

EVAX 100

VOICE EVACUATION INTERFACE SYSTEM

INSTALLATION INSTRUCTIONS

GENERAL

The EVAX 100 is a self contained amplifier, tone generator, digital message repeater and supervisory interface. It is designed to be used in conjunction with a UL listed Fire Alarm Control Panel (FACP) to provide a Listed Voice Evacuation Alarm System.

The FACP provides all initiating circuitry and a signaling circuit to the EVAX 100. The EVAX 100 provides its own internal supervision as well as supervision for its speaker lines. Any fault is reported back to the FACP. In normal standby the supervisory circuit from the panel is connected to a matching EOLR. Should the EVAX 100 suffer an internal failure or should there be any fault on the speaker line, a contact would open and the FACP would report it as an open fault for that FACP circuit.

The EVAX 100 is designed to be powered from 120 VAC at 60 Hz. It will provide 100W to the speaker circuit. Speakers may be 25 or 70 VRMS (jumper selectable, 25 V is factory set).

MODELS

The EVX-100 is a complete Voice Evacuation Module. It is not equipped with a power transformer or a cabinet.

The EVAX 100 is a complete Voice Evacuation Panel. It is equipped with a power transformer and a cabinet.

The EVX-100E is a complete slave amplifier with built-in tone generator. It is capable of operating as a slave amplifier when connected to the EVX-100, which supplies source audio to the slave. It is also capable of operating as a stand-alone Voice Evacuation System with only tone and microphone amplification.

Different Model numbers are derived from the amplifier sizes used together: These multiple amplifier configurations are Factory setup and pre-wired. The following are in their own cabinet with power transformers. They are complete Panels.

EVAX 100	Contains: 1) EVX-100	1) Speaker Circuit
EVAX 150	Contains: 1) EVX-100 and 1) EVX-50E	2) Speaker Circuits
EVAX 200	Contains: 1) EVX-100 and 1) EVX-100E	2) Speaker Circuits
EVAX 100E	Contains: 1) EVX-100E	1) Speaker Circuit
EVAX 150E	Contains: 1) EVX-100E and 1) EVX-50E	2) Speaker Circuits
EVAX 200E	Contains: 2) EVX-100E	2) Speaker Circuits
EVAX 300E	Contains: 3) EVX-100E	3) Speaker Circuits
EVAX 400E	Contains: 4) EVX-100E	4) Speaker Circuits
EVAX 500E	Contains: 5) EVX-100E	5) Speaker Circuits
EVAX 600E	Contains: 6) EVX-100E	6) Speaker Circuits

INSTALLATION

Installer must insure that all wiring and devices installed in system meet the following standards:

- National Electrical Code (NFPA 70)
- NFPA Standard 72
- Life Safety Code (NFPA 101)

Install equipment in a clean, dry environment. Avoid installation where equipment could be subjected to vibration. Remove electronic assemblies from the enclosure prior to any drilling or punching of the enclosure. Where possible, make all cable entries from the rear or sides. Before making any modifications to the enclosure, be certain that they will not interfere with assemblies or batteries.

WIRING (Refer to wiring and terminal designation diagrams)

1. Connect speaker lines to TB1 - 5(+) & 6(-). Observe polarity and insure all speakers are connected likewise. For Class "A" (Style "Z"), the returns are TB1 - 7(-) & 8(+).
2. Connect Speaker Matching EOLR to TB3 - 5 & 6. This value must be placed at the end of the speaker line as well.
3. Insure that the microphone is attached to connector P2. If the Microphone is not installed, insure that switch SN2 - 8 is in the OFF position.
4. Connect FACP signaling circuit to TB1 - 3(+) & 4(-), Alarm Polarity. Attach the appropriate EOLR for the FACP to TB3 - 3 & 4 You must use EOLR value as specified in the FACP manufactures installation instructions for the initiating appliance circuit.
5. Connect 120 VAC, 60 Hz, power to the black and white pigtail leads from transformer primary. Secure ground lead to grounding stud in cabinet.
6. Once power is applied to the unit, connect battery wiring harness, Red (+) / Black (-). **Observe polarity.** Minimum battery size is 24V 7Ahr. Maximum battery size is 24Ahr. (Use 2 12V batteries connected in series. See typical installation diagram). If the unit does not have its own batteries and relies on an external power supply with battery back-up, insure that switch SN2 - 7 is in the OFF position. **NOTE:** Wiring for batteries is Non Power-Limited. Care must be taken to insure that all Power-Limited wiring maintain a minimum spacing of 1/4" from any Non Power-Limited wiring. If batteries must be located in separate enclosure, provide separate conduit run for battery wiring only.

Once all power and circuits are connected, the Green LED will remain on to indicate that the EVAX 100 is fully operational and all circuits are nominal.

OPERATION

In normal standby the Green LED will remain on.

In alarm condition the Red LED will remain on as long as the unit is in alarm. Green LED will also remain on.

Alarm Sequence Factory settings:

Alarm Tone - Alarm Signal 5 seconds / Digital Message plays / Alarm Signal 5 seconds / Digital Message plays / Alarm Signal 5 seconds / Digital Message plays / unit reverts to Alarm Signal until alarm condition is cleared. If the Mic is keyed, it will override both the tone and the message so a direct broadcast may be made. If this occurs during the initial sequence the digital message will be reset and will not play.

When the Mic is keyed or when the message is played, the Green LED will dim. The intensity of the Green LED will vary with the level of the broadcast audio. This is true in Alarm condition as well.

Under a fault condition, the Yellow LED will remain on. The Green LED will flash. The number of flashes display a code depending on the specific type of fault. When there is a fault condition, the contact connecting the FACP signal circuit to the EOLR will open indicating the fault to the panel which will provide annunciation.

BATTERIES

The EVAX 100 contains a built-in battery charging circuit and supervision circuit. The EVAX 100 has a maximum available charging current of 1A. For 24V batteries, this relates to a maximum battery size of 24Ahr. The minimum recommended battery size 7Ahr.

OPTIONS

Refer to Terminal Designations diagram.

AUX +24VDC OUTPUT - TB2-8, 9 & 10

These terminals provide a maximum .5A of regulated 24VDC power for auxiliary functions. Do not exceed .5A load combined on these terminals. This connection may be used for auxiliary relay control control contacts which may be made or broken on the advent of an alarm condition.

CONNECTION OF AN AUX AUDIO SOURCE - TB2-1 & 2

An aux audio source from additional paging equipment may be connected to the EVAX 100 to augment an existing paging system. It is not intended for continuous signal input, but may be used for paging applications. For such operation, the Aux Audio Enable input (TB2-6) must be powered from Int V+ (TB2-9). This is to insure that in the event of an alarm, the aux audio will not override the evacuation signal. See Wiring Diagram 5 for connection detail.

OPTIONAL SUPERVISORY CIRCUIT - TB3-1 & 2

In place of normal supervision via the signalling circuit, an alternate method may be employed using any supervisory circuit from the FACP. Connection would be made to Terminal Block 3, Ter. 1 and 2. This would provide a normally closed connection to the EOLR on Ter. 3 and 4. The relay contact in the circuit will open upon any trouble condition and report an open circuit trouble to the FACP. **NOTE:** Jumper shorting blocks 1 and 2 must be removed from **J1** if a circuit is to be connected in this manner. See Wiring Diagram 2 for connection detail.

SPECIFICATIONS: *			
	AC	DC	Battery
Voltage	120VAC 60Hz	24VDC	24VDC
Current -			
Standby		0.60A	0.18A
Standby + Aux. Load		1.20A	0.85A
Alarm	2A Max.	2.60A	2.50A
Alarm + Aux. Load		3.30A	3.10A
Sine		6.5A	6.4A

*Input current measurements are determined by test conditions under UL 1711. Sine represents measurements made while unit produces a continuous non-distorted sine wave of 1 KHz into the rated load of 100W at rated output voltage. Alarm is the average current the unit experiences delivering an alarm signal, Temporal Whoop, to the rated load. Standby is the current draw of the unit with all normal power on and aux. terminals fully loaded. Battery Standby is current draw from the batteries on loss of power and otherwise normal standby.

EVAX 100

TERMINAL DESIGNATIONS

TB1:

- TER 1 & 2** - Power Input 24-32V AC/DC @ 6.5A (NOTE 3)
- TER 3 & 4** - FACP Signal Circuit Input - 10mA max. (Alarm Polarity shown) (NOTE 3)
- TER 5 & 6** - 25/70 VRMS Speaker Loop Style Y/Z (Class "A"/"B" start) (NOTE 1, 3)
- TER 7 & 8** - 25/70 VRMS Speaker Loop Style Z (Class "A" return) (NOTE 1, 3)

TB3:

- TER 1 & 2** (NOTE 3)
Optional FACP Supervisory Circuit
See installation instructions for details (32V - 0.4A max.).
Factory set for none - J1

TER 3 & 4

FACP Signal/Supervisory Circuit EOLR

TER 5 & 6

Matching EOLR for speaker supervisory circuit

TER 7 (NOTE 2,4)

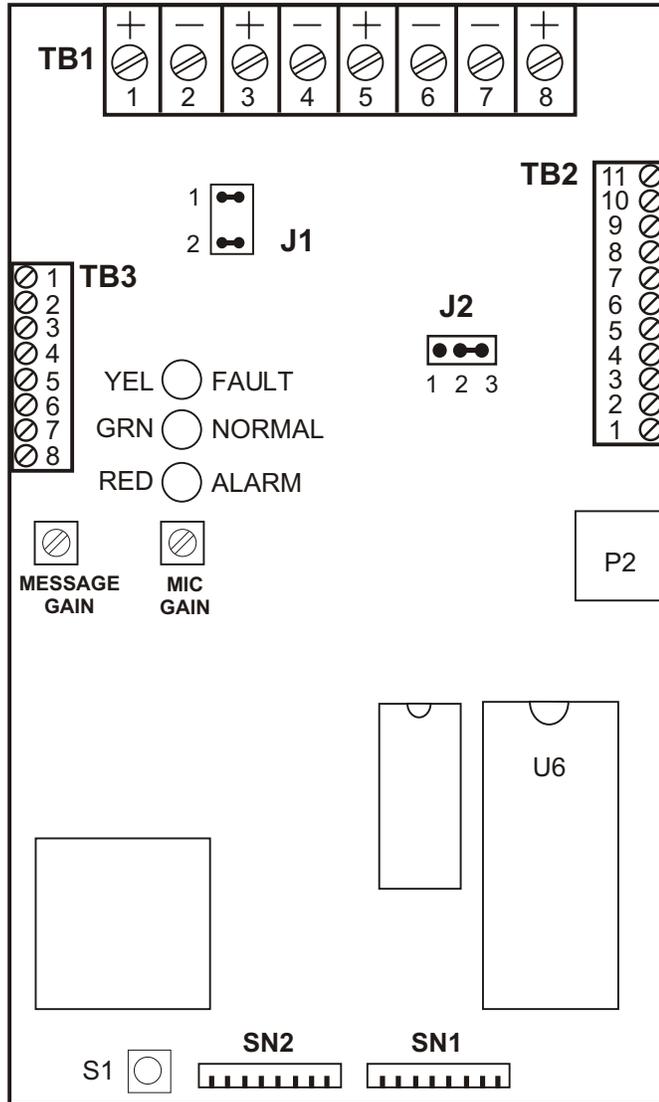
General purpose output (pulls to circuit neg on fault condition)
32V - 0.2A max. Not for Fire Protective Signaling use.

TER 8 (NOTE 2,4)

Trouble input +24 VDC 5mA

TB2:

- TER 1** - Circuit Neg
- TER 2** (NOTE 2)
Aux Audio Input
(0.5V nominal, 1VRMS - 1mA max.)
- TER 3** (NOTE 2,4)
PreAmp In/Out
(600 Ohm 0dBm)
- TER 4** (NOTE 2,4)
Master - Circuit Neg
Slave - Signal Com
- TER 5** (NOTE 2,4)
Signal Active
Master - Out / Slave - In
- TER 6** (NOTE 2)
Aux Audio Enable
(+24V)(32V - 5mA max.)
- TER 7** (NOTE 2)
Aux Signal Activate
(+24V) (32V - 5mA max.)
- TER 8** (NOTE 1,2,4)
Alarm Voltage +24V when unit is in alarm condition (0.1A)
- TER 9** (NOTE 1,2)
Int V+ (+24V) disconnected in alarm condition (.25A)
- TER 10** (NOTE 1,2)
V+ (+24V .5A)
- TER 11** (NOTE 4)
Mic PTT (+24V 0.1A)



NOTES:

- 1 - Power Limited
- 2 - Non-Supervised
- 3 - Supervised
- 4 - Terminating equipment must be installed in same room as EVAX 100.



FACTORY DEFAULT SWITCH / JUMPER SETTINGS:

SN1

- 1 = OFF 8 sec. initial delay
- 2 = ON
- 3 = OFF
- 4 = ON 8 sec. repeat delay
- 5 = OFF
- 6 = ON Message On
- 7 = OFF 3 Repeats
- 8 = ON

SN2

- 1 = OFF Temporal Whoop Signal
- 2 = OFF
- 3 = OFF
- 4 = X
- 5 = X Do not use
- 6 = X
- 7 = ON Battery connected
- 8 = ON Mic connected

J1 A/B

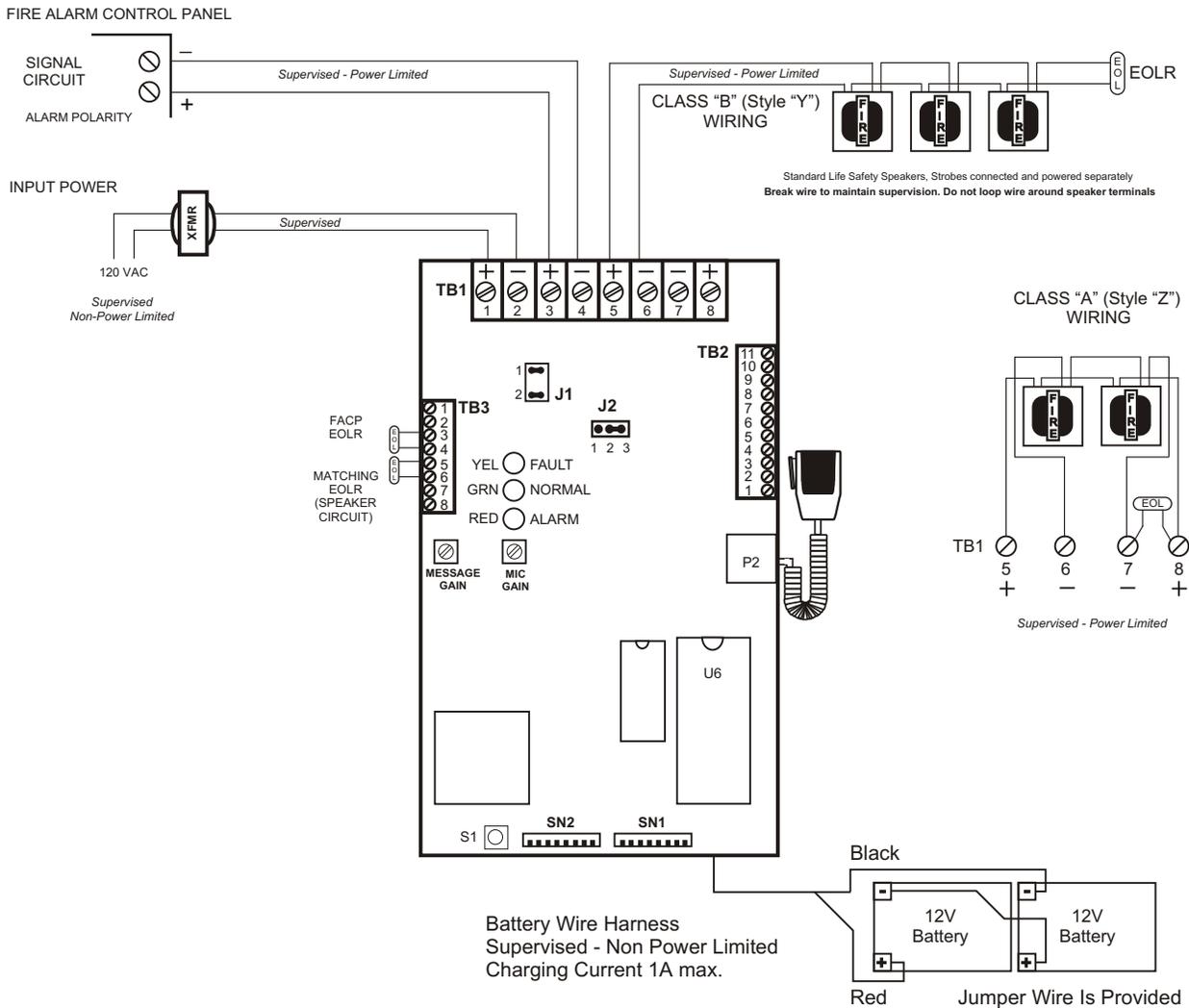
1 - 2 = SHORT

J2

25 VRMS 2-3 = SHORT
70 VRMS 1-2 = SHORT

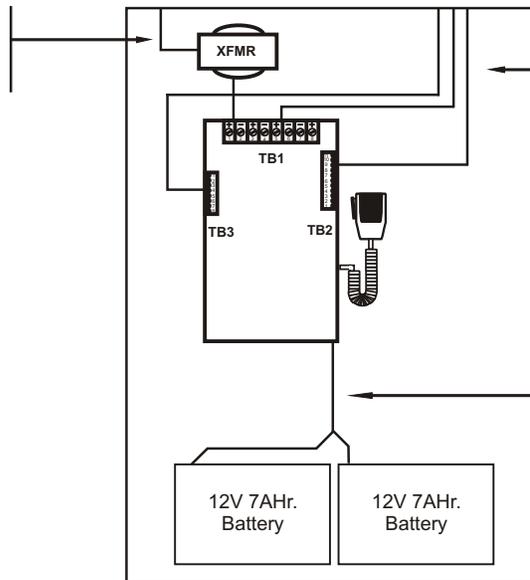
To change output voltage move shorting block.

EVAX 100 TYPICAL INSTALLATION



EVAX 100 CABINET LAYOUT

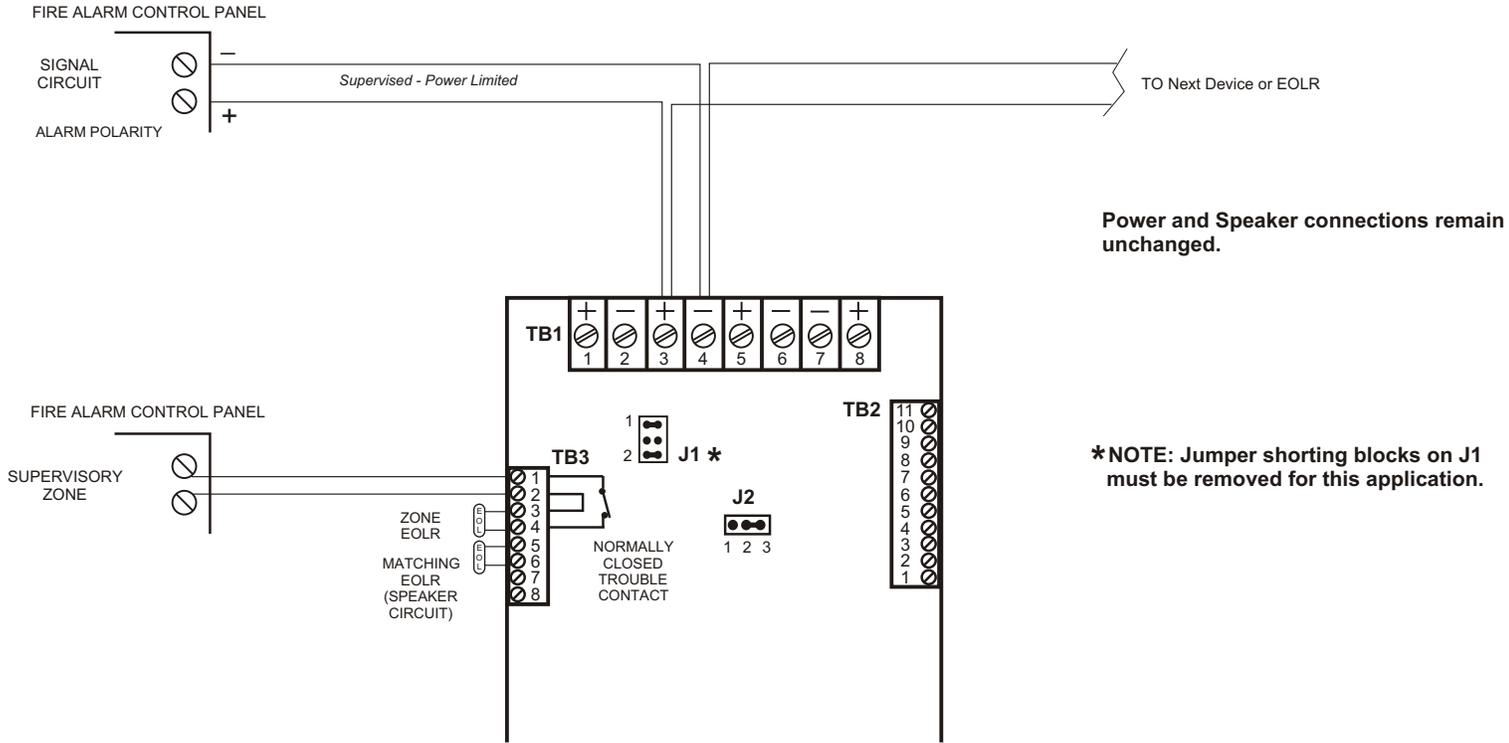
Input Power connection is Non-Power Limited.
DO NOT route any Power Limited wiring within 1/4" of Input cabling.



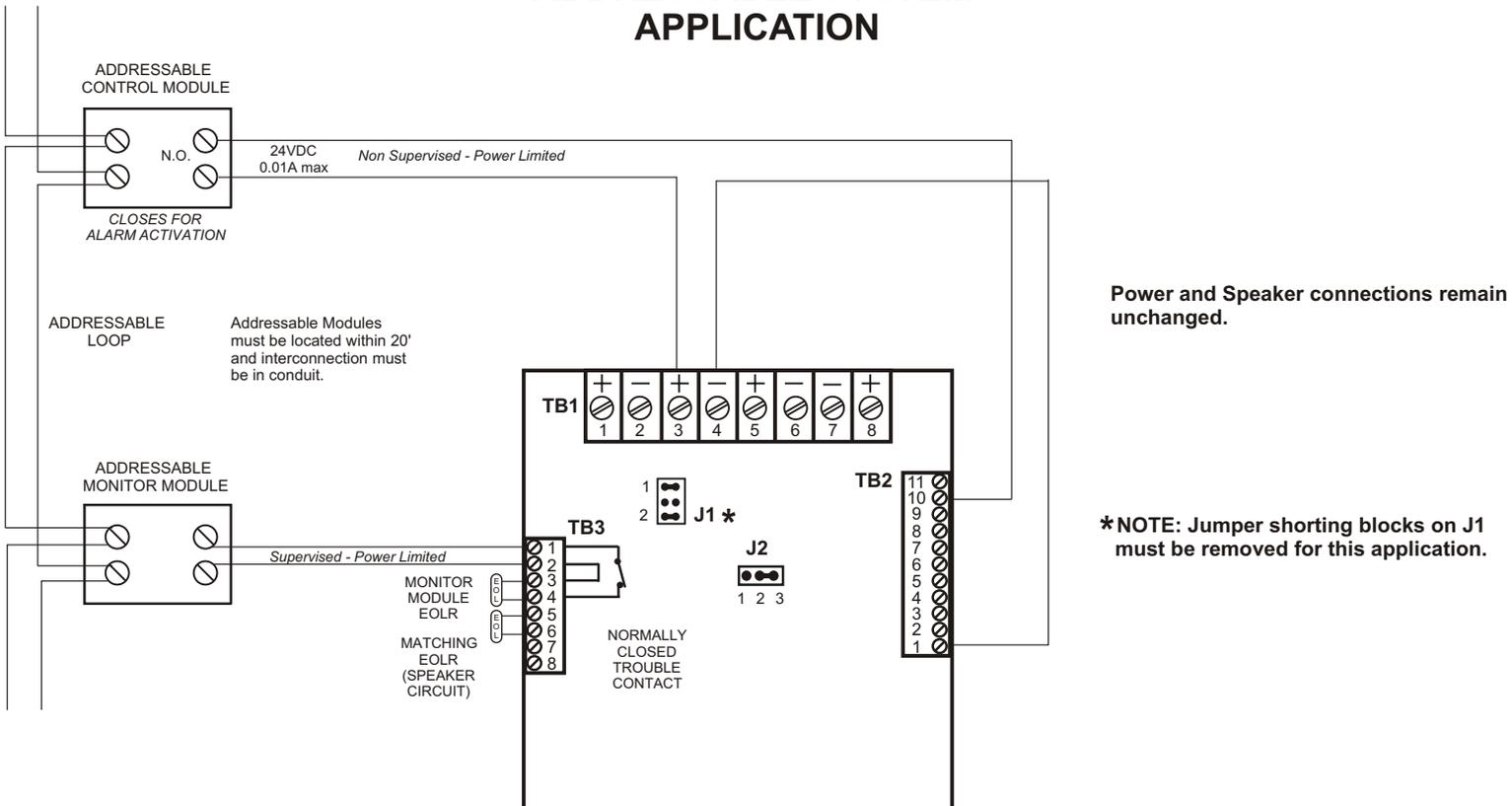
ALL wiring from terminal blocks is Power Limited.
Use K.O. at top or side of cabinet for wire routing.

Battery cabling is Non-Power Limited.
DO NOT route any Power Limited wiring within 1/4" of Input cabling.

EVAX 100 OPTIONAL SUPERVISORY CIRCUIT APPLICATION

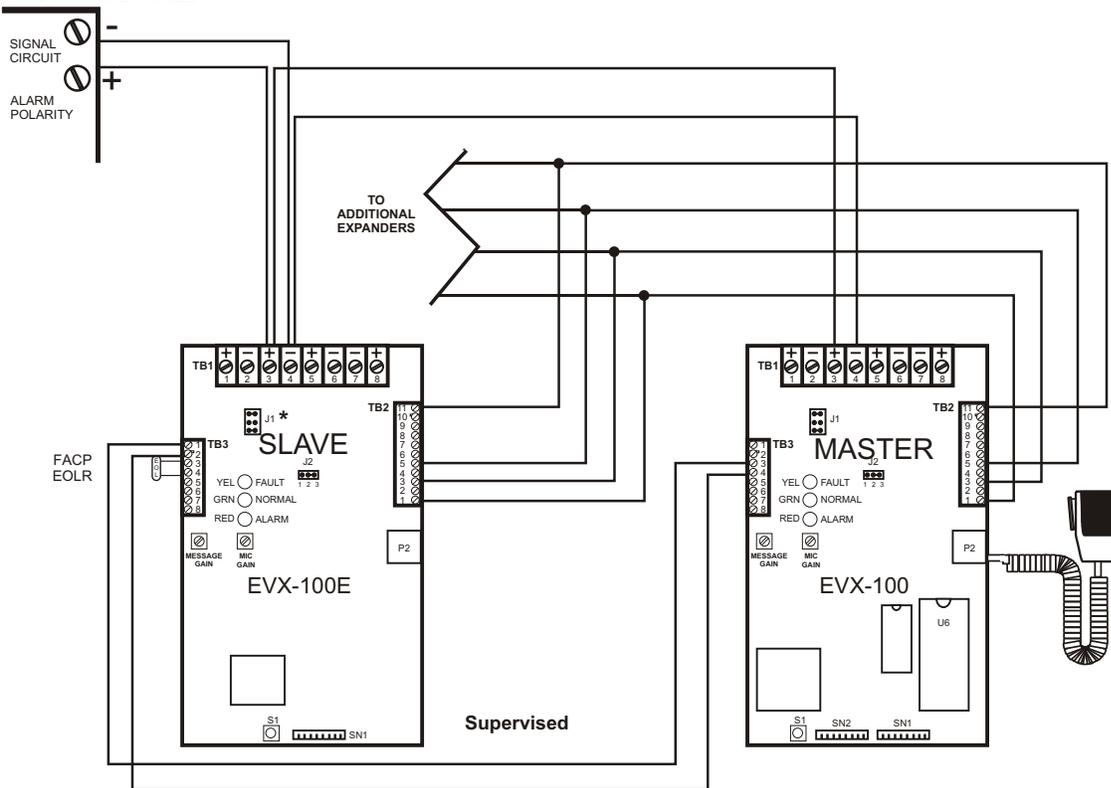


EVAX 100 ADDRESSABLE SYSTEM APPLICATION



EVAX 100 MULTIPLE UNIT CONNECTION DETAIL

FIRE ALARM CONTROL PANEL

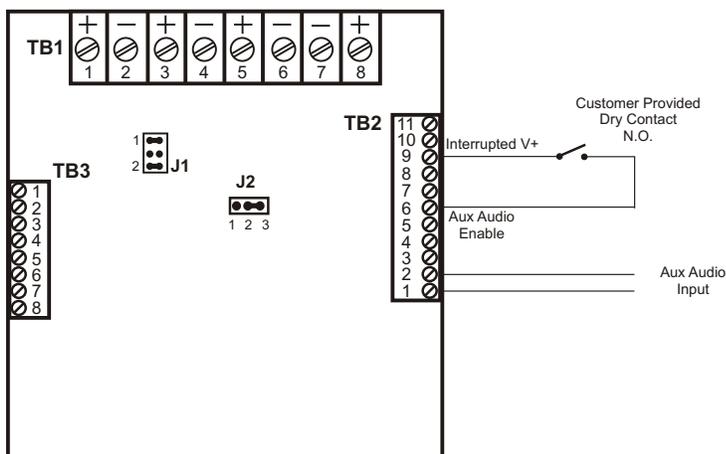


*NOTE: Switch SN1-6 and SN1-8 must be in OFF position for all Slave modules.
J1 A/B Shorting blocks removed for pass-through supervision.

All Power and Speaker connections remain unchanged.

NOTE: Maximum number of units to be cascaded is 15

EVAX 100 AUX AUDIO ENABLE CONNECTION DETAIL



EVX-100E

EXPANDER

INSTALLATION INSTRUCTIONS

The EVX-100E is a self contained amplifier, tone generator, power supply and supervisory interface. It is designed to be used in conjunction with the EVAX 100 to provide additional speaker output power. It may also be used stand-alone in conjunction with a Fire Alarm Control Panel to provide voice evacuation where an automatic message is not desired.

Installation and operation are identical to the EVAX 100 with the exception that no digital message is present. When used in conjunction with the EVAX 100, the Expander will act as a slave; reproducing the tone and message generated by the master. When used as a stand-alone, the Expander will connect to the FACP, exactly as the EVAX 100 does, to provide automatic tone in alarm and voice override capability with the microphone.

All terminal designations and volume controls are identical to the EVAX 100. One exception is that on the Expander SN1 determines Tone, Master/Slave, Battery and Mic. There is no SN2.

Factory defaults for SN1 are:

Expander as Slave

- 1 = OFF Temporal Whoop Signal
- 2 = OFF
- 3 = OFF

- 4 = OFF
- 5 = OFF

- 6 = OFF Slave (ON = Master setting)
- 7 = ON Batteries connected (OFF = No Batteries)
- 8 = OFF No Mic (ON = Mic connected)

Expander as Master / Stand-Alone

- 1 = OFF Temporal Whoop Signal
- 2 = OFF
- 3 = OFF

- 4 = OFF
- 5 = OFF

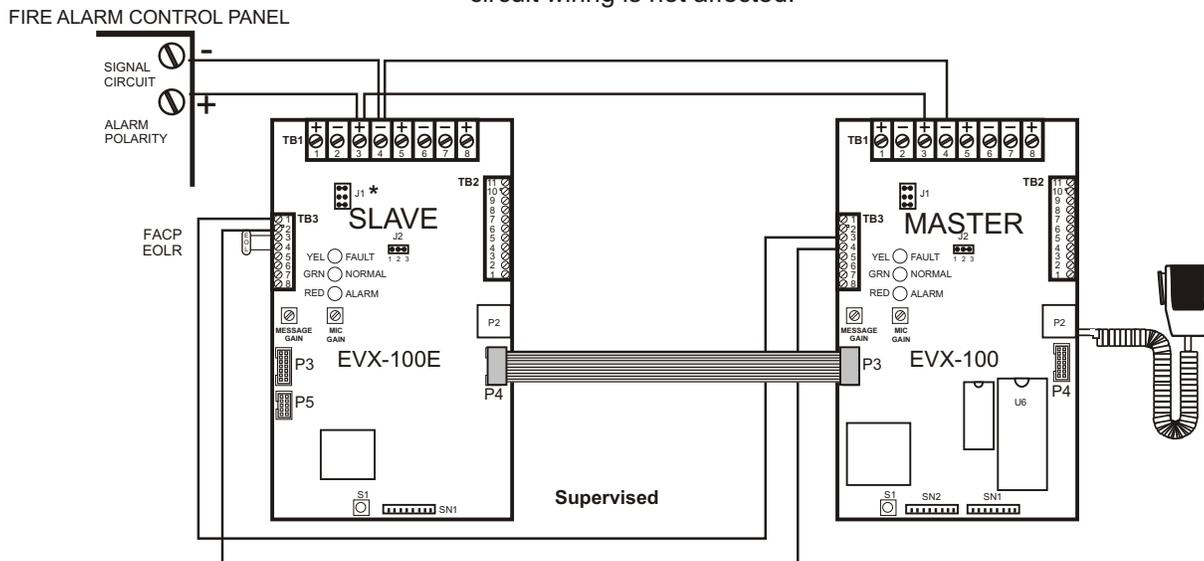
- 6 = ON Master setting
- 7 = ON Batteries connected (OFF = No Batteries)
- 8 = ON Mic connected

EVAX 100 Application Notes

MULTIPLE UNIT CONNECTION DETAIL

Systems may come from the factory with 14 pin ribbon cable connecting a pair of modules. The ribbon cable connects to the polarized headers as shown below, with the red stripe indicating pin #1 at the top. Supervision wiring and FACP signal circuit wiring is not affected.

Non-Supervised wiring must be only run in the same cabinet or between cabinets which are piped together within the same room at a maximum of 20'.



*NOTE: Switch SN1-6 and SN1-8 must be in OFF position for all Slave modules.
J1 A/B Shorting blocks removed for pass-through supervision.

All Power and Speaker connections remain unchanged.

NOTE: Maximum number of units to be cascaded is 15. Ribbon cable is only used within the same cabinet. Connections made between units in multiple cabinets, see wiring diagram # 4