

**ES**<sup>®</sup> **Simplex**

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**4003 Voice Control Panel**  
Installation and Operating Manual

574-039  
Rev. B



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## Cautions and Warnings



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**DO NOT INSTALL ANY SIMPLEX PRODUCT THAT APPEARS DAMAGED.** Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your local Simplex product supplier.



**ELECTRICAL HAZARD** - Disconnect electrical power when making any internal adjustments or repairs. Servicing should be performed by qualified Simplex Representatives.



**STATIC HAZARD** - Static electricity can damage components. Therefore, handle as follows:

1. Ground yourself before opening or installing components (use the 553-484 Static Control Kit).
2. Keep uninstalled component wrapped in anti-static material at all times.



### RADIO FREQUENCY ENERGY

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

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# System Overview

## Introduction

The Simplex 4003 (Figure 1) is a microprocessor-based, single-channel, voice/tone generator (VTG) with microphone input capability. It is UL listed, electrically supervised, and protected against loss of primary AC power and brown-out conditions.

The 4003 Voice Control Panel (VCP) provides voice and tone generation, 75W of amplifier power, four supervised notification appliance circuits to drive speakers, and satisfies multiple application requirements. Automatic operation is application-dependent and easily selected by internal programming DIP switches.

A second four-circuit NAC card can be installed in the 4003 to control DC notification appliances. Installation of this card allows visible notification appliances to remain activated after audible notification circuits are silenced.

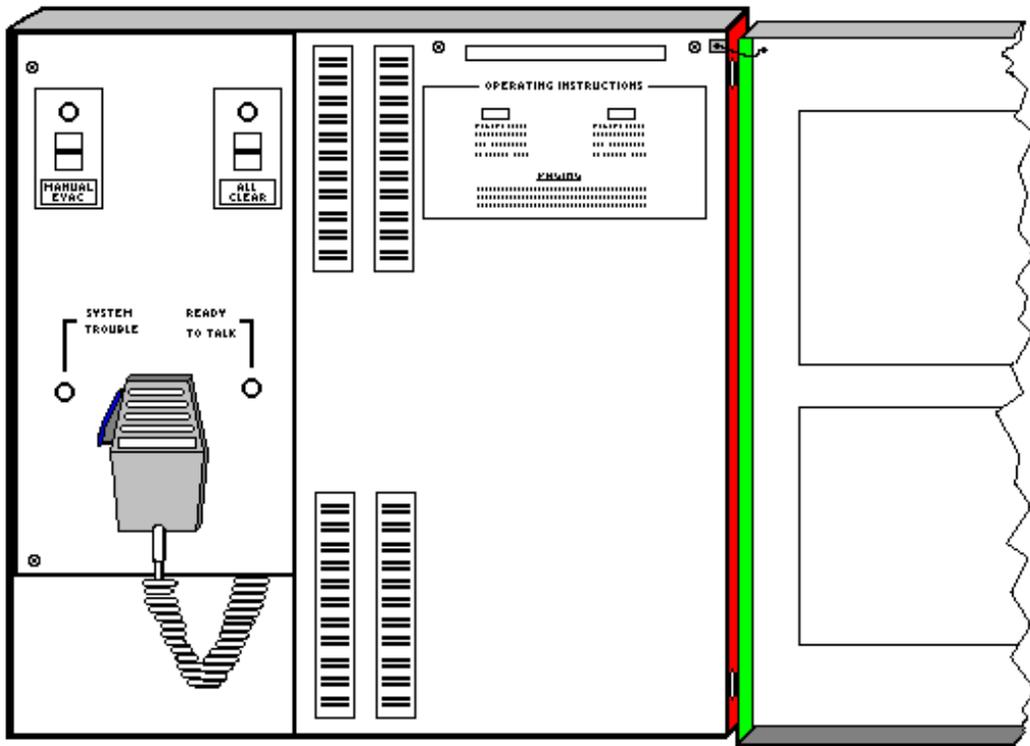


Figure 1. Simplex 4003 Voice Control Panel

**Note:** References in this manual to connections with the 4001, 4002, 4004 and 4020 fire alarm control panels are for field retrofit applications.

*Continued on next page*

## Introduction, *Continued*

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### Standard Features

Standard features available include the following:

- Coded Input - The 4003 has a coded input feature which allows it to duplicate coded signals with its horn tone signal.
- Walk Test™ - With the Simplex 4020 as the host FACP, the 4003 can provide the patented Simplex Voice Walk Test feature. With a Simplex panel as the host in adjunct mode, the 4003 is capable of standard Walk Test operations.
- Public Address - The 4003 can act as a general paging and public address system. The mike can be used with or without an alarm condition.
- Alarm Disable Switch - The 4003 has a service alarm disable switch that is supervised. This switch prevents the 4003 from going into an alarm condition while the host panel is being tested or serviced.

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### Optional Features

Optional features available include:

- Additional Four-Circuit NAC Card (General Alarm Style Y or Style Z) - The additional NAC module provides a total of eight Notification Appliance Circuits. Using both modules, audible and visible device circuits can be separated. This is important for applications that require visible appliances to continue operating until the fire alarm is reset.
- Custom Digitally-Recorded Messages - The customer has three options for creating a custom message: select an existing message from the Simplex archive, professionally record a message and have Simplex digitize it, or write a message which Simplex records and digitizes. The VCP can play two messages with a total duration of up to 43 seconds.
- Supervised Remote Microphone with Key Switch Control - The remote microphone is a key-enabled, push-to-talk (PTT) dynamic mike.
- 240 VAC Input Voltage

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\*Walk Test™ is protected under U.S. patent #4,725,818.

# Hardware Components

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## VCP Modules

VCP modules include the following:

- Voice Controller Assembly - This module performs all Voice/Tone generation functions. The Voice Controller Assembly communicates with a 4020 Master and supervises amplifiers, microphones (Master and Remote) and the VCP power supply. On-board switches provide simple audio functions. This module also controls and supervises the 4003 SIGcard in certain applications.
- 4003 SIGcard - This module allows supervision of four Class B circuits with the use of one signal circuit from a FACP (reverse polarity circuit) that operates at 24 VDC. It also accepts a +24V auxiliary alarm input, and can be supervised by the Voice Controller Assembly. All four signal circuit alarm relays energize with an alarm from the "host" signal circuit (or VCP). A short or open circuit trouble on any of the four circuits "open" the host signal circuit (or VCP trouble loop), causing the required trouble indication at the host FACP.
- 4003 Class A SIGcard - This module is the Class A version of the 4003 SIGcard.
- 4003 Power Supply - Adequate power from the host FACP may not be available for audio speaker circuit, DC signal circuit, and system use. This module is a linear supply with brownout and battery charger features. Power supply capacity is adequate for 75W Amplifier, VCP power, and battery charging. Battery charging is limited to 18 Ah, so provisions are made to allow connection of external battery power. The charger is disabled when external batteries are used.
- 4003 Audio Amplifier - The 4003 uses a de-rated version of the 4100 Audio Amplifier.

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## 4003 VCP Configurations

The 4003 VCP can be used in several different configurations:

- RUI Configuration - The 4003 can add voice and tone functions to a Simplex 4020 Fire Alarm Control Panel (FACP) as a 4020 slave.
- Hardwired Configuration - The 4003 can operate as an adjunct (addition) to an existing fire alarm panel.
- The 4003 can act as a paging system with a manual selection of tones.

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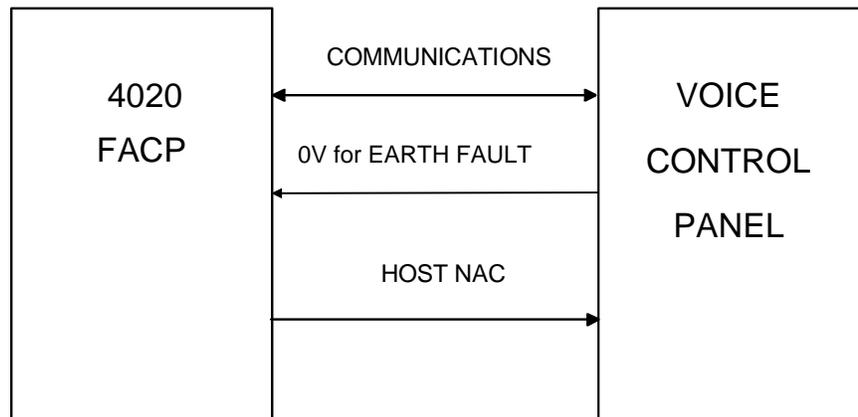
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## Hardware Components, *Continued*

### 4020 Slave (RUI) Configuration

In the 4020 Slave configuration (shown in Figure 2), the VCP communicates with the 4020 Master Controller via the Remote Unit Interface (RUI) two-wire communications bus. This allows the 4020 to monitor the 4003 status and to control tone and message selection. A dedicated 4020 notification appliance circuit is connected to the 4003 to activate its four NAC speaker outputs.

The 565-358 Voice Controller Assembly is similar to the 4100-family audio controller. Alarm messages are originated at the host 4020 Master via the existing "Play" command format. The VCP monitors its amplifier for trouble conditions. In the "slave" configuration, amplifier status is reported at the 4020 Operator Interface Panel in the same manner as is done with 4100 Voice systems. Microphone supervision, VTG, chipset, and all other card troubles are reported to the 4020 Master.



**Figure 2. 4003 Voice Control Panel in the Slave Configuration**

Spoken (or Voice) Walk Test operation is available with this configuration. During system Walk Test, activation of the "Manual Evacuation" switch, microphone, or "All Clear/Second Message" switch generates a voice message response to the device being tested. Activating addressable manual station 075 on an addressable MAPNET II<sup>®</sup> circuit on Channel One of the 4020 yields the voice message "Testing Channel One, Device Seven Five". Voice message splicing is limited to the standard Walk Test messages and any spoken codes that fit in the standard chipset.

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## Hardware Components, *Continued*

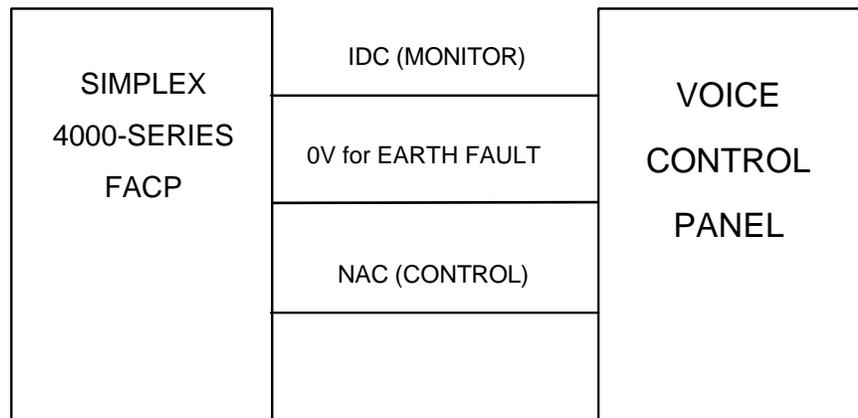
### 4020 Slave Configuration (RUI), *Continued*

A Notification Appliance Circuit (NAC) is used to activate 4003 SIGcard points. This circuit is actually wired to the VCP to allow compatibility with the "Adjunct" application (see Adjunct description below). Use of a NAC circuit to activate 4003 SIGcard points is necessary to retain use of existing default audio SMPL, and to ensure signal circuit activation is coordinated with VTG operation. A jumper selects "Track NAC" operation, causing a reverse polarity signal transfer to directly activate the 4003 SIGcard points. The alarm power from the NAC must be filtered 24 VDC (with a 2V peak-to-peak maximum ripple in the voltage). Unfiltered signal power must not be brought into either the 4003 SIGcard or the Voice Controller Assembly.

### Hardwired (Adjunct) Configuration

Note: The 4003 can be used in adjunct configuration with the Simplex UL Listed fire alarm control panels. Refer to "System Wiring Configurations" further on in this manual for more information on how to wire the 4003 VCP to each panel type.

In the adjunct configuration (shown in Figure 3), the 4003 connects as the end-of-line device to a compatible, dedicated initiating device circuit from the host panel.



**Figure 3. 4003 Voice Control Panel in the Adjunct Configuration**

Alarms from the host panel signal the four notification appliance circuits to respond with tones and messages as programmed. The Initiating Device Circuit (IDC) connection monitors 4003 system troubles and allows selection of the manual evacuation message to automatically send an alarm signal to the host panel. An auxiliary power connection allows use of the 4003 panel voltage as required. The alarm response can be customized such as to follow coded inputs with horn or to play digitally pre-recorded messages with a programmable combination of digitally generated tones. Alarm Signal Silence and Alarm Reset are performed at the host panel.

Signal 0V is wired to the host FACP for system earth fault monitoring.

*Continued on next page*

## Hardware Components, *Continued*

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### **Hardwired (Adjunct) Configuration, *Continued***

Alarm message selection is via DIP switch settings on the 4003 Voice Controller Assembly. The host FACP activates its Notification Appliance Circuits and initiates the alarm at the VCP. The Voice Controller generates the selected alarm message and routes it to the amplifier. For Hardwired operation, an Initiating Device Circuit is required to supervise trouble conditions associated with the Voice Controller Assembly, Amplifier Board Assembly, 4003 SIGcard, and Power Supply. These and all other audio card troubles map to an on-board relay. Activation of this relay causes an Open Circuit trouble on the host monitor zone. Activation of the Manual EVAC switch causes an alarm on the host monitor zone. This alarm must energize all signal circuits in the host FACP. The VCP plays the alarm message and activates the 4003 SIGcard points.

See 841-921 Field Wiring Diagram for connection to Model 4010 FACP.

---

### **Paging**

For paging applications, the 4003 VCP provides manual control for microphone announcements or pre-recorded messages. Digitized messages are played using the "Manual EVAC" or "Message Two" switches. The microphone is used to make live announcements.

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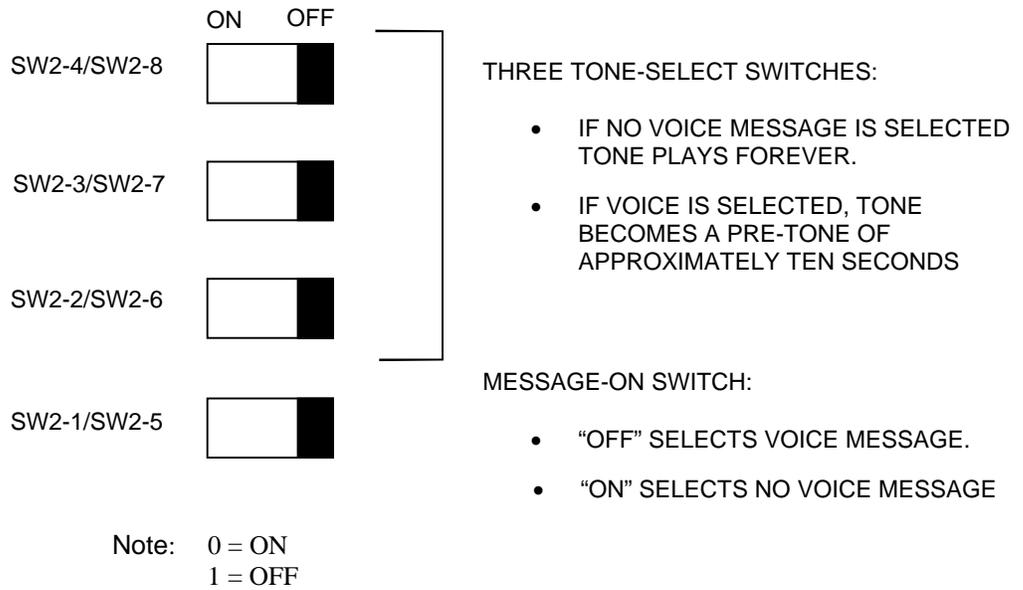
# Message and Tone Initiation

## 4020 (RUI) Slave

If you want to use the VCP in the 4020 Slave configuration, you must program the 4020 FACP for the VCP using Version 7 (or later) of the 4100 Programming Unit. A "play" command is generated by the Master Controller if you key the microphone or use either the "Manual EVAC" or "All Clear/Message Two" switch. The VTG needs the "play" command to reproduce the desired audio message. When the VCP is programmed into a 4020 (with Version 7.01 or later system software), an alarm received by the 4020 generates the "play" command in the same manner as if a 4100 Audio Controller were installed in the system.

## Adjunct (Hardwired)

When the VCP is used in the Adjunct configuration, it must generate its own "play" commands. Use DIP switch SW2 on the 565-358 Voice Controller Assembly to program the desired messages. Figure 4 shows the Tone and Message Select Switches of DIP switch SW2.



**Figure 4. Tone and Voice Message Select Switches**

*Continued on next page*

## Message and Tone Initiation, *Continued*

### Adjunct (Hardwired) (*continued*)

The second four switches (5 - 8) of DIP switch SW2 (shown in Figure 4) are used to program the "Alarm/Manual EVAC" Message (see Table 1). The first four switches (1 - 4) perform the same function for the second message ("All Clear"). As shown in Figure 4 and Table 1, switches SW2-2 through SW2-4 select the Tone; switch SW2-1 selects the Voice/No Voice Message for MSG2.

**Note:** Using three switches for tone selection allows seven different tones.

### Standard Tone Options

Standard tone options available with the VCP are shown in Table 1.

**Table 1. Standard Tone Options Available with the VCP**

Tone Option	All Clear Message				EVAC Message			
	SW2-1	SW2-2	SW2-3	SW2-4	SW2-5	SW2-6	SW2-7	SW2-8
No Tone	Voice	On	On	On	Voice	On	On	On
Slow Whoop	Voice	On	On	Off	Voice	On	On	Off
Chime	Voice	On	Off	On	Voice	On	Off	On
Hi/Lo	Voice	On	Off	Off	Voice	On	Off	Off
Horn - 120 Beats per Minute	Voice	Off	On	On	Voice	Off	On	On
Horn - 20 Beats per Minute	Voice	Off	On	Off	Voice	Off	On	Off
Bell - 60 Beats per Minute	Voice	Off	Off	On	Voice	Off	Off	On
Bell - (Continuous)	Voice	Off	Off	Off	Voice	Off	Off	Off

**Voice = Set to 0 for TONE ONLY; set to 1 for SPOKEN MESSAGE WITH PRE-TONE.**

*Continued on next page*

## Message and Tone Initiation, *Continued*

---

### Temporal Code Selection

Temporal pattern coding for evacuation is determined by selecting the desired tone and then selecting Temporal pattern operation. Select the desired tone as Horn, Bell, Slow Whoop, or Chime using DIP switch SW2 as Table 1 shows. Temporal pattern operation is selected by installing jumper P3 to position 2-3 on the voice controller assembly (565-358).

---

### Voice Message Selection

Voice message selection is accomplished by specifying the location in message memory for the Evacuation and Second messages when the message chip is being built. The Evacuation Message is located at phrase location 89. The Second Message is located at phrase location 90. Custom message chips have alternate messages at these locations, and are limited to complete spoken messages. No message splicing is available.

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### Microphone Pre-tone

The microphone pre-tone is the Chime Tone, played three times.

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### Walk Test Phrases

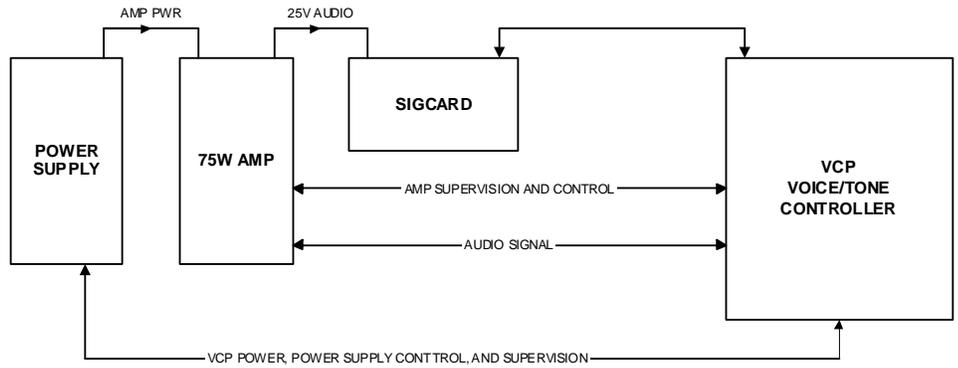
In the Slave configuration, Walk Test phrases are generated by the 4020 Master Controller, exactly like the 4100 audio system. Spoken Walk Test is not available in the Adjunct configuration.

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# Hardware and Firmware

## VCP Interconnections

Interconnections between VCP modules are shown in Figure 5.



**Figure 5. Voice Control Panel Functional Block Diagram**

Note that the Notification Appliance Circuit from the host FACP ties into the Voice Controller Assembly. The Voice Controller Assembly monitors the signal circuit activation in "Adjunct Mode" and transfers 4003 SIGcard relays after performing the necessary VTG operations. In the "Slave Mode", the incoming signal activates at the appropriate time (after the VTG tasks are completed), and is directly routed to all 4003 SIGcard points. You must use a jumper to select the needed operation.

Access to audio power is from a harness to the 4003 SIGcard. If you want to wire audio power to the 4020 signal circuits, use the termination(s) on the SIGcard, as the amplifier has no terminal block output.

The VCP power supply is adequate for 75W audio power. If less than a 75W load exists, signal power may be available for strobes or other system use. A chart is provided on the inside of the cabinet door showing available signal power with a range of amplifier ratings.

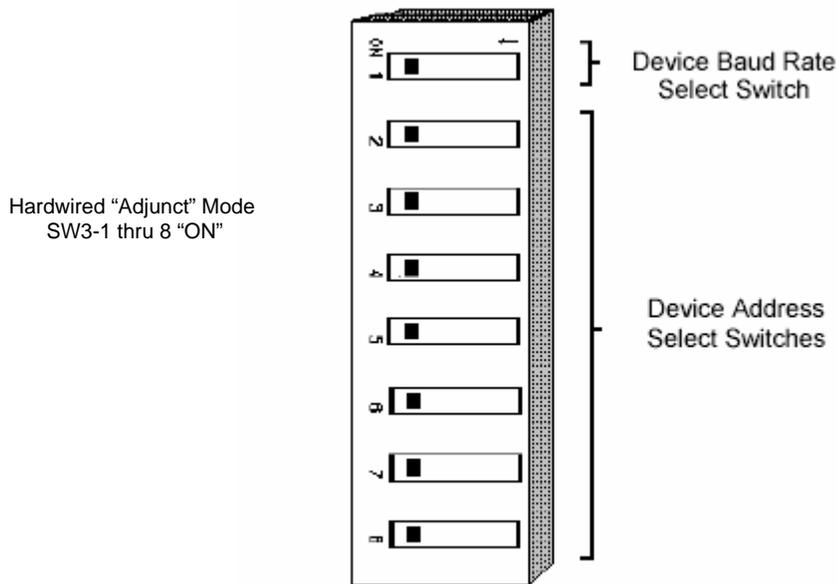
# Voice Controller Assembly Description

## Overview

The 4003 Voice Controller Assembly is similar to the 4100 Audio Card, except that only one audio channel is available. The on-board micro-controller monitors amplifier status, master microphone, and remote microphone conditions, as well as the status of the VCP front panel switches. It also provides power supply control functions (including AC line monitoring) and charger/battery monitoring.

## DIP Switch

The 565-358 Voice Controller Assembly uses an eight-position DIP switch (SW3) to set the address and communications baud rate (See Figure 6). Position 8 is the Least Significant Bit (LSB) of the address. Position 2 is the Most Significant Bit (MSB). The switch is set to the address of the board as programmed by the 4100 Programming Unit. The Baud Rate Select Switch, SW3-1, selects 9600 Baud when placed in the "ON" position. In the "OFF" position, SW3-1 selects 1200 Baud. The device address is selected by SW3-8 through SW3-2. If you are going to use the Voice Controller Assembly in the Non-Communicating Mode (Hardwired Mode), select Address 0.



SW3 set for 9600 Baud, Address 0.

**Figure 6. Address and Communications Baud Rate Selection Switch SW3**

*Continued on next page*

## Voice Controller Assembly Description, *Continued*

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### Message Programming

Digitized messages and tones are stored in on-board EPROM and selected by eight-position DIP switch SW2. Message initiation is via automatic or manual means. Switches allow selection of either the Evacuation message or a second message. (On the standard message chip, the second message defaults to the "All Clear" message.) In addition, two microphone inputs are provided for live announcements. (Installation of the second microphone is optional.)

---

### Voice/Tone Generation and Routing

The VCP uses the same VTG circuitry as the 4100 Audio Controller. However, since only one audio channel is available, a single VTG is provided with no backup VTG available.

When a message plays, it is always routed to Channel 1. If a microphone is keyed while a message is playing, the microphone is also routed to Channel 1. The Master (local) Microphone overrides the Remote Microphone (if the Remote Microphone is installed).

---

### Communications

The VCP communicates with a 4020 via RUI communications. Communication style is selected with a four-position DIP switch, SW6, located on the 565-358 Voice Controller Assembly.

When the VCP is connected to a host FACP in Hardwired or Adjunct Mode, there is no serial communications interface.

---

### Automatic Message Initiation

With a 4020 system, messages are activated via serial communications. The 4020 panel activates the signal circuit that ties the VCP to the FACP. The VCP then energizes the circuits that are tied to the four-circuit 4003 SIGcard.

If an alarm is initiated at an "Adjunct" FACP, the four VCP signal circuits energize and the alarm message plays. A reverse polarity signal circuit is wired to terminals provided at the VCP. If no such circuit is available, a +24V signal on alarm can be wired into the "+ Sig" terminal of the VCP. However, this method does not provide supervision of wiring between the two panels.

---

### Message Initiation Via Switches

Activation of either the "Manual Evacuation" or "All Clear (Message 2)" switch is transmitted to the host fire alarm panel in one of two ways. When communicating with a 4020, the VCP sends the switch status message to the 4020 Master Controller. The Message Initiation switches are described in the following paragraphs.

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*Continued on next page*

## Voice Controller Assembly Description, *Continued*

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### MANUAL EVAC Switch

When used with an Adjunct FACP, the VCP communicates the MANUAL EVAC switch transfer by alarming an Initiating Device Circuit (IDC). The alarmed IDC (a monitor zone) causes a General Alarm at the FACP. Activation of this point energizes strobes or other visual devices connected to the FACP. It also trips the City Circuit. The MANUAL EVAC switch also energizes the four circuits on the 4003 SIGcard.

---

### ALL CLEAR Switch

Activation of the ALL CLEAR ("Message Two") switch energizes the four signal circuits on the 4003 SIGcard. This allows the playing of non-fire messages without alarming the FACP. If the signal circuits at the FACP are used as voice speaker circuits, they do not energize with the ALL CLEAR ("Message Two") switch. For this reason, all voice circuits must be wired from the four VCP circuits in an Adjunct application.

---

### Trouble Indications

The VCP transfers a relay and lights the SYSTEM TROUBLE LED when any one of the following trouble conditions occurs:

- VTG trouble
- Amplifier trouble
- Master/Remote Microphone trouble
- VCP Signal Circuit trouble
- Message Memory trouble
- Low Battery/ Charger/ AC Power Loss trouble.

---

### Microphone Activation

The local microphone is activated by pressing the microphone switch. When this occurs, the speaker circuits are activated and the Chime pre-tone sounds. The green READY-TO-TALK LED lights to indicate that live voice announcements can be made.

---

### Remote Microphone

A remote microphone can be added to the VCP. The remote microphone is supervised by the VCP. A keyed switch provides security against unauthorized use of the microphone. Pressing the microphone "Push-to Talk" switch silences the VTG, routes the microphone, and energizes the speaker circuits. The Master (local) Microphone has priority over the remote microphone. If both microphones are keyed at the same time, only the Master Microphone is "on line". A READY-TO-TALK LED illuminates on the remote microphone panel when the microphone is "on line".

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## Additional Descriptions

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### 4003 SIGcard Description

The 4003 SIGcard is a four-circuit repeater. It supervises each circuit for shorts and opens, and transfers a common trouble relay. If a circuit is shorted, the SIGcard does not energize that relay. The SIGcard is controlled and monitored by the 565-358 Voice Controller Assembly, or by a wired NAC circuit from the host panel.

---

### 4003 Power Supply Description

The Voice Controller Assembly, 4003 SIGcard, and 75W Amplifier Board Assembly receive power from the 4003 Power Supply. This power supply can provide adequate power for the system cards and charge system batteries rated at up to 18 Ah. Brownout and battery supervision are provided. Trouble conditions are monitored by the Voice Controller Assembly. Terminations are provided for external battery input. However, in this "external battery configuration", the 4003 charger is disabled.

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### VCP Amplifier Description

Speaker power is provided by the VCP Amplifier module, a 25V RMS amplifier with a rating of 75W at 25V only. Operation includes manual paging and recorded tones and messages.

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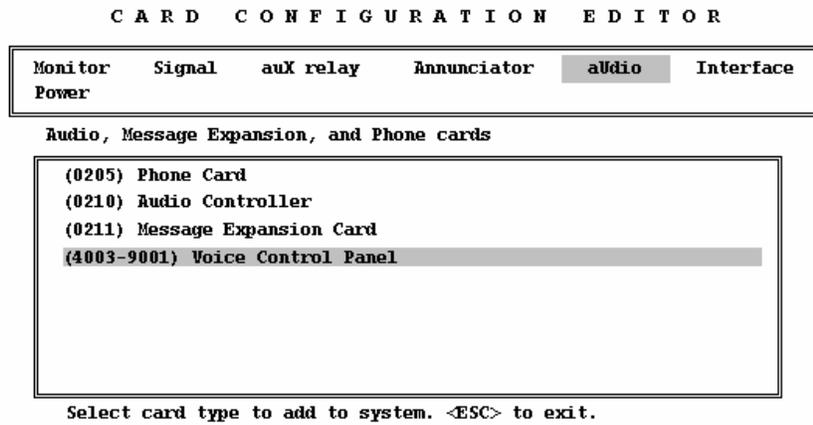
# Programming the 4003

**Note:** 4020 system programming instructions are for field retrofit applications only.

## Configuring for 4020 Systems

For 4020 Systems, the VCP is added under the CARD CONFIGURATION EDITOR audio category in Version 7 (or later) of the 4100 Programming Unit, as shown in Figure 7.

**Note:** When used as an "Adjunct", the VCP needs no programming by the 4100 Programming Unit.



Total cards: 9

**Figure 7. Adding the Voice Control Panel with the 4100 Programming Unit**

*Continued on next page*

## Programming the 4003, *Continued*

### Editing the Selection

After you have added the VCP, return to the CARD CONFIGURATION EDITOR Main Menu, select the Voice Control Panel (as shown in Figure 8), and press the <E> key to edit the selection.

CARD CONFIGURATION EDITOR				
Card No.	Card Type	Range	Type	Unit # RUI #
0 <7003>	4020 Master Controller			
1 <0305>	8-Point Multi-function I/O	I01-8		
2 <6005>	Power Supply/Charger			
3 <0110>	MAPNET Interface	M1-1 - 2		
4 <0110>	MAPNET Interface	M2-1 - 3		
5 <0305>	8-Point Multi-function I/O	I09-16		
6 <0305>	8-Point Multi-function I/O	I017-24		
7 <0112>	2120/RS232 Interface			
9 <4003-9001>	Voice Control Panel			

Select card with arrow keys. <E>dit, <A>dd, <D>elete or <M>ove. <ESC> to exit

**Figure 8. Editing the Voice Control Panel with the Card Configuration Editor**

### Microphone Selection

When the <E> key is pressed, the Programming Unit displays the VOICE CONTROL PANEL CARD DATA ENTRY Screen, as shown in Figure 9.

VOICE CONTROL PANEL CARD DATA ENTRY	
Chip Set	Description
S600	TONES,WALK TEST NEW P/A MESSAGES
AUDIO CARD INPUTS USED	
Master Microphone	<u>YES</u>
Remote Microphone	NO
[F1] Help	[F10] Save
<ESC> = Quit	

**Figure 9. Voice Control Panel Card Entry Screen**

Make the appropriate microphone selections and return to the Card Configuration Editor.

# System Operation

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## General Information

The following paragraphs contain material that is applicable to all 4003 VCP systems. They describe general features and operating procedures.

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## Audio Features

The 4003 VCP is a single-channel voice control panel that provides Alert /Evacuation and All Clear Messages over all of its speaker circuits. In addition, the system microphone provides live voice message delivery to any area within the building that is covered by the 4003 speakers.

- **Audio Control Switches** - Two switches mounted on the 4003 VCP panel control the 4003 audio functions. An LED (located above the switch) illuminates to indicate the condition or operation.
  - **Voice/Tone Messages** - The 4003 VCP has both Voice and Tone Messages that may contain various tones along with specified phrases which instruct building occupants to behave in a manner appropriate to the abnormal conditions.
-

# Audio Control Switches

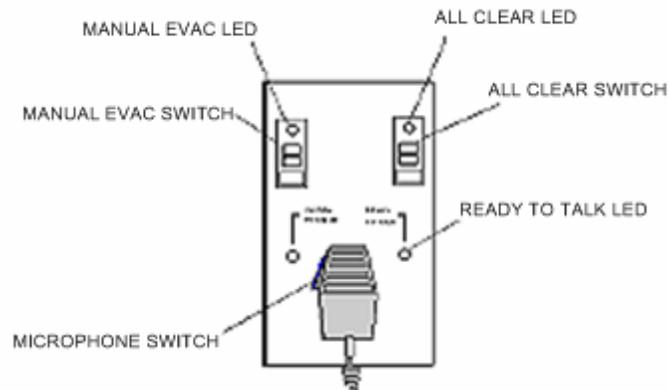
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## Audio Control Switches

Figure 10 shows the 4003 panel switches that control the following functions:

- MANUAL EVAC Switch
- ALL CLEAR Switch.

The function of each switch is explained in the following paragraphs.



**Figure 10. 4003 Audio Control Switches**

---

### MANUAL EVAC Switch

This switch is used to turn ON all of the speaker circuits and start the Evacuation Tone, Evacuation Message or a combination of both. The red LED above the switch tracks the Evacuation Tone/Message to indicate when the tone/message is playing. To restore the system to normal operation, the host panel must be silenced and reset.

---

### All Clear Switch

When this switch is placed in the UP position, the All Clear Message (or "Custom Message") is played. The red LED above the switch tracks the ON position of the switch. The message stops when the switch is again placed in the UP position.

---

# Audio System Operation

## Slave /Adjunct (Hardwired) Mode Operation

---

The following procedures detail system operation for slave/adjunct mode. (Refer to Figure 10 on the previous page for the location of the switches and LEDs mentioned in the following procedures.)

### How to operate the microphone

1. Remove the Microphone from the enclosure and press (and hold) the Microphone Switch. (The Chime Tone will sound three times.)
2. When the green READY TO TALK LED turns ON, make the appropriate announcement.
3. When finished, release the Microphone switch and place it in the enclosure.

**Note:** Releasing the Microphone Switch restarts the tone or message if a tone or message was previously playing.

### How to initiate an evacuation signal

1. TO EVACUATE ALL AREAS: Flip up the MANUAL EVAC Switch.

**Note:** The red MANUAL EVAC LED lights to indicate that the EVAC message is playing on all speakers.

2. To make an announcement with the Microphone, see "How to Operate the Microphone".

### How to silence alarm signals

To silence the 4003 speakers, perform the host alarm silence procedure at the host FACP.

- The red MANUAL EVAC LED turns OFF and the speakers silence.
- Reset the host panel to restore visual circuits to OFF.

### How to initiate an All Clear signal (or custom message)

1. TO ALL AREAS: Flip up the ALL CLEAR switch.

**Note:** The red ALL CLEAR LED lights to indicate that the ALL CLEAR message is playing on all speakers.

2. To silence the speakers, flip up the ALL CLEAR switch again.
  - The red ALL CLEAR LED turns OFF and the speakers silence.

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# System Installation

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## IMPORTANT

Notify appropriate personnel (building occupants, fire department, monitoring facility, etc.) of the installation.

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## General Information

The following paragraphs contain material which is applicable to all 4003 VCP systems. Be sure that you are thoroughly familiar with this material before installing the system.

To help you with installation of this and other Simplex equipment, the following publication is available for general reference: *How to Wire a Building for a Fire Alarm System*.

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## Tools and Equipment Required

The following tools and equipment are required to install the 4003 VCP:

- 1/4-Inch Flat-tip Screwdriver, 8-Inches long
  - 1/8-Inch Flat-tip Screwdriver, 4-Inches long
  - Volt-Ohmmeter
  - Diagonal Cutting Pliers
  - Wire Strippers
  - End-of-Line (EOL) resistors (supplied by Simplex)
  - Field Wiring Diagram 841-921.
- 

## General Notes

All wiring must be done in accordance with local codes.

- A minimum of 6 inches of free conductor is required in each electrical box to facilitate terminations.
  - A 12-inch service loop of cable is required for all continuous pulls through an electrical box.
  - All system wiring subject to physical damage must be mechanically protected based on the environment to which the cable is subjected.
  - A neatly wired system helps assure an accurate inspection of all connections and simplifies troubleshooting.
-

# Installing the 4003 Voice Control Panel

## Installation Checklist

The installation checklist (shown in Table 2) provides a systematic method for installing the 4003. When you finish a procedural step, place a check mark in the appropriate box in the left column. Refer to the next pages for further installation details on the steps below. Ground yourself before you open or install components (use the 553-484 Static Control Kit).

**Table 2. Installation Checklist**

p	PROCEDURE
o	1. Mount 4003 back box.
o	2. Install system wiring as required and check for absence of voltage, opens, and shorts.
o	3. Install peripheral devices and connect end-of-line resistors across terminals of the last device in the circuit.
o	4. Connect ground wire from electrical distribution panel to the 4003 green grounding screw.
o	5. Connect external speakers circuit to TB1-1 (SIG +) and TB1-2 (SIG -) on the 4003 SIGcard.
o	6. Install jumper in position 1-2 of P3 on the 4003 SIGcard.
o	7. Install and connect additional SIGcard as required.
o	8. Set the Voice Controller Assembly DIP Switch SW3 as required.
o	9. If 4003 is being used in Adjunct Mode, select desired message using Voice Controller Assembly DIP Switch SW2 and jumper P3..
o	10. Verify jumper settings on the 562-907 Amplifier Board Assembly; Install J1, J4, J5, J7, J9, J11 and J15, Remove R4, R10, R38, C5 and JW1.
o	11. If 4003 is being used in 4020 Slave Mode, select RUI COMMS using Voice Controller Assembly DIP Switch SW6 (SW6-1 and SW6-2 "ON" and SW6-3 and SW6-4 "OFF")..
o	12. If 4003 is being used with a 4100 or 4020, track NAC by installing jumper to position 2-3 of P2, all other panels install jumper to position 1-2 of P2. For Voice Message or non-coded operation, install jumper to position 1-2 of P2 and position 2-3 of P9 on Voice Controller Assembly. For coded horn operation install jumper to position 2-3 of P2 and 1-2 of P9. To select Temporal Code install jumper to position 2-3 of P3.
o	13. Install battery charger options as required.
o	14. Install battery switch-over option as required.
o	15. If 4003 is being used in either Adjunct Mode or 4020 Slave Mode, install 0V connection to host FACP.
o	16. If using internal batteries, connect as indicated.
o	17. If using external batteries from FACP, connect as indicated.
o	18. Connect AC power to the labeled terminal block mounted on the lower right of the back box.
o	19. Apply system power.
o	20. Test the system.

The following pages provide a detailed description of the installation. If you experience problems that cannot be resolved, call your local Simplex Branch Office.

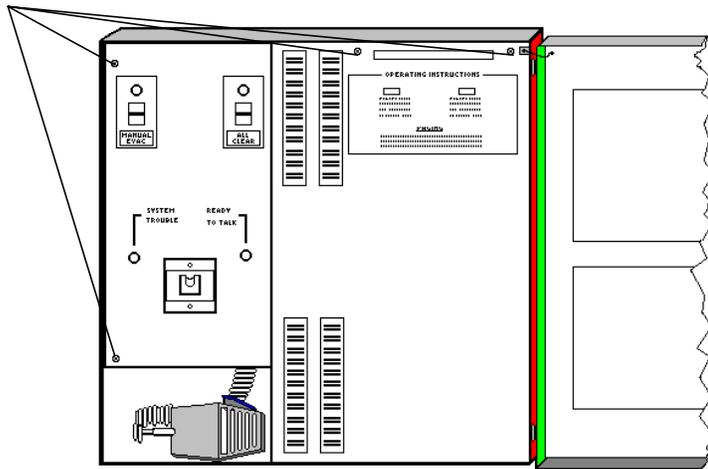
# Mounting the 4003

## Mounting Procedure

Use the following procedure when mounting a 4003.

1. Carefully open the shipping container.
2. Remove the 4003 from the shipping container and lay the unit on a flat surface.
3. Unlock and open the panel door.
4. Remove the microphone from its holding clip and set it aside.
5. Remove the four screws holding the retainer (internal door) to the back box, as shown in Figure 11.

RETAINER HOLDING  
SCREWS



**Figure 11. Location of the Retainer Holding Screws**

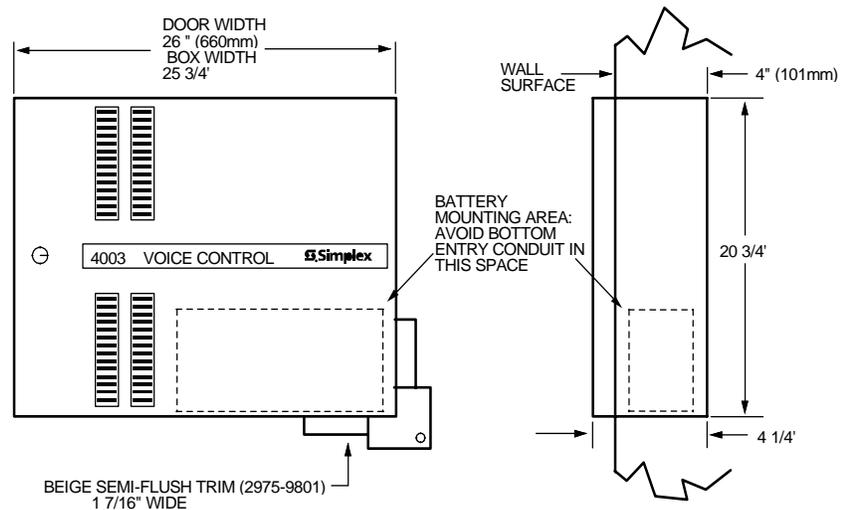
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## Mounting the 4003, *Continued*

### Mounting Procedure (continued)

6. Remove the retainer from the back box.
7. Remove the knockout plugs on the back box for wire entry.
8. At the 4003 mounting location, install the 4003 back box as shown in Figure 12.
  - a. Position the back box on two wall-mounted screws capable of supporting the panel with batteries using the special keyholes at the top of the box.
  - b. Tighten screws until snug.
  - c. Insert a mounting screw in each of the two mounting holes at the bottom of the box and tighten these screws until snug.

**Note:** For semi-flush mounting, the back box must be extended 1 1/2 inches from the finished wall. Refer to the "Rough Opening" section of the Back Box Installation Chart (Figure 12).



**Figure 12. Installing the 4003 Back Box**

# Wiring the 4003

## Wiring Requirements

Refer to the 841-921 Field Wiring Diagram, the Wiring Information mounted on the inside of the 4003 panel door, the 4003 Voice Control Panel Connection Diagram (Figure 13), and the system wiring requirements listed below when wiring the 4003.

- All wires are to be copper conductors only.
- All wiring must be free from grounds or shorts and have a resistance of one Megohm minimum with respect to Earth ground.
- All wiring shall be terminated with UL listed devices (i.e., wire nuts, pressure connectors, etc.). Wiring terminated with only electrical tape is not permitted. All splicing (free ends of conductors) shall be covered with insulation equivalent to that of the conductors.
- When running wires to the 4003, identify the wires appropriately: Input power, dedicated IDC wiring (if not connected to a 4020 FACP), dedicated NAC wiring, RUI wiring (if required), Remote Microphone wiring (if required), external battery connection (if required), and the four NAC circuits (an additional four NAC circuits are available as a field-installed option).

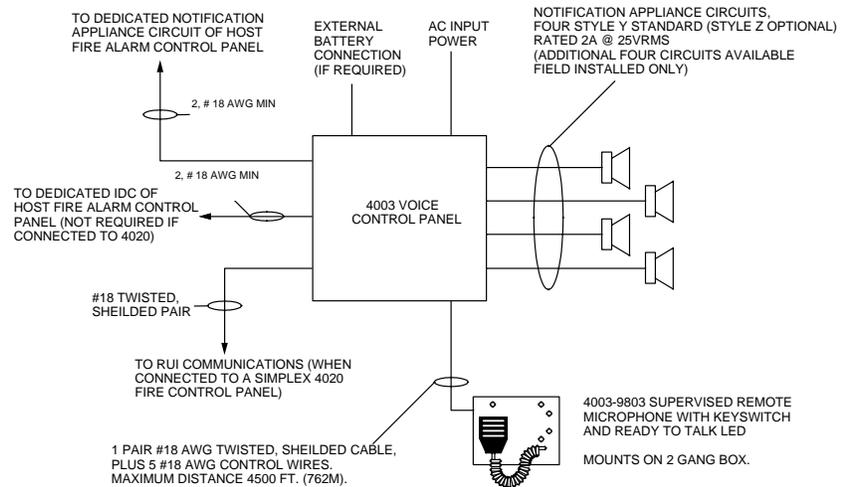


Figure 13. 4003 VCP Connection Diagram

## Mounting and Wiring Peripheral Devices

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### Procedure

Refer to the 841-921 Field Wiring Diagram and the procedure listed below when installing the 4003 peripheral devices.

1. Determine the mounting locations of the peripheral devices and install system wires from the mounting location of each peripheral device to the 4003 panel.
  2. Install all peripheral devices and connect them to the appropriate wires. (Refer to the installation instructions packed with the devices)
  3. Connect an end of line resistor (EOLR) harness to each field circuit as described in the Field Wiring Diagram.
  4. If a remote microphone is not installed on this system, leave the following factory installed termination resistors on the 565-358 Voice Controller Assembly as follows:
    - 1K, 1/2W resistor from TB2-2 to TB2-3
    - 10K, 1/2W resistor from TB2-1 to TB2-3
    - 10K, 1/2W resistor from TB2-4 to TB2-5
    - 10K, 1/2W resistor from TB2-6 to TB2-8.
-

# System Wiring Configurations

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## Configurations

The 4003 has the following system wiring configurations:

- Adjunct/Hardwired to the 4001 System
- Adjunct/Hardwired to the 4002/4004/4005/4006 System
- Adjunct/Hardwired to the 4008/4010 System
- Slave to the 4020 System
- Remote Microphone.

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## Important Notes:

The 4003 terminal blocks are labeled with a "TB number", and each terminal on the terminal block has a number. (**Example:** Terminal No.1 on Terminal Block No. 1 is labeled TB1-1)

Each terminal on the terminal block is also identified with an abbreviation of the circuit wire that is connected to it. (**Example:** TB1-1 on the 565-358 Voice Controller Assembly is labeled "RUI -")

A wire connection for signal "0V" must be made between the 4003 and the attached FACP for monitoring earth faults; see 841-921 Field Wiring Diagram.

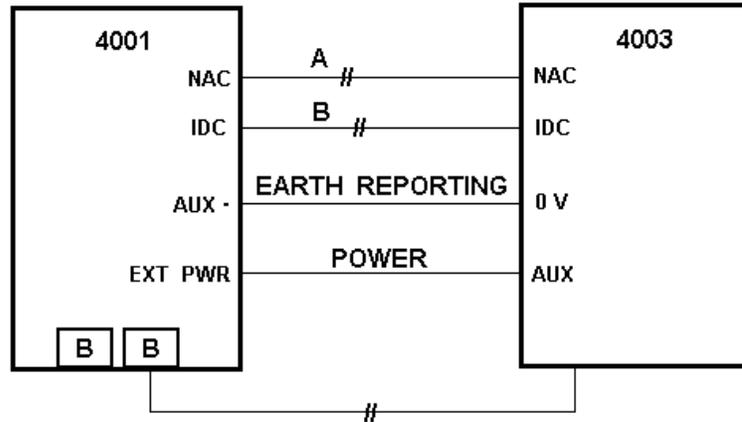
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## System Wiring Configurations, *Continued*

### Adjunct to the 4001 System

Six wires are required for this installation, as seen in the figure below.



**Figure 14. Interconnection to the 4001**

Pair A connects the 4001 NAC to the 4003 and is used for automatic alarm activation and for 4003 supervision. Pair B connects to the Initiating Device Circuit (IDC) from the 4001. It is used for 4003 manual alarm activation, and it turns on strobes, city connect, or other functions wired directly to the host panel. The fifth wire is required for EARTH Detection Reporting back to the 4001 panel. The sixth wire is required to provide a filtered power source to the 4001 NAC. When using the external batteries of the host panel, an additional pair of wires is required to interconnect the two panels.

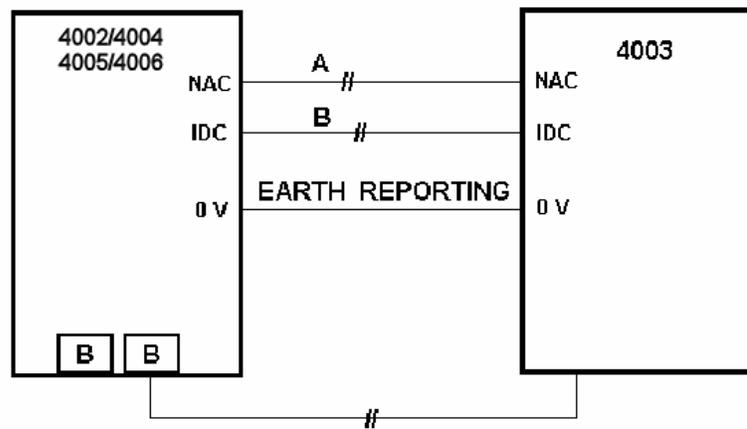
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## System Wiring Configurations, *Continued*

### Adjunct to the 4002/4004/4005/4006 System

Five wires are required for this installation (see Figure 15).

Pair A connects the 4002, 4004, 4005, or 4006 NAC to the 4003. Pair B connects the 4002, 4004, 4005, or 4006 IDC to the 4003. The fifth wire is required for EARTH Detection Reporting to the host FACP. An additional pair of wires is required to interconnect the two panels when the external batteries of the host panel are used as backup.

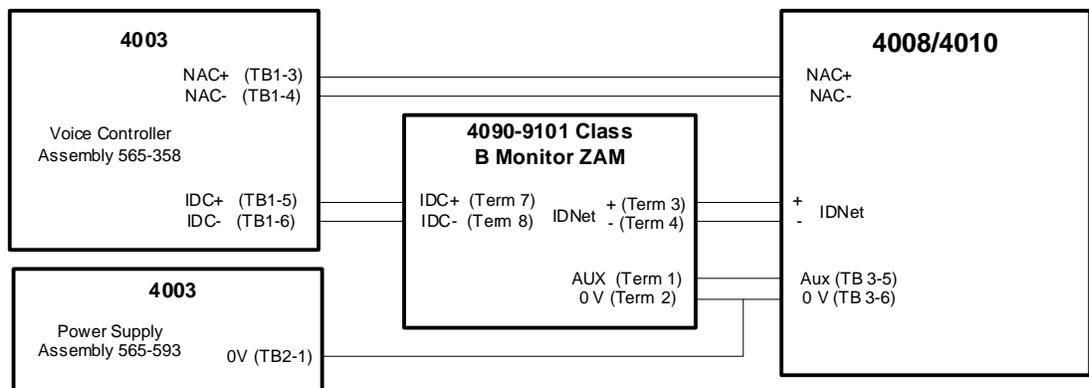


**Figure 15. Interconnection to the 4002, 4004, 4005 or 4006**

### Adjunct to the 4008/4010 System

8 wires are required for this installation (see Figure 16).

Wire the NAC on the 4003 directly from any NAC on the 4008/4010 Main System Board or Expansion Power Supply – all NACs are found on TB1 of both boards. Wire Aux Power and the Addressable Loop from the 4008/4010 to the 4090-9101 Class B Monitor Zone Alarm Monitor, and connect 0V on the 4003 Power



**Figure 16. Interconnection to the 4008/4010**

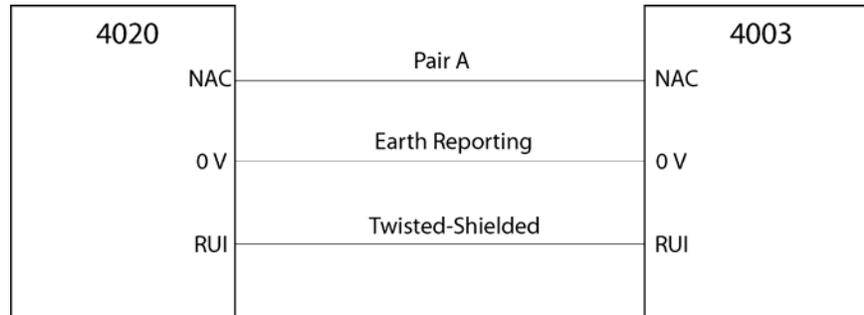
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## System Wiring Configurations, *Continued*

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### Slave to the 4020 System

Five wires are required for this installation, as seen in the figure below.



**Figure 17. Interconnection to the 4020**

Pair A connects the NAC of the 4020 FACP to the NAC of the 4003. Another wire is required for EARTH Detection Reporting to the host FACP. A twisted shielded pair is required for the Remote Unit Interface (RUI). This pair provides manual alarm activation and the Voice Walk Test feature.

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### Remote Microphone

When wiring the remote microphone to the 4003, one twisted shielded pair is required for audio transmission. Five additional conductors are also required for microphone control functions. The maximum wiring distance for this installation is 4500 feet (1372 meters).

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# Panel Terminal Connections, Jumper Placements, and DIP Switch Settings

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## Reference Aids

Refer to the 841-921 Field Wiring Diagram, the information sheets mounted on the inside of the 4003 panel door, and the procedure listed below when installing the 4003 VCP.

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## Procedure

Follow the steps listed below when installing the 4003 VCP.

1. Connect ground wire from electrical distribution panel to the 4003 green grounding screw.
2. Connect external speakers circuit to TB1-1 (SIG +) and TB1-2 (SIG -) on the 4003 SIGcard.
3. Install jumper in position 1-2 of P3 on the 4003 SIGcard.
4. Install and connect additional SIGcard as required.
5. Set the Voice Controller Assembly DIP Switch SW3 as required.
6. If 4003 is being used in Adjunct Mode, select desired message using Voice Controller Assembly DIP Switch SW2 and jumper P3.
7. Verify jumper settings on the 562-907 Amplifier Board Assembly.
  - Install J1, J4, J5, J7, J9, J11, and J15.
  - Remove R4, R10, R38, C5, and JW1.
8. If 4003 is being used in 4020 Slave Mode, select RUI COMMS using Voice Controller Assembly DIP Switch SW6.
  - Set SW6-1 and SW6-2 ON.
  - Set SW6-3 and SW6-4 OFF.
9. If 4003 is being used with a 4100 or 4020, track NAC by installing jumper to position 2-3 of P2, all other panels install jumper to position 1-2 of P2. For Voice Message or non-coded operation, install jumper to position 1-2 of P2 and position 2-3 of P9 on the Voice Controller Assembly. For coded horn operation install jumper to position 2-3 of P2 and 1-2 of P9. To select Temporal Code install jumper to position 2-3 of P3.

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## Panel Terminal Connections, Jumper Placements, and DIP Switch Settings, *Continued*

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### Procedure, *(continued)*

10. Install battery charger options as required.
    - For external battery charger, install jumper to position 1-2 on P4 of the 565-593 Power Supply. Set P4 to position 2-3 to enable internal charger.
    - Verify that jumper for P5 on 565-593 is set to 2-3 for normal operation.
    - Clip JW1 for internally charging 6.2 Ah batteries, and leave JW1 in for 10 to 18 Ah batteries.
  11. Install battery switch-over option as required.
    - For automatic switch to battery upon power failure, install jumper to position 2-3 on P3 of the 565-593 Power Supply.
    - For switch to battery on signal from Voice Controller (lower battery draw), install jumper to position 1-2 on P3 of the 565-593 Power Supply.
  12. Install 0V connection to host FACP.
    - Connect a 12 AWG copper wire from TB2-3 to 0V on the battery block of the host FACP.
  13. If using internal batteries, connect as indicated.
  14. If using external batteries from FACP, connect as indicated.
  15. Connect AC power leads to the labeled terminal block mounted on the lower right of the back box.
  16. Apply system power.
  17. Test the system.
-



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