

EVAX-5070 / EVAX-10070 / EVAX-X70

Voice Evacuation Installation Manual



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1. Product Features:

EVAX-5070 Features

- 50W single channel amplifier
- Includes Microphone
- 4 Class A or 4 Class B speaker outputs
- Selectable for 25V or 70V
- 4 trigger inputs for message activation:
 - 1 NAC input (12-24VCD)
 - 3 dry contact inputs
- Trouble, AC, and ECS relay outputs
- 1VRMS auxiliary input
- P-Link communication bus (Class A or Class B) to connect RM-1000ECS and PSN-1000E
- V-Link audio bus (Class A or Class B) to connect RM-1000ECS
- 4x20 User Interface (80 characters)
- 8 programmable soft keys
- Ethernet for field programming

EVAX-10070 Features

- 100W, Single Channel (EVAX-10070 includes internal 50W Evax amplifier and SCA-5070INT for a total of 100W)
- Includes microphone
- 8 Class A or Class B speaker outputs
- Selectable for 25V or 70V
- 4 trigger inputs for message activation:
 - 1 NAC input (12-24VDC)
 - 3 dry contact inputs
- Trouble, AC and ECS relay outputs
- 1VRMS auxiliary input
- P-Link communication bus (Class A or Class B) to connect RM-1000ECS, SCA-5070INT and PSN-1000E
- V-Link audio bus (Class A or Class B) to connect RM-1000ECS, and SCA-5070INT
- Dedicated amp power (3A) for SCA-5070INT integrated amplifier
- 4x20 User Interface (80 characters)
- 8 programmable soft keys
- Ethernet for field programming

EVAX-X70 Features

- 50W single channel amplifier
- Includes microphone
- 4 Class A or 4 Class B speaker outputs
- Selectable for 25V or 70V
- 4 trigger inputs for message activation:
 - 1 NAC input (12-24VDC)
 - 3 dry contact inputs
- Trouble, AC and ECS relay outputs
- 1VRMS auxiliary input
- P-Link communication bus (Class A or Class B) to connect SCA/DCA amplifiers, RM-1000ECS, CIM-16, FFT-1000R/L and PSN-1000E
- V-Link audio bus (Class A or Class B) to connect SCA/DCA amplifiers and RM-1000ECS.
- Dedicated amp power (3A) for SCA-5070INT integrated amplifier
- 4x20 User Interface (80 characters)
- 8 programmable soft keys
- Ethernet for field programming

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High Level Product Overview

Table 1 - Product Overview

Amplifier/ Speaker Circuits	The EVAX-5070 and EVAX-X70 panels offer 50W single channel audio with 4 on-board speaker circuits to distribute live voice and ECS messages to notify and safely evacuate a building during an emergency event. The EVAX-10070 with the included SCA-5070INT offers 100W single channel audio with 8 speaker circuits. The speaker circuits can be configured to offer 4 Class B, or 4 Class A speaker outputs. The speaker circuits are also selectable for 25VRMS or 70VRMS. The speaker outputs are programmable for 10K or 15K EOLR. All speaker circuit wirings are fully supervised, and power limited. A maximum of 50W per circuit at 25VRMS or 70VRMS. Reference technical specifications for frequency response.
P-Link/ Compatible Accessories	The panels include a P-Link bus to connect compatible devices for system expansion. The P-Link wiring is fully supervised, and power limited. EVAX-5070 Compatibility: - RM-1000ECS – The EVAX-5070 supports up to ten (10) remote microphones (optional) - PSN-1000E – The EVAX-5070 supports one (1) power supply (optional) EVAX-10070 Compatibility: - RM-1000ECS – The EVAX-10070 supports up to ten (10) remote microphones (optional) - SCA-5070INT – The EVAX-10070 includes one (1) integrated amplifier in the cabinet (included with EVAX-10070). - PSN-1000E – The EVAX-10070 can support one (1) power supply (optional) EVAX-X70 Compatibility: - SCA/DCA Amplifiers – The EVAX-X70 supports up to ten (10) amplifiers (optional) - SCA-5070INT – The EVAX-X70 can house one (1) integrated amplifier in the cabinet (optional) - RM-1000ECS – Up to ten (10) remote microphones (optional) - FFT-1000R/L – One (1) fire fighter telephone system (optional) - PSN-1000E – Up to ten (10) power supplies (optional) - CIM-16 – Up to ten (10) contact input modules (optional)
V-Link	The panels include a supervised V-Link bus to distribute audio to respective amps and speaker outputs. The V-Link wiring is fully supervised, and power limited. A 15k EOL resistor must be installed on the last V-Link device. The EOL is not programmable.
Inputs 1-4	The voice panels are equipped with 4 supervised inputs for message activation and panel supervision. - IN 1 – Input 1 has two functions: panel supervision and alarm message activation. This is accomplished by a NAC connection via FACP. All faults will report to the FACP - IN 2-4 – Inputs 2-4 are activated by dry contact closure. A 5.1k end of line resistor is required for supervision
AUX Input	The panels include an auxiliary input to distribute incoming audio from external audio sources. The AUX input requires a <u>1VRMS balance line</u> and is activated by a programmed input via contact closure. The auxiliary input is used for non-emergency applications..
Relay Outputs	The first relay is a failsafe, dedicated Trouble Relay. The relay changes state during any trouble conditions. This relay is not programmable and no additional mapping to this relay can take place. The second relay is a dedicated AC Relay. The relay changes based on the status of AC voltage. This relay is not programmable and no additional mapping to this relay can take place. The third relay is dedicated ECS Relay. The relay changes during any ECS event. This relay is not programmable and no additional mapping to this relay can take place.
Amp Power	EVAX-10070 and EVAX-X70 Only: When a SCA-5070INT integrated amplifier is installed in the EVAX-10070 and EVAX-X70 panels, it will require power to operate. The SCA-5070INT will receive 24VDC (3A) from the AMP PWR circuit on the main board. The AMP PWR is fully supervised.
User Interface	The voice panels include a user interface that provides a 4x20 LCD display to preview system status, soft keys for paging and ECS activation, and additional soft keys for system control. The user interface requires the use of a key to open the outer door. Advanced features will require an additional user code to be entered using a combination of numbers.
AC	120VAC @50Hz-60Hz 240VAC @50Hz-60Hz The panel transfers from AC to battery instantly upon AC failure or brownout. The trouble relay will indicate the low AC condition after the Low AC Report Delay has elapsed.
Battery	Battery charging voltage: 27.3VDC Batteries: 7AH-55AH. Panels can house 7AH or 18AH batteries. Larger batteries require accessory enclosure, part #SSU00500.
Trouble Operation	Any fault or off normal that would impair the system is annunciated as a trouble condition. The trouble condition is specifically displayed on the LCD display so the trouble can be corrected. When a trouble occurs, the buzzer sounds every ten seconds for one second, the trouble LED illuminates, and the trouble relay changes state.

*Note: Any mention in this manual to Power Limited is equal to Class 2 for UL2572

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Compatibility



Features	EVAX-5070	EVAX-10070	EVAX-X70
50W single channel amplifier	✓	✓	✓
4 on-board speaker circuits	✓	✓	✓
25VRM/70VRMS	✓	✓	✓
8 on-board soft keys	✓	✓	✓
4 on-board trigger inputs	✓	✓	✓
Relay Outputs	✓	✓	✓
AUX Input	✓	✓	✓
SCA/DCA Amplifier Expansion			10
SCA-5070INT		✓	1
RM-1000ECS	10	10	10
FFT-1000R/L			1
CIM-16			10
SB-24			1
PSN-1000E	1	1	10

Notes:

The EVAX-X70 can connect up to ten (10) amplifiers total. When a SCA-5070INT integrated amplifier is installed in the EVAX-X70, 9 SCA/DCA amplifiers can be connected.

The PSN-1000E can house two (2) SCA-5070INT integrated amplifiers to group notification and speaker outputs in one enclosure.

Technical Specifications

EVAX-5070, EVAX-10070, and EVAX-X70	Specifications
Standby Current 120VAC	245 mA
Alarm Current 120VAC	575 mA
Standby Current 240VAC	165 mA
Alarm Current 240VAC	260 mA
Standby Current DC	115 mA (reference battery calculator)
Alarm Current DC	346 mA (reference battery calculator)
Frequency	400-3400 Hz
Ground Impedance on All Circuits	0 Ohms
Cabinet Dimensions	EVAX 5070: (WxLxD) 16" x 17" x 3" EVAX 10070: (WxLxD) 27" x 20" x 5" EVAX-X70: (WxLxD) 27" x 20" x 5"
Operating Temperature Range	32° to 120°F (0° to 49°)
Operating Humidity Range	Up to 93% (non-condensing)

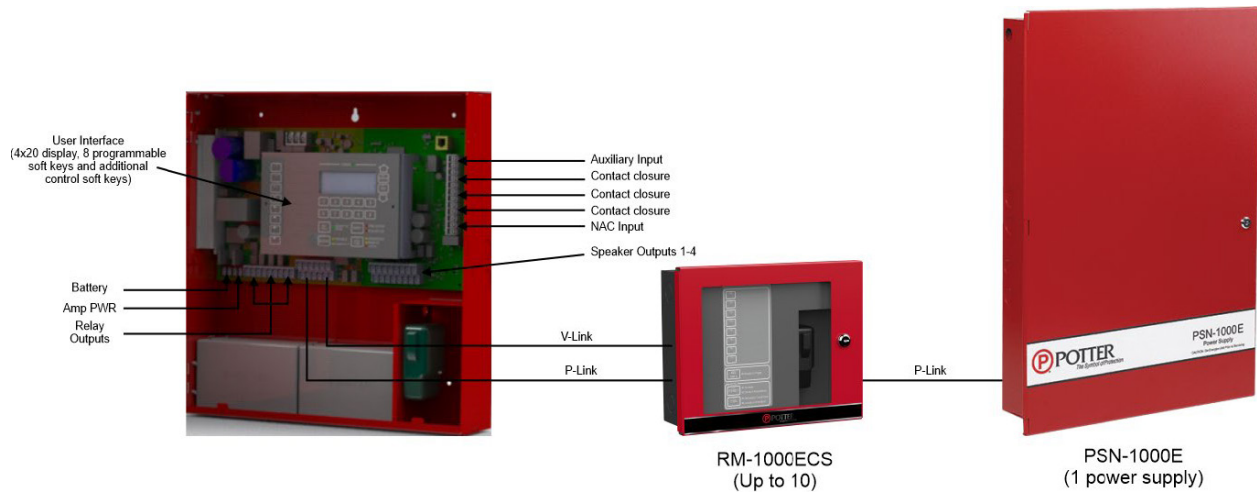
Resistor Values

Circuit	Resistor
V-Link	15K (3005022)
Speaker Outputs	10K (3005021) or 15K (3005022) EOLR (programmable)
Input 1	Matching FACP EOLR
Input 2-4	5.1K (3005013)

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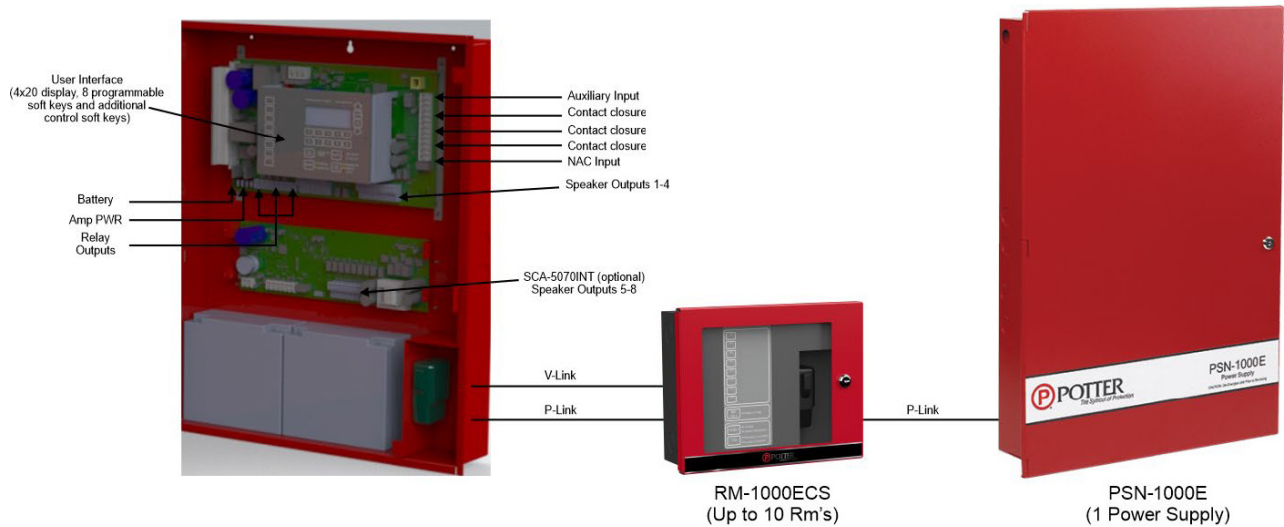
EVAX-5070 Summary

The image below shows circuit locations and communication connections to P-Link devices for the EVAX-5070 voice panel.



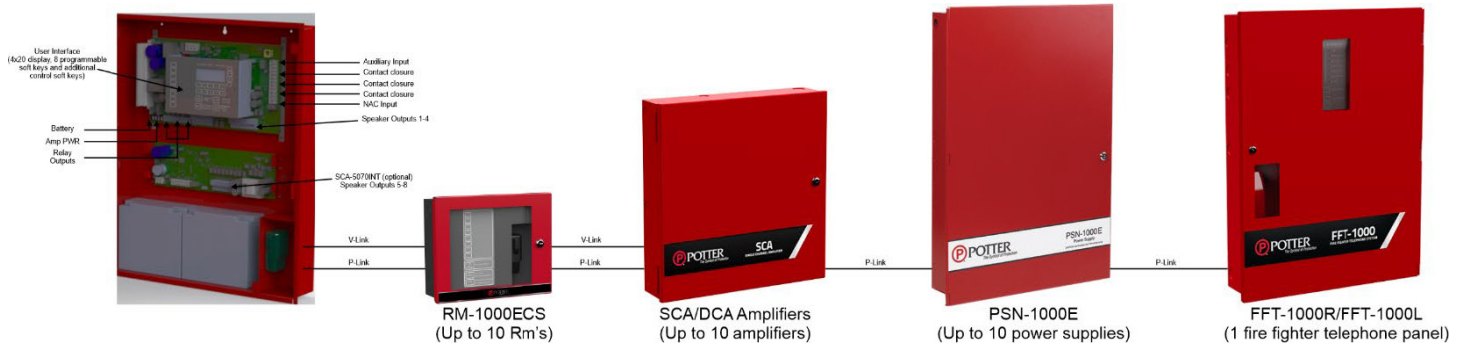
EVAX-10070 Summary

The image below shows circuit locations and communication connections for the EVAX-10070 voice panel.



EVAX-X70 Summary

The image below shows circuit locations and communication connections for the EVAX-10070 voice panel.



2. Wiring Installation

Separation of Circuits - Power Limited, Non-Power Limited, High Voltage Wiring

The cabinet has various conduit knockouts located around the cabinet for ease of wire installation. In addition, this method provides a means to separate different types of circuit to reduce electrical interference, transient voltage or voltage ratings. The main AC power connection is considered high-voltage and non-power limited. Battery conductors, the trouble, AC, ECS relays, and Amp power connection are non-power limited. All remaining circuits are low-voltage, power limited connections.

Proper separation must be maintained between the circuits listed above. All separations in the different wiring must be maintained by at least 0.25 inches and the wire insulation must be for the higher voltage. In the panel there are sufficient knock outs located around the periphery of the cabinet to allow the installer to maintain a minimum distance of 0.25 inches between power limited and non-power limited connections. The main AC power connection should be made on the left side or top left of the cabinet. When the panel is installed, the National Electrical Code (NEC, NFPA 70) should be followed for the proper installation and separation of power limited and non-power limited circuits. The mixing of power limited and non-power limited should be avoided. Refer to the following figure for suggested wiring routing.

Wire Routing

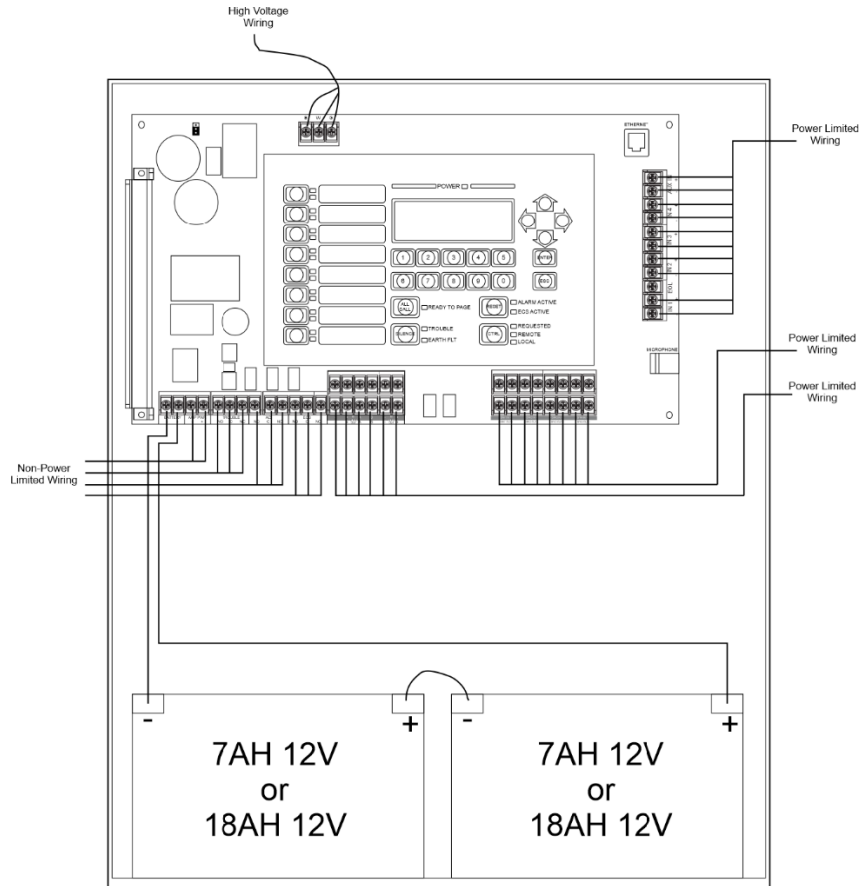


Figure 1 - Wire Routing

Voltage/Power Type

Type of Circuit	Voltage Type	Power Type
AC Connection	High Voltage	Non-Power Limited
Battery Connection	Low Voltage	Non-Power Limited
Amp Power	Low Voltage	Non-Power Limited
Trouble Relay	High Voltage	Non-Power Limited
AC Relay	High Voltage	Non-Power Limited
ECS Relay	High Voltage	Non-Power Limited
P-Link	Low Voltage	Power Limited
V-Link	Low Voltage	Power Limited
Speaker Circuits (25V)	Low Voltage	Power Limited
Speaker Circuits (70V)	High Voltage	Power Limited
Inputs	Low Voltage	Power Limited
AUX Input	Low Voltage	Power Limited

Circuitry Overview

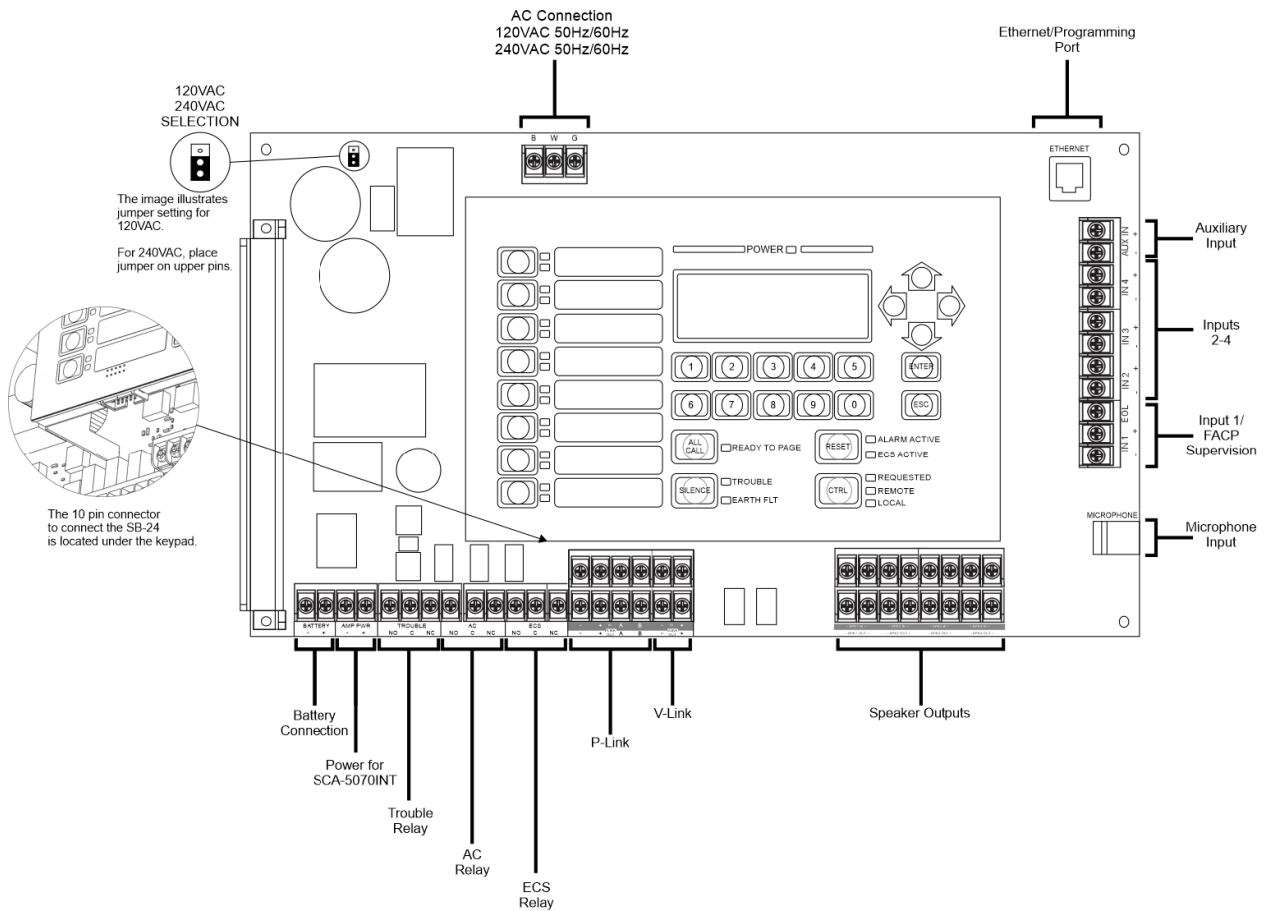


Figure 2 - Circuitry Overview

AC Connection

The AC terminals are located in the upper left-hand portion of the main board. The main board supervises the main AC power and provides indication that the AC power is absent.

The terminals are rated at 120 VAC/240 VAC 50/60 Hertz and are marked so accordingly on the board. The earth ground connection is marked as “G” and is the furthest connection from the line voltage connection.

The AC input power ratings:

- Maximum of 5A at the nominal 120 VAC rating
- Maximum of 3A at the nominal 240 VAC rating.

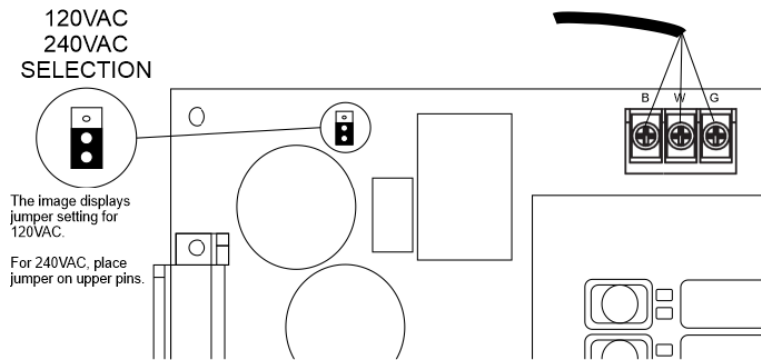


Figure 3 - Main Supply Circuit

Battery Circuit

The battery charging circuit is provided on the main panel in the lower left portion of the board. Terminal connections are provided to connect wire leads for battery connection. The battery must be a recognized or listed sealed lead acid battery or equivalent.

The battery charging voltage is approximately 27.3 VDC and the circuit is supervised. The battery circuit is protected with a non-replaceable 7 amp poly switch located on the main circuit board. The maximum battery charging circuit is 1.0 amp DC.

The battery circuit is rated for 8 to 55 AH batteries and the cabinet will house up to two 7 AH or 18 AH batteries. Larger batteries require accessory enclosure, part #SSU00500. The batteries will operate the panel for at least 24 hours and 15 minutes of alarm. In order to determine the minimum size batteries for standby and alarm times desired, the installer must complete a battery calculation work sheet in order to determine the minimum battery size for a particular application. For reference, the battery calculation work sheet is attached as Appendix A. Complete standby battery calculations must be completed to ensure adequate battery sizes are provided.

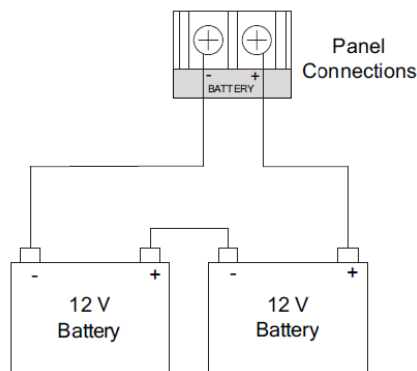


Figure 4 - Battery Connections

P-Link

The panels are equipped with a proprietary RS-485 communication bus known as P-Link. The P-Link bus is designed to connect compatible devices for system expansion. All compatible devices are supervised via the RS-485 connection and are programmable for Class B or Class A wiring. The wiring is fully supervised, and power limited. Any connection to ground of 0 ohms will be annunciated as a ground fault.

P-Link Current = 1 Amp

P-Link Voltage = 20.0 VDC - 27.3 VDC

P-Link Wire AWG = 12-22 AWG

Ground Impedance = 0 ohms

Maximum wire length = 6500 ft.

Maximum wire resistance = Maximum wiring resistance is based on load.

Calculate using the following equation:

$$(\text{Total P-Link Alarm Current}) \times (\text{Wire Resistance}) < 6 \text{ volts}$$

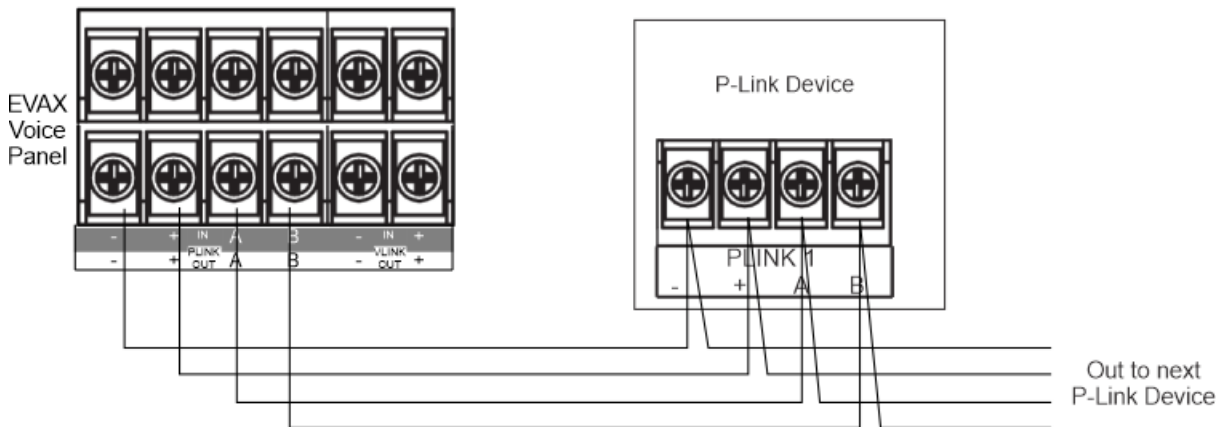


Figure 5 - P-Link Class B Connections

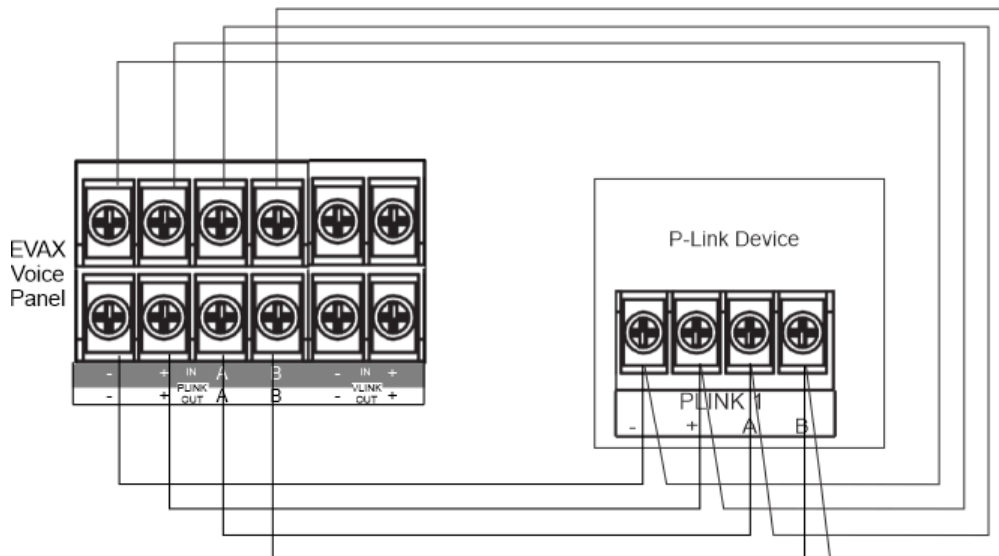


Figure 6 - P-Link Class A Connections

V-Link

The V-Link is a supervised proprietary voice bus that distributes audio from the panel to the single channel and dual channel amplifiers (dual channel amplifiers only operate in single channel mode). The V-Link is programmable for Class A or Class B wiring. A 15K EOLR must be placed on the last device to supervise the V-Link bus. Any connection to ground of 0 ohms will be announced as a ground fault. The wiring is fully supervised, and power limited.

Impedance = 50 ohms

Rated voltage = 1.5VRMS maximum

Analog communications

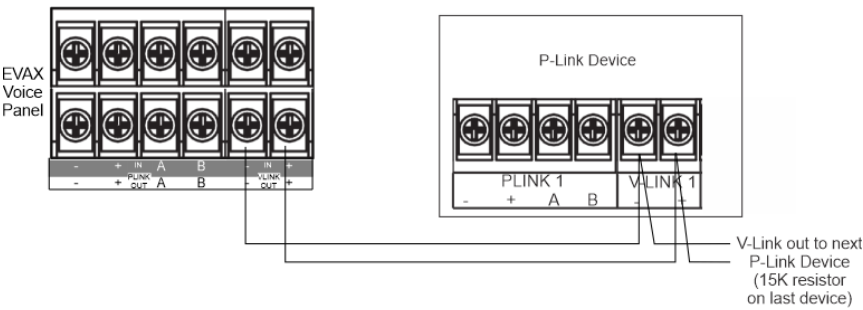


Figure 7 - V-Link Class B Connections

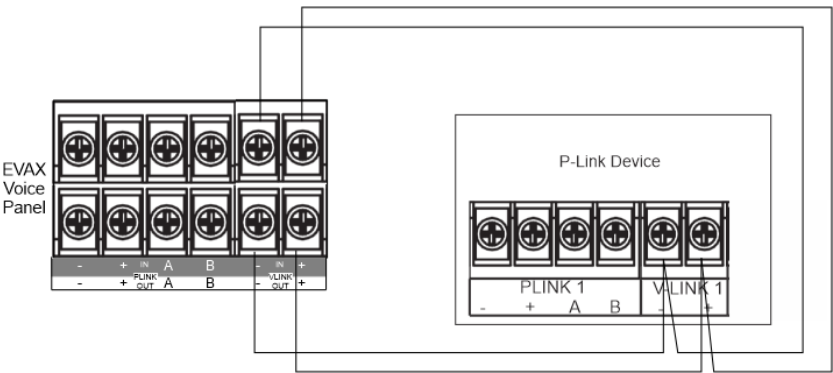


Figure 8 - V-Link Class A Connections

AMP PWR (Amplifier Power)

The panel is equipped with a dedicated 24VDC circuit to provide DC power to the SCA-5070INT, 50W integrated amplifier, when installed in the EVAX-10070 and EVAX-X70. The AMP PWR circuit is supervised and non-power limited. Reference EVAX-10070 and EVAX-X70 Wiring Connections with Optional SCA-5070INT drawing for connections on [page 16](#).

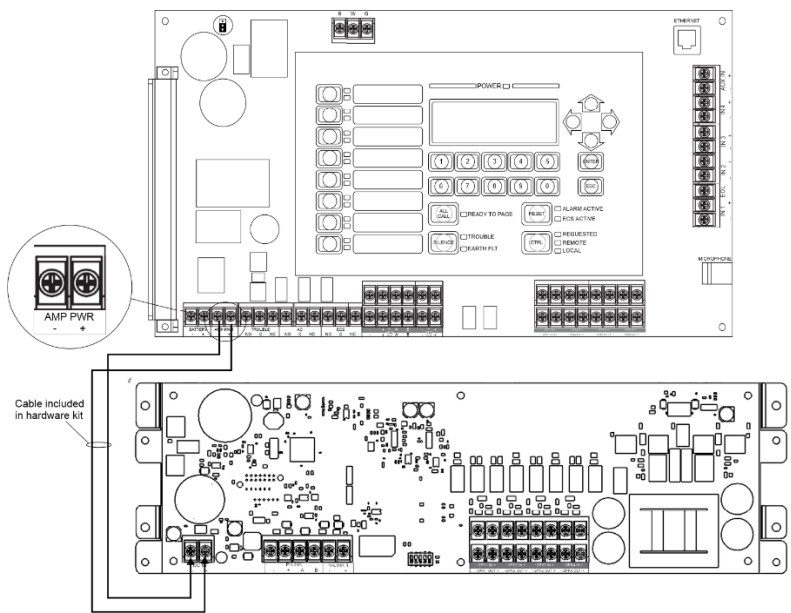


Figure 9 - AMP PWR Connections

Relays Outputs

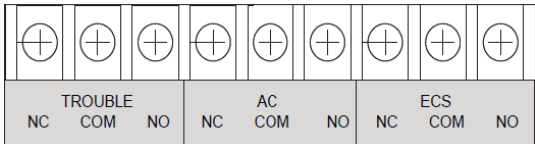


Figure 10 - Relays Outputs

The panels have three dedicated common relays. The dedicated trouble relay is a failsafe trouble relay that changes position anytime a trouble condition occurs.

The contact rating is 24VDC / 3.0A, 125VAC / 3A, Power Factor: 1.0. These outputs are non-power limited and not supervised. However, they are power-limited if the power supply to the connected devices is power-limited. Must be 20' in conduit unless wiring is supervised by connected equipment.

ECS Silence - Special Suppression/Releasing Agent

Follow the illustration below to override ECS events when Fire is higher priority.

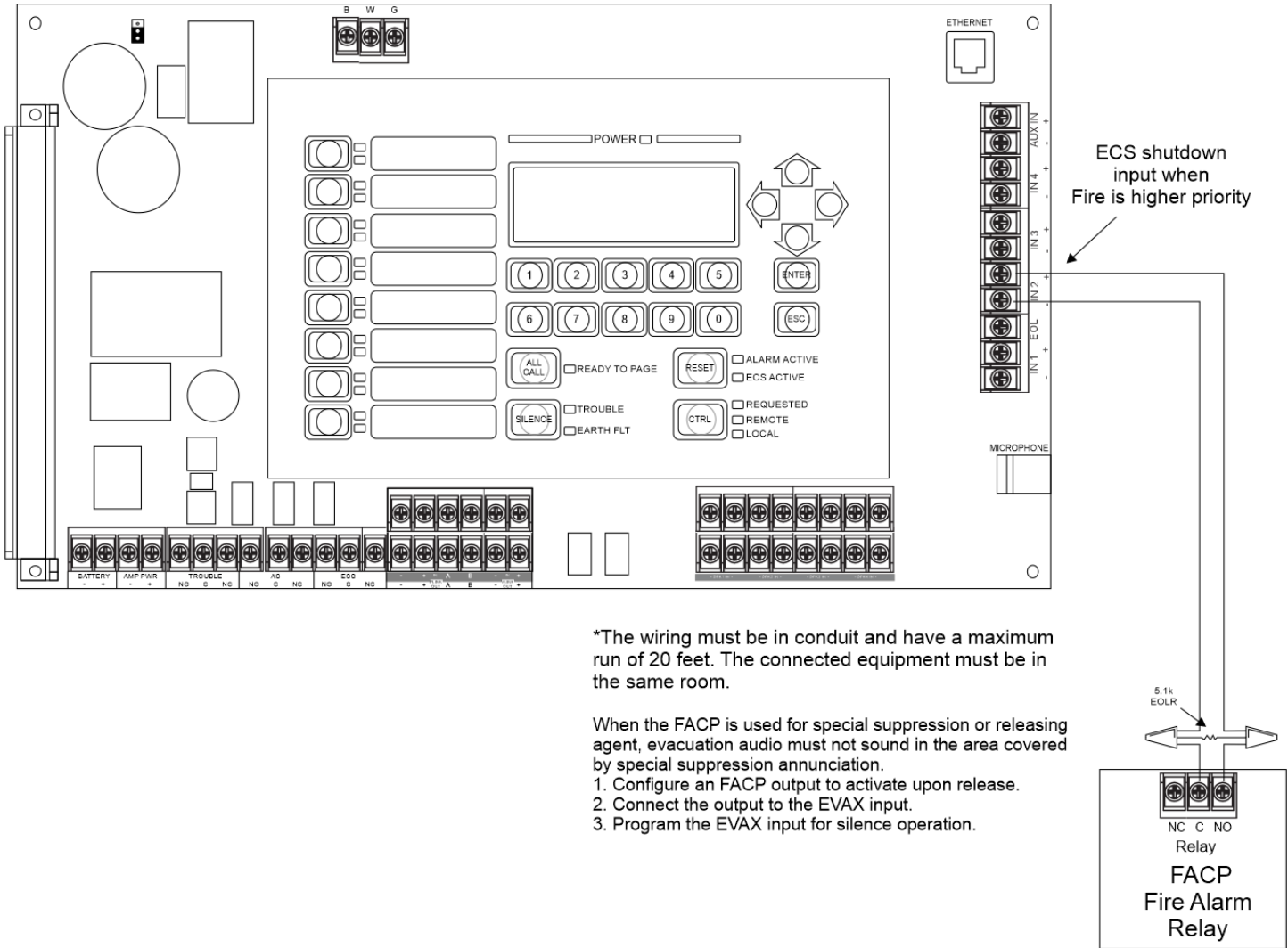


Figure 11a - ECS Event Shutdown with Fire as Higher Priority

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ECS is Higher Priority

Follow the illustration below to override Fire events when ECS is higher priority. FACP must have the ability to be silenced/unsilenced by an input module. FACP and EVAX panel must be adjacent to each other.

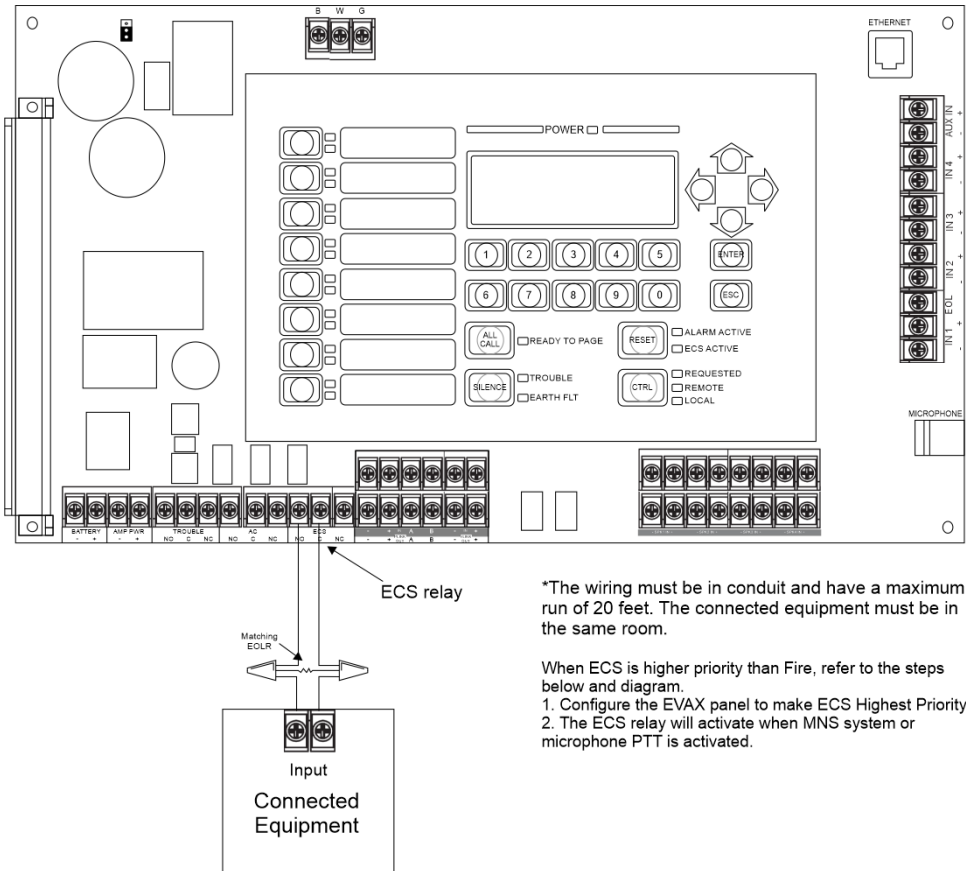


Figure 11b - Fire Event Shutdown With ECS as Higher Priority

Speaker Circuits

The voice panels are equipped with 4 Class A or 4 Class B speaker outputs and are programmable for 25VRMS or 70VRMS. A maximum of 50W per circuit for 25V and 70V speakers. The speaker end of line resistor is programmable to be 10k or 15k. Class A speaker circuits do not require EOLR on return. All speaker circuits are supervised and power limited.

Ground Impedance = 0 ohms

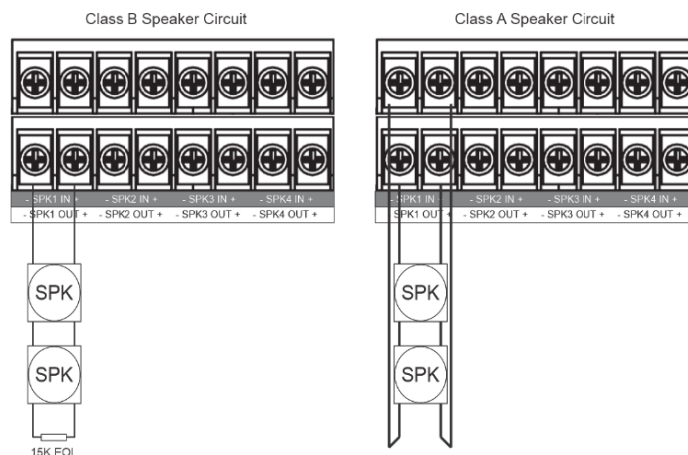


Figure 12 - Speaker Circuit Connections

Inputs and FACP Connection

The panels are equipped with four inputs: One (1) 8-33VDC NAC input and three (3) normally open dry contact inputs. The input circuits are power limited and supervised. The inputs are located on the right side of the panel.

IN 1 – Input 1 has two functions: panel supervision and alarm message activation.

- **Panel Supervision:** To have a FACP monitor the voice panel and report any trouble back to the fire panel, a NAC must be connected to input 1 with the matching FACP EOLR (see image below). During a trouble condition, the FACP EOL will open and will report the trouble to the FACP.
- **Message Activation:** In parallel to panel supervision, input 1 requires an 8-33VDC input from the FACP NAC circuit to activate message.

IN 2-4 – Inputs 2-4 will trigger messages via normally open contact closure and are supervised by 5.1K EOLR.

Maximum wiring resistance: 100 ohms

Maximum wiring capacitance: 1 uF

Maximum wire length: 10,000 feet

Maximum wire to wire short = 2 mA

Class B Inputs

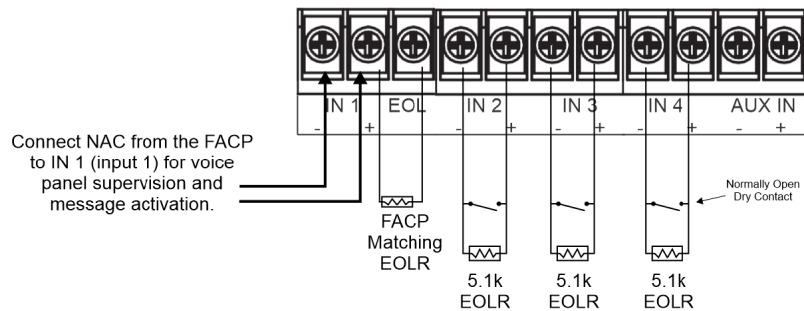
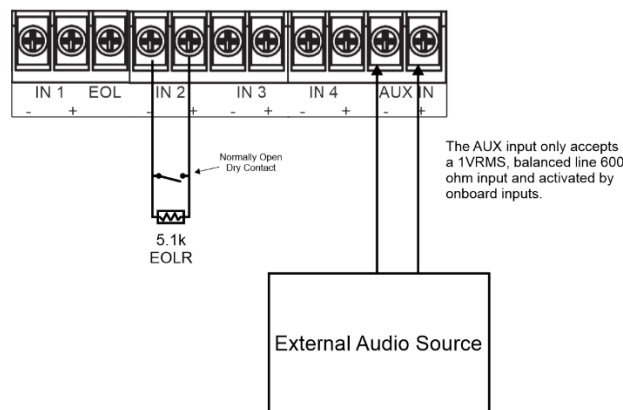


Figure 13 - Input Connections

Auxiliary Input

The panels are equipped with an auxiliary input to allow external audio sources to send audio to the voice panels. The aux input must receive 1VRMS audio signal from the external audio source and a contact closure to activate the aux input.



Connection must be in same room or 20' in conduit. For non-emergency applications only.

Figure 14 - AUX IN Connections

SB-24 Connection

The EVAX-X70 panel can connect an optional SB-24 switch card to provide an additional 24 programmable switches for speaker zone and message assignment. This is accomplished by connecting a 10-pin ribbon cable between the EVAX-X70 and SB-24. The EVAX-X70 backbox is equipped with lances to route and maintain 1/4" wire separation between non-power limited and power limited wiring.

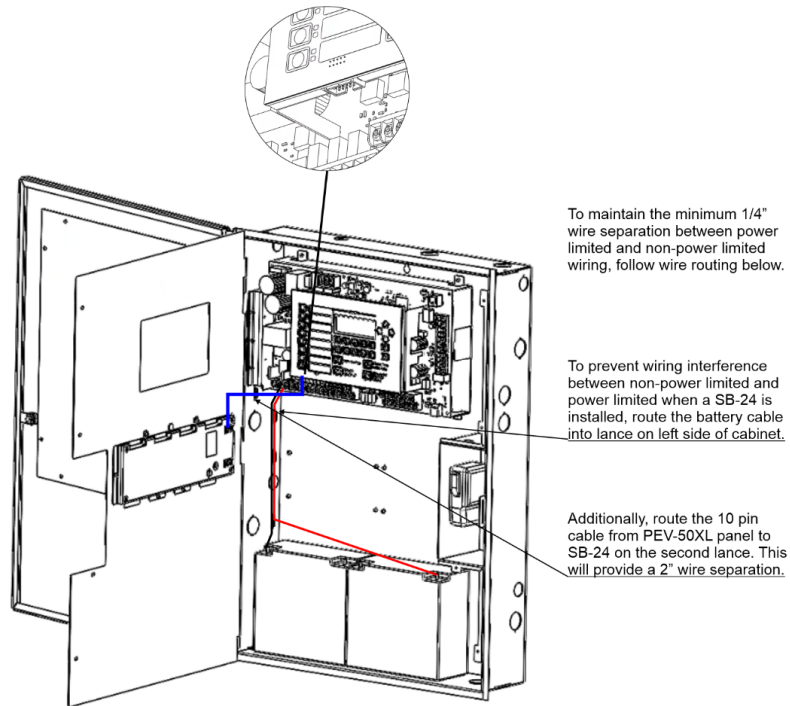
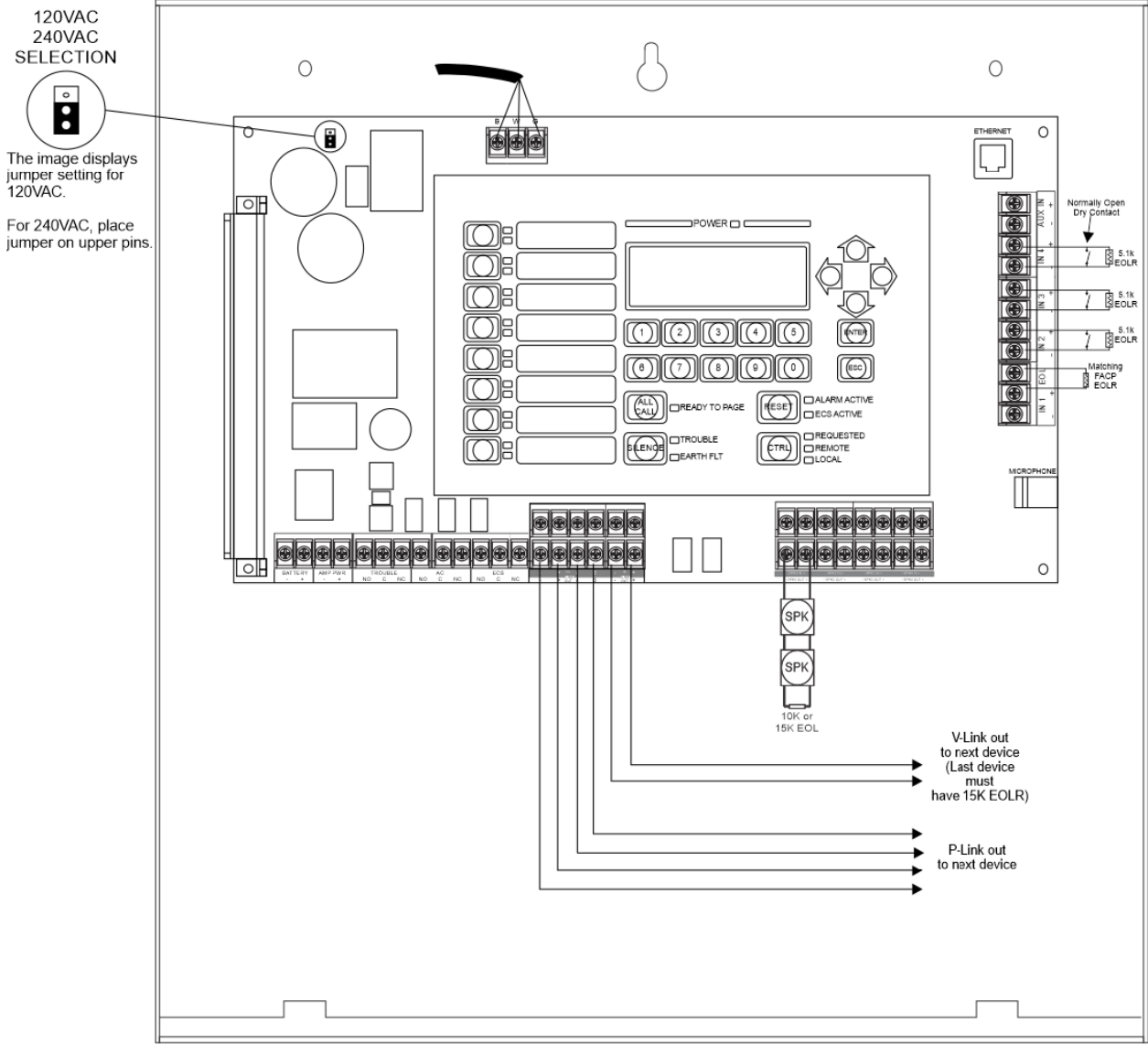


Figure 15 - SB-24 Connection

EVAX-5070 Wiring Connections

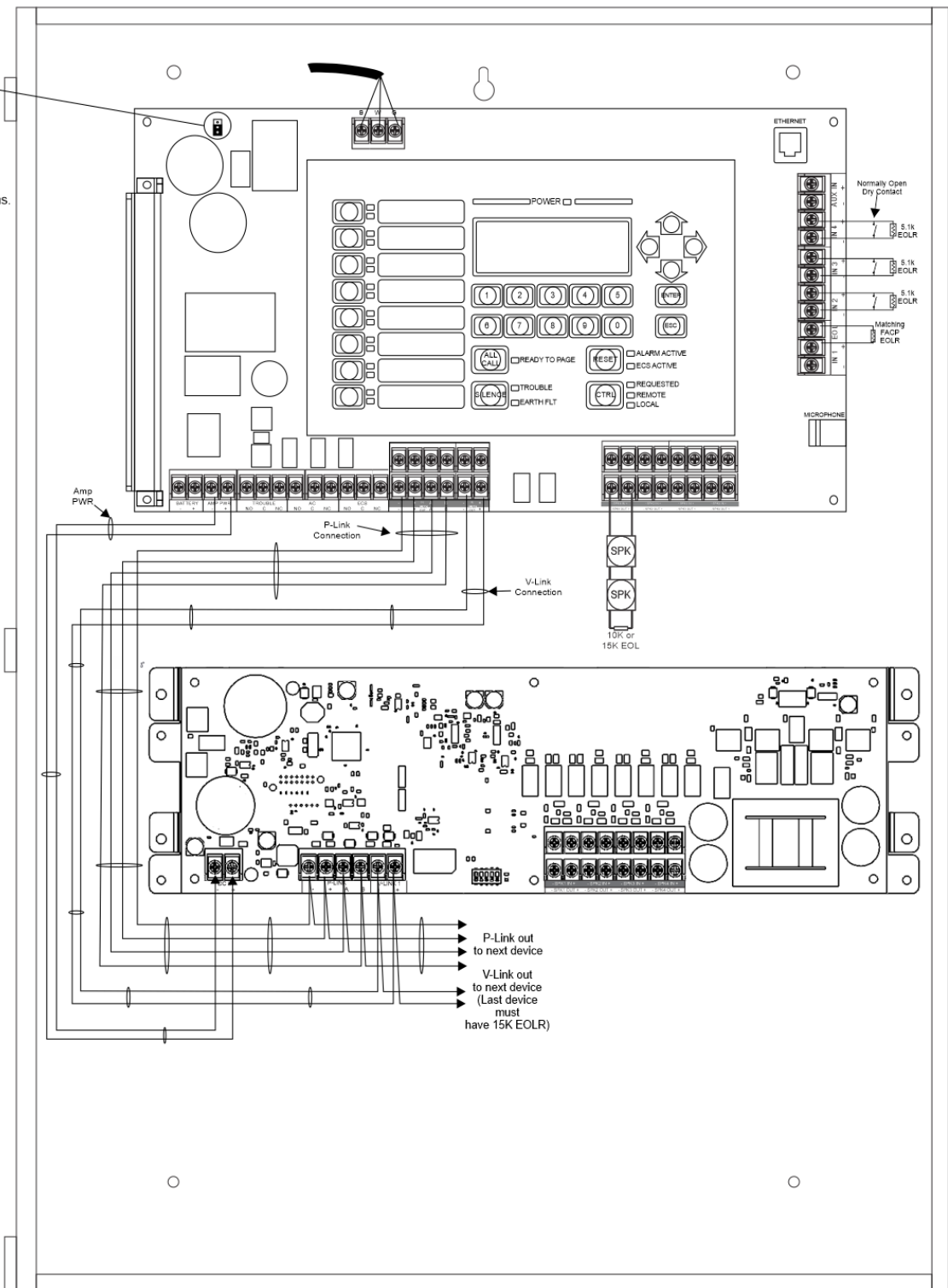


EVAX-10070 and EVAX-X70 Wiring Connections with Optional SCA-5070INT

120VAC
240VAC
SELECTION

The image displays
jumper setting for
120VAC.

For 240VAC, place
jumper on upper pins.



3. Compatible P-Link Devices

The panel can be programmed to support the following P-Link devices:

- **SCA-2525**

The EVAX-X70 panel can support up to 10 SCA-2525 single channel amplifiers. The SCA-2525 is a 25W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-2525 provides a 25VRMS output voltage.

- **SCA-2570**

The EVAX-X70 panel can support up to 10 SCA-2570 single channel amplifiers. The SCA-2570 is a 25W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-2570 output voltage is selectable for 25VRMS or 70VRMS.

- **SCA-5025**

The EVAX-X70 panel can support up to 10 SCA-5025 single channel amplifiers. The SCA-5025 is a 50W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-5025 provides a 25VRMS output voltage.

- **SCA-5070**

The EVAX-X70 panel can support up to 10 SCA-5070 single channel amplifiers. The SCA-5070 is a 50W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-5070 output voltage is selectable for 25VRMS or 70VRMS.

- **SCA-10070**

The EVAX-X70 panel can support up to 10 SCA-10070 single channel amplifiers. The SCA-10070 is a 100W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-10070 output voltage is selectable for 25VRMS or 70VRMS.

- **SCSA-2525**

The EVAX-X70 panel can support up to 10 SCA-2525 single channel amplifiers. The SCA-2525 is a 25W single channel amplifier that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The SCA-2525 provides a 25VRMS output voltage.

- **SCA-5070INT**

The EVAX-10070 and EVAX-X70 can house 1 SCA-5070INT integrated single channel amplifier. The SCA-5070INT is a small form 50W single channel amplifier that distributes live voice and ECS across 4 Class A or 4 Class B speaker outputs. The SCA-5070INT output voltage is selectable for 25VRMS or 70VRMS. The amplifier is equipped with a mounting bracket and may be installed in the EVAX-10070 and EVAX-X70 panels.

- **DCA-5025**

The EVAX-X70 panel can support up to 10 DCA-5025 dual channel amplifiers but must be programmed for single channel operation. The DCA-5025 is programmable for 100W of single channel audio that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The DCA-5025 provides a 25VRMS output voltage. The DCA- 5025 also offers flexibility to extend the output voltage to 70VRMS by adding a 70V-1000.

- **DCA-10025**

The EVAX-X70 panel can support up to 10 DCA-10025 dual channel amplifiers but must be programmed for single channel operation. The DCA-10025 is programmable for 200W of single channel audio that distributes live voice and ECS across 8 Class A or 8 Class B speaker outputs. The DCA-10025 provides a 25VRMS output voltage. The DCA-10025 also offers flexibility to extend the output voltage to 70VRMS by adding a 70V-1000.

- **SB-24**

The EVAX-X70 panel can support 1 SB-24 to provide 24 programmable switches for speaker and message assignment. The SB-24 is equipped with a bracket for secure mounting. Zone names/identifiers can be typed or written on the supplied card-stock and then inserted into the SB-24.

- **FFT-1000R/L**

The EVAX-X70 can support 1 FFT-1000 Fire Fighter Telephone panel. The FFT-1000 is Fire Fighter Telephone panel that provides 2-way phone communication between the main FFT-1000 and the remote fireman's handsets. The panel is equipped with 24 Class B or 12 Class A phone circuits and can be expanded to 96 Class B or Class A phone circuits by adding the FFT-EXP phone circuit expansion module.

- **RM-1000ECS**

All panels support up to 10 RM-1000ECS remote microphones. The RM-1000ECS is a remote microphone that provides 8 push buttons to page to individual zones or activate ECS messages to programmed speaker circuits from remote areas.

- **RM-1000ECSTL**

All panels support up to 10 RM-1000ECS remote microphones. The RM-1000ECS is a remote microphone that provides 8 push buttons to page to individual zones or activate ECS messages to programmed speaker circuits from remote areas. Cabinet is equipped with thumb lock for easy access to remote microphone.

- **CIM-16**

The EVAX-X70 can support up to 10 CIM-16 contact input modules. The CIM-16 is provides 16 inputs which are activated via normally open dry contacts. The contact input module is equipped with a stacker bracket for secure and accessible mounting.

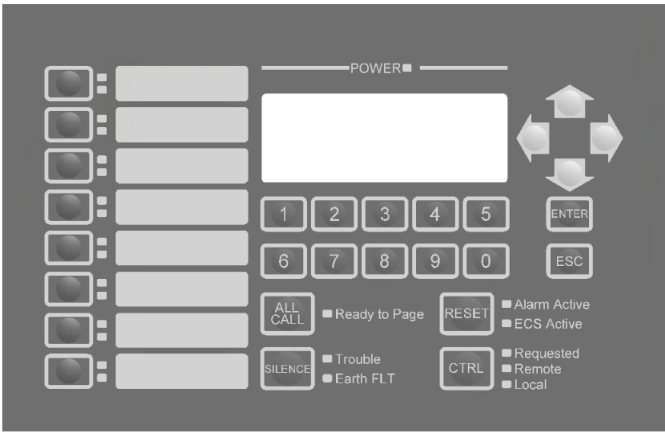
- **PSN-1000E**

The EVAX-X70 can be programmed to support up to 10 PSN-1000E Power Expanders. The PSN-1000E power expander provides 6 NAC circuits (3A max), and 2 dry contact input circuits. The PSN-1000E reconditions/repeats the P-Link bus that provides additional distance and power.

Refer to table on page 3 for panel limitations.

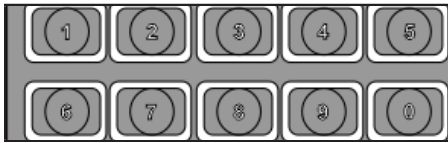
4. Keypad

The keypad on the voice panel is utilized for common user functions. The common user function buttons are the following:



Soft Key Descriptions

	The panels include 8 programmable soft keys for speaker and ECS message zone mapping. Each soft key has two (2) corresponding LEDs to indicate the zone is selected (green) and message active for ECS messages (red).
	The All Call soft key selects all programmed speaker zones in preparation for microphone page all call. When the All-Call soft key is pressed, the speaker zones corresponding selection LEDs will illuminate green indicating active. The speaker zones can be deselected by pressing the All Call or CTRL soft key or by deselecting the speaker soft keys individually.
	The Silence soft key will silence the local piezo (buzzer) during a trouble condition.
	When the Reset soft key is pressed, it will relinquish active ECS events.
	The CTRL soft key MUST be selected to perform any manual control within the panel (paging/manual message activation).
	Displays the Main Menu or selects the current menu option.
	Returns to previous menu or returns to previous screen.



The numeric keypad allows you to enter user codes when required to access restricted functions. Alternatively, the numbers may be used to quickly select menu options vs. using the arrow and Enter keys to select a function.

LED Descriptions

	Off: Standby. Zone not selected.
	Steady Green: Zone is selected and ready for paging.
	Steady Green/Red: Zone selected, and message activated.
	Steady Green: Power is present.
	Off: If the AC power is removed for more than 5 seconds, the LED will extinguish..
	Off: Standby or microphone is disengaged.
	Steady Green: The microphone is engaged.
	Off: No fault conditions present.
	Blinking Amber: A fault condition is present.
	Off: No earth fault present.
	Blinking Amber: An earth fault is present.
	Off: No alarm event active.
	Blinking Red: An alarm event is active.
	Off: No ECS event active.
	Blinking Red: An ECS event is active.

Control (CTRL) LEDs

The table below describes the different types of control (CTRL) LEDs.

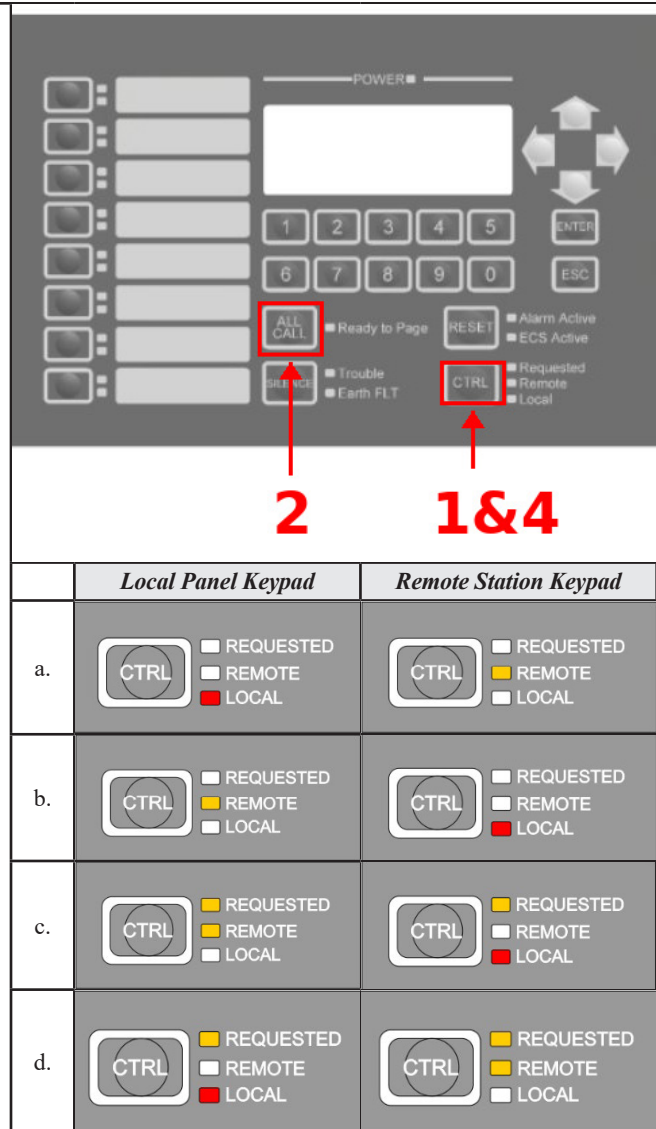
 ☐ REQUESTED ☐ REMOTE ☒ LOCAL	The LOCAL LED on the <u>local panel</u> will illuminate red indicating the local panel has manual control of the system.
 ☐ REQUESTED ☒ REMOTE ☐ LOCAL	The REMOTE LED on the <u>local panel</u> will illuminate amber indicating a <u>remote station</u> is currently in control of the system.
 ☒ REQUESTED ☐ REMOTE ☒ LOCAL	When the LOCAL and REQUESTED LEDs on the <u>local panel</u> are illuminated, this indicates the local panel has control of the system and a remote station is requesting control. The local panel can give the requesting remote station control by deselecting the CTRL push button at the local panel to relinquish control.
 ☒ REQUESTED ☒ REMOTE ☐ LOCAL	When the REQUESTED and REMOTE LEDs on the <u>local panel</u> are illuminated, this indicates a <u>remote station</u> has control of the system and the <u>local panel</u> is requesting control.

5. Operation

This system is designed to comply with UL864 and UL2752. The system provides a Physical and Communication Security Level 1, Audit Control Level 0, Stored Data and Access Control Security Level 0 per UL 2572 Mass Notification Standard.

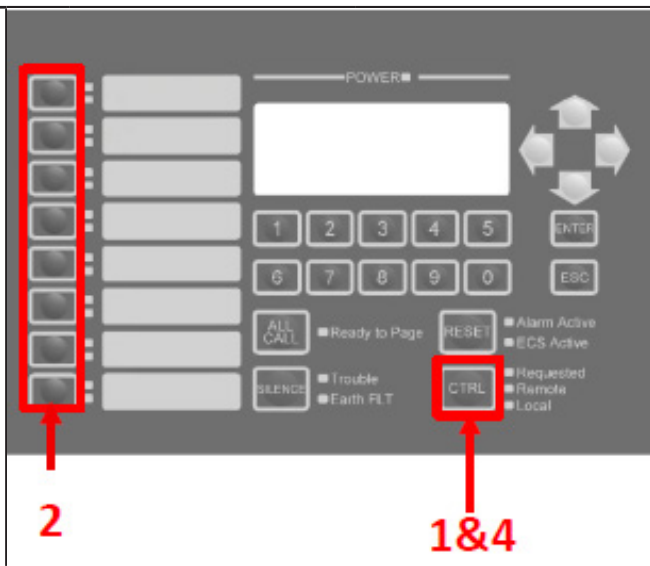
All Call Paging

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To gain control of the system at the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the CTRL button to gain control of the voice panel.
 - a. Upon pressing All-Call, the programmed push button(s) corresponding LEDs will illuminate green, indicating ready to page.
3. Key the microphone and wait for Ready to Page LED to illuminate green then page all programmed speaker zones.
4. When the announcement is completed, press CTRL to relinquish control.



Individual Page Selection

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To request control of the system from the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the desired programmed push button(s) on the keypad.
 - a. Upon pressing, the programmed button(s) corresponding LEDs will illuminate green indicating ready to page.
3. Key the microphone and wait for Ready to Page LED to illuminate green then page all programmed speaker zones.
4. When the announcement is completed, press CTRL to relinquish control.



	Local Panel Keypad	Remote Station Keypad
a.		
b.		
c.		
d.		

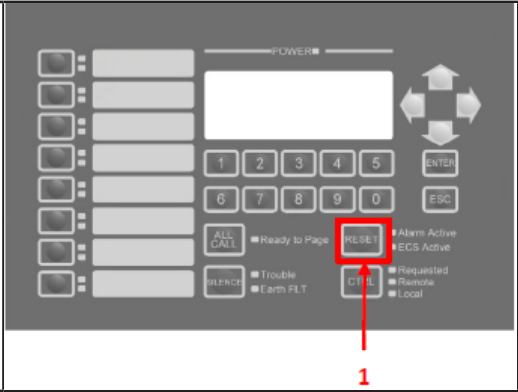
Manual ECS Message Activation

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To request control of the system from the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the desired programmed ECS push button on the keypad to activate message.
 - a. The corresponding LED will illuminate green indicating message selected and red indicating message activated.
3. To relinquish control, press the CTRL push button.

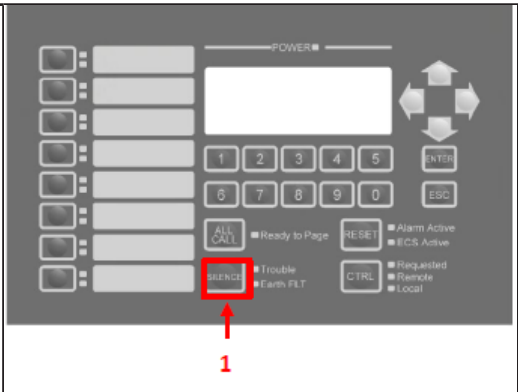
The diagram shows a control panel with a numeric keypad, a display screen, and various status LEDs. A red box highlights the CTRL button on the left side of the panel, with a red arrow pointing to it labeled '2'. Another red box highlights the CTRL button on the right side of the panel, with a red arrow pointing to it labeled '1 & 3'.

	Local Panel Keypad	Remote Station Keypad
a.	 ■ REQUESTED ■ REMOTE ■ LOCAL	 ■ REQUESTED ■ REMOTE ■ LOCAL
b.	 ■ REQUESTED ■ REMOTE ■ LOCAL	 ■ REQUESTED ■ REMOTE ■ LOCAL
c.	 ■ REQUESTED ■ REMOTE ■ LOCAL	 ■ REQUESTED ■ REMOTE ■ LOCAL
d.	 ■ REQUESTED ■ REMOTE ■ LOCAL	 ■ REQUESTED ■ REMOTE ■ LOCAL

Manual ECS Reset

1. Press the RESET button to reset active ECS events	 The diagram shows a control panel with a numeric keypad (1-0), function buttons (ALL CALL, BLENCE, RESET, CTRL), and status indicators (Alarm Active, ECS Active, Requested, Remote, Local). The RESET button is highlighted with a red box, and a red arrow points to it from the number 1 below.
---	--

Silence Piezo (Buzzer)

1. Press the SILENCE button to silence the local piezo (buzzer) during a trouble condition.	 The diagram shows the same control panel as above. The SILENCE button is highlighted with a red box, and a red arrow points to it from the number 1 below.
--	--

6. System Configurations

EVAX-5070 (50W, Single Channel Amplifier, 25V or 70V Selectable)

Model	Description	Local	EVAC	Mass Notification
EVAX-5070	Internal 50W, Single Channel Amplifier, 25V or 70V Selection	Y	Y	Y
RM-1000ECS, RM-1000ECSTL	Remote Microphone	O	O	O
PSN-1000(E)	Intelligent Notification Power Expander	O	O	O

EVAX-10070 (100W, Single Channel Amplifier, 25V or 70V Selectable)

Model	Description	Local	EVAC	Mass Notification
EVAX-10070	Internal 50W Amplifier and SCA-5070INT Amplifier, 25V or 70V Selection.	Y	Y	Y
RM-1000ECS, RM-1000ECSTL	Remote Microphone	O	O	O
FFT-10000L, FFT-1000R	Fire Fighter Telephone System	O	O	O
PSN-1000(E)	Intelligent Notification Power Expander	O	O	O

EVAX-X70 (50W, Single Channel Amplifier, 25V or 70V Selectable)

Model	Description	Local	EVAC	Mass Notification
EVAX-X70	Expandable 50W, Single Channel Amplifier, 25V or 70V Selectable	Y	Y	Y
SCA-2525, SCA-2570, SCA-5025, SCA-5070, SCA-5070INT, SCA-10070	Single Channel Amplifiers, 25V or 70V Selectable	O	O	O
DCA-5025, DCA-10025	Dual Channel Amplifier, 25V	O	O	O
70V-1000	70V Voltage Booster (DCA Amplifiers)	O	O	O
RM-1000ECS, RM-1000ECSTL	Remote Microphone	O	O	O
FFT-10000L, FFT-1000R	Fire Fighter Telephone System	O	O	O
PSN-1000(E)	Intelligent Notification Power Expander	O	O	O
CIM-16	Contact Input Module	O	O	O
SB-24	Switch Board (24 Programmable Switches)	O	O	O

7. Programming Options

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.

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control and Communication Units for Mass Notification Systems, UL 2572, certain programming features or options must be limited to specific values or not used at all as indicated below.

Section	Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864	Setting(s) Permitted in UL2572
General Options	System Idle Message	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Display Events	Y	Initial Event/Newest Event	Initial Event	Initial Event
General Options	Low AC Report Delay	Y	0-30 Hours	1-3 Hours	1-3 Hours
General Options	Enable Power Line Clock Synchronization	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Disable 24 Hour PZT Resound	Y	Yes/No	No	No
General Options	Display Time as AM/PM	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Synchronized to Network Time	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Time Zone	Y	24 Hour Zone Selection	All Settings Allowed	All Settings Allowed
General Options	Daylight Saving Time	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Alarm is Higher Priority	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	ECS is Higher Priority	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Reset Audio Pattern after Paging	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Reset Audio Pattern after New Event	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Enable Automatic Active All Call	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Enable Override Chirp	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	Enable Latching Paging	Y	Yes/No	All Settings Allowed	All Settings Allowed
General Options	ECS Control Lockout	Y	Lockout Disabled, Lockout Indefinite, Lockout Time (Seconds)	All Settings Allowed	All Settings Allowed
General Options	Auto-relinquish ECS Control	Y	Auto-relinquish ECS Control Disabled, Auto-relinquish ECS Control Time (Seconds)	All Settings Allowed	All Settings Allowed

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Section	Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864	Setting(s) Permitted in UL2572
Zone	Style	Y	Alarm ECS	All Settings Allowed	All Settings Allowed
Zone	ECS/Alarm Override	Y	Yes/No	All Settings Allowed	All Settings Allowed
Zone	Page Outputs Active	Y	Yes/No	All Settings Allowed	All Settings Allowed
Zone	Output Pattern	Y	Constant ANSI Temp 3 March Time Double Time	All Settings Allowed	All Settings Allowed
Zone	Audio Pattern	Y	Lists Created Audio Patterns	All Settings Allowed	All Settings Allowed
Points	System Switches	Y	Unused Contact Input Disable Inputs Contact Input Disable Inputs and Outputs Contact Input Disable Outputs ECS Selector Switch	All Settings Allowed	All Settings Allowed
Points	Built-in AMP	Y	Unused General Purpose Output	All Settings Allowed	All Settings Allowed
Points	Built-in Inputs	Y	Unused Aux Input Aux Input Paging Active Contact Input Alarm Contact Input Disable Inputs Contact Input Disable Inputs and Outputs Contract Input Disable Outputs Contact Input Lamp Test	All Settings Allowed	All Settings Allowed
Points	CIM-16	Y	Unused Aux Input Aux Input Paging Active Contact Input Alarm Contact Input Disable Inputs Contact Input Disable Inputs and Outputs Contract Input Disable Outputs Contact Input Lamp Test	All Settings Allowed	All Settings Allowed
Points	PSN-1000	Y	Unused Conv NAC Aux Constant Conv NAC General Purpose Conv NAC Sync AMSECO Conv NAC Sync Gentex Conv NAC Sync System Sensor Conv NAC Sync Wheelock	All Settings Allowed	All Settings Allowed
Points	SCA	Y	Unused General Purpose Output	All Settings Allowed	All Settings Allowed
Points	DCA	Y	Unused General Purpose Output	All Settings Allowed	All Settings Allowed
Points	FFT-1000	Y	Unused Phone Circuit	All Settings Allowed	All Settings Allowed

Section	Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864	Setting(s) Permitted in UL2572
Users	Review History	Y	Yes/No	All Settings Allowed	All Settings Allowed
Users	Enable Disable	Y	Yes/No	All Settings Allowed	All Settings Allowed
Users	Set Date/Time	Y	Yes/No	All Settings Allowed	All Settings Allowed
Users	Tools	Y	Yes/No	All Settings Allowed	All Settings Allowed
Users	Programming	Y	Yes/No	All Settings Allowed	All Settings Allowed
Users	Data Transfer	Y	Yes/No	All Settings Allowed	All Settings Allowed

8. Low Frequency Speakers Compatibility

The voice panels are compliant with UL 464 520 Hz signaling with the following speakers:

Potter Signal Series: PE-SPKR, PE-SPKWC

Gentex Series: GSSW, GSPR

System Sensor Series: SPCRL and SPRL

Wheelock Series: E50 and E60

9. Testing and Maintenance

The control panel has one fuse on the board for the AC power over current protection.

The AC fuse is rated at 8A 250VAC Time-Lag and screened onto the main board as F1.

The batteries are to be replaced at least once every four years. The batteries are required to be UL recognized batteries with a date of manufacture permanently marked on the battery. The battery is to be tested at least annually and if the battery is showing signs of failure, it is to be replaced.

The battery is to remain in the cabinet with nothing on or around the batteries. Only properly sized sealed lead acid batteries are to be used with the control panel. Use of another battery or not providing the proper clearance may result in a fire or an explosion.

The voice panel is required to be installed in accordance with local and state building codes and NFPA 72 (National Fire Alarm Code).

The voice panel and related system is required to be inspected and tested in accordance with NFPA 72

Appendix A: Battery Calculator**EVAX-5070**

Description	Quantity	Standby (Amps)	Total Standby (Amps)	Alarm (Amps)	Total Alarm (Amps)
Internal 50W Amplifier	1	0.115	0.115	0.346	
RM-1000ECS		0.034		0.055	
PSN-1000E		0.015		0.015	
Total (mA)				Total (mA)	
Standby Hours			(x) 24	Alarm Minutes	(x) 0.25
Total Standby AH				Total Alarm AH	
Total Standby AH + Total Alarm AH = Total AH					
Total AH					
Efficiency Factor					20%
Total Alarm x 1.20 = Required AH					
Required AH					

EVAX-10070

Description	Quantity	Standby (Amps)	Total Standby (Amps)	Alarm (Amps)	Total Alarm (Amps)
Internal 50W Amplifier	1	0.115	0.115	0.346	
SCA-5070INT	1	0.050	0.050	0.138	
RM-1000ECS		0.034		0.055	
PSN-1000E		0.015		0.015	
Total (mA)				Total (mA)	
Standby Hours			(x) 24	Alarm Minutes	(x) 0.25
Total Standby AH				Total Alarm AH	
Total Standby AH + Total Alarm AH = Total AH					
Total AH					
Efficiency Factor					20%
Total Alarm x 1.20 = Required AH					
Required AH					

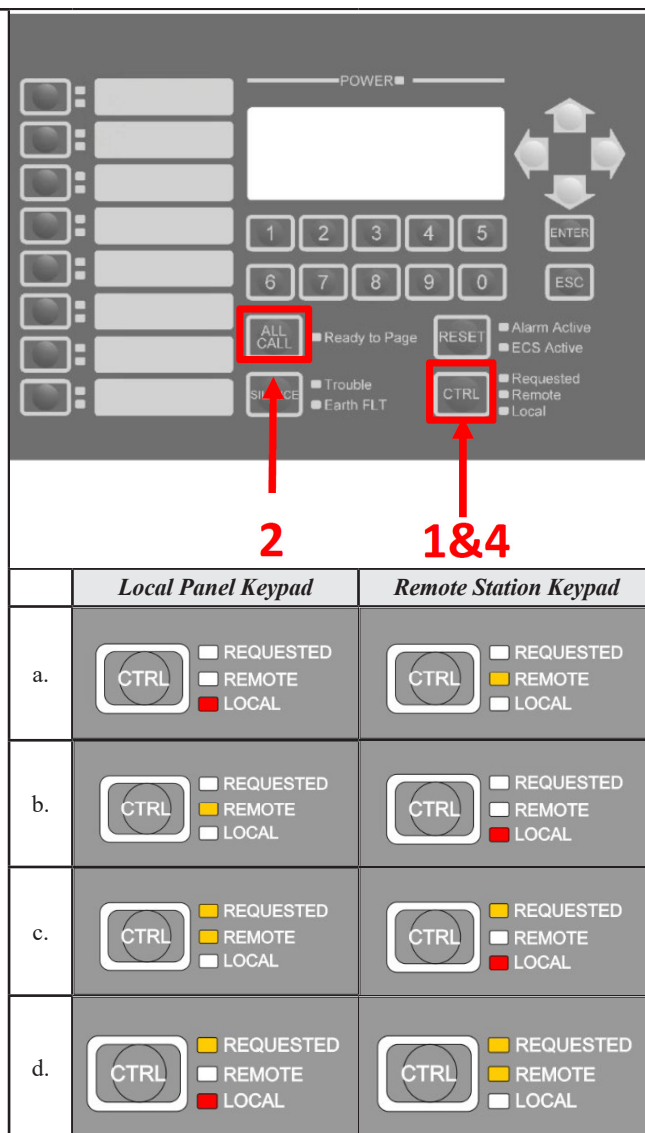
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EVAX-X70

Description	Quantity	Standby (Amps)	Total Standby (Amps)	Alarm (Amps)	Total Alarm (Amps)
Internal 50W Amplifier	1	0.115	0.115	0.346	
SCA-2525		0.015		0.015	
SCA-2570		0.015		0.015	
SCA-5025		0.015		0.015	
SCA-5070		0.015		0.015	
SCA-5070INT		0.050		0.138	
SCA-10070		0.015		0.015	
DCA-5025		0.015		0.015	
DCA-10025		0.015		0.015	
RM-1000ECS		0.034		0.055	
CIM-16		0.023		0.023	
FFT-1000R/L		0.015		0.015	
PSN-1000E		0.015		0.015	
SB-24		0.004		0.027	
		Total (mA)		Total (mA)	
		<u>Standby</u> Hours	(x) 24	<u>Alarm</u> Minutes	(x) 0.25
		Total <u>Standby</u> AH		Total <u>Alarm</u> AH	
Total <u>Standby</u> AH + Total <u>Alarm</u> AH = Total AH					
Total AH					
Efficiency Factor					20%
Total Alarm x 1.20 = Required AH					
Required AH					

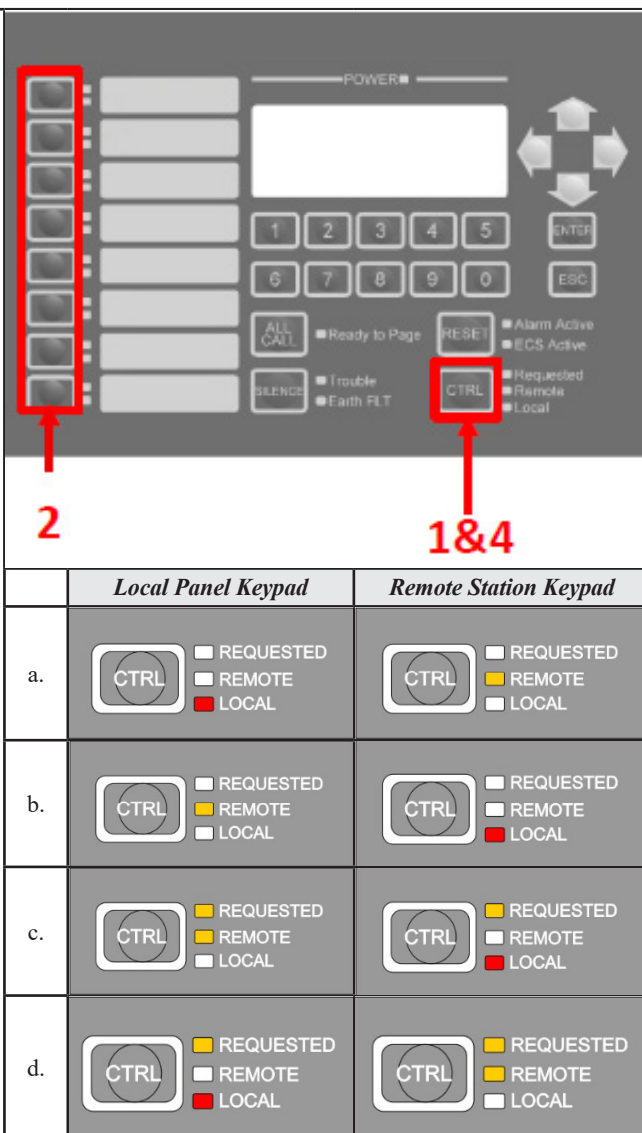
All Call Paging

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To gain control of the system at the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the CTRL button to gain control of the voice panel.
 - a. Upon pressing All-Call, the programmed push button(s) corresponding LEDs will illuminate green, indicating ready to page.
3. Key the microphone and wait for Ready to Page LED to illuminate green then page all programmed speaker zones.
4. When the announcement is completed, press CTRL to relinquish control.



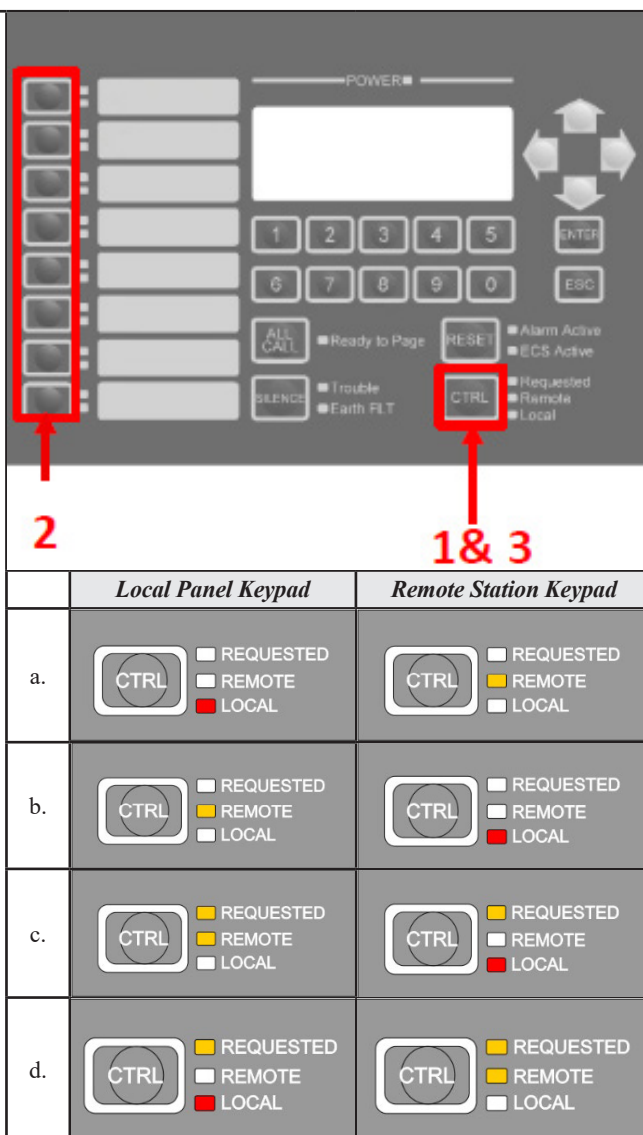
Individual Page Selection

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To request control of the system from the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the desired programmed push button(s) on the keypad.
 - a. Upon pressing, the programmed button(s) corresponding LEDs will illuminate green indicating ready to page.
3. Key the microphone and wait for Ready to Page LED to illuminate green then page all programmed speaker zones.
4. When the announcement is completed, press CTRL to relinquish control.



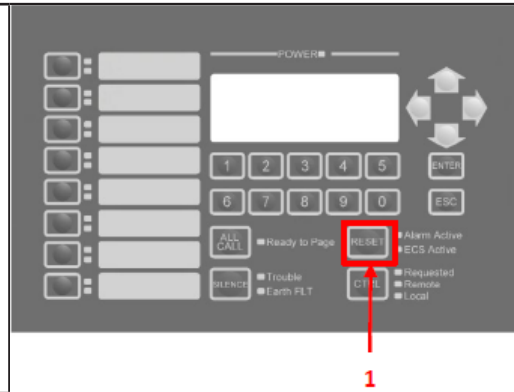
Manual ECS Message Activation

1. Press the CTRL button to gain control of the voice panel.
 - a. The corresponding “LOCAL” LED will illuminate red indicating control.
 - b. If the “REMOTE” LED is illuminated amber on the local panel, this indicates a remote station is currently in control.
 - c. To request control of the system from the local panel while the remote station is actively in control, press CTRL on the local panel. The remote station must relinquish control to give the local panel control of system.
 - d. If the “REQUESTED” LED is illuminated amber on the local panel, this indicates a remote station is requesting control of the system. Deselect the CTRL button from the local panel to relinquish control and to give the remote station control of the system.
2. Press the desired programmed ECS push button on the keypad to activate message.
 - a. The corresponding LED will illuminate green indicating message selected and red indicating message activated.
3. To relinquish control, press the CTRL push button.



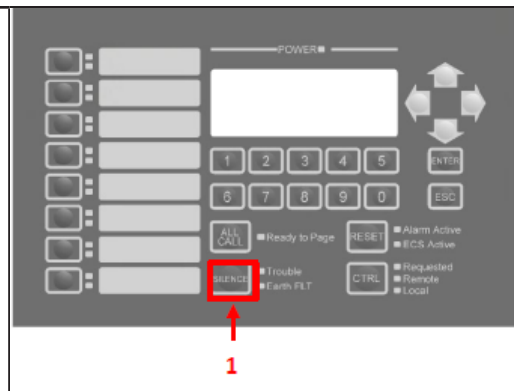
Manual ECS Reset

1. Press the RESET button to reset active ECS events



Silence Piezo (Buzzer)

1. Press the SILENCE button to silence the local piezo (buzzer) during a trouble condition.



For service, contact:

Name: _____
Company: _____
Address: _____
Telephone: _____