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# Section 1.

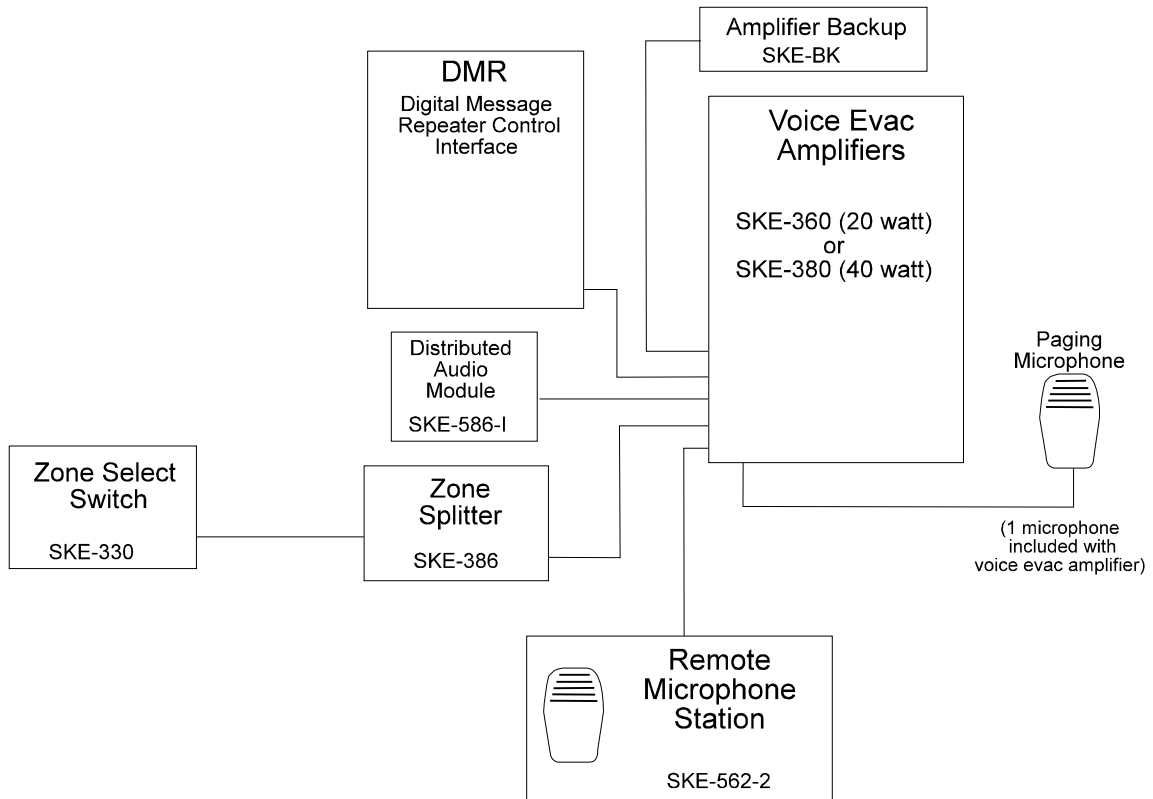
## Introduction

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The Silent Knight SK-300 series is a line of voice evacuation products suitable for use with Silent Knight's Model 5204 and 5207 fire control/communicators.

### 1.1 System Overview

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Other models, not shown:

SKE-585 P/T/M: Interface module for music, telephone or paging system

SKE-571 A/B/W: Auxiliary Tone Generator

**Figure 1.1-A: SKE-300 Series Voice Evacuation System Overview**

## 1.2 Accessories

Table 1.2-1 describes the voice evacuation products available from Silent Knight.

**Table 1.2-1: Voice Evacuation Products**

Model Number	Description
SKE-360-M1 and SKE-380-M1 (and SKE-367-M1 and SKE-387-M1) Voice Evacuation Paging Amplifier with Microphone	Voice evacuation paging amplifier (25 VRMS) with one microphone. Activates the slow whoop evacuation alert and the digital voice message over system speakers. SKE-360 has a 20 watt amplifier; SKE-380 has a 40 watt amplifier. (367 and 387 modules are same as 360 and 380 but 70 VRMS.)
SKE-360-M1-DMR and SKE-380-M1-DMR Voice Evacuation Paging Amplifier with Microphone and Digital Message Repeater	Voice Evacuation Amplifier and Microphone with Digital Message Repeater
SKE-360-M1-DMR/386-4ZA and SKE-380-M1-DMR/386-4ZA Voice Evacuation Paging Amplifier with Microphone and Digital Message Repeater and Zone Splitter	Zone splitter provides four fully supervised speaker loop zones from a single SKE-360/380 voice evacuation module.
SKE-562-2 Remote Paging Microphone	Provides remote station paging in SKE-300 series voice evacuation systems.
SKE-330 Zone Select Switch System	When used with a remote microphone (see above), provides paging control by zone for SKE-300 series voice evacuation systems. Users can select the zone(s) they want to page or use the All-Call switch.
SKE-BK Amplifier Backup System	Serves as a backup for an evacuation system amplifier. If the primary amplifier fails, the speaker loop is transferred to the output of the SKE-BK module.
SKE-360-M2-DMR and SKE-380-M2-DMR	Voice Evacuation System with 2 amplifiers and one microphone. Available with or without Digital Message Repeater (DMR).
SKE-360-M3-DMR and SKE-380-M3-DMR	Voice Evacuation System with 3 amplifiers and one microphone. Available with or without Digital Message Repeater (DMR). Not compatible with the Model 5204.
SKE-585 P/T/M	Interface module for music, telephone or paging system.
SKE-571 A/B/W	Auxiliary Tone Generator. Allows for three additional signals to be used with the voice evacuation system (for example, SKE-571-A provides siren, yelp, and beep sounds).

## 1.3 What the Model Numbers Mean

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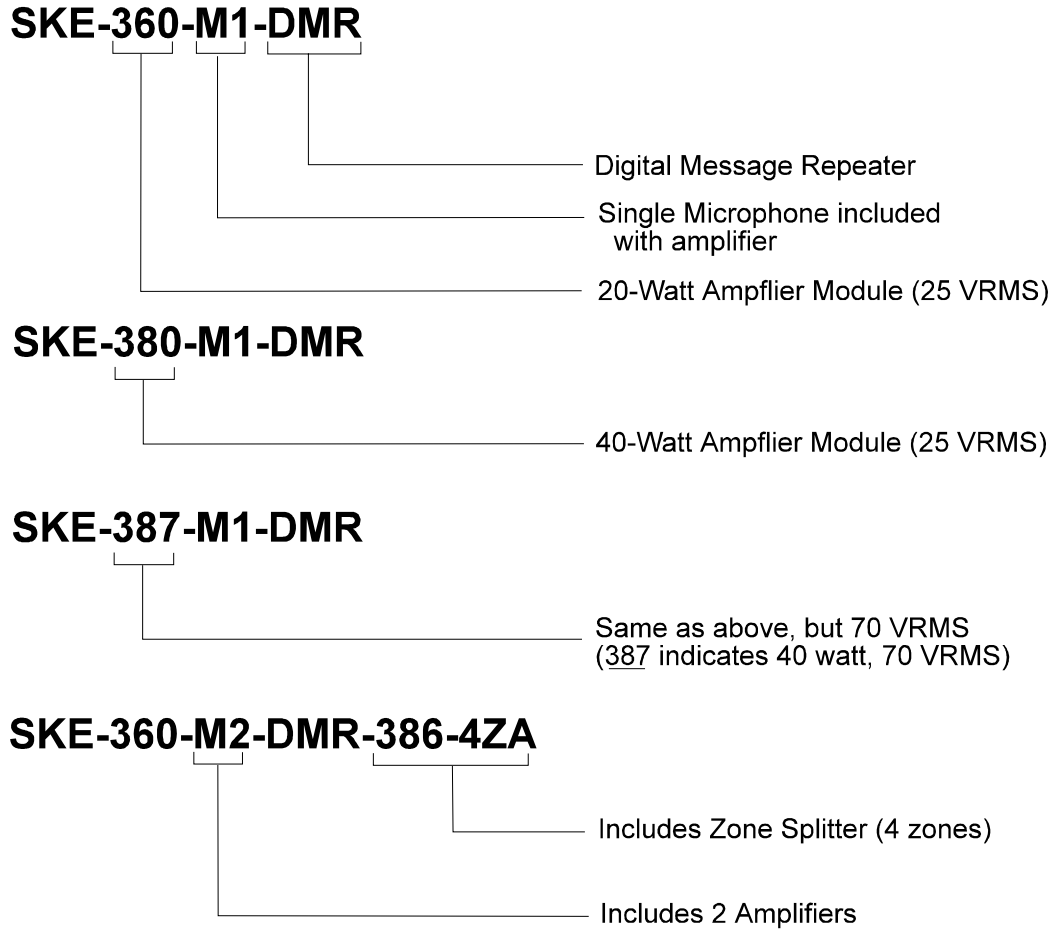


Figure 1.3-A: What the Model Numbers Mean

## **1.4 Terms Used in this Manual**

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In this manual the term “SKE-360/380” refers to the paging amplifier in general, including the SKE-367/387, the 70 VRMS modules. When the reference applies to an individual module only, the module is named specifically (as in “SKE-367”).

The term “5204\5207” refers in general to the Silent Knight fire control/communicators that are compatible with the voice evacuation system. When the reference applies to one of the panels only, the panel is named specifically (as in “5204”).

The term “bell circuit” is used throughout this manual (to match the labeling for these terminals in the voice evacuation module cabinet). This differs from the 5204 and 5207 installation manuals, which use the term “notification circuit”.

## **1.5 How to Contact Silent Knight**

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If you have a question or encounter a problem not covered in this manual, contact Silent Knight Technical Support at 800-328-0103 (or 612-493-6455). To order parts, contact Silent Knight Sales at 800-446-6444 (or 612-493-6435).

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## Section 2.

# Agency Listings and Requirements

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### 2.1 UL Listings and Requirements

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If installed in accordance with this manual, the SKE-360/380 and compatible modules are UL listed as control unit accessories.

- Maintain one-quarter inch spacing between power limited and non-power limited wiring. Route wiring through separate knockouts for power limited and non-power limited wiring. (See Section 3.2-A for an example.)
- The voice evacuation equipment must be located in the same room as the fire control panel (Model 5204 or 5207).
- Unsupervised wiring must be run in conduit (if modules not located in the same cabinet).
- Speakers used with the system must be UL listed for fire protective signaling use and must have a DC blocking capacitor.
- Amplifiers must be rated in several formats and voltage ranges. See Section 3.8.3 for more information.





*Section 2. Agency Listings and Requirements*

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## Section 3. Installation

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This section of the manual covers wiring of the voice evacuation main system and compatible modules.

### 3.1 Mounting

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The cabinet for the voice evacuation system must be mounted in the same room as the fire alarm control panel, Model 5204 or 5207.

### 3.2 Wire Routing

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When wiring to module connectors, route non-power-limited and power-limited wiring through separate knockouts and maintain one-quarter inch spacing. Figure 3.2-A shows an example of how wiring should be routed.

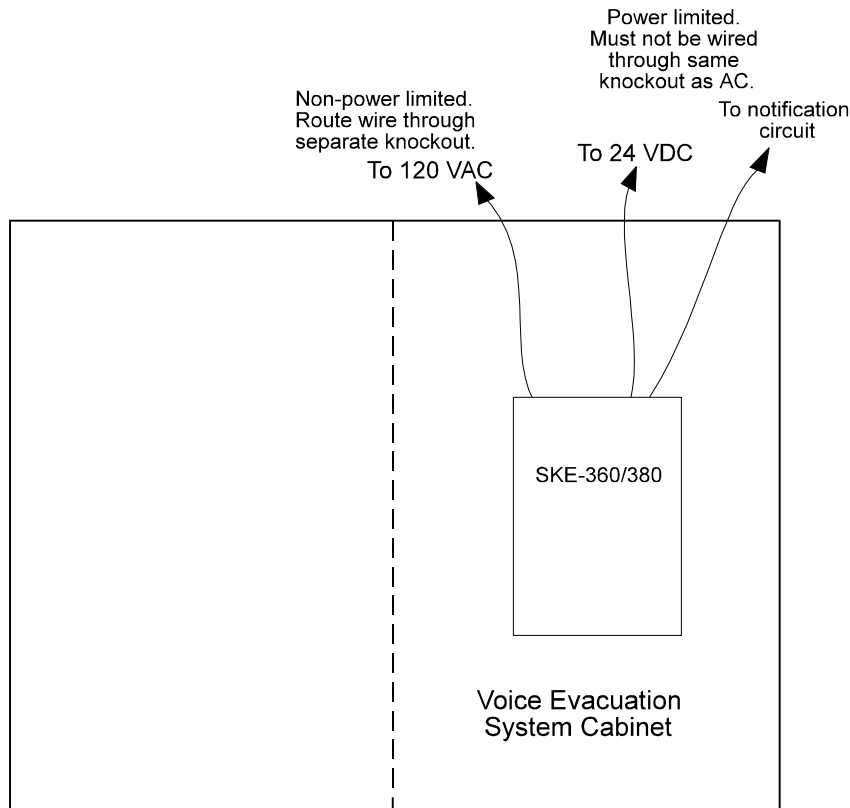


Figure 3.2-A: Wire Routing Example

### 3.3 Environmental Specifications

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Because the voice evacuation system must be located in the same room as the 5204 or 5207 fire control panel, you must follow the environmental specifications for those products. It is important to protect system from water. To prevent water damage, the following conditions should be AVOIDED when mounting the units:

- Do not mount directly on exterior walls, especially masonry walls (condensation)
- Do not mount directly on exterior walls below grade (condensation)
- Protect from plumbing leaks
- Protect from splash caused by sprinkler system inspection ports
- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery)

When selecting a location to mount the 5204 or 5207 control panel, the unit should be mounted where it will NOT be exposed to temperatures outside the range of 0°C-49°C (32°F-120°F) or humidity outside the range of 10%-85% at 30°C (86°F) noncondensing.

## 3.4 SKE-360/380 Series Installation

Section 3.4 describes installation of the basic SKE-360/380 series paging amplifier modules. Compatible module installation instructions appear in the sections that follow.

### 3.4.1 Electrical Specifications

Calculate current draw for the voice evacuation system you will be installing against the power available from the fire control panel. The fire control panel may not have enough power available; it is likely that you will need to attach an external power supply (or multiple power supplies) to the system. If an external power supply is necessary, use any UL listed 24 VDC model.

**Table 3.4.1-1: Electrical Specifications**

Specification	SKE-360-M1	SKE-367-M1	SKE-380-M1	SKE-387-M1
Power Output	20 watts evac	20 watts evac	40 watts evac	40 watts evac
Audible Signaling Voltage	25 VRMS	70 VRMS	25 VRMS	70 VRMS
Operating Voltage	24-40 VDC	24-40 VDC	24-40 VDC	24-40 VDC
Operating Current:				
In battery-saver mode	0.006A	0.006A	0.018A	0.018A
In normal supervision standby mode	0.17A	0.17A	0.20A	0.20A
When an alarm is active (Full output load)	1.2A	1.2A	3.0A	3.0A
Frequency Response	40 - 4,000 Hz	800 - 2,800 Hz	40 - 4,000 Hz	800 - 2,800 Hz
Voice Power ratings (Shown in worst case conditions, 20.4 VDC, low battery.)	9.25 watts voice	9.25 watts voice	22 watts voice	22 watts voice

### 3.4.2 Board Layout Diagram

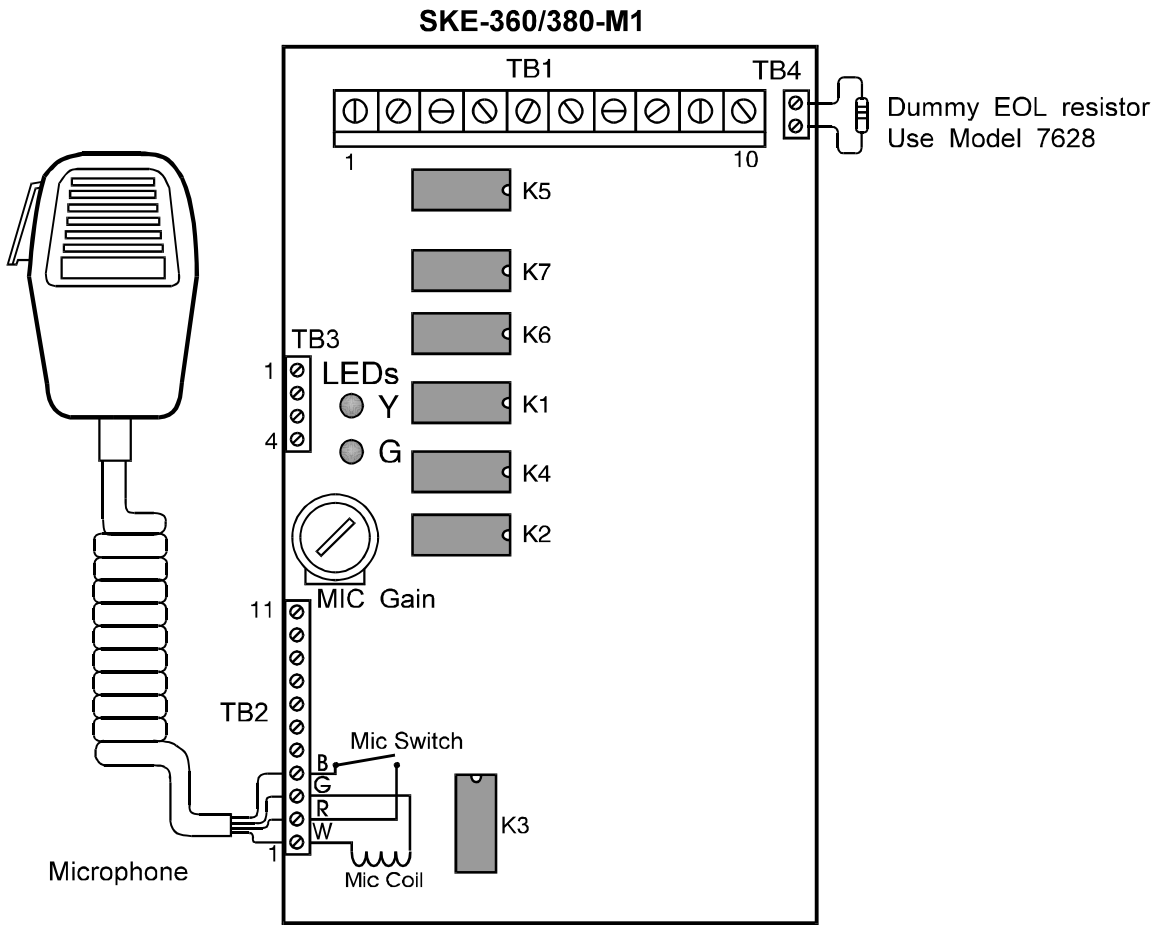


Figure 3.4.2-A: Model SKE-360/380 Board Layout

### 3.4.3 Terminal Descriptions

**Table 3.4.3-1: TB1 on SKE-360/380 Board**

Terminal	Description
1 - 2	120 VAC Monitor (0.005 A). Not module power; not power limited. Keep separate from other wiring.
3 (+) and 4 (-)	24 VDC Module Power, 24-40 VDC, power limited.
5 (+) and 6 (-) (alarm polarity)	Bell Circuit Input (24 VDC @ 0.025 Amp), power limited.
7 (+) and 8 (-)	25 VRMS Speaker Loop, Class B, power limited.
9 (-) and 10 (+)	Class A Speaker Loop Return, power limited. (Connect field EOL resistor here for Class A.)

**Table 3.4.3-2: TB2 on SKE-360/380 Board**

*NOTE: All TB2 connections are factory-installed.*

Terminal	Description
1	White. Mic Audio on Master Module. (Pre-amp audio input for M2 or M3 modules.)
2	Red. + 24 VDC (Master module only, not connected on all others.)
3	Green. Mic Bias (Master module only, not connected on all others.)
4	Black. Mic PTT (Master module only, not connected on all others.)
5	Aux Evac Signal (+24 VDC to activate)
6	Non-interrupted V+ (+24 VDC, 1 Amp max.)
7	Aux. Audio Input (2 VRMS max.)
8	Negative (Circuit NEG)
9	Push-To-Talk (+24 VDC to activate)
10	Int. V+ (+24 VDC, Interrupted in Alarm, 1 Amp max.)
11	Pre-Amp Audio Output (Master only, connect to TB2-1 on M2 or M3 modules.)

**Table 3.4.3-3: TB3 Connections - Optional**

Terminal	Description
1	Alarm Active (0.1A @ 24V, output)
2	Trouble (Pull-down, input)
3	“Y” LED Status (0.1A @ 24 V, output)
4	“G” LED Status (0.1A @ 24V, output)

### 3.4.4 Connection to Models 5204 and 5207

**IMPORTANT:** *Disconnect power before installing or servicing.*

1. Connect 120 VAC from the same branch circuit as the 5204/5207 to the 120 VAC (non-power-limited) terminal blocks located in the SKE-360/380 cabinet. 120 VAC does not supply operating power to the unit but is required for the battery-saver circuit. Loss of AC places the SKE-360/380-M1 in battery-saver mode. The green and yellow LEDs will not turn on and the 5204/5207 will report a bell circuit fault if AC is not connected.
2. Connect a continuous source of 24 VDC from either the 5204/5207 or a UL listed 24 VDC power supply with batteries to 24 VDC power-limited terminals located in the SKE-360/380 cabinet.
3. Connect a 24 VDC reversing bell circuit from the 5204/5207 to the bell circuit terminals located in the SKE-360/380 cabinet. Observe polarity as shown in Figure 3.4.4-A.

During normal supervision, the bell circuit is connected directly to the speaker loop. If the installation requires a coded signal, specify the “steady” signal option in 5204/5207 programming.

*NOTE: The steady signal option is programmed through downloading software or through step programming (Steps 40-43 for the 5204 and Step 3 for the 5207). See the appropriate programming sections of the 5204/5207 manuals for more information.*

4. For a Class B connection, connect the field speaker circuit to terminals TB1-7 and TB1-8. Terminate the circuit with a Model 7628 4.7K EOL resistor (supplied with the 5204/5207 panel). For a Class A connection, place the EOL resistor on terminals TB1-9 and TB1-10.
5. Connect a dummy 7628 EOL resistor to TB4.

*NOTE: If a zone splitter is used, follow terminal block drawing shipped with unit for connection instructions.*

When 24 VDC and 120 VAC power are applied, the green LED will turn on and the module will hum quietly, indicating normal supervision. A fault in the paging and amplifier module will cause the green LED to turn off and the yellow LED to turn on. It will also cause a trouble at the 5204/5207 bell circuit.

When the microphone is used, the yellow and green LEDs flash on and off with peaks in the voice paging source.

If you are wiring two or more SKE-360/380-M1 modules, note the following:

- A dedicated 24 VDC reversing bell circuit must be provided for each SKE-360/380 module used.
- The SKE-360/380 with the microphone attached is considered the “master” and supplies paging audio to other SKE-360/380 modules.

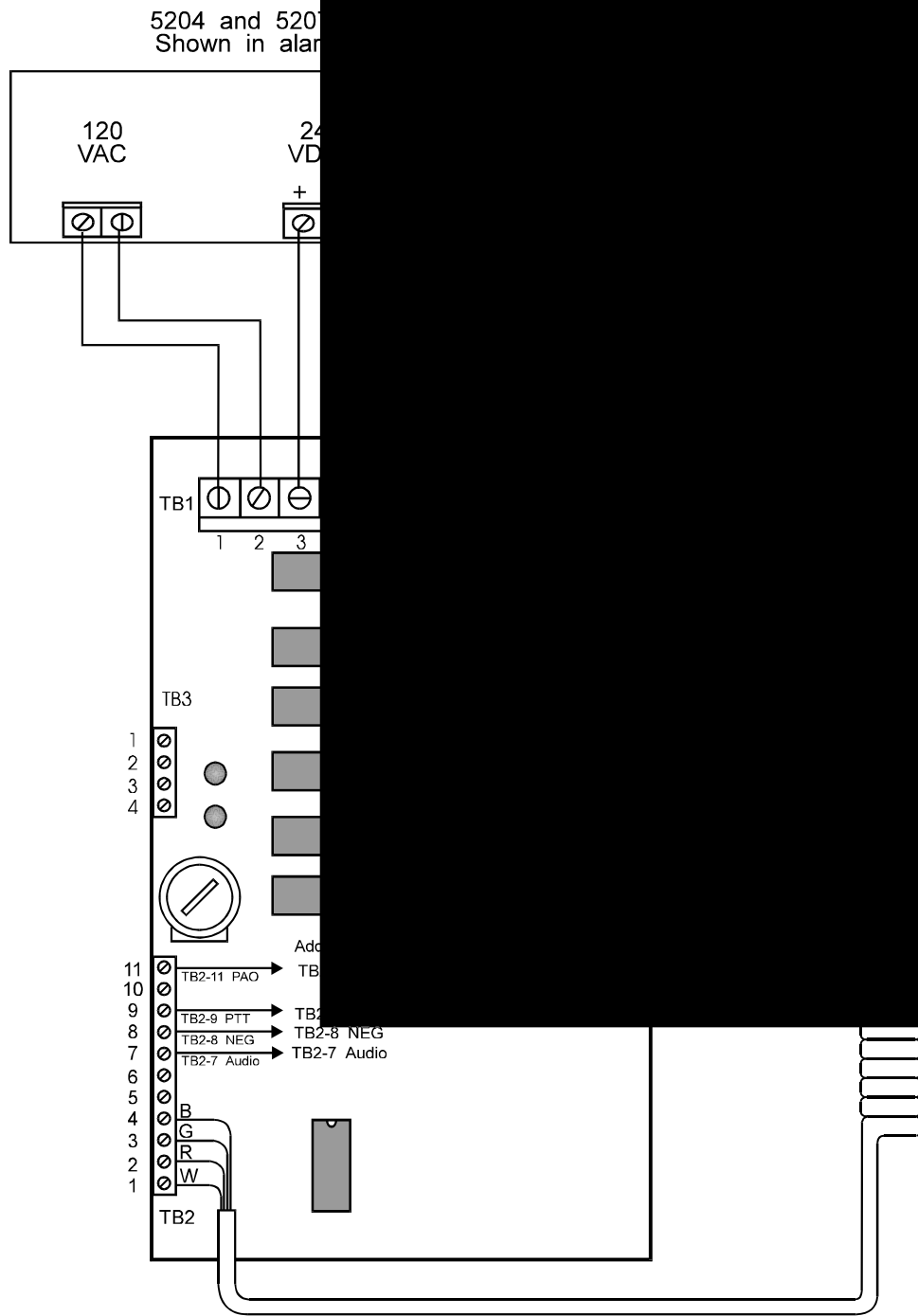


Figure 3.4.4-A: SKE-360/380 Connection to 5204/5207



### 3.4.5 Speaker Loop Wiring Maximum Length

Use Table 3.4.5-1 below to determine the maximum length for speaker loops.

**Table 3.4.5-1: Speaker Loop Wiring Maximum Length**

<b>Power Watts/Volts)</b>	<b>18 AWG</b>	<b>16 AWG</b>	<b>14 AWG</b>	<b>12 AWG</b>
20 watts / 25 VRMS (SKE-360 modules)	2,000 feet	3,000 feet	4,500 feet	6,500 feet
20 watts / 70 VRMS (SKE-367 modules)	5,600 feet	8,400 feet	12,600 feet	18,200 feet
40 Watts / 25 VRMS (SKE-380 modules)	1,000 feet	1,500 feet	2,250 feet	3,250 feet
40 Watts / 70 VRMS (SKE-387 modules)	2,800 feet	4,200 feet	6,300 feet	9,100 feet

#### Total Current Per Module

SKE-360 draws 0.2A plus .05A per watt times total watts of load.

SKE-380 draws 0.4A plus .065A per watt times total watts of load.

#### Examples

$$\text{SKE-360 with 12-watt load} = 0.2\text{A} + (0.5\text{A} \times 12) = 0.80\text{A}$$

$$\text{SKE-380 with 24 watt load} = .4 + (.065 \times 24) = 1.76\text{A}$$

### 3.4.6 Standby Battery Requirements

Calculate standby battery requirements using the following formula:

$$\text{Additional battery Amp/Hours} = (\text{Standby-hours required} \times \# \text{ of SKE-360/380 modules} \times \text{Standby current}) + (\text{Alarm time} \times \# \text{ of SKE360/380 modules} \times \text{Alarm current})$$

$$\text{Standby Time, 24 hours, Alarm Time} = 5 \text{ minutes } (.083 \text{ hours})$$

#### Example

$$\text{For three fully loaded SKE-360 modules, the Amp/Hours} = (24 \times 3 \times 0.006\text{A}) + (.083 \times 3 \times 1.2\text{A}) = .73 \text{ Amp/Hours}$$

### 3.5 SKE-360/380-M1-DMR Installation

This section describes wiring of the SKE-360/380 module when a digital message repeater is used.

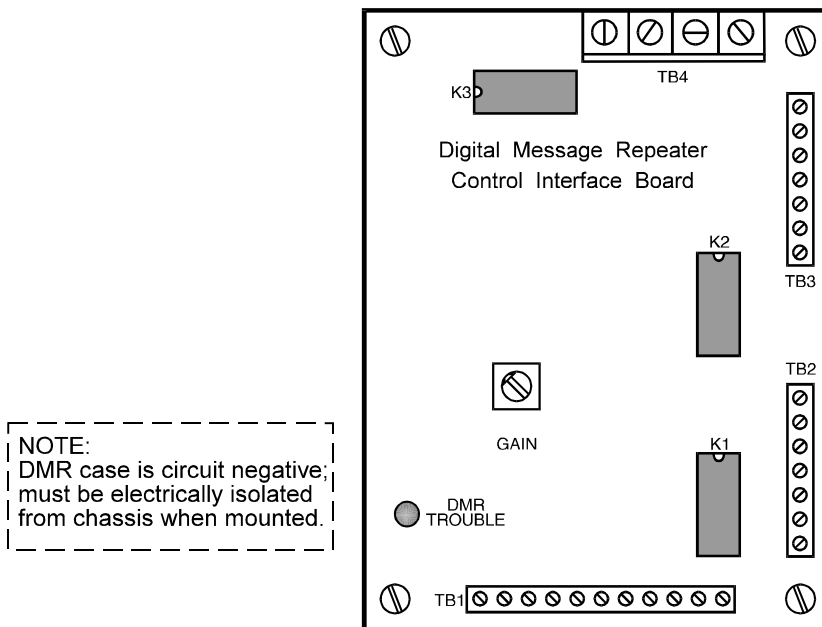
#### 3.5.1 Electrical Specifications

Specifications listed below are in addition to those listed in Section 3.4.1 for the SKE-360/380-M1 (without a digital message repeater).

**Table 3.5.1-1: Electrical Specifications**

Operating Current:	
In battery-saver mode	0.020 A
In normal Supervision standby mode	0.20 A
When alarm is active	0.25 A

#### 3.5.2 Board Layout Diagram



**Figure 3.5.2-A: Digital Message Repeater Board Layout**

### 3.5.3 Terminal Strip Description

Section 3.5.3 describes the terminals for the digital Message Repeater only. See Section 3.4.3 for description of terminals on the SKE-360/380-M1 board.

**Table 3.5.3-1: TB2 on DMR**

*(For description of TB2 on SKE-360/380, see Table 3.4.3-2.)*

Terminal	Description
1	Microphone PTT Connect to TB2-4 (Mic PTT) of Master Module.
2	V+ Connect to TB2-6 (V+) of Master Module.
3	Audio Output Connect to TB2-7 (Audio Input) of Master Module.
4	NEG Connect to TB2-8 (NEG) of Master Module. (Share with black lead for microphone.)
5	PTT Connect to TB2-9 (PTT) of Master Module.
6	Auxiliary Trouble
7	Auxiliary Audio Input

**Table 3.5.3-2: TB3 on DMR Board**

Terminal	Description
1	Trouble Relay Common
2	Trouble Relay N.C. (Closed for Trouble)
3	Trouble Relay N.O. (Open for Trouble)
4	Bell circuit Status (+24 VDC in alarm)
5	Auxiliary Stop In/Out (0V to activate)
6	Auxiliary Start Input (0V to activate)
7	Start Output (0V in alarm)

### 3.5.4 Connection to the Model 5204 and Model 5207

**IMPORTANT:** *Disconnect power before installing or servicing.*

1. Connect 120 VAC from the same branch circuit as the 5204/5207 to the 120 VAC (non-power-limited) terminal blocks located in the SKE-360/380 cabinet. 120 VAC does not supply operating power to the unit but is required for the battery-saver circuit. Loss of AC places the SKE-360/380-M1-DMR in battery-saver mode. The green and yellow LEDs will not turn on and the 5204/5207 will report a bell circuit fault if AC is not connected.
2. Connect a continuous source of 24 VDC from either the 5204/5207 or a UL listed 24 VDC power supply with batteries to 24 VDC power-limited terminals located in the SKE-360/380 cabinet.
3. Connect main terminals TB4-1 (+) and TB4-2 (-) of the DMR Control Interface to notification output circuit of the 5204/5207. Do *not* use coded bell circuit. Observe polarity.
4. For a Class A connection, connect the field speaker circuit to terminals TB1-7 and TB1-8. Terminate the circuit with a Model 7628 4.7K EOL resistor (supplied with the 5204/5207 panel). For a Class B connection, place the EOL resistor on terminals TB1-9 and TB1-10.
5. Connect a dummy 7628 EOL resistor to TB4.

When 24 VDC and 120 VAC power are applied, the green LED on the SKE-360/380 module will turn on and the module will hum quietly, indicating normal supervision. In addition, the yellow trouble LED on the DMR Control Interface will turn on momentarily and then turn off.

A fault in the paging and amplifier module will cause the green LED to turn off and the yellow LED to turn on. It will also cause a trouble at the 5204/5207 bell circuit.

The yellow and green LEDs become modulation indicators when the microphone or digital message repeater is used. The yellow and green LEDs flash on and off with peaks in the voice paging source.

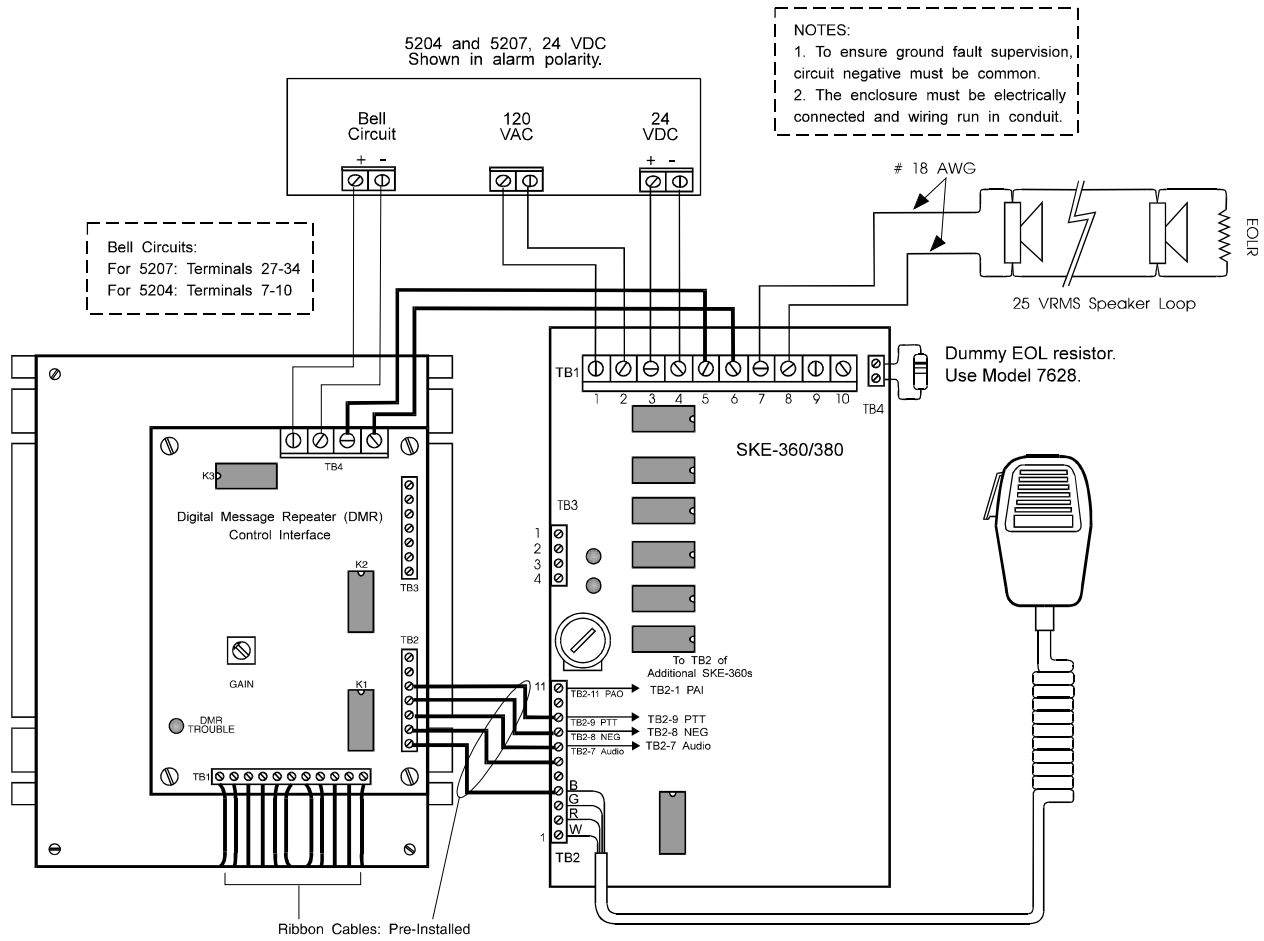


Figure 3.5.4-A: SKE-360/380-M1-DMR Wiring

## 3.6 Backup Amplifier Installation (Model SKE-BK)

### 3.6.1 Electrical Specifications

Table 3.6.1-1: Electrical Specifications

Maximum Audio Power	100 Watts, 25/70 VRMS
Operating Voltage	28 VDC Nominal
Operating Current	Primary Amp Fail: 0.0 mA Amp Normal: 90 mA

### 3.6.2 Board Layout

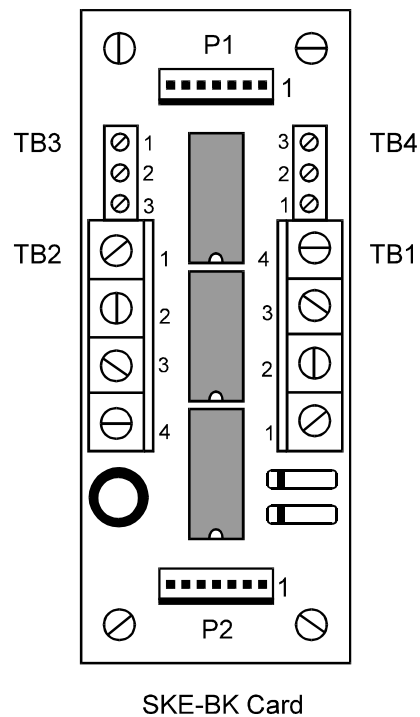


Figure 3.6.2-A: SKE-BK Backup Amplifier Board Layout

### 3.6.3 Terminal Strip Description

**Table 3.6.3-1: Backup Amplifier Connector Descriptions**

<b>TB1</b>	<b>To Speaker Loop</b>
1	From Speaker Loop (+) (Used for Class A speaker loops only.)
2	From Speaker Loop (-) (Used for Class A speaker loops only.)
3	To Speaker Loop (-)
4	To Speaker Loop (+)

<b>TB4</b>	<b>Optional</b>
1	Status COM
2	Status N.C. (in Backup)
3	Status N.O. (in Backup)

<b>TB2</b>	<b>To Master Module</b>
1	To TB1-7 (+)
2	To TB1-8 (-)
3	To TB1-9 (-) (Used for Class A speaker loops only.)
4	To TB1-10 (+) (Used for Class A speaker loops only.)

<b>P1 (and *P2)</b>	<b>P1 - To SKE-360/380 (or previous backup card)</b>
1	TB1-7
2	TB1-8
3	TB1-9
4	TB1-10
5	TB2-9 (PTT)
6	Not connected
7	TB2-8 (NEG)

<b>TB3</b>	<b>To Speaker Loop</b>
1	Amp Normal "G"
2	PTT
3	NEG (Optional)

\*P2 is for connection to additional backup card (if used).

### 3.6.4 Wiring

See Figure 3.6.4-A (next page) for wiring diagram.

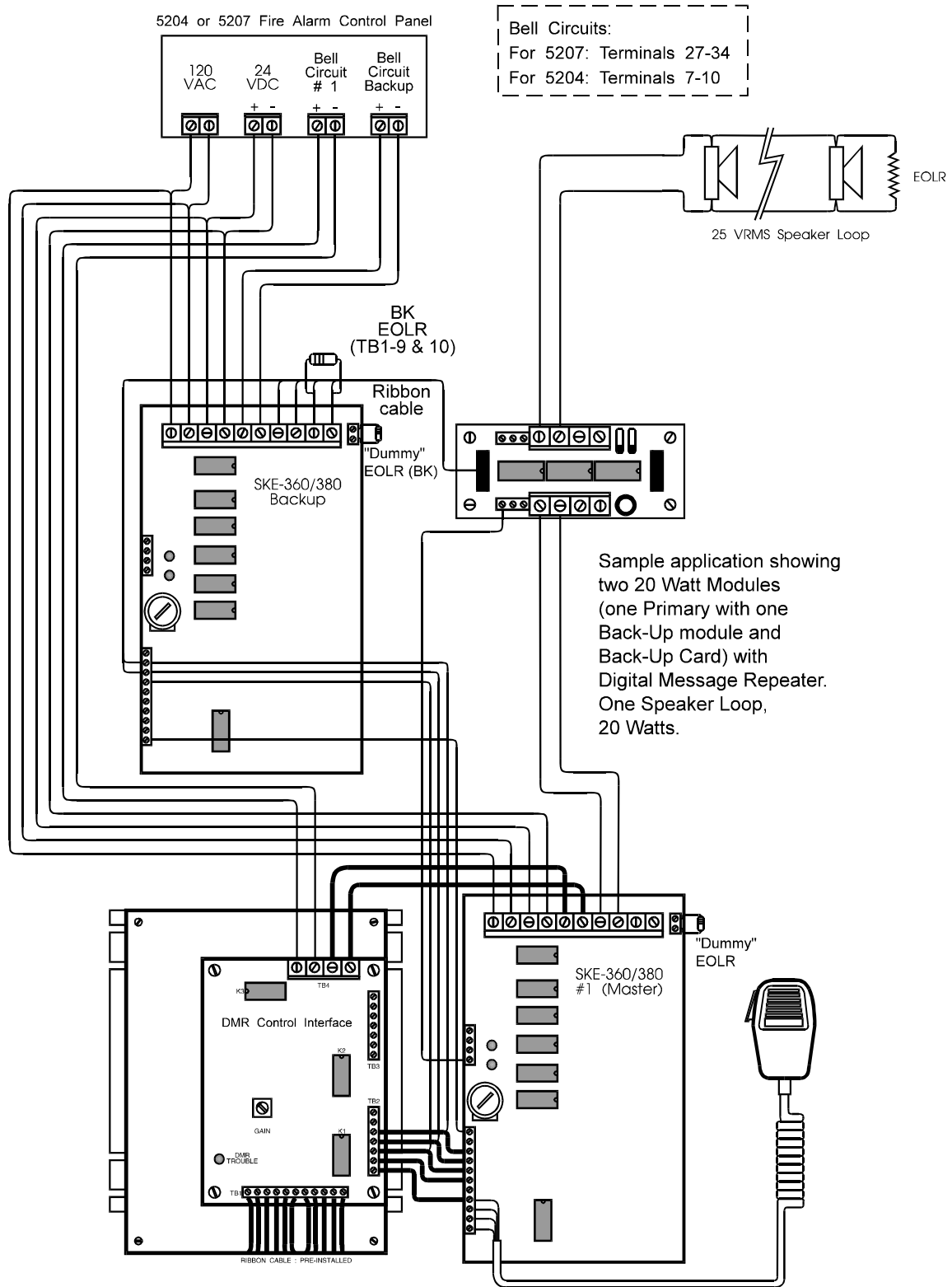


Figure 3.6.4-A: SKE-BK Backup Amplifier Wiring



## 3.7 Remote Paging System Installation (Model SKE-562-2)

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### 3.7.1 Mounting

3 gang standard E.O. plate (use minimum 1 3/4" deep box).

### 3.7.2 Electrical Specifications

**Table 3.7.2-1: Model SKE-562-2 Connector Descriptions**

Low Current	60 mA @ 24 VDC
Audio Output	2.5 VRMS
Wiring Specifications	
Recommended Type and Gauge	22 or 18 AWG, shielded
Maximum Wiring Length	3,500 feet with 22AWG 6,000 feet with 18 AWG

### 3.7.3 Wiring

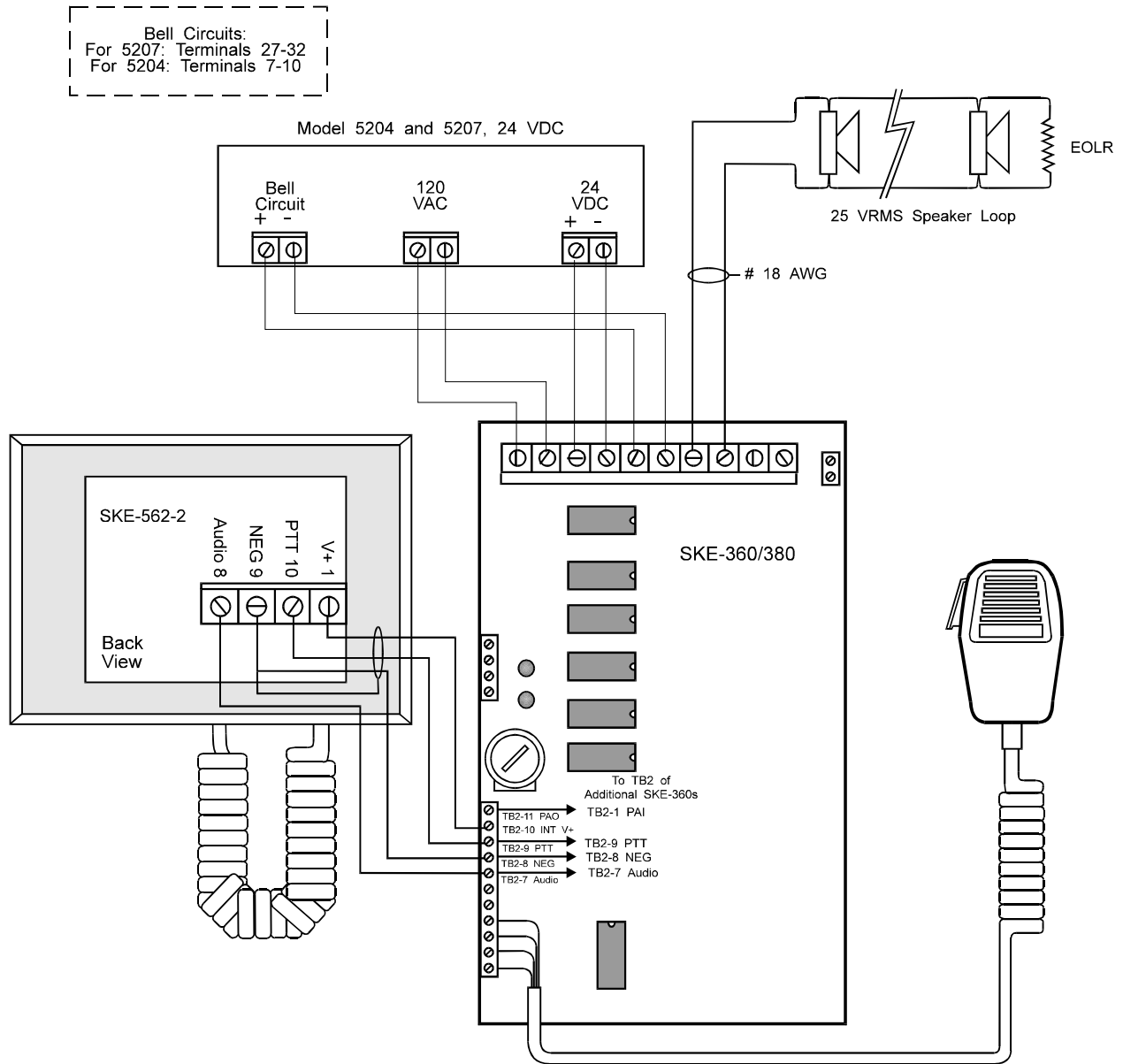


Figure 3.7.3-A: Model 562-2 Wiring

### 3.7.4 Operation

1. Turn the security keyswitch to the ON position.
2. Hold the microphone close to the mouth and press the Push-to-Talk button while speaking.
3. Turn the security keyswitch to the OFF position when finished.

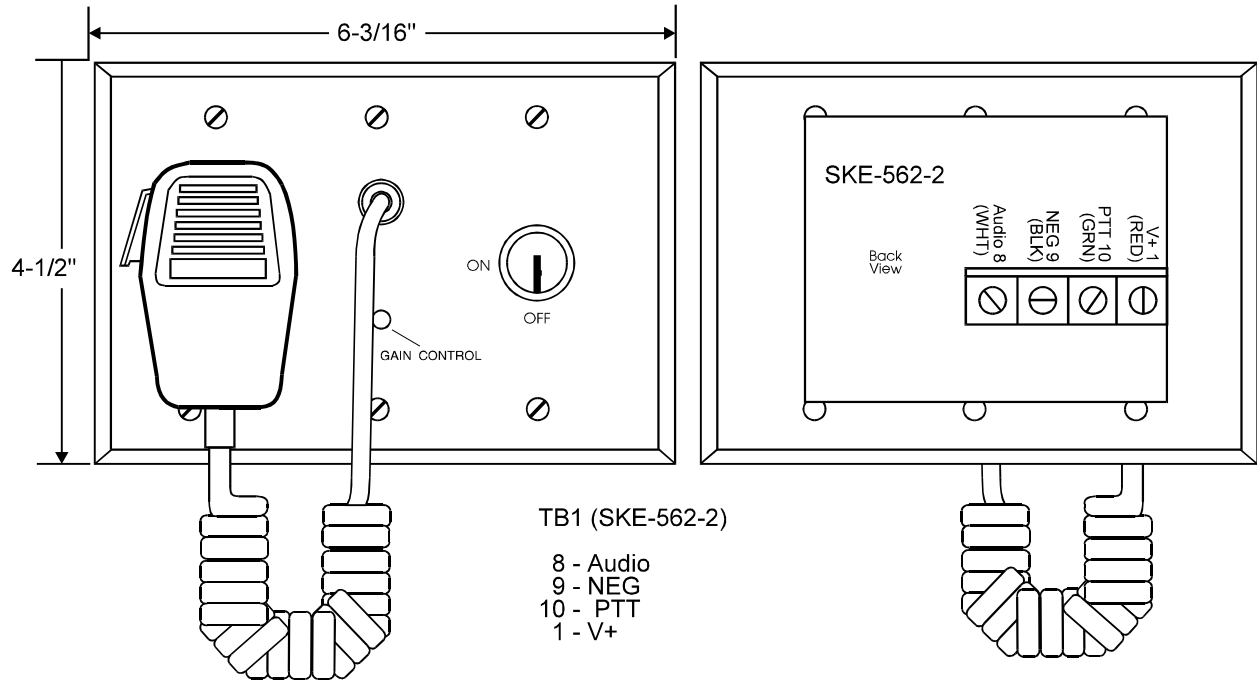


Figure 3.7.4-A: Model 562-2 Remote Microphone Front and Back Views

### 3.8 Zone Splitter Installation (Model SKE-386-4ZA)

The SKE-386-ZA Supervised Zone Splitter provides four fully supervised speaker loop zones from a single voice evacuation module.

#### 3.8.1 Electrical Specifications

Table 3.8.1-1: Model SKE-386-ZA Electrical Specifications

Power Input	24 VDC Nominal @ 20 mA
Maximum Audio Loop Power	100 Watts (Speaker Loop Input)
End-of-line resistor requirements	Model 7628 4.7K EOL resistor

#### 3.8.2 Board Layout Diagram

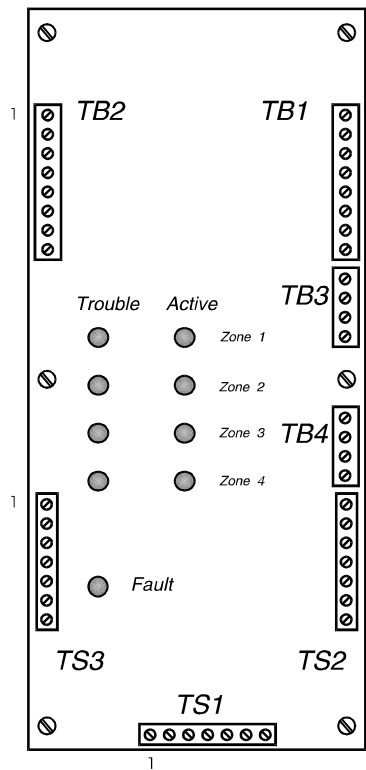


Figure 3.8.2-A: Board Layout Diagram

### 3.8.3 Control Requirements

Control of zone selection can be made via manual switches or through the 5204/5207. Control signals from the 5204/5207 can be from outputs provided for Floor Above / Floor Below control, from Pull Up, Pull Down, Dry N.O. contact outputs or from annunciator outputs associated with initiating loop zones. The table below shows the input control voltage and current requirements.

**Table 3.8.3-1: Input Control Voltage and Current Requirements**

<b>Input Type</b>	<b>Rating</b>
Pull Up	+24 VDC @ 2.5 mA
Pull Down	0 VDC @ 40 mA
Lamp Test	0 VDC @ 100 mA
Alarm and PTT	+24 VDC @ 2.5 mA
Trouble	0 VDC @ 2.5 mA

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## Section 4. Operation

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### 4.1 Amplifier Operation

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During normal operation, module hums quietly, indicating normal supervision.

In an alarm situation, a slow whoop sounds. Microphone use will override the slow whoop.

### 4.2 Backup Amplifier Operation

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Each back up module monitors one primary SKE-360/380 module. If the primary module fails, the speaker loop is transferred to the output of the backup module.

### 4.3 Microphone Operation

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Hold the microphone close to the mouth and press the Push-to-Talk button while speaking. The microphone output will override the slow whoop alarm sound (or any other sound) from the voice evacuation system.

### 4.4 Digital Message Repeater Operation

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In an alarm situation, plays the slow whoop and up to three repetitions of the recorded voice evacuation message in the following pattern:

- 5 seconds of slow whoop
- First repetition of voice message
- 5 seconds of slow whoop
- Second repetition of voice message
- 5 seconds of slow whoop
- Third repetition of voice message

After the third repetition of the voice message, the slow whoop continues until the alarm condition clears. If the alarm condition clears before the third repetition of the voice message, the playback cycle stops. Press the microphone Push-To-Talk button any time during this sequence to reset.

The voice evacuation system can be wired so that the voice message plays continuously during the alarm condition (instead of stopping after the third repetition). In this case, the pattern would be:

- 5 seconds of slow whoop followed by the voice message. This pattern would continue through of the duration of the alarm condition.

(Wiring for continuous voice message playback is described in Section 3.5.4.)

### **Standard Voice Message (female voice, 15 seconds duration)**

The standard voice message for all versions is shown below. This message can be customized. (Contact Silent Knight for more information).

*Attention please, attention please. The signal you have just heard indicates a report of an emergency in this building. Walk to the nearest exit and leave the building. All handicapped occupants shall follow the building evacuation plan.*

## **4.5 Remote Microphone Operation (Model 562-2)**

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1. Turn the security keyswitch to the ON position.
2. Hold the microphone close to the mouth and press the Push-to-Talk button while speaking.
3. When finished, turn the security keyswitch to the OFF position.

## **4.6 Zone Select Switch Operation (Model SKE-330)**

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Place the zone select switch in the On position. The associated LED indicator will turn on.

To page into the selected zone, press the PTT switch on the remote microphone.

# Section 5.

## Troubleshooting

Table 5-1 below lists symptoms and possible causes of problems that could occur with the voice evacuation system. Check here first if you encounter a problem. If the problem you have encountered is not described here, contact Technical Support at 800-328-0103.

**Table 5-1: Troubleshooting**

Symptom	Possible Cause(s)	Solution
No LEDs on SKE-360 / SKE-380.	No +24 VDC (Module power)	Check +24 VDC at TB1-3(+) and TB1-4(-).
	No 120 VAC (Supervised)	Check 120 VAC at TB1-2 and TB1-2.
Notification fault when microphone is used.	No dummy EOL resistor on TB4.	Install dummy EOL resistor on TB4.
DMR gives slow whoop only, no message.	Notification circuit not connected to DMR.	Connect notification circuit to DMR Interface TB4-1(+) and TB4-2(-).
Microphone OK, no slow whoop.	Bell circuit connection reversed.	See Section 3.8 for installation instructions.
Notification circuit fault, connections OK.	No speaker loop EOL resistor.	Install field EOL resistor (same as notification circuit EOL resistor and dummy EOL resistor).
	Speakers without DC blocking capacitor (life safety speakers).	Speakers must have DC blocking capacitor.
	Shorted speaker loop.	Verify with ohm meter, clear short.
Audio levels too low or too high.	Load too high (more than 20W for SKE-360 or 40W for SKE-380).	Reduce load of add additional SKE-360/SKE-380 modules and speaker loops.
	Mismatched speaker/amplifier voltages (one at 25 VRMS, one at 70 VRMS).	Ensure that speaker and amplifier output voltages are the same.
	Incorrect power tap settings (watts) on speakers.	Set speaker power tap adjustment for dBA required.
Power supply fault (fuse blows) when slow whoop sounds.	Insufficient current supply.	If fire control panel can't supply enough current, use external UL listed 24 VDC power supply with stand-by batteries.

*table continued on next page*



Table 5-1 continued

Symptom	Possible Cause(s)	Solution
Slow whoop OK, microphone OK, DMR operates erratically.	Coded notification circuit.	Coded notification circuit cannot be used.
Green LED and microphone OK, no slow whoop (or DMR, if used).	12 VDC notification circuit.	Notification circuit must be 24 VDC.
Ground fault, SKE-DMR.	SKE-DMR case insulation failure.	DMR case is circuit NEG. must be insulated from the chassis (mount on nylon posts).
Speakers hum when not in alarm.	Electrical noise on notification circuit.	Place 5 uF 50V non-polar capacitor across notification circuit (before voice evacuation equipment).

## 5.1 Significance of LEDs

Table 5.1-1: Significance of LEDs

Model	LED	Indicates	
SKE-360/380 Board	Green	On	Good AC. Normal condition.
		Off	AC power off.
		Flashing	When microphone is in use, indicates voice modulation. Normal condition.
	Yellow	On	Fault condition. Many possible causes, including: 1) Speaker loop fault (short or open) passed on by zone splitter; 2) Internal fault in amplifier.
		Off	Normal condition.
		Flashing	When microphone is in use, indicates voice modulation. Normal condition.
Digital Message Repeater	Yellow	On	DMR fault.
		Off	Normal condition.

table continued on next page

Table 5.1-1 continued

Model	LED		Indicates
Zone Splitter	Zone Trouble (Yellow)	On	Fault in the specified zone.
	Zone Active (Red)	On	Zone selected. (Normal condition.)
	General Fault (Yellow)	On	Fault in the zone splitter module or zone.
SKE-330	Zone	On	Microphone in use in the zone. (Normal condition.)