

Features

Add digital voice message capability to non-voice fire alarm control panels:

- **Remote booster amplifiers** are available to expand coverage area or extend to multiple notification areas
- **Activate up to 8 separate messages** by direct connection to fire alarm control panel NACs using the NAC Interface Module option, or via supervised connection to relay contact closures
- **4003EC Voice Control Panel status** (alarm, system trouble, or separate AC trouble) is via isolated contact closure allowing compatibility with a wide range of Simplex brand and other fire alarm systems
- **Multiple 4003EC control panels** can be interconnected for system-wide Emergency Communication Systems (ECS)/Mass Notification Systems (MNS) message control using Simplex® fire alarm Network node products
- **Broadcast live messages** using the internal microphone or by using a remote microphone; up to 18 remote microphones are supported for compatibility with UFC 4-021-01 (Unified Facilities Criteria) requirements
- **Select from 8 digitally pre-recorded messages** using the control panel switches or controlled from the fire alarm control panel; select a pre-tone and include a post tone if desired
- **Custom messages can be ordered** separately (as custom chip sets), or recorded directly at the panel (requires external equipment – new messages override standard messages)

4003EC control panel details:

- **Efficient Class D amplifier** design provides 40 W @ 25 or 70.7 VRMS with power-limited output
- **One general alarm Class B audio NAC** rated at 40 W; can be optionally expanded to 4, Class B NACs or 2, Class A NACs using a Class A/B Splitter
- **One general alarm Class B, 2 A strobe NAC** with strobe output formatted to synchronize either Simplex or Cooper Notification (Wheelock) strobes (not mixed)
- **Internal push-to-talk microphone** and individual manual tone/message controls for convenient operator control
- **Strobe circuit activation** is DIP switch selectable for each recorded message, for microphone use, and for Auxiliary input
- **Multiple connections are available** for auxiliary output power, 24 VDC, 1/2 A maximum
- **Internal battery charger** for up to 12 Ah batteries in cabinet or up to 33 Ah batteries in a separate cabinet
- **Removable terminal blocks** for easy wiring
- **Beige or red cabinet** for surface mounting
- **ULC listed** models include low battery cutoff board

Remote booster amplifier details:

- **Remote booster amplifiers** are available with 80 W (with 2, 2 A strobe circuits), 160 W, and 320 W; each has an efficient Class D amplifier design



4003EC Voice Control Panel

Remote booster amplifier details (Continued):

- **Wiring options allow limited or detailed control** with respect to AC power failure and non-fire alarm operation modes
- **Wiring options allow control of non-alarm audio** output when on battery standby and selection of monitoring main trouble contacts or AC trouble contacts
- **Booster amplifiers support local connection** of general paging microphones
- **Removable terminal blocks** for easy wiring
- **Beige or red cabinet** for surface mounting
- **ULC listed** models include low battery cutoff board

Additional optional features:

- **Upgrade kit to support ten minute message timeout feature**, for compatibility with the audible message timeout specifications in UFC 4-021-01
- **Supervised remote microphones** with key switch control, beige or red for alarm paging, black for general paging
- **Local Operating Console (LOC)** providing enclosed microphone and switch control for the 8 panel messages; meets UFC 4-021-01 requirements for local control
- **Application Note:** For control from a Wide Area Notification System, connect audio (1 VRMS, 600Ω) and contact closure wiring to an available input port on a 4003-9834 Remote Microphone Expansion Module
- **Four circuit NAC module**, Class A or Class B for boosters or control panel allows zone wiring separation
- **Extensive non-fire alarm features** are available for night ringer tone activation, telephone page input, and background music
- **Non-fire alarm paging** includes zone control and zone volume adjustments that are bypassed when the panel is in alarm mode
- **Models are available** for 120 or 240 VAC input

* Refer to page 4 for CSFM models listed by the California State Fire Marshal (CSFM) pursuant to Section 13144.1 of the California Health and Safety Code. See CSFM Listing 6911-0026:332 for allowable values and/or conditions concerning material presented in this document. It is subject to re-examination, revision, and possible cancellation. This product was tested and approved by FM Approvals against both standard FM testing referenced to NFPA 72, and ANSI/UL Standard 864, 9th Edition. Additional listings may be applicable, contact your local Simplex product supplier for the latest status.

Introduction

When non-voice fire alarm control panels require the addition of voice and tone generation, Simplex 4003EC Emergency Communications Voice Control Panels conveniently supply an extensive feature list. Available equipment includes up to 18 remote microphones, up to 5000 W of distributed remote booster amplifiers, and extensive non-fire alarm general paging controls

Manual Operation requires opening the locked 4003EC cabinet door to access the 8 message selection switches, the local microphone, and status indicator LEDs. Control of Remote Microphones is secured by use of a key switch (refer to remote microphone illustrations on page 6).

Typical applications:

- Compatibility with UFC (Unified Facilities Criteria) requirements for Mass Notification systems for Army and Air Force requiring an LOC within 200 ft (61 m) horizontally of travel and no travel vertically to reach an LOC within a building; the Navy and Marines only require a single LOC per structure (refer to UFC 4-021-01, 9 April, 2008 for details)
- Add audio operations to existing fire alarm control panels or non-audio panels
- Connect to fire alarm Network using the Network System Integrator (NSI) to provide network control of a remote audio panel
- Allows the fire alarm Network to take control for Emergency Communications messages
- Use of non-emergency operations is suspended during battery standby operation and is overridden during emergency conditions

4003EC Voice Control Module Features

Selection of pre- and post audio tones. Pre-message tones can be selected and if desired, the same tone can also be selected as a post message tone. Tones are switch selected on-board and assigned per message pairs: IN1 and IN2 message will have the same tone, IN3 and IN4 message will have the same tone, etc.

Available tones:

- **Temporal Pattern Bell;** a digitally recorded mechanical bell sound
- **Temporal Pattern Horn;** 500 Hz tone
- **Slow Whoop,** a slowly ascending tone
- **Wail,** ascends, then descends between 600 to 940 Hz
- **Chime Tone**
- **Announcement Chime**
- **High/Low,** with high frequency of 750 Hz for 100 ms and low frequency of 500 Hz for 400 ms
- **GSA Tone,** continuous 2000 Hz
- **Fast Whoop,** a quickly ascending tone
- **Horn Tone** at **120** beats per minute
- **Horn Tone** at **20** beats per minute
- **Bell Tone** at **60** beats per minute

Temporal Pattern evacuation signal reference:

1/2 sec on, 1/2 sec off, 1/2 sec on, 1/2 sec off, 1/2 sec on, 1-1/2 sec off.

Standard Messages and Input Priority List (custom messages and priorities are available, see Note below)

	Priority	Input		
	1	Panel push-to-talk microphone for on-site messages		
	2	Auxiliary input from one, or multiple remote microphones; <u>or</u> from a separate audio input with voltage selectable as: 1, 25, or 70.7 VRMS; NOTE: Multiple microphones require use of 4003-9834 Microphone Expansion Modules and each remote microphone input is prioritized by electrical wiring sequence. Operation also requires a separate contact closure to enable the Auxiliary input.		
Message	Priority	Message Type	Voice	Message
IN1	3	Fire	Male	"Attention! Attention! Attention! This is a fire alarm. Exit the building."
IN2	4	Hostile Intruder	Male	"Attention! Attention! Attention! There is an armed intruder in the building. Immediately take cover."
IN3	5	Bomb Threat	Male	"We have received a bomb threat. The police have been notified and we are conducting a search of the building perimeter. Please standby for further information."
IN4	6	Weather/Shelter	Male	"A severe weather condition has been reported. Please go directly to the nearest shelter area and wait for further instructions."
IN5	7	Weather	Male	"Attention please! Severe weather has been reported in the vicinity. Please proceed to a designated shelter area."
IN6	8	Alert	Male	"Attention! Attention! Attention! We have been alerted to a possible emergency situation. Please stay alert and you will be advised if emergency action is required."
IN7	9	Drill	Male	"This is a drill. This is a drill. This is a drill. This is a building emergency drill. Walk to the nearest exit and vacate the building."
IN8	10	All Clear	Male	"Attention! Your attention please! The building emergency condition has been cleared. You may return to normal activities."
	Priority	Non-Alarm Signal Inputs		
	11	Night Ring, contact closure plays bell tone to alert facility personnel of doorbell ringing, etc.		
	12	Telephone input, requires telephone page port, voice activated switch allows facility paging		
	13	Background Music (BGM), requires a line level input signal		

NOTE: When the system is being used as an Emergency Communications System (ECS) or a Mass Notification System (MNS), ECS or MNS messaging may take precedence over Fire Alarm Activation whether new or in process.

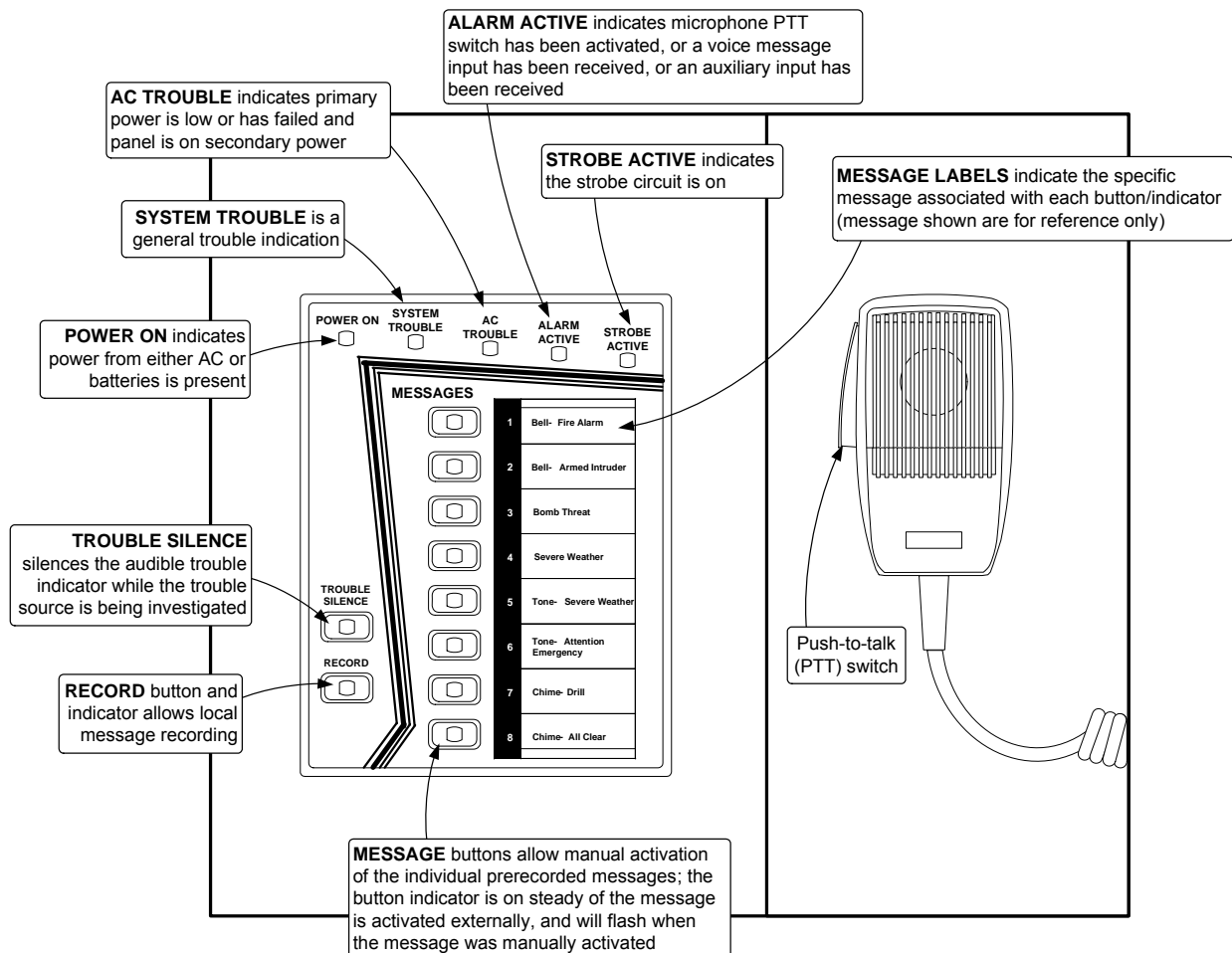
Custom Digitally Recorded Messages

- Messages can be reproduced from high quality customer supplied audio (professionally recorded to customer requirements) or selected from the archived message library
- To order Custom Messages, provide a CD or tape as appropriate; a completed custom message questionnaire; and include an English language transcript (Internal Order Processing Note: Document this information using the FASTool configurator)
- If supplied via CD, provide a WAV file format with 44,100 HZ and 16 bit mono (contact your local Simplex product representative for details)
- Custom messages can be recorded at the control panel; (locally recorded messages overwrite the pre-recorded messages and external equipment is required)

Ten Minute Message Timeout Feature

- Upgrade kit allows 4003EC panel to be upgraded to support 10 minute message timeout feature
- Provides automatic deactivation of audible Fire and MNS digital voice (DV) messages after 10 minutes for inputs 1 – 6; DV messages 7 and 8 do not automatically timeout
- Message activation is initiated manually by push button or via remote contact closure
- Message LED blinks to indicate timeout status; timing is extended if message is reactivated by either control
- Message priorities remain in effect

Internal Control Panel Operator Controls



Non-Fire Alarm Operation Features

- Addressable Paging Splitters (Model 4003-9845) allow non-Alarm paging to be routed to zones as desired
- Supervised Volume Controls (Model 4003-9848) allow non-Alarm paging and background music local volumes to be adjusted as desired; during alarm conditions the volume controls are bypassed (*Note: This is not a Non-Fire feature, it was specifically developed for Fire/ECS/MNS Applications*)
- Telephone Zone Controller (Model 4003-9835) allows phone control selection of zones for background music or paging
- Night ringer (telephone) and security alert modes allow the 4003EC panel to provide system tones alerting of non-alarm conditions needing attention
- In night ringer mode, an externally mounted switch (such as a doorbell switch) can allow creation of a specific tone to alert a security guard who may not be in normal hearing range of the daytime doorbell sound

Power Supply/Battery Charger Features

- Charges up to 33 Ah batteries; up to 12 Ah batteries for cabinet mounting, larger batteries are housed in a separate close-nippled battery cabinet
- Green power-on LED, yellow trouble LED
- Earth fault detection; battery supervision circuitry; power loss, and brownout voltage supervision

4003EC Product Selection

Control Panels (* = CSFM listed models)

Model	Cabinet/Listing	Input Voltage	Description
4003-9301	Beige	120 VAC, 60 Hz	Emergency Communications Voice Control Panel with internal user control panel and microphone, 40 W Class D amplifier with one audio NAC standard, internal power supply/battery charger
4003-9302*	Red		
4003-9303	Beige		
4003-9304	Beige		

Remote Booster Amplifiers (* = CSFM listed models)

Model	Cabinet/Listing	Input Voltage	Description	
4003-9810	Beige	120 VAC, 60 Hz	80 Watt Remote Booster Amplifier with strobe power (APB/80); provides <u>one</u> 80 W audio NAC and <u>two</u> , 2 A strobe NACs; accepts <u>one</u> 4003-9840 Class A/B Splitter (audio NAC expansion module); efficient Class D amplifier design	
4003-9811*	Red			
4003-9812	Beige			
4003-9813	Beige	240 VAC, 50/60 Hz	160 Watt Remote Booster Amplifier (APB/160); provides <u>two</u> , 80 W audio NACs; allows up to <u>two</u> 4003-9840 Class A/B Splitters; (no strobe power); efficient Class D amplifier design	
4003-9814	Beige	120 VAC, 60 Hz		
4003-9815*	Red			
4003-9816	Beige			
4003-9817	Beige	240 VAC, 50/60 Hz		
4003-9818	Beige	120 VAC, 60 Hz		320 Watt Remote Booster Amplifier (APB/320); provides <u>four</u> , 80 W audio NACs; allows up to <u>four</u> 4003-9840 Class A/B Splitters; (no strobe power); contains dual power supplies, dual 160 W amplifiers, and requires dual battery sets (4, 12 V batteries); efficient Class D amplifier design
4003-9819*	Red			
4003-9820	Beige			
4003-9821	Beige			

Remote Microphone Controls and Associated Equipment (* = CSFM listed models)

Model	Description
4003-9830	Surface mount
4003-9831	Flush mount
Local Operator Console (LOC) with built-in Remote Microphone Control; in white cabinet	
4003-9849	Local Operator Console (LOC) HVAC Emergency Shut Off Kit; field installed behind door of either 4003-9830 or 4003-9831; red emergency shutoff button, push to activate; rated 3 A @ 240 VAC
4003-9832 (Beige)	4003-9833* (Red)
Remote Microphone Control (RM), for fire alarm paging (see diagram on page 6)	
4003-9842*	Remote Non-Alarm Microphone Control (RM-GP) black mounting plate, connects at Remote Booster and is for general paging through that booster only
4003-9834*	Remote Microphone Expansion Module (RMX) in black cabinet; expands panel remote microphone output to three (3); up to 6 RMX modules can be connected for a total of 18 remote microphones per system; (NOTE: Only one 4003EC system microphone can page at time, priority of RMX connected microphones is determined by wiring location); dimensions = 13" H x 7-3/4" W x 2-1/8" D (330 mm x 197 mm x 54 mm)

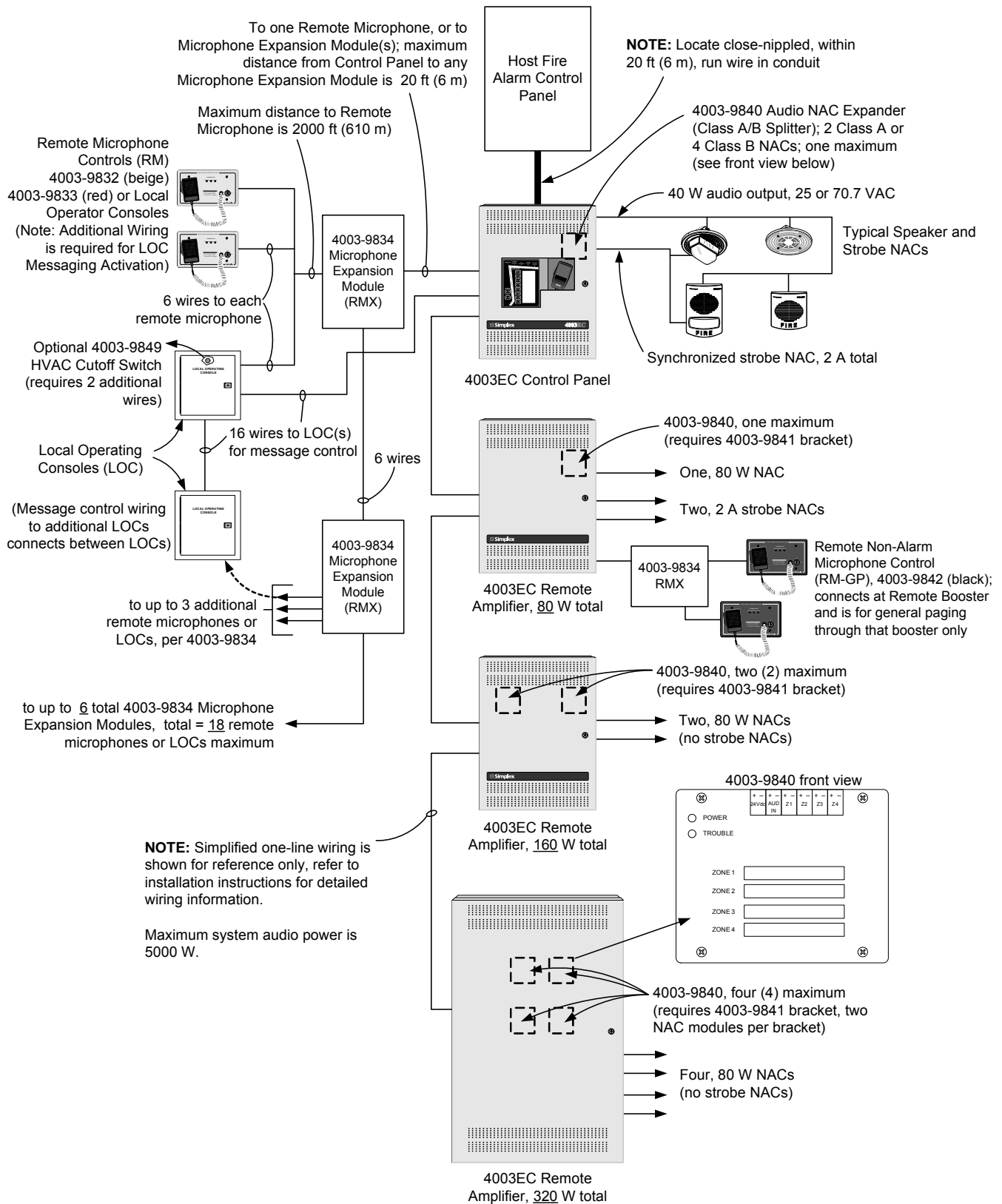
4003EC Accessories (* = CSFM listed models)

Model	Description		
4003-9840*	Class A/B Splitter (SP4Z-A/B), audio NAC expansion module, 4 Class B zones or 2 Class A zones; requires one dedicated NAC input; rated 40 W output maximum per zone (Class A or Class B operation); requires 4003-9841 mounting bracket when mounted in booster cabinet; module dimensions = 4-1/2" H x 5-1/2" H x 1-1/2" D (114 mm x 140 mm x 38 mm)		
4003-9841*	Mounting bracket for (2), 4003-9840 or (2) 4003-9845 Splitters; <u>required</u> when splitter is mounted in an 80, 160, or 320 W booster amplifier cabinet; (not required when mounting splitter in the control panel)		
4003-9850	NAC Interface Module (NACIM); converts one NAC input to one contact closure for activating messages; one required per message to be activated; mounts in the 4003EC control panel; 4 maximum; dimensions = 2-1/2" H x 1-1/4" W x 1/2" D (64 mm x 32 mm x 13 mm)		
4003-9851	End-of-Line Resistor Module Kit, quantity of 8, Agency listed; 10 kΩ, 1/2 W		
4003-9860	Battery Cabinet, beige (cabinet only, for use with panel mounted charger); dimensions = 9-1/2" H x 24" W x 9" D (241 mm x 610 mm x 229 mm); Note: Battery Cabinet is available in red by special order (RPQ)		
4003-9861	User Interface Chip Upgrade Kit for 10-Minute Message Timeout feature		
4003-8801	Custom Message Ordering, select 4003-8801 and specify message type per the choices below:		
	4003-0204, from CD	4003-0205, from transcript	4003-0206, from message archive
4003-9836	Aftermarket Message Kit, 8 <i>standard</i> messages; (<i>restores original messages</i> if local changes are no longer wanted)		

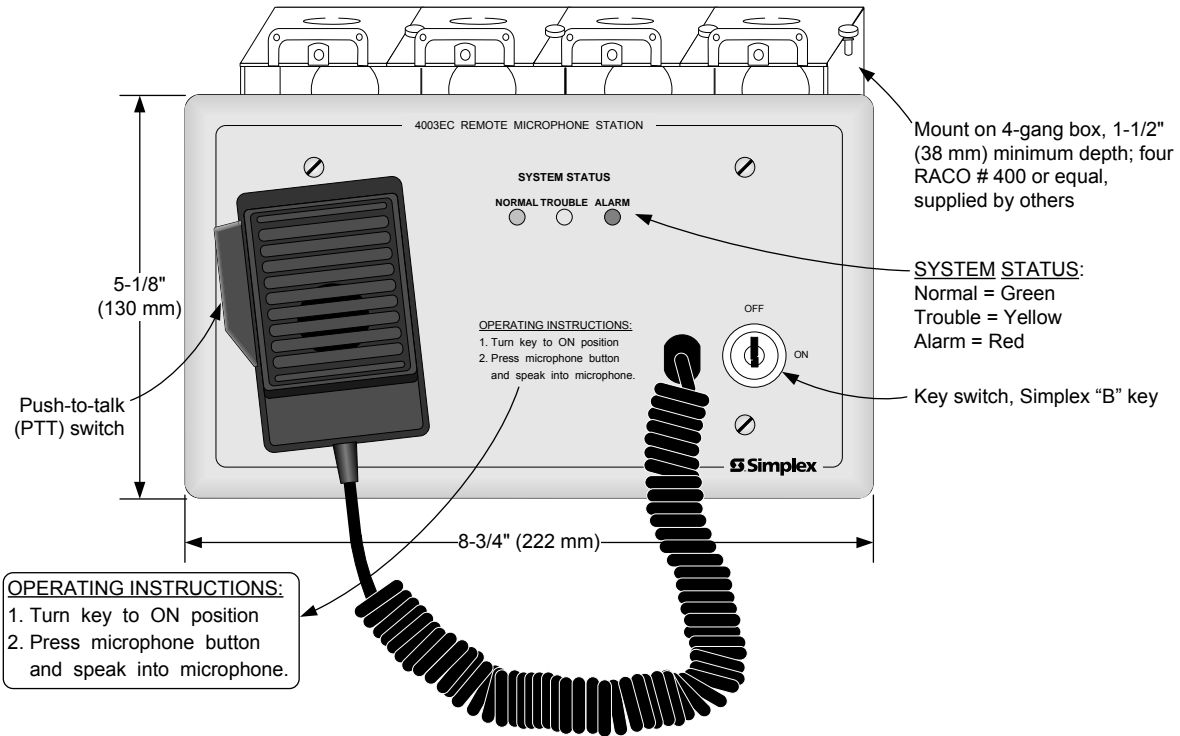
Non-Fire Alarm Accessories (* = CSFM listed models)

Model	Description
4003-9835	Telephone Zone Controller (TZC); use to select zones connected to background music and for general paging; cabinet; size: 13" H x 7-3/4" W x 2-1/8" D (330 mm x 197 mm x 54 mm)
4003-9847	Telephone Zone Controller Programming Cable; connects to service PC for programming selections
4003-9845*	Addressable Paging Splitter (SP4-APS); 4 Class B, or 2 Class A output zones, plus 2 Expansion outputs; allows Telephone Zone Controller to select non-alarm paging per zone; alarm paging connects to all zones; requires 4003-9841 bracket when mounted in booster cabinet; 80 W max. input, 40 W max. output per zone; (same size as 4003-9840 Class A/B Splitter)
4003-9848*	Supervised Volume Control Module (SP-SVC); for background music, disabled during alarm
4003-9843	CO Port Adapter (SP-COA); use to connect an unused CO Port (central office port) to the telephone input on the 4003EC panel; dimensions = 4-1/2" W x 5-1/2" H x 1-1/2" D (114 mm x 140 mm x 38 mm)

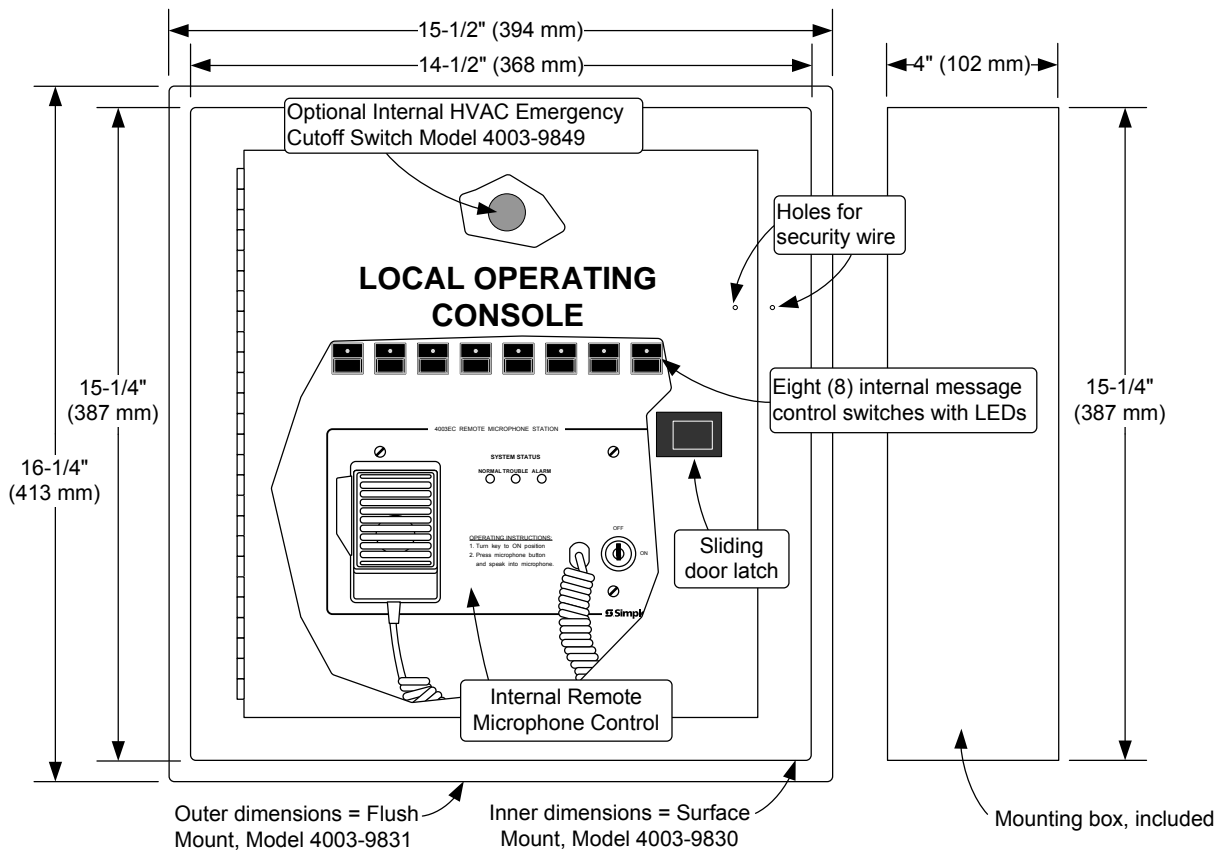
System Interconnection Reference



Remote Microphone Control Reference

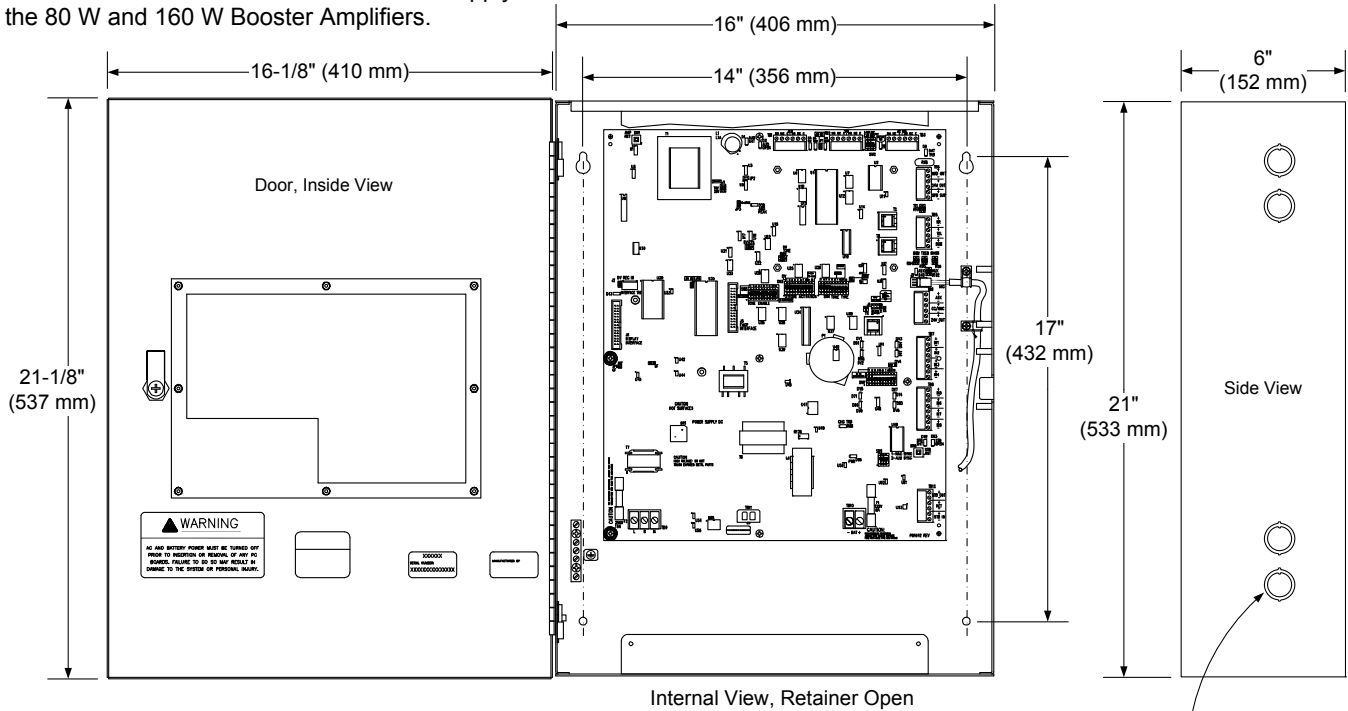


Local Operating Console (LOC) Reference



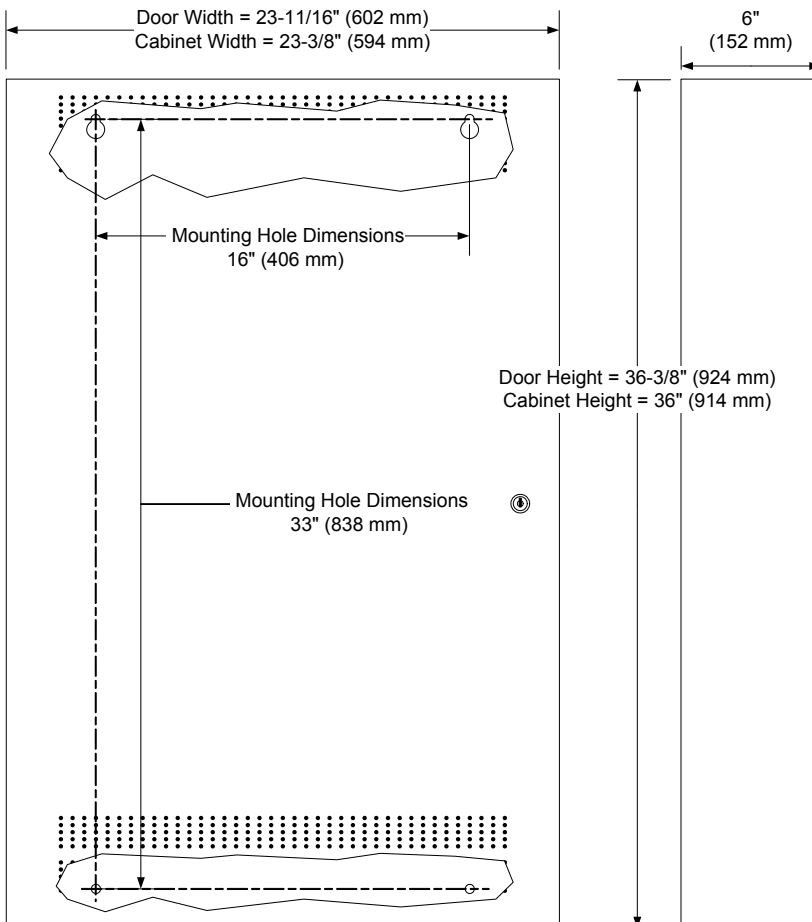
4003EC Control Panel Internal Reference

NOTE: Cabinet and door dimensions also apply to the 80 W and 160 W Booster Amplifiers.



Knockout list: 6 on top, 4 on bottom, 4 on sides as shown; for 1-1/2" conduit

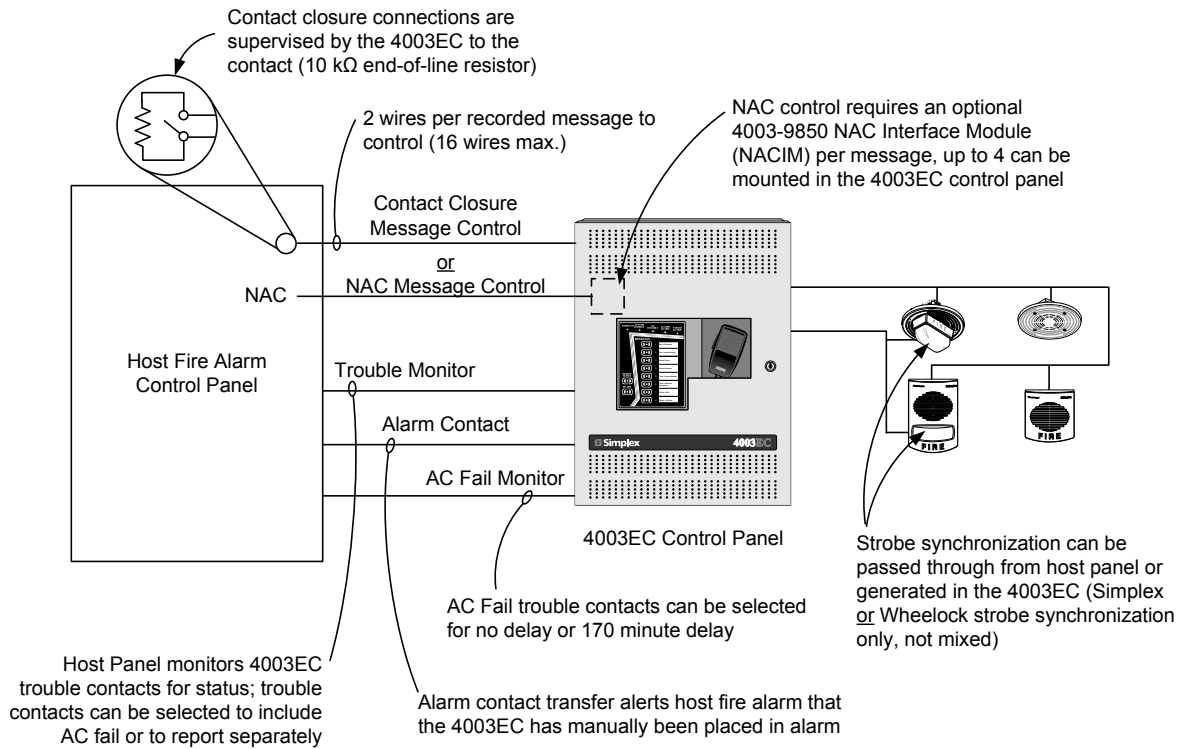
320 W Booster Dimension Reference



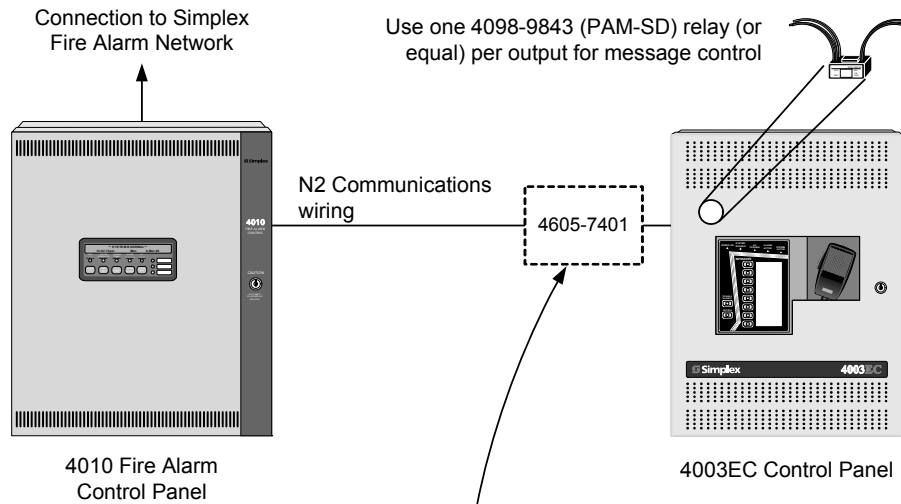
Instructions Reference

Product		Instructions
4003EC Control Panels	120 VAC	P84714-001
	240 VAC	P84992-001
Remote Booster Amplifiers (APB/80, /160, /320)	120 VAC	P84748-001
	240 VAC	P84994-001
Local Operating Consoles (LOC)		P85173-001
LOC HVAC Emergency Cutoff Kit		P84858-001
Remote Alarm Microphone (RM)		P84207-004
Microphone Expansion Module (RMX)		P84557-001
Class A/B Splitter (SP4Z-A/B)		P84205-001
CO Port Adapter (SP-COA)		P84341-001
Addressable Paging Splitter (SP4-APS)		P84577-001
Supervised Volume Control (SP-SVC)		P84598-001
NAC Interface Module (NACIM)		P83487-001
Remote Paging Microphone (RM-GP)		P84207-003
Telephone Zone Controller (TZC)		P84567-001
Battery Cabinet		P83096-001
Low Battery Cutoff Board		P85091
Ten Minute Timeout		P85293-001

Reference Application 1, Generic Host Panel to 4003EC



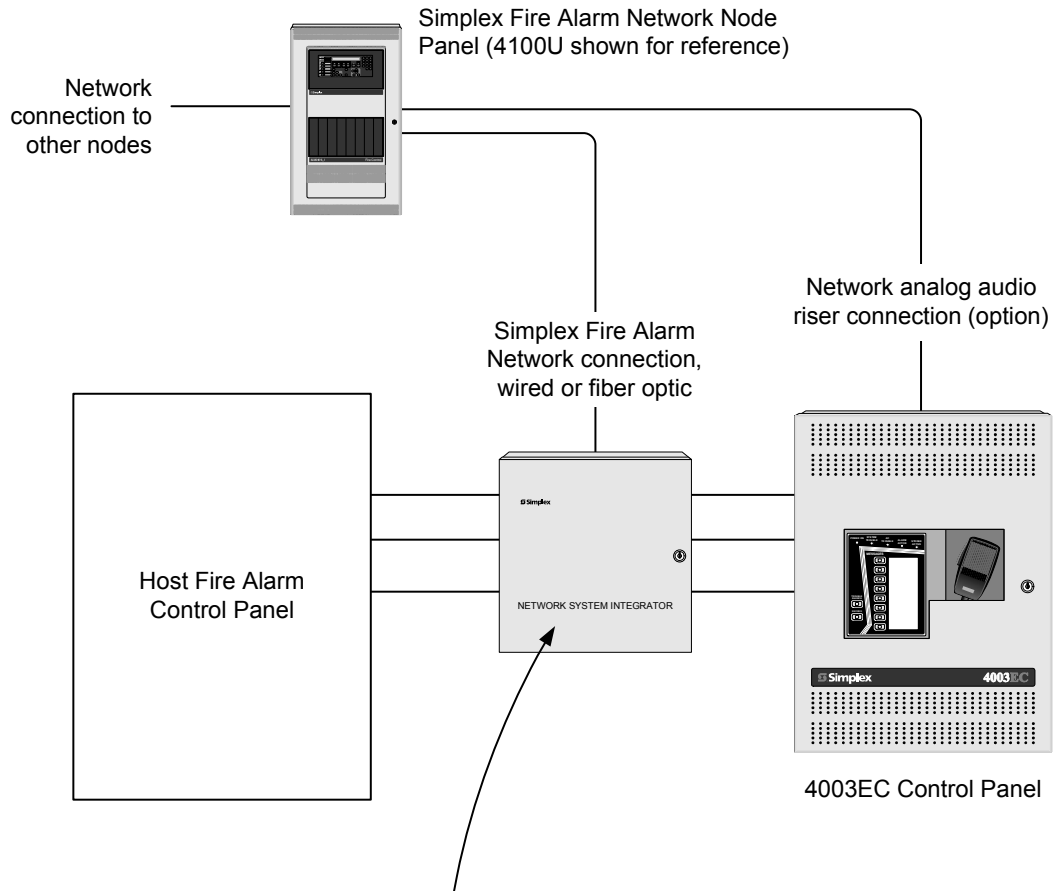
Reference Application 2, 4003EC Connected to Simplex 4010 Control Panel



Alternate monitoring and control using the 4605-7401, 24 Point I/O module with mounting hardware mounted in suitable location.

Size is 5-3/4" x 6-1/2" (146 mm x 165 mm); module power and relay power can be sourced from the 4003EC or from the 4010.

Reference Application 3, Host Panel to 4003EC with NSI Connection



Simplex Network System Integrator (NSI) Model 4190-9826 (red) 4190-9827 (beige):

1. Power is supplied by the Host Fire Alarm Control Panel (or the 4003EC).
2. NSI has seven (7) available separate, isolated contact closures controlled by the Fire Alarm Network (a separate contact is dedicated to system trouble).
3. NSI has eight (8) isolated, polarized, separate inputs for information into the Fire Alarm Network.
4. Flexible operation allows interconnection of the Host Fire Alarm Control Panel and the NSI to control the 4003EC per system requirements.

Specifications (refer to Installation Instructions for more information, see list on page 7)

Product Type		Ratings
AC Input Ratings	4003EC Control Panels (4003-9301, -9302, -9303, & -9304)	2.4 A maximum @ 102 to 132 VAC, 60 Hz 1.2 A maximum @ 204 to 264 VAC, 50/60 Hz
	80 W Booster Amplifiers (APB/80) (4003-9810, -9811, -9812, & -9813)	3.8 A maximum @ 102 to 132 VAC, 60 Hz 1.9 A maximum @ 204 to 264 VAC, 50/60 Hz
	160 W Booster Amplifiers (APB/160) (4003-9814, -9815, -9816, & -9817)	3.8 A maximum @ 102 to 132 VAC, 60 Hz 1.9 A maximum @ 204 to 264 VAC, 50/60 Hz
	320 W Booster Amplifiers (APB/320) (4003-9818, -9819, -9820, & -9821)	7.4 A maximum @ 102 to 132 VAC, 60 Hz 3.7 A maximum @ 204 to 264 VAC, 50/60 Hz
	Strobe NAC Ratings, Regulated 24 DC	2 A per strobe NAC; provides synchronization for either Simplex or Wheelock strobes (not mixed); contact your Simplex product representative for compatible appliances; for other UL listed appliances, use associated external synchronization modules where required; (refer to Instructions P84714-001 for additional information)
Battery Currents	4003EC Control Panels (4003-9301, -9302, -9303, & -9304)	Supervisory Current = 130 mA Alarm Current = 4.7 A maximum
	80 W Booster Amplifiers (APB/80) (4003-9810, -9811, -9812, & -9813)	Supervisory Current = 120 mA Alarm Current = 10.1 A maximum, including 500 mA Auxiliary output
	160 W Booster Amplifiers (APB/160) (4003-9814, -9815, -9816, & -9817)	Supervisory Current = 120 mA Alarm Current = 10.1 A maximum, including 500 mA Auxiliary output
	320 W Booster Amplifiers (APB/320) (4003-9818, -9819, -9820, & -9821)	Supervisory Current = 120 mA, <u>each</u> power supply/amplifier set Alarm Current = 10.1 A maximum, <u>each</u> power supply/amplifier set, including 500 mA Auxiliary output NOTE: 320 W Booster Amplifiers have dual amplifiers, dual power supplies, dual battery chargers, and dual battery sets (4, 12 V batteries)
Total Amplifier Power per System		5000 W maximum
Booster Input Requirements	with 25 VRMS Input	Input voltages are selectable for 1, 25, or 70.7 VRMS; output voltage and input voltage can be selected differently (25 VRMS versus 70.7 VRMS) Input power = 0.25 W input for 80 W and 160 W boosters Input power = 0.5 W for 320 W boosters (dual 160 W amplifiers)
	with 70.7 VRMS Input	Input power = 1.2 W input for 80 W and 160 W boosters Input power = 2.4 W for 320 W boosters (dual 160 W amplifiers)
Additional Module Current Requirements (24 VDC system power)		
Local Operator Console (LOC) (4003-9830, 4003-9831)	Standby = 26 mA; Alarm/Paging = 38 mA	select these values if only <u>one</u> remote microphone is connected to the 4003EC control panel
Remote Microphone Controls for Alarm (RM) (4003-9832, 4003-9833) and (RM-GP) (4003-9842)	Standby = 23 mA; Alarm/Paging = 30 mA	
Remote Microphone Expansion Module (RMX) (4003-9834)	Standby = 62 mA maximum; Alarm/Paging = 52 mA maximum; NOTE: includes attached remote microphones and/or LOCs; only one remote microphone can page at a time	
Class A/B Splitter (SP4Z-A/B) (4003-9840)	Standby = Alarm = 15 mA	
NAC Interface Module (NACIM) (4003-9850)	NAC powered, no impact to panel power	
CO Port Adapter (SP-COA) (4003-9843)	Standby = 2 mA; with input = 49 mA; telephone input level = telephone output level = 500 mVRMS	
Addressable Paging Splitter (SP4-APS) (4003-9845)	120 mA; splitter uses 1.35 W of input power per output for operation, 8 W maximum (6 total outputs available; Zones 1-4, and two Expansion outputs)	
Supervised Volume Control (SP-SVC) (4003-9848)	10 mA	
Telephone Zone Controller (TZC) (4003-9835)	73 mA	
Battery Charger Details for Voice Control Panel and Booster Amplifiers (sealed lead-acid batteries)	Agency listed for battery charging up to 33 Ah; up to 12 Ah batteries can be cabinet mounted, larger batteries require a remote battery cabinet; see note above concerning 320 W Booster Amplifier batteries (4, 12 V)	
Environmental	Operating Temperature Range	32° to 120°F (0° to 49° C)
	Operating Humidity Range	Up to 93% RH, non-condensing @ 90° F (32° C) maximum

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