

QX-5000 Series Emergency Voice Alarm System



Installation and Operation Manual

LT-616 Rev. 16.1 August 2021

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Part 1: Introduction & Typical System Layouts

Introduction

About this Manual

This installation and operation manual provides information on installing the QX-5000 Series Emergency Zoned & Firefighters' Telephone System.

About the QX-5000

Mircom's QX-5000 Emergency Zoned Audio & Firefighters' Telephone System is a zoned emergency multi-channel audio system (single channel per CAN ULCS527-11), providing emergency paging and fire evacuation, and optional firefighters' telephone communication to and from the central lobby location to all remote telephone handsets. The system consists of an audio cabinet (usually intended for electrical room installation) which contains a motherboard and card cage which holds up to 7 amplifiers and interface board. The system also includes a audio power supply, battery charger and batteries all housed in an audio backbox enclosure.

For communication and annunciation there is a microphone for paging, a paging selector panel, firefighters' telephone and associated selector panels all housed in a lobby enclosure. The paging and telephone modules are usually intended for installation in a central lobby.

Note that the paging and firefighters' telephone may be used together or independently, connected to a Fire Alarm Control Panel.

Overall Features:

- UL and ULC listed
- Supervises signal circuits while in use
- · Control of fire management operations (e.g. all-call paging and total evacuation signalling)
- · Indications of all required fault conditions
- Microprocessor-based operations with hardware and software watchdog timer to ensure reliable system operation
- · Supervised tone generators
- · Up to 144 audio zones with paging controls, or 72 audio zones with both paging & evacuation controls
- Up to 60 firefighters' telephone zones
- Easy configuration process
- · Operates from 24 VDC backup batteries in the event of a power failure
- · Removable terminal blocks for ease of installation and maintenance
- · Speaker circuits integrated with amplifier circuits
- Multiple amplifier sizes (up to 7 per audio cabinet, MAXIMUM 360 Watts per cabinet)
- · Optional redundant backup amplifier
- Multiple audio cabinets may be interconnected (up to a maximum of eight audio cabinets)

Technical Support

For all technical support inquiries, please contact Mircom's Technical Support Department between 8 A.M. and 5 P.M. (EDT) Monday through Friday, excluding holidays.

Phone: 1-905-660-4655 Toll-Free Phone: 1-888-647-2665

E-mail: techsupport@mircom.com

Typical System Layouts For The QX-5000

The following figures show three typical applications for the QX-5000 system.

Figure 1: Typical QX-5000 Layout #1

Figure 1 below shows a typical QX-5000 system layout with the fire alarm and audio cabinet(s) in the electrical room and the fire alarm remote annunciation and QX-5000 paging and telephone modules in the lobby or fire control room.



Figure 2: Typical QX-5000 Layout #2

Figure 2 below shows the a typical QX-5000 system layout with the fire alarm, audio cabinet(s), paging and telephone modules all in the lobby or fire control room.



Figure 3: Typical QX-5000 Layout #3

Figure 3 below shows the a typical QX-5000 system layout with the fire alarm, audio cabinet(s), paging and telephone modules all in the lobby or fire control room.



Part 2: Audio Cabinet Installation, Wiring, and Setup

Mechanical Installation

Audio cabinets are mounted as shown in Figure 4 below. The QBB-5001 is the backbox and door. The QBB-5001TR is the flush trim. Install all cabinets and enclosures empty. Pull all required wiring in through the conduit holes provided (must be punched out). Do not mount the modules until mechanical installation is complete and all wires have been fed into the cabinets and enclosures.

Figure 4: Audio Cabinet Mechanical Installation



Notes:

- It is extremely important to connect the audio cabinets earth-ground point (chassis ground) to the earth ground (cold water pipe).
- The power supply mounts on the bottom left-hand corner of the backbox and the batteries are placed on the bottom to the right of the power supply. Conduits should be brought in only through the conduits provided at the bottom right hand corner of the cabinet.

Module Placement

The modules that mount into the audio cabinet include the QPS-5000 Power Supply, the QMB-5000B Motherboard, and the QBC-5000B Battery Charger. Module interconnects are shown in Figure 5, below. A QIF-5000B Interface Module is installed into Slot #1, as shown below, on the first audio cabinet. Field wiring to the paging module and the fire alarm control panel is done via this QIF-5000B Module.

Up to seven QAA-5230-70/25, QAA-5230S-70/25, QAA-5415-70, QAA-5415-25 and/or QAA-5160-70/25 Amplifier Modules may be installed into Slots #2 to #8 of the motherboard.





SECURE QPS-5000 POWER SUPPLY TO BACKBOX WITH LUG AND NUT PROVIDED.

Components on the modules should be facing left when inserting into motherboard. Set up interface module by setting rotary switches and setting jumpers on the QIF-5000B (see following section) and place in slot position one on the first audio cabinet. Field wiring to the paging module and the fire alarm control panel is done via this QIF-5000B module. Make sure connections for the power supply and battery charger are as shown above. Place all amplifier modules from left to right in slot positions two to eight. Connect cable MD-525 from the QMB-5000B Motherboard (connection marked OUT in the top left corner) to the next audio cabinet QMB-5000B Motherboard (connection marked IN) if another audio cabinet is used. Daisy chain all other audio motherboards used up to a total of seven; remember only one QIF-5000B Interface module is required.

Installing and Removing QIF-5000B Interface Module and Amplifier Modules



ATTENTION: Improper installation or excessive force will damage the motherboard and modules being installed or removed.

Installing the QIF-5000B Interface Module and QAA Amplifier Modules

- 1. Hold the module to be installed by the backplate edges. *Do not* handle, push or pull any of the components on the module (especially not the transformer) as this will damage those components.
- 2. Line up the module being installed with the two plastic runners on the card cage and slide the module back to the point where the module just about touches the pins on the QMB-5000B motherboard.
- 3. Make sure that the module is square with the motherboard.
- 4. Gently push the module forward to line up the module connector with the motherboard pins. Once you have a sense of feel that the module connector and the motherboard pins are properly lined up, place one thumb on the top edge of the backplate and the other thumb on the bottom of the backplate and carefully push the module in. You should hear a slight thud sound when the module is snapped into place.



Note: If the module connector is not properly lined up with the motherboard pins, or if excessive force is used, the pins on the motherboard can be damaged.

Removing the QIF-5000B Interface Module

- 1. Disconnect all cables connected to the module. *Do not* handle, push or pull any of the components on the module (especially not the transformer) as this will damage those components.
- 2. Place one finger of one hand to the top back edge of the backplate behind the card cage frame, and one finger of the other hand to the bottom edge of the backplate behind the card cage frame.
- 3. Carefully pull and rock the module forward until the module connector is disconnected from the motherboard pins.
- 4. Holding the module firmly by the backplate edges, slide the module forward and completely remove it from the card cage.

Removing the QAA Amplifier Modules

- 1. Disconnect all cables connected to the Module. *Do not* handle, push or pull any of the components on the module (especially not the transformer) as this will damage those components.
- 2. Place the forefinger of one hand on the top inside edge of the front heat sink (the heat sinks are the two long silver channel-like metal covers opposite the backplate) and the forefinger of the other hand on the bottom edge of the backplate behind the card cage frame.
- 3. Carefully pull and rock the module forward until the module connector is disconnected from the motherboard pins.
- 4. Holding the module firmly by the backplate edges, slide the module forward and completely remove it from the card cage.



ATTENTION: Power should be disconnected before removing and inserting module.

Multiple Cabinet Connections

When multiple audio cabinets are used in one installation, each has its own QPS-5000 Power Supply, QMB-5000B Motherboard, QBC-5000B Battery Charger, and batteries. Only the first audio cabinet requires a QIF-5000B Interface Module. A total of three audio cabinets may be used by simply interconnecting with Mircom MD-525 Extension Cables from the QMB-5000B "Out" Connector, to the "In" Connector on the next QMB-5000B.

QMB-5000B Motherboards #1, #2, and #3

Multiple QBB-5001 Audio Cabinets may be interconnected up to a total maximum of eight. The first QBB-5001 Audio Cabinet contains a QMB-5000B Motherboard #1 which contains the only QIF-5000B required when interconnecting multiple QBB-5001 Audio Cabinets. The next two QBB-5001 Audio Cabinets contain QMB-5000B Motherboards #2 and #3 which are connected with the regular ribbon cable MD-525. The MD-525 cable is connected to the output connector on motherboard #1 to the input connector on motherboard #2.

Another MD-525 cable is connected from the output connector on motherboard #2 to the input connector on motherboard #3 (see Figure 6 and Figure 7 for details).

When Connecting Extra QMB-5000B Motherboards #4 and up:

The first MD-525 ribbon cable is connected between Motherboards #3 and #4, and the rest of the other MD-525 cables between subsequent motherboards. The first MD-525 ribbon cable is connected from the Output connector on Motherboard #3 to the Input connector on Motherboard #4. The next MD-525 ribbon cable is connected from the Output connected from the Output connector on Motherboard #4 to the Input connector on Motherboard #5, and so on.

From the TS1 terminal block of Motherboard #4, one 18 awg wire is connected to the J3 connector on the QIF-5000B of Motherboard #1. The sequence and order of connecting to the J3 connector has to be Pin#5 for Motherboard #4, Pin#4 for Motherboard #5, Pin#3 for Motherboard #6, Pin#2 for Motherboard #7, and Pin#1 for Motherboard #8. The 8 pin standard molex connector is used to minimize the possibility of connection errors. The molex connector will allow an easy installation by simply aligning the connector with the top of the QIF-5000B slot connector on the motherboard. Please note that a misalignment of the molex connector should not cause any damage, as voltages on top of QIF-5000B connector are low and the driver on the QIF-5000B is well protected. However, a bad connection may be difficult to troubleshoot.



Note: Jumpers JW1 are removed from all Motherboards #4 to 8.



Figure 6: Interconnecting Extra QMB Motherboards

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Notes:

- Jumper JW1 (located in the bottom left-hand corner of the backplane) is installed for cabinets #1 to 3 and removed for cabinets #4 to 8.
- Terminal block TS1 is used for motherboards 4 and beyond (up to 8 total). The two terminals represent the same electrical point, so either one may be used.

QIF-5000B Controls and Settings

Figure 7: QIF-5000B Controls and Settings

Jumpers

JP1, JP2: Not used, leave open.

JP3: Leave jumper on terminals 1-2 as per factory setting if connecting to a Mircom fire alarm control panel. If connecting to other than a Mircom fire alarm control panel, move JP3 jumper to terminals 2 & 3 position to eliminate the internal 3.9K Ohm ELR.

JP5: Configuration jumper; normally jumpered between 2-3. Move jumper to pins 1 and 2 for configuration downloading.

J1, J2: Terminals for QMP-5100B or QMP-5101B wiring.

J3, J4, J5: Terminals for fire alarm wiring.

J6: Connection to drive external QRM-1001 Bell Cut Relay.

J8: Connects to QDV-1000 Digitized Voice Module if used.

J9: Connects to RS-485IMA for configuration downloading.

J11: Used to connect to a QIF-1000 or QIF-2000 (see QIF-1000/2000 documents for further instructions).



CONNECTIONS TO FIRE ALARM CONTROL PANEL

Place all amplifier modules from left to right in slot positions two to eight. Components on the modules should be facing left when inserting into motherboard. Set up interface module by setting DIP switches and setting jumpers on the QIF-5000B (see following section) and place in slot position 1 on the first audio cabinet. Field wiring to the paging module and the fire alarm control panel is done with this QIF-5000B module. Make sure connections for the power supply and battery charger are as shown in Figure 5. Connect cable MD-525 from the QMB-5000B Motherboard (connection marked OUT in the top left corner) to next audio cabinet QMB-5000B Motherboard (connection marked IN) if another audio cabinet is used. Daisy chain in this manner all other audio motherboards used up to a total of seven; remember only one QIF-5000B is required.

QIF-5000B Wiring

The QIF-5000B Interface Module wiring to the fire alarm control panel is shown in Figure 8 below.

Note: The Internal 3.9K Ohm ELR's on J3, J4, and J5 may not be compatible with other manufacturers' control units. Consult Mircom when connecting control units other than those manufactured by Mircom.

Figure 8: QIF-5000B Wiring



The QIF-5000B wiring to the QMP-5100B and QMP-5101B Paging Master is shown in Figure 28.

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Fire Alarm Connection

The interface between the QX-5000 and the fire alarm control panel is via three to five wire-pair connections. These include:

Signal Wiring (X2)

Two fire alarm control panel indicating / signalling circuits are connected as previously shown. Both are configured as strobe (non-coded) signal circuits. One is configured as silenceable and the other as non-silenceable. this gives complete alarm condition status to the QX-5000. If both are activated after having been off, there is a first alarm in the system; this tells the QX-5000 to start its one minute inhibit if it is enabled. If the silenceable signal is deenergized, then there is a signal silence condition. If the silenceable signal is re-energized then there has been a subsequent alarm. If both signals are de-energized, the fire alarm has been reset.

Trouble Contacts

The QIF-5000B provides a trouble contact. This presents a 3.9K, 1/2W end-of-line resistor when there are no QX-5000 troubles, and an open-circuit if there are troubles. This is connected to an initiating circuit on the fire alarm control panel that is configured as a trouble-only circuit.

GA Contact

Used only with a two-stage system (described below).

Bell Cut Relay

Used only if audible devices (bells and horns) are installed on the main fire alarm panel; described in QRM-1001 Bell Cut Instructions.



Note: The supervision of the QIF-5000B trouble contacts, silenceable signal & non-silenceable signal wiring is performed by the fire alarm, while the supervision of the general alarm contact wiring is performed by the QIF-5000B.

One & Two Stage Operation

The QX-5000 is capable of operating with both one and two-stage fire alarm control panels. This is enabled via the QIF-5000B's general alarm contact input (see previous page). This input is DC supervised by the QIF-5000B via a 3.9K, 1/2W end-of-line resistor. It is wired as follows:

Single Stage System

The QIF-5000B GA contact terminals are permanently shorted be a length of 22 AWG wire. This forces the QX-5000 to always produce evacuation tones during an alarm condition.

Two Stage System

The QIF-5000B GA contact terminals are connected to a common alarm relay contact on the fire alarm control panel with a Mircom MP-300 ELR. The fire alarm must be configured so that the common alarm relay is only activated when in second-stage evacuation mode. If the fire alarm cannot support this operation, then it cannot be used with the QX-5000 in a two stage operation.

Bell Cut Operation

The bell cut operation is available when both QX-5000 speaker zones and fire alarm audible signal zones (bells or horns) are used. This option requires that the fire alarm control panel supports a bell cut initiating circuit. This is a supervised input which, when shorted, disables all audible signals. The optional QRM-1001 Bell Cut Relay Module is installed into the QX-5000 Audio Cabinet, plugged into J6 on the QIF-5000B using cable assembly MD-622. This module is wired as shown in the LT-647 QRM-1001 Instruction sheet that is provided with the QRM-1001.

When the system is operating in alarm and is non-silenced and the operator pages from the QMP-5100B/5101 microphone, or warden pages, the QX-5000 activates the QRM-1001 relay sending the "bell-cut" signals to the fire alarm. The fire alarm will silence any audible signals for the duration of the paging.

Audio Amplifier Wiring

There are five types of amplifiers available:

Amplifier	Description
QAA-5230-70/25	Two 30 watt individually supervised speaker outputs, 70V or 25V
QAA-5230S-70/25	Four 15 watt supervised speaker outputs, 70V or 25V
QAA-5230S-525-70/25	Two 5 watt and tow 25 watt supervised speaker circuits, 70V or 25V
QAA-5415-70	Four 15 watt individually supervised speaker circuits, 70V
QAA-5415-25	Four 15 watt individually supervised speaker circuits, 25V
QAA-5160-70/25	One 60 watt supervised speaker circuit, 70V or 25V

QAA-5230-70/25 Amplifier Wiring

The QAA-5230-70/25 dual 30 watt amplifier is made up of two 30 watt supervised speaker outputs. Each circuit may be wired as Class A or Class B. Amplifier is set to 70V, if 25V is required, remove orange molex connector cable labelled MD-787 and replace with blue molex connector cable labelled MD-788.

Figure 9: QAA-5230-70/25 Wiring



Notes:

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- All circuits are power limited.
- Cut wire JW1 when using an isolator.
- There are two fuses on this board. Both are 4A fast blow.
- See speaker wiring chart for wire gauge selection.

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Figure 10: Using a Speaker Isolator

CUT WIRE JW1 WHEN USING A SPEAKER ISOLATOR



Note: When using a speaker isolator (SIS-204 or SISA-204 for use in Canada only), wire JW1 (top left-hand corner, component side) must be cut on the QAA-5230-70/25 and on the QAA-5160-70/25.

QAA-5230-70/25 AND QAA-5160-70/25 AMPLIFIERS

QAA-5230S-70/25 Amplifier Wiring

QAA-5230S-70/25 dual 30 watt amplifier has two 30 watt amplifiers. Each amplifier has two Class B 15 watt supervised speaker circuits. Each circuit is wired to provide two separate speaker zones on the same floor. Amplifier is set to 70V, if 25V is required, remove orange molex connector cable labelled MD-787 and replace with blue molex connector cable labelled MD-788.





Notes:

- All circuits are power limited.
- There are six fuses on this board. Two are 8A fast blow and four are 1/2A fast blow for the 70V version and two are 8A fast blow and four are 1.25 A fast blow for the 25V
- See speaker wiring chart for wire gauge selection.

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QAA-5230S-525-70/25

QAA-5230S-525-70/25 amplifier has two 5 watt and two 25 watt speakers circuits, 70V or 25V. Each amplifier has two Class B 5 watt and two Class B 25 watt supervised speaker circuits. Each circuit is wired to provide two separate speaker zones on the same floor.

Figure 12: QAA-5230S-525-70 Wiring





Notes:

- All circuits are power limited.
- There are six fuses on this board. Two are 8A fast blow, two 0.63A fast blow and two 0.3A fast blow for the 70V version. Two are 8A fast blow, two 1.5A fast blow and two 0.75A fast blow for the 25V version.
- See speaker wiring chart for wire gauge selection.

QAA-5415-70 and QAA-5415-25 Amplifier Wiring

QAA-5415-70 quad 15 watt amplifier has four 15 watt amplifiers. Each amplifier has one Class B 15 watt supervised speaker circuit. Each circuit is wired such as to provide one separate speaker zone. The QAA-5415-70 may be wired as Class A by using a QAA-4CLA Class A converter, see Figure 15. The QAA-5415-25 is the same quad amplifier as the QAA-5415 but instead of 70 Volts it is 25 Volts.

Figure 13: QAA 5415-70 or QAA-5415-25 Wiring



- All circuits are power limited.
- There are four 3A fast blow fuses on this board.
- See speaker wiring chart for wire gauge selection.

Figure 14: Using a Speaker Isolator

QAA-5415-70/25 AMPLIFIER





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Figure 15: QAA-4CLA Class A Converter For QAA-5415-70/25 Amplifier



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NOTES: 1. TO WIRE QAA-4C

1. TO WIRE QAA-4CLA, REMOVE TERMINAL FROM QAA-5415-70/25 AMPLIFIER CONNECT TO QAA-4CLA AND SCREW DOWN. WIRE THE FOUR CLASS A CIRCUITS TO THE 16 TERMINALS AS SHOWN IN DIAGRAM AT RIGHT.

2. ALL CIRCUITS ARE POWER LIMITED

3. 15 WATTS MAX. PER ZONE

Figure 16: QAA-4CLAS Class A Converter For QAA-5230S-70/25 and QAA-5230S-525-70/25 Amplifiers





NOTES:

- QAA-5230S-70/25 or QAA-5230S-525-70/25 AMPLIFIER, TO WIRE QAA-4CLAS, REMOVE TERMINAL FROM WIRE THE FOUR CLASS A CIRCUITS TO THE 16 TERMINALS AS SHOWN IN DIAGRAM AT RIGHT. CONNECT TO QAA-4CLAS AND SCREW DOWN. . -
 - ALL CIRCUITS ARE POWER LIMITED. ы 10 10
 - 5 WATTS MAX. PER ZONE.

QAA-5160-70/25

This amplifier provides one 60 Watt supervised speaker circuit either 70 Volts or 25 Volts which may be wired Class A or Class B.



Note: When using this amplifier as a backup amplifier, the molex connector MD-789 must be added (see the following section on the backup amplifier for more information). When using a speaker isolator (SIS-204 or SISA-204 for use in Canada only), jumper JP1 (top left-hand corner, component side) must be cut on the QAA-5160-70/25 board (for details, see Figure 14).

Figure 17: QAA-5160-70/25 Wiring





Notes:

- All circuits are power limited.
- There are two fuses on this board. Both are 8A fast blow.
- See speaker wiring chart for wire gauge selection.

Total Power	Maximum Wiring Run To Last Device (ELR)									
	18AWG		16AWG		14AWG		12AWG			
Watts	ft	m	ft	m	ft	m	ft	m		
15	2500	762	4000	1219	6000	1828	8000	2438		
30	1500	457	2500	762	4000	1219	6000	1828		
60	750	228	1200	365	2000	609	3500	1066		

Table 1: Wiring Chart for 70V Speakers



Notes for Wiring Charts:

- 1. For each speaker zone, select the total zone power.
- 2. Distance shown is calculated to the last speaker, based on the worst case with all speakers lumped at the end.
- 3. Calculation is based on a 1db power loss (20%) and a source of 70V or 25V.

Table 2: Wiring Chart for 25V Speakers

Total Power	Maximum Wiring Run To Last Device (ELR)									
	18AWG		16AWG		14AWG		12AWG			
Watts	ft	m	ft	m	ft	m	ft	m		
15	625	190	1000	305	1500	457	2000	609		
30	375	114	625	191	1000	305	1500	457		
60	187	57	300	91	500	152	875	267		

Backup Amplifier

One QAA-5160-70/25 Amplifier may be designated as a backup amplifier when backup is required. It may be installed in any audio cabinet and any slot position in a QX-5000 system.

Figure 18: QAA-5160-70/25 Amplifier (Backup Application)

Only the QAA-5160-70/25 may be designated as the backup amplifier and the MD-789 molex connector must be placed in the bottom left-hand corner of the amplifier board. The QAA-5160-70/ 25 Backup Amplifier may be inserted into the motherboard. No connections are made to the backup amplifier's terminals except for end-of-line resistors which are to be placed directly on the terminals in the audio cabinet.

Once the QAA-5160-70/25 Backup Amplifier is installed, it must be properly configured. See the Audio Cabinet Configuration section for details.

The number of backup amplifiers is limited to one per system. Only the first failed amplifier gets the backup. For systems that use six to the maximum of eight audio cabinets, the backup should be placed in the middle box. The distance from the farthest audio cabinet to the middle audio cabinet (which has the backup amplifier) cannot be greater than four cable lengths (approximately 208 inches or 17 feet).



TERMINALS

Displays & Controls



Figure 19: Audio Cabinet Displays and Controls

QIF-5000B Displays

AC ON LED

Indicates that AC power is present. Illuminates steady green. Will flash in configuration mode.

Battery Trouble LED

Indicates battery trouble by steady amber.

Lobby / Mic Trouble LED

Indicates trouble with the QMP-5100B or QMP-5101B Master Paging Module by steady amber.

Comm Failure LED

Indicates trouble with the RS-485 Communications to the Paging Master, by steady amber.

Ground Fault LED

Indicates a QX-5000 system ground fault by steady amber.

Sig Gen Trouble LED

Indicates a QIF-5000B signal generator trouble by steady amber.

Fire Alarm Trouble LED

Indicates a trouble with the interface to the fire alarm by steady amber.

QIF-5000B Controls

Config - Set Button

Switches for configuring the system (for details see the Audio Cabinet Configuration section on page 30).

Config - Advance Button

Used during configuration (for details see the Audio Cabinet Configuration section on page 30).

Lamp Test Button

Momentarily activates all LED indicators in the audio cabinet.

Config - SW1

Switches used for configuring the system (for details see the Audio Cabinet Configuration section on page 30).

Config - SW2

Switches used for configuring the system (for details see the Audio Cabinet Configuration section on page 30).

QX-5000 System Reset

Performs a system reset on the QX-5000 (not the fire alarm).

Amplifier Displays

Page

The amplifier is connected to voice paging. Paging occurs on that particular amplifier zone.

Evac

The amplifier is connected to the evacuation tone.

Alert

The amplifier is connected to the alert tone.

Alert 2

The amplifier is connected to the alert tone 2.

Amp Trouble LED

Indicates an amplifier trouble by illuminating steady amber.

Zone Trouble LED

Indicates a zone field wiring trouble, by illuminating steady amber.



Notes:

- The QAA-5160-70/25 only has displays for "Amp-A", while the QAA-5230-70/25, QAA-5230-525-70 & QAA-5230S-70/25 has displays for both "Amp-A" & "Amp-B".
- Trouble on the QX-5000 is annunciated on the fire alarm as trouble on its "trouble-only" circuit, connected to the QX-5000 trouble contacts.

Setup

Module Installation

The following instructions are based on the assumption that the fire alarm is already installed.

- 1. Install the QBB-5001 Audio Backbox and door in the desired location.
- 2. Install the QMB-5000B Motherboard / Card-Cage into the backbox.
- 3. Install the QBC-5000B Battery Charger into the backbox. Connect its cable to J1 on the motherboard.
- 4. Install the QPS-5000 Power Supply into the backbox. Be careful: the QPS-5000 is very heavy.
- 5. Connect the heavy orange yellow orange wires from the motherboard to the power supply (see Figure 5 on page 10) being careful to match the wire colour to the labelling on the power supply.
- 6. Connect the un-powered 120 VAC line power and chassis ground to the power supply following the labelling. Ground the power supply to the box. *Do not apply AC power at this time.*
- 7. Install the two 12 VDC batteries into the backbox.
- 8. Connect the battery cables from the motherboard to the batteries as shown in Figure 5 on page 10, but do not connect the cable between the batteries at this time.
- 9. Install the QIF-5000B Audio Interface Module into the left-most slot (slot #1) in the motherboard. Plug in the desired amplifiers.

When plugging in these modules, the components are facing left. Slide the module in place and to avoid damage, making sure that the edge connector is properly mating with the header on the motherboard. Keep the module as straight and level as possible and use even pressure on the top and bottom. The module is connected properly after it snaps into place.



ATTENTION: Powering the QX- 5000 with incorrectly installed Modules will cause permanent damage.

- 10. Connect and check (for opens, shorts, and ground) all the amplifiers' field wiring.
- 11. Connect and check (for opens, shorts, and ground) the QMP-5100B or QMP-5101B to QIF-5000B field wiring.
- 12. Connect and check (for opens, shorts, and ground) the QIF-5000B to fire alarm field wiring.

Before Turning the Power "ON"...

The fire alarm and annunciator installation should be completed first. Temporary end-of-line resistors may be installed on the zones used to interface to the QX-5000. Be sure to reconnect to the QX-5000 when complete.

To prevent sparking, *do not* connect the batteries. Connect the batteries after powering the system from the main A.C. supply.

- 1. Check and secure all interconnection wiring cables.
- 2. Check and secure all interconnection wiring cables to the Fire Alarm Control Panel.
- 3. Check the A.C. power wiring for proper connection.
- 4. Check that the chassis is connected to earth ground (cold water pipe).

Configuration

The process of configuration maps the amplifier zones to the paging selector switches. After all of the audio cabinet(s) are installed, and modules are inserted and wired, remove the terminal blocks J1 & J2 at the top of the QIF-5000B to temporarily disconnect the QMP-5100B or QMP-5101B. If the fire alarm is connected and operating, it will indicate that the QX-5000 system is in trouble. This is normal during configuration.



Note: The term "amplifier" refers to a distinct amplifier; that is a QAA-5160-70/25 contains one 60 watt amplifier, and a QAA-5230S-70/25 contains two 30 watt amplifiers (two zones to map). Only one amplifier may be assigned to one paging selector switch. All paging selector switches are numbered from 01 to 99. For details see Paging Modules section.

- 1. Turn on the AC power to the QX-5000 Audio Cabinet. Do not connect batteries at this point. There will be troubles indicated; these may be ignored for now.
- 2. Move the Config Jumper JP5 on the QIF-5000B from the 2-3 position to the 1-2 position (moving it down).
- 3. Press the Audio System Reset button on the QIF-5000B, wait 30 seconds. Only the green AC On LED should be flashing at this point.

Figure 20: QIF-5000B Interface Module



CONNECTIONS TO FIRE ALARM CONTROL PANEL
Paging Selector Switch and Backup Amplifier Configuration

Press the Lamp Test button once. The green AC On LED should go on steady.

Repeat the steps below until all amplifiers are assigned to all the paging selector switches 1 to 99.

Set the Config Switches #1 & #2 to the desired paging selector switch (Config Switch 2 is the 10's, Config Switch #1 is the 1's; these are read bottom to top), numbered between "01" to "99".

If an amplifier has been previously assigned to that paging selector switch, its green Page LED will be on. To configure an amplifier (or a new amplifier) to that paging selector switch, press the Config - Advance button until the selected amplifier's green Page LED turns on. Pressing the Config - Set button will assign that amplifier to that paging selector switch. Any the previous amplifier assignment is deleted. The QIF-5000B green AC On LED will flash briefly to confirm the new assignment.

Configure The backup amplifier by setting the Config switches 1 and 2 to "00" and press the Config - Set button to confirm.

One Minute Inhibit Configuration

- 1. Press the Lamp Test button again, and the amber Lobby/Mic Trouble LED only should go on steady to select whether or not the one minute inhibit (after the first fire alarm) on paging is enabled.
- 2. Set config switches 1 and 2 (config switch 2 is the 10's, config switch 1 is the 1's; these are read bottom to top) to "00" to disable this feature, or "01" to enable this feature.
- 3. Press the Config Set button to confirm. The green AC On LED will flash briefly to confirm this selection.

Tone Configuration

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Note: For a QX-5000 used with a two-stage fire alarm control panel it is necessary to configure both the alert and evacuation tones.

Alert Tone Setting

- 1. Press the Lamp Test button again, and the amber Sig Gen LED only should illuminate steadily to select the desired alert tone.
- 2. Set the Config Switches #1 & #2 to the desired tone from the chart on the next page (Config Switch #2 is the 10's, Config Switch #1 is the 1's; these are read bottom to top).
- 3. Press the Config Set button to confirm selection. The green AC On LED will flash briefly to confirm this selection.

Evacuation Tone Setting

- 1. Press the Lamp Test button again, and both the amber Sig Gen LED and the amber Fire Alarm Trouble LED should go on steady to select the desired Evacuation Tone.
- 2. Set the Config Switches #1 & #2 to the desired Tone from the chart below (Config Switch #2 is the 10's, Config Switch #1 is the 1's; these are read bottom to top).
- 3. Press the Config Set button to confirm. The green AC On LED will flash briefly to confirm this selection.

Config Switch #2	Config Switch #1	Selected Tone
0	0	No Tone Generation (used with Bells)
0	1	20 strokes-per-minute 1000 Hz
0	2	120 strokes-per-minute 1000 Hz
0	3	Slow Whoop
0	4	20 strokes-per-minute Bell
0	5	120 strokes-per-minute Bell
0	6	Continuous Bell
0	7	Temporal Code 1000 Hz
0	8	Temporal Code Bell

- 4. Move the Config Jumper JP5 on the QIF-5000B from the 1-2 position to the 2-3 position (moving it up).
- 5. Remove the AC power and replace the terminal blocks J1 & J2 to the top of the QIF-5000B.

Power Up

- 1. Turn on the AC Power to the QX-5000 Audio Cabinet. Do not connect the batteries at this point. The system will indicate troubles; ignore these for now.
- 2. Turn on the AC power at the fire alarm control panel. Do not connect batteries at this point. The system will indicate troubles; ignore these for now (see the fire alarm control panel manual for details).
- 3. The QX-5000 Audio Cabinet's AC On LED should be illuminated steady green, and the Battery Trouble LED should be steady amber. The fire alarm initiating circuit used as a trouble-only circuit to the QX-5000's trouble contacts should indicate trouble.
- 4. Connect the QX-5000 and fire alarm control panel batteries, observing correct polarity: the red wire is positive (+) and the black wire is negative (-) (see the fire alarm control panel manual for details).

All trouble indicators should extinguish except for the normal power "A.C. ON" LED. See the *Displays & Controls* section on page 27 for an explanation of any remaining troubles.

Troubleshooting

Trouble	Description
Audio Zone Trouble	Normally when a zone trouble occurs, its designated trouble indicator will be ON steady. To correct the fault, check for wiring faults on that particular Zone loop.
Audio Amp Trouble	Indicates an internal fault on an amplifier.
QIF-5000B Troubles	These indicate either a faulty QIF-5000B, or a wiring fault between the QIF-5000B and either the fire alarm control panel or the QMP-5100B or QMP-5101B.
Lobby/Mic Trouble	May indicate a fault in the QMP-5100B or QMP-5101B. Check their LED indicators.
Ground Fault	The remote annunciator panel has its own common ground fault detector. This is independent of the fire alarm control panel. To correct the fault, check for any external wiring touching the chassis.
Battery Trouble	Check for the presence of batteries and their conditions. Low battery voltage (below 20.4V) will cause a battery trouble. Note that brand new batteries may take several hours to charge initially. If the battery trouble condition persists, replace batteries as soon as possible.

Verify the correct operation and check that the QMP-5100B or QMP-5101B zone operation matches the configuration.

Power Up & Troubleshooting

Part 3: Control Modules Installation, Wiring and Operation

Lobby Enclosures

The paging and telephone control modules fit into the Mircom BB-1000 series lobby enclosures, except the QMP-5101B and the QMT-5302, which mount only into a BB-5008 and BB-5014. All selector panels mount into all the BB-1000 series and the BB-5008 and BB-5014 enclosures. These semi-flush backboxes include the BB-1001 (houses only one module), the BB-1002 (houses two modules), and the BB-1003 (houses three modules).



Figure 21: BB-1000 Lobby Unit Enclosures



Note: It is extremely important that you connect one of each BB-1000 series backbox earth-ground points (chassis ground) to earth ground (cold water pipe).

Figure 22: BB-5008 and BB-5014 Enclosures

Below find the dimensions for the BB-5008 and BB-5014 enclosures. The QMP-5101B and QMT-5302 mount only into the BB-5008 and BB-5014 enclosures.



Notes:

- Material: 16GA (0.059") cold rolled steel.
- · Finish: painted.

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- Allow 4" gap between flanges of the backboxes when installing side by side.
- Door is not shown.
 - For aluminum door DOX-5014A, see LT-464. For aluminum door DOX-5008A, see LT-664.
 - For steel door DOX-5014M, see LT-645. For steel door DOX-5008M, see LT-665.

Installation

All Mircom lobby modules are the same size and mount into Mircom BB-1000 series of lobby enclosures (except for the QMP-5101B and QMT-5300A, which mount into the BB-5008 and the

BB-5014 Lobby Enclosures) with four hex screws provided with each module. The QMP-5100B and QMT-5300A Master Modules come with a metal & lexan cover insert that installs in place of the BB-1000 lexan window in the slot they will be installed. The figure below shows the general installation for Mircom BB-1000 Enclosures

Figure 23: BB-1002 Lobby Enclosure Installation.





Module Placement

Note that the placement of modules is as shown in the table below. Figure 24 below shows the placement of the paging & telephone modules.

		Firefighter's Telephone (up to six zone adders allowed)	Emergency Paging (up to five zone adders allowed)			
	Тор	QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
In large enclosure (contact factory)		QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
		QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
		QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
		QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
In BB-1000 Enclosure		QZT-5302 Zone Adder Module	QZP-5101 Zone Adder Module			
	Bottom	QMT-5300A Master Module	QMP-5100B Master Module			

Figure 24: Lobby Enclosure Module Placement



Firefighter's Telephone

For the firefighter's telephone, the QMT-5300A may be used alone for a single zone system. For a multi-zone system, the P1 ribbon cable on the first QZT-5302 Telephone Selector panel connects down to the P1 socket on the QMT-5300A. Each successive QZT-5302's P1 ribbon cable plugs down into the P2 connector on the previous QZT-5302. The QMT-5300A is also wired either directly to a fire alarm control panel if used alone, or to the emergency paging system's QMP-5100B if used together.

Emergency Paging System

For the emergency paging system, the P1 ribbon cable on the first QZP-5101 Paging Selector panel connects down to the P3 socket on the QMP-5100B. Each successive QZP-5101's P1 ribbon cable plugs down into the P2 connector on the previous QZP-5101.The QMP-5100B is also wired to the QIF-5000B in the audio cabinet, and to the QMT-5300A (if used).

Paging Modules

There are two microphone modules available. The QMP-5100B mounts into the BB-1000 series of backboxes. The QMP-5101B is mechanically different and the display is set up across the top of the module. Electrically they are the same. The QMP-5101B however mounts into the BB-5008 and BB-5014 only.

QMP-5100B Master Paging Module

The QMP-5100B Master Paging Module has a ribbon cable connection to the first QZP-5101 Zone Module, and wiring terminals for connection to the QIF-5000B Interface Module in the Audio Cabinet and to the QMT-5300A or QMT-5302 Telephone Master.

The two DIP Switches, SW1 & SW2 are for configuration. There are no field configurable jumpers or potentiometers to adjust; these should be left alone with their factory default settings. See also *Paging Operation* on page 46.

Figure 25: QMP-5100B Master Paging Module

]				
•	WARDEN PAGE ALL-CALL PAGE INHIBIT REMOTE FAILURE	DIGITIZED MESSAGES ALL-CALL MINUS COMMON TROUBLE A.C. ON		CROPHONE		•
	MIC TROUBLE MIC LEVEL	AMPLIFIER TROUBLE CIRCUIT TROUBLE LAMP		S.		
	ILDET	TEST				•
_	3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8					

QMP-5101B Master Paging Module

The QMP-5101B Master Paging Module connects via a ribbon cable to the first QZP-5101 Zone Module. It also has wiring terminals for connection to the QIF-5000B Interface Module in the audio cabinet and to the QMT-5300A or QMT-5302 Telephone Master.

The two DIP Switches SW1 & SW2 are used for configuration. Do not adjust the field configurable jumpers or potentiometer; these should be left with their factory default settings.

Figure 26: QMP-5101B Master Paging Module



Figure 27: QMP-5100B and QMP-5101B Master Paging Module Connections and Location of DIP switches and Terminal Blocks



CONNECTS TO QMT-5300A/5302 MASTER TELEPHONE

QZP-5101 Single Stage Operation

Each QZP-5101 annunciates and controls up to 24 audio zones. There is one button and two LEDs per zone. The lower amber LED indicates Zone trouble. The upper green LED indicates whether that zone is selected for voice paging via the master microphone.

Press the button to turn the selection for voice paging for that zone on and off.

QZP-5102 Two Stage Operation

The QZP-5102 is used for two-stage operation with alert and evacuation tones. Each QZP-5102 annunciates and controls up to 12 audio zones. There are one button and two LEDs per zone. The top green LED indicates whether that zone is selected for voice paging. The amber bottom LED indicates zone trouble. Press the button labelled Page to turn the selection for voice paging for that zone ON and OFF.

A special cable is required for connection to the fire alarm control panel, see installation sheet packed with the QZP-5102.

QZP-5103 Two Stage Operation

Each QZP-5103 annunciates and controls up to 12 audio zones. There are two buttons and three LEDs per zone. The middle amber LED beside the top button indicates zone trouble. The upper green LED by the top button indicates whether that zone is selected for voice paging. The bottom red LED by the button labelled EVAC for each zone indicates whether the evacuation tone is being sent to that zone.

Press the top button for each zone to turn the selection for voice paging for that zone on and off.

The bottom button (EVAC) for each zone turns the selection for evacuation on (latching) for that zone. It may be overridden by the paging, by selecting the page zone and pushing the microphone PTT (Push to Talk) button.

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QMP-5100B and QMP-5101B Paging Wiring

The wiring connection between the QMP-5100B or QMP-5101B Master Paging Module in lobby panel and the QIF-5000B Interface Module in the audio cabinet is shown below.





NOTE: WIRE OUTPUT FROM THE QIF-1000 (IF USED) TO AOUT INPUT TERMINALS ON THE QIF-5000B. REFER TO THE QIF-1000 INSTRUCTION SHEET FOR SPECIFIC TERMINALS.

The interface wiring between the QIF-5000B and the QMP-5100B or QMP-5101B are as follows:

MIC+, MIC-, SHLD:	18-22 AWG Twisted Shielded Pair
RS485+, RS485-, SHLD:	18-22 AWG Twisted Shielded Pair
PTT+, PTT-:	18-22 AWG Twisted Pair
24 VDC Power:	18 AWG

The maximum wiring run from the QIF-5000B to the QMP-5100B or QMP-5101B is 1000 feet or 305 metres. All RS-485 must be point-to-point from the QIF-5000B to the QMP-5100B or QMP-5101B. <u>No star-wiring or T-tapping is allowed.</u> The <u>120 ohm</u> <u>End-of Line Resistor</u> on the RS-485 Output terminals is removed on all except the last wired Module.

QMP-5100B and QMP-5101B Paging Configuration

As shown in previous figures, the QMP-5100B and QMP-5101B configuration DIP switches SW1 & SW2 are located on the bottom right corner of the module.

Note: "OFF" means the switch is in the OFF or open position, "ON" means it is in the ON or closed position.

	Function															
DIP Switch and Position		DIP	DIP SWITCHES SW1-1 TO SW1-4 ARE USED FOR MULTIPLE QMP-5100Bs, ADDRESSES 1 TO 15													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
	2	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON
	3	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON
	4	.OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON
DIP	5	For a	iutoma	tic All C	Call (wł	nen PT	T is pre	essed),	set to	ON, ot	therwis	e leave	e OFF.			
switch SW-1	6	Microphone Pre-Announce Tone:AS PER CAN ULCS527-11OFF = no tone, ON = tone presentTHIS DIP switch must be OFF														
	7	Master Telephone: OFF = not present, ON = present														
	8	Paging Selector Panel: Always OFF														
	1	Not u	ised, m	nust be	left OF	F.										
	2	Not u	ised, m	nust be	left OF	F.										
	3	3 Not used, must be left OFF.														
DIP	4	Not u	ised, m	nust be	left OF	F.										
SW-2	5	Not u	ised, m	nust be	left OF	FF.										
	6	Not u	ised, m	nust be	left OF	FF.										
	7	Not u	ised, m	nust be	left OF	FF.										
	8	Not u	Not used, must be left OFF.													

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Paging Operation

This section describes the controls and indicators on the QMP-5100B and QMP-5101B Master Paging and QZP-5101 Paging Selector Modules.

QMP-5100B

AC ON LED

This green LED illuminates steadily to Indicate that AC power is present.

QMP-5101B Displays

Common Trouble LED Flashes amber to indicate any QX-5000 trouble.

Mic Trouble LED

Flashes amber to indicate a microphone trouble.

Mic Level LED

Illuminates steady green to indicate the paging audio level.

Amplifier Trouble LED

Indicates any QX-5000 amplifier internal trouble.

Circuit Trouble LED

Indicates any QX-5000 amplifier field wiring trouble.

Remote Failure LED

Indicates an RS-485 communications failure.

Page Inhibit LED

Indicates that Mic or Warden Paging is inhibited.

All-Call

Illuminates steady green to indicate that the All-Call function is active. This LED will not function if the DIP switch SW1-5 is set to ON.

All-Call Minus

Illuminates steady green to indicate that the All-Call Minus function is active. This LED will not function if the DIP switch SW1-5 is set to ON.

Warden Page

Illuminates steady green to indicate that the Warden Page function is active.

QMP-5100B/QMP-5101B Controls

Reset Button

Performs a system reset on the QX-5000 (not the fire alarm).

Lamp Test Button

Momentarily activates all LED indicators.

All-Call Button

Selects all zones for voice paging. This button will not function if DIP switch SW1-5 Automatic All-Call is set to ON.

All-Call Minus Button

Inverts the selection of zones for voice paging. This button will not function if DIP switch SW1-5 Automatic All-Call is set to ON.

Microphone PTT Button

The microphone's PTT (push-to-talk) button, when depressed, causes voice paging (from the microphone) to be enabled to all zones selected for paging, unless page inhibit is active. Note that pressing PTT will not result in any paging activity unless there are zones selected for paging.

Warden Page Button

When depressed, the Warden Page button enables voice paging from the firefighters' telephone (if connected) to all zones selected for paging, unless page inhibit is active. Note that pressing PTT will not result in any paging activity unless there are zones selected for paging. Also note that there must be an active firefighters' telephone connection for warden paging to occur.

QZP-5101 Displays

Page LED

Illuminates green if the zone is selected for voice paging.

Evac LED (if enabled)

Alienates red if the zone is selected for evacuation.

Trouble LED

Flashes amber to indicate that the zone is in trouble.

QZP-5101 Switches

Page Button (if enabled)

Selects / deselects that zone for voice paging.

Evac Button

Selects only that zone for evacuation.

Telephone Modules

There are two master telephone modules available. Mechanically they look different, but electrically they are the same. The QMT-5300A mounts into the BB-1000 series of backboxes. The QMT-5302 is mechanically different in that the display set is located across the top of the module. The QMT-5302 mounts into the BB-5008 and BB-5014 only.

QMT-5300A Master Firefighters' Telephone

Mircom's QMT-5300A Master Firefighters' Telephone may be used either alone as a single zone system (using the QMT-5300A by itself), or as a multi-zoned system (with the QZT-5302 Zone Adder Modules). Two slide-in labels are supplied with the QMT-5300A: the NP-735 label is used for single zone (with connect label) and the NP-736 label is used for multi-zone (with clear all label). The QZT-5302 Telephone Selector panel includes blank labels for telephone zone information.

Figure 29: QMT-5300A Master Firefighters' Telephone



Only the QMT-5300A Master Telephone module requires power. It can be powered with a 24 VDC, 200 mA external DC power source (filtered or un-filtered, such as four-wire smoke or auxiliary power from a fire alarm control panel), or by connection to a QMP-5100B or QMP-5101B Paging Master (which in turn gets its power from the audio cabinet).

QMT-5302 Master Firefighters' Telephone

MIRCOM's QMT-5302 Master Fire Fighters' Telephone may be used either alone as a single zone system (using the QMT-5302 Master Telephone by itself), or as a multi-zoned system (with QZT-5302 Zone Selector Panels). NP-896 slide-in labels are supplied with the QMT-5302. For a single zone system use the Connect label and for a multi-zone system use the Clear All label. The QZT-5302 Telephone Selector panel includes blank labels for telephone zone information.



Figure 30: QMT-5302 Master Firefighters' Telephone

Only the QMT-5302 Master Telephone module requires power. It can be powered with a 24 VDC, 200 mA external DC power source (filtered or un-filtered, such as four-wire smoke or auxiliary power from a fire alarm control panel), or by connection to a QMP-5100B or QMP-5101B Paging Master (which in turn gets its power from the Audio Cabinet).



Note: For ADDRESSABLE telephone installation, refer to documents LT-931 Addressable Master Telephone and LT-952 Addressable Selector Panel documents which are packed with these units.

Figure 31: QMT-5300A and QMT-5302 Master Firefighters' Telephone Master Board

There are three jumpers on the QMT-5300A and QMT-5302 PCB at the top of the black chassis. For a single-zoned system, JW1 and JW2 have jumpers installed--JW3 does not. For a multi-zoned system with QZT-5302s, remove JW1 & JW2 jumpers and instal JW3. On the QMT-5300A and QMT-5302 Master Telephone board, P1 is used only for multi-zoned systems. P1 connects to the QZT-5302 Telephone Selector Panel.



QZT-5302 Telephone Zone Selector Panel

The QZT-5302 Telephone Zone Selector panel has the following operation:

Each QZT-5302 annunciates and controls up to 12 telephone zones. There is one button and two LEDs per zone. The lower amber LED indicates zone trouble. The upper green LED indicates whether that zone is selected for telephone communication.

Press the button to turn the selection for telephone communication for that zone on and off. There is one jumper, JW1, on each QZT-5302 Telephone Selector panel and a jumper is installed only on the last QZT-5302.



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Note: Add QZT-5302 Telephone Zone Selector Panels sequentially (up to six total) above the telephone master.

Telephone Module Wiring

If the QMT-5300A or QMT-5302 Master Telephone is used with a QMP-5100B or QMP-5101B Paging Master, interconnect them as shown in Figure 32, below. If the QMT-5300A or QMT-5302 is being used alone as a single-zone system, the NP-735 Label is used, and Jumpers are placed on JW1 and JW2 only. The one telephone zone connects to the TEL-CKT terminals. The 10 Kohm ELR resistor that is shipped with the unit is placed after the last remote telephone on the zone. If the Master telephone is being used as a multi-zoned system with QZT-5302s, the NP-736 Label is used, and a Jumper is placed on JW3 only. Telephone zone wiring is done via the QZT-5302s.

The interconnects should be in the same lobby enclosures, or else in adjacent enclosures side by side, connected via a short metal conduit.

Figure 32: QMT-5300A/QMT-5302 Telephone Master to QMP-5100B/QMP-5101B Paging Master Wiring



If the QMT-5300A or QMT-5302 Master Telephone is used with a direct connection to a fire alarm control panel, they are interconnected as shown in Figure 33 below. One of the fire alarm's detection zones should be configured as trouble-only to annunciate telephone trouble. This is connected to the master telephone trouble terminals (polarity does not matter), and the ELR device for that zone is connected to the QMT-5300A or QMT-5302 ELR terminals. DC power (24 V DC, filtered or unfiltered at 200 mA) is connected to the 24 V DC terminals. If the master telephone is being used alone as a single-zone system, the NP-735 Label is used, and jumpers are placed on JW1 and JW2 only. The one telephone zone connects to the TEL-CKT terminals. The 10 Kohm ELR resistor that is shipped with this unit is connected after the last remote telephone on the zone. If the master telephone is being used as a multi-zoned system with QZT-5302s, the NP-736 Label is used, and a jumper is placed on JW3 only. The TEL-CKT terminals are left as is. Telephone zone wiring is done via the QZT-5302s.

Figure 33: QMT-5300A or QMT-5302 Master Telephone to Fire Alarm Wiring



Connect the first QZT-5302 Telephone Selector panel to the master telephone (either QMT-5300A or QMT-5302) by connecting its P1 cable into P1 on the QMT-5300A/QMT-5302 Master Telephone. Plug in subsequent QZT-5302s' (up to six total) P1 cables into P2 of the previous QZT-5302. Remove the jumper plug from JW1 on each QZT-5302 except for the last one.

Figure 34: QZT-5302 Telephone Selector Board



Connect the telephone zones to telephone circuits marked Out, numbered from 1 to 12. For Class B wiring, move the 10K ohm ELR resistors that are shipped with the panel to the last remote telephone on each zone.

Note that on each QZT-5302, the associated buttons for telephone zones 1 to 12 are numbered left to right, where zones 1 to 6 are the top row, and 7 to 12 are the bottom row.

Figure 35: QZT-5302 Telephone Zone Adder Field Wiring



Telephone Operation

Single-Zone System

- 1. When the telephone rings (the local buzzer sounds intermittently, and the green Incoming Call LED flashes) press CONNECT to answer.
- 2. Press CONNECT again to hang up. (Note that the telephone zone will hang up automatically if all handsets on the zone are placed back on the hook.)
- 3. Press LAMP TEST to test all indicators.

Multi-Zone System

- 1. When any telephone zone rings (the local buzzer sounds intermittently, and the green zone LED and Incoming Call LED flash) press that zone's button once to answer. Once any one zone has been answered, calls from any other zone will cause that zone's green LED and the Incoming Call LED at the master telephone to flash, but the buzzer will not sound.
- 2. Press the answered zone's button once again to hang up. (Note that the telephone zone will hang up automatically if all handsets on the zone are placed back on the hook.)
- 3. Press CLEAR ALL to disconnect all zones.
- 4. Press LAMP TEST to test all indicators.

Indicators

QMT-5300A or QMT-5302

Common Tel. Trouble LED

This LED will flash amber if there is any zone or other trouble in the firefighters' telephone system.

Master Tel. Trouble LED

This LED will flash amber if the master telephone handset is disconnected.

Incoming Call LED

This LED will flash green if any telephone zone has a handset off-hook and unanswered. It will illuminate steady green if all telephone zones with off-hook handsets have been answered.

Buzzer

The buzzer will sound intermittently if one, and only one, telephone zone has a handset off-hook and unanswered.

QZT-5302

Telephone Zone Green LED

This LED will flash green if there is any handset off-hook on that zone, and the zone has not been answered by pressing the zone's button. Once answered, the LED will be steady green.

Telephone Zone Amber LED

This LED will flash amber to indicate trouble on open-circuit zone faults (e.g. missing end-of-line resistor or wire breaks) or short-circuit zone faults.

Part 4: QDV-1000 Digitized Voice Module and QDVP-100 Configurator for Digitized Voice

About the QDV-1000 and QDVP-1000

The QDV-1000 Digitized Voice Module provides digitized voice messaging for the QX-5000 Emergency Zone Audio & Firefighters' Telephone System. The QDVP -100 Configurator provides a means of programming voice messages for the QDV-1000 Digitized Voice Module.

The procedure for digitized voice messaging is to first program the QDV-0001 chips with the voice messages required for the installation using the QDVP-100 Configurator. Next mount the QDV-1000 into the Audio Backbox. Then configure the QIF-5000B module and follow with Audio Cabinet Configuration as stated on page 30.

Programming the QDV-0001 Integrated Circuit Chips with Voice Messaging

You may skip this step if the chips have been programmed at the factory for you.

To program the QDV-0001 chips, place the chips required into their proper sockets in the QDV-1000 board and then connect this board to a QDVP-100 Configurator. The QDVP-100 is connected to a laptop or personnel computer. The computer is use to download any messages that are to be played at the installation.

Pre-installation Inspections

- 1. Verify that jumpers JP1 and JP2 on the QDV-1000 are over pins 2 and 3 for both, that is the jumpers are in the left-most positions for both. In case that the 'Manual Message' option is used, move JP2 over to pins 1 and 2, which is the right-most position instead.
- 2. Locate the **J8 header** on the QIF-5000B module; remove all jumper headers if any.
- 3. For a single stage system with voice recording to be played on the Evacuation channel 2, install the **QDV-0001** integrated circuit chip into socket U3 (this is the standard operation set up).
- 4. For voice recording to be played on the Alert channel 3, install a QDV-0001 integrated circuit chip socket into U4.
- 5. For voice recording to be played on the Alert2 channel 4, install a QDV-0001 integrated circuit chip into socket U5.

Figure 36: QDV-1000 Digitized Voice Board



QDV-1000 Voice Message Recording Procedure

Required Equipment

- · Personal Computer with sound card.
- Audio cable with mini stereo plug at both ends (to plug into the computer and the stereo jack of the QDVP-100.
- Wire to 24V D.C. power supply such as Filtered smoke detector supply voltage at the Fire Alarm Panel or
- 24V DC transformer with power cord with 2 pin plug OR 2 wires to be connected to the QDVP-100 Configurator power supply pins (remove terminal block) or terminal block.
- QDVP-100 Configurator.
- Small 8 ohm speaker (optional).

Required Software

- Any of the following software: Real Player, Windows Media Player or Windows Sound Recorder.
- The sound clip files to be recorded.

Figure 37: QDVP-100 CONFIGURATOR

Setting Up the QDVP-100

- Plug one end of the audio cable into the audio input of QDVP-100 Configurator, refer to diagram.
- 2. Plug the other end of the audio cable to the audio out or speaker out of the personal computer.
- Connect the DC 24V power supply to terminals marked +24V DC of the QDVP-100 Configurator, see diagram at right.
- 4. Connect the optional speaker to terminals marked Speaker + and on the **QDVP-100 Configurator**, see diagram.
- Verify that the ribbon cable at J2 on the QDV-1000 module is not connected to QIF-5000B at this time.
- 6. Plug the ribbon cable from the **QDVP-100** to **J1 of the QDV-1000.**
- 7. Setting up the computer for recording:
- 8. On the computer, launch one of the wave player software programs and load the message file to be recorded. Play the message and listen to the play back through the speaker. Adjust the volume level if required.

Setting up QDV-1000 for recording

- 1. Insert the QDV-0001 Integrated Circuit (IC) into the appropriate IC socket.
 - U3: Evacuation.
 - U4: Alert.
 - U5: Alert2 (Manual).
 - U6 is not used.

Turn ON the DC 24V power supply. Wait approximately 20 seconds, the two digit display of **QDVP-100** will turn ON.

- 2. Press the CHAN button on the QDVP-100 to select the channel on which the message is to be recorded.
- 3. Channel 1: Paging. This channel is not used.



- 4. Channel 2: Evacuation. Shown as H2 on the two digit display.
- 5. Channel 3: Alert. Shown as H3 on the two digit display.
- 6. Channel 4: Alert2 (Manual channel). Shown as H4 on the two digit display.



Note: The display will flash between H# and ##, where ## is the number of messages that have been previously recorded.

- 7. To record a new message, press the NEW button on the **QDVP-100**, the display should show n# and ## alternatively, where # is the channel number and ## the new message number.
- 8. Press the REC button on the **QDVP-100** to start recording and play the message from the computer. Press the STOP to end the recording.
- To play back the recorded messages, select the channel by pressing the CHANNEL button, press MESSAGE to select the message and then press the PLAY button. The play will end automatically at the end of the message.
- 10. To erase a message, select the channel and message and press ERASE. The display will show E#, press the ERASE one more time to confirm the deletion.
- 11. Once the messages have been recorded, the **QDV-1000** should be disconnected from the **QDVP-100 Configurator** and mounted into the audio backbox as follows.

QDV-1000 Hardware Installation

- The QDV-1000 module comes already mounted onto a CH-559 metal plate. The CH-559 mounts onto the QBC-5000B battery charger cover located above the amplifiers in the audio cabinet of the QX-5000 Audio system. The QBC-5000B cover must be removed and the QDV-1000 and its plate is mounted onto the QBC-5000B cover with the four 4-40 ¼" screws provided for the purpose. The whole assembly is then mounted back into the audio cabinet over the battery charger.
- 2. Locate the J8 header on the QIF-5000B. Align the key on the ribbon cable header from QDV-1000 (J2) with the opening of the J8 and plug the cable into the shrouded header.
- 3. For installations that require manually operated messages or a pre-announce tone to be played from the QDV-1000, connect a wire from terminal TS1-1 on the QDV-1000 TS1 to QIF-5000B J4 terminal 1. Also connect terminal TS1-2 on the QDV-1000 to QIF-5000B J4 terminal 2.
- 4. For single stage alarm system, place a 22 gauge shorting wire on pins 1 and 2 (of J5) on the QIF-5000B. For a second stage system add a 3.9K ohm resistor between pins 1 and 2 (of J5) on the QIF-5000B.



CONNECTIONS TO QMP-5100B OR QMP-5101B MASTER PAGING MODULE

QIF-5000B Configuration Download Procedure

- 1. Remove the connections J1 and J2 to the paging module (QMP-5100B or QMP-5101) on the QIF-5000B board.
- Move the CONFIG jumper, JP5 on the QIF-5000B board to the program enable position between pins 1 and 2. Press the QX-5000 System Reset button on the QIF-5000B, located just below the CONFIG jumper. Wait until the green A.C. ON LED starts flashing.
- 3. Connect the RS-485 IMA to the computer's COM Port. Connect the ribbon cable end to J9 of the QIF-5000B.
- 4. Launch application, 'Audio Configuration Utility' from the P.C.
- 5. Proceed with Audio Cabinet Configuration (zone mapping) according to the QX-5000 installation manual and Audio Configuration Utility Manual (Document # LT-9028).
- 6. Follow section 'QDV-1000 Configuration' in LT-9028 to configure the QDV-1000 settings.
- 7. From the main system window, under the 'System' pane, verified that the option 'QDV Installed: Yes' is present.
- 8. Once all elements of the audio system have been configured. From the tool bar, hit the 'send' button to send the configuration to the QIF-5000B.
- 9. Noted that the 'AC On' green LED stop flashing and then turns back on solidly, this indicates that the configuration has been send successfully.
- 10. Replace jumper JP5 back to its normal position.

New Feature for QX-5000 system with QDV-1000 and Silenceable speaker option

There is a new feature in the QX-5000 audio system to play the 'Pre-announce Tone' preceding the alarm signal. That is to re-sound any previously silenced speakers. To enable the QX-5000 system for this feature, the 'Alert 2' I.C. must be installed in U5 socket. The 'Pre-announce' tone is also required to be recorded onto the Alert 2 channel.

In the Audio Configuration Utility, under the 'System Configuration' > 'Advance Options' window, verify that the option box 'Disable alarm pre-tone' is not selected.



Configure the QDV-1000 Channel 4 as show in the diagram below. Also note that the 'Message' of 'Part 1' is the message number of the Pre-announce tone recorded in Alert2 I.C.

Properties of QDV Channe	el 04	×
Part 1 Message 1 ÷ Repeat 255 ÷	Part 2 Message 0 + Repeat 1 +	Part <u>3</u> Message 0 + Repeat 1 +
Repeat all 255 🛨		OK Cancel



Note: The **Fire Alarm Output Features** of the QX-5000 Audio System are only available on the QX-5000 that is directly connected to the fire alarm system and these **Fire Alarm Output Features** are not transmitted to the other QX-5000 Audio Systems through the QIF-1000.

The QIF-1000 Interface board enables All Call paging for multiple building applications using the QX-5000. Set **ALL** DIP switches of SW1 to the ON position for Master operation or set **ALL** DIP switches of SW1 OFF for slave operation of this interface board.

Figure 38: QIF-1000 Interface Board



Figure 39: Mounting the QIF-1000 Interface Module



The QIF-1000 Interface module comes already mounted onto a CH-559 Plate. The CH-559 mounts onto the QBC-5000B battery charger cover located above the amplifiers in the audio cabinet of the QX-5000 Audio system. The QBC-5000B must be removed and the QIF-1000, and its plate is mounted onto the QBC-5000B with four #4 screws behind the QBC-5000B cover. The whole assembly is then mounted back into the audio cabinet over the battery charger.



Figure 40: QIF-1000 Multiple Building Interconnection Diagram

Figure 41: Mounting QIF-2000 Interface Module

The QIF-2000 Interface module comes already mounted onto a CH-559 Plate. The CH-559 mounts onto the QBC-5000B battery charger cover located above the amplifiers in the audio cabinet of the QX-5000 Audio system. The QBC-5000B must be removed and the QIF-2000, and its plate is mounted onto the QBC-5000B with four #4 screws behind the QBC-5000B cover. The whole assembly is then mounted back into the audio cabinet over the battery charger.



Figure 42: QIF-2000 Interface Wiring Diagram

The QIF-2000 Interface module is used for complex mapping. Inputs 1 through 16 may be programmed via fire alarm relays to activate different zones with alert or evacuation tones. The mapping is configured at our factory.



Note: If the fire alarm panel is not nearby (beyond 24 ft from the QX-5000), the fire alarm panel must be addressable, FX-2000 and the use of an addressable relay module CR-6 must be used for the QIF-2000 Interface module.

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Figure 43: Wiring Diagram When Using A QIF-1000 And QIF-2000 With The QX-5000

Figure 44: Multiple QIF-2000 Wiring Diagram



Part 5: QMP-5100AX Master Paging Control Module and QMP-5100MSB Microphone Splitter Board

QIF-5000B Configuration Download Procedure

QMP-5100AX Master Paging Control Module (without microphone)

The QMP-5100AX is a paging control module without a microphone. This module is used for each building in a multiple building set up with one master paging microphone (QMP-5100B or QMP-5101 used with a QMP-5100MSB Microphone Splitter Board.) Maximum number of buildings is four.

The QMP-5100AX Microphone Panel and the QMP-5100MSB Microphone Splitter board are used in conjunction to provide complete microphone paging for another building(s) from a main panel. For example there is a fire alarm QX-5000 combination panel in a main building which also serves two other buildings. If paging from the main building to the other buildings is required, an QMP-5100AX and QMP-5100MSB are required. They are mounted at the main panel next to the standard microphone QMP-5100B/QMP-5101. Using the QMP-5100AX and QMP-5100MSB provides ALL CALL paging as well as individual zone paging, since these items are mounted next to the speaker zone selectors.

QMP-5100MSB Microphone Splitter Board

This splitter board allows the master paging microphone to have paging control of up to four buildings.

The QMP-5100AX Microphone Panel and the QMP-5100MSB Microphone Splitter board are assembled as one item. The QMP-5100AX Microphone Panel is mounted overtop the QMP-5100MSB Microphone Splitter board. Use the #6-32 locknuts to mount the assembly into BB-1003 backbox, then the QMP-5100AX and QMP-5100MSB boards must be separated and mounted as such (two mounting spaces are required).

Below is a diagram showing the interconnection required for multiple building and master paging from one building.

Figure 45: QMP-5100AX and QMP-5100MSB Interconnection Drawing



Part 6: Appendices

Appendix A: Specifications

ULC Specifications



Note: All circuits are power limited.

Overall

- · Zero to 49 degrees Celsius, 0 to 95% RH (non-condensing) operating range
- Power input: 120 VAC, 60Hz, 12A (primary)
- Power supply ratings: 30A, 40V (secondary)
- ULC requires use of Wuhan Sota Enertech Inc batteries

Model QIF-5000B Interface Module

- Two Class B Indicating circuits, one silenceable, one non-silenceable circuit connect to a fire alarm control
 panel
- · One trouble contact output to a fire alarm control panel
- One GA contact input from a fire alarm control panel to allow two-stage operation
- · One bell cut drive for an external bell cut relay to a fire alarm control panel
- · Fully supervised interface to QMP-5100B master paging module
- · Microcontroller based with full Watchdog Timer operation
- · One minute paging inhibit after the first alarm
- · Supervised pre-amplifier & tone generators
- · Lamp test
- 18-1/2" high, 5-1/4" deep
- Current consumption: standby: 200mA
 - alarm: 200mA

standby: 55mA

Model QPS-5000 & QBC-5000B Power Supply & Charger

- Primary input: 120 VAC, 60Hz, 12Amp
- · Charging for up to 65 AH of 24 VDC batteries
- · Float type charger

Model QMB-5000B Motherboard and Card Cage

 Accommodates one QIF-5000B, and up to 7 amplifiers (360 Watts MAX speaker load). Connections for QPS-5000, QBC-5000B, batteries, and expansion connection to another QMB-5000B

Model QAA-5160-70/25 Amplifier with one 70V or 25V, 60 Watt Zone

- 70.7Vrms or 25V constant voltage output
- One fully supervised Class "A" or "B" speaker zone
- · 60 watts per zone
- Freq. response +/-3dB from 400 to 4000Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption:

alarm: 350mA, plus 65mA/watt speaker power

Model QAA-5230-70/25 Amplifier with two 70V or 25V, 30 Watt Zones

- 70.7Vrms or 25V constant voltage output
- Two fully supervised Class "A" or "B" speaker zones
- 30 watts per Zone
- Freq. response +/-3dB from 400 to 4000 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA

alarm: 350mA, plus 65mA/watt speaker power

Model QAA-5230S-70/25 Amplifier with 2 split 70V or 25V, 30 Watt Zones

- 70.7Vrms or 25V constant voltage output
- · Four fully supervised Class "B" speaker zones, each pair split from one 30 watt amplifier
- 30 watts per zone
- Freq. response +/-3dB from 400 to 4000 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA
 alarm: 350mA, plus 65mA/watt speaker power

Model QAA-5230S-525-70/25 Amplifier with 2 split 70V or 25V, 5 and 25 Watt Zones

- 70.7Vrms or 25V constant voltage output
- Two fully supervised Class "B" speaker zones, each pair split from one 30 watt amplifier
- 5 and 25 watts per zone
- Freq. response +/-3dB from 400 to 4000 Hz
- Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA

alarm: 350mA, plus 65mA/watt speaker power

Model QAA-5415-70 Amplifier with four 70V, 15 Watt Zones

- 70.7Vrms constant voltage output
- · Four fully supervised Class "B" speaker zones
- 15 watts per zone
- Freq. response +/-3dB from 400 to 4000 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA
 alarm: 350mA, plus 75mA/watt speaker power

standby: 55mA

Model QAA-5415-25 Amplifier with four 25V, 15 Watt Zones

- · 25Vrms constant voltage output
- Four fully supervised Class "B" speaker zones
- 15 watts per zone
- Freq. response +/-3dB from 400 to 4000 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption:

alarm: 350mA, plus 75mA/watt speaker power

Model QMP-5100B Paging Microphone

- Mounts in Mircom BB-1000 enclosures
- · Full set of indicators & controls
- Sturdy fist-microphone

Model QMP-5101B Paging Microphone

- Mounts in Mircom BB-5008, BB-5014 enclosures
- · Full set of indicators & controls
- Sturdy fist-microphone

Model QZP-5101 Paging Selector Panel

- Mounts in Mircom BB-1000 enclosures
- · Connects to QMP-5100B or QMP-5101B to provide 24 zones of paging control
- Up to six per QMP-5100B or QMP-5101B

Model QZP-5102/5103 Paging Selector Panel

- Mounts in Mircom BB-1000 enclosures
- Connects to QMP-5100B or QMP-5101B to provide 12 zones of paging control, or 12 zones of page/evac control
- Up to six per QMP-5100B or QMP-5101B

Model QMT-5300A Master Telephone

- Mounts in Mircom RA-1000 enclosures
- May be used independently with a fire alarm control panel, or by connection to a QMP-5100B or QMP-5101B
- May be used alone to provide a single fire fighters' telephone zone, or with up to six of QZT-5302

Model QMT-5302 Master Telephone

- · Mounts in Mircom BB-5008, BB-5014 enclosures
- May be used independently with a fire alarm control panel, or by connection to a QMP-5100B or QMP-5101B
- May be used alone to provide a single fire fighters' telephone zone, or with up to six of QZT-5302

Model QZT-5302 Telephone Selector Panel

- Mounts in Mircom BB-1000 enclosures
- · Connects to QMT-5300A/QMT-5302 to provide 12 Fire Fighters' Telephone Zones
- Up to six selector panels per QMT-5300A/QMT-5302
- · Unlimited handsets allowed per telephone circuit, supports up to five handsets active at the same time

Model QRM-1001 Bell Cut Relay

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Contacts rated 28 Vdc, 1A Resistive Load
- Turns off fire alarm bells during paging

Model QDV-1000 Digitized Module

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Provides digitized voice paging
- 24V DC, current consumption: standby 30mA

alarm 30mA

Model QIF-1000 Interface Module

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Provides All Call Paging for multiple building applications
- First user has priority over other users
- up to 15 units can be interconnected
- RS-485 24V, current consumption: standby 180mA

alarm 200mA

Model QIF-2000 Interface Module

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Provides mapping inputs to activate different zones with alert or evacuation tones
- 24V DC, current consumption: standby 10mA
 - alarm 10mA

Model QMP-5100AX Master Paging Control Module

- Mounts over QMP-5100MSB in a BB-1003 enclosure
- · Connects to QIF-5000B via included cable
- Provides multiple building with one master paging microphone, used in conjunction with the QMP-5100MSB
- 24V DC, current consumption: standby 31mA
- alarm 150mA

Model QMP-5100MSB Microphone Splitter Board

- Mounts into a BB-1003 enclosure
- Connects to QIF-5000B via included cable
- · Allows the master paging microphone to have paging control of up to four buildings
- 24V DC, current consumption: standby 130mA

alarm 275mA

ULI Specifications



Note: All circuits are power limited.

Overall

- 0 to 49 degrees Celsius, 0 to 95% RH (non-condensing) operating range
- Power input: 120 VAC, 60Hz, 12A (primary)
- Power supply ratings: 30A, 40V (secondary)

Model QIF-5000B Interface Module

- 2 Class B indicating circuits, one silenceable, one non-silenceable circuit connect to a fire alarm control panel
- 1 trouble contact output to a fire alarm control panel
- 1 GA contact input from a fire alarm control panel to allow two-stage operation
- 1 Bell cut drive for an external bell cut relay to a fire alarm control panel
- · Fully supervised interface to QMP-5100B Master Paging Module
- · Microcontroller based with full Watchdog Timer operation
- · One minute paging inhibit after the first alarm
- · Supervised pre-amplifier & tone generators
- Lamp test
- 18-1/2" high, 5-1/4" deep
- Current Consumption: standby: 200mA

alarm: 200mA

Model QPS-5000 & QBC-5000B Power Supply & Charger

- Primary input 120 VAC +10%, -15%, 60Hz, 12Amp
- Charging for up to 65 AH of 24 VDC batteries
- Float Type Charger

Model QMB-5000B Motherboard and Card Cage

 Accommodates one QIF-5000B, and up to seven amplifiers (360 Watts MAX speaker load). Connections for QPS-5000, QBC-5000B, Batteries, and expansion connection to another QMB-5000B.

Model QAA-5160-70/25 Amplifier with one 70V or 25V, 60 Watt Zone

- 70.7Vrms or 25V constant voltage output
- · One fully supervised Class "A" or "B" speaker Zone
- · 60 watts per zone
- Freq. Response: ULI bandwidth from 800 to 2800 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA

alarm: 350mA, plus 65mA/Watt Speaker Power

Model QAA-5230-70/25 Amplifier with two 70V or 25V, 30 Watt Zones

- 70.7Vrms or 25V constant voltage output
- Two fully supervised Class "A" or "B" speaker zones
- 30 watts per zone
- Freq. Response: ULI bandwidth from 800 to 2800 Hz
- · Harmonic Distortion less than 2.5% at 1 KHz
- Current Consumption: standby: 55mA

alarm: 350mA, plus 65mA/Watt Speaker Power

Model QAA-5230S-70/25 Amplifier with 2 split 70V or 25V, 30 Watt Zones

- 70.7Vrms or 25V constant voltage output
- · Four fully supervised Class"B" speaker zones, each pair split from one 30 watt amplifier
- 30 watts per zone
- Freq. response: ULI bandwidth from 800 to 2800 Hz
- · Harmonic Distortion less than 2.5% at 1 KHz
- Current Consumption: standby: 55mA
 alarm: 350mA, plus 65mA/Watt Speaker Power

Model QAA-5415-70 Amplifier with four 70V, 15 Watt Zones

- 70.7Vrms constant voltage output
- · Four fully supervised Class "B" speaker zones
- 15 watts per zone
- Freq. response: ULI bandwidth from 800 to 2800 Hz
- · Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA

alarm: 350mA, plus 75mA/watt speaker power

Model QAA-5415-25 Amplifier with four 25V, 15 Watt Zones

- · 25Vrms constant voltage output
- Four fully supervised Class "B" speaker zones
- 15 watts per zone
- Freq. response: ULI bandwidth from 800 to 2800 Hz
- Harmonic distortion less than 2.5% at 1 KHz
- Current consumption: standby: 55mA
 alarm: 350mA, plus 75mA/watt speaker power

Model QMP-5100B Paging Microphone

- Mounts in Mircom BB-1000 enclosures
- Full set of indicators & controls
- · Sturdy fist-microphone

Model QMP-5101B Paging Microphone

- · Mounts in Mircom BB-5008, BB-5014 enclosures
- Full set of indicators & controls
- Sturdy fist-microphone

Model QZP-5101 Paging Selector Panel

- Mounts in Mircom BB-1000 enclosures
- · Connects to QMP-5100B or QMP-5101B to provide 24 zones of paging control
- Up to six per QMP-5100B or QMP-5101B

Model QZP-5102/5103 Paging Selector Panel

- Mounts in Mircom BB-1000 enclosures
- Connects to QMP-5100B or QMP-5101B to provide 12 zones of paging control, or 12 zones of page/evac control
- Up to six per QMP-5100B or QMP-5101B

Model QMT-5300A Master Telephone

- Mounts in Mircom BB-1000 enclosures
- May be used independently with a fire alarm control panel, or by connection to a QMP-5100B or QMP-5101B
- May be used alone to provide a single fire fighters' telephone zone, or with up to six of QZT-5302

Model QMT-5302 Master Telephone

- Mounts in Mircom BB-5008, BB-5014 enclosures
- May be used independently with a fire alarm control panel, or by connection to a QMP-5100B or QMP-5101B
- May be used alone to provide a single fire fighters' telephone zone, or with up to six of QZT-5302

Model QZT-5302 Telephone Selector Panel

- Mounts in Mircom BB-1000 enclosures
- Connects to QMT-5300A/QMT-5302 to provide 12 fire fighters' telephone zones
- Up to six selector panels per QMT-5300A/QMT-5302
- Unlimited handsets allowed per telephone circuit, supports up to 5 handsets active at the same time

Model QRM-1001 Bell Cut Relay

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- Contacts rated 28 Vdc, 1A resistive load
- Turns off fire alarm bells during paging

Model QDV-1000 Digitized Module

- Mounts in QBB-5001 enclosure
- Connects to QIF-5000B via included cable
- · Provides digitized voice paging
- 24V DC, current consumption: standby 30mA
 - alarm 30mA

Model QIF-1000 Interface Module

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Provides All Call Paging for multiple building applications
- · First user has priority over other users
- up to 15 units can be interconnected
- RS-485 24V, current consumption: standby 180mA

alarm 200mA

Model QIF-2000 Interface Module

- Mounts in QBB-5001 enclosure
- · Connects to QIF-5000B via included cable
- · Provides mapping inputs to activate different zones with alert or evacuation tones
- 24V DC, current consumption: standby 10mA

alarm 10mA

Model QMP-5100AX Master Paging Control Module

- Mounts over QMP-5100MSB in a BB-1003 enclosure
- Connects to QIF-5000B via included cable
- Provides multiple building with one master paging microphone, used in conjunction with the QMP-5100MSB
- 24V DC, current consumption: standby 31mA alarm 150mA

Model QMP-5100MSB Microphone Splitter Board

- Mounts into a BB-1003 enclosure
- · Connects to QIF-5000B via included cable
- · Allows the master paging microphone to have paging control of up to four buildings
- 24V DC, current consumption: standby 130mA alarm 275mA

Appendix B: ULC Compatible Speakers

MODEL NUMBER	dbA @ 10 feet		Mounting and Shape		
4" Speakers (70V)					
SP-104A-70 (4"round)	1/4 watt	85 dbA	IB-104 Recessed	Round	
SP-204A-70 (4"square)	1/2 watt 1 watt	86 dbA 89 dbA	IB-204 Recessed, IB-404 Surface	Square	
SP-304A-70 (retrofit)	2 watts	91 dbA	IB-604 Recessed	Rectangle	
Strobe Speakers (70V)					
SPS-104A-70 (4"round)	1/4 watt	85 dbA	IB-104 Recessed	Round	
SPS-204A-70 (4"square)	1/2 watt86 dbA1 watt89 dbA2 watts91 dbA	IB-204 Recessed, IB-404 Surface	Square		
Silenceable Speakers (70V)					
SP-404-70A (4"round)			IB-104 Recessed	Round	
SP-504-70A (4"square)	1/4 watt 1/2 watt	85 dbA 86 dbA	IB-204 Recessed, IB-404 Surface	Square	
SP-404SW-70A (4"round)	1 watt	att 89 dbA	IB-104 Recessed	Round	
SP-504SW-70A (4"square)	2 watts	91 dbA	IB-204 Recessed, IB-404 Surface	Square	
8" Speakers (70V)					
SP-108-70 (8"round)	1/4 watt	83 dbA	IB-108 Recessed	Round	
SP-208-70 (8"square)	1/2 watt 1 watt 2 watts	87 dbA 90 dbA 93 dbA	IB-208 Recessed, IB-408 Surface	Square	

Appendix C: ULI Compatible Speakers

AMSECO MODEL NUMBER	dbA @ 10 feet		Mounting and Shape			
	S	peakers (7	70.7V)			
FH-47R-70R (red) FH-47W-70R (white)	1/4 watt 1/2 watt	75 dbA 78 dbA	Standard Electrical Box	7 1/4" round		
FH-47R-70S (red) FH-47W-70S (white)	1 watt 2 watts	81 dbA 84 dbA	Standard Electrical Box	5 1/2" square		
High Output Speakers (70.7V)						
FH-45R-703R (RED) FH-45W-703R (WHITE)	2 watts	90 dbA 93 dbA 96 dbA	Standard Electrical Box with extension ring	7 1/4" round		
FH-45R-703S (RED) FH-45W-703S (WHITE)	4 watts		Standard Electrical Box with extension ring	5 1/2" square		
High Output Speaker/Strobe (70.7V)						
SFH45-153075R-70R (red) SFH45-153075W-70R (white) SFH45-75110R-70R (red) SFH45-75110W-70R (white)	2 watts 4 watts 8 watts	90 dbA 93 dbA 96 dbA	Standard Electrical Box with extension ring	7 1/4" round		
SFH45-153075R-70S (red) SFH45-153075W-70S (white) SFH45-75110R-70S (red) SFH45-75110W-70S (white)			Standard Electrical Box with extension ring	5 1/2" square		
Low Profile Speaker/Strobe (70.7V)						
SFH47-153075R-70R (red) SFH47-153075W-70R (white) SFH47-75110R-70R (red) SFH47-75110W-70R (white)	1/4 watt 75 dbA 1/2 watt 78 dbA 1 watt 81 dbA 2 watts 84 dbA	75 dbA 78 dbA	Standard Electrical Box with extension ring	7 1/4" round		
SFH47-153075R-70S (red) SFH47-153075W-70S (white) SFH47-75110R-70S (red) SFH47-75110W-70S (white)		Standard Electrical Box with extension ring	5 1/2" square			

Appendix D: Power Supply & Batteries

Use the form below to determine the required main chassis and secondary power supply (batteries).

The main AC branch without provision of circuit protection tha	n circuit connection for Fire Alan any disconnect devices. Use # t complies with the local codes	rm Cor 12 AW 5. Refe	ntrol U G wire r to <i>Ap</i>	nit must provid with 600-volt pendix A on pa	le a dedicate insulation ar age 75 for sp	ed continuous nd proper ove pecifications.	power r-current
Model Number	Description	Qty		Standby (Amps)	Total Standby (Amps)	Alarm (Amps)	Total Alarm (Amps)
QIF-5000B	Interface	1	Х	0.200	=	0.200	=0.200
QAA-5160-70/25	1 Zone 60W Amplifier		Х	0.055	=	0.350	=
QAA-5230-70/25	2 Zone 30W Amplifier		Х	0.055	=	0.350	=
QAA-5230S-70/25	2 Zone 30W Amplifier (split)		Х	0.055	=	0.350	=
QAA-5230S-525- 70/25	2 Zone 30W Amplifier (split)		Х	0.055	=	0.350	=
QAA-5415-70	4 Zone 15W Amplifier, 70V		Х	0.055	=	0.350	=
QAA-5415-25	4 Zone 15W Amplifier, 25V		Х	0.055	=	0.350	=
QMP-5100B/QMP-5101B	Master Paging Module		Х	0.031	=	0.081	=
QMP-5100AX	Paging Multiplex Module		Х	0.031	=	0.081	=
QMP-5100MSB	Microphone Splitter Board		Х	0.130	=	0.275	=
QZP-5101	Paging Zone Module		Х	0.010	=	0.015	=
QMT-5300A/QMT-5302	Master Telephone Module		Х	0.040	=	0.040	=
QZT-5302	Telephone Zone Module		Х	0.026	=	0.026	=
QIF-1000	Interface Module		Х	0.180	=	0.200	=
QIF-2000	Interface Module		Х	0.010	=	0.010	=
QIF-2011	Interface Module		Х	0.062	=	0.062	=
QDV-1000	Digitized Voice Module		Х	0.030	=	0.030	=
Total audio power in	watts					0.065/watt	=
Total audio power in w	atts for QAA-5415-70 or -25					0.075/watt	=
Total currents (Add a	above currents)			STANDBY	(A)		(B)

Total Current Requirement: ALARM (B) _____ Amps.

Battery Capacity Requirement

([STANDBY (A) ____] X [(24 or 60 Hours) __]) + ([ALARM (B) ____] X [*Alarm in Hr.] ____) = (C) ____AH

Battery Selection: Multiply answer above (C) by 1.20 to derate battery.

Batteries: BA-124 (24AH), BA-140 (40AH), and BA-165(65AH). *Above 40AH, batteries require a separate box (model BC-160).*

* Use 0.084 for five minutes of alarm or 0.5 for thirty minutes of alarm as a multiplier figure.

Warranty and Warning Information

WARNING!

Please read this document **CAREFULLY**, as it contains important warnings, life-safety, and practical information about all products manufactured by the Mircom Group of Companies, including Mircom and Secutron branded products, which shall include without limitation all fire alarm, nurse call, building automation and access control and card access products (hereinafter individually or collectively, as applicable, referred to as "**Mircom System**").

NOTE TO ALL READERS:

- 1. **Nature of Warnings.** The within warnings are communicated to the reader out of an abundance of caution and create no legal obligation for Mircom Group of Companies, whatsoever. Without limiting the generality of the foregoing, this document shall NOT be construed as in any way altering the rights and obligations of the parties, governed by the legal documents that apply in any given circumstance.
- 2. **Application.** The warnings contained in this document apply to all Mircom System and shall be read in conjunction with:
 - a. the product manual for the specific Mircom System that applies in given circumstances;
 - b. legal documents that apply to the purchase and sale of a Mircom System, which may include the company's standard terms and conditions and warranty statements;
 - c. other information about the Mircom System or the parties' rights and obligations as may be application to a given circumstance.
- 3. **Security and Insurance.** Regardless of its capabilities, no Mircom System is a substitute for property or life insurance. Nor is the system a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation. Building automation systems produced by the Mircom Group of Companies are not to be used as a fire, alarm, or life-safety system.

NOTE TO INSTALLERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. As the only individual in contact with system users, please bring each item in this warning to the attention of the users of this Mircom System. Failure to properly inform system end-users of the circumstances in which the system might fail may result in over-reliance upon the system. As a result, it is imperative that you properly inform each customer for whom you install the system of the possible forms of failure:

- 4. **Inadequate Installation.** All Mircom Systems must be installed in accordance with all the applicable codes and standards in order to provide adequate protection. National standards require an inspection and approval to be conducted by the local authority having jurisdiction following the initial installation of the system and following any changes to the system. Such inspections ensure installation has been carried out properly.
- 5. **Inadequate Testing.** Most problems that would prevent an alarm a Mircom System from operating as intended can be discovered by regular testing and maintenance. The complete system should be tested by the local authority having jurisdiction immediately after a fire, storm, earthquake, accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing

devices, keypads, consoles, alarm indicating devices and any other operational devices that are part of the system.

NOTE TO USERS:

All Mircom Systems have been carefully designed to be as effective as possible. However, there are circumstances where they may not provide protection. Some reasons for system failure include the following. The end user can minimize the occurrence of any of the following by proper training, testing and maintenance of the Mircom Systems:

- 6. **Inadequate Testing and Maintenance.** It is imperative that the systems be periodically tested and subjected to preventative maintenance. Best practices and local authority having jurisdiction determine the frequency and type of testing that is required at a minimum. Mircom System may not function properly, and the occurrence of other system failures identified below may not be minimized, if the periodic testing and maintenance of Mircom Systems is not completed with diligence and as required.
- 7. Improper Operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm. A Mircom System may not function as intended during an emergency situation where the user is unable to operate a panic or emergency switch by reason of permanent or temporary physical disability, inability to reach the device in time, unfamiliarity with the correct operation, or related circumstances.
- 8. **Insufficient Time.** There may be circumstances when a Mircom System will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time enough to protect the occupants or their belongings.
- Carelessness or Safety Hazards. Moreover, smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits or children playing with matches or arson.
- 10. Power Failure. Some Mircom System components require adequate electrical power supply to operate. Examples include: smoke detectors, beacons, HVAC, and lighting controllers. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage Mircom Systems or other electronic equipment. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.
- 11. **Battery Failure.** If the Mircom System or any device connected to the system operates from batteries it is possible for the batteries to fail. Even if the batteries have not failed, they must be fully charged, in good condition, and installed correctly. Some Mircom Systems use replaceable batteries, which have a limited life-span. The expected battery life is variable and in part dependent on the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. Moreover, some Mircom Systems do not have a battery monitor that would alert the user in the event that the battery is nearing its end of life. Regular testing and replacements are vital for ensuring that the batteries function as expected, whether or not a device has a low-battery monitor.
- 12. **Physical Obstructions.** Motion sensors that are part of a Mircom System must be kept clear of any obstacles which impede the sensors' ability to detect movement. Signals being communicated by a Mircom System may not reach the receiver if an item (such as metal, water, or concrete) is placed on or near the radio path. Deliberate jamming or other inadvertent radio signal interference can also negatively affect system operation.
- 13. Wireless Devices Placement Proximity. Moreover all wireless devices must be a minimum and maximum distance away from large metal objects, such as refrigerators. You are required to consult

the specific Mircom System manual and application guide for any maximum distances required between devices and suggested placement of wireless devices for optimal functioning.

- 14. **Failure to Trigger Sensors.** Moreover, Mircom Systems may fail to operate as intended if motion, heat, or smoke sensors are not triggered.
 - a. Sensors in a fire system may fail to be triggered when the fire is in a chimney, walls, roof, or on the other side of closed doors. Smoke and heat detectors may not detect smoke or heat from fires on another level of the residence or building. In this situation the control panel may not alert occupants of a fire.
 - b. Sensors in a nurse call system may fail to be triggered when movement is occurring outside of the motion sensors' range. For example, if movement is occurring on the other side of closed doors or on another level of the residence or building the motion detector may not be triggered. In this situation the central controller may not register an alarm signal.
- 15. **Interference with Audible Notification Appliances.** Audible notification appliances may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners, appliances, or passing traffic. Audible notification appliances, however loud, may not be heard by a hearing-impaired person.
- 16. **Other Impairments.** Alarm notification appliances such as sirens, bells, horns, or strobes may not warn or waken a sleeping occupant if there is an intervening wall or door. It is less likely that the occupants will be alerted or awakened when notification appliances are located on a different level of the residence or premise.
- 17. **Software Malfunction.** Most Mircom Systems contain software. No warranties are provided as to the software components of any products or stand-alone software products within a Mircom System. For a full statement of the warranties and exclusions and limitations of liability please refer to the company's standard Terms and Conditions and Warranties.
- 18. **Telephone Lines Malfunction.** Telephone service can cause system failure where telephone lines are relied upon by a Mircom System. Alarms and information coming from a Mircom System may not be transmitted if a phone line is out of service or busy for a certain period of time. Alarms and information may not be transmitted where telephone lines have been compromised by criminal tampering, local construction, storms or earthquakes.
- 19. **Component Failure.** Although every effort has been made to make this Mircom System as reliable as possible, the system may fail to function as intended due to the failure of a component.
- 20. **Integrated Products.** Mircom System might not function as intended if it is connected to a non-Mircom product or to a Mircom product that is deemed non-compatible with a particular Mircom System. A list of compatible products can be requested and obtained.

Warranty

Purchase of all Mircom products is governed by:

https://www.mircom.com/product-warranty

https://www.mircom.com/purchase-terms-and-conditions

https://www.mircom.com/software-license-terms-and-conditions

QX-5000 Operating Instructions

Model: QX-5000, Emergency Zone Audio and Fire Fighter's Telephone System

Installation Manual: QX-5000 Series Emergency Zoned Audio Paging and Firefighters' Telephone System Installation and Operation Manual, LT-616

The QX-5000 Emergency Zone Audio Paging and Firefighter's Telephone System is used in conjunction with a fire alarm control panel such as the Mircom FA-1000 and FX-2000 series. As such, some of the operations described below refer to fire alarm operations.

Normal

All indicators are off except for the A.C. ON LED.

Alarm / Evac

When the fire alarm control panel transmits an alarm to the QIF-5000B, the amplifiers' EVAC LEDs will illuminate and the EVAC tone will be sent to the speakers. For the first minute after the first alarm, the QMP-5100B PAGE INHIBIT LED will also light.

Silenced Alarms

If the signals are silenced at the fire alarm control panel, the amplifiers' EVAC LEDs will extinguish and the EVAC tone will cease being sent to the speakers. After a subsequent alarm, they will re-illuminate and the EVAC tone will re-sound.

Paging

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If the microphone push-to-talk button is pressed while the PAGE INHIBIT LED is active, nothing will happen. If pressed (in conjunction with the ALL-CALL, ALL-CALL MINUS or ZONE PAGE/EVAC buttons) when there is no alarm in the system or after an alarm has been silenced, the microphone will page to the selected speakers. If pressed with an alarm in the system, the EVAC tone will be suppressed during paging. If pressed during an alarm with an FA-1000 or FX-2000 Fire Alarm Control Panel, where bells are used, the bells will be turned off during paging.

Mic / Amplifier / Amplifier / Zone Trouble

These troubles may cause paging to fail in one or all speaker zones.

Signal Gen / Amplifier / Zone Trouble

These troubles may cause EVAC tones to fail in one or all speaker zones.

Lamp Test

Pressing the Lamp Test button will turn on all indicators (LEDs).

System Service Notes

System Configuration

Electrical ratings:120VAC, 60 Hz, 12A

Number of QAA-5160-70 or QAA-5160-25 One Zone 60W Amplifiers

Number of QAA-5230-70/25 Two Zone 30W Amplifiers_____

Number of QAA-5230S-70/25 Dual Zone 30W Amplifiers Split

Number of QAA-5230S-525-70/25 Dual Zone 30W Amplifiers Split

Number of QAA-5415-70 or QAA-5415-25 Four Zone 15W Amplifiers_____

□в

Class A or B Wiring

Battery Maintenance

The two 12 VDC sealed lead-acid batteries should be replaced after each period of 3 to 5 years of normal service. If the battery Trouble indicator activates, obtain required service.

Local Service Representative				
Name:				
Company:				
Address:				
Telephone:				

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



THIS SHEET SHOULD BE FRAMED AND PLACED NEAR THE PANEL



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