PHONE RISER (+, -, SHLD, ++, --)	• Fire-phone riser connection (direct party-line or addressable) • Rated 24 VDC • Power-limited and Supervised	• Belden 5100FE wire or equal • Maximum 5 remote phones connected at once, NOT including local handset • Class A or B (10K eol) • 50 ohms max. line impedance per leg • 0.5μF max. capacitance
P7	LOCAL PHONE (+, -, SHLD)	• Local fire-phone connection • Power-limited and Non supervised • Current: 20 mA @ 24VDC	• Use wiring harness supplied • 1.2 K eol if not used, P/N 02-11457
	OFF HOOK (+, 1) *Future Use Only*	• Local Fire Phone off-hook connection • Power-limited and Supervised	• 1.2 K eol if not used, P/N 02-11457
P8	MICROPHONE (IN+, IN-, TRBL, GND, GND, PTT)	• Local microphone connection • Power-limited and Supervised	• Use wiring harness supplied
P9		• Power-limited and Non-supervised • Supplies power and control to paging control card (P/N 10-2741)	• Use 20 pin ribbon interface cable (P/N 10-2764) supplied
P10		• Factory use only	
SW1		Digital Paging Card reset button	See note below.
SW2		Dip-switches for assigning cards address on the panel's RS485 peripheral bus (2-31)	See Section 6.5 for dip-switch settings.
SW3	VOL UP	Adjusts the paging volume of the digital paging card UP.	See Section 6.6 for description.
SW4	VOL DEF	Sets the paging volume of the digital paging card to factory defaults.	See Section 6.6 for description.
SW5	VOL DN	Adjusts the paging volume of the digital paging card DOWN.	See Section 6.6 for description.
D11		Paging volume set LED	See Section 6.6 for description.
D12		Trouble LED	See Appendix B for a listing of the trouble conditions that may occur.
D13		Power OK LED	Indicates the presence of power on digital paging card.

ⓘ**Note:** The FCC digital paging card is equipped with a local audible that will sound upon detection of a trouble event on the card. The audible can be silenced by pressing the silence or acknowledge switch on the control panel.

ⓘ**Note:** The FCC digital paging card can be reset by pressing switch SW1 on the card itself or by resetting the control panel.

3.2 FCC Paging Control Card (P/N 10-2741)

The FCC paging control card (See Exhibit 6) provides the primary paging controls and status indication for Fike's emergency communication system (ECS). The card provides status LEDs and control switches that allow the system operator to observe and change the status of the ECS system. Refer to Section 8.0 for a detailed description of the card's LED and switch functions.

The card is designed to be mounted to the CyberCat's dead-front door panel. It communicates with and receives its operating power directly from the FCC digital paging card (P/N 10-2727) via a ribbon cable connection.

Refer to Fike document 06-575 for further details.
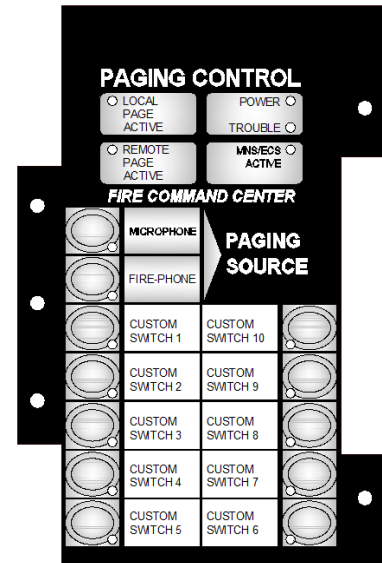
Exhibit 6: FCC Paging Control Card

3.3 FCC Microphone Housing (P/N 10-2757)

The FCC microphone housing (See Exhibit 7) is designed to be connected to the FCC digital paging card (P/N 10-2727) or directly to an individual amplifier card (P/N 10-2726) to provide manual paging capabilities to the voice system.

The housing consists of an 18 gauge steel enclosure with a baked on enamel finish (**C** = **R**ed or **B**lack), paging microphone and cable for connection to digital paging card. The housing is designed to allow mounting inside the voice evacuation system enclosure using hardware provided.

Refer to Fike document 06-569 for further details.
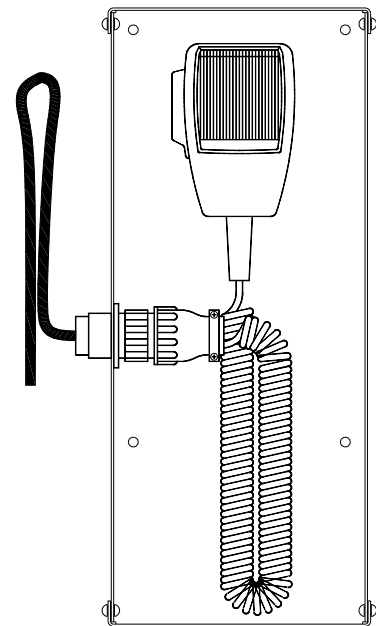
Exhibit 7: FCC Microphone Housing

4.0 EXPANSION CARDS

The following switch cards can be added to the emergency communication system to expand its paging and control capabilities. Each card provides programmable switches that can be configured to activate individual or multiple speaker zones for notification or paging purposes. The cards are designed to mount to any of the fire alarm control systems dead front door panels. This configuration allows easy access to switch operation and viewing of cards status LEDs. The card interfaces to the fire alarm system via the panel's RS485 peripheral bus and requires 24VDC power from the panel.

The cards are ordered separately as required to suit your specific project requirements.

4.1 Audio Control Card (P/N 10-2661)

The audio control card (See Exhibit 8) provides EVAC, ALERT and PAGE switches that can be used by the system operator to manually initiate recorded or live audio messages in response to a system event. Each switch is programmed to activate a single or multiple audio zones when pressed. Each switch is provided with an LED, that when lit indicates the active status of the switch. Zoned audio amplifiers, if assigned to the selected zone, will play either the EVAC or ALERT message for the selected zone, or will broadcast the live message from the system microphone or firefighter's phone based on the selected switch.

Refer to Fike document 06-558 for further details.
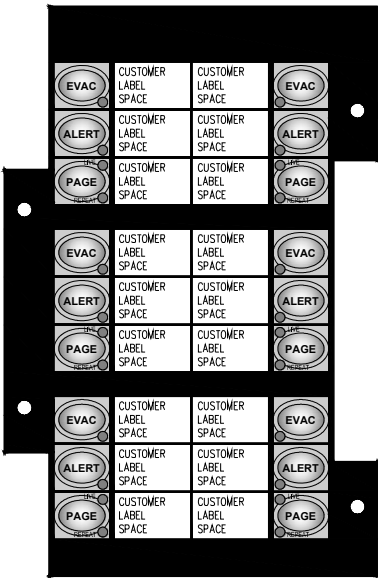
Exhibit 8: Audio Control Card

4.2 Input/Output Card (P/N 10-2659)

The Input/Output Card (See Exhibit 9) provides ON-OFF control capability over critical system functions such as panel operations, smoke control operations, emergency voice operations and mass notification operations. The card provides twenty configurable switches and associated red/yellow bi-color LEDs to indicate equipment/system status.

Refer to Fike document 06-446 for further details.
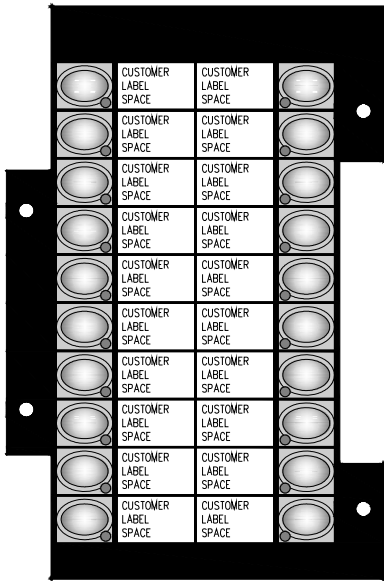
Exhibit 9: Input/Output Card

5.0 ACCESSORY COMPONENTS

The following components can be used to expand the capabilities of the voice system. Each item must be ordered separately.

5.1 FCC Fire-Phone Housing (P/N 10-2756-c)

The fire-phone housing (See Exhibit 10) is used in conjunction with the FCC digital paging card (P/N 10-2727) to provide firefighter's telephone capabilities for the emergency communication system.

The housing consists of an 18 gauge steel enclosure with a baked on enamel finish (**C** = **R**ed or **B**lack), firefighter's phone and interface cable for connection to the FCC digital paging card. The housing is designed to be mounted inside the system's FCC enclosures using mounting hardware provided.

Refer to Fike document 06-568 for further details.
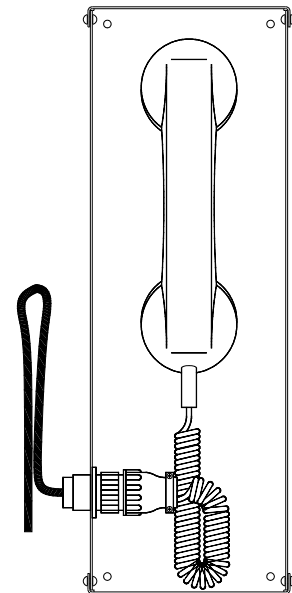
Exhibit 10: FCC Fire-Phone Housing

5.2 Fire-Phone Card (P/N 10-2728)

The fire-phone card (See Exhibit 11) must be used on all systems that require addressable firefighter's phone capabilities; as it is the source of the systems fire phone control module addressable loop (Series 500). This addressable loop allows up to 99 fire-phone control modules to be connected to the circuit. Every phone jack must be connected to the voice system via a fire-phone control module (P/N 24-135) if selective phone connection is required.

The card provides twenty (20) configurable switches that can be used by the system operator to selectively connect fire phone control modules to the voice systems fire-phone bus. This connection allows two-way communication between the local fire phone located in the fire command center and remote phones strategically located throughout the facility. Each switch is provided with an LED, that when lit indicates the active status of the switch. Where more than twenty (20) switches are required, up to four supplemental fire-phone cards can be added to suit your specific project requirements.

The fire-phone card is designed to mount to any of the fire alarm control systems dead-front door panels. This configuration allows easy access to switch operation and viewing of cards status LEDs. The card interfaces to the system via the control panel's RS485 peripheral bus and requires 24VDC power from the panel.

Refer to Fike document 06-559 for further details.
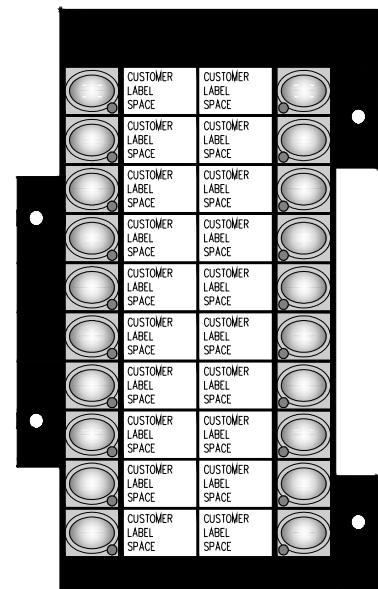
Exhibit 11: Fire-Phone Card

5.3   Supplemental Fire-Phone Card (P/N 10-2730)

The supplemental fire-phone card (See Exhibit 12) is used in conjunction with the fire-phone card (P/N 10-2728) to provide twenty (20) additional configurable switches that can be used by the system operator to selectively connect fire-phone control modules to the fire-phone bus. This connection allows two-way communication between the local fire-phone located in the fire command center and remote phones strategically located throughout the facility. Each switch is provided with an LED, that when lit indicates the active status of the switch.

The card is designed to mount to any of the fire alarm control systems dead-front door panels. This configuration allows easy access to switch operation and viewing of cards status LEDs. The card interfaces to and receives its operating power from the fire-phone card (P/N 10-2728) via a 34-pin ribbon cable connection. Up to four supplemental fire-phone cards can be added to the emergency communication system to suit your specific project requirements.

Refer to Fike document 06-560 for further details.
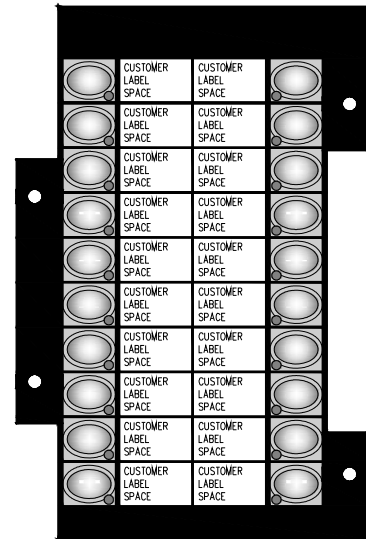
Exhibit 12: Supplemental Fire-Phone Card

5.4   Fire-Phone Module
(System Sensor M500fp / Fike P/N 24-135)

The fire-phone module (See Exhibit 13) is used to monitor and control a loop of firefighter phones. It has the ability to differentiate between normal, off-hook, and trouble conditions. The module is wired to the FCC digital paging card's (P/N 10-2727) fire-phone riser. When taken off-hook or plugged in, a phone will immediately receive a ringing tone and the panel will receive an off-hook indication. The system operator can then connect that off-hook phone to the system fire-phone riser.

Specifications:

Dimensions:	4.5" H x 4.3" W x 1.4" D (11.4cm x 11cm x 3.6cm)

Mounting: 4" square with minimum depth of 2.125" (5.4cm)

Refer to manufacturers installation instructions for further details.

Exhibit 13: Fire-Phone Module

5.5   Firefighter's Phone Jack
(Space age IAMFFPJAC / Fike P/N 24-133)

The firefighter's phone jack (See Exhibit 14) allows a firefighter to plug a portable handset (P/N 23-134) into the phone jack and communicate with other personnel connected to the emergency communication system. The jack can be wired directly to the digital paging card (P/N 10-2727) where a simple fire phone system is required or to a fire-phone module (P/N 24-135) where selectable phone use is required.

Specifications:

Dimensions:	2.75" W x 4.5" H x 1.5" D (7cm x 11.4cm x 3.8cm)

Mounting: Single gang box with minimum depth of 1.75" (4.5cm)

Refer to manufacturers installation instructions for further details.

Exhibit 14: Firefighter's Phone Jack

5.6 Firefighter's Portable Handset
(Space Age SSU00551 / Fike P/N 24-134)

The firefighter's portable handset (See Exhibit 15) is designed to be used with the firefighter's phone jack (P/N 24-133). The handset allows firefighter's to move from one location to another and still keep in contact with the emergency communication system.

Specifications:

High Impact red plastic handset

12" red coil cord that expands to 6 ft. (1.8m)

¼" (6.3mm) male plug

Refer to manufacturers installation instructions for further details.

Exhibit 15: Firefighter's Portable Handset

5.7 Emergency Telephone Cabinet)
(Space Age SSU00535 / Fike P/N 24-131)

The emergency telephone cabinet (See Exhibit 16) is equipped with an integral telephone handset that allows two-way emergency communication between firefighters and other authorized personnel connected to the emergency communication system. The jack can be wired directly to the FCC digital paging card (P/N 10-2727) where a simple fire-phone system is required or to a fire-phone module (P/N 24-135) where selectable fire-phone use is required.

Specifications:

16 gauge steel enclosure with durable red finish

Surface or flush back box

Clinch type terminals for easy connection of field wiring

Keylock, Magnetic Catch or Break Glass access

Dimensions: 10" W x 13.75" H x 4" D (25.4cm x 35cm x 10.2cm)

Refer to manufacturers installation instructions for further details.

Exhibit 16: Emergency Telephone Cabinet

5.8 Firefighter Phone Cabinet
Five Phones (Space Age SSU00566 / Fike P/N 10-2712)
Ten Phones (Space Age SSU00567 / Fike P/N 10-2760)

The firefighter's phone cabinet (See Exhibit 17) offers a convenient storage of the portable handsets (P/N 24-134). The phone cabinet is available in two sizes capable of storing either five phones or ten phones.

Specifications:

16 gauge steel enclosure with durable red finish

Surface mount back box

Keyed door lock

White indelible lettering, 1" tall

Dimensions:

5 Phone = 23.5" W x 13.125" H x 4" D (59.7cm x 33.3cm x 10.2cm)
10 Phone = 23.5" W x 23.625" H x 4" D (59.7cm x 60cm x 10.2cm)

Refer to manufacturers installation instructions for further details.

Exhibit 17: Firefighter Phone Cabinet

6.0   INSTALLATION

The following installation instructions must be strictly adhered to when installing the digital paging assembly components to prevent potential damage to the components and the associated control panel.

⚠**Caution**

The assembly components and associated control panel contains static sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body.   Use anti-static packaging to protect electronic assemblies removed from the unit.

⚠**Caution**

Never remove or install boards, internal cables or components with power applied.   Failure to follow the instructions provided in this section can result in irreparable damage to the system components. This damage may adversely affect the operation of the control unit but its effect may not be readily apparent.

6.1   Mounting Options

The digital paging assembly must be mounted within a fire command center (FCC) enclosure (See Exhibit 18). The enclosure is equipped with threaded press studs that allow mounting of the components to the enclosure back-box using the mounting hardware provided.
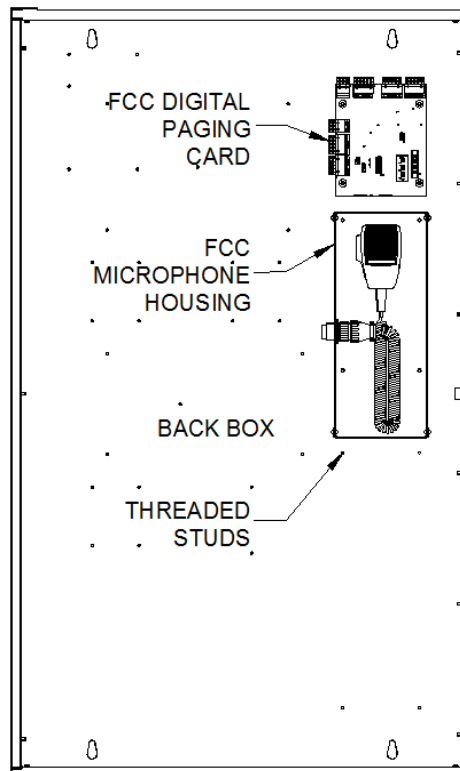
Exhibit 18: FCC Enclosure

6.2   FCC Digital Paging Card Installation

To install the card:

1. If the system is already powered, disable critical functions; then power down the system.

2. Remove the card and supplied mounting hardware (P/N 02-12420) from the packaging and check for shipping damage.

3. Locate the four threaded press studs in the enclosure back-box for mounting the card (See Exhibit 18) and install the four M/F standoffs onto the press studs as shown in Exhibit 19.

4. Position the card onto the standoffs and secure in place with supplied lock washers and hex nuts as shown in Exhibit 19.
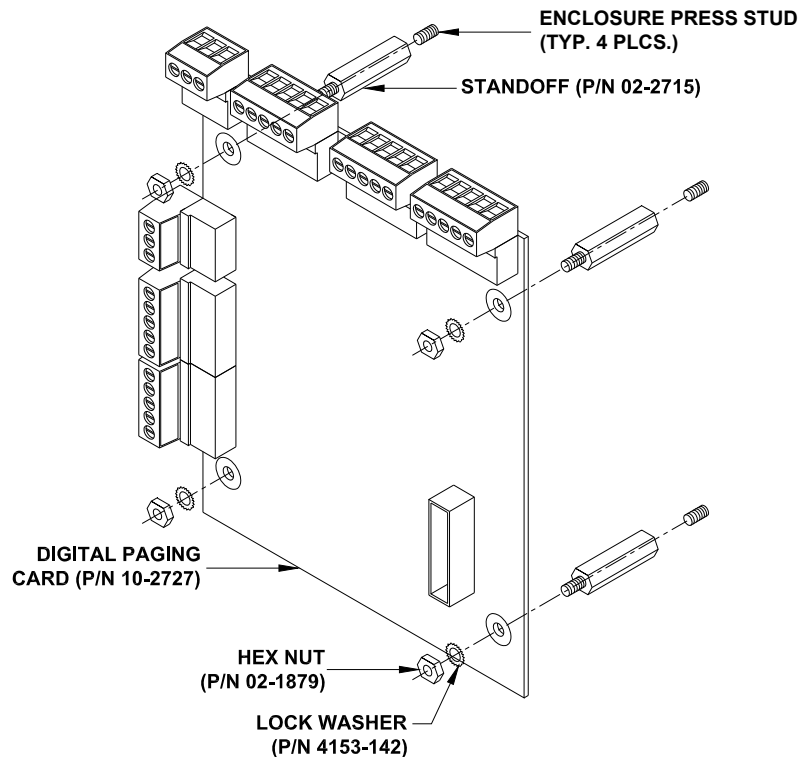
Exhibit 19: FCC Digital Paging Card Installation

6.3   FCC Paging Control Card and Microphone Housing Installation

Refer to the documentation supplied with the FCC paging control card (P/N 10-2741) and FCC microphone housing (P/N 10-2757) for instructions on how to install each component.

6.4   FCC Digital Paging Card Wiring

Unless otherwise detailed in this manual or in other documents relating to this component, the designer, installation and service technician shall utilize published standards and references such as: NFPA 70 National Electrical Code; NFPA 72 National Fire Alarm Code; and other standards which may be relevant to the Local Authority Having Jurisdiction (AHJ) for field wiring installation requirements.

ⓘ **Critical Note:** When installed in occupancies that employ voice alarm/emergency communication systems for relocation or partial evacuation, all circuits connected to the LOC digital paging card shall comply with the pathway survivability requirements of NFPA 72.

Exhibit 20 shows the FCC digital paging card terminal block designations and their general function for reference purposes. Wiring diagrams detailing each terminal block connection are provided as follows.
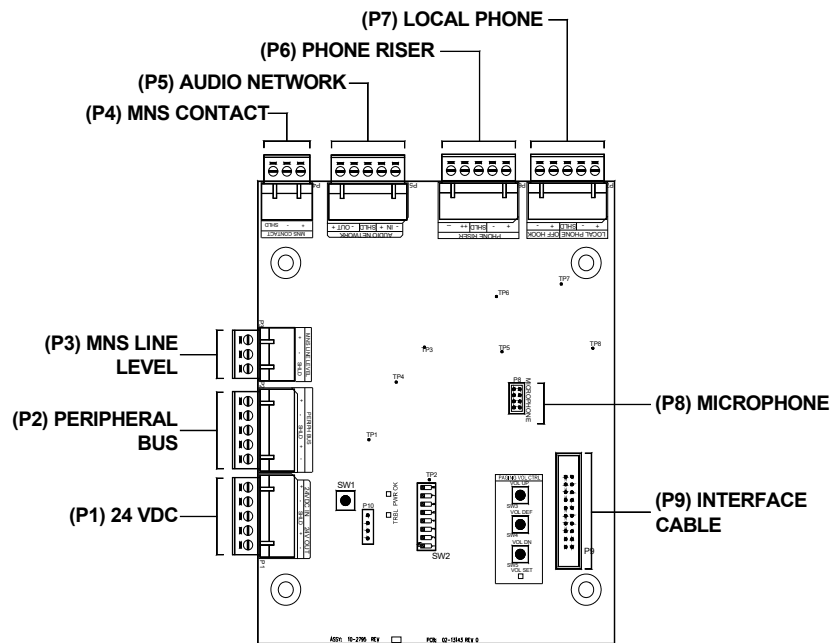
Exhibit 20: FCC Digital Paging Card Terminal Connections

6.4.1   (P1) 24VDC Power In/Out

Exhibit 21 illustrates how to connect 24Vdc power to the FCC digital paging card. Power must be provided by the host control panel.
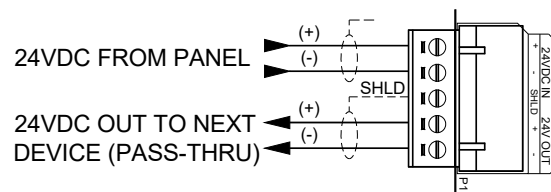
Exhibit 21: 24VDC Power Connection

6.4.2 (P2) Peripheral Bus

Exhibit 22 illustrates how to connect the RS485 peripheral bus to the FCC digital paging card. This is a pass-thru connection so there is no in or out terminals. Land shield on outgoing wiring only. Insulate incoming shield wire, but do not land.
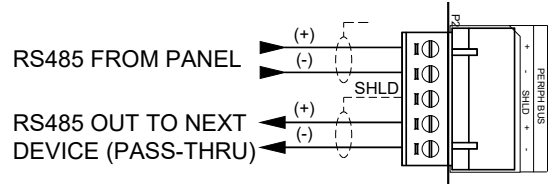
Exhibit 22: Peripheral Bus Connection

6.4.3 (P3) MNS Line Level

Exhibit 23 illustrates how to connect a mass notification input (MNS) to the FCC digital paging card. This input is inactive until the P4 contact monitor activates.
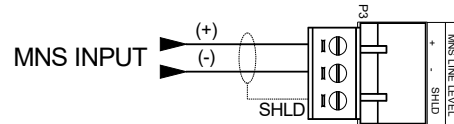
Exhibit 23: MNS Line Level Connection

6.4.4 (P4) MNS Contact

Exhibit 24 illustrates how to use a dry relay contact to trigger the FCC digital paging card's (P3) mass notification system input (MNS). This connection requires a 4.7K EOL be installed for circuit supervision purposes.
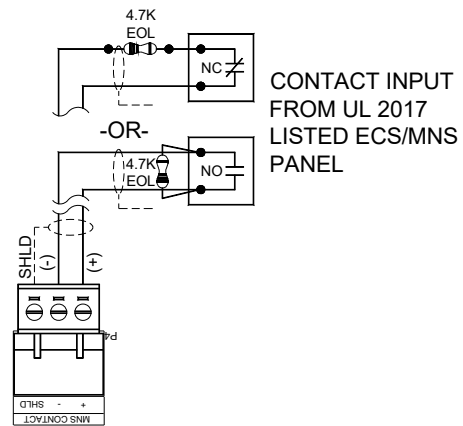
Exhibit 24: MNS Contact Connection

6.4.5 (P5) Audio Network

Exhibit 25 illustrates how to wire the emergency communication system's audio network. The audio network wiring originates from the FCC digital paging card's "OUT" terminal and is connected to the "IN" terminal on the next audio network device (i.e., amplifier, paging card, etc.). Wiring connected to the "OUT" terminal on the last device must return to the FCC digital paging cards "IN" terminal (Class A). The audio network wiring between each node can be run up to 4,000 ft. (1,219 m) using Belden 9841, twisted-shielded cable or equivalent.

Refer to the installation instructions supplied with each audio network component for wiring instructions.
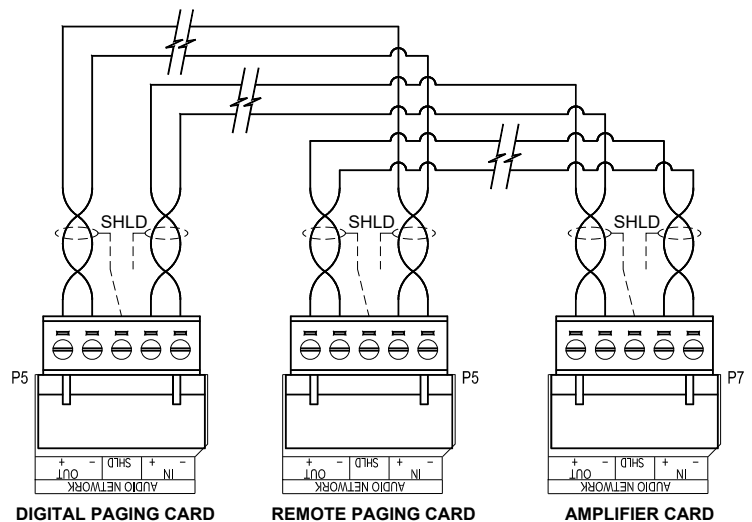
Exhibit 25: Audio Network Connections

6.4.6   (P6) Phone Riser

Exhibit 26 illustrates how to wire the phone riser for Class B, direct party line operation. With this configuration, the firefighter's phone jacks are wired directly to the FCC digital paging card's (P6) phone riser. Once a handset is plugged into a phone jack, it will automatically be connected to the phone riser, allowing two way communications with any other connected phone.

PHONE JACK

PHONE JACK

10K EOLR

NOTES [ ]:
1.   ALL WIRING IS SUPERVISED AND POWER-LIMITED.
2.   SHIELD, IF USED, MUST BE CONTINUOUS AND FREE FROM GROUND.
3.   INSULATE SHIELD FROM GROUND, IF USED. DO NOT LAND.
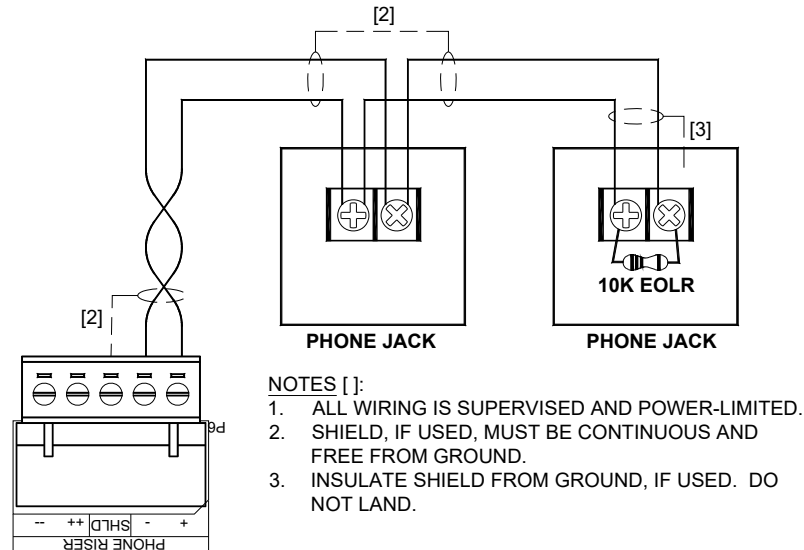
Exhibit 26: Phone Riser Connection/Direct Party Line (Class B)

Exhibit 27 illustrates how to wire the phone riser for Class A, direct party line operation.

PHONE JACK

PHONE JACK

NOTES [ ]:
1.   ALL WIRING IS SUPERVISED AND POWER-LIMITED.
2.   SHIELD, IF USED, MUST BE CONTINUOUS AND FREE FROM GROUND.
3.   INSULATE SHIELD FROM GROUND, IF USED. DO NOT LAND.
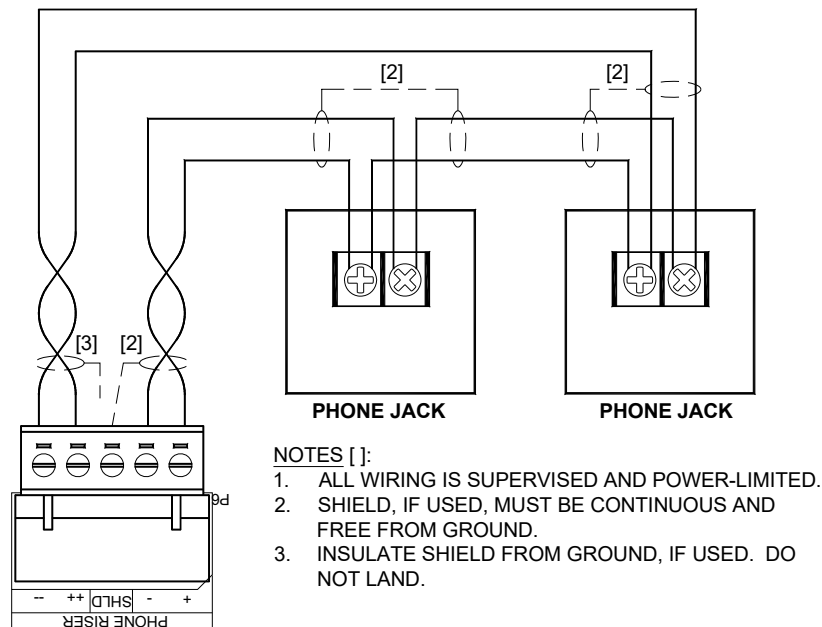
Exhibit 27: Phone Riser Connection/Direct Party Line (Class A)

Exhibit 28 illustrates how to wire the phone riser for selective talk operation. Selective talk operation allows the system operator (typically located at the fire command center) to manually select which fire-phones will be connected to the phone riser for two way communication. Selective talk requires that all fire-phones be connected to an addressable fire-phone module (P/N 24-135), which is used to monitor and control either a loop of firefighter's phones or a single phone.

NOTES: [ ]
1. ALL WIRING IS POWER-LIMITED AND SUPERVISED.
2. SHIELD, IF USED, MUST BE CONTINUOUS AND FREE FROM GROUND.
3. END-OF-LINE RESISTOR FOR CLASS-B RISER ONLY.
4. INSULATE SHIELD FROM GROUND, IF USED. DO NOT LAND.
5. REFER TO FIRE-PHONE CONTROL MODULE INSTALLATION INSTRUCTIONS FOR PHONE JACK WIRING.
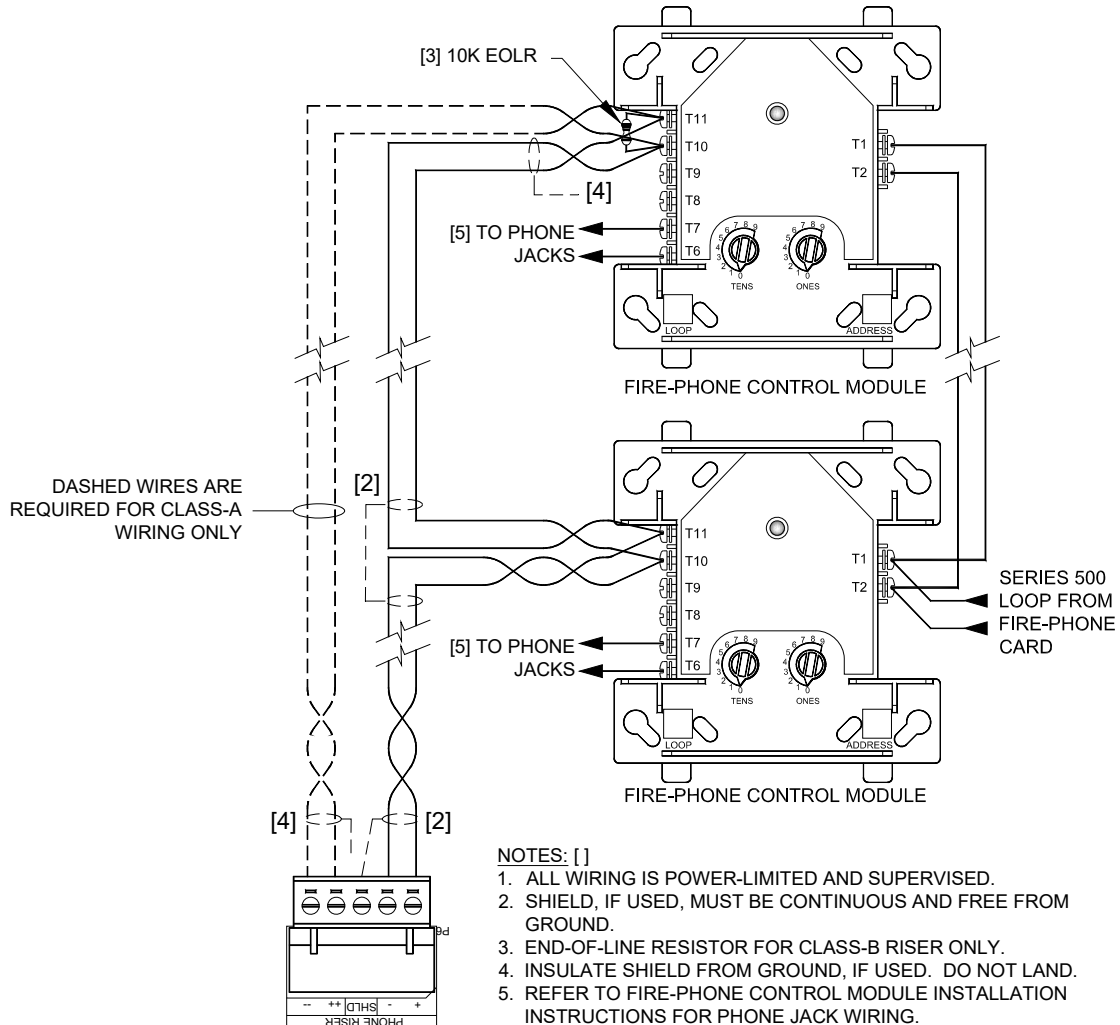
Exhibit 28: Phone Riser Connection Selective Talk (Class A or B)

6.4.7 (P7) Local Phone

Exhibit 29 illustrates how to connect the fire-phone housing to the FCC digital paging card. The fire-phone housing (P/N 10-2756) must be installed in the same enclosure as the FCC digital paging card.

Refer to Fike document 06-568, "Fire-Phone Housing Installation Instructions" for instructions on how to mount the housing into the enclosure.

(i)**Note:** Off hook connection is for future use only.
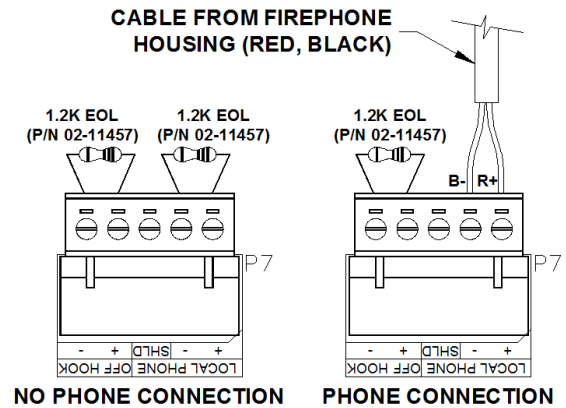
Exhibit 29: Local Phone Connection

6.4.8 (P8) Integral Microphone Input

Exhibit 30 illustrates how to connect the paging microphone to the FCC digital paging card. This connection allows the microphone to deliver live audio messages over the audio network.
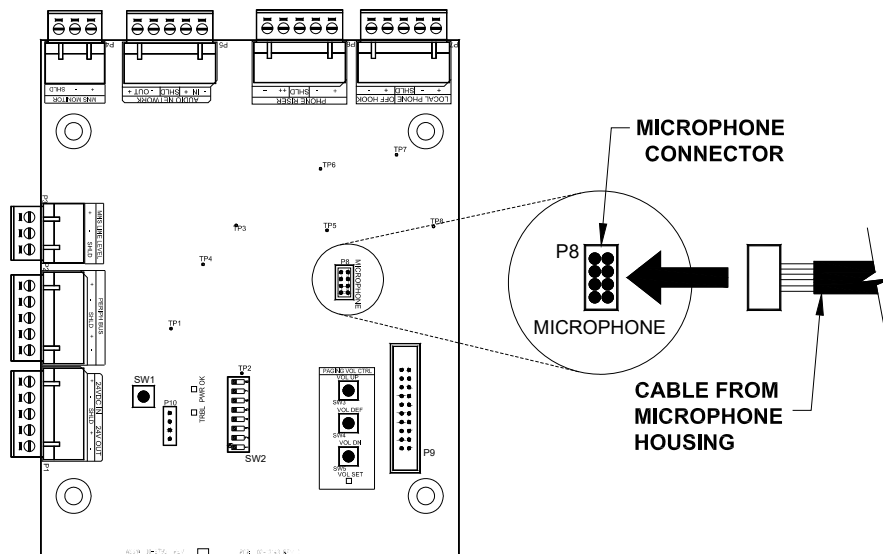
Exhibit 30: Microphone Input

(i)**Note:** Fike offers a Mic Simulator Jack (PN 10-2886) that can be used for troubleshooting. It can also be used if the system does not require Live Page.

6.4.9 (P9) FCC Paging Control Card Interface

Exhibit 31 illustrates how to connect the FCC paging control card to the FCC digital paging card. The FCC paging control card is supplied with an interface cable for interfacing to the FCC digital paging card terminal P9.

EXTENDED
DISPLAY

DEADFRONT
DOOR (BACKSIDE)

INTERFACE
CABLE
(P/N 10-2764)

CYBERCAT CONTROLLER
MOUNTED IN ENCLOSURE
BACKBOX

PAGING CONTROL
CARD (P/N 10-2741)

DIGITAL PAGING CARD
(P/N 10-2727) MOUNTED IN
ENCLOSURE BACKBOX
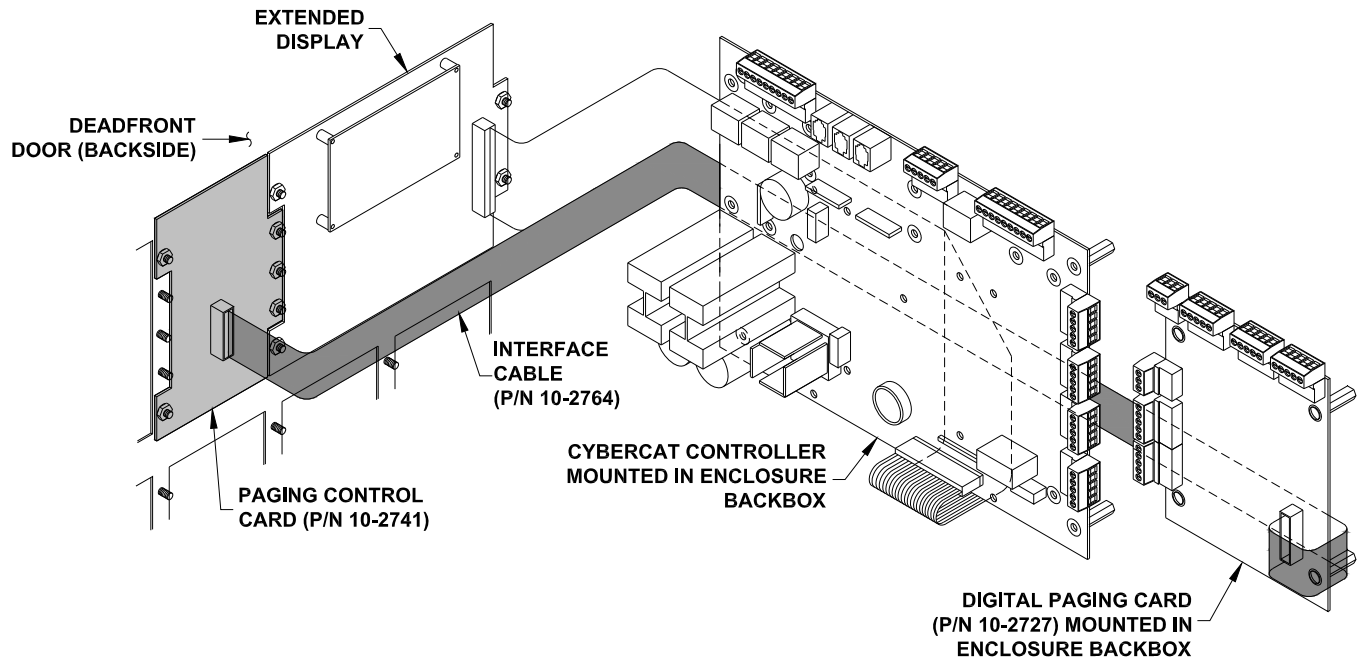
Exhibit 31: FCC Paging Control Card Interface Cable Installation

6.5   Dip-Switch Settings

The FCC digital paing card requires a unique address for identification on the host control panel's RS485 peripheral bus. DIP-switch SW2-1 through 6 are used to set the address for the device as shown in Exhibit 32. A maximum number of 31 devices can be connected to the RS485 peripheral bus circuit.

The peripheral device addresses do not need to be sequential and can be set to any number between 02 and 32. Note that 00 is not a valid address and 01 is reserved for the control panel. See Exhibit 33 for DIP-switch settings for each binary address (ID number).

SW2

RS485 ADDRESS
SWITCHES (2-32)
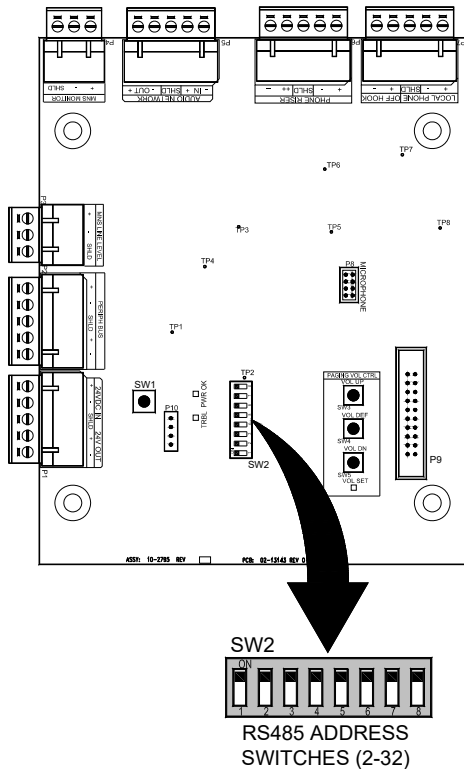
Exhibit 32: Card Addressing

Binary Value
Dip Switch #
Address
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Dip-switch SW2-7 is used to set the peripheral bus communication speed that will be used by the digital paging card to communicate with the CyberCat panel. The selected communication speed set on the card must match the host control panel settings. In addition, all devices connected to the same peripheral bus must use the same communication speed setting. In the OFF position, the card will communicate at 9600 bps (standard). In the ON position, the card will communicate at 38400 bps (fast).

DIP-switch SW2-8 must be set to ON if **ALL** of the Fike products that participate on the Audio Bus are V2.30 or higher. If **ANY** of the products are not at V2.30 or higher then ALL products connected on the Audio bus must have DIP-switch 8 set to OFF.

ⓘ**Note:** If the DIP-switch settings are changed for any reason, you must reset the digital paging card by pressing switch SW1 in order for the changes to take effect.

6.6   ADJUSTING THE PAGING VOLUME

The FCC digital paging card is equipped with three switches (SW3, SW4 and SW5) that allow you to adjust the paging volume of the current active paging source (microphone, fire-phone, or line level input). See Exhibit 34.

```
┌─────────────────┐
│ PAGING VOL CTRL │
│     VOL UP      │
│   ┌───────┐     │
│   │   ●   │     │
│   └───────┘     │
│     SW3         │
│     VOL DEF     │
│   ┌───────┐     │
│   │   ●   │     │
│   └───────┘     │
│     SW4         │
│     VOL DN      │
│   ┌───────┐     │
│   │   ●   │     │
│   └───────┘     │
│     SW5         │
│     VOL SET     │
│     ☐           │
└─────────────────┘
```
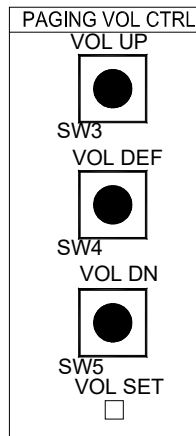
Exhibit 34: Paging Volume Switches

The function of each switch is described below:

Switch SW3 (VOL UP)
Momentarily pressing the switch will increase the audio input gain on the active paging source. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. If the switch press causes the maximum gain adjustment threshold to be reached, the LED will illuminate solid for a few seconds and then turn off.

Switch SW4 (VOL DEF)
Momentarily pressing the switch will set the audio input gain to factory default levels. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. Pressing the switch again will cause the LED to illuminate solid for a few seconds and then turn off.

Switch SW5 (VOL DN)
Momentarily pressing the switch will decrease the audio input gain on the active paging source. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. If the switch press causes the minimum gain adjustment threshold to be reached, the LED will illuminate solid for a few seconds and then turn off.

7.0   PROGRAMMING

Programming of the FCC digital paging assembly is accomplished using a lap top computer and Fike's C-Linx software. Refer to Fike document 06-448, "C-Linx Software manual" for programming instructions. Programming cable P/N 10-1874B is used to download the configuration to the digital paging assembly components via the control panel's P3 configuration port.

The following table identifies the configurable features of the digital paging assembly that can be changed by using the panel's programming software C-Linx. The table also identifies features that are available, but are not permitted to be used per the CyberCat system's UL listing.

Exhibit 35: UL (90.23) Programming Features

Circuit or Component	Program Feature or Option	Permitted in UL 864? (Y/N)	Possible Settings (Defaults shown bold)	Settings permitted in UL 864	Notes
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 Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.				
Digital Paging Module	Peripheral Address	Y	**2** - 32		
	Restart Audio on new activation (for sync)	Y	Enabled / **Disabled**		
	Restart Audio Delay Time	Y	**0** – 50 (seconds)		
	Audio Bus Fiber	Y	Enabled / **Disabled**		7
	DPM Settings				
	Contact Monitor Timeout	Y	**0** – 250 (min.)	0	1
	Contact Monitor Priority	Y	**1** - 254		2
	Piezo	Y	**Enabled** / Disabled		
		Y	**Silenceable** / Non-Silenceable		
	Fire-Phone Class (Riser)	Y	**Class B** / Class A		
	Contact Monitor	Y	Enabled / **Disabled**		
		Y	**Latching** / Non-Latching	Latching	
		Y	**Normally Open** / Normally Closed		
	Switch Configuration (1 – 10) – See Exhibit 36 for switch numbering sequence.				
	Function	Y	**No Function Assigned** / Voice Alert / Voice Evacuate / Voice Page / Voice Record Page / Voice Page To Alert / Voice Page To EVAC / Voice Play Message ID / MNS Reset / MNS Silence / MNS Page / MNS Record Page / MNS Play Message ID		
	Settings	Y	Zone Assignments / Zones and Message ID		4,5
	Priority	Y	**1** – 254		2,3
	Switch Timeout	Y	0 – 250 (min.)	0	6

Notes:
1.   0 = No Timeout
2.   0 = None; 1 = Highest and 254 = Lowest.
3.   Each switch can be assigned a different priority level.
4.   Zone Assignments field is available only when switch is set to Voice Alert, Voice EVAC, Voice Page, Voice Record Page, MNS Page, and MNS Record Page.
5.   Zones and Message ID field is available only when switch is set to Voice Play Message ID or MNS Play Message ID.
6.   Allowed for MNS switch functions only.
7.   When 485 to fiber converters are installed anywhere on the Audio Bus this must be selected as YES for Supervision. Refer to 06-803 for approved converters (UL ONLY)

7.1   Custom Switch Numbering

The ten programmable switches on the FCC paging control card are numbered as shown in Exhibit 36 for programming purposes.
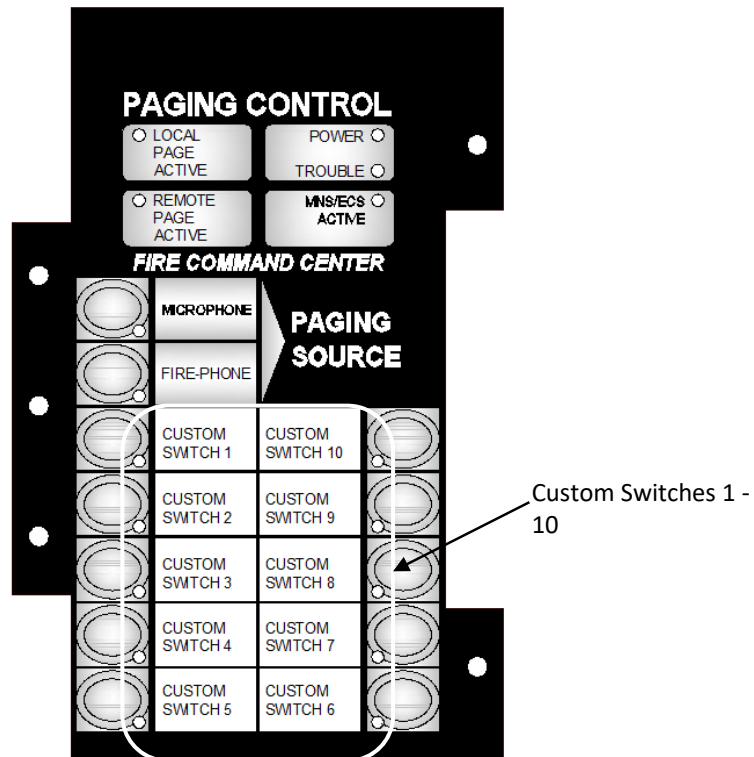
Exhibit 36: FCC Paging Control Card Custom Switch Numbering

8.0   OPERATION

The FCC digital paging assembly is designed to provide the basic indicators and controls switches that are necessary to deliver live voice commands (paging) and manual messages to the building occupants over the emergency communication system (ECS) speakers. The basic operation of the digital paging assembly and the voice system in general is described below.

Normal Standby

When no system alarm or trouble condition exists:

- ✓   All LEDs are off except the Power LED (green) located on the FCC digital paging card
- ✓   All audibles are off

System Event (Voice or MNS)

Upon detection of a fire alarm condition, supervisory condition, process condition or activation of the FCC digital paging cards MNS input:

- ✓   LEDs that correspond to the event will turn on to indicate the status of the system
- ✓   Amplifiers that correspond to the event will turn on
- ✓   Speaker circuits that correspond to the event will turn on
- ✓   Transmit the alerting tone before and after message (if programmed)
- ✓   Transmit the appropriate digital voice message

Upon restoration to normal:

- ✓   Turn off the digital voice message and tone
- ✓   Turn off the speaker circuits
- ✓   Turn off the amplifiers
- ✓   Turn off the status LEDs

Paging (Voice or MNS)

Paging requires the system operator to select the paging source: 1) FCC microphone, 2) FCC fire-phone(s) or 3) LOC microphone as well as the destination for the page. By default, the FCC microphone is the primary paging source and only one source can be active at a time.

Upon activation of a push button programmed for page operation (i.e., Page to Alert, Page to EVAC, Page to Zone or Page Record & Repeat to Zone):

- ✓   LEDs that correspond to the event will turn on or off to indicate the status of the system

  - o   If the buttons red LED is off (inactive), it will flash to indicate the button selection; then will illuminate steady to indicate the system is page ready. The green Local Page Active LED on the FCC paging control card will illuminate.

  - o   If the buttons red LED is already on (active) and the red Remote Page Active LED is illuminated, the selected page command has already been initiated from a remote location. If the selected button is set to a lower priority than the currently active page button, transfer of page control will be denied. The red LED will flash and then return to its current operational state (on or off). If the selected button is set to a higher or equal priority than the currently active page button, paging control will be transferred to this location causing the green Local Page Active LED to illuminate and the red Remote Page Active LED to turn off.

- ✓   Amplifiers that correspond to the event will turn on
- ✓   Speaker circuits that correspond to the event will turn on
- ✓   Lift the microphone from its holder, press the push-to-talk button on the side of the MIC and deliver your message.
- ✓   If using the microphone as the paging source, transmit the alerting tone if the microphone has not been keyed (page delivered) 30 seconds after the button press.
- ✓   Press the selected push button again to deactivate the page function. The red LED will flash and then turn off and the green Local Page Active LED will turn off to indicate restoration to normal operation.

Manual Message Activation (Voice or MNS)

Upon activation of a button programmed for Voice EVAC, Voice Alert, Voice Play Message ID or MNS Play Message ID:

✓ LEDs that correspond to the event will turn on to indicate the status of the system

   o If the buttons red LED is off (inactive), it will flash to indicate the button selection; then will illuminate steady to indicate the selected function is active.

   o If the buttons red LED is already on (active), the selected function has already been initiated from a remote location. If the selected button is set to a lower priority than the currently active button, cancellation of function will be denied. The red LED will flash and then return to its current operational state (on or off). If the selected button is set to a higher or equal priority than the currently active button, the function will cancel and the red LED will flash and then turn off upon confirmation.

8.1   FCC Paging Control Card Operation

The FCC paging control card (P/N 10-2741) provides the primary paging controls and indicators for the emergency communication system (ECS). The card is equipped with several control switches and associated LEDs that allow the system operator to control and monitor the status of the ECS system. The function of the controls and indicators provided on the card are described as follows:

Local Page Active LED (green) – Illuminates solid when the control panel has acknowledged the page switch press for paging activation. Will turn off when the page is cancelled via switch press or a remote page with same or higher priority is initiated.

Remote Page Active LED (red) – Illuminates solid when the control panel has acknowledged the page switch press for paging activation from a remote location. Will turn off when the page is cancelled via switch press or a local page with same or higher priority is initiated.
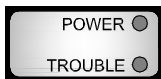
Power LED (green) – Illuminates solid to indicate the presence of power on FCC digital paging card.

Trouble LED (yellow) – Blinks to indicate the presence of any trouble event associated with the FCC digital paging card. Will illuminate solid if the event is acknowledged at the associated control panel. Will turn off when the trouble event is cleared.

MNS/ECS Active LED (red) – Illuminates solid when the control panel has acknowledged the activation of the MNS contact input on the FCC digital paging card (P4) or a switch assigned to an MNS function has been pressed. Will turn off when the contact monitor input is no longer active (non-latching), MNS reset is pressed or the MNS button is pressed again to cancel the function. See Section 8.3 for description of MNS/ECS operation.

Microphone Switch (red LED) - Pressing the switch selects the FCC microphone as the active paging source (default selection). The associated red LED will illuminate solid to indicate the active state of the switch. LED will turn off if the fire-phone page switch is selected or the MNS/ECS contact input is active.

Fire-Phone Switch (red LED) - Pressing the switch selects the FCC fire-phone as the active paging source (local or remote phones). The associated red LED will illuminate solid to indicate the active state of the switch. LED will turn off if the microphone page switch is selected or the MNS/ECS contact input is active.

	Custom Switch #

Custom Switch (red LED) – Pressing the switch initiates the programmed Voice/MNS command to the assigned zone(s). See command options below for details. The associated red LED will flash until the control panel acknowledges the button press, which is based on the priority level of the switch (See Section 8.3 for description of priority levels); then the associated LED will illuminate solid to indicate that the zone(s) are in the active state. If the command is not received by the control panel or if a switch or input of higher priority is active, the associated LED will flash and then will return to its current operational state (on or off).

Pressing the switch again will send a cancel command to the control panel. The associated red LED will flash until the control panel acknowledges the button press, which is based on the priority level of the switch (See Section 8.3 for description of priority levels); then the associated LED will turn off.

Voice Alert (by zone) - Places selected zone(s) into the Alert state. Assigned Alert message will be played in selected zone(s).

Voice EVAC (by zone) - Places selected zone(s) into the Evacuation state. Assigned EVAC message will be played in selected zone(s).

Voice or MNS Page (by zone) - Initiates page to selected zone(s). Use the system microphone or fire-phone to deliver live audio message to selected zone(s).

Voice or MNS Record Page (by zone) - Initiates a record and repeat page to the selected zone(s). Use the system microphone or fire-phone to deliver live audio message to selected zone(s). Message will be recorded and repeated over and over until canceled or over written.

Voice or MNS Play Message ID (by zone) - Plays the selected message ID(s) to selected zone(s).

Voice Page to Alert – Initiates a page to all active Alert zone(s).

Voice Page to EVAC – Initiates a page to all active EVAC zone(s).

MNS Reset – Resets the MNS system. Voice events are not affected.

MNS Silence – Silences the active MNS events. Voice events are not affected.

When the paging control requirements (Voice or MNS) exceed the limitations of the FCC paging control card, an Audio Control Card (P/N 10-2662) and/or Input/Output Card (P/N 10-2659) can be installed to expand the manual selection capabilities of the emergency communication system. See Exhibit 37.

| AUDIO CONTROL CARD (P/N 10-2661) | INPUT/OUTPUT CARD (P/N 10-2659) |
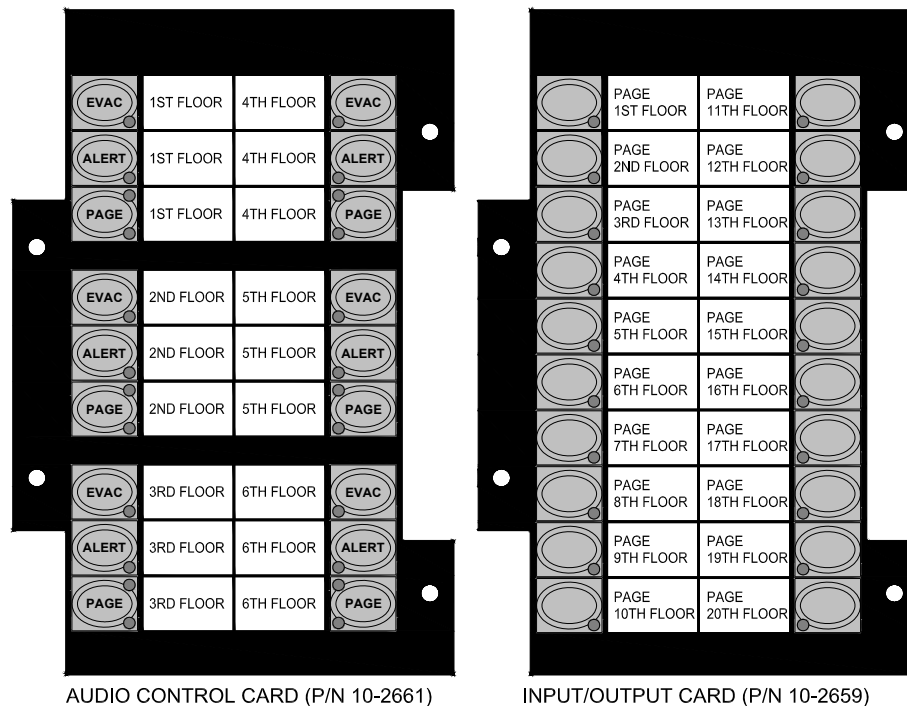
Exhibit 37: Paging Switch Cards

ⓘ**Note:** Refer to Fike document 06-446, "20 Zone Input/Output Card Product Manual" for switch programming capabilities.

ⓘ**Note:** Refer to Fike document 06-558, "Audio Control Card Product Manual" for switch programming capabilities.

ⓘ**Note:** The audio control card (P/N 10-2661) cannot be configured for MNS functions.

8.2   MNS/ECS Input Operation

The activation of the mass notification/emergency communication input (MNS Line Level P3) is done via the contact input on the FCC digital paging card (P4). This MNS contact input can be configured as normally open/normally closed and as latching/non-latching[2]. If configured for latching, then the mass notification/emergency communication request will cancel only upon MNS reset. If configured for non-latching, then the mass notification/emergency communication request can be cancelled once the contact input goes back to the normal state.

Whenever the MNS contact input is activated, the FCC digital paging card initiates a mass notification/emergency communication signal to all zones. When the MNS/ECS LED on the paging control card illuminates solid, the MNS Line Level input (P3) on the digital paging card can be used to transmit live audio message from an MNS/ECS system. The priority level of the MNS/ECS input can be configured from 1 – 254 (See Section 8.3 for details).

---

[2] Non-latching setting is not UL approved.

8.3   Control Priorities

Each switch on an FCC digital paging card, remote paging card, audio control card and input/output card must be assigned a priority level from 1 – 254, with 1 being the highest priority and 254 being the lowest priority. These priority levels are used to resolve which switch or card has control priority over another switch or card that is programmed for the same zone and operation. A switch or card with a lower priority setting cannot override a switch or card with a higher priority. A switch or card with the same or higher priority can override another switch or card with the same or a lower priority setting.

Example 1: A switch in the FCC enclosure and LOC enclosure are both programmed for EVAC Zone 1. The switch in the FCC enclosure has a priority level setting of 1, while the switch in the LOC enclosure has a priority level setting of 2. Pressing the switch in the FCC enclosure will cause Zone 1 to enter into the EVAC state. Both the switch in the FCC enclosure and the LOC enclosure will indicate that the EVAC state is active by turning on the corresponding switch LED. Since the switch in the LOC enclosure has a lower priority than the switch in the FCC enclosure, pressing the Zone 1 EVAC switch in the LOC enclosure to cancel the EVAC will have no effect. The corresponding switch LED will flash and then will return to its current operational state (on or off). The fire alarm control panel display will indicate that the requested switch selection has been denied by displaying (D) after the switch message.

Example 2: A switch in the FCC enclosure and LOC enclosure are both programmed for Page Zone 1. The switch in the LOC enclosure has a priority level of 2, while the switch in the FCC enclosure has a priority level of 1. Pressing the switch in the LOC enclosure will cause Zone 1 to enter into the PAGE state. Both the switch in the FCC enclosure and the LOC enclosure will indicate that the PAGE state is active by turning on the corresponding switch LED. The Local Page Active LED in the LOC enclosure will activate and the Remote Page Active LED in the FCC enclosure will activate. Since the switch in the FCC enclosure has a higher priority than the switch in the LOC enclosure, pressing the Zone 1 PAGE switch in the FCC enclosure will cause the PAGE control to transfer to the FCC enclosure. The Local Page Active LED in the FCC enclosure will activate and the Remote Page Active LED in the LOC enclosure will activate.

Example 2A: The MNS/ECS input on the digital paging card is programmed for priority level 1 (highest). Upon activation of the input, the MNS/ECS line level input on the digital paging card will become active. The MNS/ECS active LED in the FCC enclosure and LOC enclosure will activate to indicate that the MNS state is active in the system. The Local Page Active LED in the FCC enclosure will activate and the Remote Page Active LED in the LOC enclosure will activate. The microphone and fire-phone source selection on the FCC paging control card will be disabled until the MNS input is no longer active.

8.4   Audio Synchronization

During typical operation, it is possible for the audio messages generated by the system amplifiers to become out of sync (i.e., audio message starts and stops at different times). This can potentially cause an echo effect where multiple amplifiers serve a common audio zone due to message playback delay. Page operation is the most common cause for the amplifiers to become out of sync. For example: If a page is initiated to one or more amps, it temporarily interrupts the playback of the automatic audio message. Once the page is complete, the amplifier(s) will recommence playback of the automatic audio message, which will be out of sync with the amplifiers not affected by the page.

If your project requires audio synchronization, the following digital paging card configuration options must be utilized as described in Section 8.4.1.

Restart Audio on new activation (for sync) – When enabled, the Audio Restart feature forces all system amplifiers configured for sync operation (regardless of zone) to stop playing the current audio message and restart message playback simultaneously upon completion of the restart delay time. If used, this feature must be enabled on all FCC and LOC digital paging assemblies system wide.

Restart Audio Delay Time (sec) – Delays the restart of the system amplifiers for the set time frame (0 – 50 seconds). This feature gives all system amplifiers across the network enough time to restart prior to commencing message playback. If used, the time delay setting must be identical on all FCC and LOC digital paging assemblies system wide.

8.4.1   Synchronization Configuration Options

The following configuration options shall be used to properly configure the FCC digital paging card for sync operation. Configuration settings vary according to the system configuration and type of sync operation required.

Option 1 – Single or Networked panel system with individual zone synchronization

In this option, sync operation is isolated to each individual zone on a single panel or networked panel system and zones are not shared across the network. The Audio Restart feature on the FCC and LOC digital paging cards is not required and should be disabled. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play the "Configured Message ID".

Option 2 – Single panel with synchronization across zones

In this option, sync operation is shared between multiple zones on a single panel system. The Audio Restart feature on the FCC and LOC digital paging cards must be enabled and a Restart Time Delay of 0 seconds must be used. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play the "Configured Message ID".

Option 3 – Networked panels with synchronization across zones

In this option, sync operation is shared across networked panels and zones. The Audio Restart feature on the FCC and LOC digital paging cards must be enabled and a Restart Time Delay of 20 seconds minimum must be used. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play either the "Configured Message ID", "Play Tones", or "Play New Message ID" during the audio restart delay.

ⓘ**Note:** Refer to Fike document P/N 06-576 for amplifier configuration options for sync operation.

9.0   FIRE-PHONE OPERATION

The voice system's integral firefighter's phone allows the system operator located at the Fire Command Center (FCC) to communicate with emergency response personnel located throughout the building via fire-phone jacks. Phone system is capable of supporting either a basic fire-phone system or an addressable (selective talk) fire-phone system as described below:

ⓘ**Note:** The firefighter's phone system and paging system can be used simultaneously.

9.1   Basic Fire-Phone System

The basic fire-phone system (party-line) utilizes the Digital Paging Assembly (P/N 10-2751) in conjunction with the following components to provide fire-phone operation: Fire-Phone Housing (P/N 10-2756) and Firefighter's Phone Jacks (P/N 24-133). The system operates on a party-line configuration, which means once any phone is plugged into a phone jack it is automatically connected to the phone riser allowing communication with other connected phones. A maximum of five (5) phones may be connected to fire-phone bus at one time, not including the fire-phone located at the FCC. The phone at the FCC enclosure is automatically connected to the phone riser as soon as a phone is connected to a phone jack on the phone riser.

ⓘ**Note:** The basic fire-phone system does not provide any indication of an incoming call. The system operator must use the integral fire-phone handset to frequently check for the presence of an incoming call.

9.2   Addressable (Selective Talk) Fire-Phone System

The addressable fire-phone system utilizes the Digital Paging Assembly (P/N 10-2751) in conjunction with the following components to provide selective talk fire-phone operation: Fire-Phone Housing (P/N 10-2756), Firefighter's Phone Jacks (P/N 24-133), Fire-Phone Cards (P/N 10-2728 and P/N 10-2730), and Addressable Fire-Phone Modules (P/N 24-135). The addressable fire-phone module allows the system operator to manually select which phones will be connected to the phone riser. Only phones connected to the phone riser by the system operator will be able to communicate on the phone system. A maximum of five (5) phones may be connected to the fire-phone bus at one time, not including the local fire-phone handset.

9.2.1   Connecting and Disconnecting Calls

The addressable fire-phone system provides the system operator with positive indication that an incoming call is pending. The fire-phone card (See Exhibit 38) is equipped with a buzzer that will sound upon receiving indication of an incoming call. In addition, each switch on the module is equipped with an LED (red) that will flash in response to an incoming call. The LED will illuminate solid once the system operator has connected the call to the FCC fire-phone by pressing the corresponding switch. The incoming caller hears a ringing tone until connected by the system operator. Active calls can be disconnected by pressing the corresponding switch. The switch LED will flash and then will turn off once the call has been disconnected.

9.2.2   PAGING VIA THE FIREFIGHTER'S PHONE

The addressable fire-phone system can be used to broadcast a live page through the voice system speakers. Pressing the Fire-Phone switch on the Paging Control Card (P/N 10-2798) switches the live audio input source from the system microphone (default) to the fire-phone. The associated switch LED will illuminate solid to indicate the selected paging source. This allows a page to be delivered from any fire-phone connected to the phone riser. See section 8.0 for paging procedure.
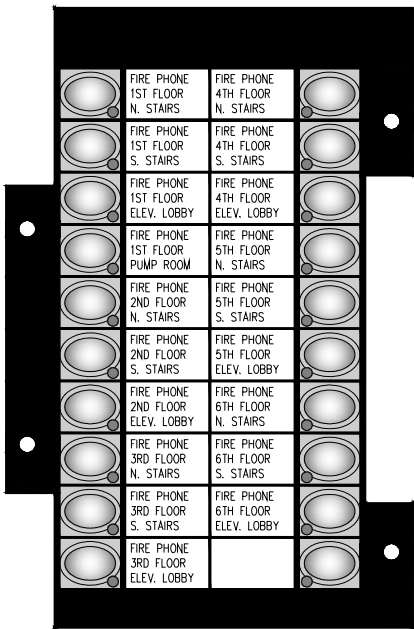
Exhibit 38: Fire-Phone Switch Card

10.0 TESTING AND PLACING INTO SERVICE

To ensure proper system operation, this product must be tested in accordance with the requirements of NFPA 72 after programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

11.0 SERVICING

There are no serviceable components on this card.

APPENDIX A – APPLICATION EXAMPLES

The following Exhibits show several different application examples for the digital paging assembly, associated control cards and accessory components.

A.1   Single Amplifier System with "Basic" Fire-Phones

Exhibit A-1 shows the components that are necessary to form a single amp system with "basic" fire-phone operation. The digital paging assembly (P/N 10-2751) must be installed on all systems that require fire-phone operation (basic or addressable) as it is the single source for the voice system's fire-phone riser. With this configuration, the amplifier card is connected to the digital paging card via the audio bus. This allows live pages from the paging microphone or firefighter's phones to be distributed through the digital paging card to the system amplifiers.

The firefighter's phone jacks and remote telephone cabinets are directly wired to the digital paging card's phone riser. Insertion of a firefighter's portable handset into a phone jack or the lifting of an emergency telephone cabinet handset will automatically connect the phone to the fire-phone riser; thus allowing the emergency responder to communicate with any other connected phone (party-line operation).
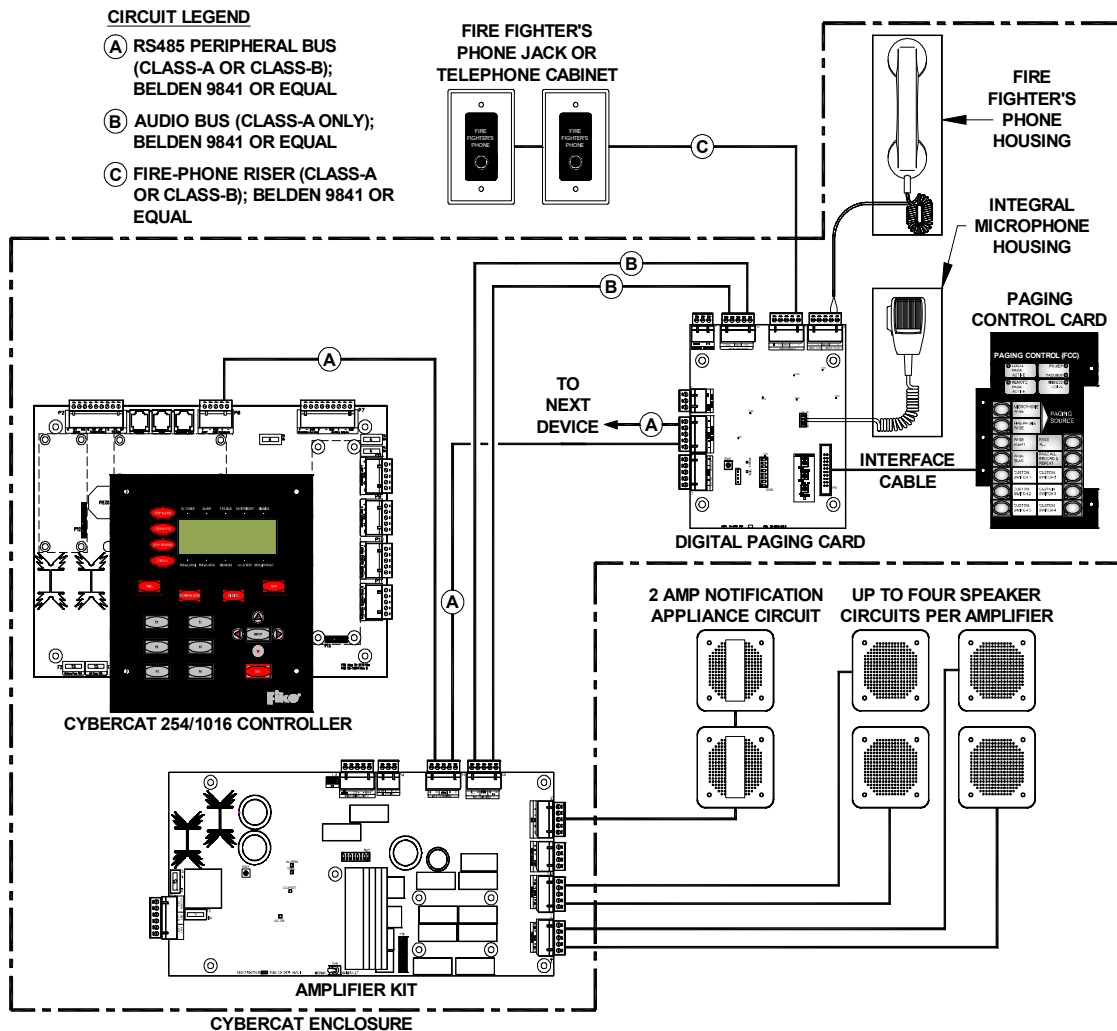
Exhibit A-1: Single AMP System with Basic Fire-Phones

A.2   Multiple Amplifier System with "Basic" Fire-Phones

Exhibit A-2 shows the components that are necessary to form a multiple amplifier system with "basic" fire-phone operation. The digital paging assembly (P/N 10-2751) must be installed on all systems that require fire-phone operation (basic or addressable) and on all systems that incorporate multiple amplifiers as it is the single source for the voice system's fire-phone riser and audio bus. With this configuration, all system amplifiers are interconnected together and to the digital paging card via the audio bus. This allows live pages from the paging microphone or firefighter's phones to be distributed to all interconnected system amplifiers.

The firefighter's phone jacks and remote telephone cabinets are directly wired to the digital paging card. Insertion of a firefighter's portable handset into a phone jack or the lifting of an emergency telephone cabinet handset will automatically connect the phone to the fire-phone riser; thus allowing the emergency responder to communicate with any other connected phone (party-line operation).

CIRCUIT LEGEND

(A) RS485 PERIPHERAL BUS (CLASS-A OR CLASS-B); BELDEN 9841 OR EQUAL

(B) AUDIO BUS (CLASS-A ONLY); BELDEN 9841 OR EQUAL

(C) FIRE-PHONE RISER (CLASS-A OR CLASS-B); BELDEN 9841 OR EQUAL

FROM LAST DEVICE

TO NEXT DEVICE

2 AMP NOTIFICATION APPLIANCE CIRCUIT

UP TO FOUR SPEAKER CIRCUITS PER AMPLIFIER

TO NEXT DEVICE

AMPLIFIER KIT

REMOTE AUDIO ENCLOSURE

FIRE FIGHTER'S PHONE JACK OR TELEPHONE CABINET

TYP. 2ND - 6TH FLOORS

1ST FLOOR (FIRE COMMAND CENTER)

FIRE FIGHTER'S PHONE JACK OR TELEPHONE CABINET

FIRE FIGHTER'S PHONE HOUSING

INTEGRAL MICROPHONE HOUSING

PAGING CONTROL CARD

AUDIO SWITCH CARD OR I/O SWITCH CARD FOR SELECTIVE PAGING

DIGITAL PAGING CARD

INTERFACE CABLE

2 AMP NOTIFICATION APPLIANCE CIRCUIT

UP TO FOUR SPEAKER CIRCUITS PER AMPLIFIER

CYBERCAT 254/1016 CONTROLLER

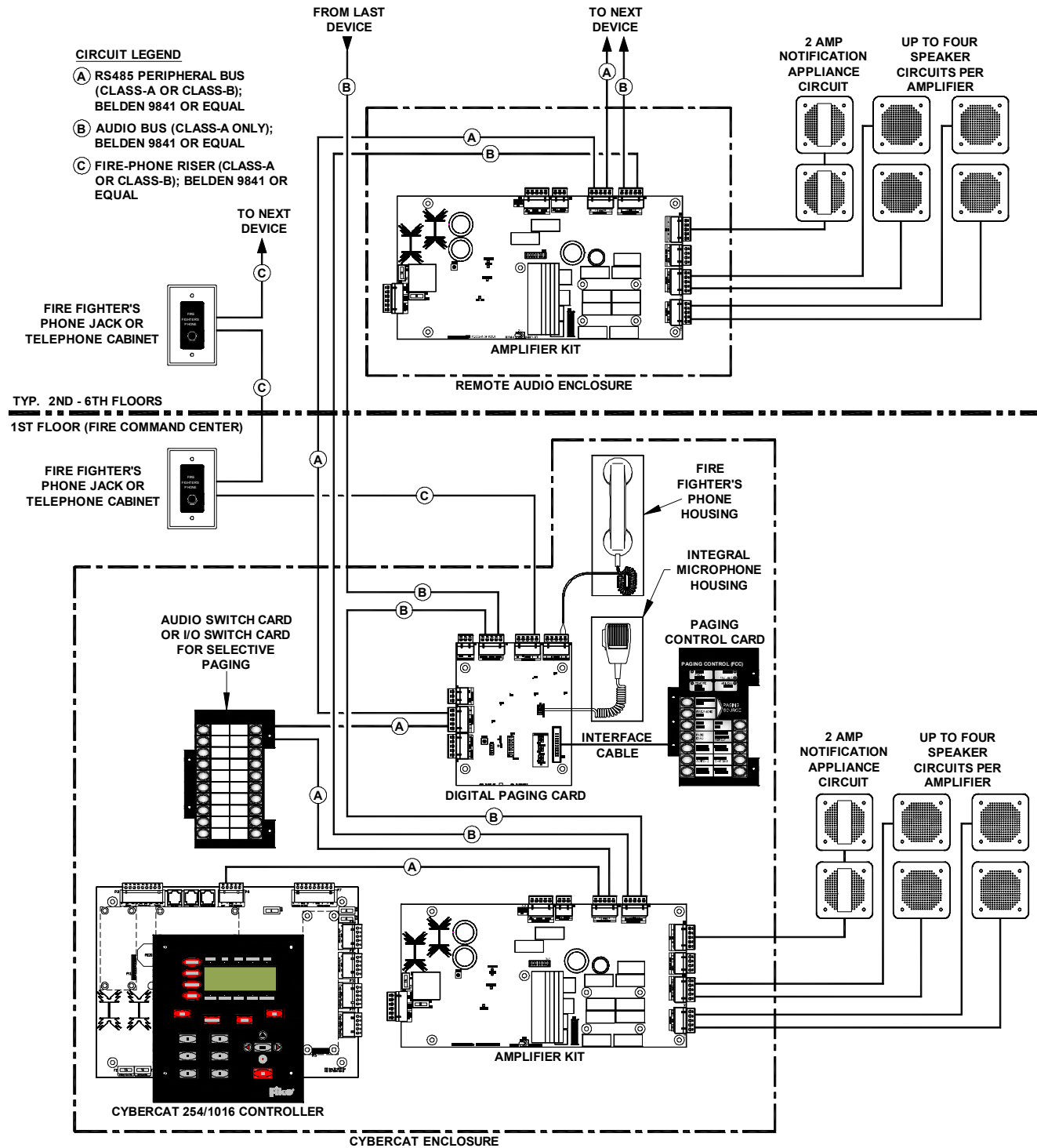AMPLIFIER KIT

CYBERCAT ENCLOSURE

Exhibit A-2: Multiple Amplifier System with "Basic" Fire-Phones

A.3   Multiple Amplifier System with "Addressable" Fire-Phones

Exhibit A-3 shows the components that are necessary to form a multiple amplifier system with "basic" fire-phone operation. The digital paging assembly (P/N 10-2751) must be installed on all systems that require fire-phone operation (basic or addressable) and on all systems that incorporate multiple amplifiers as it is the single source for the voice system's fire-phone riser and audio bus. With this configuration, all system amplifiers are interconnected together and to the digital paging card via the audio bus. This allows live pages from the paging microphone or firefighter's phones to be distributed to all interconnected system amplifiers.

Unlike the basic fire-phone configuration, the firefighter's phone jacks and remote telephone cabinets in an addressable system are wired to addressable fire-phone modules (P/N 24-135). The addressable modules are connected to the fire-phone riser and to the Series 500 loop that originates from the master fire-phone card. With this configuration, the fire-phone switch cards (master and supplemental) are used to individually connect each addressable fire-phone module to the fire-phone riser (maximum 5 at a time); thus allowing the emergency responder to communicate with any other connected phone including the master fire-phone located in the fire command center.

TO NEXT
DEVICE

FROM LAST
DEVICE

2 AMP
NOTIFICATION
APPLIANCE
CIRCUIT

UP TO FOUR
SPEAKER
CIRCUITS PER
AMPLIFIER

TO NEXT
DEVICE

TO NEXT
DEVICE

FIRE FIGHTER'S
PHONE JACK OR
TELEPHONE CABINET

ADDRESSABLE FIRE
PHONE MODULE

AMPLIFIER KIT

REMOTE AUDIO ENCLOSURE

TYP. 2ND - 6TH FLOORS

1ST FLOOR (FIRE COMMAND CENTER)

FIRE FIGHTER'S
PHONE JACK OR
TELEPHONE CABINET

FIRE PHONE MODULE

FIRE
FIGHTER'S
PHONE
HOUSING

INTEGRAL
MICROPHONE
HOUSING

PAGING
CONTROL CARD

PAGING CONTROL (FCC)

CIRCUIT LEGEND

(A) RS485 PERIPHERAL BUS
(CLASS-A OR CLASS-B);
BELDEN 9841 OR EQUAL

(B) AUDIO BUS (CLASS-A ONLY);
BELDEN 9841 OR EQUAL

(C) FIRE-PHONE RISER (CLASS-A
OR CLASS-B); BELDEN 9841
OR EQUAL

(D) SERIES 500 LOOP

AUDIO SWITCH CARD
OR I/O SWITCH CARD
FOR SELECTIVE
PAGING

INTERFACE
CABLE

DIGITAL PAGING CARD

2 AMP
NOTIFICATION
APPLIANCE
CIRCUIT

UP TO FOUR
SPEAKER
CIRCUITS PER
AMPLIFIER

CYBERCAT 254/1016 CONTROLLER

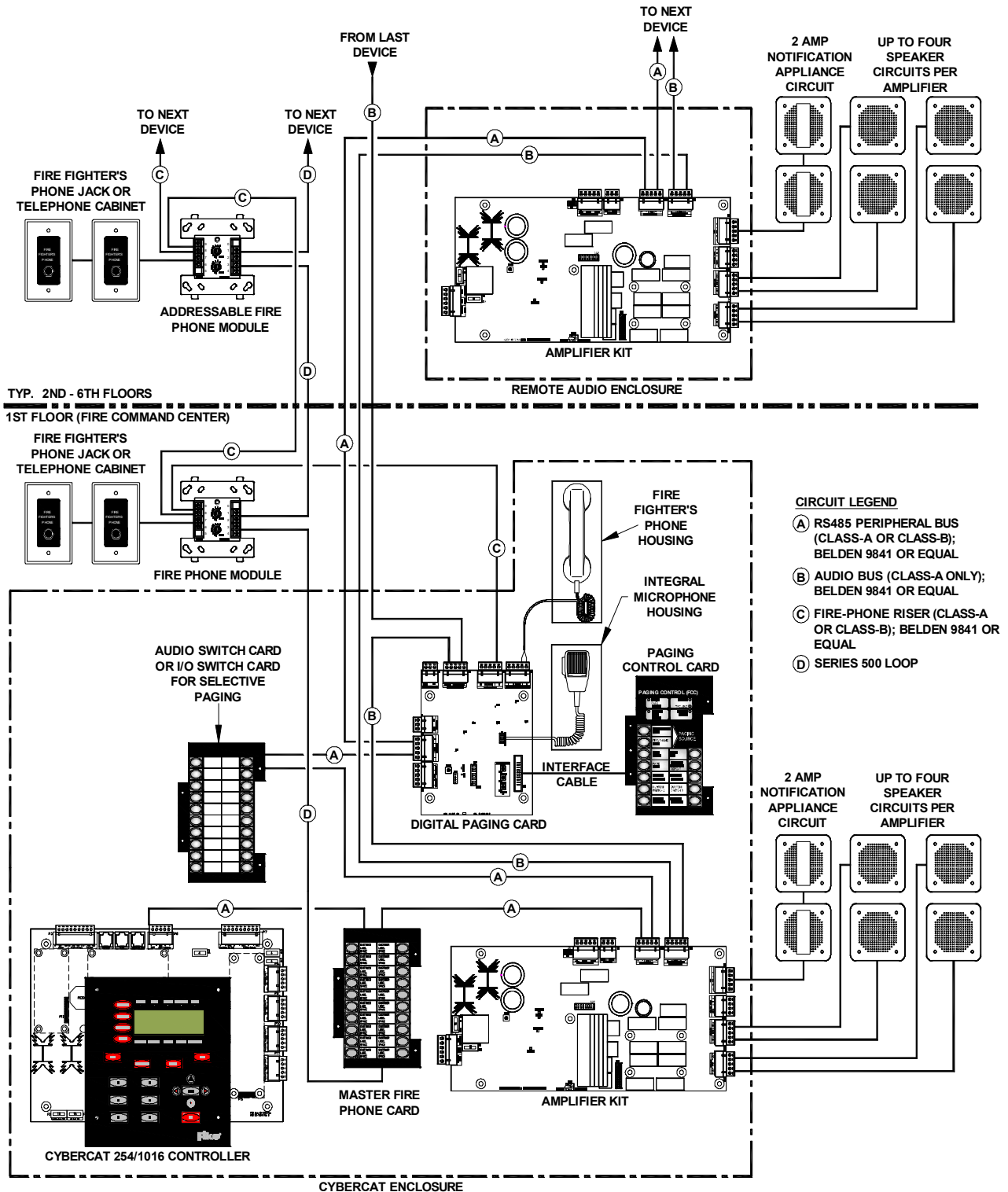MASTER FIRE
PHONE CARD

AMPLIFIER KIT

CYBERCAT ENCLOSURE

Exhibit A-3: Multiple Amplifier System with "Addressable" Fire-Phones

APPENDIX B - TROUBLESHOOTING

When an event occurs on the digital paging card the yellow LED (D12) on the digital paging card will blink and the card's audible will turn on. In addition, the yellow Trouble LED on the paging control card will illuminate.

The following table identifies the possible trouble event messages that will be displayed on the control panel, followed by the event description and the recommended steps to restore the system to normal:

Exhibit B-1: Trouble Event Messages

Event Display	Description	Suggested Corrective Action
DPM@#aa AUDIO BUS TR	An open or short has been detected on the audio bus.	1. Check for a wiring fault (open or short) on the audio bus circuit between a device that is in Audio Bus trouble and a device that is not in Audio Bus trouble. 2. Install Fike PN 10-2939 485 Jumper to ensure wiring to and from device in trouble is not faulted 3. Check the digital paging card for power and proper operation. 4. Ensure DIP-Switch 8 is set appropriately for firmware version of ALL devices that participate on the Audio Bus. 5. If ALL devices on the Audio Bus are reporting Audio Bus trouble then start troubleshooting for wiring/connections at the Digital Paging Module and then move on to its neighboring devices on the Audio Bus.
DPM@#aa AUDO BUS CL	The condition causing the AUDIO BUS TR has been cleared.	1. Record cause and steps that were taken to correct the problem.
DPM@#aa CODEC COM TR	The DPM at peripheral address #aa has developed a problem with the Codec chip. Either the DPM PIC cannot communicate with the audio Codec chip or the Power On Codec test failed.	1. Perform a hard rest on the DPM by pressing switch SW1. 2. Call Tech Support for possible further steps or return the DPM for repair or replacement.
DPM@#aa CODEC COM CL	The condition causing the CODEC COM TR event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to correct the event.
DPM@#aa MNSCONT TRBL	The DPM at peripheral address #aa has detected a short or open condition on the MNS contact monitor input circuit.	1. Check field wiring connected to contact input. 2. Check for presence of end-of-line resistor.
DPM@#aa MNSCON TR CL	The condition causing the CONTACT TRBL event on the MNS contact monitor input circuit on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to clear the event.
DPM@#aa LOCAL PH OPN	An open has been detected on the local fire-phone connection (terminal P7) on the DPM at peripheral address #aa.	1. Check for the presence of end-of-line resistor if local phone is not connected. 2. Check for proper wiring connections to DPM.
DPM@#aa LOCAL OP CLR	The condition causing the LOCAL PH OPN event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to clear the event.
DPM@#aa LOCAL PH SHT	A short has been detected on the local fire-phone connection (terminal P7) on the DPM at peripheral address #aa.	1. Check wiring and correct the condition causing the short.
DPM@#aa LOCAL SH CLR	The condition causing the LOCAL PH SHT event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to clear the event.

Exhibit B-2: Trouble Event Messages - Continued

Event Display	Description	Suggested Corrective Action
DPM@#aa MEM COMM TRB	The DPM at peripheral address #aa has developed a communication problem between the PIC and flash memory chip or the Power On flash test failed.	1. Press SW1 on Digital Paging Module 2. Return the DPM card for repair or replacement.
DPM@#aa MEM COMM CLR	The condition causing the MEM COMM TR event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to correct the event.
DPM@#aa MICROPHON TR	The DPM at peripheral address #aa has lost communication with its local microphone.	1. Check the microphone connections at the microphone housing. 2. Check the microphone wires for signs of damage. 3. Locate the DPM identified on the 2nd line of the event display. Go to that DPM and check if the microphone is plugged in.
DPM@#aa MICROPHON CL	The condition causing the MICRPHON TR event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to correct the event.
DPM@#aa MSG MISSING	The DPM at peripheral address #aa has developed a problem with the flash memory content. Configuration is corrupt or does not exist.	1. Resend the configuration to the DPM.
DPM@#aa MSG MISS CLR	The condition causing the MSG MISSING event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to correct the event.
DPM@#aa PH RISE OPEN	An open has been detected on the Class B fire-phone riser (terminal P6) on the DPM at peripheral address #aa.	1. Check for the presence of end-of-line resistor. 2. Meter the voltage at the fire-phone riser terminals. 3. Ensure field wiring does not exceed 100 Ohms 4. Go to the last device on the circuit that is working and meter for the same voltage. Open condition will be located between the last working device and the first non-working device.
DPM@#aa PH OPEN CLR	The condition causing the PH RISE OPEN event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to clear the event.
DPM@#aa PH RISE SHRT	A short has been detected on the Class B fire-phone riser (terminal P6) on the DPM at peripheral address #aa. This fault will prevent operation of the fire-phone riser.	1. Locate the short by systematically removing sections of the circuit until the short condition isolated. 2. Correct the condition causing the short and reset the system.
DPM@#aa PH SHORT CLR	The condition causing the PH RISE SHRT event on the DPM at peripheral address #aa has cleared.	1. Note the cause of the fault and the steps that were used (if any) to clear the event.
DPM@#aa PH RISE CLSA	An open has been detected on the Class A fire-phone riser (terminal P6) on the DPM at peripheral address #aa. This is a latching trouble.	1. Meter the voltage at the fire-phone riser terminals. 2. Ensure field wiring does not exceed 100 Ohms 3. Locate the open by systematically removing sections of the circuit until the open condition isolated. 4. Reset the control panel after condition is corrected.

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