AUDMAX-MASTER
Emergency and Fire Alarm Audio System

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1.0 Introduction

This document provides information for the successful installation, operation and configuration of the AUDMAX-MASTER and the AUDMAX-BP. Unless specifically mentioned, AUDMAX-MASTER can hereafter be used to refer to either the AUDMAX-MASTER or the AUDMAX-BP.

This chapter explains

- 1.1 The AUDMAX-MASTER Emergency and Fire Alarm Audio System

Secutron™

1.1 The AUDMAX-MASTER Emergency and Fire Alarm Audio System

The AUDMAX-MASTER operates either as a mass notification audio system or as part of a fire alarm system. Conventional fire alarm systems control the AUDMAX-MASTER with relays. Any of the Mircom/Secutron panels listed in Table 2 can control the AUDMAX-MASTER.

Secutron's AUDMAX-MASTER is an emergency and fire alarm audio system designed to provide notification for small to medium applications. The AUDMAX-MASTER supplies 30W for audio output and 5A for NAC. The optional QAD-30 increases audio output to 60W.

Optional AUDMAX-BP Booster Panels provide support for a distributed system. These Booster Panels have the same output as the AUDMAX-MASTER but do not have microphones or user interface panels. Up to five Booster Panels can be connected to a AUDMAX-MASTER.

For a list of AUDMAX-MASTER models, components, and accessories, see Table 1.

1.1.1 AUDMAX-MASTER Models and Components

Table 1   AUDMAX-MASTER Models, Components, and Accessories

Model	Description
AUDMAX-MASTER	AUDMAX-MASTER Audio System Master Panel with main display, blank plate, microphone, backbox, and front door
AUDMAX-BP	AUDMAX-MASTER Audio System Booster Panel with deadfront and backbox
AUDMAX-RM	Remote Microphone for the AUDMAX-MASTER Audio System Note: Not for use in Canada
AUDMAX-LOCR	Local Operating Console for AUDMAX-MASTER with main display, blank plate, microphone, deadfront, backbox, and front door Note: Not for use in Canada
QAD-30	30W Amplifier Module
QAS-2X8	AUDMAX-MASTER Audio Zone Splitter
QAZT-5302DS	24 zone controller

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Note: For more accessories, see section 2.1 AUDMAX-MASTER Components on page 14.

1.1.2 Compatible Fire Alarm Control Panels

Table 2   Compatible Fire Alarm Control Panels

Manufacturer	Fire Alarm Control Panel Series
Mircom	FX-3500 Series
	FX-2000 Series
	FleX-Net™ Series
	FX-350 Series (using dry contacts)
	FR-320 Series (using dry contacts)
	FA-1000 Series (using dry contacts)
	FA-300 Series (using dry contacts)
Secutron	MMX™ Series
	MR-2100 / MR-2200 Series
	MR-2300 Series
	MR-2350 Series
	MR-2602 Series
	MR-2605 Series
	MR-2900 Series
	MR-3500 Series

1.1.3 Features

- Up to 60W audio output (2 X 30W amplifiers) per cabinet

- 2 X 2.5A regulated 24V DC output for horns and strobes (NAC)

- Capable of Class A or Class B wiring for speakers and NACs

- Field selectable 25V or 70V audio output

- Support for up to 4 Class A audio circuits (system expandable to a total of 28, including up to 5 boosters total.)

- Includes standard digital messages for Fire, Emergency, Evacuation, and All Clear

- Select from 8 digital messages at the panel (Factory preprogrammed and Operator reprogrammable)

- Advanced configuration settings and custom message upload using the AUDMAX-MASTER Software configurator

- Stores up to 12 minutes of audio messages in total

- Master microphone input with Push-To-Talk (PTT)

- Supports a combination of up to 6 remote microphones and Local Operating Consoles (LOC)

- Use as a stand alone audio system or as part of a fire alarm system

- Two inputs for activation by conventional fire alarm systems using relays

- Two synch inputs for synchronization and activation

- Signaling Line Circuit (SLC) input for activation and communication with Mircom/Secutron Fire Alarm Control Panels (FX-3500, FX-2000, MMX™, MR-2100, MR-2200, MR-2900, and MR-3500 series)

- Relay input for activation and communication with Mircom/Secutron Fire Alarm Control Panels (FX-350, FR-320, FA-1000, and FA-300)

- Battery backup (up to 18AH in cabinet and up to 75AH with a separate battery cabinet)

- Dedicated Trouble, AC Fail, and Alarm relay outputs

- Audio system supports up to 6 panels in total (one Master Panel with 5 Booster Panels)

- Up to 28 zones (with a QAZT-5302DS controller)

- Auxiliary 24V supply (up to 0.2 Amp)

- UL 1711, UL 864, and ULC S527

1.1.4 General Notes

Circuits And Zones

Circuits refers to an actual electrical interface, Input (Detection), or NAC (Notification Appliance Circuit) which connect audible and visible notification appliances to the fire alarm system control unit (Signal) or Relay. Zones refer to defined geographic areas (i.e. one or more: floors, wings, or buildings) that may contain detectors, NACs, or release devices

Wiring Styles

- NAC Circuits may be individually wired as Class A (Style Z) or Class B (Style Y) without affecting the number of circuits available.

- Signal Line Circuit Class A (Style 6, 7) and Class B (Style 4).

- Synch Inputs are Class A (Style D) and Class B (Style B) Initiating Device Circuits.

2.0 AUDMAX-MASTER Overview

This chapter lists the components of the AUDMAX-MASTER.

This chapter explains

- 2.1 AUDMAX-MASTER Components
- 2.2 AUDMAX-MASTER Accessories
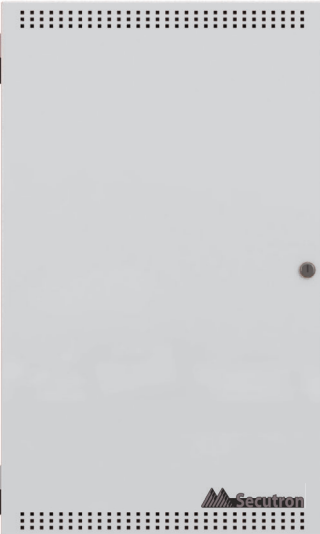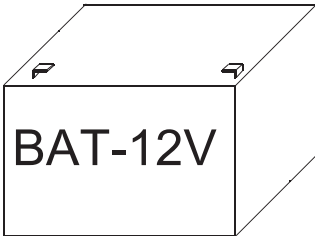
2.1 AUDMAX-MASTER Components

The following table describes the components of the AUDMAX-MASTER.
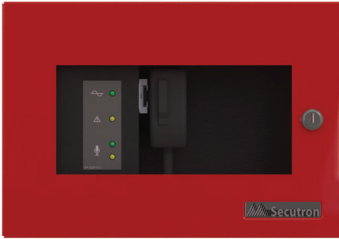
Table 3   AUDMAX-MASTER Components

	Model	Description
	AUDMAX-MASTER	Master Panel with microphone, main display, main board, 1 X 30W amplifier, panel door, blank plate, backbox, red front door, and transformer. A second 30W amplifier can be added.
	AUDMAX-MASTER-W	Master Panel with microphone, main display, main board, 1 X 30W amplifier, panel door, blank plate, backbox, white front door, and transformer. A second 30W amplifier can be added.

Table 3   AUDMAX-MASTER Components (Continued)

	Model	Description
	AUDMAX-BP	Booster Panel with main board, 1 X 30W amplifier, backbox, deadfront, red front door, and transformer. A second 30W amplifier can be added.
	AUDMAX-BP-W	Booster Panel with main board, 1 X 30W amplifier, backbox, deadfront, white front door, and transformer. A second 30W amplifier can be added.
	BAT-12V12A **BAT-12V18A** **BAT-12V26A** **BAT-12V33A** **BAT-12V42A** **BAT-12V55A** **BAT-12V65A** **BAT-12V75A**	12 VOLT Batteries (12AH to 75AH) The AUDMAX-MASTER and AUDMAX-BP cabinets can accommodate up to two 18AH batteries. Larger batteries require a separate battery cabinet MMX-BC-160 (up to 75 AH).

Table 3   AUDMAX-MASTER Components (Continued)

	Model	Description
	MMX-BC-160	Battery cabinet with white front door for 26AH and larger batteries.
	MMX-BC-160R	Battery cabinet with a red front door for 26AH and larger batteries.
	AUDMAX-RM	Remote Microphone with backbox, red front door, cover plate, microphone, and remote microphone PCB.
	AUDMAX-RM-W	Remote Microphone with backbox, white front door, cover plate, microphone, and remote microphone PCB.
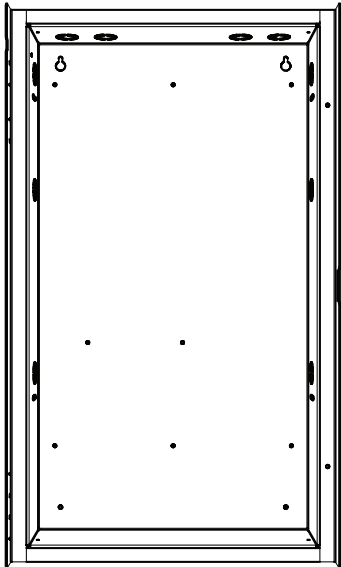
Table 3   AUDMAX-MASTER Components (Continued)

	Model	Description
	AUDMAX-LOC-W	Local Operating Console with main display, blank plate, microphone, remote microphone PCB, panel door, backbox, and white front door.
	AUDMAX-LOCR	Local Operating Console with main display, blank plate, microphone, remote microphone PCB, panel door, backbox, and red front door.
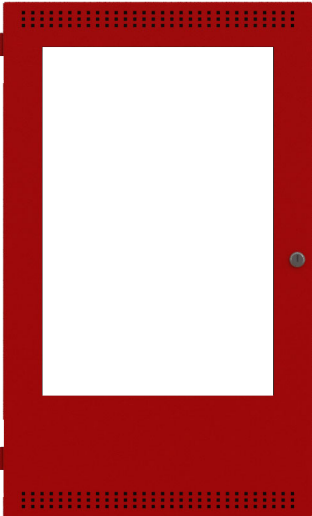
2.2   AUDMAX-MASTER Accessories

The following table describes the components of the AUDMAX-MASTER.
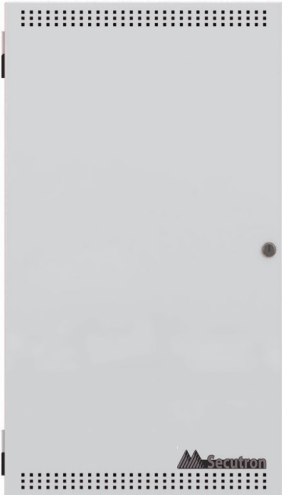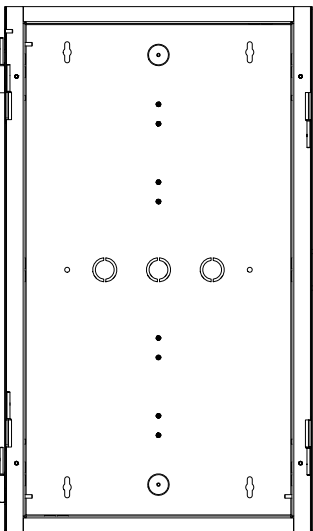
Table 4   AUDMAX-MASTER Accessories

	Model	Description
	UB-1024DS	Universal Backbox.
	DOX-1024DS	AUDMAX-MASTER White front door.

Table 4   AUDMAX-MASTER Accessories (Continued)
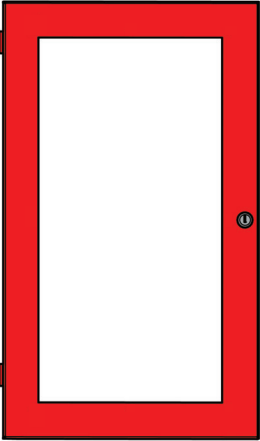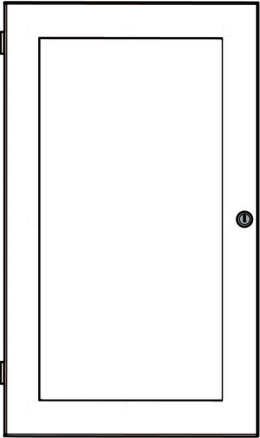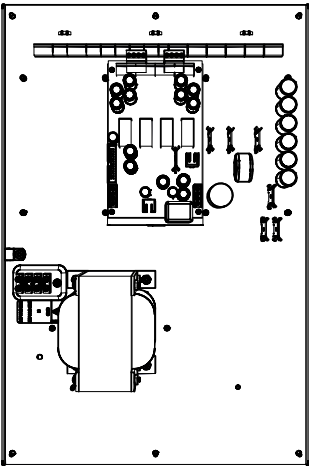
	Model	Description
	DOX-1024DSR	AUDMAX-MASTER Red front door.
	MR-DOX-1024BPR	AUDMAX-BP Red front door.

Table 4   AUDMAX-MASTER Accessories (Continued)
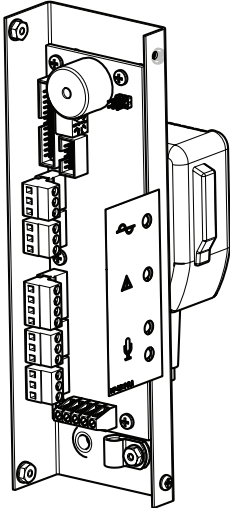
	Model	Description
	MR-DOX-1024BP	AUDMAX-BP White front door.
	QBB-LOC	AUDMAX-LOCR Backbox.
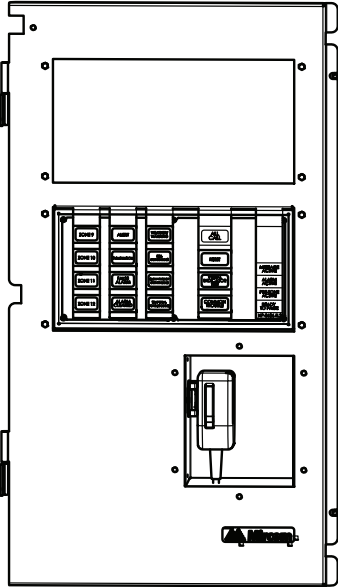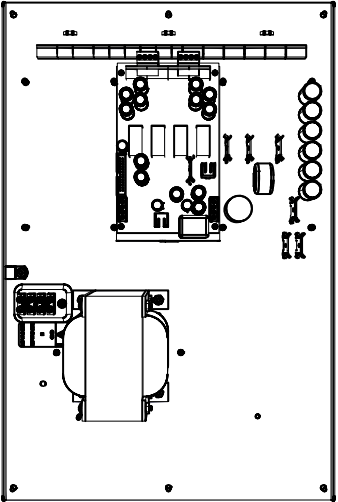
Table 4   AUDMAX-MASTER Accessories (Continued)

	Model	Description
	DOX- AUDMAX-LOCR	AUDMAX-LOCR Red front door.
	DOX-AUDMAX-LOC	AUDMAX-LOCR White front door.
	AUDMAX-MASTER-KIT	AUDMAX-MASTER main board, main display, 1 X 30W amplifier, panel door, blank plate, and transformer on back plate. A second 30W amplifier can be added.
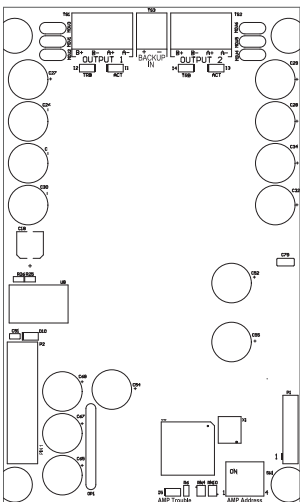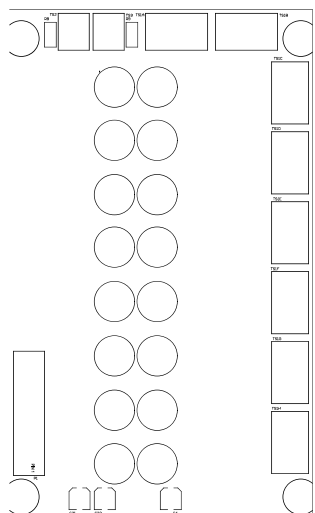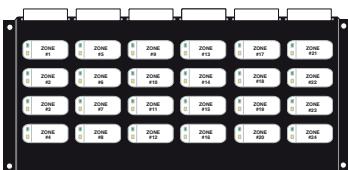
Table 4   AUDMAX-MASTER Accessories (Continued)

	Model	Description
	AUDMAX-RMMIC	Remote microphone PCB, and cover plate,
	MR-BB-1001XTR	AUDMAX-RM backbox and red front door
	MR-BB-1001XTW	AUDMAX-RM backbox and red front door

Table 4   AUDMAX-MASTER Accessories (Continued)

	Model	Description
	AUDMAX-LOCMAIN	Main display, blank plate, microphone, remote microphone PCB, and panel door
	AUDMAX-BPMAIN	Main board, 1 X 30W amplifier, back plate, and transformer.

Table 4   AUDMAX-MASTER Accessories (Continued)

	Model	Description
	QAD-30	30 Watt amplifier module
	QAS-2X8	Audio Zone Splitter used to separate the audio zones
	QAZT-5302DS	24 Zone Controller
	MP-300/22K EOL	Mounting plate and 22K resistor.
	MP-300/3.9K EOL	Mounting plate and 3.9K resistor.

3.0 Installation

This chapter describes the installation of the AUDMAX-MASTER.

This chapter explains

- 3.1 AUDMAX-MASTER Mechanical Installation Dimensions
- 3.2 Installing the AUDMAX-MASTER Enclosure
- 3.3 Main Board Connections
- 3.4 Operating Power
- 3.5 Amplifier Module Connections
- 3.6 QAS-2X8 Audio Zone Splitter Module Installation
- 3.7 Remote Microphone Connections
- 3.8 Local Operating Console Connections

3.1   AUDMAX-MASTER Mechanical Installation Dimensions

The AUDMAX-MASTER comes with a BBX-1024DS or BBX-1024DSR enclosure. Both backboxes are suitable for flush or surface mounting and have a built-in trim ring.

!	**Caution:**	**Excessive Force**
		Improper installation or excessive force will damage the motherboard and modules being installed or removed.

!	**Caution:**	**Static Sensitive Components**
		Ensure AC and Battery power is disconnected before installing or removing any boards, modules, or cables.
		AUDMAX-MASTER circuit boards contain static-sensitive components. Operator should always be grounded with a proper wrist strap before handling any boards to remove any static charges from the body. Use static suppressive packaging to protect electronic assemblies.
		Installer/operators should use proper conduit and wire isolation to keep Power-Limited and other wiring at least 1/4 inches apart.

Side View

Top View
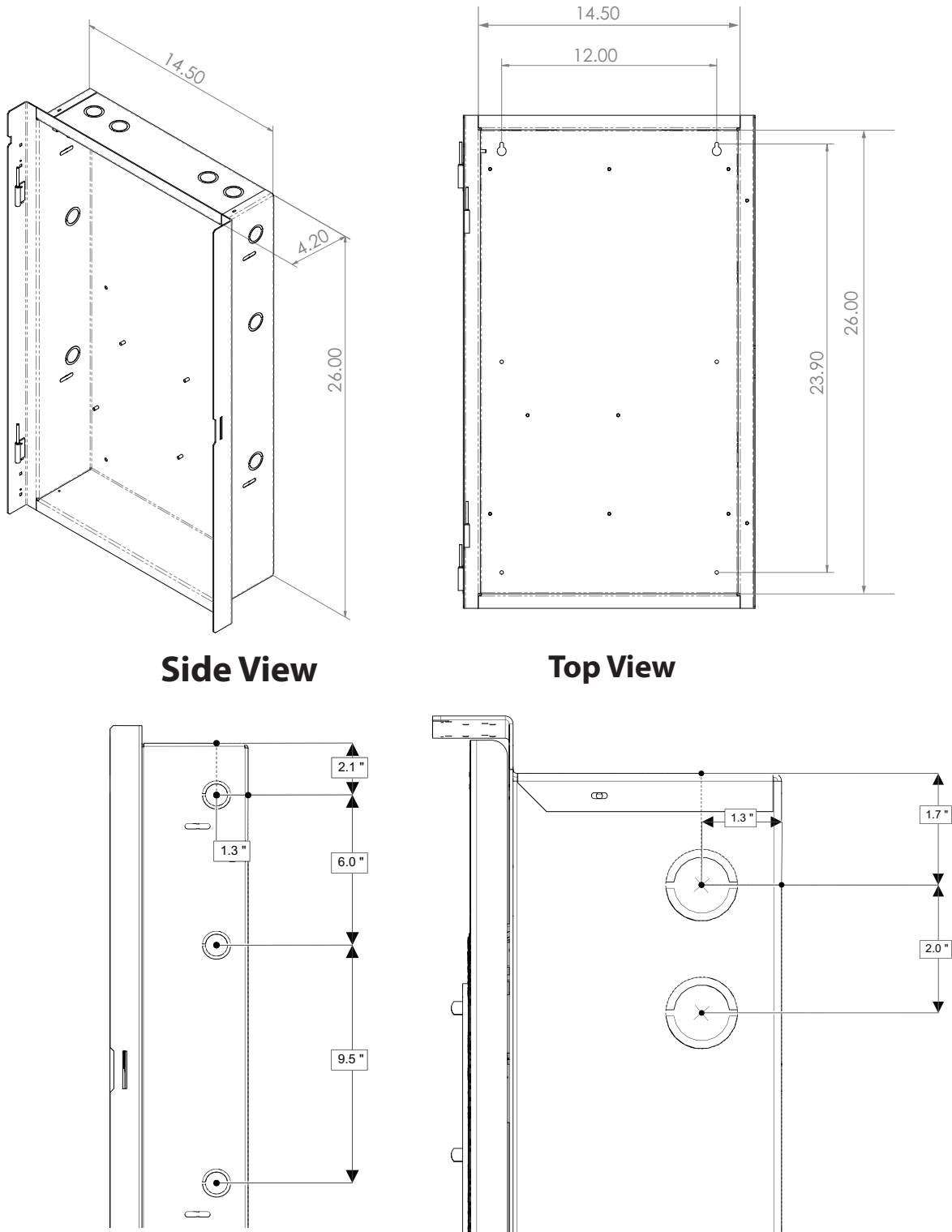
Figure 1   AUDMAX-MASTER Backbox Installation Dimensions

Dimensions of Enclosure (minus built in trim ring)	14.5" x 4.2" x 26"
Distance between horizontal mounting screws	12"
Distance between vertical mounting screws	23.5"
Complete Dimensions of Enclosure	16.3" x 5.5" x 27.5"

3.2   Installing the AUDMAX-MASTER Enclosure

The AUDMAX-MASTER can be surface or flush mounted with four screws.

Tools needed:

- Hexnut driver
- Precision or Jeweller's screwdriver set
- Philips screwdriver
- Wire cutter
- Wire stripper

3.2.1   Installation Tips

- Perform visual inspection of circuit board and parts for obvious issues
- Group the incoming wires through the top of the enclosure. Use a wire tie to group wires for easy identification and neatness.
- Be sure to connect a solid Earth Ground (from building system ground / to a cold water pipe) to the Chassis Earth Ground Mounting Lug, and to connect the Earth Ground Wire Lugs from the main chassis to the ground screw on the backbox.

> **!**
>
> **Attention: DO NOT install cable through bottom of the box. This space is reserved for the internal Batteries.**

3.2.2   Surface Mounting the AUDMAX-MASTER or AUDMAX-BP

To Surface Mount the Enclosure

> ***i***
>
> **Note:**   If installing AUDMAX-BP, proceed to step 2.

1. Open the AUDMAX-MASTER and then remove the following cables from the AUDMAX-MASTER main board:

    - Disconnect the ribbon cable of the main display from terminal P12.
    - Disconnect the microphone cable from terminals TS15 and TS18.

2. Unscrew the eight hex nuts that are securing the backplate to the backbox and then remove the back plate from the enclosure. Secure Hexnut for future use.
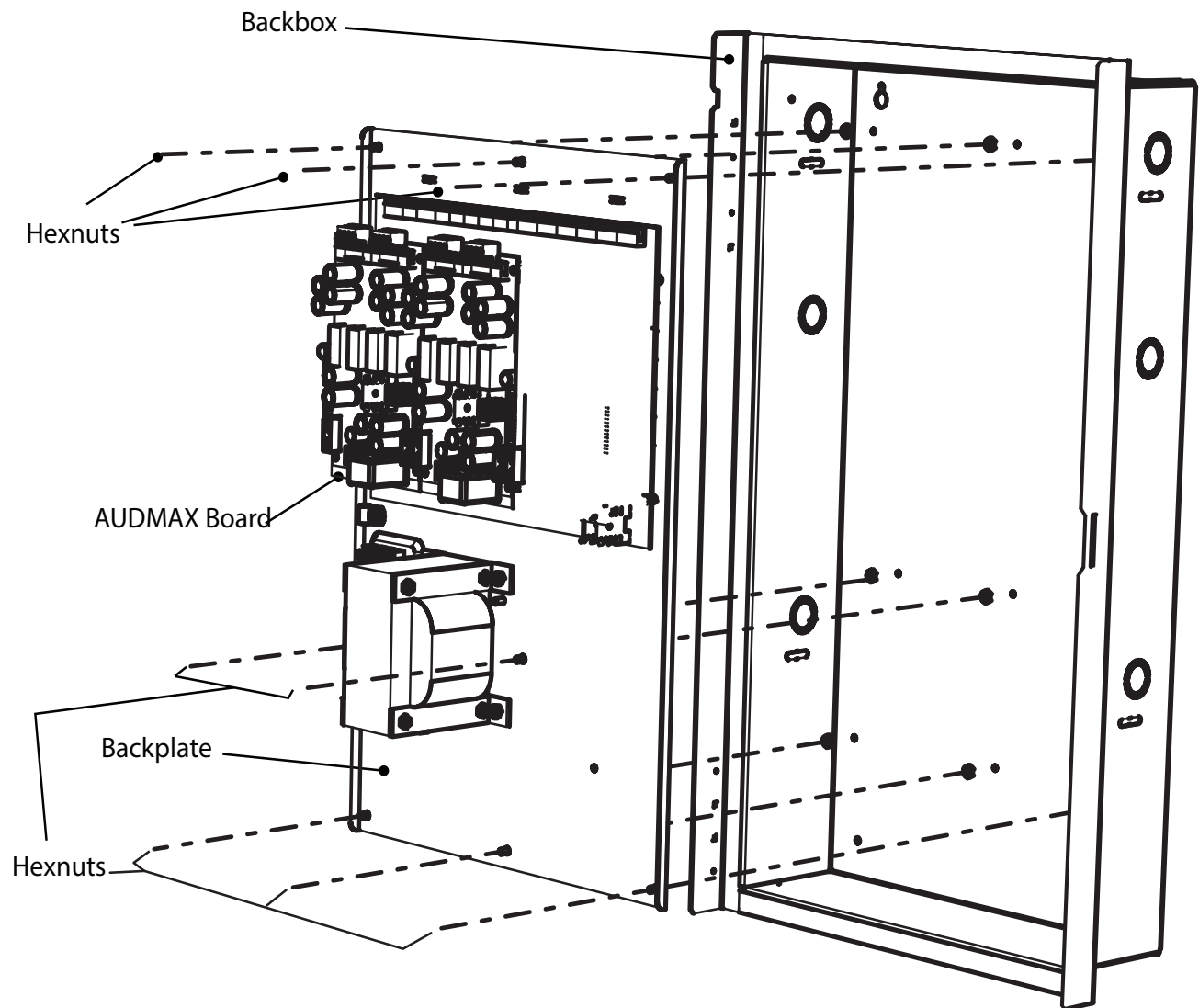
Figure 2   Hexnut removal

3. Unscrew the wingnuts securing the ground straps to the doors and then remove the doors from the chassis. Secure Hexnut for future use.

4. Mark the location of the top two mounting holes on the wall. Mark the locations of the holes 12" apart.
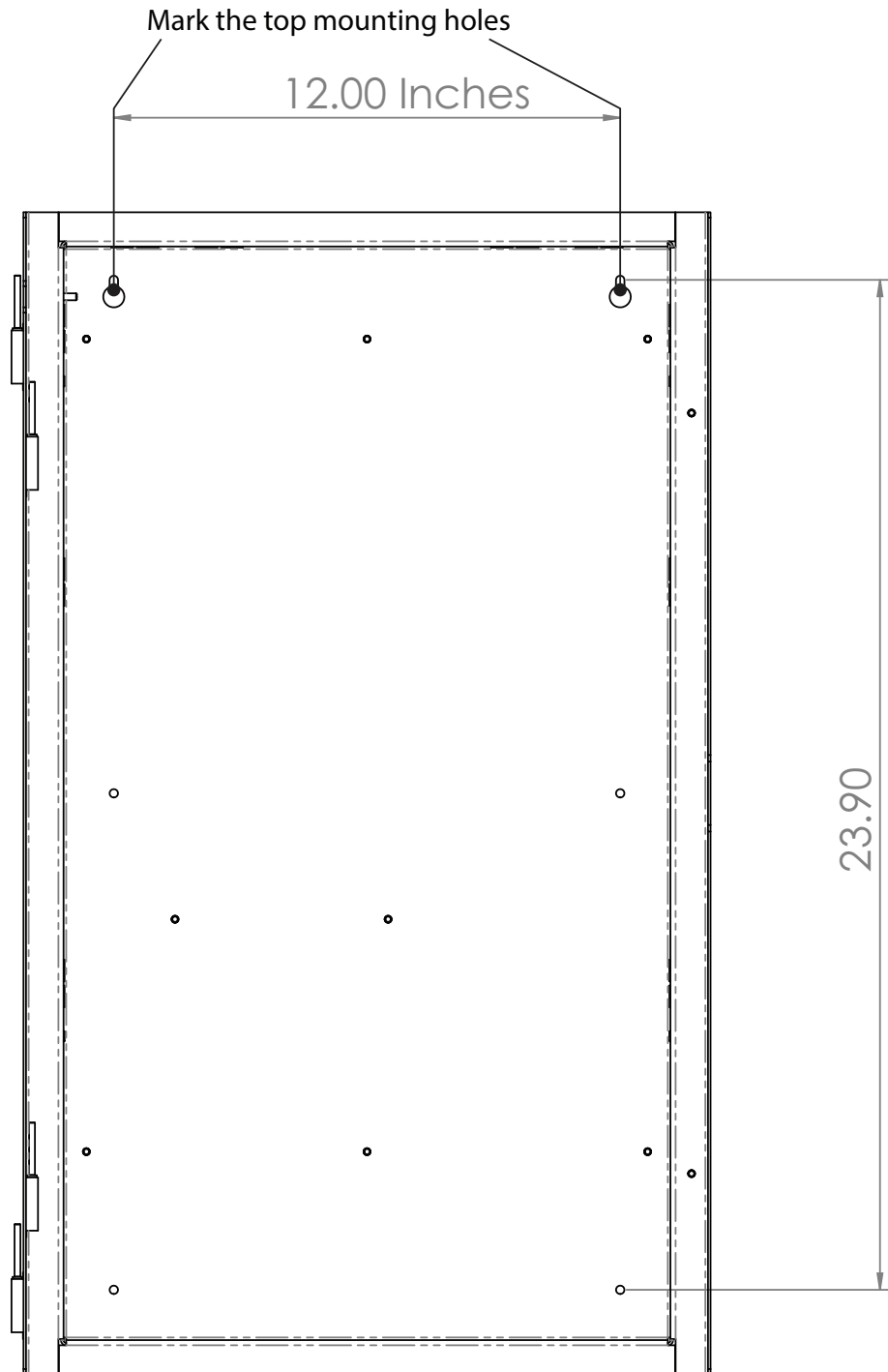
Figure 3   Anchor hole marking

5. Fasten two screws halfway into the wall in the positions marked in step 4, using a suitable screw size.

6. Hang the box onto the two screws.

7. Screw the other two screws at the bottom of the panel.Tighten all four screws into place.

Mount screws at these points and then tighten.
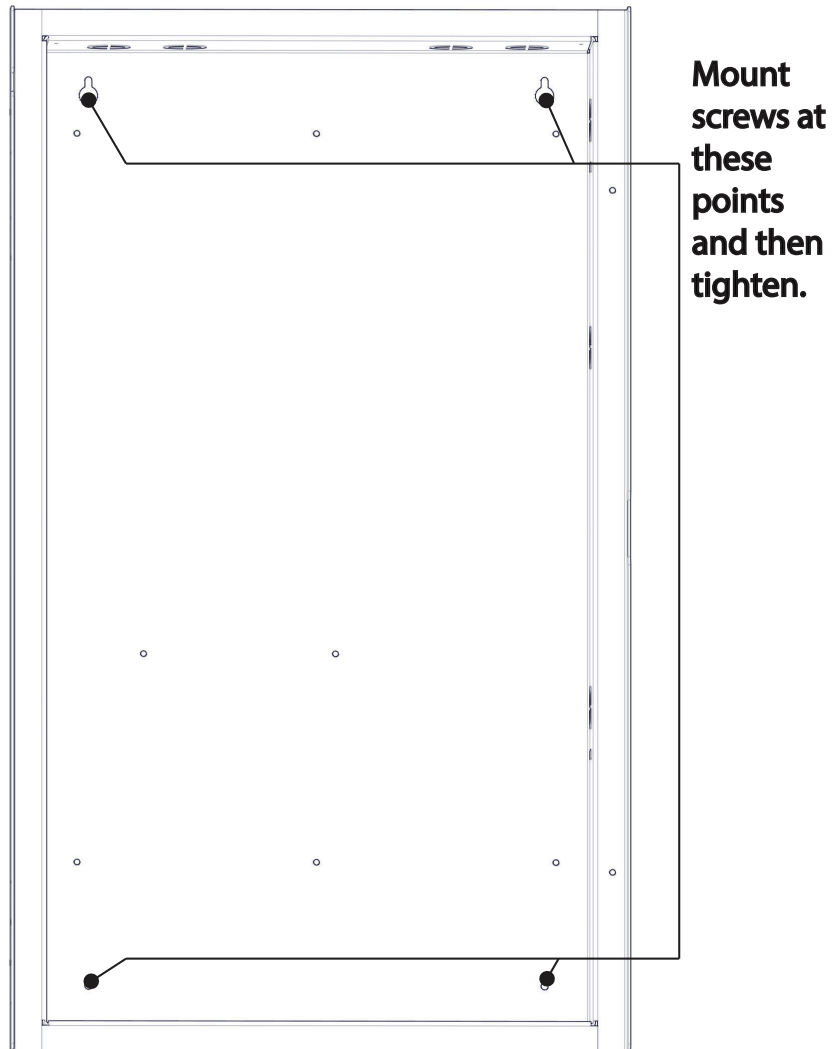
Figure 4   Mounting Screw positions

8. Remove necessary knockouts and attach conduit. Keep the lower left knockout for the dedicated AC power in.

Knockouts

Knockouts

Dedicated AC Power Knockout and Conduit
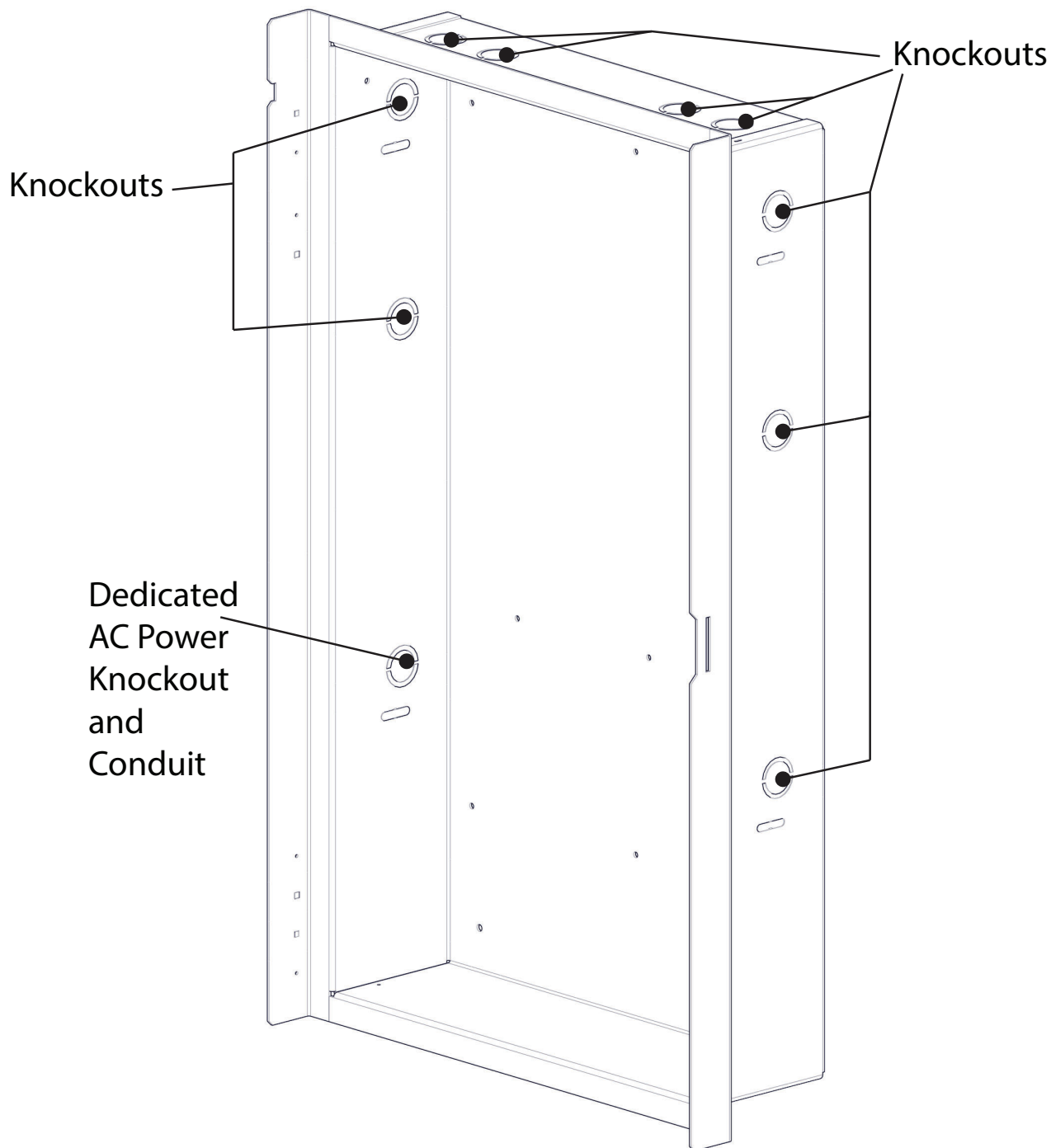
Figure 5   Conduits Knockouts

9. Attach the doors to the chassis and then secure the ground straps to the doors using the wingnuts removed in step 3.

10. Place the backplate on the eight mounting bolts and then secure the backplate to the backbox using the hex nuts removed in step 2.

i

Note: Note: If installing AUDMAX-BP, the backbox installation is complete.

11. Connect the ribbon cable from the main display to terminal P12 on the main board.

12. Connect the microphone cable to terminal TS15 and TS18 on the main board.

3.2.3 Flush Mounting the AUDMAX-MASTER or AUDMAX-BP

To Flush Mount the Enclosure

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Note: If installing AUDMAX-BP, proceed to step 2.

1. Open the AUDMAX-MASTER and then remove the following cables from the AUDMAX-MASTER main board:

    • Disconnect the ribbon cable from terminal P12.

    • Disconnect the microphone cable from terminal TS15 and TS18.

2. Unscrew the eight hex nuts that are securing the backplate to the backbox and then remove the back plate from the enclosure. Secure Hexnut for future use.
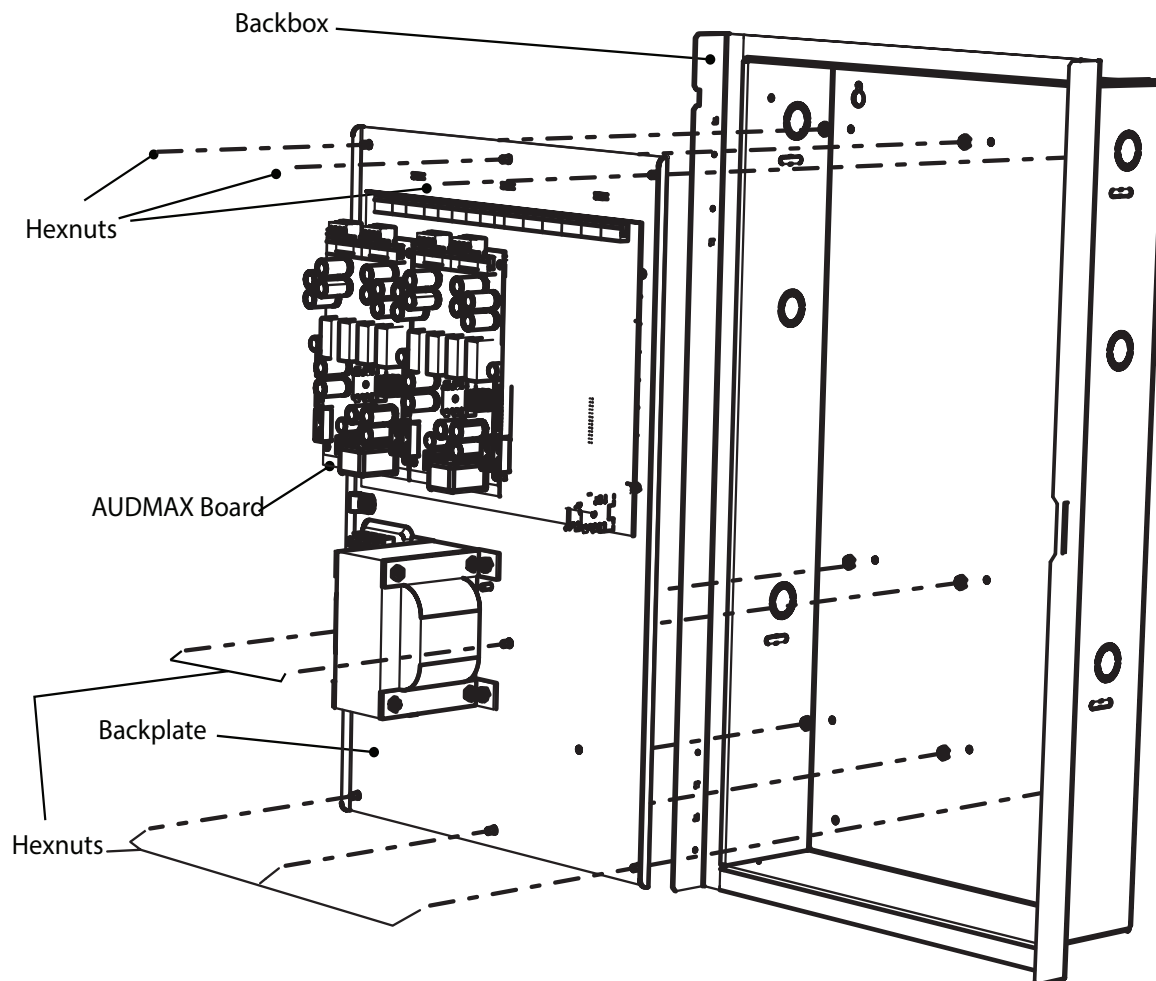
Figure 6   Backplate removal

3. Unscrew the wingnuts securing the ground straps to the doors and then remove the doors from the chassis. Secure wingnuts for future use.

4. Find a suitable mounting location for the AUDMAX-MASTER or AUDMAX-BP (next to a wall stud or supporting structure) and then mark an opening on the wall that matches the dimensions of the AUDMAX-MASTER backbox.
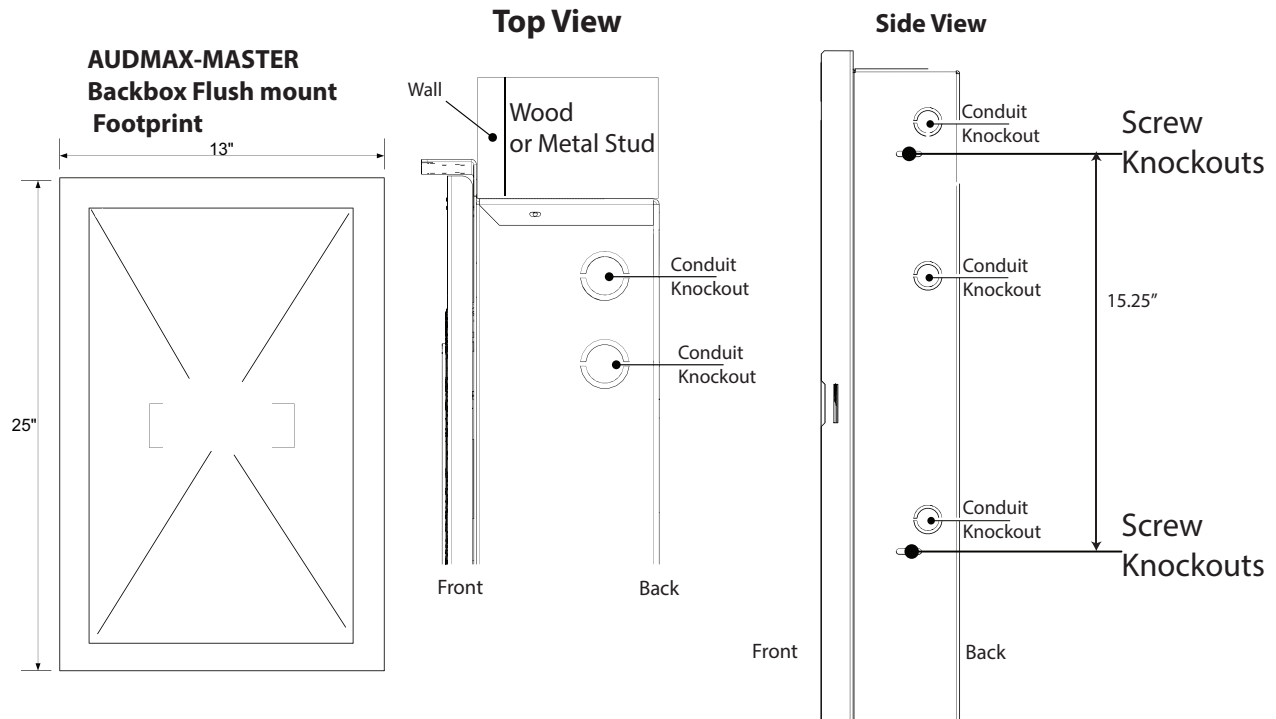
Figure 7   AUDMAX-MASTER flush mount

5. Cut an opening 0.1" larger than the opening marked in step 4, ensuring that one side is aligned with the wall stud or supporting structure.

6. Mount the backbox into the wall using two screw knockouts.

7. Remove necessary knockouts and attach conduit. Reserve knockout on the lower left side for the dedicated AC Power conduit.

Knockouts

Knockouts

Dedicated
AC Power
Knockout
and
Conduit
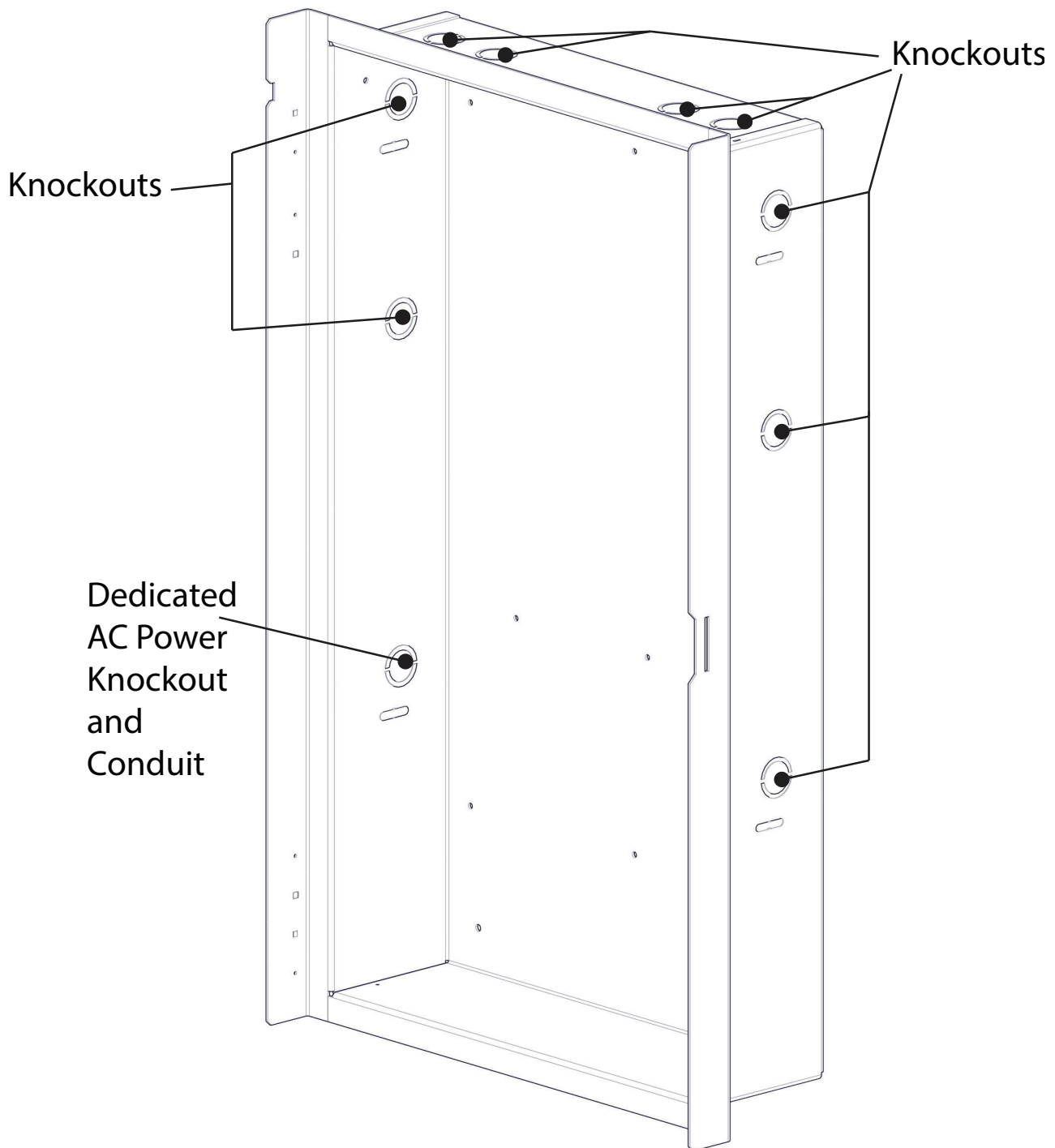
Figure 8   Flush mount conduit

8. Attach the doors to the chassis and then secure the ground straps to the doors using the wingnuts removed in step 3.

9. Place the backplate on the six mounting bolts and then secure the backplate to the backbox using the hex nuts removed in step 2.

i

> **Note:** If installing AUDMAX-BP, the backbox installation is complete.

10. Connect the ribbon cable from the main display to terminal P12 on the main board.

11. Connect the microphone cable to terminal TS15 and TS18 on the main board.

3.2.4 Surface Mounting the MMX-BC-160

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> **Note:** MMX-BC-160 must be located within the same room as the AUDMAX-MASTER that it services.

To Flush Mount the Enclosure

1. Find a suitable mounting location for the MMX-BC-160 that is next to a wall stud or supporting structure, and a minimum of 6" below the panel requiring external battery power.
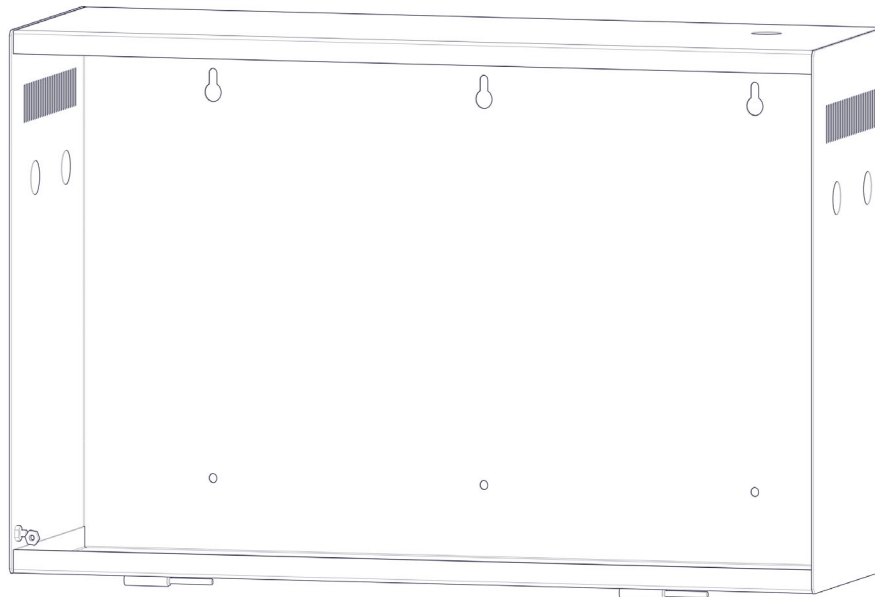
Figure 9   MMX-BC-160 Cabinet

2. Align the MMX-BC-160 Cabinet's and Control Panel's knock-outs.

3. Mark an opening on the wall that matches each of the six anchoring holes and overall dimensions of the MMX-BC-160 backbox. Ensuring that one side is aligned with the wall stud, supporting structure, or secure mounting surface.

4. Remove necessary knockouts and attach conduit.
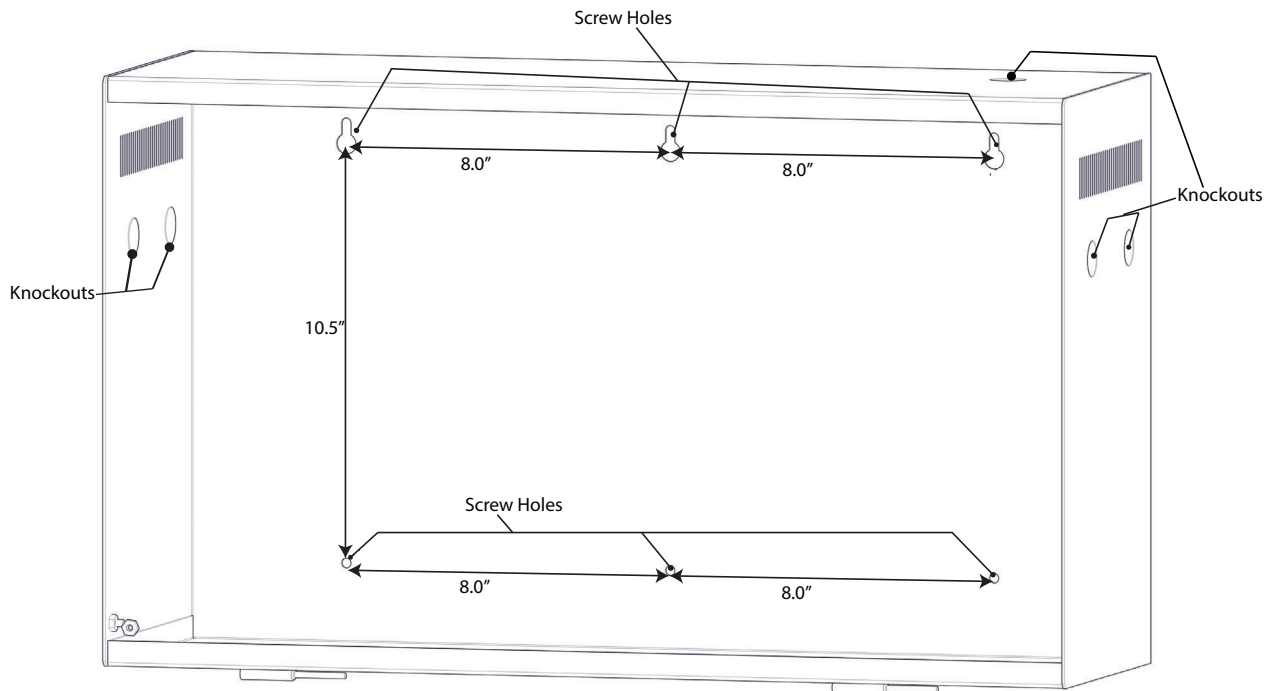
Figure 10   MMX-BC-160 Conduit

5. Mount the backbox into the wall using six mounting bolts.

6. Connect the MMX-BC-160 Cabinet to the Control Panel cabinet with conduit between the adjacent knock-outs.

3.2.5 Surface Mounting the AUDMAX-RM

To Surface Mount the Enclosure

1. Open the AUDMAX-RM.

2. Unscrew the two hex nuts that are securing the CH-1124A PCB bracket to the backbox and then remove the bracket from the enclosure. Secure Hexnut for future use.
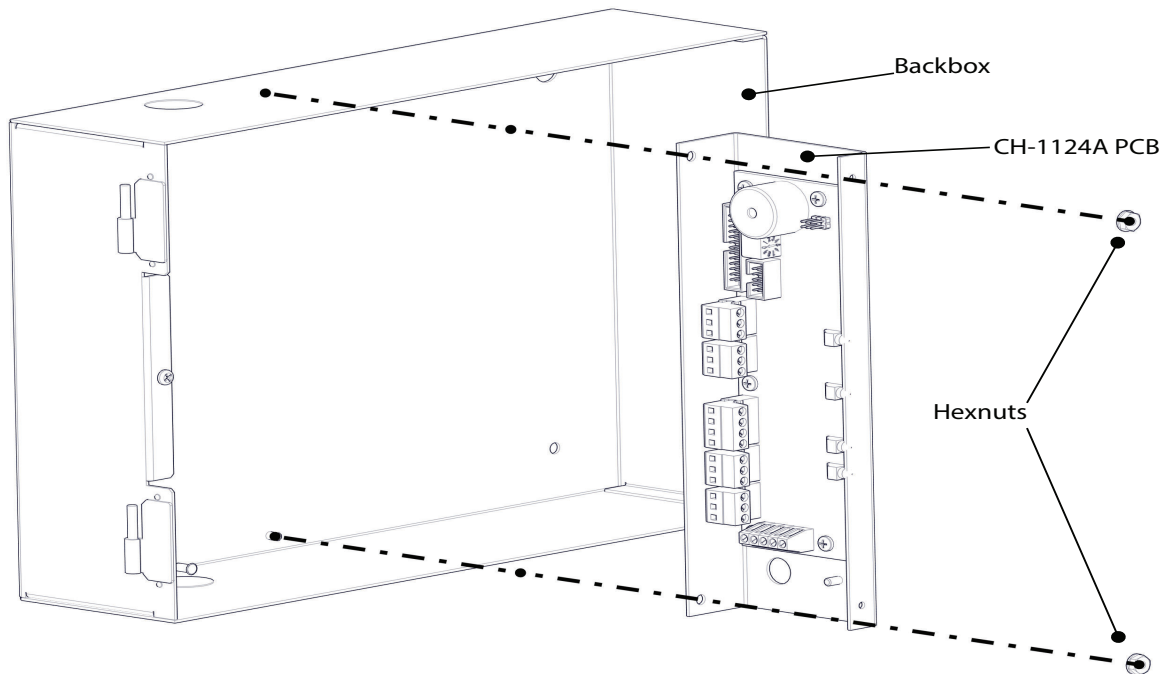

Figure 11   Hexnut removal

3. Unscrew the wingnuts securing the ground straps to the doors and then remove the door from the chassis. Secure wingnuts for future use.

4. Mark the location of the top two mounting holes 9.95" apart on the wall.

Secutron™

Screw Holes

9.95″

Conduit
Knockout

7.5″

Screw Holes
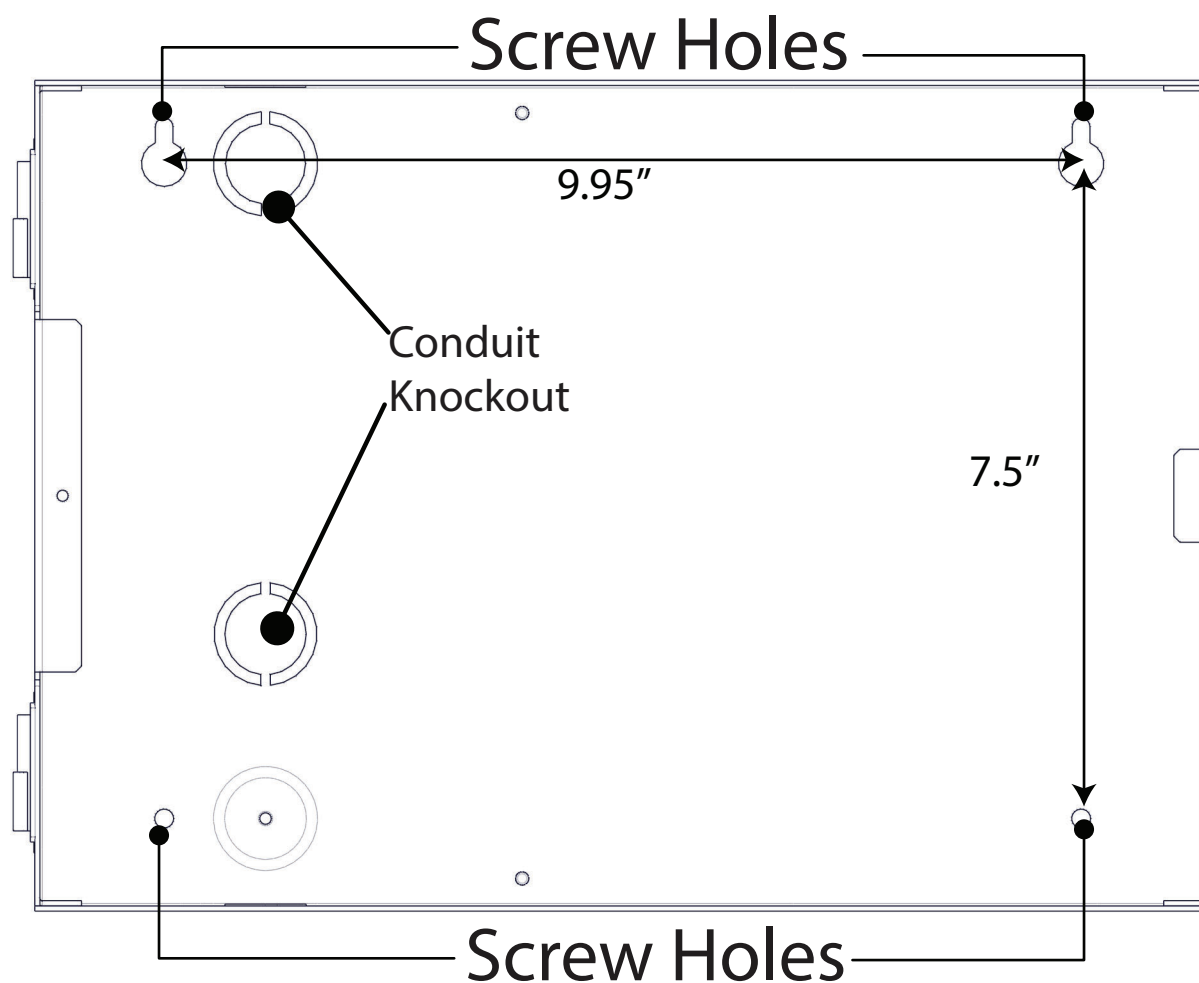
Figure 12   AUDMAX-RM mounting holes and knockouts

5. Fasten two screws halfway into the wall in the positions marked in step 4, using a suitable screw size.

6. Hang the box onto the two screws.

7. Screw the other two screws at the bottom of the panel.

8. Tighten all four screws into place.

9. Attach the door to the chassis and then secure the ground straps to the doors using the wingnuts removed in step 3.

10. Secure the CH-1124A PCB bracket to the backbox using the screws removed in step 2.

3.2.6 Surface Mounting the AUDMAX-LOCR

To Surface Mount the Enclosure

1. Open the AUDMAX-LOCR and then remove the following cables from the AUDMAX-LOCR main board:

   • Disconnect the ribbon cable from terminal P1.

   • Disconnect the microphone cable from terminal TS6.

2. Unscrew the four screws that secure the CH-1139A PCB bracket to the backbox and then remove the bracket from the enclosure. Secure screws for future use.
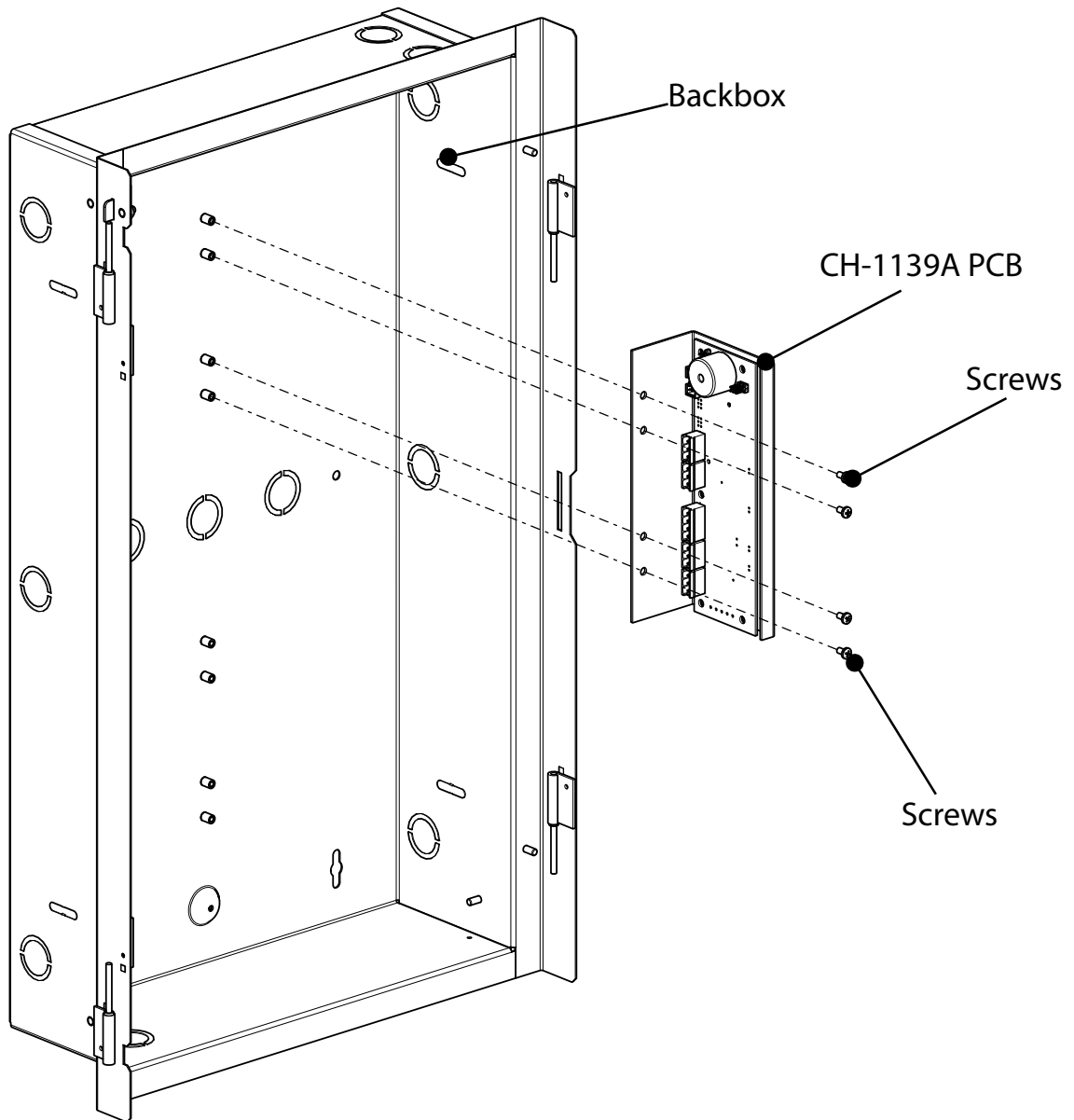
Figure 13 Screw removal

3. Remove wingnuts to the door ground straps and then remove the doors from the chassis. Secure wingnuts for future use.

4. Mark the location of the top two mounting holes 8.5" apart on the wall.

Mount screws at these points and then tighten.

8.5"

20.25"

Knockouts

Mount screws at these points and then tighten.
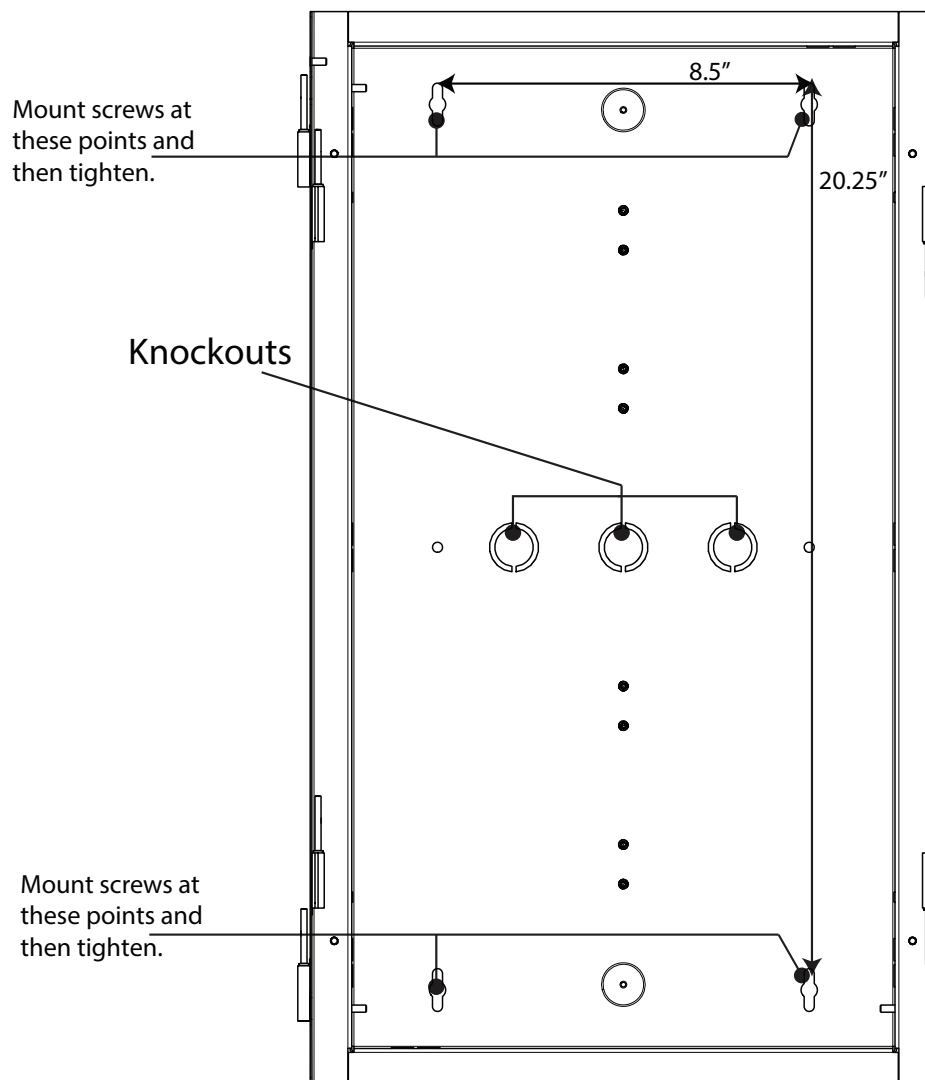
Figure 14   AUDMAX-LOCR mounting holes

5. Fasten two screws halfway into the wall in the positions marked in step 4, using a suitable screw size.

6. Hang the box onto the two screws.

7. Screw the other two screws at the bottom of the panel.

8. Tighten all four screws into place.

9. Remove all necessary knockouts.

Ground Wire Anchor

Standoffs
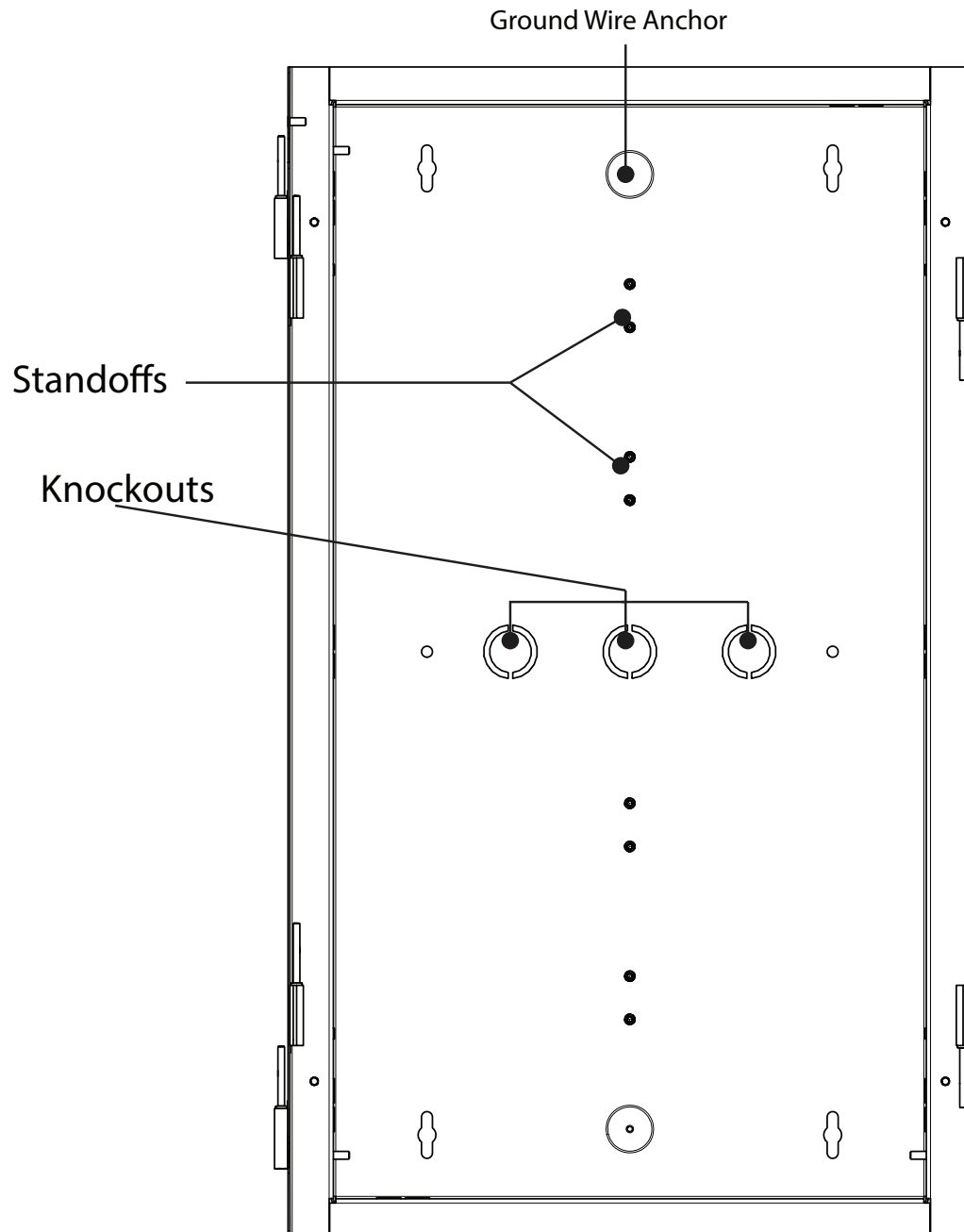
Knockouts

Figure 15 AUDMAX-LOCR knockouts and board anchors

10. Attach the doors to the chassis and then secure the ground straps to the doors using the wingnuts removed in step 3.

11. Secure the CH-1139A PCB bracket to the backbox using the screws removed in step 2.

12. Connect the ribbon cable from the main display to terminal P1 on the main board.

13. Connect the microphone cable to terminal TS6 on the main board.

3.2.7 Flush Mounting the AUDMAX-LOCR

To Flush Mount the Enclosure

1. Open the AUDMAX-LOCR.

2. Unscrew the four screws that secure the CH-1139A PCB bracket to the backbox.
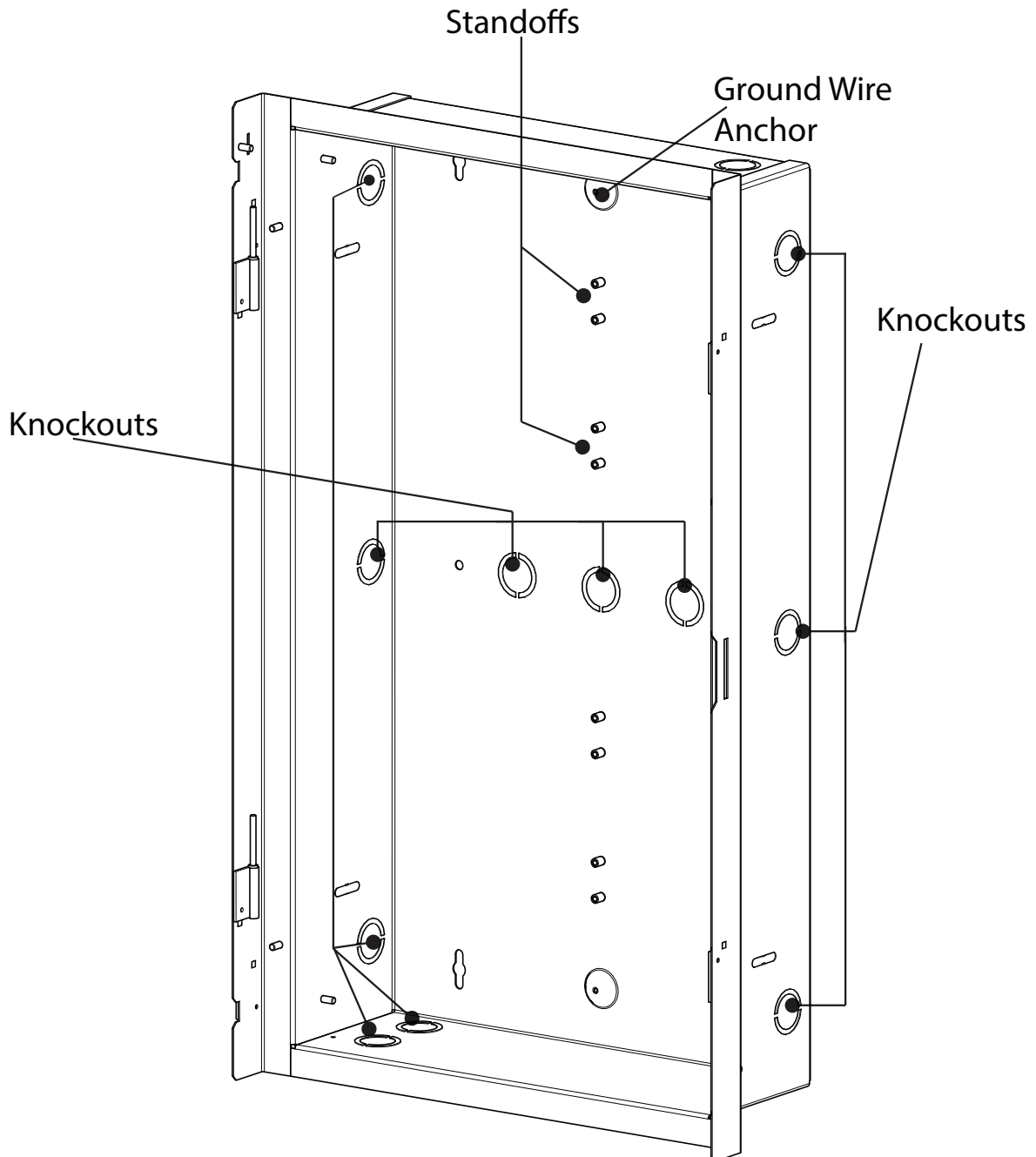
Figure 16 AUDMAX-LOCR Knockout and board anchors detail

3. Remove wingnuts to the door ground straps and then remove the doors from the chassis. Secure wingnuts for future use.

4. Find a suitable mounting location for the AUDMAX-LOCR next to a wall stud or supporting structure, and then mark an opening on the wall that matches the dimensions of the AUDMAX-LOCR backbox.

Side View   Top View

**AUDMAX-LOCR Backbox
Flush mount Footprint**

Wall

Conduit
Knockout

Metal or
Wood Stud

12.5"

Mount screws at
these points and
then tighten.

16"

23"

Back   Front

Front   Back   Wall
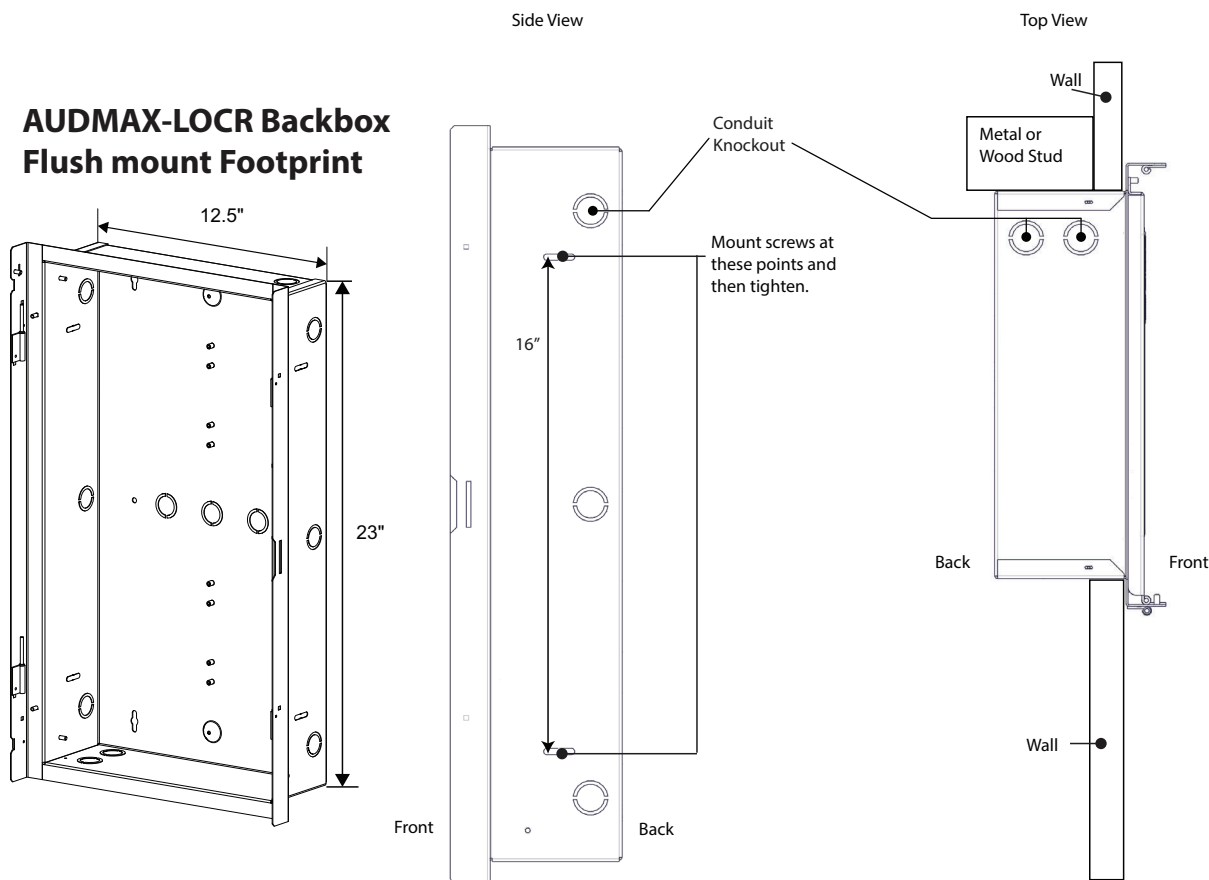
Figure 17   AUDMAX-LOCR mounting holes

5. Cut an opening 0.1" larger than the opening marked in step 4, ensuring that one side is aligned with the wall stud or supporting structure.

6. Attach the box using the necessary number of screws via the box's side or back.

7. Tighten all screws.

8. Remove all necessary knockouts

9. Attach the doors to the chassis and then secure the ground straps to the doors using the wingnuts removed in step 3.

10. Secure the CH-1139A PCB bracket to the backbox using the screws removed in step 2.

11. Connect the ribbon cable from the main display to terminal P1 on the main board.

12. Connect the microphone cable to terminal TS6 on the main board.

3.3 Main Board Connections

The Main Board is pre-installed on the AUDMAX-MASTER backplate. The Main Board terminals are shown below. The terminals are depluggable for wiring ease.
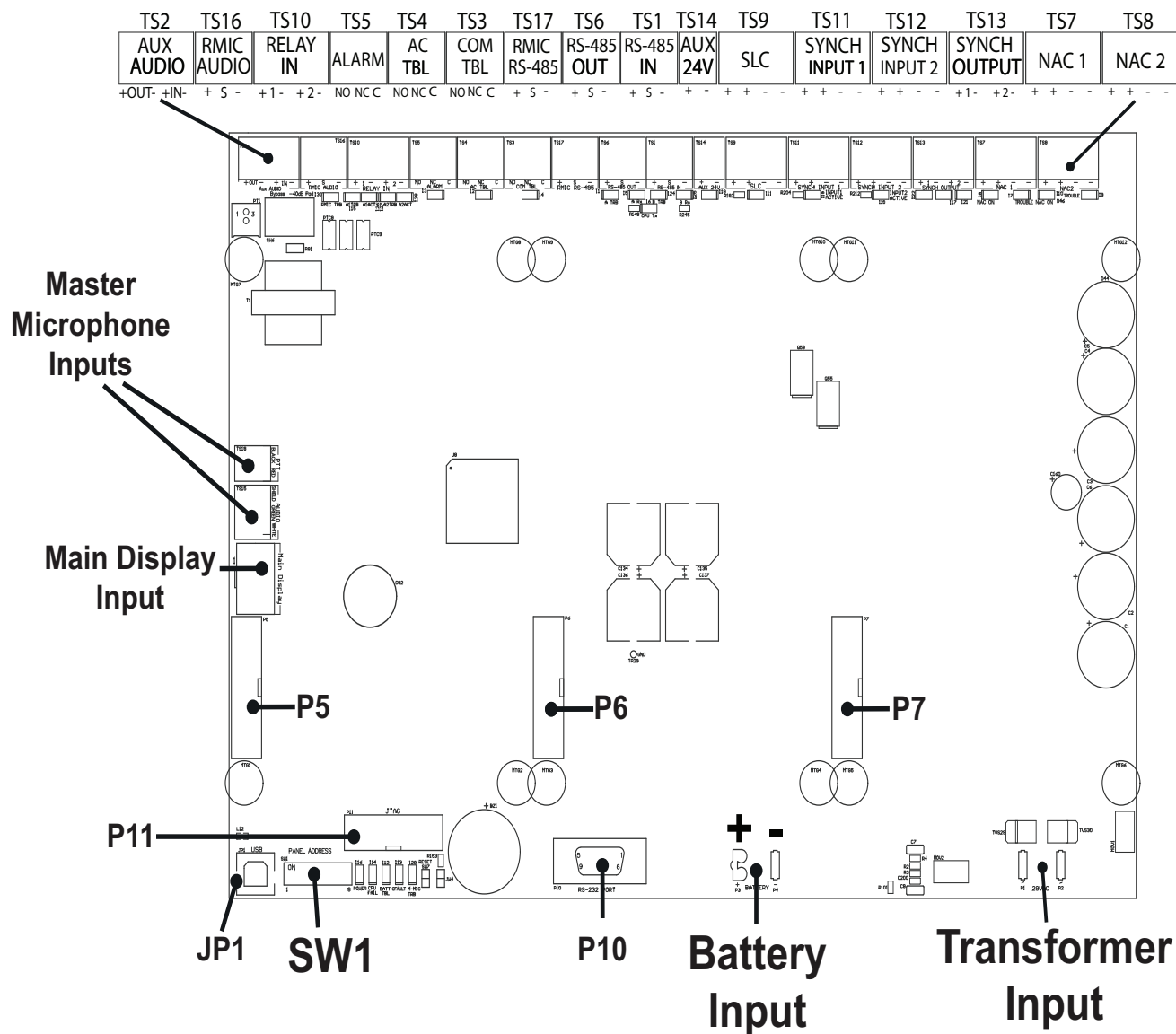
Figure 18 AUDMAX-MASTER Main Board terminals and Jumpers

Table 5   AUDMAX-MASTER Main Board terminals and Jumpers

Terminal/Jumper	Description
P1,2	terminals for transformer. No polarity.
P3, P4	terminals for battery • Red(+) to P3 • Black(-) to P4
P5, P6	terminal for amplifier card QAD-30.

Table 5   AUDMAX-MASTER Main Board terminals and Jumpers (Continued)

Terminal/Jumper	Description
P7	terminal for audio zone splitter QAS-2X8.
P10	Header for RS-232 port. For future use.
P11	Factory Program.
P12	Main display ribbon cable terminal.
TS16	Remote Microphone Audio terminal.
TS10	Relay IN terminal.
TS5	Alarm Relay terminal.
TS4	AC Trouble Relay terminal.
TS3	Common Trouble Relay terminal.
TS17	Remote Microphone RS-485 terminal.
TS6	RS-485 OUT terminal.
TS1	RS-485 IN terminal.
TS2	For future use.
TS14	AUX 24V power terminal.
TS9	SLC terminal.
TS11	SYNCH Input 1 terminal.
TS12	SYNCH Input 2 terminal.
TS13	SYNCH Output terminals S1 and S2.
TS7	NAC 1 terminal.
TS8	NAC 2 terminal.
TS15, TS18	PTT Microphone cable terminal.
JP1	USB port
JW6	Watchdog. (Normally shorted.)
SW1	DIP switch for Panel Address.
SW7	Software reset. (Short to reset.)
JP1	USB connection for configurator, debugging, and firmware updates.

3.4   Operating Power

The AUDMAX-MASTER can operate on either 120VAC or 240VAC on the AC mains and battery power when there is a drop in or complete loss of electrical power. For more information, see Appendix B: Power Supply & Battery Calculations.

3.4.1   AC Power

Connect the AC power (Blue and Black wires) to P1 and P2 on the board.

i **Note:** Terminal Polarity does NOT matter for AC power. Wire order is not relevant for Transformer Input.

Bottom of AUDMAX-MASTER or AUDMAX-BP Board

	Yeo Heung Transformer	Signal Transformer
240V	Yellow wire	Brown wire
120V	Red wire	Black wire
Neutral	Black wire	White with blue strip wire
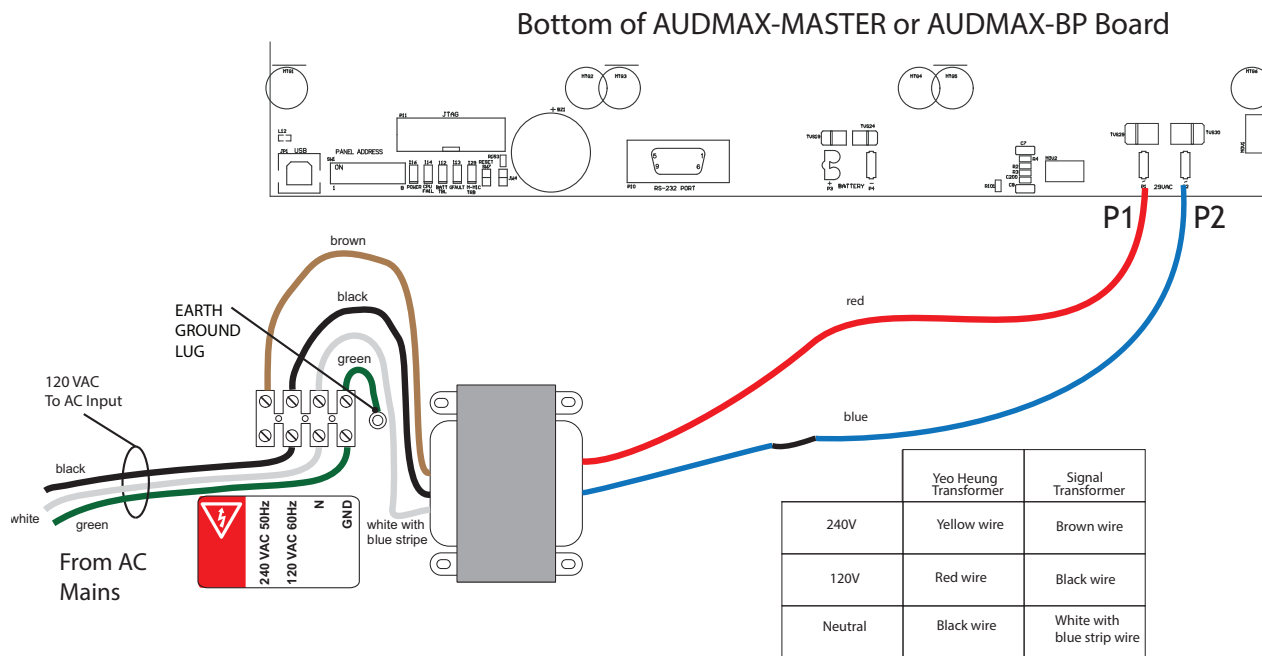
Figure 19   AC power wiring

1. Ensure that AC mains are wired to proper transformer screw terminals.

2. Ensure Earth Ground Lug is connected to backbox via the green wire.

3. On the opposite side of the transformer, connect the black and blue wires to either P1 and P2 terminals on the main board.

i **Note:** ALWAYS route the AC Mains through the dedicated AC Power Knockout and conduit.

3.4.2 Battery Power

AUDMAX-MASTER or AUDMAX-BP Cabinet

Bottom of AUDMAX-MASTER or AUDMAX-BP Board
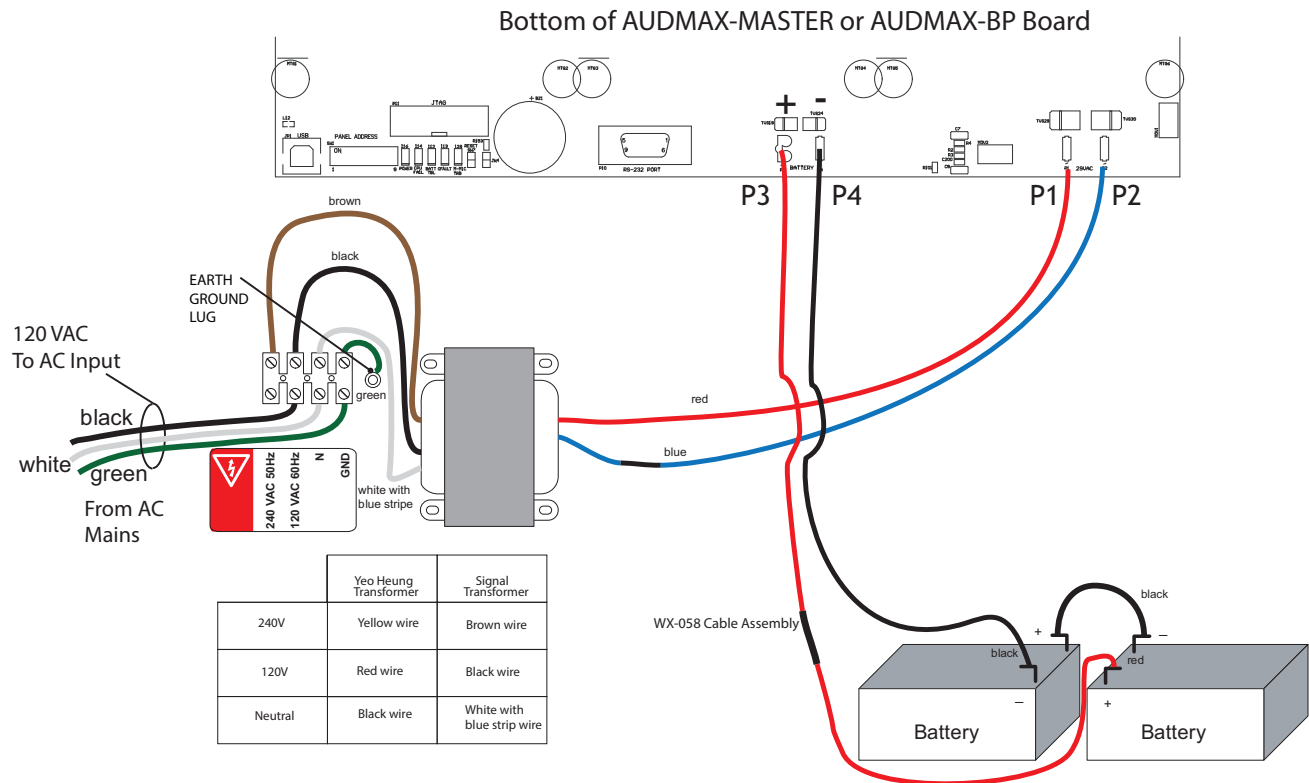
Figure 20   AUDMAX-MASTER or AUDMAX-BP battery wiring

1. Connect wires to the battery terminals.

2. Ensure the transformer terminals are connected to the board.

3. Connect the batteries' positive terminal to P3 on the AUDMAX-MASTER board.

4. Connect the batteries' negative terminal to P4 on the AUDMAX-MASTER board.

i

Note: Panel must have AC power connected initially, otherwise it will not power up via the battery.

Battery Maintenance

The 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.

MMX-BC-160 External Cabinet

Bottom of AUDMAX-MASTER or AUDMAX-BP Board

No Polarity

P3   P4   P1 P2

EARTH
GROUND
LUG

brown

black

120 VAC
To AC Input

green

black

white   green

red

white with
blue stripe

blue

240 VAC 50Hz
120 VAC 60Hz
N
GND

	Yeo Heung Transformer	Signal Transformer
240V	Yellow wire	Brown wire
120V	Red wire	Black wire
Neutral	Black wire	White with blue strip wire

Via Conduit between
MMX-BC-160 and
AUDMAX-MASTER or
AUDMAX-BP

WX-058 Cable Assembly

MMX-BC-160 External
Battery Cabinet

black

black

black

red

Battery

Battery

Figure 21   MMX-BC-160 and AUDMAX-MASTER full wiring setup

1. Run enough wire through conduit between cabinets.

2. Connect wire to proper battery terminals inside MMX-BC-160.

Via Conduit between MMX-BC-160 and AUDMAX-MASTER or AUDMAX-BP

MMX-BC-160 External Battery

black

+

red

black

—

—

Battery

+

Battery

Figure 22   MMX-BC-160 Internal Wiring

3. When ready to wire AUDMAX-MASTER or AUDMAX-BP batteries to main board, ensure that the AC power (via P1 and P2) are connected before the battery terminals (via P3 and P4) to avoid sparking hazards.

i

Note: Panel must have AC power connected initially. Otherwise, the panel will not power up via the battery connection alone.

3.5   Amplifier Module Connections

The AUDMAX-MASTER comes with one QAD-30 30W amplifier module. An optional second QAD-30 can be purchased to supply up to 60W of audio. Each QAD-30 mounts on top of the main board using four spacers. The QAD-30 uses ribbon cables for AUDMAX-MASTER board connections and amplifier power.The terminals on the QAD-30 are shown below and are described in Table 6.
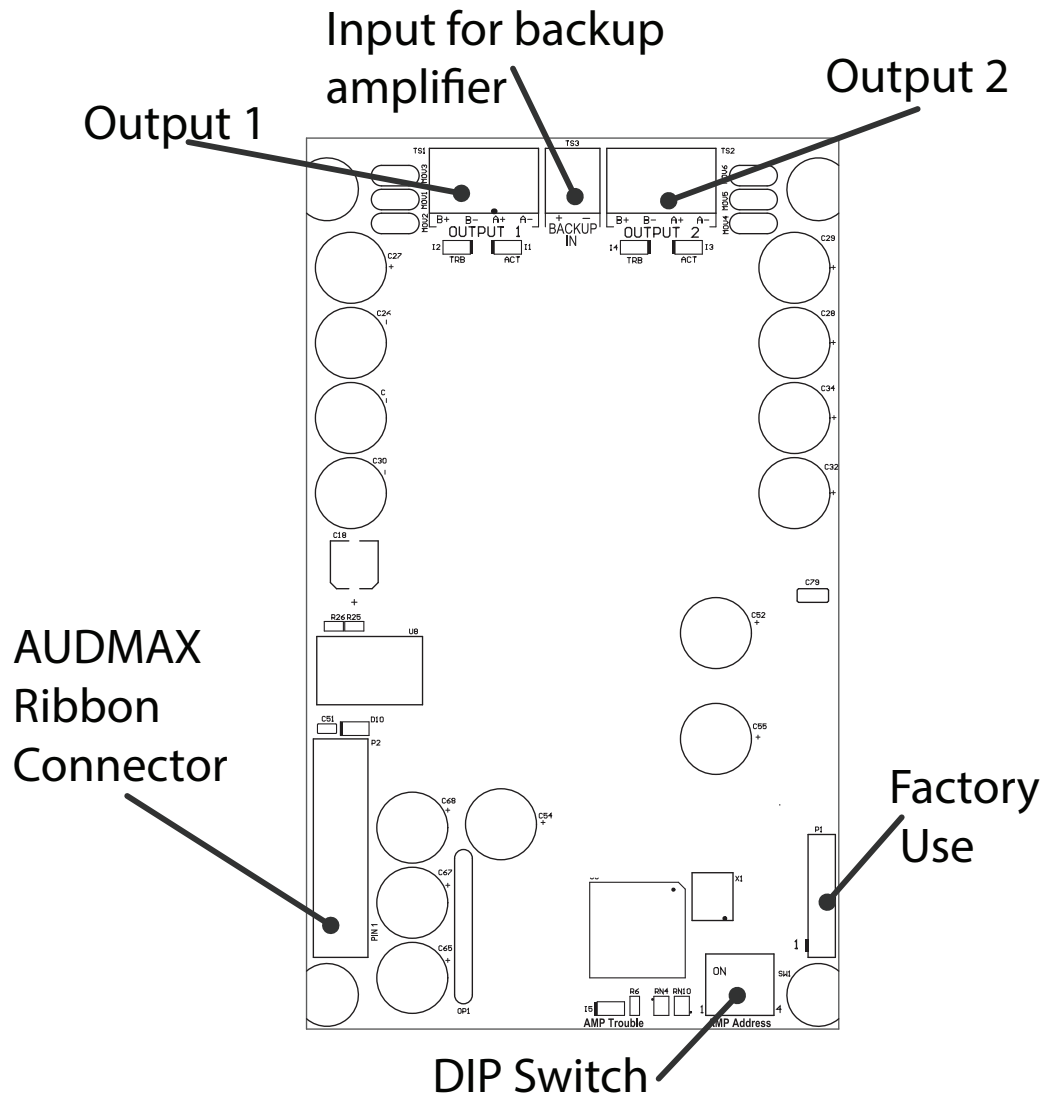
Figure 23   QAD-30 30W amplifier module connections

Table 6   QAD-30 amplifier module terminals

Terminal	Description
P1	For factory use (programming).
P2	Ribbon cable terminal to Main Board.
TS1	Output 1 terminal.
TS2	Output 2 terminal.

Table 6   QAD-30 amplifier module terminals (Continued)

Terminal	Description
TS3	Input for backup amplifier.

3.5.1 Setting the DIP switch

There is 1 bank of DIP switch bits on the QAD-30.

This DIP switch bank has 4 switches, numbered 1 to 4. Flipping a switch up places it in the ON position. **For the purposes of the configuration tables ON = 1 and OFF = 0**. For an illustration of the DIP switch settings see Figure 24.
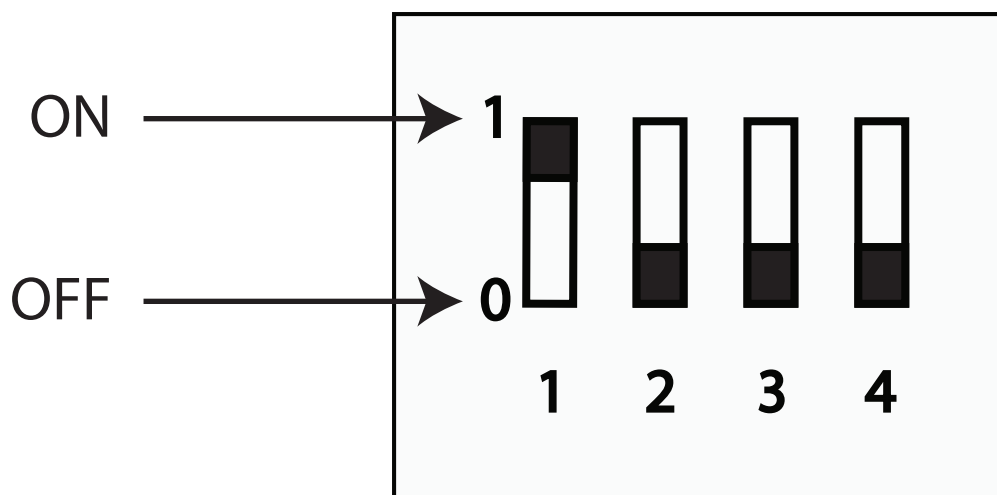
Figure 24   QAD-30 DIP switch positions

Table 7   QAD-30 DIP Switch Settings

Amplifier address	Bit 1	Bit 2	Bit 3	Bit 4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF

3.5.2 Installing Amplifier Module

To Connect the Amplifier Module to a AUDMAX-MASTER or AUDMAX-BP Board

i

> **Note:** Ensure ALL AC and battery connections are disconnected before attempting to install or remove any component. Otherwise, board damage may occur.

1. Replace one standoff for each screw at these points
   - MTG7
   - MTG8
   - MTG2
   - MTG1

2. Attach ribbon cable between P5 or P6 on the AUDMAX-MASTER or AUDMAX-BP board to P2 on QAD-30 amplifier board.

3. Place QAD-30 board so its screw holes align with the standoffs.

4. Secure amplifier board using four screws at MTG7 and MTG8 then MTG2 and MTG1.

5. Repeat for other QAD-30 boards using anchors at MTG9, MTG10, MTG3, and MTG4. Attach ribbon cable between P6 on the AUDMAX-MASTER or AUDMAX-BP board to P2 on QAD-30 amplifier board.
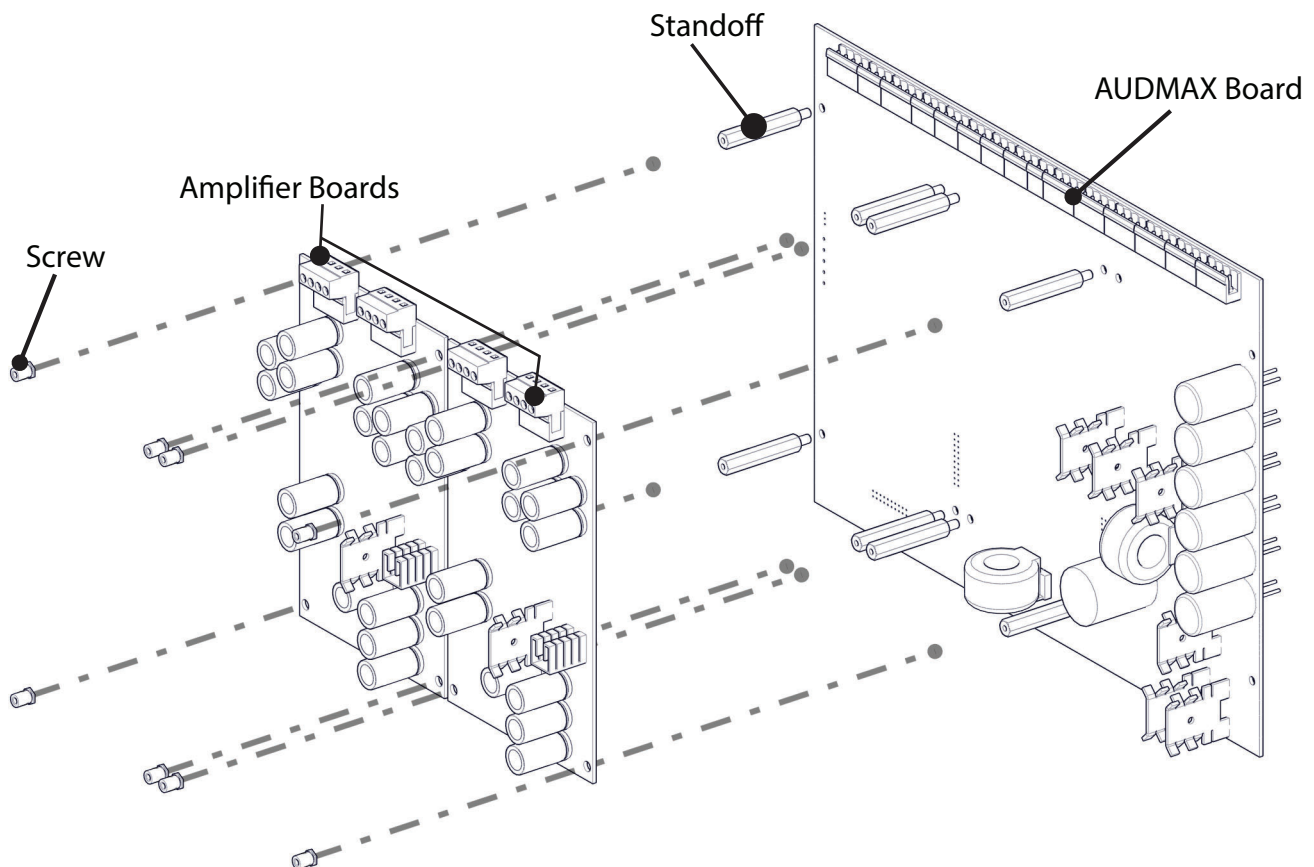
Figure 25   Installing Amplifier Module

3.6 QAS-2X8 Audio Zone Splitter Module Installation

The QAS-2X8 mounts on the rightmost side of the main board using four spacers. The QAS-2X8 uses a ribbon cable for AUDMAX-MASTER board connections and power. The terminals on the QAS-2X8 are shown below and are described in Table 8.
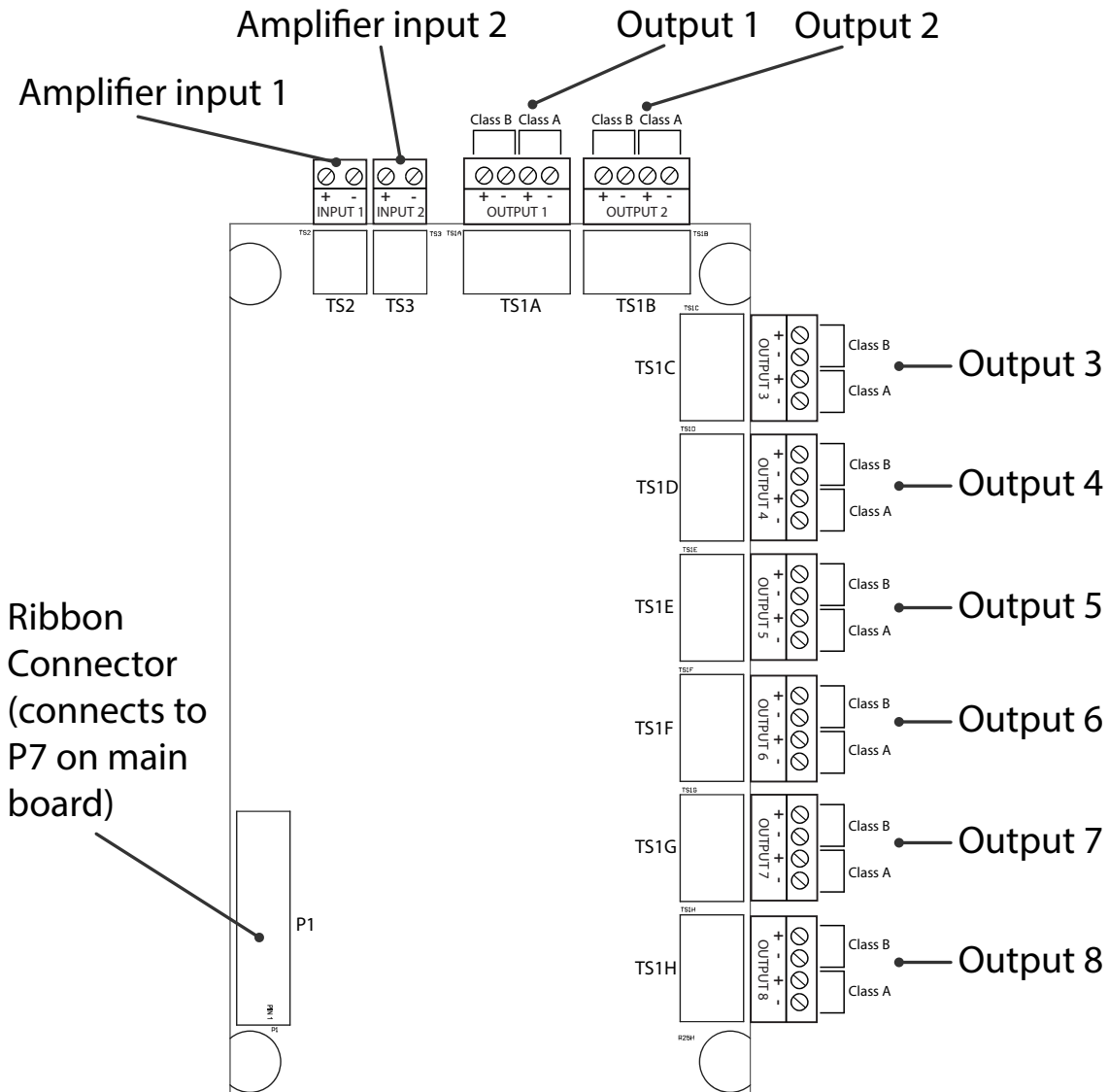
Figure 26   QAS-2X8 audio zone splitter module connections

Table 8   QAS-2X8 audio zone splitter module terminals

Terminal	Description
P1	Ribbon cable terminal to P7 on Main Board.
TS2	Amplifier input 1 terminals.
TS3	Amplifier input 2 terminals.
TS1A - TS1H	Output terminals 1-8 for audio zones.

3.6.1 Installing the Audio Zone Splitter Module

To Connect the Audio Zone Splitter Module to an AUDMAX-MASTER or AUDMAX-MASTER-BP Board

> *i*
>
> **Note:** Ensure ALL AC and battery connections are disconnected before attempting to install or remove any component. Otherwise, board damage may occur.

1. Replace one standoff for each screw on the right side of the AUDMAX-MASTER main board as shown in Figure 27.

2. Attach ribbon cable between P7 on the AUDMAX-MASTER or AUDMAX-MASTER-BP board to P1 on QAS-2X8 audio zone splitter board.

3. Place QAS-2X8 board so its screw holes align with the standoffs.

4. Secure QAS-2X8 using four screws.
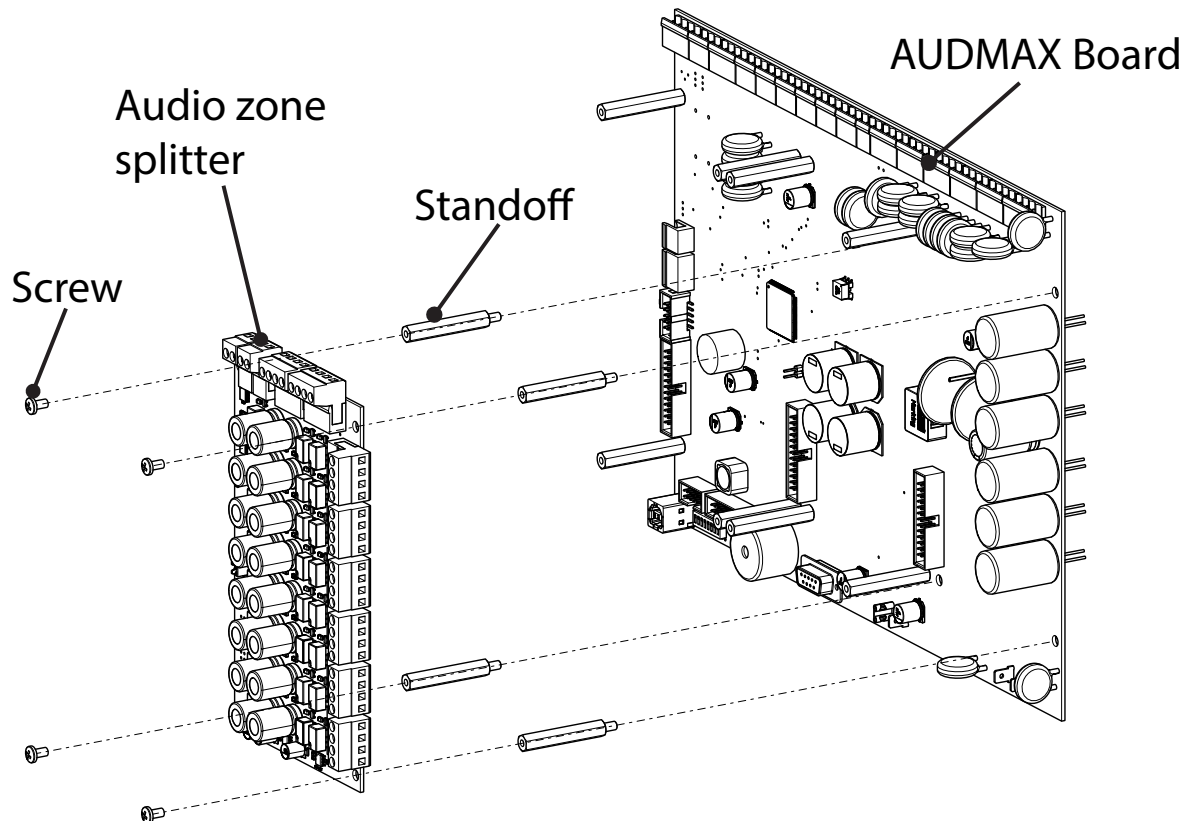
Figure 27   Installing the audio zone splitter module

3.7   Remote Microphone Connections

Up to six optional AUDMAX-RM Remote Microphones can be connected to each AUDMAX-MASTER. The remote microphones communicate with the AUDMAX-MASTER through an RS-485 network bus. Power for the remote microphones comes from the 24VDC terminal on the AUDMAX-MASTER main board.

i

> **Note:**   AUDMAX-RM not for use in Canada

The terminals and jumper on the AUDMAX-RM board are shown in Figure 28 and are described in Table 9.
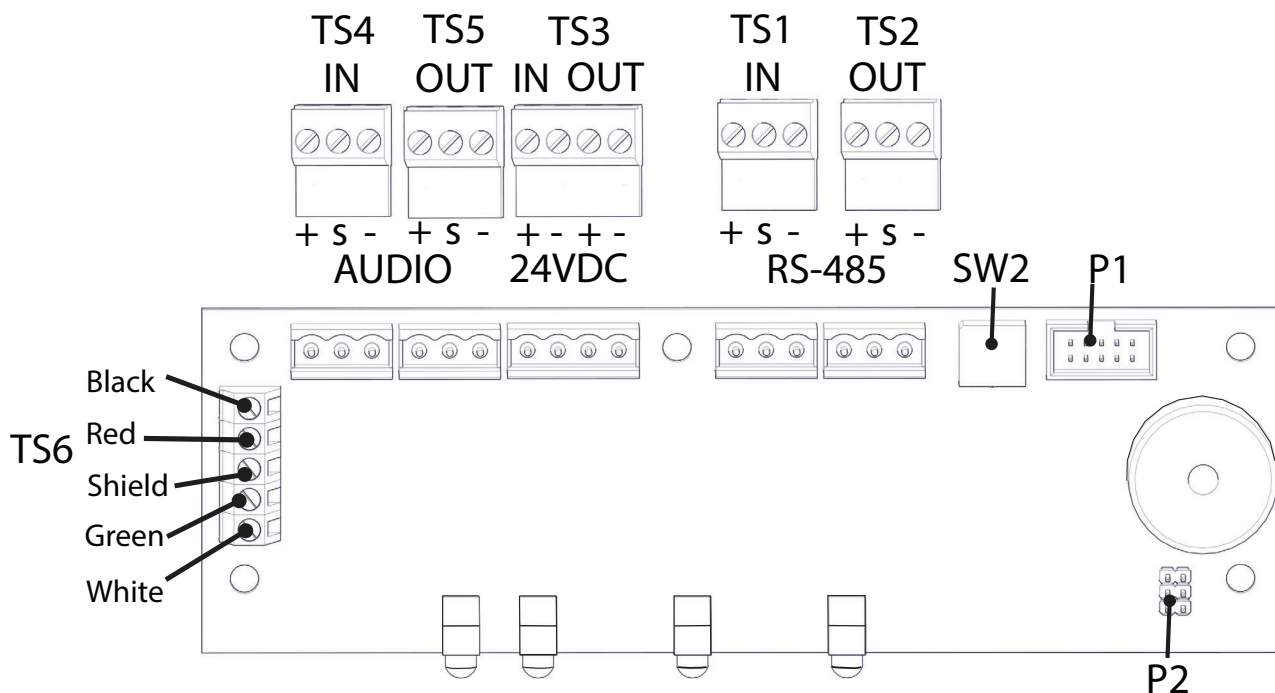
Figure 28   AUDMAX-RM terminals and jumper locations

Table 9   AUDMAX-MASTER-RM terminals and jumper

Terminal/Jumper	Description
SW2	Rotary switch for setting the RS-485 address on the AUDMAX-RM.
TS1	RS-485 In terminal.
TS2	RS-485 Out terminal.
TS3	24 VDC In and Out terminal.
TS4	Audio In terminal from AUDMAX-MASTER or previous AUDMAX-RM on the line.
TS5	Audio Out terminal to the next AUDMAX-MASTER-RM on the line.

Table 9   AUDMAX-MASTER-RM terminals and jumper (Continued)

Terminal/Jumper	Description
TS6	Terminal for PTT microphone cable.
P1	Terminal of ribbon cable from AUDMAX-LOCR local operating console display.
P2	Factory use.

3.8   Local Operating Console Connections

The AUDMAX-LOCR Local Operating Console houses a remote microphone and a main display. The terminals on the microphone board in the AUDMAX-LOCR are identical to the terminals on the microphone board in the AUDMAX-RM. For information on the terminals on the microphone board in the AUDMAX-LOCR, see Chapter 4.2.14 Remote Microphone Wiring on page 74.

3.8.1   Additional Displays in the AUDMAX-LOCR

The AUDMAX-LOCR can accommodate the following displays in the upper window. These displays are wired directly to the FACP. Follow the wiring instructions in the respective installation manuals indicated below.

- **RAX-LCD.** Wire according to the instructions in LT-856, RAX-LCD Installation and Wiring Manual. Mount using the mounting bracket (CH-976) which is included with the AUDMAX-LOCR.

- **RAXN-LCD.** Wire according to the instructions in LT-895, RAXN-LCD Installation and Wiring Manual. Mount using the mounting bracket (CH-976) which is included with the AUDMAX-LOCR.

- **RAM-3500-LCD.** Wire according to the instructions in LT-1093, RAM-3500-LCD Installation and Wiring Manual. Mount using the mounting bracket (CH-980) and the four standoffs which are included with the AUDMAX-LOCR.

- **RAX-LCD-LITE.** Wire according to the instructions in LT-1149, RAX-LCD-LITE Installation and Wiring Manual. Mount using the mounting bracket (CH-980) and the four standoffs which are included with the AUDMAX-LOCR.

i   **Note:**   CH-976 has attached standoffs, and CH-980 does not have attached standoffs.

i   **Note:**   AUDMAX-LOCR not for use in Canada

Included bracket
CH-976 for RAX-LCD and
RAXN-LCD (use 4 screws
attached to blank plate)

Dead Front

Same board as
AUDMAX-RM

Indicators and Controls
(RAX-LCD shown in the
upper window)

Backbox

Door
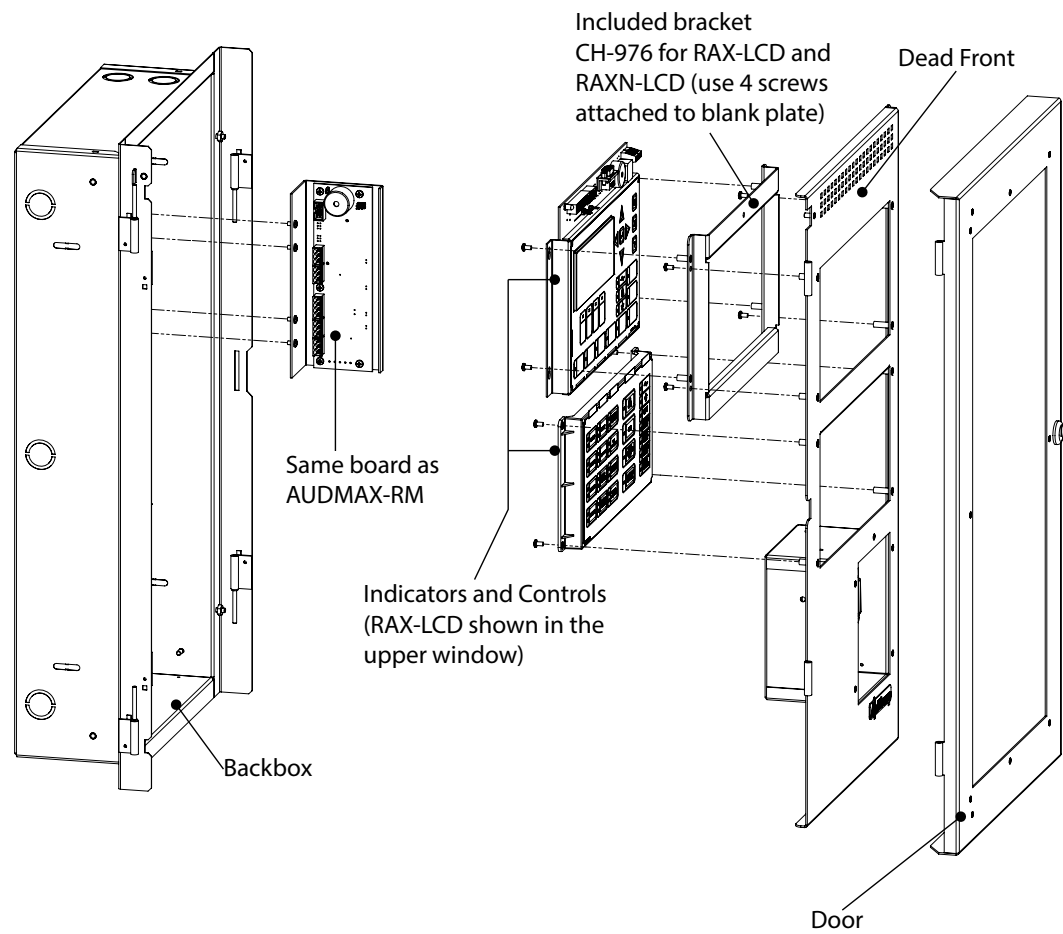
Figure 29 Exploded View of AUDMAX-LOCR showing mounting of RAX-LCD

Included bracket CH-980 for
RAM-3500-LCD and RAX-LCD-LITE
(use 4 included standoffs and 4
screws attached to blank plate)

Dead Front

4 included
standoffs

Same board as
AUDMAX-RM

Indicators and Controls
(RAX-LCD-LITE shown in
the upper window)

Backbox

Door
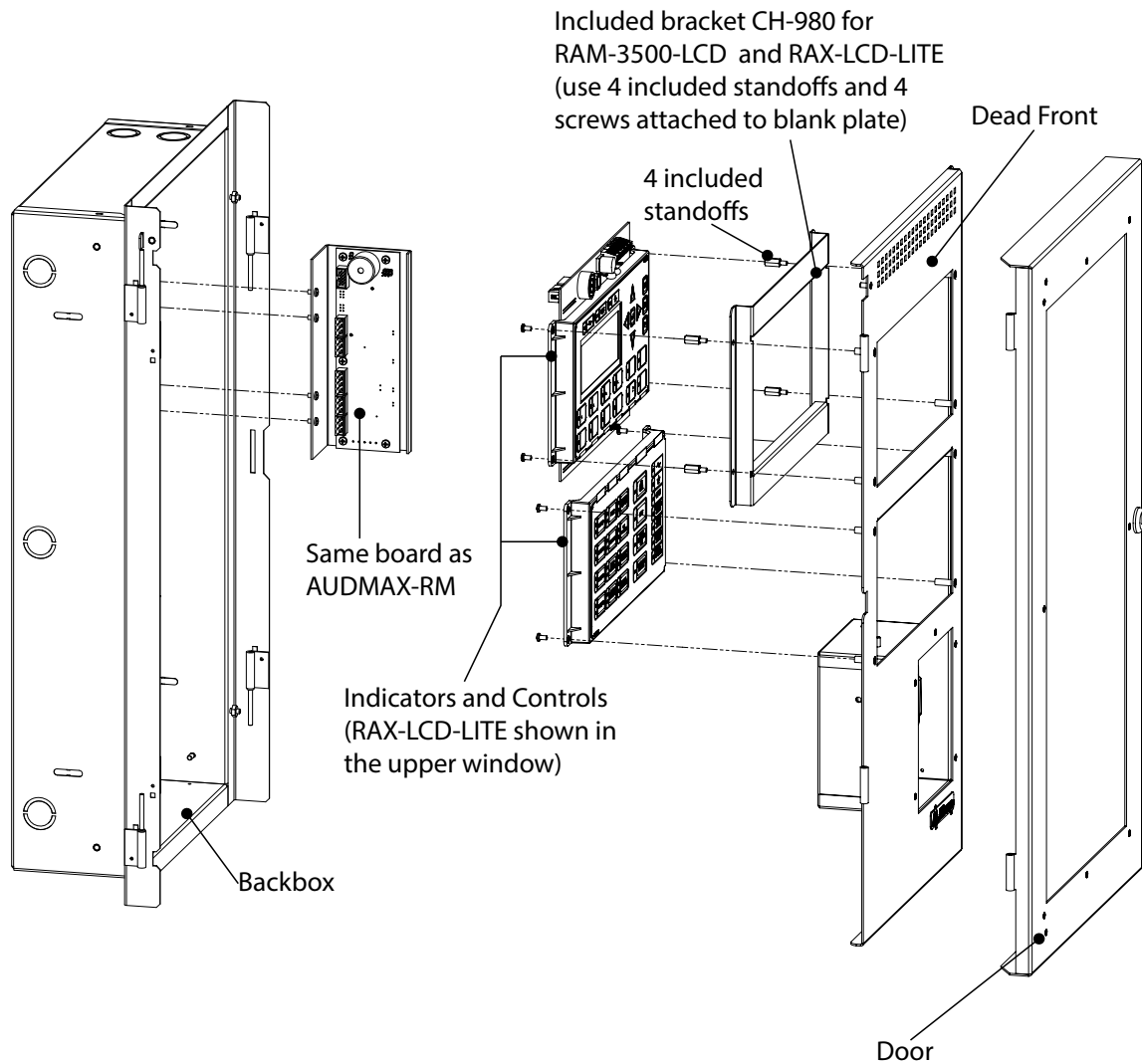
Figure 30   Exploded view of AUDMAX-LOCR showing mounting of RAX-LCD-LITE

4.0 Wiring

This chapter describes the proper field wiring for the AUDMAX-MASTER.

This chapter explains

- 4.1 Wiring Tables
- 4.2 Main Board Terminal Connections
- 4.3 Amplifier Connections
- 4.4 QAS-2X8 Audio Zone Splitter Connections
- 4.5 Backup Amplifier
- 4.6 Power Supply Connections
- 4.7 UL Power-limited Wiring Requirements

4.1 Wiring Tables

For the specifications of the wiring that connects to the Fire Alarm Control Panel, refer to the manual for the Fire Alarm Control Panel.

4.1.1 Wiring Tables for Inputs

Table 10   Wiring Table for Input Circuits (Relay Inputs and Synch Inputs)

Wire Gauge	Maximum Wiring Run to Last Device (ELR)	
(AWG)	ft	m
22	2990	910
20	4760	1450
18	7560	2300
16	12000	3600
14	19000	5800
12	30400	9200

i

Note: Maximum Loop Resistance Should Not Exceed 100 Ohms.

4.1.2 Wiring Tables for NAC Circuits

Table 11   Wiring Table for NAC Circuits

TOTAL SIGNAL LOAD	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)								MAX. LOOP RESISTANCE
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft	m	ft	m	ft	m	ft	m	Ohms
0.06	2350	716	3750	1143	6000	1829	9500	2895	30
0.12	1180	360	1850	567	3000	915	4720	1438	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	950	289	3
0.90	156	47	250	76	400	122	630	192	2
1.20	118	36	185	56	300	91	470	143	1.5
1.50	94	29	150	46	240	73	380	115	1.2
1.70	78	24	125	38	200	61	315	96	1.0
2.0	70	21	112	34	178	54	285	86	0.9
2.25	62	19	100	30	158	48	250	76	0.8
2.50	56	17	90	27	142	43	230	70	0.72

i

> **Notes:** Use unshielded twisted pair.
>
> Main Board NAC Circuits are rated for 2.5 Amperes each.
>
> Maximum Voltage Drop Should Not Exceed 1.8 Volts

4.1.3 Wiring Tables for Speaker Circuits

Table 12   Wiring Table for 70V Speakers

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

Table 13   Wiring Table 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

i

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

4.2 Main Board Terminal Connections

Wire devices to terminals as shown below.

TS2	TS16	TS10	TS5	TS4	TS3	TS17	TS6	TS1	TS14	TS9	TS11	TS12	TS13	TS7	TS8
AUX AUDIO	RMIC AUDIO	RELAY IN	ALARM	AC TBL	COM TBL	RMIC RS-485	RS-485 OUT	RS-485 IN	AUX 24V	SLC	SYNCH INPUT 1	SYNCH INPUT 2	SYNCH OUTPUT	NAC 1	NAC 2
+OUT- +IN-	+ S -	+1- +2-	NO NC C	NO NC C	NO NC C	+ S -	+ S -	+ S -	+ -	+ + - -	+ + - -	+ + - -	+1- +2-	+ + - -	+ + - -

Figure 31   Main Board Terminal Blocks

> **!**
>
> **Attention:**   **DO NOT exceed power supply ratings: Total current including Main Chassis, AUX, amplifiers, accessories, and NAC circuits is 9.5A max. See Appendix B: Power Supply & Battery Calculations on page 128.**
>
> All circuits are supervised.

> **i**
>
> **Notes:**   The Terminal Blocks are depluggable for ease of wiring.
>
> All power limited circuits must use type FPL, FPLR, or FPLP power limited cable.

4.2.1 SLC Loop Wiring - Class B

> **i**
>
> **Notes:**   Use unshielded twisted pair.
>
> For 18 AWG, the maximum length is 3225 feet (983 m). For 16 AWG, the maximum length is 4875 feet (1486 m).
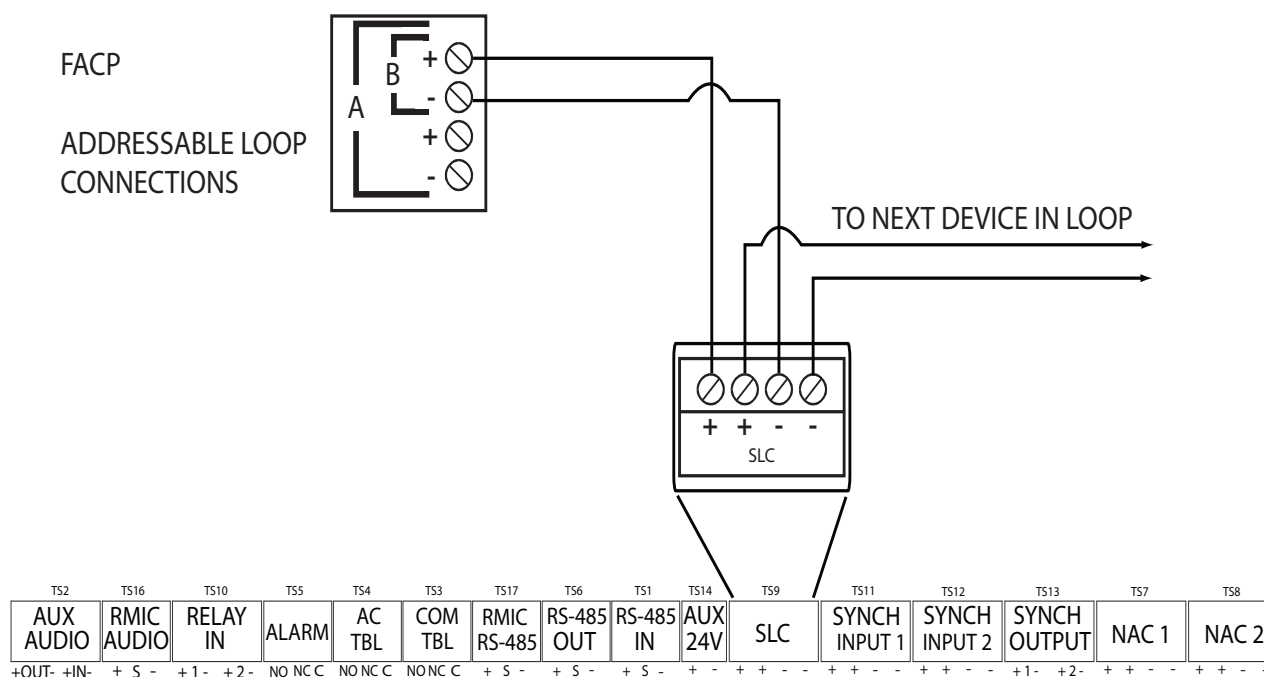
Figure 32   SLC Loop Wiring - Class B

4.2.2 SLC Loop Wiring - Class A

i

Notes: Use unshielded twisted pair.

For 18 AWG, the maximum length is 3225 feet (983 m). For 16 AWG, the maximum length is 4875 feet (1486 m).

Figure 33   SLC Loop Wiring - Class A

4.2.3 Synchronized Input from FACP Wiring - Class B

Figure 34   Synchronized Input from FACP Wiring - Class B

i

Note: The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units
- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units
- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

4.2.4   Synchronized Input from FACP Wiring- Class A
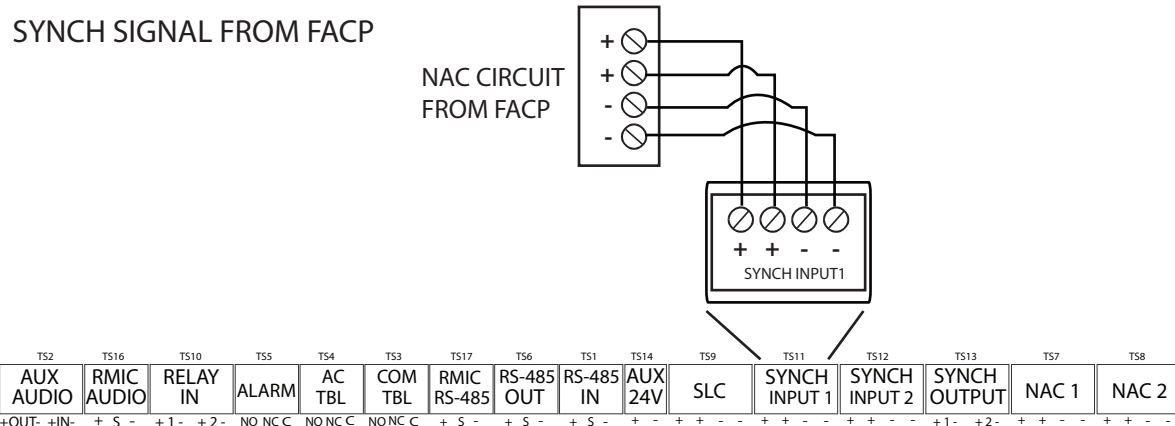
Figure 35   Synchronized Input from FACP Wiring - Class A

> **Note:**   The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTERpanel (generating synchronization) and three AUDMAX-BP units
- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units
- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

4.2.5 FACP Relay Activation - Single Stage

RELAY SIGNAL FROM FACP - One Stage
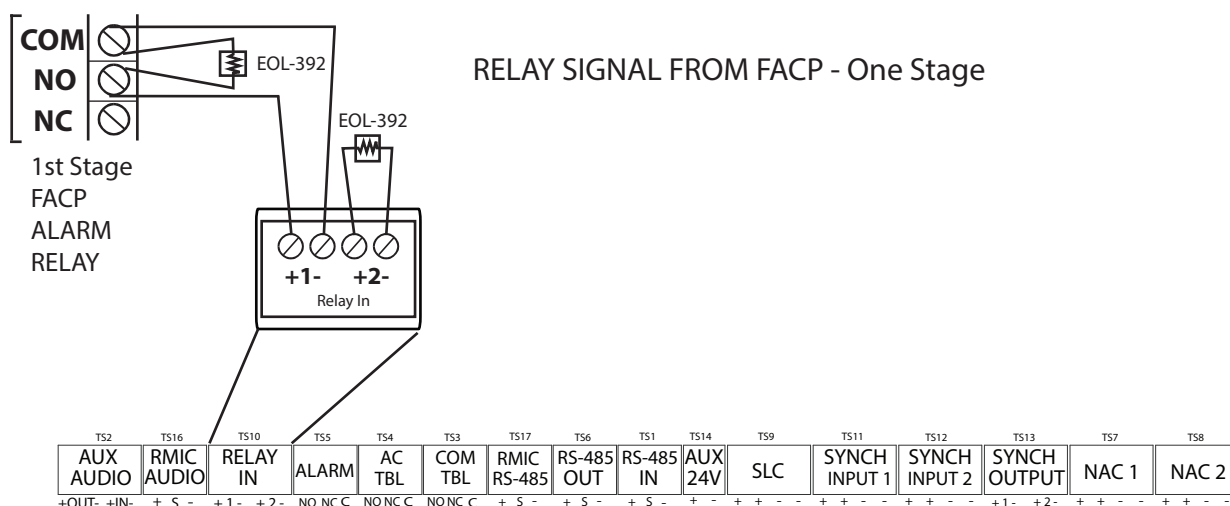
Figure 36   FACP Relay Activation - Single Stage

4.2.6 FACP Relay Activation - Two Stage

RELAY SIGNAL FROM FACP - Two Stage
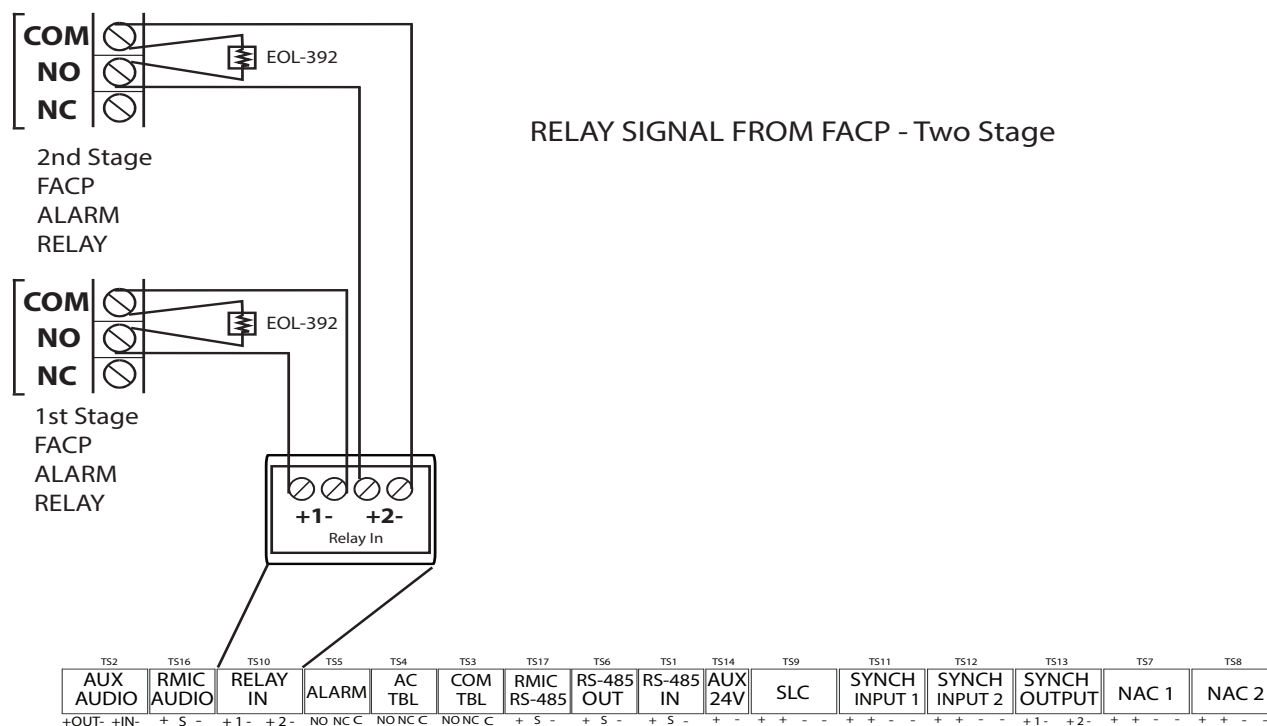
Figure 37   FACP Relay Activation - Two Stage

4.2.7 Synchronized Input from AUDMAX-MASTER Wiring - Class B Single Booster Panel
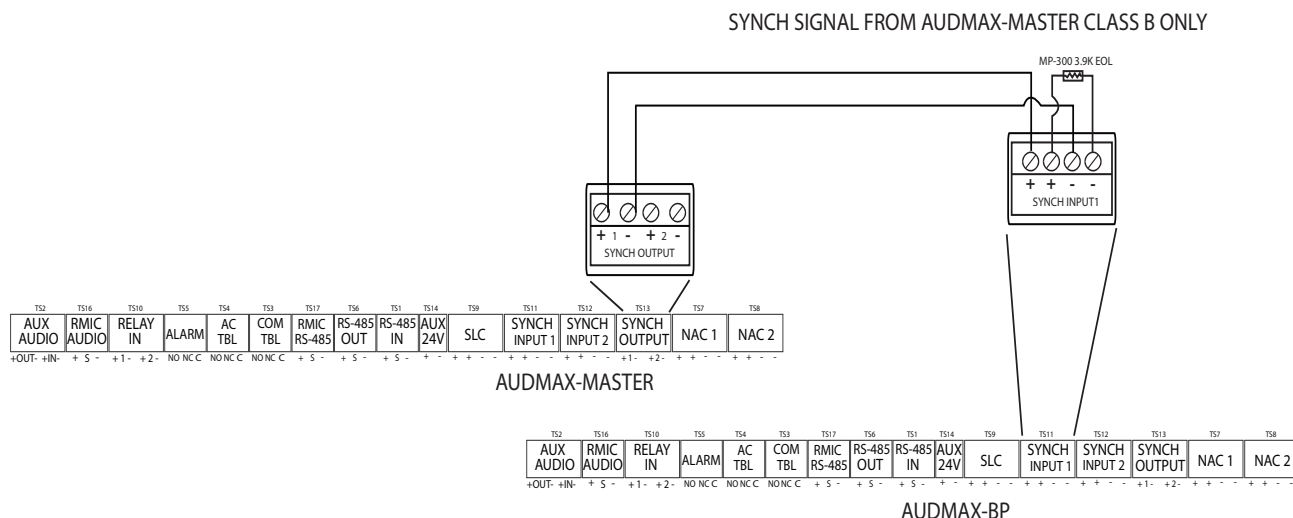
Figure 38 Synchronized Input from AUDMAX-MASTER Wiring - Class B Single Booster Panel

! **Attention: CLASS B WIRING ONLY**

i **Note:** The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units

- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units

- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

4.2.8 Synchronized Input from AUDMAX-MASTER Single Stage Wiring - Class B Multiple Booster Panels

SYNCH SIGNAL FROM AUDMAX-MASTER CLASS B ONLY
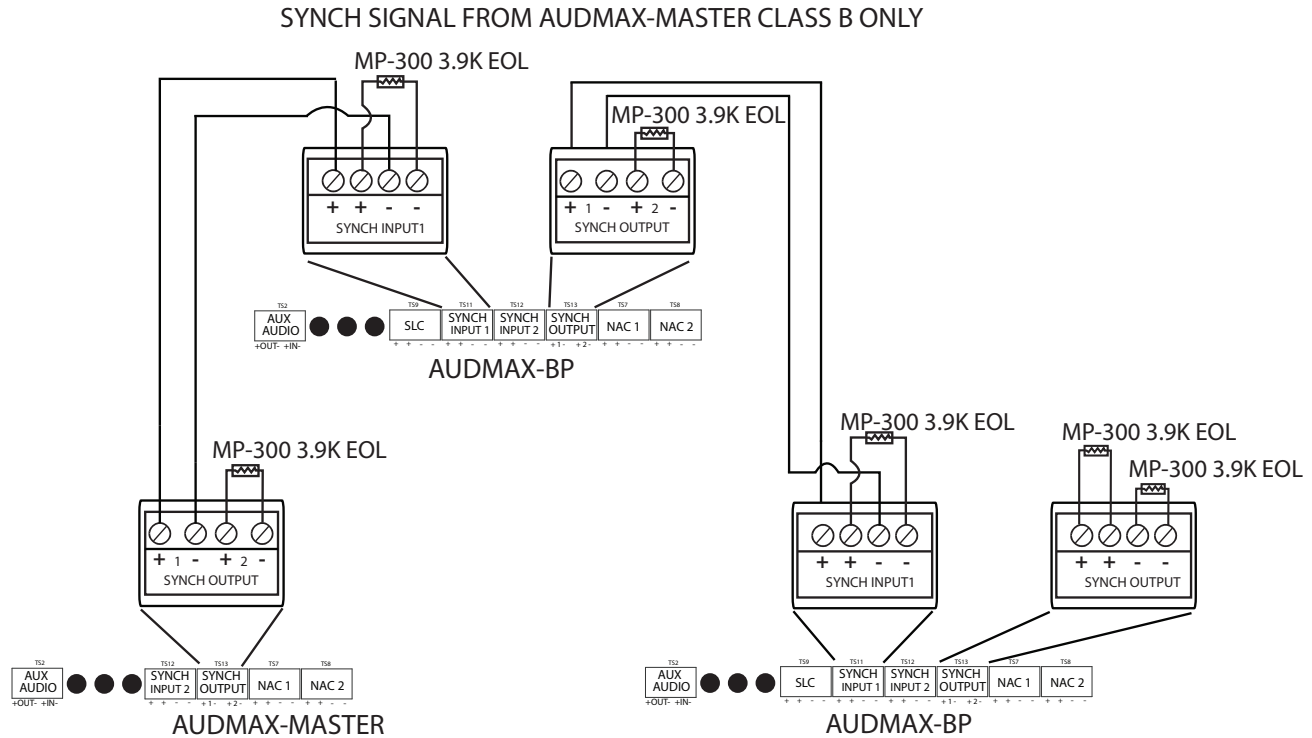
Figure 39 Synchronized Input from AUDMAX-MASTER Wiring - Class B Multiple Booster Panels

> **Attention: SYNCHRONIZING SIGNALS FROM THE AUDMAX-MASTER CAN USE CLASS B WIRING ONLY**

> **Note:** The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTERpanel (generating synchronization) and three AUDMAX-BP units

- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units

- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

4.2.9 Synchronized Input from AUDMAX-MASTER Two Stage Wiring - Class B Multiple Booster Panels

Figure 40 **Synchronized Input from AUDMAX-MASTER Wiring - Class B Multiple Booster Panels**

Attention: **SYNCHRONIZING SIGNALS FROM THE AUDMAX-MASTER CAN USE CLASS B WIRING ONLY**

SECUTRON RECOMMENDED SETUP FOR MULTIPLE BOOSTER PANELS

Note: The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units

- one AUDMAX-BP panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units

- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

4.2.10 Wiring for Alarm, AC Trouble, and Common Trouble Relays

COMMON TROUBLE CONTACTS
30 VDC, 1 AMP RESISTIVE LOAD
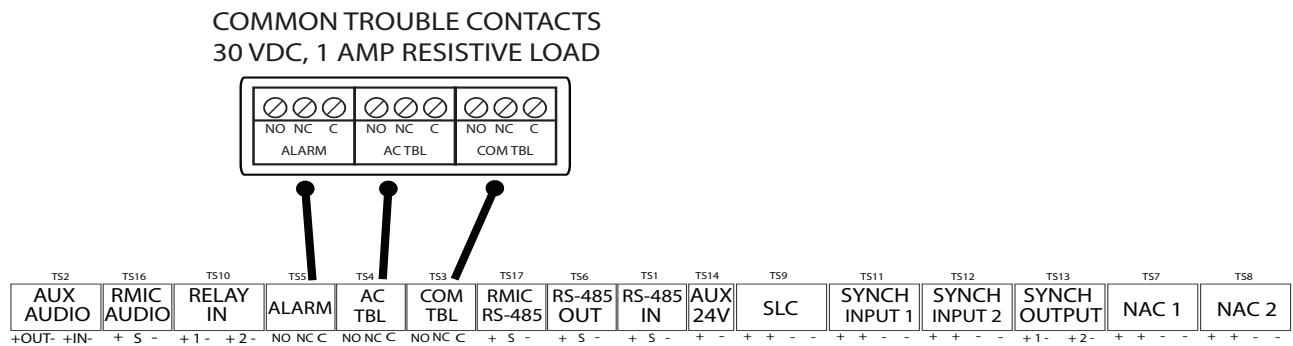
Figure 41   Relay wiring for Alarm, AC Trouble, and Common Trouble Relays

! **Attention: When using this type of interface between the FACP and AUDMAX, the FACP and AUDMAX must be separated by no more than 20 feet and wiring must be in conduit.**

4.2.11 NAC Circuit Wiring - Class B

3.9K 1/2W ELR Listed S5434
Mircom Model MP-300
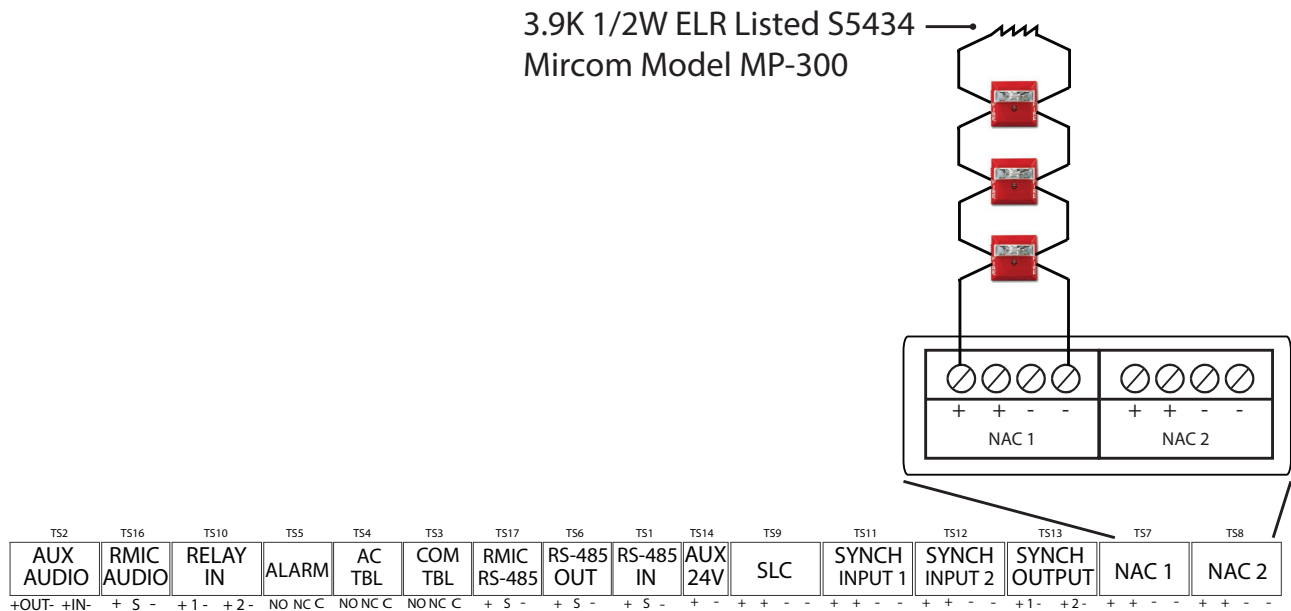
Figure 42   NAC Circuit Wiring - Class B

4.2.12 NAC Circuit Wiring - Class A
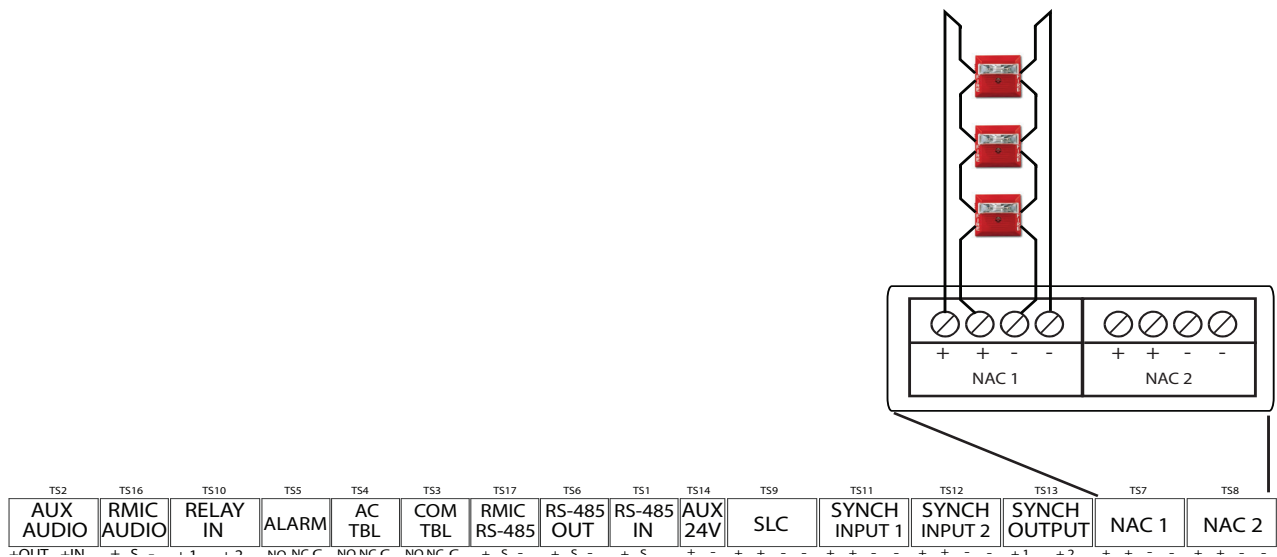
Figure 43   NAC Circuit Wiring - Class A

4.2.13 Inter-panel RS-485 Wiring
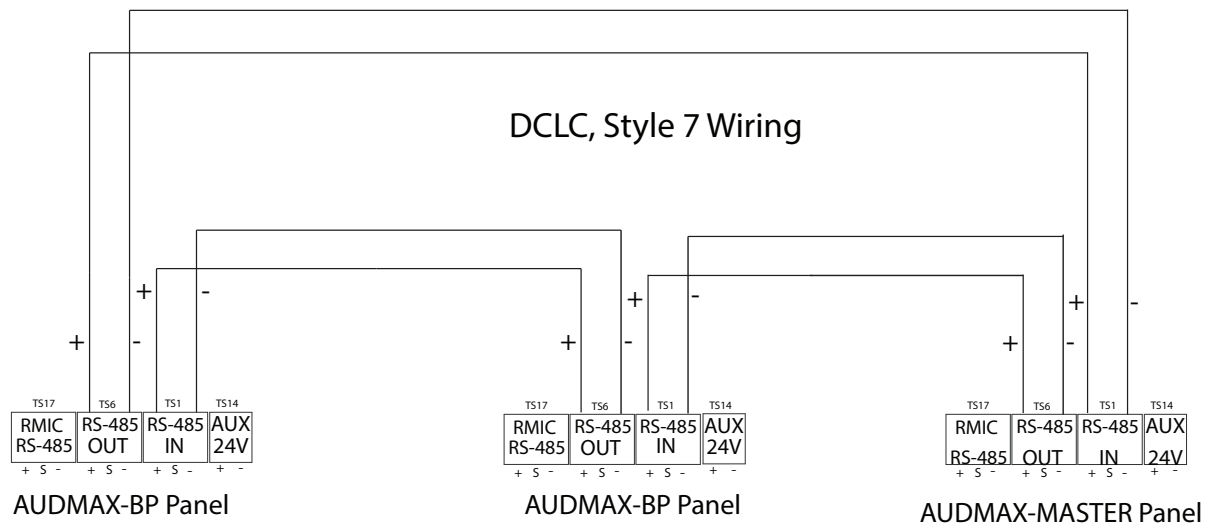
Figure 44   DCLC, Style 7 Wiring the AUDMAX-MASTER to multiple AUDMAX-BP panels

DCLA, Style 4 Wiring
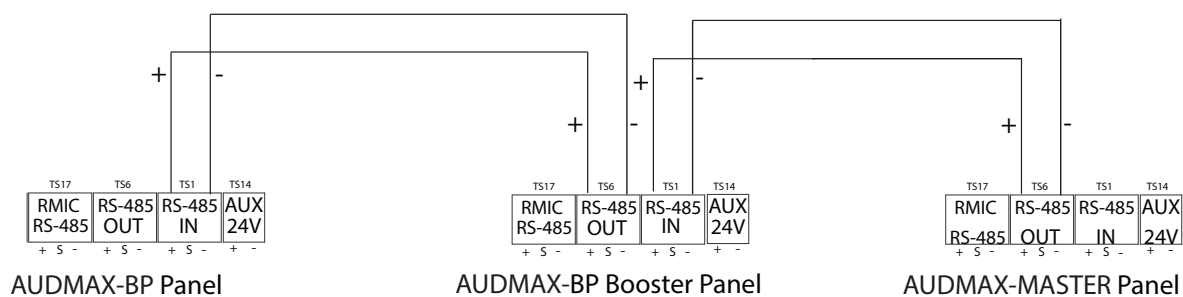
Figure 45   DCLA, Style 4 Wiring the AUDMAX-MASTER to multiple AUDMAX-BP panels

Notes: The maximum RS-485 wiring run between each node is 1000 feet or 305 metres.

A maximum of five AUDMAX-BP booster panels for each AUDMAX-MASTER main panel is supported.

Use 18-22 AWG twisted unshielded pair.

Maximum capacitance conductor to conductor is 13 pF/foot.

Recommended cable: Belden 5320UJ002 (unshielded)

4.2.14 Remote Microphone Wiring

USE 18-22 AWG TWISTED SHIELDED PAIR FOR RS-485 AND AUDIO CONNECTIONS
USE 18 AWG PAIR FOR 24VDC CONNECTIONS

To next AUDMAX-RM
To next RMIC AUDIO IN
To next 24VDC IN
To next RS-485 IN

AUDMAX-MASTER

*Note: For these connections only, connect Shield wire solely at Output terminal!

AUDMAX- RM

From Previous AUDMAX-RM

From previous RS-485 OUT
From previous 24VDC OUT
From previous RMIC AUDIO OUT

EOL-392 3.9K EOL

EOL-121 120R EOL

LAST AUDMAX-RM

Figure 46   Wiring the AUDMAX-MASTER to multiple AUDMAX-RM remote microphones

i

Notes: On the RMIC RS-485 and RMIC Audio connections attach the shield wire on the output terminal plugs ONLY.

Aux 24V

• Max Impedance: 40 Ohms per loop

• Supervised: Yes

• Power Limited: Yes

RMIC Audio

- Max Impedance: 40 Ohms per loop

- Supervised: Yes

- Power Limited: Yes

RS-485

- Max Impedance: 40 Ohms per loop

- Supervised: Yes

- Power Limited: Yes

Notes: The maximum wiring run from the AUDMAX-MASTER to the last AUDMAX-RM is 1000 feet or 305 meters.

Use 18-22 AWG twisted shielded pair for RS-485 connections.

Use 18-22 AWG twisted shielded pair for audio connections to minimize noise from other circuits.

Use 18 AWG pair for the 24Vdc connections.

Attach a 3.9K end-of-line resistor (Mircom EOL-392) to the + and - AUDIO OUT terminals on the last AUDMAX-RM.

Attach a 120R end-of-line resistor (Mircom EOL-121) to the + and - RS-485 OUT terminals on the last AUDMAX-RM.

Set rotary switch SW2 on each AUDMAX-RM to a unique RS-485 address. **Use consecutive addresses starting from 1 to the number of AUDMAX-RM remote microphones connected to the bus.**

4.3   Amplifier Connections

The QAD-30 amplifier module has two speaker outputs (OUTPUT 1 and OUTPUT 2). Each output can produce up to 30 W of audio power, but the combined power of both outputs cannot exceed 30 W. For example, if OUTPUT 1 produces 20 W, then OUTPUT 2 can only produce 10 W; if OUTPUT 1 produces 30 W, then OUTPUT 2 cannot power any speakers. An optional second QAD-30 can be installed to either provide up to 60 W of output (30 W maximum per QAD-30).

Each output can be wired as Class A or Class B. See Figure 47 for examples on how to wire each of these classes. For Class B circuits, use a 22K 2W end-of-line resistor such as Mircom's EOL-223.

Caution: **Powering the system with incorrectly installed amplifiers will cause permanent damage.**
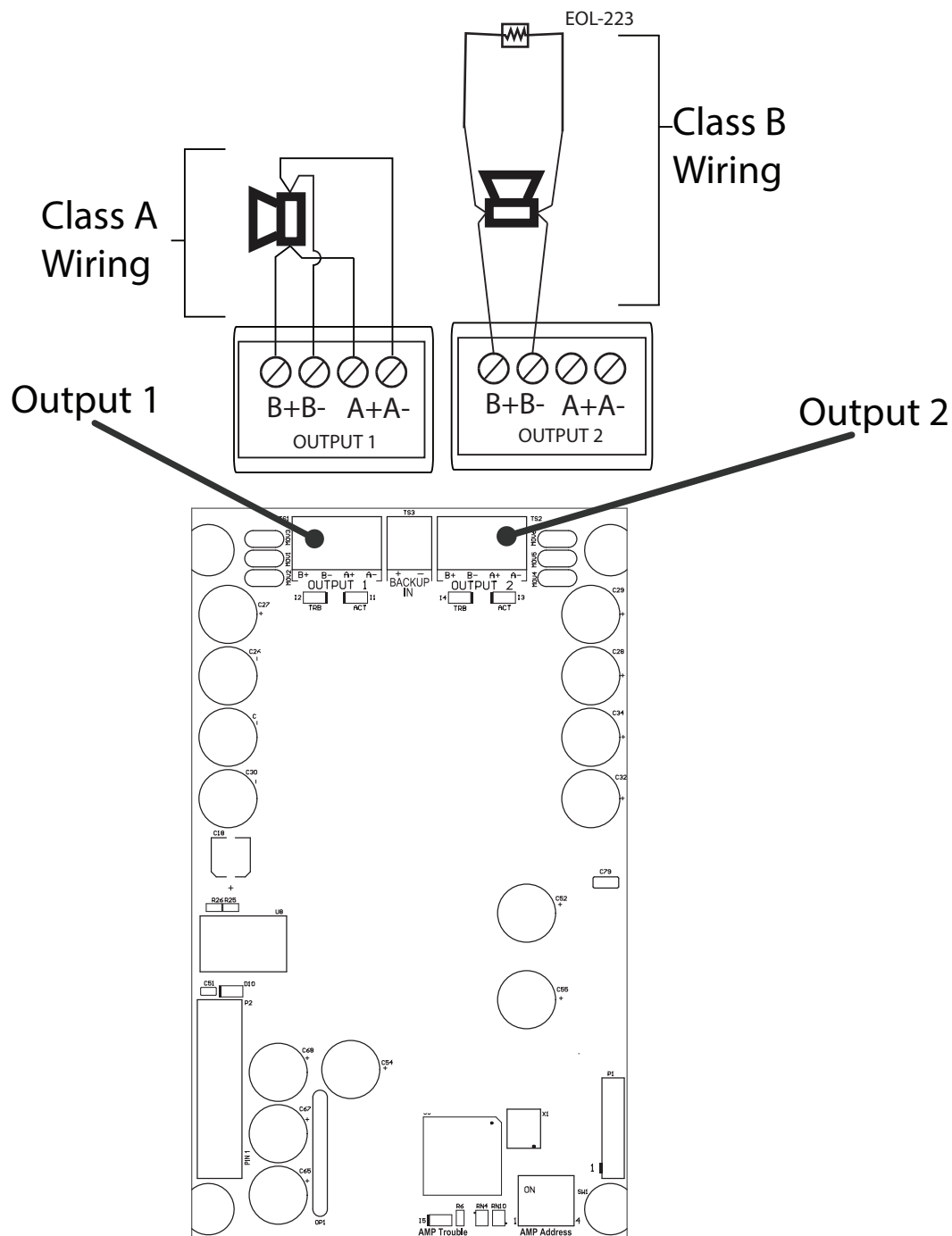
Figure 47   Class A and Class B wiring examples

4.3.1 Amplifier Installation

Input for backup amplifier

Output 1

Output 2

AUDMAX-MASTER Ribbon Connector

Factory Use
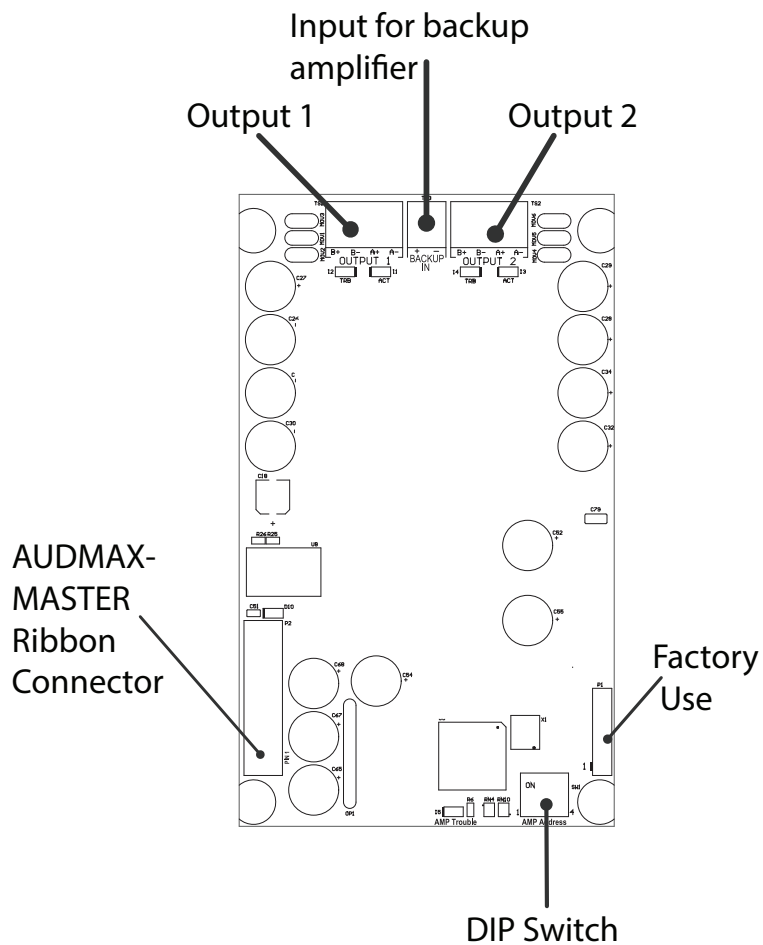
DIP Switch

Figure 48 Amplifier Connectors and DIP Switch

To install an amplifier

1. See section 3.5.2 Installing Amplifier Module on page 54 for adding a QAD-30 board.

4.4   QAS-2X8 Audio Zone Splitter Connections

To install an audio zone splitter

1. See section 3.6.1 Installing the Audio Zone Splitter Module on page 56 for instructions on adding a QAS-2X8 audio zone splitter.

To enable an audio zone splitter

1. Configure in Software.

The QAS-2X8 audio zone splitter is shown in Figure 26 on page 55. The QAS-2X8 has 8 supervised Class A or Class B outputs. Wire speakers to them as shown in Figure 49.
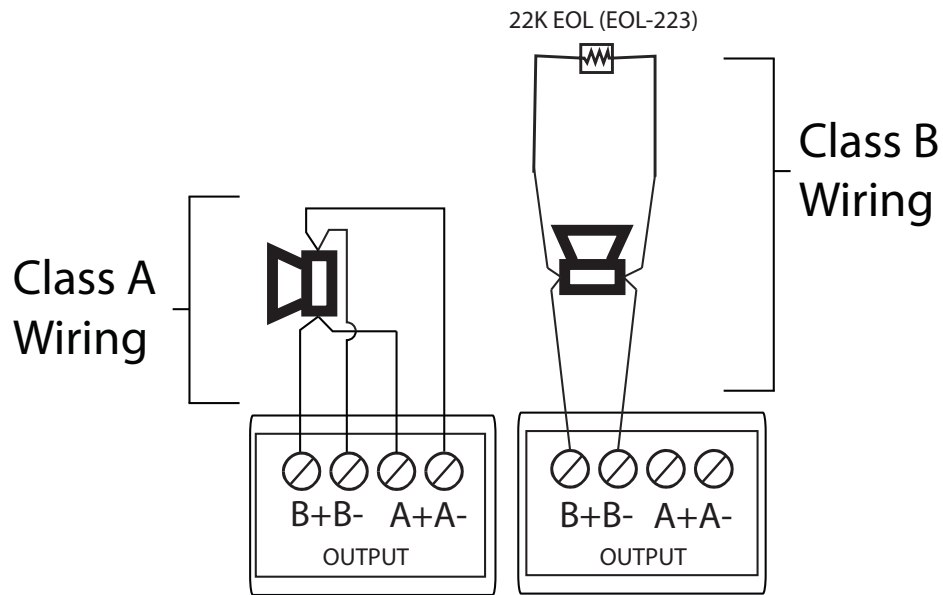
Figure 49   Audio zone splitter wiring to speakers

4.4.1 Wiring the Audio Zone Splitter to Amplifiers

This section describes some of the most common ways to use the audio zone splitter.

In all cases, each amplifier provides up to a maximum of 30W.

One Audio Message Application and One Amplifier

Figure 50 shows the wiring of 1 amplifier to the audio zone splitter in a one audio message application. This configuration provides 9 outputs (1 output on the amplifier and 8 outputs on the audio zone splitter), and the ability to turn audio zones on and off.
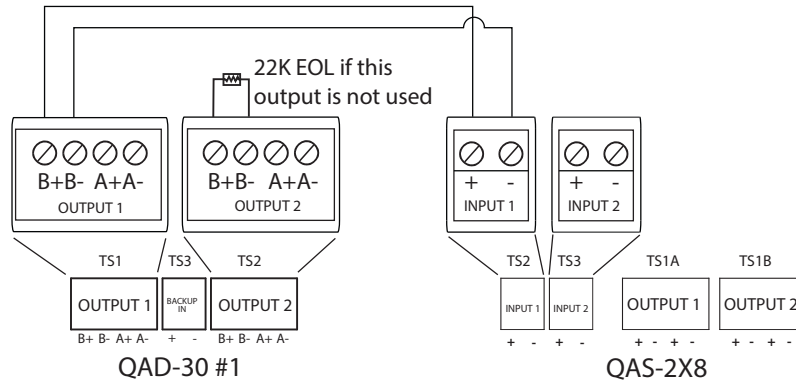
Figure 50   Wiring 1 amplifier to the audio zone splitter

One Audio Message Application and Two Amplifiers

Figure 51 shows the wiring of 2 amplifiers to the audio zone splitter in an application where both amplifiers play the same audio message. This configuration provides 10 outputs (2 outputs on the amplifier and 8 outputs on the audio zone splitter), and the ability to turn audio zones on and off.
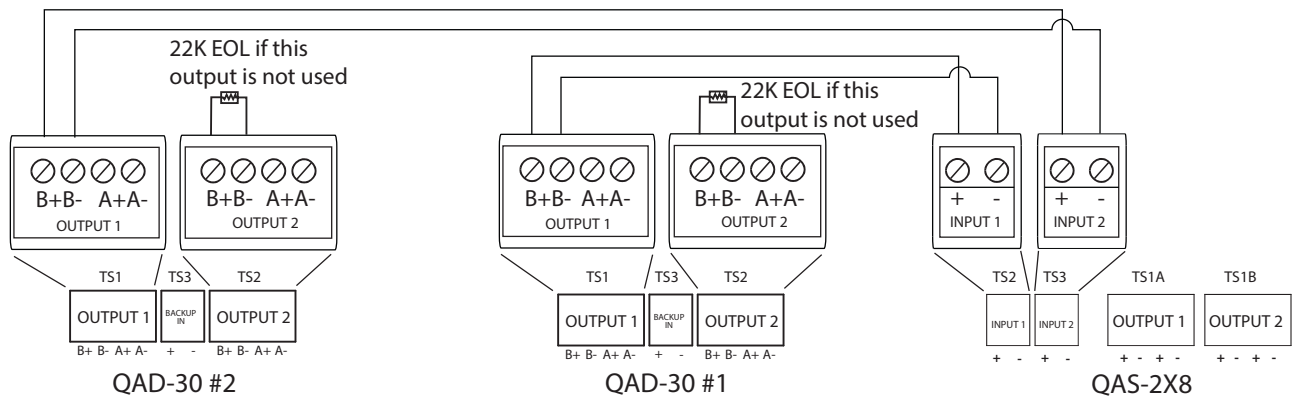
Figure 51   Wiring 2 amplifiers to the audio zone splitter

Two Audio Message Application

Figure 52 shows the wiring of 2 amplifiers to the audio zone splitter in an application where each amplifier plays a different audio message.

For example, one amplifier can provide an alarm signal to a zone, and the other amplifier can provide an alert signal to the other zones.

This configuration provides 8 outputs. The 8 outputs can select from amplifier 1, amplifier 2, or they can be off.
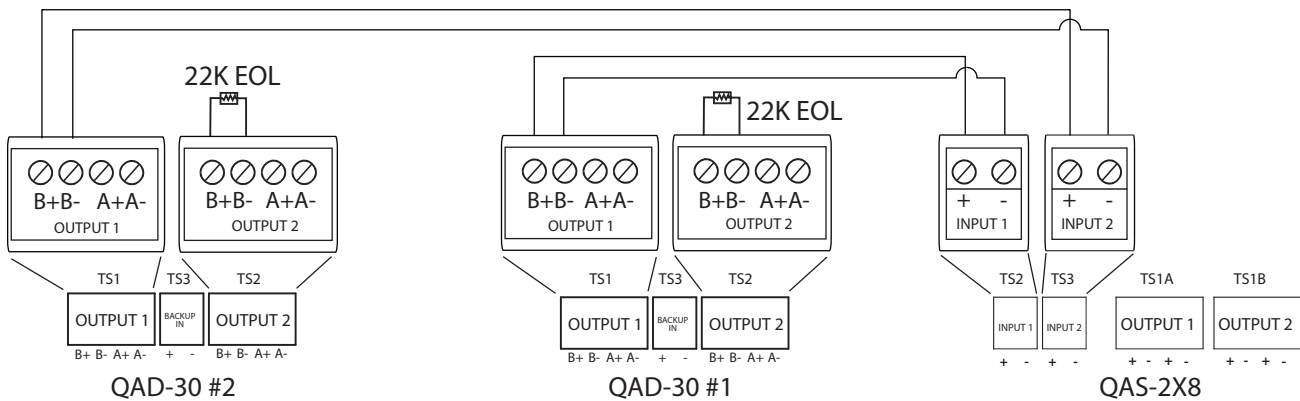
Figure 52   Wiring 2 amplifiers to the audio zone splitter

4.5   Backup Amplifier

When there are 2 amplifiers installed, one of them can be configured as a backup. If the main amplifier fails, the backup amplifier takes over.

To enable a backup amplifier

1.   Configure in Software.

Figure 53 shows the wiring of 2 amplifiers where one of the amplifiers is configured as a backup amplifier.
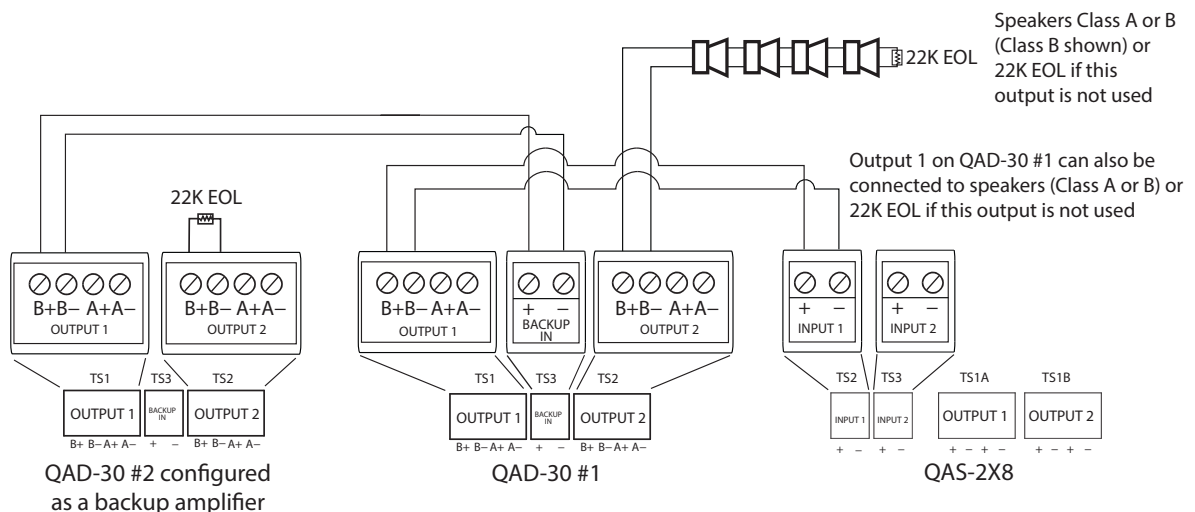
Figure 53   Backup amplifier wiring

4.6 Power Supply Connections

The power supply is pre-installed as part of the Main Chassis. The following table displays the electrical ratings. Figure 54 shows the proper connections to wire the Power Supply successfully. There is no separate charger for the Secondary Power Connection - batteries.

Table 14   Power Supply Electrical Ratings

Terminal	Description
Electrical input ratings	120 VAC, 60 Hz, 2 A / 240 VAC, 50 Hz, 1A
Power supply total current	9.5 A maximum
Battery Fuse	Replace with WX-058 Battery Cable Assembly
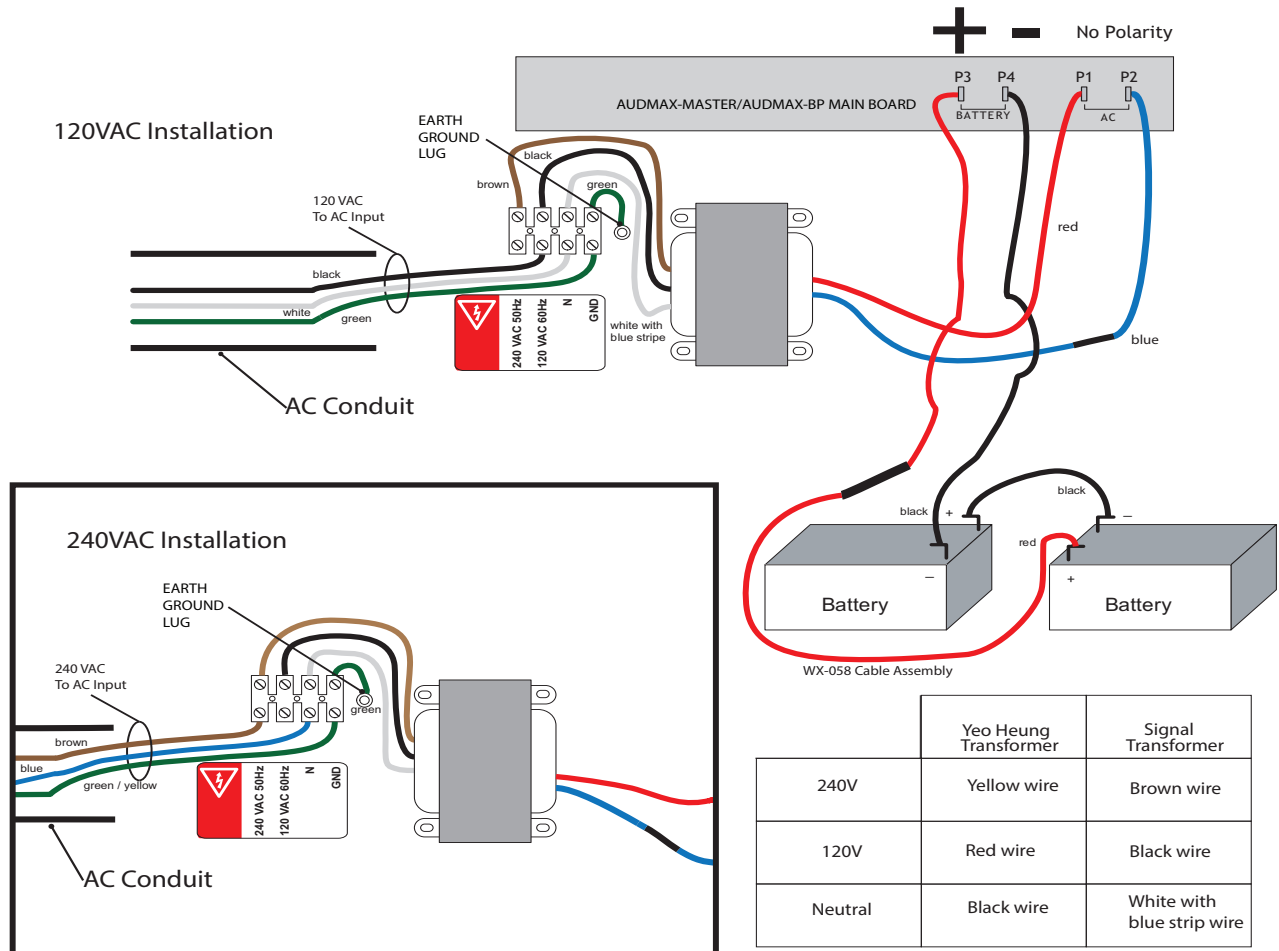
Figure 54 Power Supply Connections

Attention: DO NOT exceed power supply ratings. Wire as shown.

Connect batteries after the system main A.C. power is turned on to reduce sparking.

4.7 UL Power-limited Wiring Requirements
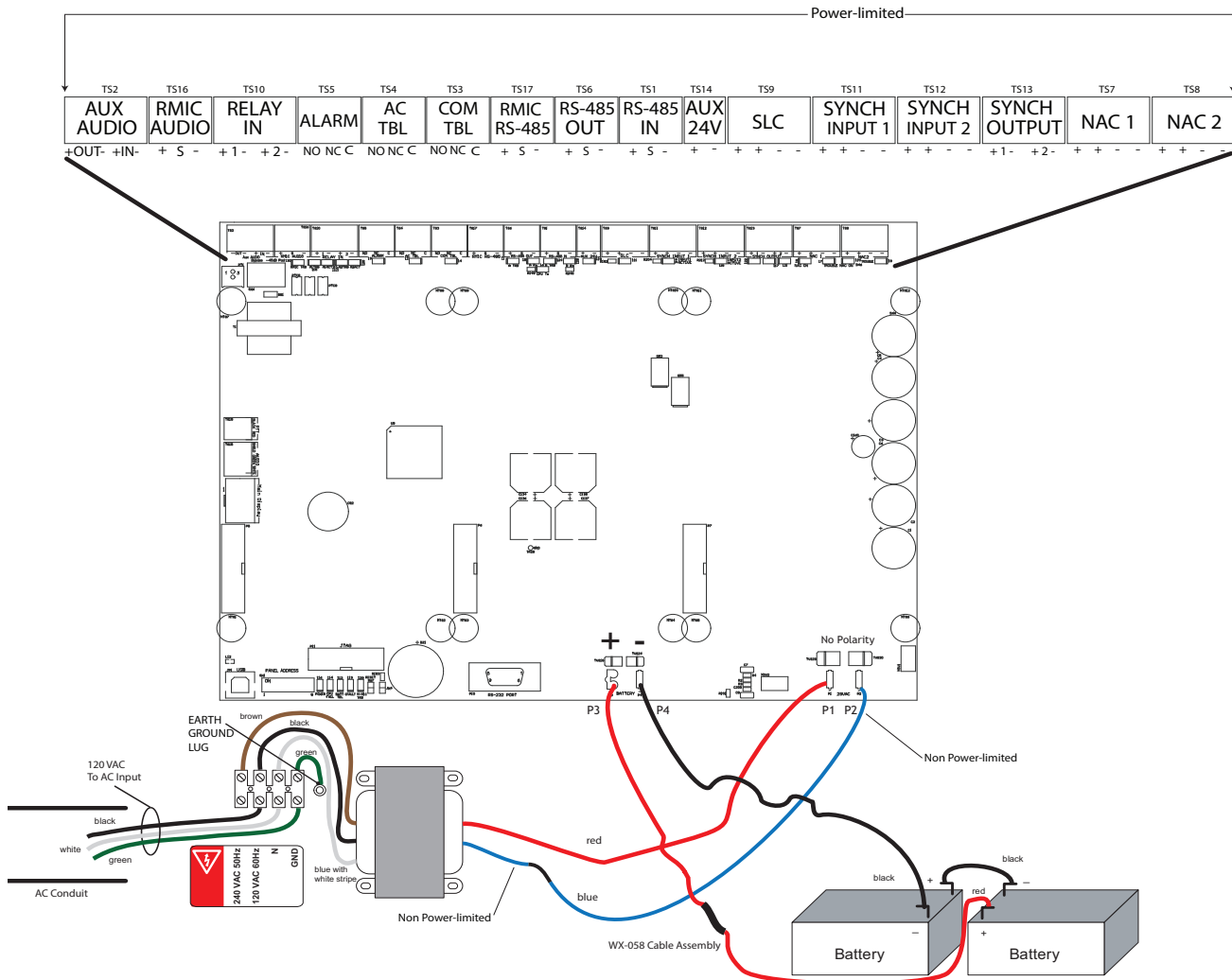
Figure 55   UL Power-limited Circuits

Wires connected to AC power and Batteries are NOT POWER-LIMITED. AC power branch circuit has 15A circuit breaker rating.

Notes: Wires connected to NON POWER-LIMITED circuits MUST be at least 1/4 inches away from wires connected to POWER-LIMITED circuits.

5.0 Indicators & Controls

This chapter describes the LED indicators and controls on the AUDMAX-MASTER and the AUDMAX-BP.

This chapter explains

- 5.1 Indicators and Controls
- 5.2 Main Display LEDs and Controls
- 5.3 Main Board LED Indicators
- 5.4 Amplifier Module LED Indicators
- 5.5 Remote Microphone Indicators
- 5.6 Local Operating Console Indicators and Controls

5.1   Indicators and Controls

Indicators and controls on the AUDMAX-MASTER are found on the main display panel, the main board, and the QAD-30 amplifier module. The main display panel has indicators (LEDs) that provide status information and controls (buttons) for operating the AUDMAX-MASTER. For troubleshooting purposes, there are LEDs located on the main board and on the QAD-30 amplifier module that show Trouble, Alarm, Status, and Active for the main board components.

Indicators may be Yellow, Red, or Green. Indicators may illuminate continuously (steady), or flash at the Trouble Flash Rate of 20 flashes per minute with a 50% duty cycle.

Controls are used to select zone(s), select a pre-recorded message, or to acknowledge a trouble alert. There is also one DIP switch used for configuration.

5.2   Main Display LEDs and Controls

The main display panel indicators and controls are shown in Figure 56. This section describes the purposes of these indicators and what the controls do.
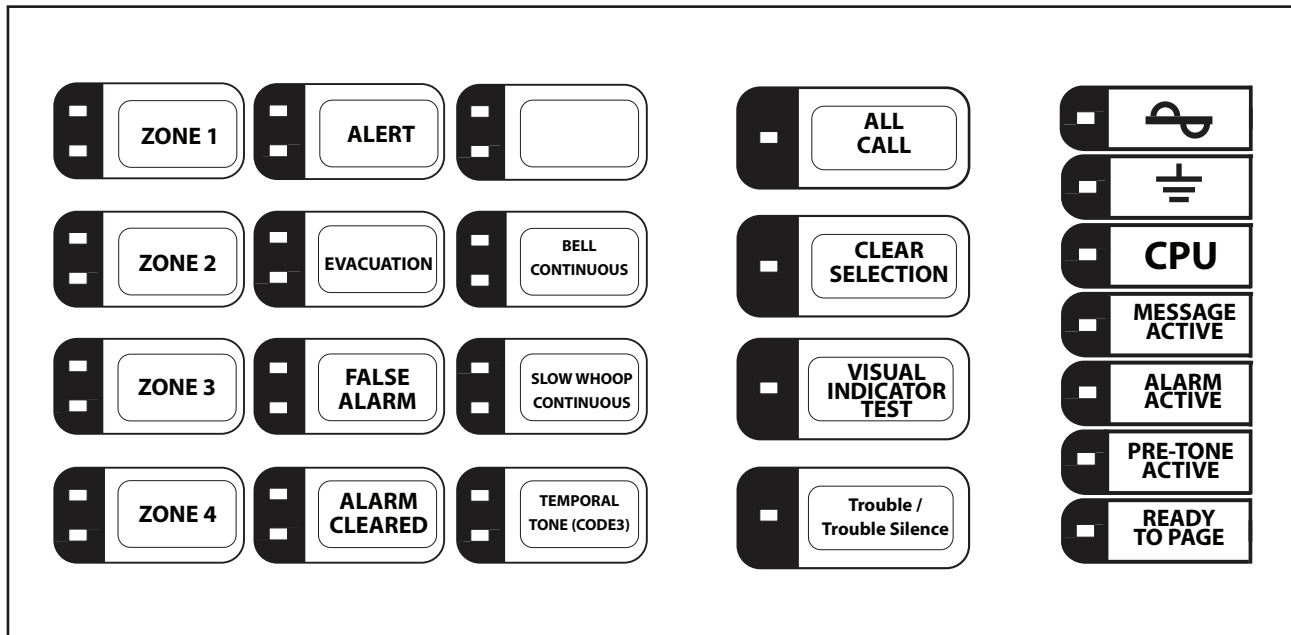
Figure 56   The AUDMAX-MASTER main display panel

i   **Notes:** Buttons are reprogrammable using the Configurator software.

Zone Selection

Use the 5 zone selection controls to select which zone(s) to receive audio messages. Select from the following zones:

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- All Call (send the message to all zones)

The green LED for a zone activates steady to indicate that the zone is selected.

The yellow LED for a zone activates flashing for an acknowledged trouble.

The red LED for a zone activates steady for an active fire alarm/alert.

Message Selection

Use the 8 message selection controls to select a pre-recorded audio message.

The default pre-recorded messages for the AUDMAX-MASTER are the following:

- Alert
- Evacuation
- False alarm
- Alarm cleared
- Bell Continuous
- Slow Whoop Continuous
- Temporal Tone (Code 3)

Messages are field reconfigurable to free up space in memory storage. The green LED next to a message activates steady to indicate that the message is selected.

Clear Selection

The Clear Selection clears all existing selections and their LEDs. Press this control and the Clear Selections LED will illuminate green and then all existing selections' LEDs will then extinguish.

Visual Indicator Test

Press this control to test the LEDs on the main display panel. All of the LEDs will flash briefly (except for the CPU LED). CPU LED will flash on system power up.

Trouble / Trouble Silence

The Trouble / Trouble Silence LED flashes yellow slowly to indicate an active trouble in the system.

The additional troubleshooting LEDs on the main board and the amplifier module provide more information on the source of the trouble. See sections 5.3 and below for a description.

AC Power -
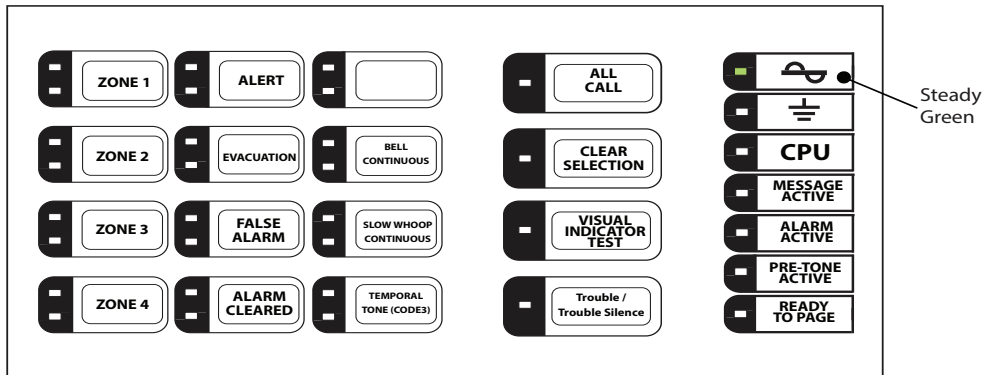
The AC Power LED activates steady green while the main AC power is within acceptable levels. The LED flashes green when the level falls below the power-fail threshold and the panel is switched to standby (battery) power.

Ground Fault -
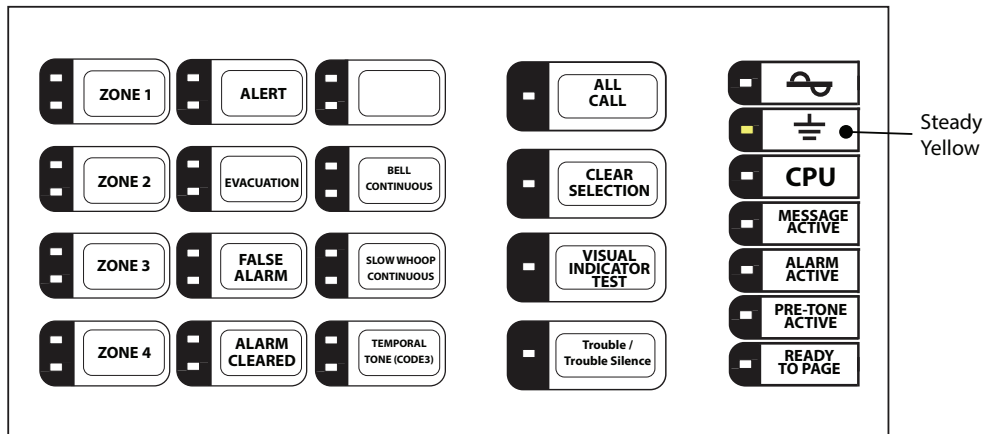
The Ground Fault LED activates steady yellow when there is a ground fault in the field wiring. Diagnose and fix the ground fault to clear this indicator.

Notes: Ground Fault Test Impedance is 2200 Ohms.

CPU
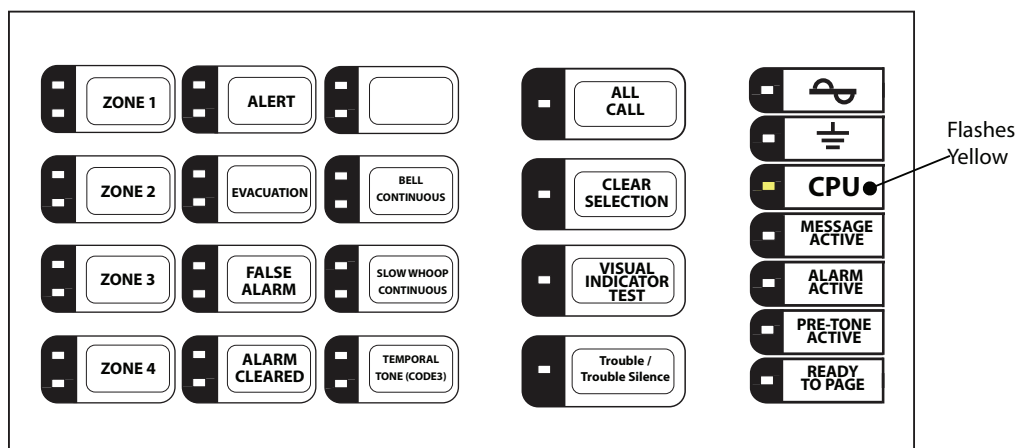
Flashes Yellow

The CPU LED flashes yellow when the processor stops functioning.

Message Active
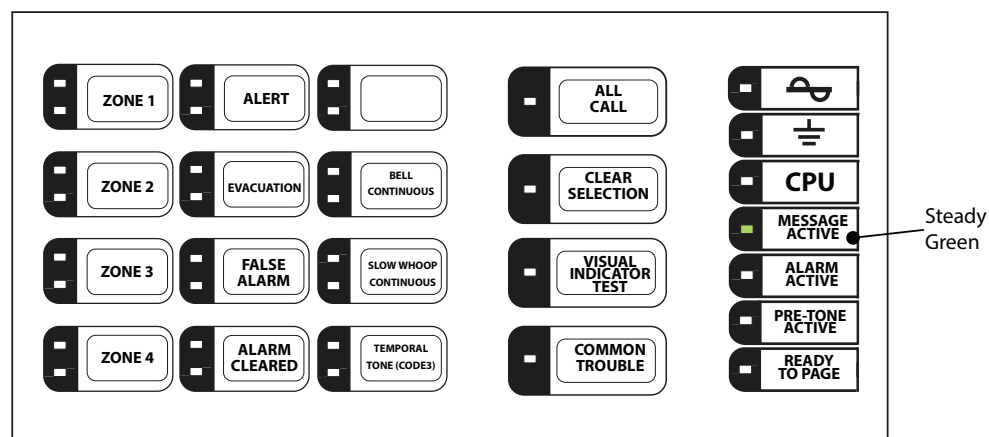
Steady Green

The Message Active LED activates steady green when a pre-recorded message is playing.

Alarm Active
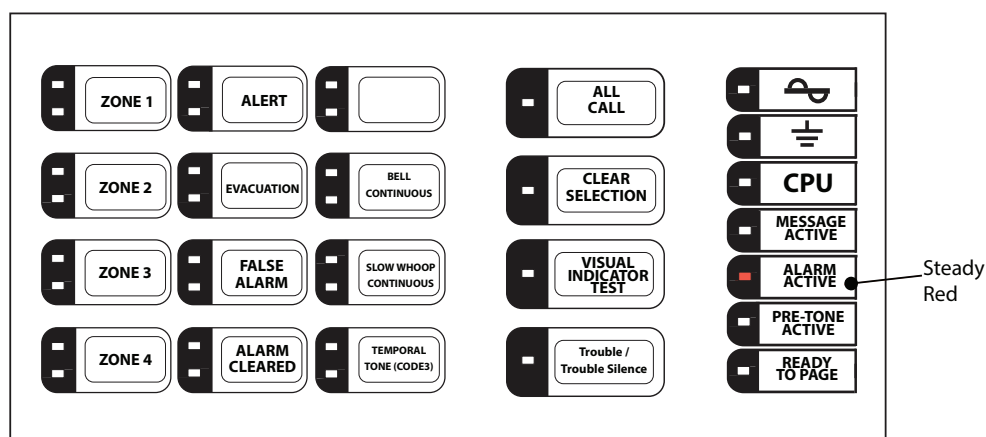
Steady Red

The Alarm Active LED activates steady red when the panel is automatically activated by an FACP on one of the inputs: SLC, Relay, or Sync.

Pre-tone Active
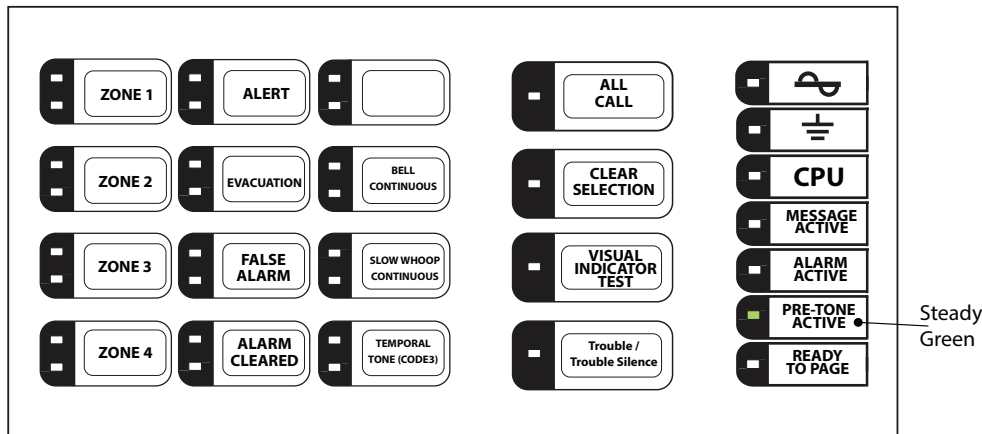
The AUDMAX-MASTER automatically plays a pre-announcement tone when operator holds down the push-to-talk (PTT) button on the microphone.

The Pre-tone Active LED activates steady green while the pre-tone is playing.

Ready to Page
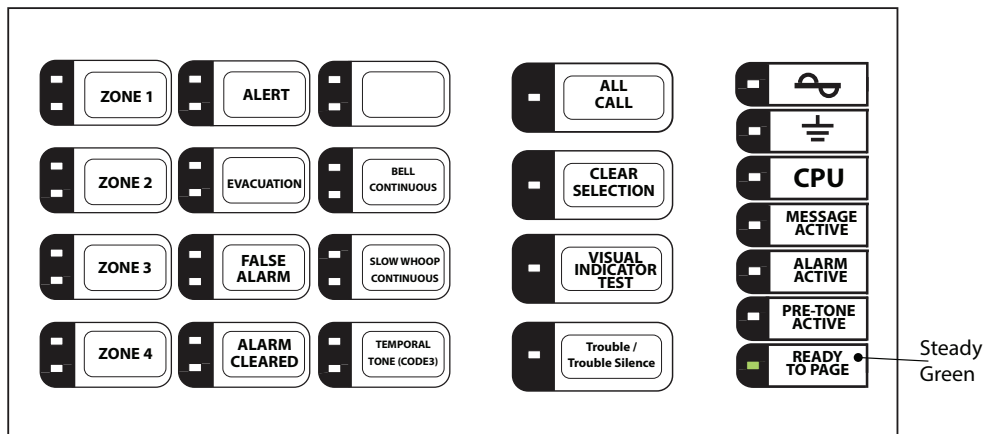
When the Ready to Page LED activates steady green, the operator may begin speaking into the microphone.

Page Inhibited

Flashes
Yellow
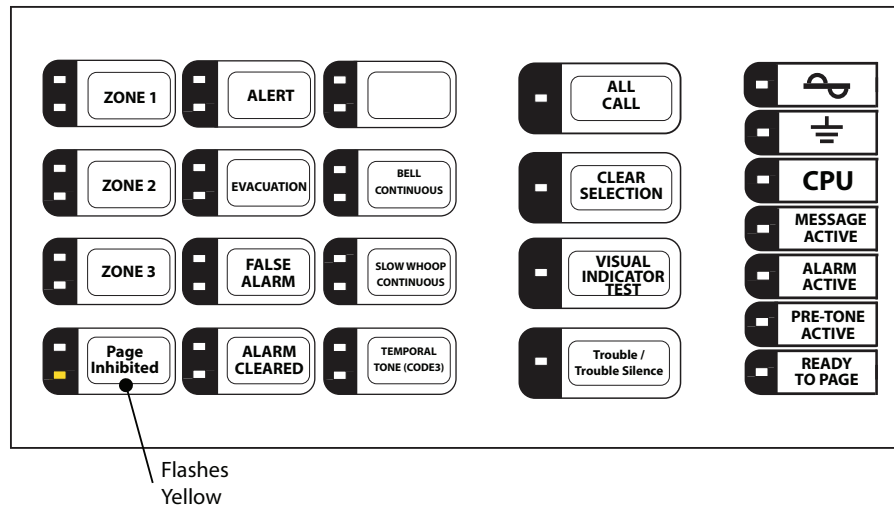
An FACP activated audio control feature of the AUDMAX-MASTER which, during a First Alarm, prevents voice paging for a user-set period of time.

In the configurator software, this feature may be enabled or disabled. If enabled, any button may be assigned for Page Inhibited for the AUDMAX-MASTER and AUDMAX-LOCR. Any button's LED may be set to flash yellow at the trouble rate during the Page Inhibited time period. In the above example, the Zone 4 button is configured and labelled for the Page Inhibited function. The AUDMAX-RM System In Use LED will flash trouble yellow to indicate that a Page Inhibited is in effect.

5.3   Main Board LED Indicators

There are LED indicators on the main board to help in troubleshooting. The LEDs indicate Troubles, Alarms, Activity, and Status for components on the main board.

See Figure 57 on page 90 for the locations of the LEDs on the main board. See Table 15 on page 90 for a description of what the LEDs' color indicate.
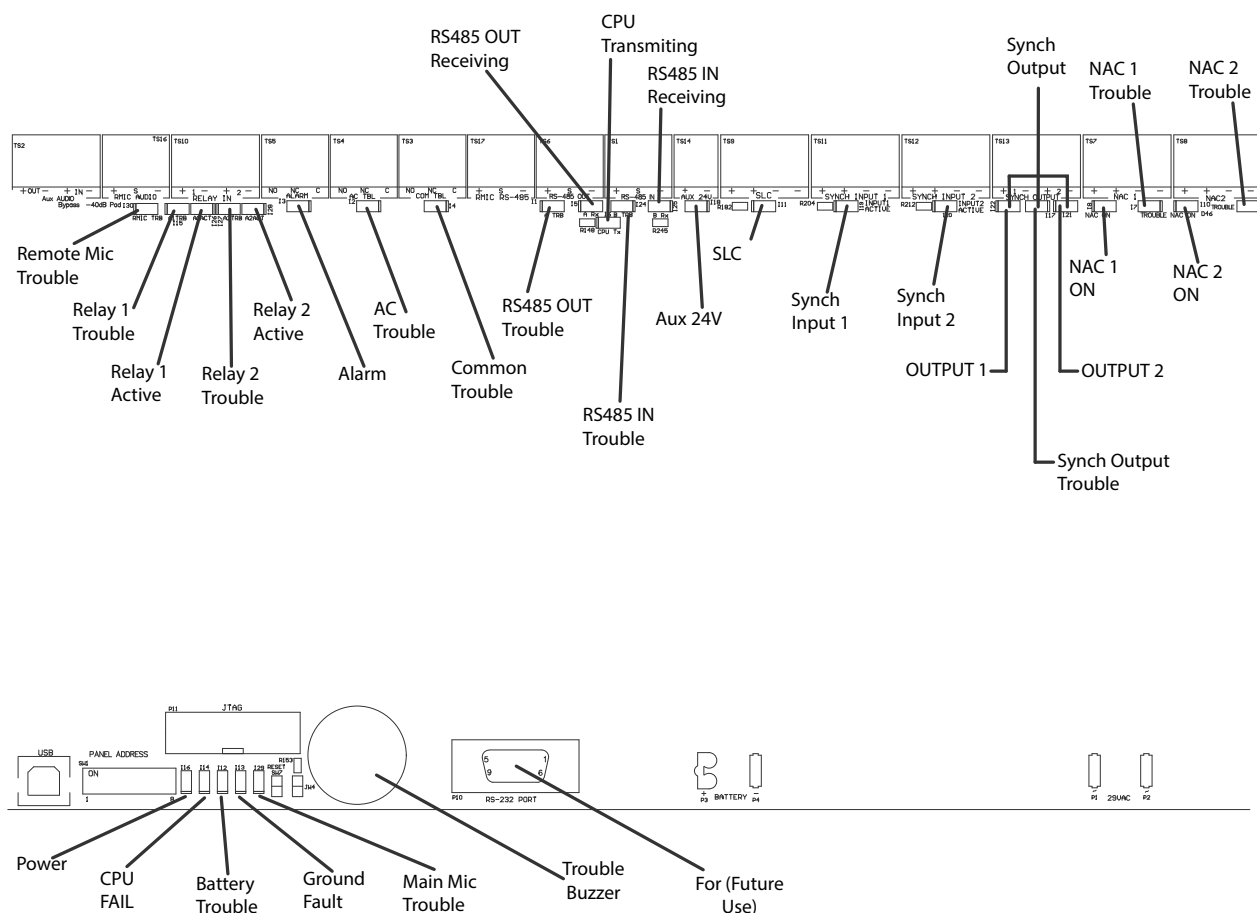
Figure 57   Locations of the AUDMAX-MASTER main board LEDs and Buzzer

Table 15   Descriptions of AUDMAX-MASTER main board LEDs

LED	Color	Indication	Action
Alarm (Relay) Active	Red	Alarm	Steady
AC Trouble (Relay) Active	Yellow	Trouble	Steady
Common Trouble (Relay) Active	Yellow	Trouble	Steady
Activity on Remote Microphone RS-485	Green	Active	Blinking
Activity on Inter-panel RS-485	Green	Active	Blinking
A TRB	Yellow	Trouble	Steady
A RX	Green	Active	Blinking
B TRB	Yellow	Trouble	Steady
B RX	Green	Active	Blinking
CPU TX	Green	Active	Blinking

Table 15   Descriptions of AUDMAX-MASTER main board LEDs (Continued)

LED	Color	Indication	Action
Master Mic Trouble	Yellow	Trouble	Steady
Remote Mic Trouble	Yellow	Trouble	Steady
Relay In 1 ACT	Green	Active	Steady
Relay In 1 Trouble	Yellow	Trouble	Steady
Relay In 2 ACT	Green	Active	Steady
Relay In 2 Trouble	Yellow	Trouble	Steady
Aux 24V Output Trouble	Yellow	Trouble	Steady
Activity on SLC Circuit	Green	Active	Blinking
Activity on Synch Input 1	Green	Active	Steady
Activity on Synch Input 2	Green	Active	Steady
Synch Output 1 Active	Green	Status	Steady or Blinking
Synch Output 2 Active	Green	Status	Steady or Blinking
Synch Out Trouble	Yellow	Trouble	Steady
NAC 1 Output Active	Red	Status	Steady or Blinking
NAC 1 Trouble	Yellow	Trouble	Steady
NAC 2 Output Active	Red	Status	Steady or Blinking
NAC 2 Trouble	Yellow	Trouble	Steady
Power ON (AC)	Green	Status	Steady
CPU FAIL	Yellow	Trouble	Blinking
Battery Trouble	Yellow	Trouble	Steady
Ground Fault Active	Yellow	Trouble	Steady

i

Notes: Trouble Buzzer provides panel specific audible signal of Trouble or Fault.

5.4   Amplifier Module LED Indicators

There are LED indicators on the QAD-30 amplifier module to help in troubleshooting. The LEDs indicate troubles, alarms, and statuses for components on the main board.

See Figure 58 for the locations of the LEDs. See Table 16 for descriptions of what the LEDs' indicate.

An indicator of Output 1 or Output 2 implies a wiring short or a missing EOL.
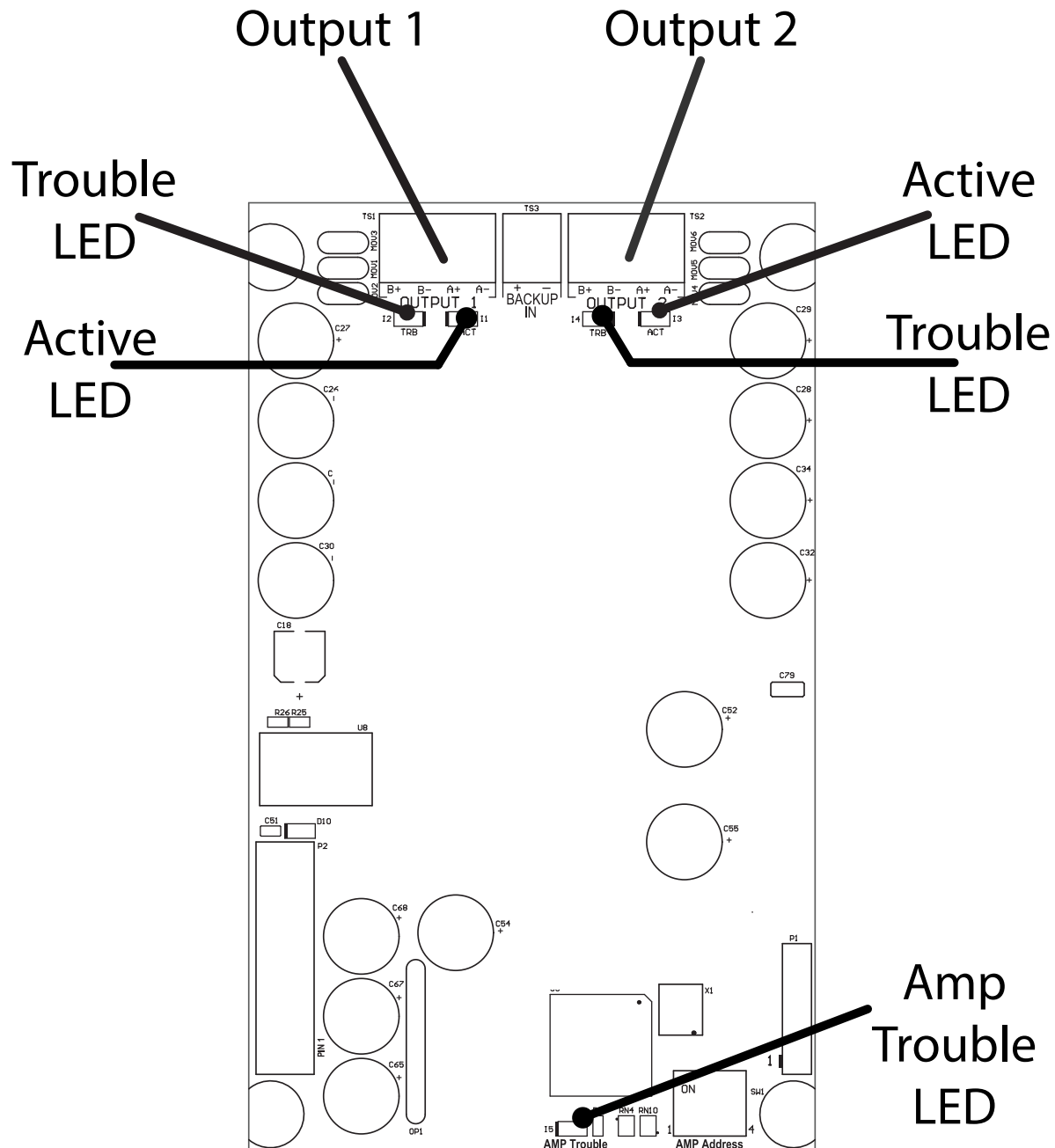
Figure 58   Locations of the QAD-30 amplifier module LEDs

Table 16   Descriptions of QAD-30 amplifier module LEDs

LED	Color	Indication	Action
Output 1 Active	Green	Status	Steady
Output 2 Active	Green	Status	Steady
Output 1 Trouble	Yellow	Status	Steady
Output 2 Trouble	Yellow	Status	Steady
Amplifier Trouble	Yellow	Trouble	Steady

5.5   Remote Microphone Indicators

The AUDMAX-RM remote microphone display panel has 4 LED indicators and 1 control (the push-to-talk button on the microphone). This section describes the purposes of these indicators.

i

Notes: AUDMAX-RM not for use in Canada.
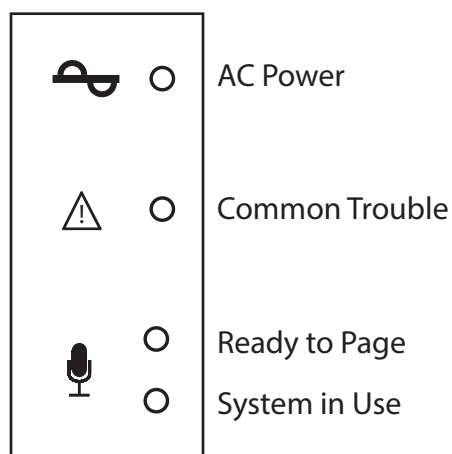
Figure 59   The AUDMAX-RM display panel LEDs

AC Power
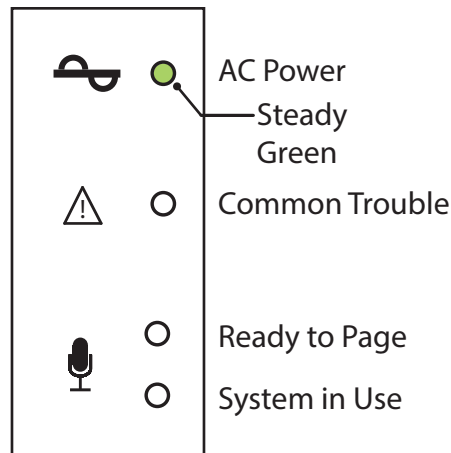
The AC Power LED activates steady green while the main AC power is within acceptable levels. The LED flashes green when the level falls below the power-fail threshold and the panel is switched to standby (battery) power.

Common Trouble
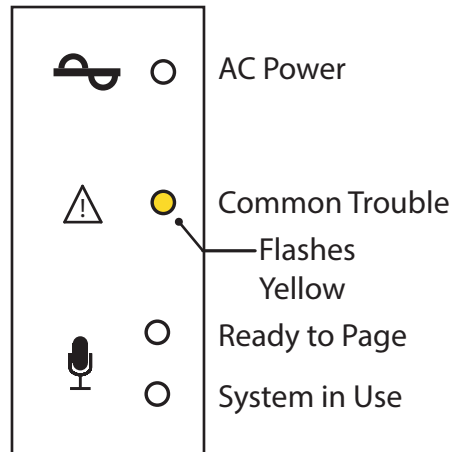
The Common Trouble LED flashes yellow slowly to indicate an active trouble in the system and activates steady yellow for an acknowledged trouble.

The additional troubleshooting LEDs on the main board and the amplifier module provide more information on the source of the trouble.

Ready to Page
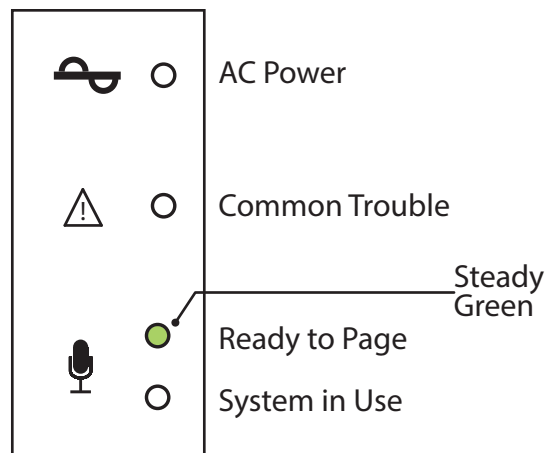
The Ready to Page LED activates steady green then the operator may begin speaking into the microphone.

System in Use
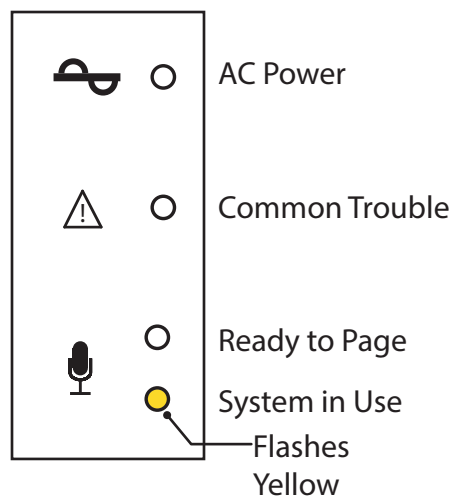
The System in Use LED flashes slowly when another panel or remote microphone has control of the audio channel. While the other microphone has control of the audio channel, Ready to Page will not illuminate.

Page Inhibited
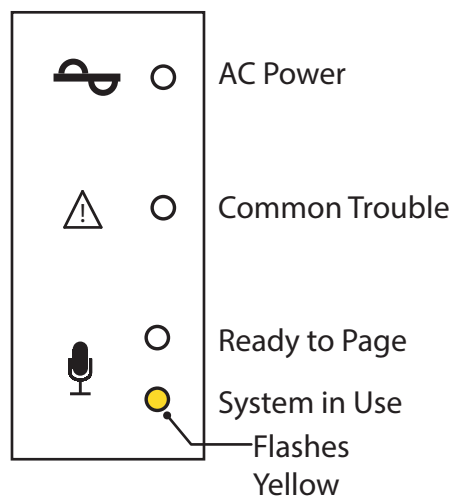
During Page Inhibited, the System in Use LED flashes at the trouble rate when a connected FACP has control of the audio channel. Paging ability will resume when the LED is extinguished, even if the alarm continues to sound.
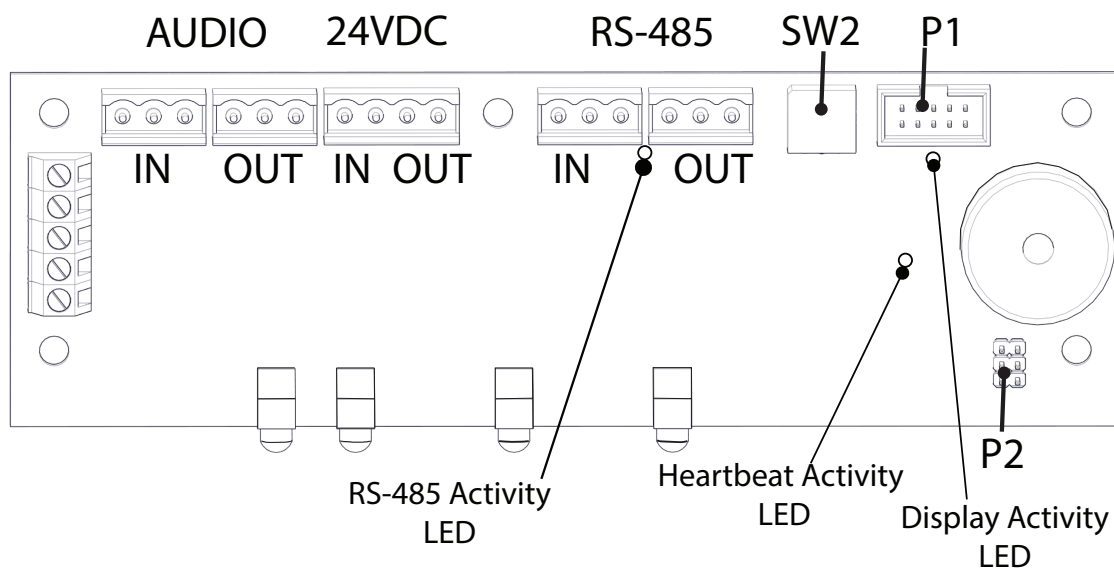
Figure 60   AUDMAX-RM LEDs

Table 17   AUDMAX-RM Board LED

LED	Color	Indication	Action
RS-485 Activity	Green	Status	Blink
Heartbeat Activity	Green	Status	Blink
Display Activity	Green	Status	Blink

5.6 Local Operating Console Indicators and Controls

The AUDMAX-LOCR Local Operating Console has the same indicators and controls as the Main Display on the AUDMAX-MASTER.

Notes: AUDMAX-LOCR not for use in Canada.
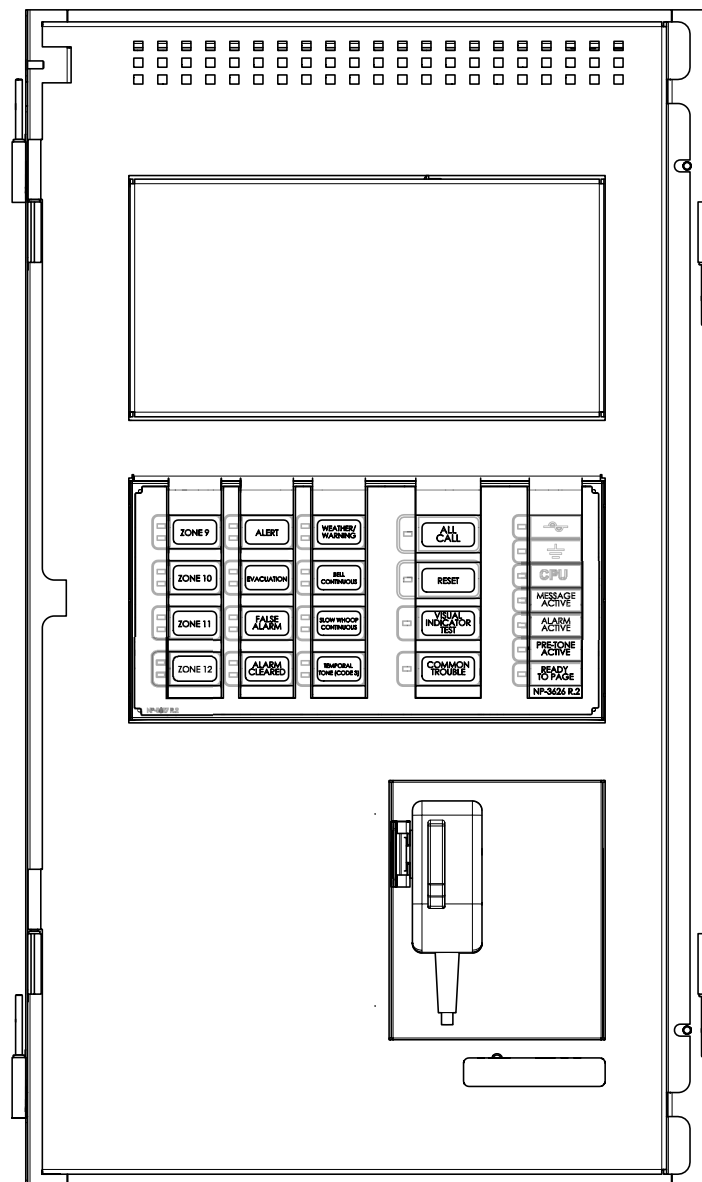
Figure 61   LOC - Local Operating Console

6.0 Operation

This chapter describes operational capabilities of the AUDMAX-MASTER.

This chapter explains

- 6.1 Circuit Types
- 6.2 Initiating Device Circuit
- 6.3 NAC (Output) Circuits Types
- 6.4 NAC Sync Modes
- 6.5 NAC Evacuation Codes
- 6.6 Audio Message Playback
- 6.7 Paging
- 6.8 Audio Priorities

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES				
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.				
Program feature or option	**Permitted in UL 864? (Y/N)**	**Permitted in ULC S527? (Y/N)**	**Possible settings**	**Settings permitted in UL 864**
Second Stage Enabled	NO	YES	Second Stage Enabled/Disabled	Second Stage Enabled
AC Trouble Relay	YES	YES	Return Specific ULC Trouble	Reporting of ULC Specific trouble is permitted
Battery/Charger Trouble	YES	YES	Return Specific ULC Trouble	Reporting of ULC Specific trouble is permitted
Ground Fault	YES	YES	Return Specific ULC Trouble	Reporting of ULC Specific trouble is permitted
Page Inhibited (in Canada only)	NO	YES	User Configurable LED	**Settings permitted in UL S527:** Page Inhibited when in FACP alarm or alarm test condition.

6.1 Circuit Types

This section refers to any field wiring involved in communication between boards, speakers, or strobes. These connections include: Initiating Device Circuits and Notification Appliance Circuits (NAC). All NACs are synchronized by internally or externally generated control signals. When a FACP is used, it has full control as to how the system responds to an alarm or manual control request.

6.2 Initiating Device Circuit

The AUDMAX-MASTER may use a FACP as an Initiating Device Circuit via the Signaling Line Circuit or Relay Activation or Sync Input.

6.2.1 Relay Inputs

The AUDMAX-MASTER may receive initiating relay signals from the FACP:

- for either Stage 1 or Stage 2 alarm activation (as common relay)

6.2.2 Synch Inputs

The AUDMAX-MASTER can receive a synchronizing signal from the FACP for panel and NAC control.

i   **Notes:**   The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units
- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units
- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

6.3 NAC (Output) Circuits Types

Signal

Used by audible devices, such as bells and piezo mini-horns. The AUDMAX-MASTER permits synchronized NAC function. While sounding, these devices follow the pattern appropriate for the condition:

- the configured Evacuation Code (default is Temporal Code) during Single-Stage Alarm
- Two-Stage General Alarm
- the Alert Code during Two-Stage's Alert (First) Stage.

Strobe

Visual devices, such as strobes, use no code pattern (flash as continuous).

Synchronized Strobes

These are visual devices (such as strobes) that support Mircom, Potter, System Sensor, Gentex, Wheelock proprietary code patterns and require configuration to the appropriate pattern.

6.4 NAC Sync Modes

The AUDMAX-MASTER is capable of generating signal rates internally or receiving the synchronizing signals externally. Also, the AUDMAX-MASTER can synchronize the signal rates for another AUDMAX-BP in a Master - Replica relationship.

i **Notes:** All NAC circuits are synchronized.

i **Notes:** The inter-panel synchronization supports up to a total of four units.

Sample setups:

- one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units
- one AUDMAX-MASTER panel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units
- one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

6.4.1 Internal Sync Mode

In this mode all signal and synchronizing strobe rates are produced in the AUDMAX-MASTER. When a NAC circuit is initiated by the FACP, the NAC output signals are internally generated based on how the software is configured.

The Sync Outputs will be activated when one of the NAC circuits has been activated. If two stage operation is used, Sync Output1 produces the rate for the first stage signal and Sync Output 2 produces the rate for the second stage signal.

To enable Internal Sync Mode

1. Configure in software.

6.4.2 External Sync Mode

In this mode, externally generated synchronizing information is feed to the AUDMAX-MASTER. The AUDMAX-MASTER outputs follow the signal pattern of the Sync Input. All synchronization signals are supplied either from the FACP or from the AUDMAX-MASTER.

!

Attention: If a Sync signal is disconnected then devices following that signal will cease functioning.

i

Notes: The inter-panel synchronization supports up to a total of four units.

Sample setups:

*   one AUDMAX-MASTER panel (generating synchronization) and three AUDMAX-BP units
*   one AUDMAX-MASTERpanel and a FACP (regenerating synchronization from FACP) and two AUDMAX-BP units
*   one AUDMAX-BP unit (generating synchronization) and three AUDMAX-BP units

To enable External Sync Mode

1. Configure in Software.

6.4.3 Redundant Input

The system continuously monitors the SLC loop. If there is no activity for an extended period (80 seconds typical), an SLC trouble will be generated.

If multiple inputs are mapped to the same output zone then, as a redundancy, any single input of the zone will activate that zone's output.

6.5 NAC Evacuation Codes

6.5.1 Single stage codes

Continuous

On 100% of the time.

Temporal Code

0.5 second on, 0.5 second off, 0.5 second on, 0.5 second off, 0.5 second on, 1.5 second off, then repeat.

March Code

0.5 second on, 0.5 second off.

California Code

5 seconds on, 10 seconds off.

6.5.2 Two-stage codes

Alert Code

0.5 second on, 2.5 seconds off.

General Alarm

Evacuation code as selected from above.
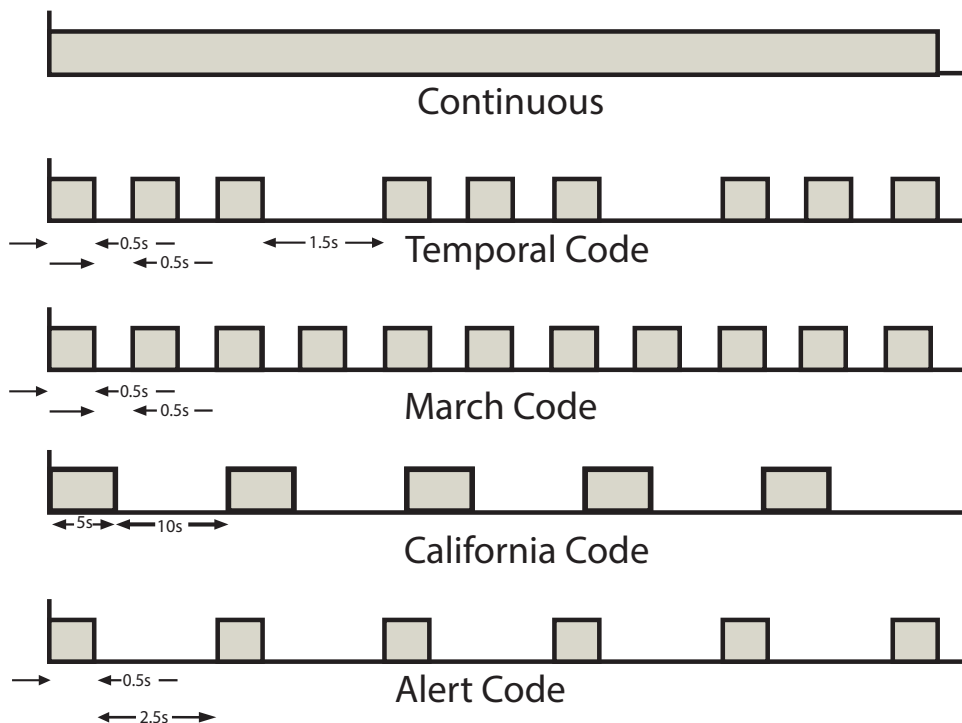
Figure 62   Evacuation Codes

6.6 Audio Message Playback

The AUDMAX-MASTER comes factory configured with 8 pre-recorded messages. The AUDMAX-MASTER can play user supplied messages as well.

The pre-recorded messages are:

- Alert (Stage 1)
- Evacuation (Stage 2)
- False alarm
- Alarm cleared
- Bell Continuous
- Slow Whoop Continuous
- Temporal Tone (Code 3)

To play a pre-recorded message

1. Select the zone(s) to alert.

   To select a zone, hold down the button for the zone until the zone's green LED illuminates steady. To alert all zones at once, select **All Call**.

2. Select the message needed to play.

   To select a message, hold down the button for the message until the message's green LED illuminates steady. While the message is playing, the **Message Active** LED lights green.

3. After the message has played, either

- hold down the message button and the zone button(s) to deselect them;
- press **Clear Selection** to clear selected LEDs.

6.7 Paging

Use the microphone on the AUDMAX-MASTER, an AUDMAX-RM remote microphone call box, or an AUDMAX-LOCR local operating console to page zones. Use **All Call** to page all zones at the same time.

To page the audio system with the AUDMAX-MASTER OR AUDMAX-LOCR

1. From the control panel, select the zone(s) to page by pressing that zone button until its LED indicates green.

   If **All Call** is selected, all zone LEDs will light.

   If no zones are selected, the page will go to all zones (same as selecting **All Call**).

2. Unhook the microphone from its housing, and then press the Push-To-Talk (PTT) button on the microphone.

   The **Clear Selection** LED indicates green and **Pre-Tone Active** LED indicates green. If the **Clear Selection** LED does not light green, then another microphone with a higher priority has control of the audio channel. The system will not page when another operator's microphone has control. The AUDMAX-MASTER master microphone has highest priority.

3. When the **Ready To Page** LED lights green, the operator may begin the page.

4. When finished the page, release the PTT button on the microphone.

   Any pre-selected zone LEDs will signal steady and those zones will remain available for further paging. Press **Clear Selection** to clear all active zone indicators.

   If an **All Call** was made, all zones and zone LEDs will reset when the PTT button is released.

To page the audio system with the AUDMAX-RM

1. Unhook the microphone from its housing, and then press the Push-To-Talk (PTT) button on the microphone.

   If the System in Use LED flashes yellow, another microphone with a higher priority has control of the audio channel. The system will not page when another operator's microphone has control. The AUDMAX-MASTER master microphone has highest priority.

2. When the **Ready To Page** LED lights green, begin the page.

3. When finished the page, release the PTT button on the microphone.

Page Inhibited on the AUDMAX-MASTER or AUDMAX-LOCR

1. During a page or prior to beginning a page, the FACP triggers an alarm or fire drill. On the FACP, alarm visual indicators will illuminate and any assigned alarm message will play.

   The assigned LED for the Page Inhibited will flash yellow at trouble rate, indicating why paging will not function.

   Note: During the Page Inhibited, the PTT will not activate a page until the user-set period of time expires.

2. Wait until the Page Inhibited LED is extinguished (even if alarm is active) then press PTT button, pre-tone will play, and paging ability resumes.

   Note: Alarm may continue after page is complete depending on configurator alarm duration settings.

Page Inhibited on the AUDMAX-RM

1. During a page or prior to beginning a page, the FACP triggers an alarm or fire drill. On the FACP, alarm visual indicators will illuminate and any assigned alarm message will play.

   The System In Use LED for the Page Inhibited will flash yellow at trouble rate, indicating why paging will not function.

   Note: During the Page Inhibited, the PTT will not activate a page until the user-set period of time expires.

2. Wait until the System In Use LED is extinguished (even if alarm is active) then press PTT button, pre-tone will play, and paging ability resumes.

Notes: Alarm may continue after page is complete depending on configurator alarm duration settings.

6.8   Audio Priorities

The AUDMAX-MASTER prioritizes audio channels in the following order:

1. AUDMAX-MASTER master microphone

2. AUDMAX-RM remote microphone or AUDMAX-LOCR

   Remote microphone priorities are configured either as first-come-first-served or by remote microphone addresses. For example, when a higher priority interface is activated then all control is reset and is given to the higher priority interface, thus blocking all lower priority interfaces. In all cases, the AUDMAX-MASTER master microphone maintains highest priority and its control will pre-empt any activity on the AUDMAX-RMs and AUDMAX-LOCRs. For information on setting remote microphone priorities, see SW2 address on AUDMAX-RM and AUDMAX-LOCR board.

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Notes: AUDMAX-RM and AUDMAX-LOCR addresses MUST be sequential and without numerical gaps.

3. Manual activation.

4. Automatic activation.

7.0 Testing

This chapter describes testing functionality of the AUDMAX-MASTER and its components.

This chapter explains

- 7.1 Testing For AUDMAX-MASTER or AUDMAX-LOCR
- 7.2 Testing For AUDMAX-RM

7.1   Testing For AUDMAX-MASTER or AUDMAX-LOCR

7.1.1   Visual Indicator Test

1. Press and hold the "Visual Indicator Test" button.

2. Observe that all indicators are functional by illuminating in sequence.

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Note: The CPU fail LED will not illuminate during this test.

7.1.2   Microphone Test

1. Press and hold the PTT on the microphone.

   The "All Call" LED will illuminate, and all zones should have green LEDs illuminated.

   The "Pre-Tone Active" LED will illuminate green and a pre-tone is audible.

   The "Ready To Page" LED will then illuminate green.

2. Make a test announcement, and ensure that it is audible at speaker outputs in all zones.

7.1.3   Automatic Initiation

Test this functionality if the system is connected to an FACP.

1. Initiate an alarm at the FACP.

   Observe that the "Alarm Active" LED illuminates on the AUDMAX-MASTER or AUDMAX-LOCR.

2. The corresponding zones will have an audible message playing and visible devices activated.

   The zone indicators will illuminate.

7.1.4   Message Selection

Follow this procedure for testing of each zone individually.

1. Select the zone for testing.

2. Select one of the pre-programmed messages.

3. Listen to ensure that message plays back correctly through the zones.

4. Cycle through all pre-programmed messages, and ensure they play back correctly.

5. Then press the "Reset" button.

   All zone and message selections will clear, and the system will return to normal.

7.2   Testing For AUDMAX-RM

1. Press and hold the PTT on the microphone.

   The "Pre-Tone Active" LED will illuminate then a pre-tone will play.

The "Ready To Page" LED will then illuminate.

Make a test announcement, and ensure that it is audible at speaker outputs.

8.0 Sample Implementations

The AUDMAX-MASTER may be configured for individual unit control or control via a Fire Alarm Control Panel. Options can include: 1-Stage or 2-Stage activation for fire alarm, emergency messaging, or Mass Notification. The local microphone panels control paging and zone control.

This chapter explains

- 8.1 Sample Uses of the AUDMAX-MASTER system
- 8.1.1 Stand Alone Use
- 8.1.2 Conventional Fire Alarm
- 8.1.3 Addressable (or Intelligent) Fire Alarm Panel

8.1 Sample Uses of the AUDMAX-MASTER system

8.1.1 Stand Alone Use

Notification and Small Emergency Application

This implementation is useful for places of assembly: places of worship, community centers, and auditoriums. NOT intended for fire use. The AUDMAX-MASTER is not connected to a FACP.

> **Note:** Pre-recorded messages can translated into client languages are helpful in multi-lingual situations or environments.

Benefits of this configuration:

- All activation is by manual zone control and message selection.
- The local microphone controls system paging and zone control, but up to six Remote Microphones or LOC panels may be added for making announcements away from main panel.

3rd
Floor

2nd
Floor

1st
Floor

Speakers

AUDMAX-RM

AUDMAX-MASTER

AUDMAX-LOCR
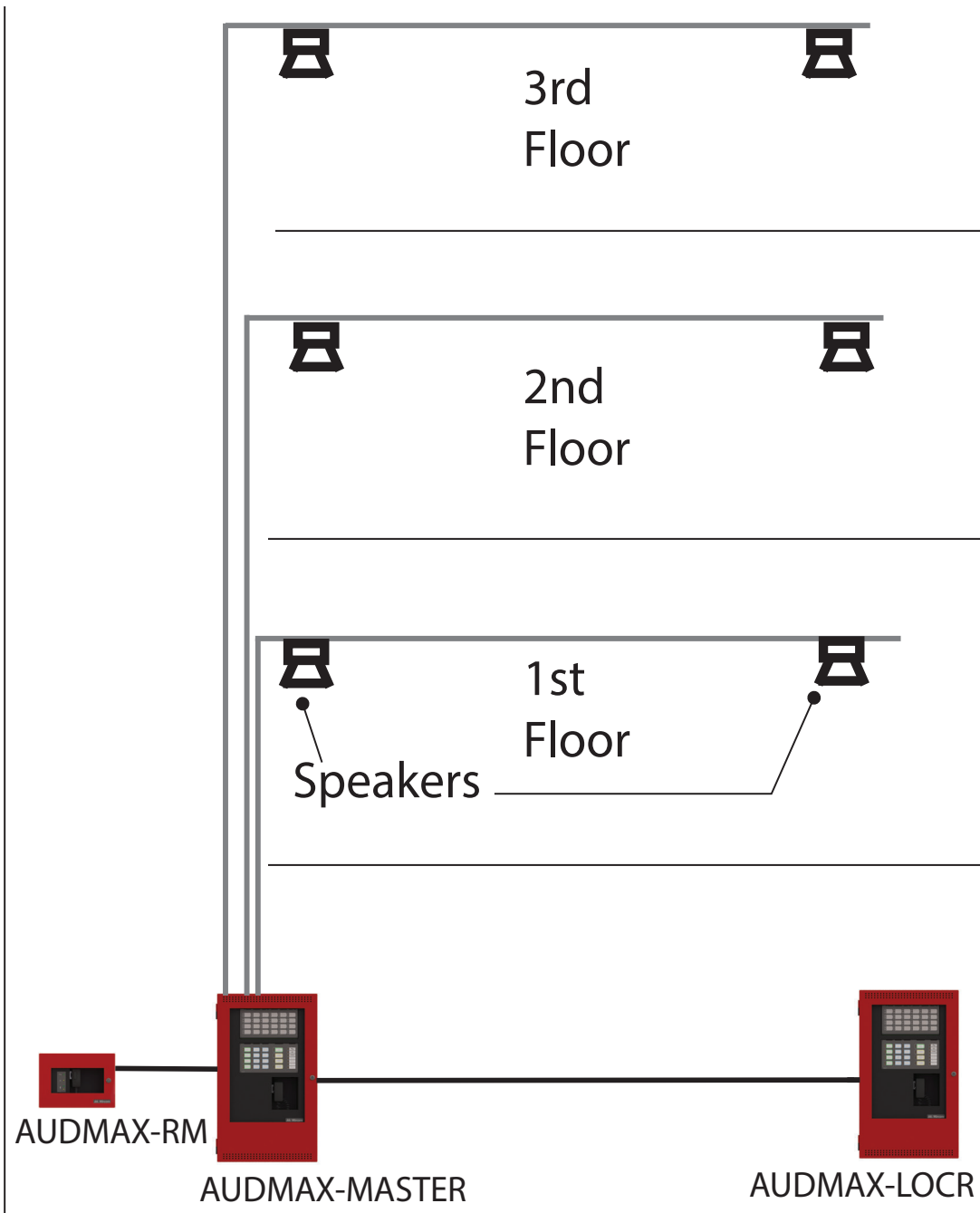
Figure 63   Public Annunciation System for Multi-Floor Building

Auditorium

Hallway

General Use Room

Speakers

Hallway

Operations

Office

Entrance

AUDMAX-RM

AUDMAX-MASTER

AUDMAX-LOCR

AUDMAX-RM
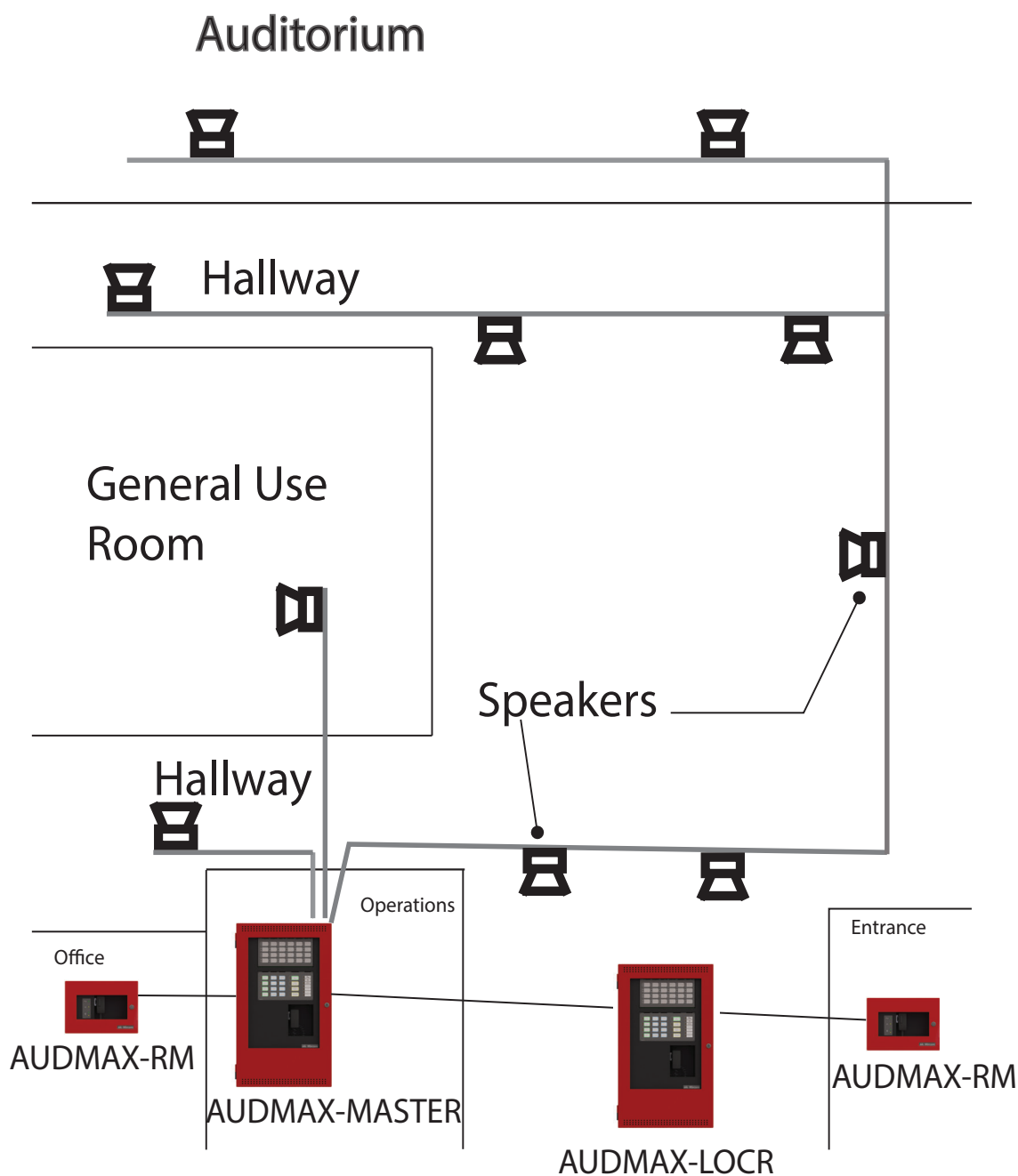
Figure 64   Public Annunciating System for a Single Floor Multi-Use Building

8.1.2 Conventional Fire Alarm

Combined Fire Alarm, Audio Messaging, and Emergency Audio

The same layout as the Stand Alone Use, but with automatic fire message initiation via a Conventional Fire Alarm Control Panel.

Options for this configuration:

- The AUDMAX-MASTER can interface with any conventional FACP (i.e. Mircom FA-1000 AND FA-300 series) using dry contacts and/or NAC.

- The local microphone panel controls paging and zone control.

- Up to six Remote Microphones or LOC panels may be added for making announcements at locations away from the main panel.

- The AUDMAX-MASTER can support up to 5 Booster Panels for expansion and added broadcast power.

- The Master AUDMAX-MASTER Panel communicates with and streams audio to boosters over RS-485.
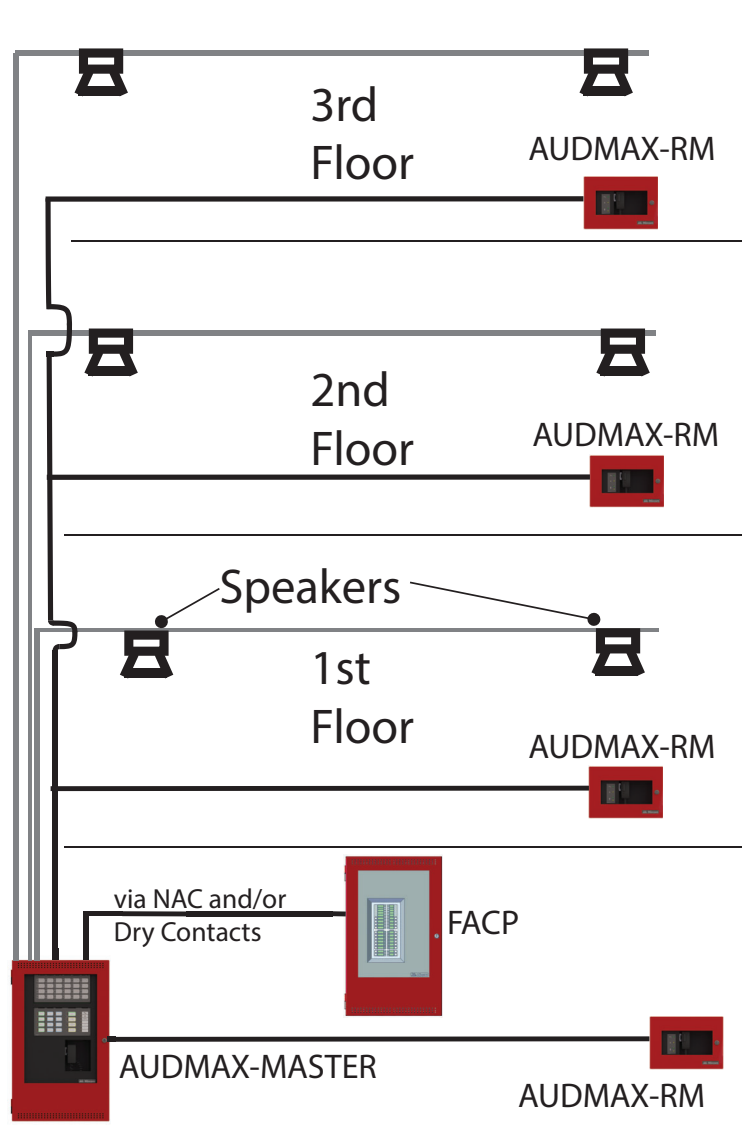
Figure 65   Conventional Fire Alarm

8.1.3   Addressable (or Intelligent) Fire Alarm Panel

Combined Fire Alarm, Audio Messaging, and Emergency Audio

The main feature for this configuration is the ability to interface with a Fire Alarm Control Panel via SLC communications (i.e.Mircom FX-2000, FleX-Net, MR-2200 Secutron, and FX-3500). This configuration allows:

- between the FACP and AUDMAX-MASTER, the SLC permits advanced control and reporting over a 2 wire pair
- retrofit for pre-existing FACP systems
- Fire plus emergency paging and/or mass notification
- automatic activation by FACP
- emergency message to activate manually

Expansion options include:

- up to 6 remote microphones and/or LOCs in total
- up to 5 booster panels or 6 panels in total
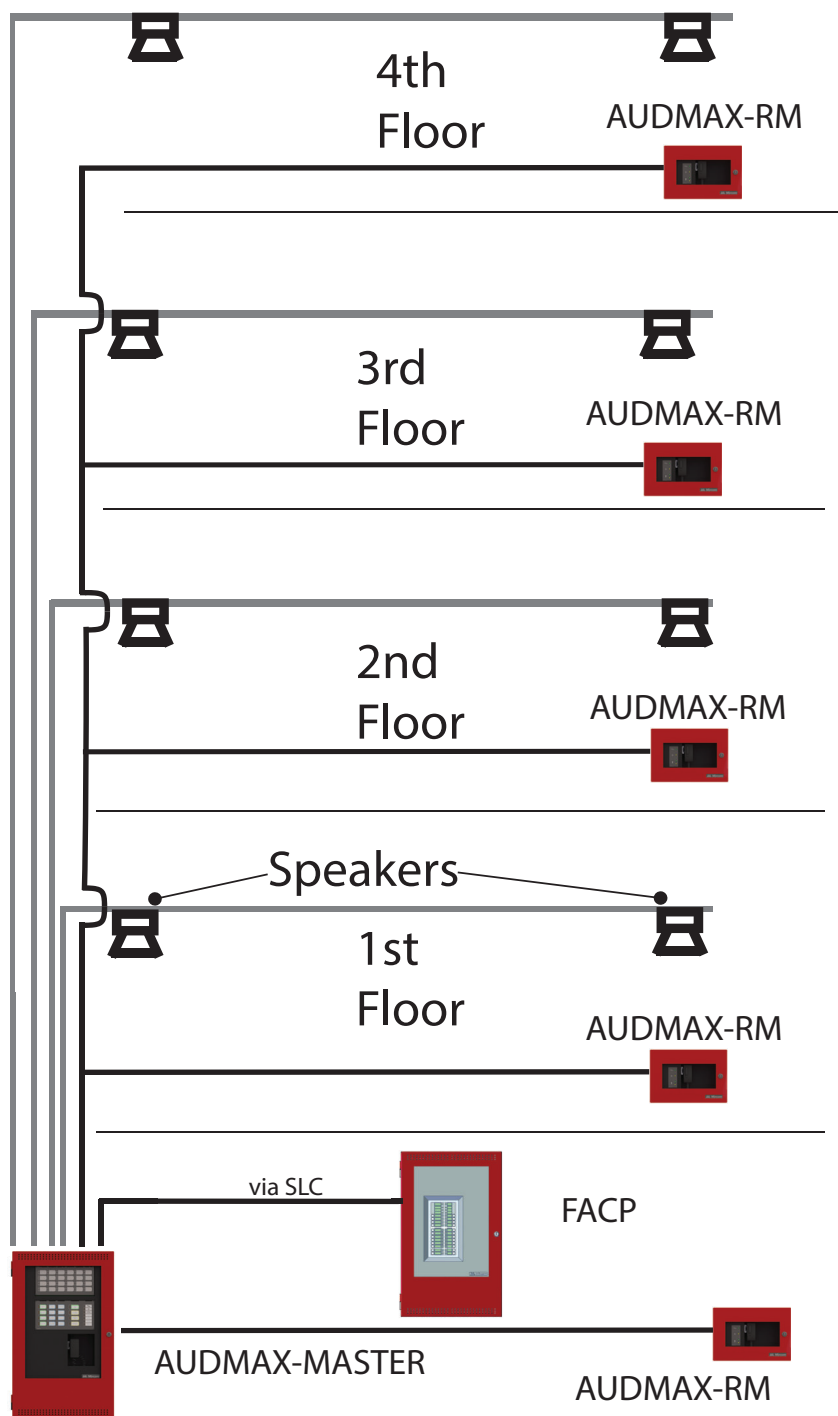
Figure 66   Fire Alarm Panel linked via SLC to Master Panel

Up to 5 AUDMAX-BP
units per system

RS-485

AUDMAX-BP

5th
Floor

4th
Floor

AUDMAX-RM

3rd
Floor

AUDMAX-RM

2nd
Floor

AUDMAX-RM

Speakers

1st
Floor

AUDMAX-RM

via SLC

FACP

AUDMAX-MASTER
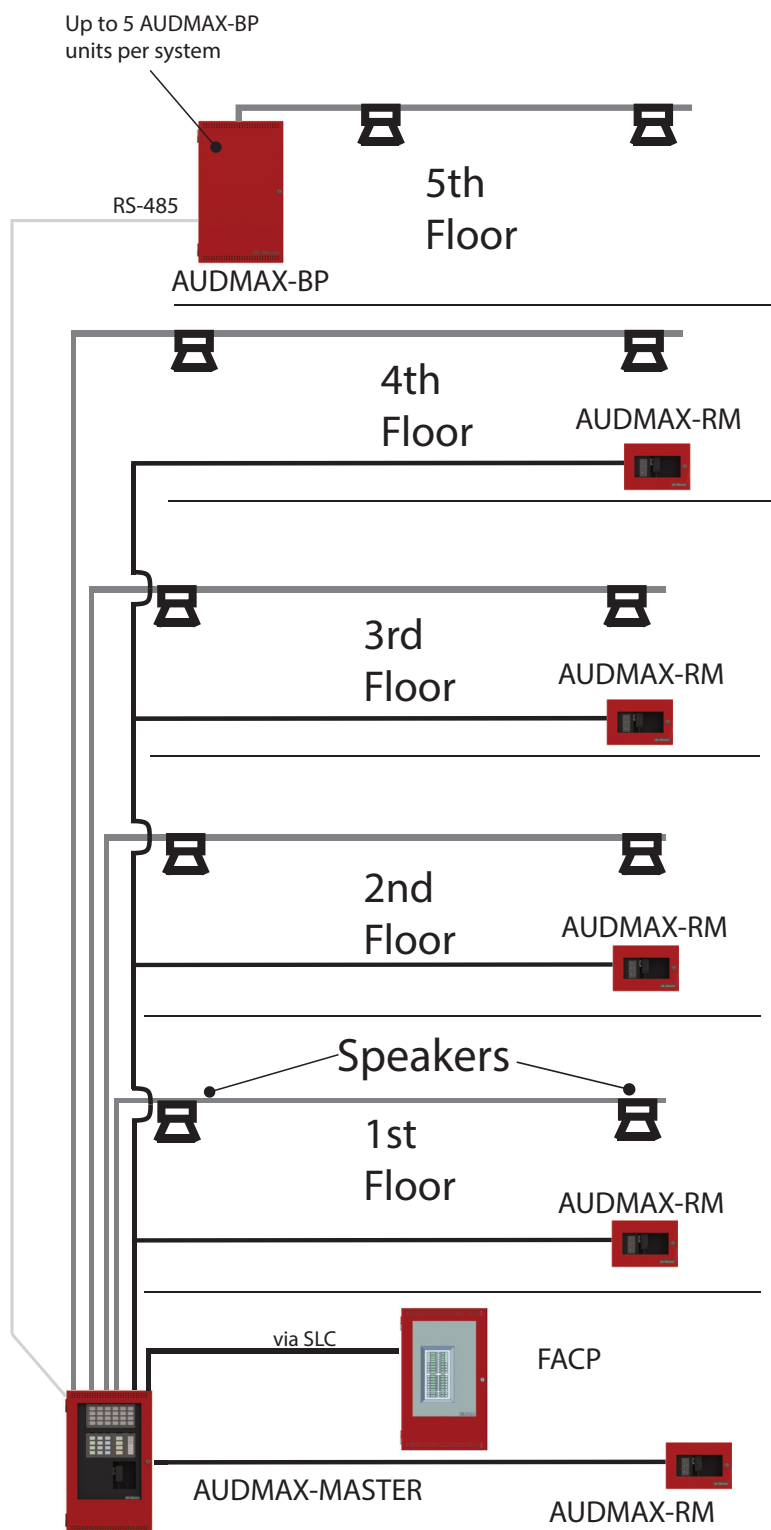
AUDMAX-RM

Figure 67   Fire Alarm Control Panel with distributed AUDMAX-MASTER system

9.0 Configuration

The chapter describes how to configure the AUDMAX-MASTER with the switches located on the main board.

This chapter explains

- 9.1 AUDMAX-MASTER Main or Booster Board Switch Locations
- 9.2 DIP Switch Configuration
- 9.3 Remote Mic or LOC Switch Locations and Configuration

9.1 AUDMAX-MASTER Main or Booster Board Switch Locations

The AUDMAX-MASTER requires a unique address for each board to be identified by other devices and FACPs.The DIP switch SW1 allows the identification of each AUDMAX-MASTER main or Booster board when wired up together. Once properly addressed, AUDMAX-MASTER boards will correctly route control and audio signals to the proper destinations or zones. It permits the correct zone call or control hierarchy for the remote microphones.

The following diagram shows the location of the one DIP switch (SW1) used to configure the AUDMAX-MASTER.
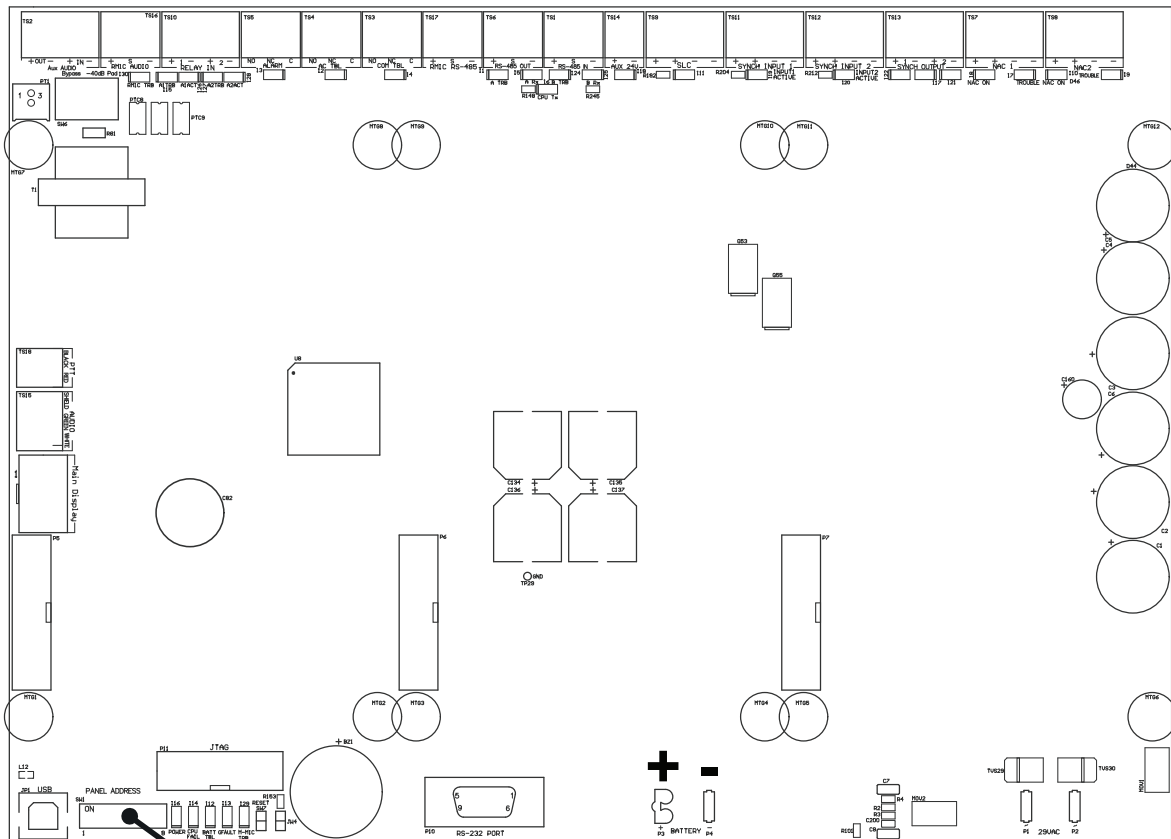
Figure 68   AUDMAX-MASTER DIP Switch location

9.1.1 Setting the DIP Switch

See Figure 68 for the location of DIP switch SW1 on the AUDMAX-MASTER and AUDMAX-BP main board.

This DIP switch bank has 8 switches, numbered 1 to 8. Flipping a switch up places it in the ON position. **For the purposes of Table 18, ON = 1 and OFF = 0**. For an illustration of the DIP switch settings see Figure 69.

Bit 8 is used to designate an AUDMAX-BP as the Master Panel. If bit 1 is on and bit 8 is on, then the panel must be an AUDMAX-BP, as shown in Table 18. If an AUDMAX-MASTER panel has bits 1 and 8 on, then a Trouble will be indicated. By default, bit 8 is off.

i

Note: The Master Panel must have Panel ID# '1' and the Factory Default of Panel ID of 0 will cause a Trouble indication.
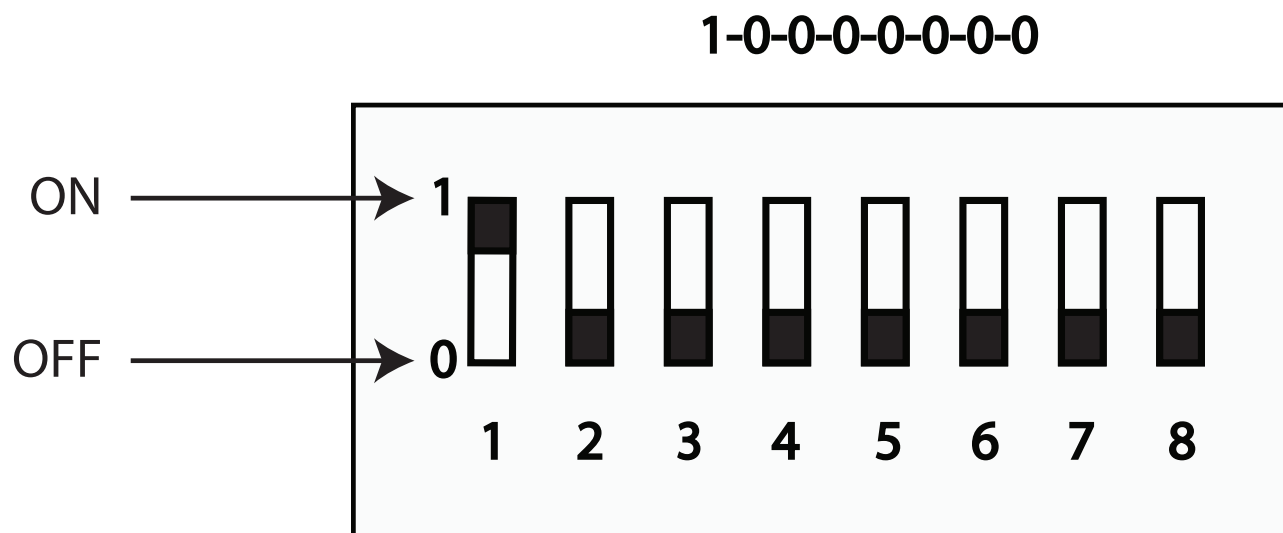
Figure 69   DIP switch positions

Table 18   Panel Address DIP Switch Bits

Panel ID	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
1 **(AUDMAX-MASTER** **Master Panel)**	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
1 **(AUDMAX-BP** **Master Panel)**	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
6	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF

9.2   DIP Switch Configuration

The Panel Address is set using the DIP switch, located on the bottom left of the AUDMAX-MASTER or AUDMAX-BP main boards, and using the configurator software.

Configuration is done by setting DIP switch SW 1 to the desired address. Addresses can be set to any value from 1 to 6 but it MUST match the software configurator settings.

i

Note: The Master Panel must have Panel ID# '1' and the Factory Default of Panel ID of 0 will cause a Trouble indication.

9.3   Remote Mic or LOC Switch Locations and Configuration

The AUDMAX-RM and AUDMAX-LOCR board have one rotary switch used to set the RS-485 address on the remote microphone. Rotary switch SW2 is used to set the value for the RS-485 address.

See the following figure for the positions of these switches on the remote microphone board. In order to access the board on the AUDMAX-RM, remove the cover plate from the remote microphone.
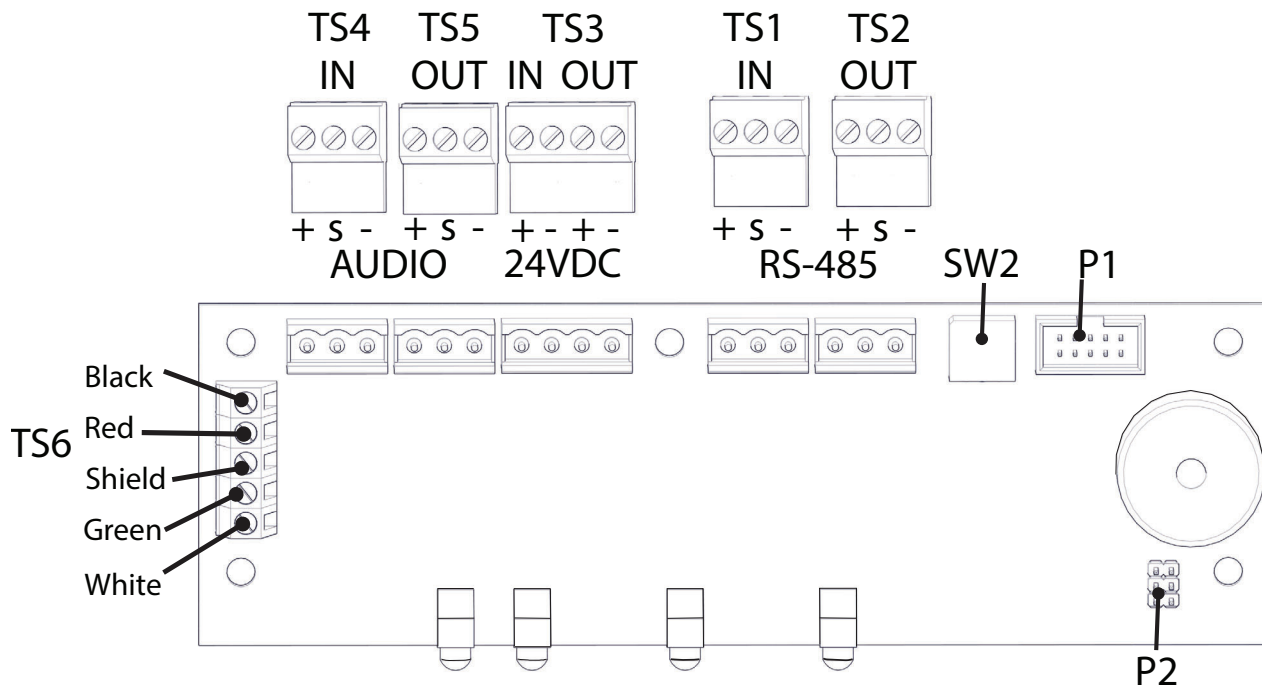
Figure 70   AUDMAX-RM and AUDMAX-LOCR board
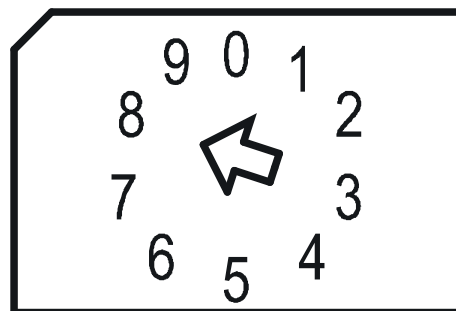
Figure 71   AUDMAX-RM and AUDMAX-LOCR Rotary Switch close up

To set the RS-485 address on a remote microphone

1. Set rotary SW2 to the appropriate value for the necessary address.

    Addresses must be **consecutive** and must start at **1**. The highest numerical RS-485 address assigned must match the number of remote microphones set in the configuration software.

10.0 System Checkout

This chapter describes the proper field wiring for the AUDMAX-MASTER.

This chapter explains

- 10.1 System Checkout
- 10.2 Troubleshooting

10.1 System Checkout

The following are the recommended steps before and during the powering up of the AUDMAX-MASTER.

10.1.1 Before Turning The Power ON

1. To prevent sparking, DO NOT connect the batteries first. Connecting the batteries is only to be done after the system has been powered from the main AC Supply.

2. Check all field (external) wiring for opens, shorts, and ground.

3. Check that all interconnection cables are secure, and that all terminals are plugged-in properly.

4. Check all Jumpers and Switches for proper setting.

5. Check the AC power wiring for proper connection.

6. Check that the chassis is connected to EARTH GROUND (cold water pipe).

7. Close the front cover plate before powering the system from main AC supply.

10.1.2 Power-up Procedure

1. After completing the previous procedures, power-up the panel. The green **AC-ON** LED should illuminate.

2. Since the batteries are not connected, the **Battery Trouble** LED should illuminate, the **Trouble / Trouble Silence** LED should flash and the **Common Trouble Relay** (on the main board) will be active.

3. Connect the batteries while observing correct polarity; the red wire is positive (+) and black wire is negative (-).

4. All indicators should extinguish except for the normal power **AC-ON** green LED.

10.2 Troubleshooting

The following are common methods to solving Circuit Ground Fault, Battery, and Common Troubles.

10.2.1 Troubleshooting using LEDs

The AUDMAX-MASTER board uses LEDs to indicate activity and trouble events. The following procedures allow the operator to quickly diagnose board health or eliminate the most common system issues.
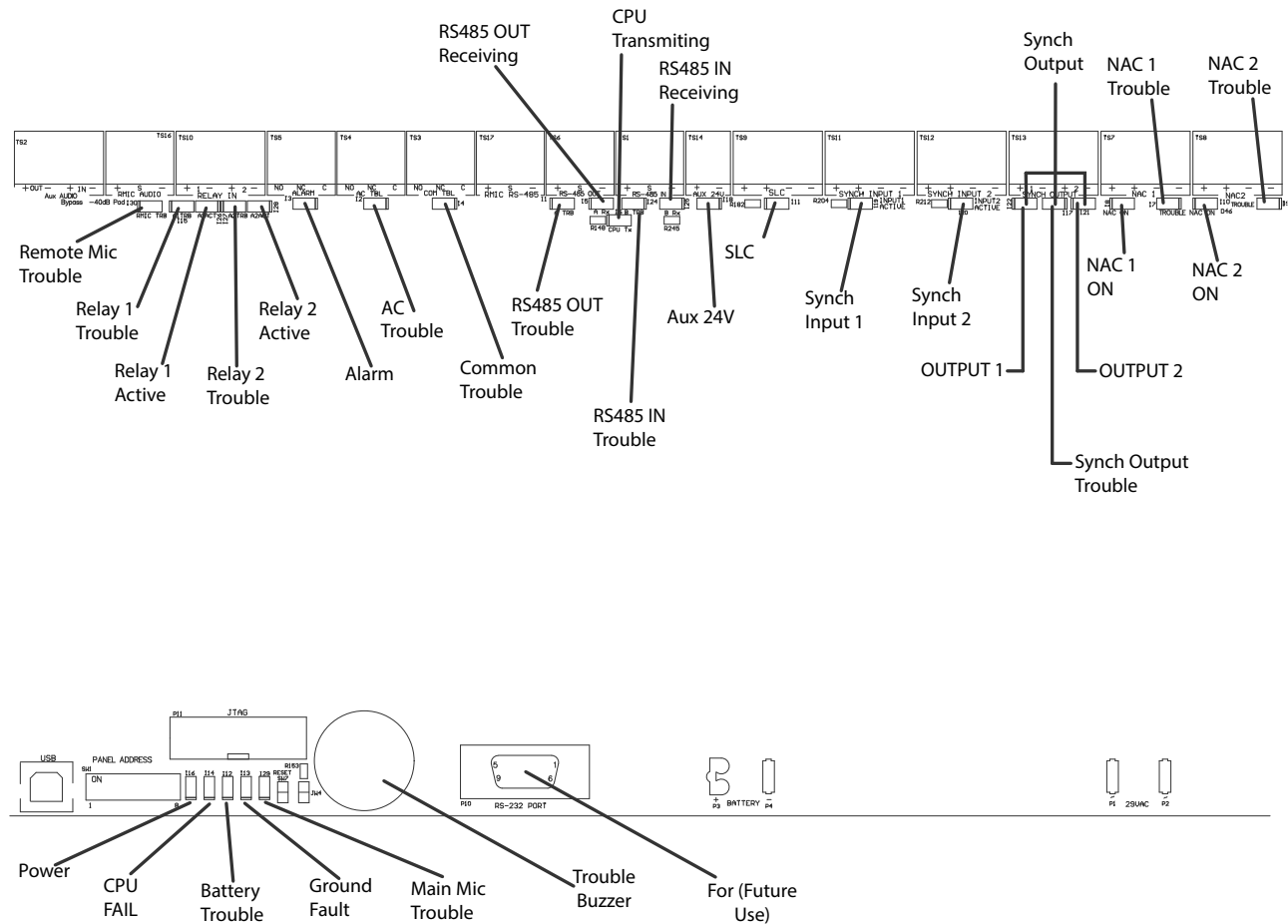
Figure 72 AUDMAX-MASTER Board LEDs

1. For Common Trouble, look at AUDMAX-MASTER Main Display for indication of
   - AC Power
   - Ground Fault
   - CPU Fail
   - Zone(s) Trouble

2. Examine AUDMAX-MASTER board for Trouble LEDs.

3. Examine AUDMAX-MASTER board for COMMS LEDs.

4. Check AUDMAX-MASTER Main Display Connection (no dedicated LED).

5. Confirm Configurator Software matches Hardware configuration (i.e. missing amplifier board).

6. Check Panel Address DIP Switch settings.

10.2.2 Circuit Trouble

When a circuit trouble occurs, the Trouble / Trouble Silence indicator will be illuminated, the Trouble Buzzer will sound, and the Common Trouble Relay will be Active. Additionally, the corresponding LED on the particular main board will be illuminated. This can be viewed by opening the panel and looking along the top of the board. To correct the fault, check for open wiring, shorts, and missing EOL on that particular circuit loop.

10.2.3 Battery Trouble

Check for the presence of batteries, their conditions, and any conduits in AUDMAX-MASTER, AUDMAX-BP, and MMX-BC-160 External Battery Cabinets. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace batteries as soon as possible.

10.2.4 Trouble / Trouble Silence

If only a Trouble / Trouble Silence is indicated on the main panel and none of those above confirming trouble indicators are on, then check the following for possible fault.

- consult AUDMAX-MASTER main board for LEDs first. FACP will display more information (if configured). AUDMAX-LOCR will display similar information.
- inspect for any missing interconnection wiring
- inspect for improperly secured cabling or cable ties
- appraise state of wires, shielding, isolation components (i.e. ground wire)

10.2.5 Ground Faults

A ground fault indication means that a wire is completing an electrical circuit but not by following its intended path. The ground fault LED will light when the AUDMAX-MASTER detects a change in voltage beyond the necessary range for its programming.

To determine location of ground fault:

1. Unplug terminals to isolate involved circuits and/or terminals.
2. Use a voltmeter on the suspect wiring to measure for any out of range voltages, based on the panel configuration.
3. Replace the necessary components.
4. Once the ground fault is remedied, the ground fault LED will not illuminate and all other indicators should show normal operation.

11.0 Appendix A: Specifications And Features

Table 19   AUDMAX-MASTER and AUDMAX-BP Specifications and Features

AUDMAX-MASTER and AUDMAX-BP Chassis		
General	Micro-controller based design and software configurator.	
NAC Circuits	2 Style Y or Z (Class B or A) configurable as strobes or audibles. Terminals are labelled "NAC 1" and "NAC 2". Power limited / Regulated 24 VDC / 2.5 Amp @ 49° C per Circuit	
Aux. Power Supply.	Terminal labelled **AUX 24V**. Power limited / 24 VDC Filtered (special application) / 0.2 Amp @ 49° C Special applications compatible for the following devices: • AUDMAX-RM • AUDMAX-LOCR	
Auxiliary relays (resistive loads)	Must be connected to a Listed Power-Limited Source of Supply. Terminals are labelled **COM TBL**, **AC TBL**, and **ALARM**.	
	Common Trouble	30 VDC, 1 Amp
	AC Trouble	30 VDC, 1 Amp
	Alarm	30 VDC, 1 Amp
Electrical ratings	**AC line voltage** **Power supply rating**	120VAC 60Hz/240VAC 50Hz, 20A slow blow fuse on secondary of transformer
		29VAC 10A maximum (secondary of transformer)
		120VAC 60Hz 3.1Amp (maximum primary of transformer)
		240VAC 50Hz 1.57Amp (maximum primary of transformer)
		Total load not to exceed 9.5A at 24VDC
	NAC Circuits	24VDC regulated, Power-Limited
		5 Amp Total, 2.5 Amp maximum per circuit
Battery	**Type**	2 x 12VDC, Gel-Cell/Sealed Lead-Acid
	Charging capability	12Ah to 75Ah batteries
	Maximum charging current	5 Amp
Compliance	**System Model**	AUDMAX-MASTER Small Audio System
	Applicable Standards	UL-1711 Rev 4, UL-864 Rev 9, and ULC-S527 - 2011
	Environmental	Use in indoor and dry environment only.

AUDMAX-RM

General	Remote Microphone module Microphone with PTT for all-call functionality. Note: Not for use in Canada	
Electrical ratings	**Standby**	13 mA
	Alarm	16.1 mA
	Environmental	Use in indoor and dry environment only.

QAD-30

General	Amplifier module for AUDMAX-MASTER or AUDMAX-BP. • Selectable 70.7Vrms or 25Vrms output • Two fully supervised Class "A" (Style Z) or "B" (Style Y) speaker zones • Freq. response +/-3dB from 400 to 4000Hz	
Electrical ratings	**Standby**	31mA
	Alarm	2.025A
	Environmental	Use in indoor and dry environment only.

QAS-2X8

General	Audio Zone Splitter used to separate the audio zones • Eight fully supervised Class "A" (Style Z) or "B" (Style Y) speaker zones	
Electrical ratings	**Standby**	23mA
	Alarm	91mA
	Environmental	Use in indoor and dry environment only.

AUDMAX-LOCR

General	Remote user interface with microphone. • Full user interface for zone and message selection • Microphone with PTT • Extra slot for QAZT-5302DS 24-Zone Controller Note: Not for use in Canada	
Electrical ratings	**Standby**	23mA
	Alarm	40mA
	Environmental	Use in indoor and dry environment only.

QAZT-5302		
General	24-Zone Controller.	
	Mounts in AUDMAX-MASTER and AUDMAX-LOCR units to provide expanded, configurable zone control.	
Electrical ratings	**Standby**	10mA
	Alarm	15mA
	Environmental	Use in indoor and dry environment only.

12.0 Appendix B: Power Supply & Battery Calculations

Use the form below to determine the required Secondary Power Supply (batteries) for each AUDMAX-MASTER/ AUDMAX-BP and its accessories.

> *i* **Note:** Secondary Power Supply (Battery) circuit is supervised, if software is configured for batteries.

IMPORTANT NOTICE

The main AC branch circuit connection for Fire Alarm Control Unit must provide a dedicated continuous power without provision of any disconnect devices. Use #12 AWG wire with 600-volt insulation and proper over-current circuit protection that complies with the local codes. Refer to *section 11.0 Appendix A: Specifications And Features on page 125* for specifications.

Power Requirements (All currents are in amperes)

Model Number	Description	Qty		Standby	Total Standby	Alarm	Total Alarm
AUDMAX-MASTER / AUDMAX-BP	Main Chassis Board + Display Board / Booster Chassis Board	1	X	0.215 /0.210	=0.215 / 0.210	0.220 / 0.210	=0.220 / 0.210
QAD-30	30 Watt Amplifier		X	0.031	=	D	=
QAS-2X8	Audio Zone Splitter		X	0.023	=	0.091	=
AUDMAX-RM	Remote Microphone		X	0.013	=	0.0161	=
AUDMAX-LOCR	Local Operating Console RMIC + Display Board		X	0.023	=	0.040	=
QAZT-5302DS	24 Zone Controller		X	0.010	=	0.015	=
Total currents (Add above currents)				STANDBY	(**A**)	ALARM	(**B**)

*For multiple current (range) rated products, the highest current ratings are to be used.

Total Speaker Current Requirement During Alarm (D)

Total Wattage of Speakers	Amplifier Current
Up to 5W	0.431
Up to 10W	0.703
Up to 15W	1.028
Up to 20W	1.311
Up to 25W	1.649
Up to 30W	2.025

Battery Calculations continued on next page...

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 (C) by 1.25 to derate battery.

Batteries BAT-12V12A(12AH), and BAT-12V18A(18AH) will fit into the AUDMAX-MASTER and AUDMAX-BP chassis. For larger batteries, use the MMX-BC-160 battery cabinet.

13.0 Appendix C: ULI Compatible Devices

13.1 Synchronized Strobes

Table 20   ULI Compatible Synchronized Strobes

Manufacturer	Brand	Strobe Model	Max. Strobe/NAC
Mircom/Potter	Mircom	FS-340R (or FS-340W)	40
System Sensor	System Sensor	SR (or SW)	36
Wheelock	Wheelock	STR (or STW)	43
Gentex	Gentex	GES3-24WR (or GES3-24WW)	25

14.0 Appendix D: ULC Compatible Speakers

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Note: Use UL compatible listed 24V or 70V speakers.

Table 21   Table of 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	86 dbA	IB-204 Recessed, IB-404 Surface	Square
SP-304A-70 (retrofit)	1 watt 2 watts	89 dbA 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 watt 1 watt 2 watts	86 dbA 89 dbA 91 dbA	IB-204 Recessed, IB-404 Surface	Square
Silenceable Speakers (70V)				
SP-404-70A (4" round)	1/4 watt	85 dbA	IB-104 Recessed	Round
SP-504-70A (4" square)	1/2 watt	86 dbA	IB-204 Recessed, IB-404 Surface	Square
SP-404SW-70A (4" round)	1 watt	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

15.0 Appendix E: UL Compatible Speakers with Secutron QAD-30 AUDMAX Amplifier and Temporal 520Hz Square Wave Low Frequency Signal

15.1 Secutron Amplifier

Model	Description
QAD-30	25 or 70 Volt 30 Watt Amplifier

15.2 Secutron Temporal 520Hz Square Wave Low Frequency Signal

UL tested Secutron temporal 520Hz square wave has three matching signal inputs available in the AUDMAX Configurator library. Refer to the following table for recommended signal input selection for UL application according to the speaker manufacturer and amplifier voltage.

Speaker/ Strobe Manufacturer	Temporal 520Hz Square Wave Low Frequency Signal Setting	Amplifier Voltage Setting	
		QAD-30	
		25V	70V
System Sensor	System Sensor 520Hz 25-70V Temporal 3	X	X
	System Sensor 520Hz 25-70V Temporal 4	X	X
Gentex	Gentex 520Hz 25-70V Temporal 3	X	X
	Gentex 520Hz 25-70V Temporal 4	X	X
Wheelock	Wheelock 520Hz 25V Temporal 3	X	
	Wheelock 520Hz 25V Temporal 4	X	
	Wheelock 520Hz 70V Temporal 3		X
	Wheelock 520Hz 70V Temporal 4		X

15.3 System Sensor Speakers

Model	Description	Back Box
SPR, SPW	Wall Mount Speaker, Red / White, c/w 25V/70.7V Output, ¼, ½, 1 and 2W	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPSR, SPSW	Wall Mount Speaker/ Strobe, Red / White, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 15, 15/75, 30, 75, 95, 110, 115 cd	Flush Mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPSRH, SPSWH	Wall Mount Speaker/ Strobe, Red/White, c/w 25/ 70.7V Output, ¼, ½, 1 and 2W; 135, 150, 177, and 185 cd	Flush Mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPSR-P, SPSW-P	Wall Mount Speaker/ Strobe, Red/White, No Markings, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 15, 15/75, 30, 75, 95, 110, 115 cd	Flush Mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPSRH-P, SPSWH-P	Wall Mount Speaker/ Strobe, Red/White No Markings, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 135, 150, 177, and 185 cd	Flush Mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPSW-ALERT	Wall Mount Speaker/ Strobe, White, c/w Amber Lens and Alert Markings, 25/70.7V Output, ¼, ½, 1 and 2W,15, 15/75, 30, 75, 95, 110, 115 cd	Flush Mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBSPR or SBBSPRW;
SPCR, SPCW	Round Ceiling Speaker, Red/White, c/w 25/70.7V Output, ¼, ½, 1 and 2W	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW
SPSCR, SPSCW	Round Ceiling Mount Speaker/Strobe, Red/ white, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 15, 15/75, 30, 75, 95, 110, 115 cd	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW
SPSCRH, SPSCWH	Round Ceiling Mount Speaker/Strobe, Red/ White, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 135, 150, 177, and 185 cd	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW

Model	Description	Back Box
SPSCW-P	Round Ceiling Mount Speaker/Strobe, White, No Markings, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 15, 15/75, 30, 75, 95, 110, 115 cd	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW
SPSCWH-P	Round Ceiling Mount Speaker/Strobe, White, No Markings, c/w 25/70.7V Output, ¼, ½, 1 and 2W, 135, 150, 177, and 185 cd	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW
SPSCW-CLR-ALERT	Ceiling Mount Speaker/Strobe, White, c/w Clear Lens and Alert Markings, 25/70.7V Output, ¼, ½, 1 and 2W, 15, 15/75, 30, 75, 95, 110, 115 cd	Flush mount on 4 x 4 standard outlet box; or Surface mount on Back Box SBBCR or SBBCW

15.4 Gentex Speakers

Model	Description	Back Box
SSPK24WLP*	WALL MOUNT SPEAKER WITH SELECTABLE STROBE	4 x 4 x 2-1/8 standard junction box; GBLP Back Box
SSPK24-15/ 75WLP	Wall Mount Speaker with Fixed 15/75 cd Strobe	4 x 4 x 2-1/8 standard junction box; GBLP Back Box
SSPKA24-15/ 75WLP	Wall Mount Speaker with Fixed 15/75 cd Strobe, Amber Lens	4 x 4 x 2-1/8 standard junction box; GBLP Back Box
SSPKB24-15/ 75WLP	Wall Mount Speaker with Fixed 15/75 cd Strobe, Blue Lens	4 x 4 x 2-1/8 standard junction box; GBLP Back Box
SSPKG24-15/ 75WLP	Wall Mount Speaker with Fixed 15/75 cd Strobe, Green Lens	4 x 4 x 2-1/8 standard junction box; GBLP Back Box
SSPKR24-15/ 75WLP	Wall Mount Speaker with Fixed 15/75 cd Strobe, Red Lens	4 x 4 x 2-1/8 standard junction box; GBLP Back Box

15.5 Wheelock Speakers

Model	Description	Back Box
E70-R E70-W E70-N	Wall/Ceiling-Mount Speaker; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W	Flush Mount on 4 x 4 x 2-1/8 standard junction box, extension ring and surface adapter. Surface Mount on SBB Backbox.
E70-24MCW-FR E70-24MCW-FW E70-24MCW-FN	Wall-Mount Speaker/Strobe; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W; 15, 30, 75, 110 cd	
E70-241575W-FR E70-241575W-FW E70-241575W-FN	Wall-Mount Speaker/Strobe; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W; 15/75 cd	
E70-24MCWH-FR E70-24MCWH-FW E70-24MCWH-FN	Wall-Mount Speaker/Strobe; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W; 135, 185 cd	
E90-R E90-W E90-N	Wall/Ceiling-Mount Speaker; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W	Flush Mount on 4 x 4 x 2-1/8 standard junction box, extension ring and surface adapter.
E90-24MCC-FR E90-24MCC-FW E90-24MCC-FN	Ceiling-Mount Speaker/Strobe; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W; 15, 30, 75, 95 cd	
E90-24MCCH-FR E90-24MCCH-FW E90-24MCCH-FN	Ceiling-Mount Speaker/Strobe; Red/White/Nickel; c/w 25V/ 70.7V Output; 1/8, 1/4, 1/2, 1, 2 W; 115, 177 cd	

16.0 Appendix F: Digital Voice Messages

List of the factory pre-recorded messages used as the AUDMAX-MASTER default configuration. The user may record their own messages.

List of messages:

- Alert (Stage 1) "May we have your attention please..."
- Evacuation (Stage 2) "Attention please, we have report of a fire..."
- False alarm "Attention please, we have a false alarm..."
- Alarm cleared "Attention please, the fire department has given clearance..."
- Bell Continuous
- Slow Whoop Continuous
- Temporal Tone (Code 3)

17.0 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.

9. **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