



Description

Mircom's QX-5000 Series is a multi-channel zoned audio system that allows the operator to selectively page from a central location to any of the system's audible devices. In addition, the QX-5000 allows for zoned fire fighters' telephone communication with remote telephone handsets that are permanently installed throughout a building. The QX-5000 Series consists of a card cage/audio motherboard, an audio/fire alarm interface board, power supply and battery charger which are designed to work with Mircom's FA-1000 or FX-2000 Series Fire Alarm Control Panels. In addition it can be integrated with other compatible fire alarm control panels. All hardware and software is fully supervised for correct and reliable operation. The system has a simple interface to the fire alarm control panel, and contains its own power supply and battery backup system.

The QX-5000 Series Zoned Audio system requires one QIF-5000B Interface card which provides inputs for the fire alarm panel, the paging microphone and the zone paging module. In addition it provides an audio trouble output. Only one interface card is required per system, and it mounts in the first slot of the QMB-5000B Audio Mother Board and Card Cage.

One QIF-5000B will support seven QMB-5000B card cages. Each card cage has space for one interface card and seven QAA style amplifiers, for a maximum of 360 watts per cabinet.

Features

- Single, Dual or Three Channel Operation
- Zone or All-Call selectability (Alert/Evacuation)
- Control of fire management operations
- Zoned fire fighters' telephones capability
- Provides single or multiple command centre(s) for use in emergencies
- Multiple Building Interconnection (Campus Style)
- Microprocessor-based operations with hardware and software Watchdog Timer to ensure system operation
- Operates from 24 VDC backup batteries in the event of a power failure
- Removable terminal blocks for ease of installation and maintenance
- Indication of all required fault conditions
- Speaker circuits are integrated with amplifier circuits
- Multiple amplifier sizes (up to 7 per enclosure for a maximum of 360 watts per enclosure)
- Maintains full supervision during battery operation
- 25 or 70 Volt System
- Digitized Voice Capability

Each QMB-5000B card cage requires one QPS-5000 Power Supply and QBC-5000B Battery Charger which all mount into a QBB-5001 Audio Cabinet.

The QX-5000 Series Audio System interconnects with the Mircom Fire Alarm Control Panels through a supervised connection. Selective paging is provided through the QMP-5101B/QMP-5100B Master Paging Control Module which provides the microphone and common control functions. Zone selection is provided through the QZP-5101 Zoned Paging Selector Module. A total of six QZP-5101 modules can be connected to the QMP-5101B/QMP-5100B Master Paging Control module. In addition the QX-5000 Series allows for zoned fire fighters' telephones. The QMT-5302/QMT-5300A Master Fire Fighters' Telephone Control Module provides the master telephone and common control functions. The QZT-5302 Zoned Fire Fighters' Telephone Selector Panel allows for 12 zone selector switches and LEDs. A total of six QZT-5302 can be connected to the QMT-5300A/QMT-5302 Master Fire Fighters' Telephone Control Module.



S5434



S5434



7300-1477-123

City of
Chicago
Highrise

CATALOG NUMBER

5800

NOT TO BE USED FOR INSTALLATION PURPOSES.

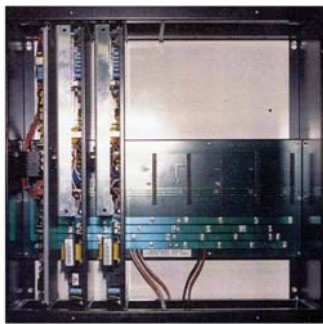
Mircom reserves the right to make changes at any time without notice in prices, colours, materials, components, equipment, specifications and models and also to discontinue models.

QX-5000 Series Audio Cabinet Components



QBB-5001 Audio Backbox

The QBB-5001 holds one QMB-5000B Audio Motherboard and Card Cage, one QPS-5000 Audio Power Supply and one QBC-5000B Audio Battery Charger. The QBB-5001 will hold up to 40 Ah batteries.



QMB-5000B Audio Motherboard and Card Cage

The QMB-5000B supports one QIF-5000B Audio Interface Board and 7 QAA style audio amplifiers. In addition, the card cage allows for a backup amplifier (if required) to be mounted in the last slot. Typically, the QAA-5160-70/25 is used as the backup amplifier. The QMB-5000B requires one QPS-5000 Audio Power Supply and one QBC Audio Battery Charger. The QMB-5000B mounts in the QBB-5001 Backbox enclosure.



QRM-1001 Bell Cut Relay

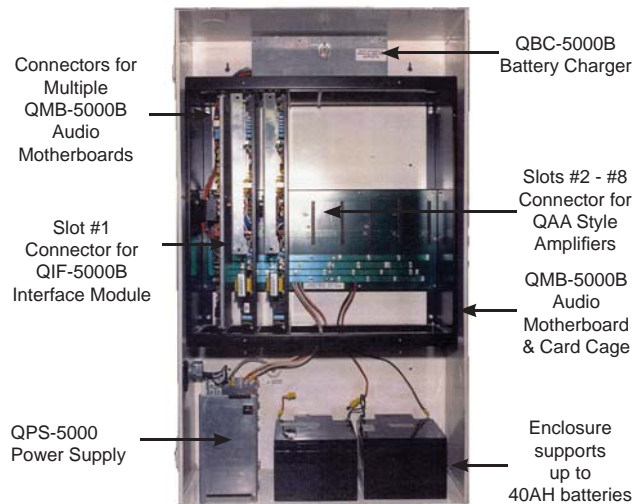
The QRM-1001 provides a Form 'C' output contact for remote signal silence on page activation.

MD-525 Interconnection Cable

The MD-525 is used to connect additional Audio Motherboard and Card Cages up to 3 Audio Cabinets.

MD-635 Interconnection Cable

The MD-635 is used to connect additional Audio Motherboard and Card Cages over 3 Audio Cabinets.



Note: A knockout is provided on the bottom right of the QBB-5001 backbox to allow for conduit to be run up the right hand side of the backbox.



QIF-5000B Audio/Fire Alarm Interface Card

The QIF-5000B includes a tone generator with fire alarm input and audio trouble output. In addition, it has a paging MIC input and zone paging multiplex input. The interface module comes equipped with the following tones: Slow Whoop Pulse 20 SPM & 120 SPM and Bell Tone Generator 20 SPM & 120 SPM. Special tones are available upon request. The QIF-5000B will support seven QMB-5000B Audio Motherboard and Card Cages per system and mounts in the first slot of the QMB-5000B.



QPS-5000 Audio Power Supply

The QPS-5000 supports up to 420 watts and mounts in the QBB-5001 Backbox enclosure.

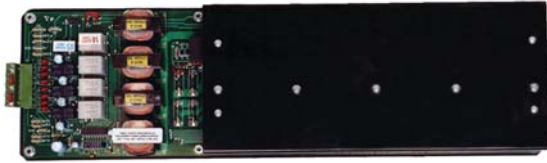


QBC-5000B Audio Battery Charger

The QBC-5000B will charge up to 65 Ah batteries and mounts in QBB-5001 Backbox enclosure.

Note: The QBB-5001 Audio Backbox will hold up to 40 Ah batteries. Larger batteries will require a BC-160 Battery Cabinet.

QX-5000 Series Audio Amplifiers



QAA-5415-70 and QAA-5415-25 Quad 15 Watt Amplifiers

The QAA-5415-70 and QAA-5415-25 consist of four 15 watt supervised paging/speaker circuits which can be wired in Class 'B' (Style 'Y') only. The QAA-5415-70 is a 70 Volt amplifier and the QAA-5415-25 is a 25 Volt amplifier. Both models mount in the QMB-5000B Motherboard and Card Cage and occupy one amplifier slot.

QAA-5230S-70/25 Dual 30 Watt Amplifier

The QAA-5230S-70/25 consists of two 25 or 70 Volt 30 watt amplifiers. Each amplifier has two 15 watt supervised speaker outputs which are used for 'A' 'B' speakers per floor and are wired in Class 'B' (Style 'Y') only. The QAA-5230S-70/25 mounts in the QMB-5000B Motherboard and Card Cage and occupies one amplifier slot.

QAA-5230S-525-70/25 Dual 30 Watt Amplifier

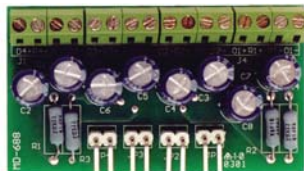
The QAA-5230S-525-70/25 consists of two 25 or 70 Volt 30 watt amplifiers. Each amplifier has two 5 watt supervised speaker outputs and two 25 watt supervised speaker outputs which are used for 'A' 'B' speakers per floor and are wired in Class 'B' (Style 'Y') only. The QAA-5230S-525-70/25 mounts in the QMB-5000B Motherboard and Card Cage and occupies one amplifier slot.

QAA-5230-70/25 Dual 30 Watt Amplifier

The QAA-5230-70/25 consists of two 25 or 70 Volt 30 watt supervised paging/speaker circuits which can be wired in Class 'A' (Style 'Z') or Class 'B' (Style 'Y'). The QAA-5230-70/25 mounts in the QMB-5000B Motherboard and Card Cage and occupies one amplifier slot.

QAA-5160-70/25 60 Watt Amplifier

The QAA-5160-70/25 consists of one 25 or 70 Volt 60 watt supervised paging/speaker circuit which can be wired in Class 'A' (Style 'Z') or Class 'B' (Style 'Y'). The QAA-5160-70/25 mounts in the QMB-5000B Motherboard and Card Cage and occupies one amplifier slot.



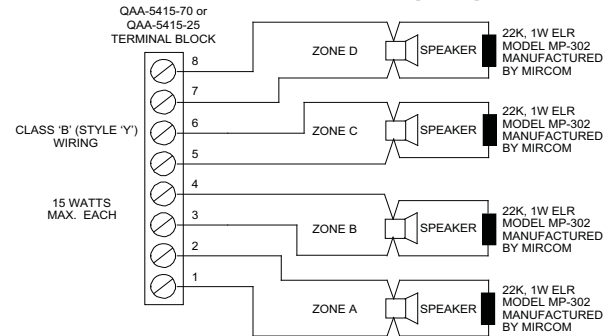
QAA-4CLA Class 'A' (Style 'Z') Converter Module

The QAA-4CLA converts each of the four Class 'B' (Style 'Y') outputs on a QAA-5415-70 or QAA-5415-25 Amplifiers to Class 'A' (Style 'Z'). The module attaches to the bottom of the amplifier. One QAA-4CLA is required for each amplifier.

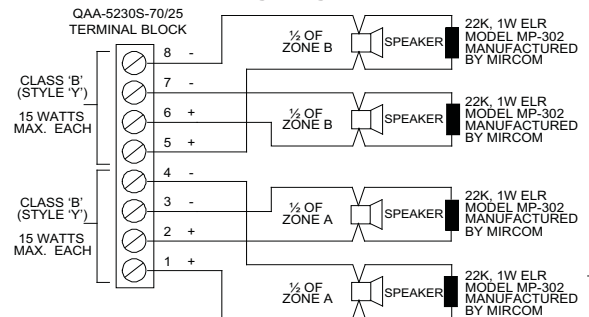
QAA-4CLAS Class 'A' (Style 'Z') Converter Module

The QAA-4CLAS converts each of the four Class 'B' (Style 'Y') outputs on a QAA-5230S-70/25 or QAA-5230S-525-70/25 Amplifier to Class 'A' (Style 'Z'). The module attaches to the bottom of the amplifier. One QAA-4CLA is required for each amplifier.

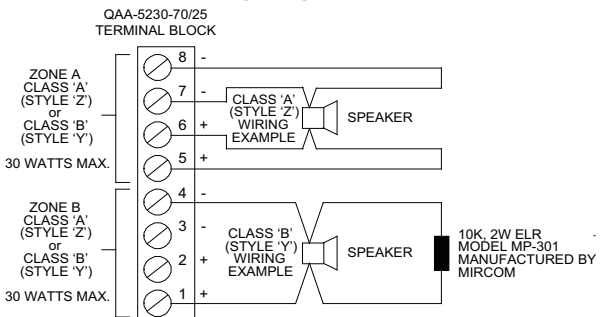
QAA 5415-70 or QAA-5415-25 Wiring Diagram



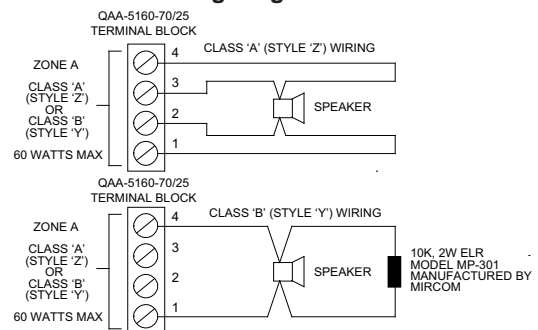
QAA-5230S-70/25 Wiring Diagram



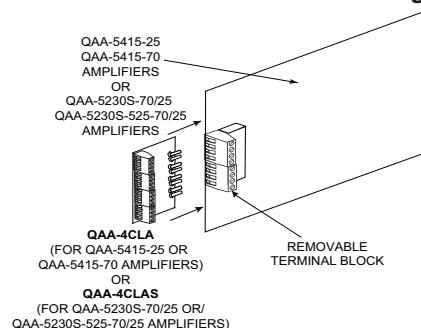
QAA-5230-70/25 Wiring Diagram



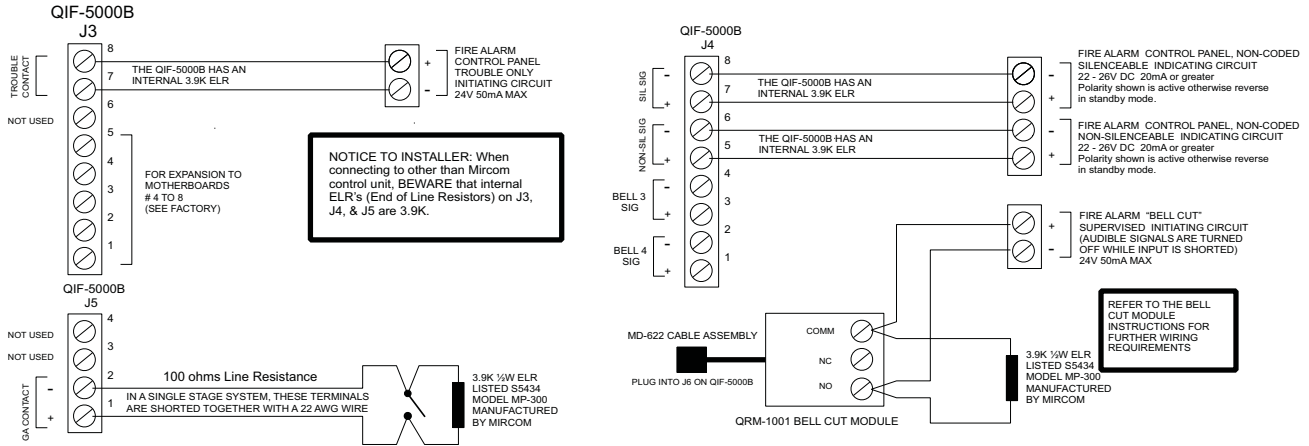
QAA-5160-70/25 Wiring Diagram



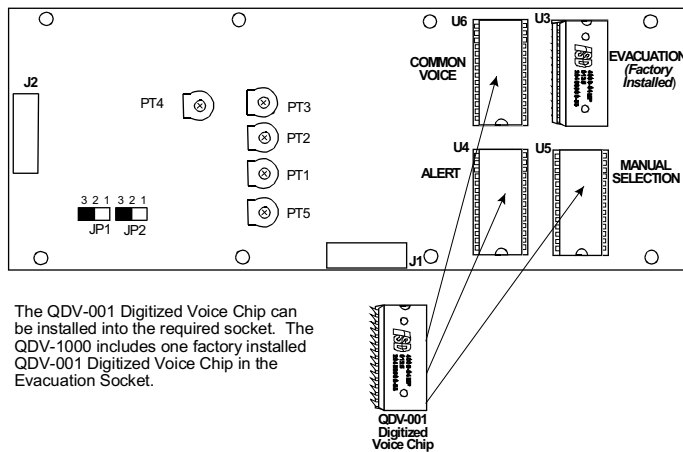
QAA-4CLA and QAA-4CLAS Connection Diagram



QIF-5000B Wiring Diagram



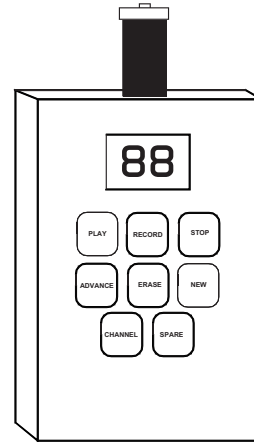
QX-5000 Digitized Voice Components



The QDV-001 Digitized Voice Chip can be installed into the required socket. The QDV-1000 includes one factory installed QDV-001 Digitized Voice Chip in the Evacuation Socket.

QDV-1000 Digitized Voice Module

The QDV-1000 Digitized Voice Module supports four simultaneous channels of digitized voice; alert, evacuation, manual selection and common voice channel. The voice channels can be voice only, voice and tone and tone only. One QDV-0001 Digitized Voice Chip is required per channel. The QDV-0001 Digitized Voice Chip is field programmable using the QDVP-100 Digitized Voice Programming Tool. In the case that the QDV-1000 fails, the QIF-5000B Tone Generator acts as a backup. The QDV-1000 includes one factory installed QDV-0001 Digitized Voice Chip in the Evacuation socket with provisions to add three adder QDV-0001 chips. The QDV-1000 mounts in the QBB-5001 Audio Backbox on top of the QBC-5000B.



QDVP-100 Digitized Voice Programming Tool

The QDVP-100 Digitized Voice Programming Tool allows for field programming of the QDV-1000 Digitized Voice Module.

QDV-0001 Digitized Voice Chip

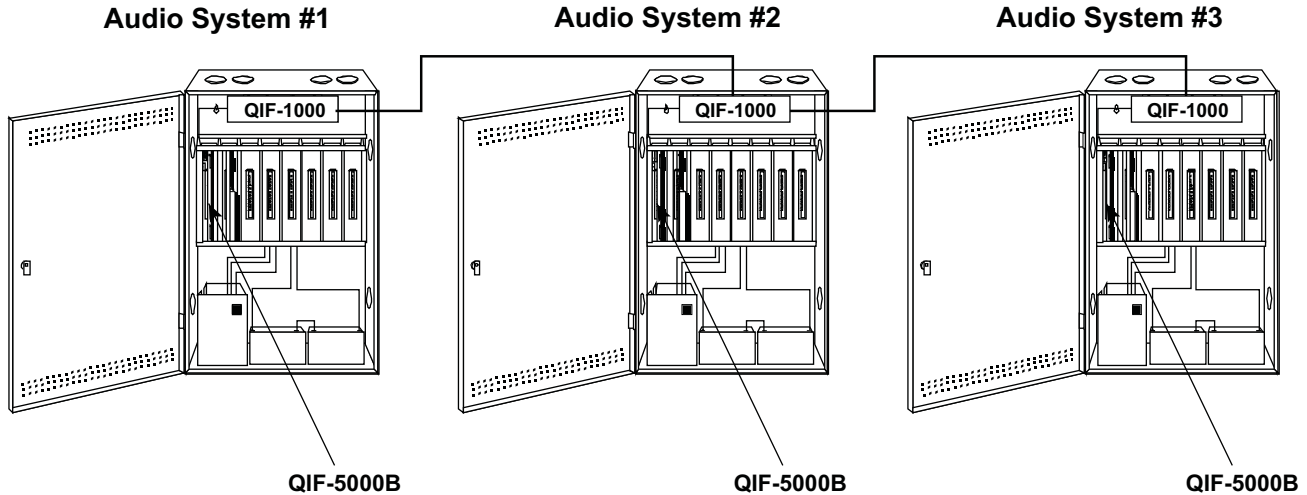
The QDV-0001 Digitized Voice Chip stores the channel specific voice or voice/tone message. One QDV-0001 is required per voice channel being used. The chip is field programmable via the QDVP-100 Digitized Voice Programming Tool. The QDV-0001 allows for the storage of approximately 4 minutes of audio messaging. Once programmed, the QDV-0001 chips plug into the appropriate sockets on the QDV-1000 Digitized Voice Module.

QX-5000 Series Interconnection Modules

QIF-1000 Audio Interconnection Module

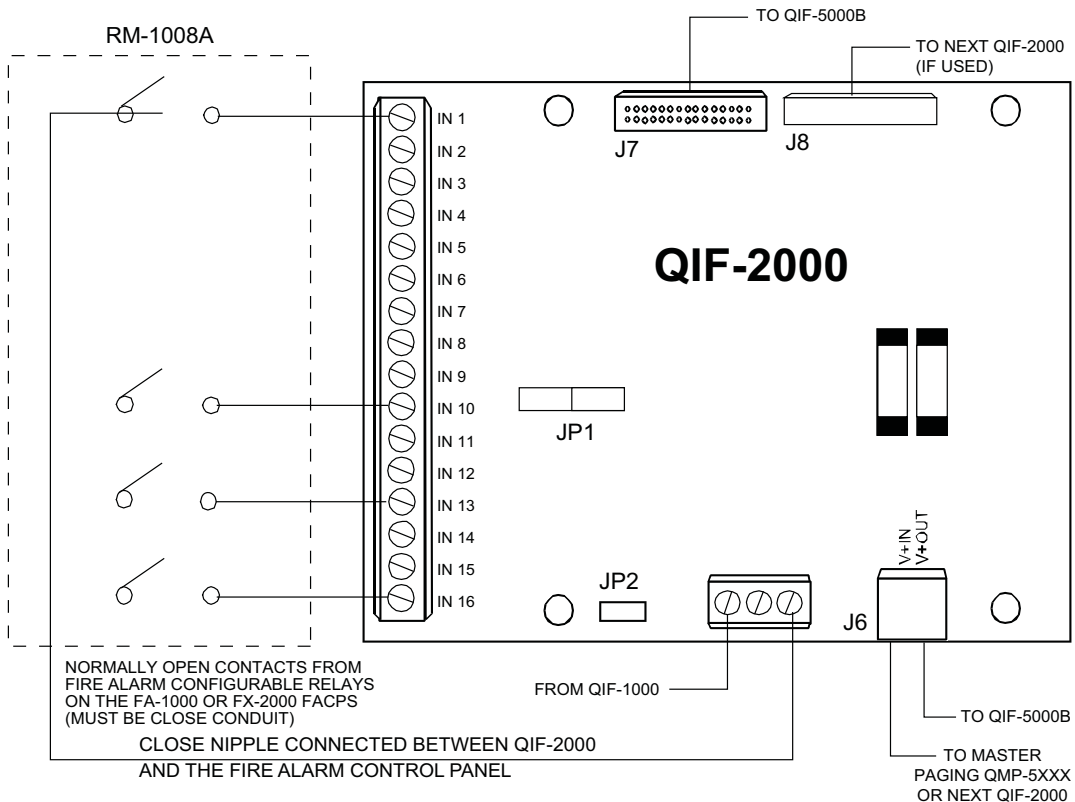
The QIF-1000 Audio Interconnection Module is used to interconnect multiple paging systems together. The QIF-1000 allows for QIF-5000B to QIF-5000B interconnection and is used for campus style "All-Call" Paging. The QIF-1000 allows each interconnected audio system to have zoned paging for the local building and all-call capabilities for each outlying building. The QIF-1000 mounts on top of the QBC-5000B.

QIF-1000 - QIF to QIF Interconnection Wiring Diagram



QIF-2000 Programmable Amplifier Interface Module

The QIF-2000 Programmable Amplifier Interface Module provides sixteen programmable audio inputs. Each programmable input is a dry normally open contact. The contact inputs are non-supervised and can be configured to any number of amplifiers. The amplifiers can be configured to the alert channel, the evacuation channel or to remain silent. The QIF-2000 mounts on top of the QBC-5000B. A maximum of eight QIF-2000 modules can be used per system for a total system capacity of 128 programmable inputs.



QX-5000 Series Paging Control Modules



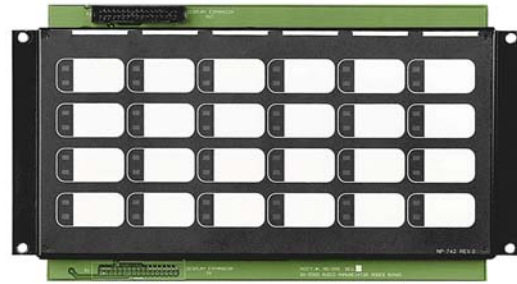
QMP-5101B Master Paging Control Module

The QMP-5101B Master Paging Control Module includes the Paging microphone and common control indicators for A.C.-On, Common Trouble, MIC Trouble, MIC Level/Page Enable, Digitized Voice Active, Amplifier Trouble, Circuit Trouble, Remote Failure, Page Inhibit, All-Call, All-Call Minus and Warden Page. The QMP-5101B has control buttons for Audio Selector Reset, Lamp Test, All-Call, All-Call Minus, Microphone PTT and Warden Page. The QMP-5101B allows for all call paging or selective paging with the QZP-5101 Zoned Paging Selector Modules. The QMP-5101B connects to the QIF-5000B Audio Interface Card via the following connections: an RS-485 connection (twisted shielded pair), 24 VDC power, a twisted shielded pair for the microphone interface and a pair of wires for Push To Talk (PTT). The QMP-5101B features a special pre-announce tone for use with Mircom's SP-Series Silenceable Speakers. The QMP-5101B occupies one module space in the BB-5000 Series



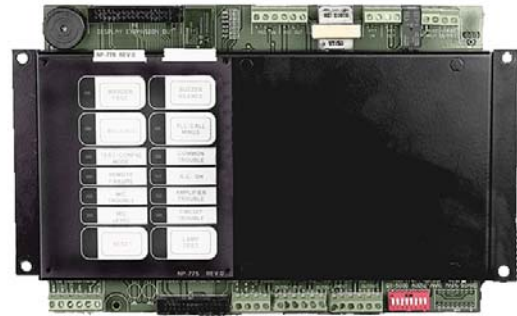
QMP-5100B Master Paging Control Module

The QMP-5100B Master Paging Control Module is similar to the QMP-5101B Paging Module and is designed for remote mounting in the BB-1000 Series enclosures. The QMP-5100B features a special pre-announce tone for use with Mircom's SP-Series Silenceable Speakers. The QMP-5100B occupies one module space in the BB-1000 Series enclosures.



QZP-5101 Zoned Paging Selector Panel

The QZP-5101 Zoned Paging Selector Panel includes 24 zone selector switches, 24 zone selector LEDs (Green/Red) and 24 Zone trouble LEDs (Amber). The QZP-5101 is used with the QMP-5100B/QMP-5101B Master Paging Control module. Slide-in labels are provided to label the paging zones. The QZP-5101 occupies one module space in the BB-1000 or BB-5000 Series enclosures.



QMP-5100AX Master Paging Control Module

The QMP-5100AX Master Paging Control Module is similar to the QMP-5101B/QMP-5100B except that it does not include a paging microphone and is used for Distributed Audio systems. The QMP-5100AX features a special pre-announce tone for use with Mircom's SP-Series Silenceable Speakers. The QMP-5100AX occupies one module space in the BB-5000 Series enclosures.



QMP-5100MSB Microphone Splitter Board

The QMP-5100MSB Microphone Splitter Board provides microphone connections for up to four QIF-5000B Interface Cards (for Distributed Audio system). The QMP-5100MSB occupies one module space in the BB-5000 Series enclosures and mounts under the QMP-5100AX Master Paging Control Module.

QX-5000 Series Firefighter Telephone Control Modules (Hardwired)



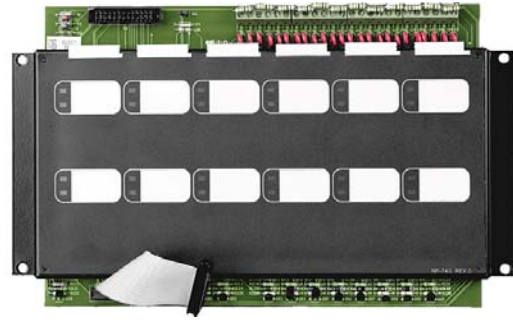
QMT-5302 Master Firefighters' Telephone Control Module

The QMT-5302 includes the Master Telephone Handset and common control indicators for Common Telephone Trouble, Master Telephone Trouble and Incoming Call. The QMT-5302 has control buttons for Lamp Test and either Connect (on common call/talk system) or Clear All (on multi zoned system). The QMT-5302 may be used either alone as a common call/talk system or with the QZT-5302 Zone Selectors as a multi-zoned system. In a common call/talk system, the user will hear a buzzer at the QMT-5302. By picking up the handset and selecting the 'Connect' button, the user will be able to answer the call. In a multi zoned system, the user must select the appropriate telephone zone on the QZT-5302. If a second call comes in, the appropriate Telephone zone LED will light up. To answer, the user must select the appropriate telephone zone. The QMT-5302 will allow up to a maximum of six phones to be answered at a time. The QMT-5302 is powered with a 24 VDC, 200 mA external DC power source (filtered or unfiltered). The master telephone circuit can be wired in Class 'A' (Style 'Z') or Class 'B' (Style 'Y'). The QMT-5302 occupies one module space in the BB-5000 series enclosures.



QMT-5300A Master Firefighters' Telephone Control Module

The QMT-5300A Master Firefighters' Telephone Control Module is similar to the QMT-5302 and is designed for remote mounting in the BB-1000 Series enclosures. The QMT-5300A occupies one module space in the BB-1000 Series Enclosures.



QZT-5302 Zoned Firefighters' Telephone Selector Panel

The QZT-5302 includes 12 zone selector switches, 12 zone Call-In LEDs (Green) and 12 zone trouble LEDs (Amber). The QZT-5302 is used with the QMT-5302/QMT-5300A Master Telephone Control module to provide a multi-zoned system. The telephone circuits can be wired in Class 'A' (Style 'Z') or Class 'B' (Style 'Y'). A maximum of six QZT-5302 can be connected to the QMT-5302/QMT-5300A. Slide-in labels are provided to label the telephone zones. The QZT-5302 occupies one module space in the BB-1000 or BB-5000 enclosures.

Specifications

Electrical Requirements

Power Input: 120 VAC +10%, -15%, 60 Hz, 12A (Primary)
Power Supply Ratings: 30A ,40V (Secondary)
Input Current: 11 Amps
Standby Power: 24 VDC Standby batteries

Environmental Operating Limits

Temperature: 0 to 49 C
Humidity: 0 to 95% rh (non-condensing)

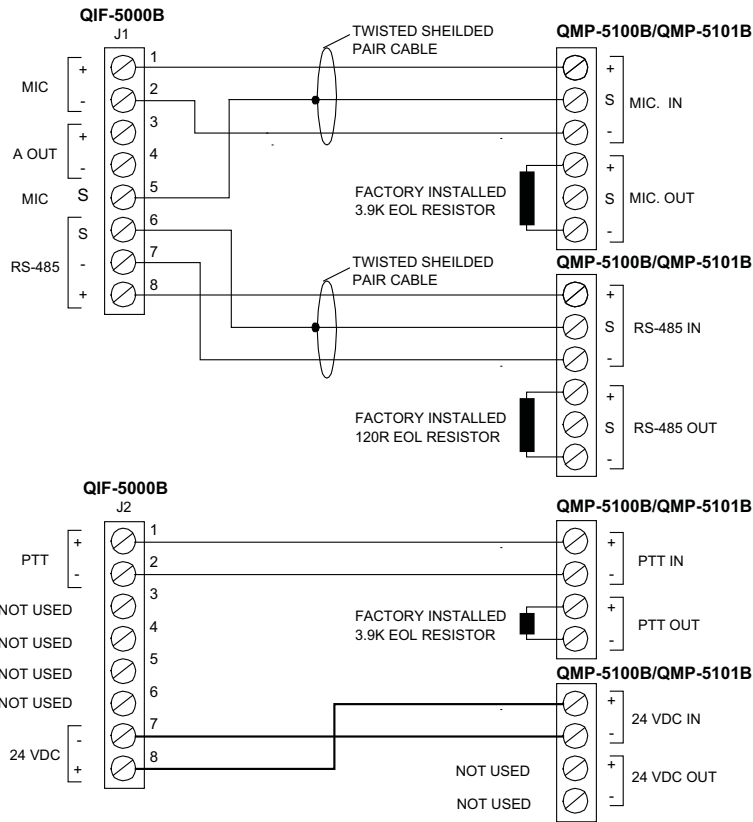
Dimensions

QBB-5001 Backbox: 41"H x 24.25 "W x 8"D
BB-1001 Enclosure: 9"H x 12.75"W x 1.2"D
BB-1002 Enclosure: 18"H x 12.75"W x 1.2"D
BB-1003 Enclosure: 26.4"H x 12.75"W x 1.2"D
BB-1008 Enclosure: 33"H x 22.5"W x 1.25"D
BB-1012 Enclosure: 45"H x 22.5"W x 1.25"D
BB-5008 Enclosure: 36"H x 30"W x 7"D
BB-5014 Enclosure: 60"H x 30"W x 7"D

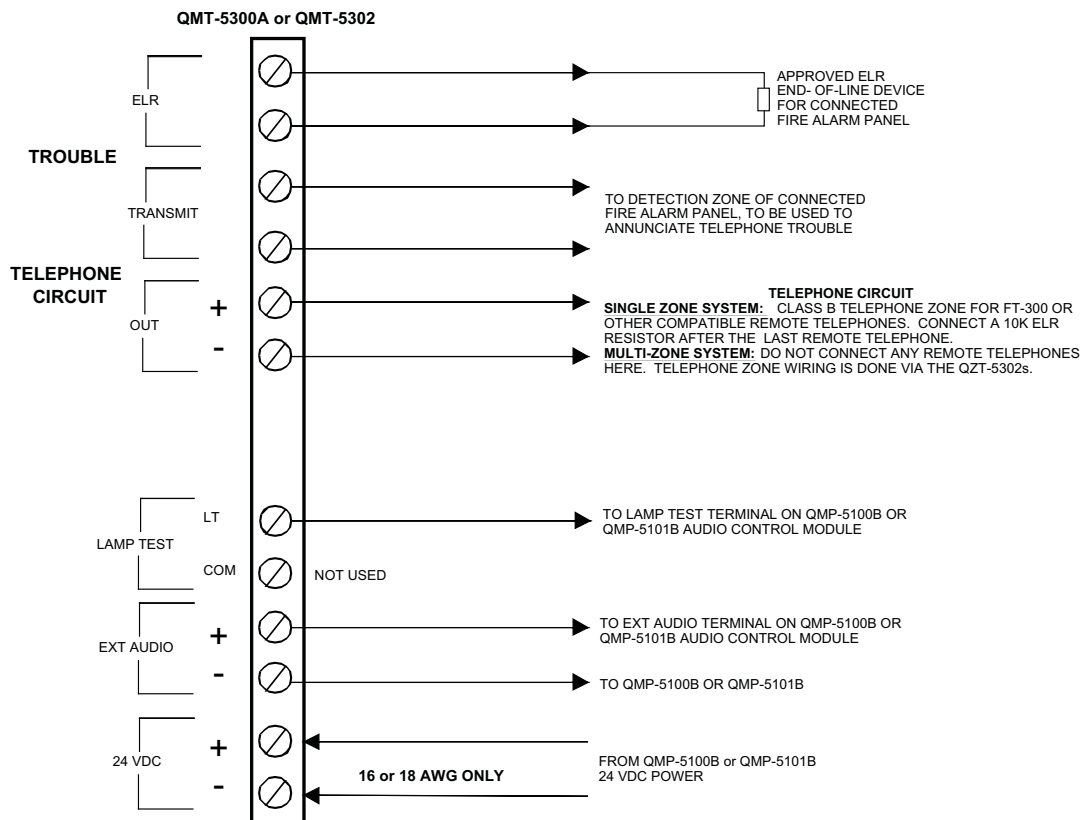
Audio Backbox Mounting

Surface or Semi-flush mounting (Use QBB-5001TR Flush Trim Ring)

QMP-5100B/QMP-5101B Wiring Diagram



QMT-5300A/QMT-5302 Wiring Diagram



QX-5000 Series Firefighter Telephone Control Modules (Addressable)



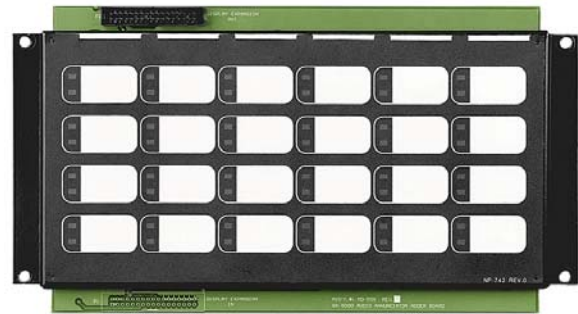
QAMT-5302 Master Firefighters' Telephone Addressable Control Module

The QAMT-5302 includes the Master Telephone Handset and common control indicators for Common Telephone Trouble, Master Telephone Trouble and Incoming Call. The QAMT-5302 has control buttons for Lamp Test and either Connect (on common call/talk system) or Clear All (on multi zoned system). The QAMT-5302 may be used either alone as a common call/talk system or with the QAZT-5302 Zone Selectors as a multi-zoned system. In a common call/talk system, the user will hear a buzzer at the QAMT-5302. By picking up the handset and selecting the 'Connect' button, the user will be able to answer the call. In a multi zoned system, the user must select the appropriate telephone zone on the QAZT-5302. If a second call comes in, the appropriate Telephone zone LED will light up. To answer, the user must select the appropriate telephone zone. The QAMT-5302 will allow up to a maximum of six phones to be answered at a time. The QAMT-5302 is powered with a 24 VDC, 200 mA external DC power source (filtered or unfiltered). The master telephone circuit can be wired in Class 'A' (Style 'Z') or Class 'B' (Style 'Y'). The QAMT-5302 occupies one module space in the BB-5000 Series enclosures.



QAMT-5300 Master Firefighters' Telephone Addressable Control Module

The QAMT-5300A Master Firefighters' Telephone Addressable Control Module is similar to the QMT-5302 and is designed for remote mounting in the BB-1000 Series enclosures. The QAMT-5300A occupies one module space in the BB-1000 Series enclosures.



QAZT-5302 Addressable Zoned Firefighters' Telephone Selector Panel

The QAZT-5302 includes 24 zone selector switches, 24 zone selector LEDs (Green or Red) and 24 trouble LEDs (Amber). The QAZT-5302 is used with the QAMT-5302/QAMT-5300 Master Firefighters' Telephone Addressable Control module to provide a multi-zoned system. Slide-in labels are provided to label the telephone zones. The QAZT-5302 occupies one module space and mounts with the Main FX-2000 panel in a BB-5000 Series enclosure or with the RAX-LCD in a BB-1000 or BB-5000 Series enclosure.

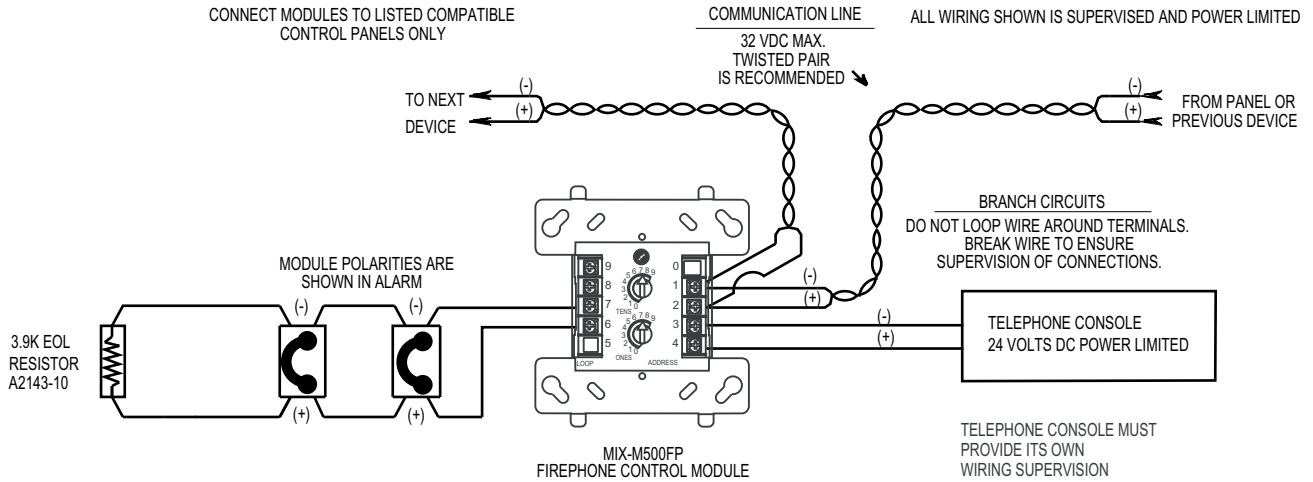


MIX-M500FP Addressable Firephone Control Module

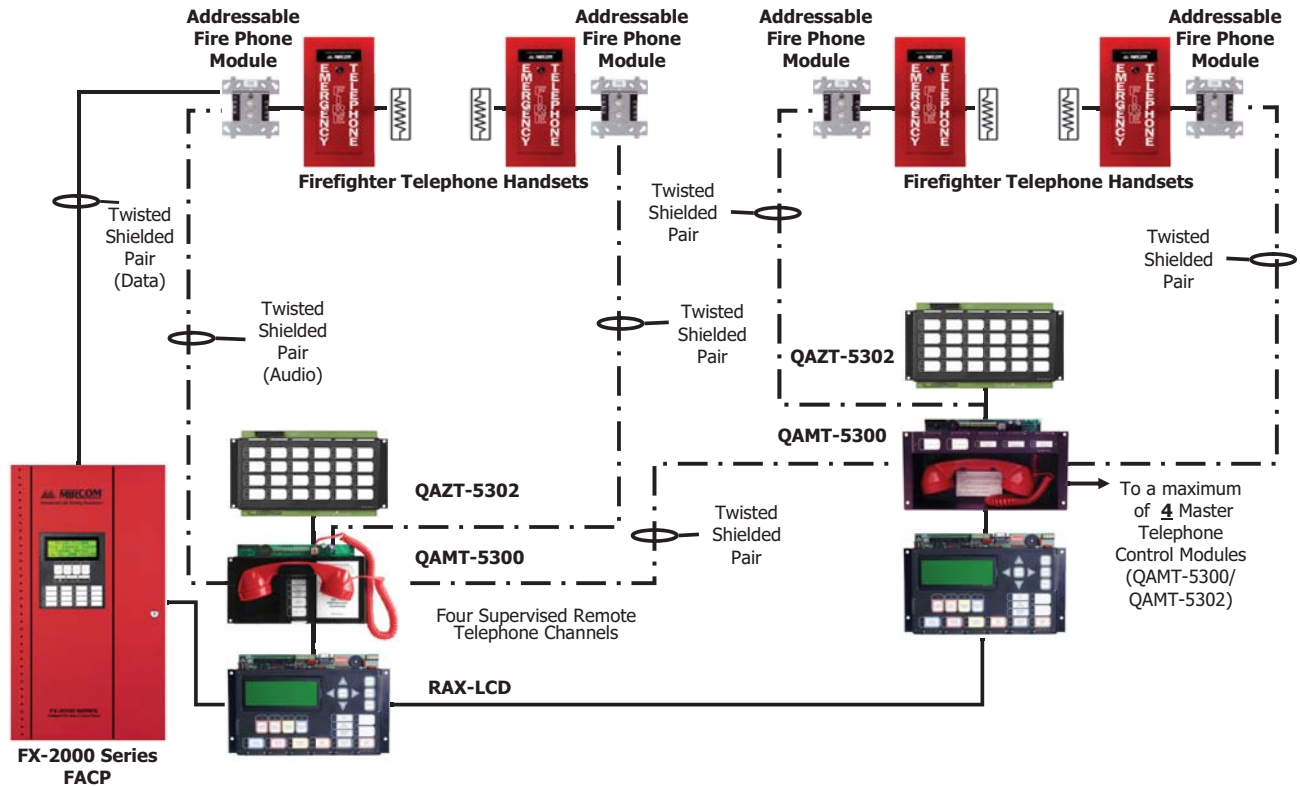
The MIX-M500FP is used with the FX-2000 Series Intelligent Fire Alarm Control Panel and is intended to monitor and control a loop of firefighter phones. It has the ability to differentiate between normal, off-hook, and trouble conditions. When taken off-hook, a phone will immediately receive a ringing tone, and the panel will receive an off-hook indication. The panel can then connect that off-hook phone to the main riser for the system.

Add suffix "A" for Canadian model.

Typical Circuit Configuration Wiring Diagram, Class B (NFPA Style Y)

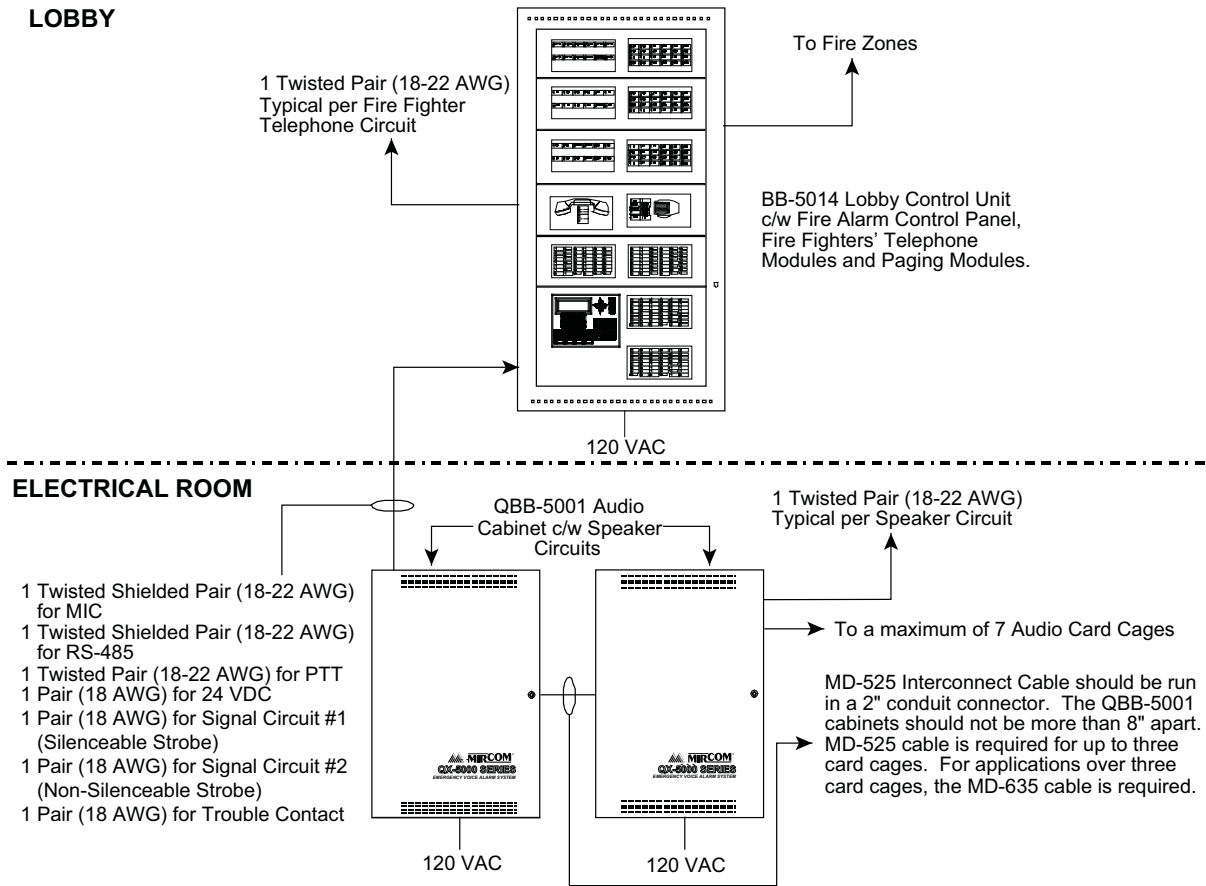


Addressable Firefighter Handsets Operation



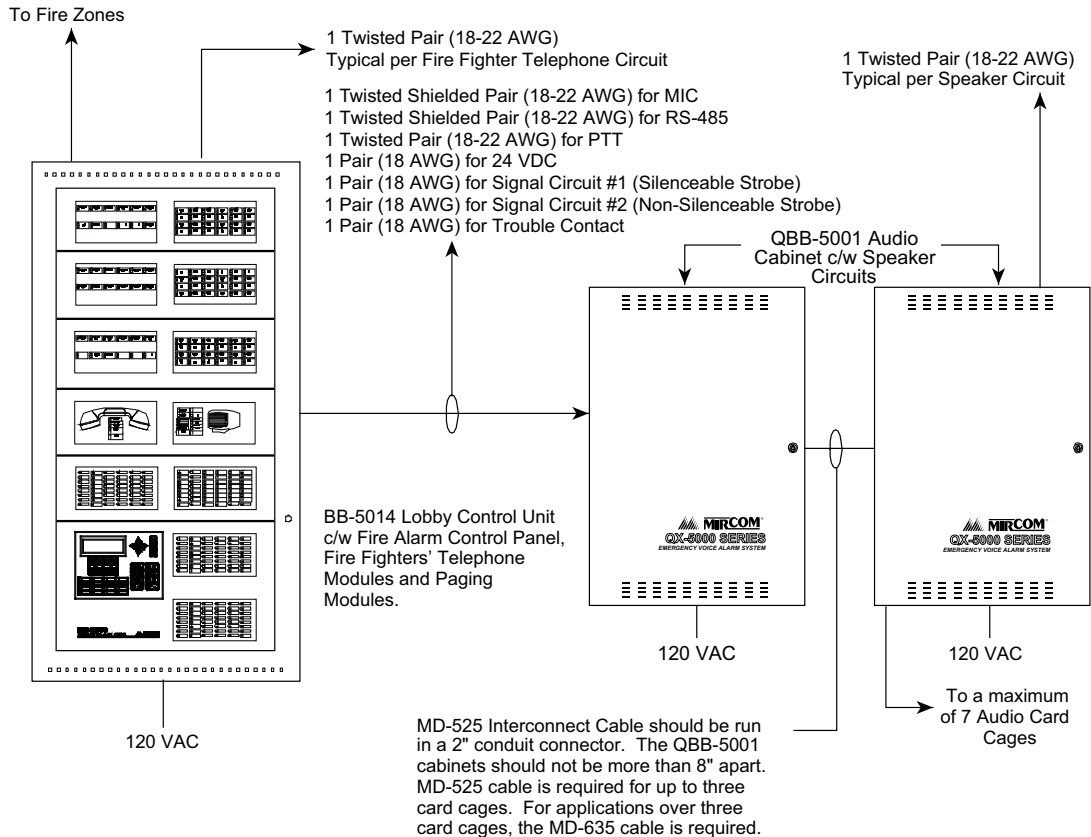
Typical System Layout #1

Lobby Control Unit is located in the lobby while the Audio Panel is located in the electrical room.



Typical System Layout #2

All units are located in the lobby or fire command centre.



Ordering Information

Model Description

Emergency Audio Control Panel

QMB-5000B	Audio Motherboard & Card Cage (Supports one QIF-5000B Interface Board and 7 QAA style Audio Amplifiers)
QIF-5000B	Audio/Fire Alarm System Interface Card
QIF-1000	Audio Interconnection Module (QIF to QIF)
QIF-2000	Programmable Amplifier Interface Module
QPS-5000	Audio Power Supply
QBC-5000B	Audio Battery Charger
QAA-5415-70	70 Volt Quad 15 Watt Amplifier
QAA-5415-25	25 Volt Quad 15 Watt Amplifier
QAA-4CLA	Class 'A' (Style 'Z') Converter Module for QAA-5415-25 and QAA-5415-70 Amplifiers
QAA-5230S-70/25	25 or 70 Volt Dual 30 Watt Amplifier split 'A' 'B' circuits per floor
QAA-5230S-525-70/25	25 or 70 Volt Dual 30 Watt Amplifier split 'A' 'B' circuits per floor
QAA-4CLAS	Class 'A' (Style 'Z') Converter Module for QAA-5230S-70/25 and QAA-5230S-525-70/25 Amplifiers
QAA-5230-70/25	25 or 70 Volt Dual 30 Watt Amplifier
QAA-5160-70/25	25 or 70 Volt 60 Watt Amplifier
QBB-5001	Audio Backbox Enclosure
QBB-5001TR	Flush Trim Ring for QBB-5001 Audio Backbox
QRM-1001	QX-5000 Series Bell Cut Relay
MD-525	Interconnection cable (One required for each additional Audio Motherboard and Card Cage up to three cabinets.)
MD-635	Interconnection cable (One required for each additional Audio Motherboard and Card Cage over three.)

Digitized Voice Components

QDV-1000	Digitized Voice Module
QDV-0001	Digitized Voice Chip
QDVP-100	Digitized Voice Programming Tool

Zoned Paging Control

QMP-5100B	Master Paging Control Module c/w paging microphone and common control functions. Mounts in BB-1000 Series Enclosures.
QMP-5101B	Master Paging Control Module c/w paging microphone and common control functions. Mounts in BB-5000 Series Enclosures.
QZP-5101	Zoned Paging Selector Panel c/w 24 zone selector switches, 24 selector LEDs (Green) and 24 trouble LEDs (Amber). Mounts in BB-1000 or BB-5000 Series Enclosures.
QMP-5100AX	Master Paging Control Module (No Paging Microphone)
QMP-5100MSB	Microphone Splitter Board

Zoned Firefighters' Telephone Control

QMT-5300A	Master Firefighters' Telephone Control Module c/w master handset and common control functions. Mounts in BB-1000 Series Enclosures.
QMT-5302	Master Firefighters' Telephone Control Module c/w master handset and common control functions. Mounts in BB-5000 Series Enclosures.
QZT-5302	Zoned Firefighters' Telephone Selector Panel c/w 12 zone selector switches, 12 zone Call-In LEDs 12 zone trouble LEDs and 12 Class A/B (Style Z/Y) telephone circuits. Mounts in BB-1000 or BB-5000 Enclosures.
QAMT-5300	Master Firefighters' Telephone Addressable Control Module
QAMT-5302	Master Firefighters' Telephone Addressable Control Module
QAZT-5302	Addressable Zoned Firefighters' Telephone Selector Panel
MIX-M500FP	Addressable Firephone Control Module

Zoned Paging & Firefighters' Telephone Module Enclosures

BB-1001	Semi-Flush Backbox (Houses 1 module)
BB-1002	Semi-Flush Backbox (Houses 2 modules)
BB-1003	Semi-Flush Backbox (Houses 3 modules)
BB-1008	Semi-Flush Backbox (Houses 8 modules)
BB-1012	Semi-Flush Backbox (Houses 12 modules)
MCH-001	BB-1000 Blank Panel Insert
BB-5014	Lobby Control Centre Wallbox Enclosure (Supports 14 module foot prints)
DOX-5014M	Painted Beige Metal Door for BB-5014
CCH-5014	Custom Mounting Kit for BB-5014 (One required for each BB-5014)
BB-5008	Lobby Control Centre Wallbox Enclosure (Supports 8 module foot prints)
DOX-5008M	Painted Beige Metal Door for BB-5008
CCH-5008	Custom Mounting Kit for BB-5008 (One required for each BB-5008)

NOT TO BE USED FOR INSTALLATION PURPOSES.



Canada

25 Interchange Way
Vaughan, Ontario L4K 5W3
Telephone: (905) 660-4655
Fax: (905) 660-4113

U.S.A.

4575 Witmer Industrial Estates
Niagara Falls, NY 14305
Toll Free: (888) 660-4655
Fax Toll Free: (888) 660-4113

Distributed by:

Web page: <http://www.mircom.com> Email: mail@mircom.com

ISO 9001:2008
REGISTERED



CAT. 5800
Rev. 6