*FM Approved to ANSI/UL 864, Control Unit Accessory to FM Standards; CSFM Listed**

Emergency Communication Systems and Mass Notification Systems; 4003EC Voice Control Units

Features

The 4003EC Voice Control Unit adds digital voice message capability to non-voice fire alarm control units:

- **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 unit (FACU), NACs using the NAC Interface Module option, or by a supervised connection to relay contact closures
- **4003EC voice control unit status** alarm, system trouble, or separate AC trouble is through isolated contact closure allowing compatibility with a wide range of Simplex® brand and other fire alarm systems
- **Multiple 4003EC control units** can interconnect 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 up to 18 remote microphones
- **Select from 8 digitally pre-recorded messages** using the control unit switches or controlled from the FACU; select a pre-tone and include a post tone if desired
- **You can order custom messages** separately as custom chip sets, or record directly at the unit; requires external equipment – new messages override standard messages

4003EC control unit details:

- **Efficient Class D amplifier** design provides 40 W at 25 VRMS or 70.7 VRMS with power-limited output
- **One general alarm Class B audio NAC** rated at 40 W; can be optionally expanded to four Class B NACs or two 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 or 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

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
- **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

Figure 1: 4003EC Voice Control Unit

- **Removable terminal blocks** for easy wiring
- **Beige or red cabinet** for surface mounting

Additional optional features:

- **Supervised remote microphones** with key switch control, beige, or red for alarm paging
- **Local Operating Console (LOC)** providing enclosed microphone and switch control for the 8 unit messages
- **Application Note:** For control from a Wide Area Notification System, connect audio (1 VRMS, 600 ohm) and contact closure wiring to an available input port on a Remote Microphone Expansion Module
- **Four circuit NAC module**, Class A or Class B for boosters or control unit 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 unit is in alarm mode
- **Models are available** for 120 VAC or 240 VAC input

Introduction

When non-voice FACUs require the addition of voice and tone generation, Simplex 4003EC Emergency Communications Voice Control Units 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 the status indicator LEDs. Secure control of remote microphones using a key switch. See Figure 4.

Typical applications:

- Add audio operations to existing fire alarm control units or non-audio units
- Use of non-emergency operations is suspended during battery standby operation and is overridden during emergency conditions

* Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co.

4003EC voice control module features

Selection of pre- and post audio tones

You can select pre-message tones and if desired, you can also select the same tone as a post message tone. Tones are switch selected onboard and assigned for each message pairs: IN1 and IN2 message will have the same tone, IN3 and IN4 message will have the same tone.

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 Hz 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.

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 by a 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 unit. Locally recorded messages overwrite the pre-recorded messages and external equipment is required.

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 unit 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

Standard messages and input priority list

Table 1: 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.

	Priority	Input		
	1	Control unit push-to-talk microphone for on-site messages		
	2	Auxiliary input from one, or multiple remote microphones; or from a separate audio input with voltage selectable as: 1 VRMS, 25 VRMS, 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, and so on		
	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.				

Internal control unit operator controls

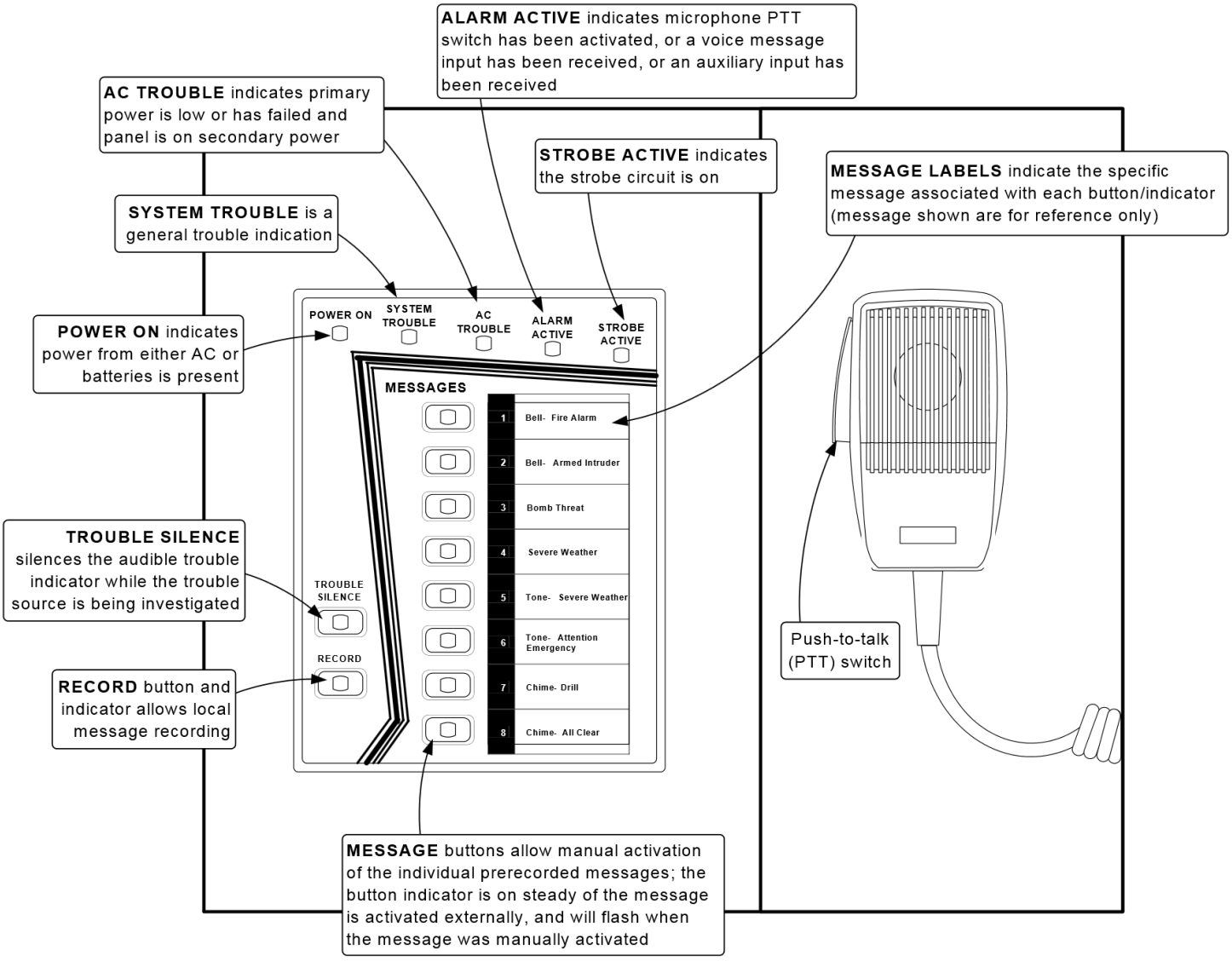

Figure 2: Internal control unit operator controls

4003EC product selection

Table 2: Control units

SKU	Cabinet/Listing		Input voltage	Description
4003-9301	Beige	FM	120 VAC, 60 Hz	Emergency Communications Voice Control Unit with internal user control unit and microphone, 40 W Class D amplifier with one audio NAC standard and internal power supply/battery charger
4003-9302 see note Table 2	Red			
4003-9304	Beige	FM	240 VAC, 50/60 Hz	

Note: CSFM listed models

Table 3: Remote booster amplifiers

SKU	Cabinet/Listing		Input voltage	Description
4003-9810	Beige	FM	120 VAC, 60 Hz	80 Watt Remote Booster Amplifier with strobe power (APB/80); provides one 80 W audio NAC and two, 2 A strobe NACs; accepts one 4003-9840 Class A/B Splitter (audio NAC expansion module); efficient Class D amplifier design
4003-9811 see note Table 3	Red			
4003-9813	Beige	FM	240 VAC, 50/60 Hz	
4003-9814	Beige	FM	120 VAC, 60 Hz	160 Watt Remote Booster Amplifier (APB/160); provides two 80 W audio NACs; allows up to two 4003-9840 Class A/B Splitters, no strobe power and efficient Class D amplifier design
4003-9815 see note Table 3	Red			
4003-9817	Beige	FM	240 VAC, 50/60 Hz	
4003-9818	Beige	FM	120 VAC, 60 Hz	320 Watt Remote Booster Amplifier (APB/320); provides four 80 W audio NACs; allows up to four 4003-9840 Class A/B Splitters, no strobe power, contains dual power supplies, dual 160 W amplifiers, and requires dual battery sets (four 12 V batteries); efficient Class D amplifier design
4003-9819 see note Table 3	Red	FM	120 VAC, 60 Hz	
4003-9821	Beige	FM	240 VAC, 50/60 Hz	

Note: CSFM listed models

Table 4: Remote microphone controls and associated equipment

SKU	Description	
4003-9830	Surface mount	Local Operator Console (LOC) with built-in Remote Microphone Control; in white cabinet
4003-9831	Flush mount	
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 at 240 VAC	
4003-9832 (Beige)	Remote Microphone Control (RM), for fire alarm paging (see Remote microphone control)	
4003-9833 see note Table 4 (Red)	Remote Microphone Control (RM), for fire alarm paging (see Remote microphone control)	
4003-9834 see note Table 4	Remote Microphone Expansion Module (RMX) in black cabinet; expands control unit remote microphone output to 3; up to 6 RMX modules can be connected for a total of 18 remote microphones for each system. **Note:** Only one 4003EC system microphone can page at time. The wiring location determines the priority of RMX connected microphones. Dimensions = 13 in. H x 7 3/4 in. W x 2 1/8 in. D (330 mm x 197 mm x 54 mm)	

Note: CSFM listed models

Table 5: 4003EC accessories

SKU	Description
4003-9840 see note Table 5	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 in. H x 5 1/2 in. H x 1 1/2 in. D (114 mm x 140 mm x 38 mm)
4003-9841 see note Table 5	Mounting bracket for two 4003-9840 or two 4003-9845 Splitters; required when splitter is mounted in an 80 W, 160 W, or 320 W booster amplifier cabinet; (not required when mounting splitter in the control unit)
4003-9850	NAC Interface Module (NACIM); converts one NAC input to one contact closure for activating messages; one required for each message to be activated; mounts in the 4003EC control unit; 4 maximum; dimensions = 2 1/2 in. H x 1 1/4 in. W x 1/2 in. D (64 mm x 32 mm x 13 mm)
4003-9851	End-of-Line Resistor Module Kit, quantity of 8, Agency listed; 10 kOhms, 1/2 W
4003-9860	Battery Cabinet, beige (cabinet only, for use with control unit mounted charger); dimensions = 9 1/2 in. H x 24 in. W x 9 in. D (241 mm x 610 mm x 229 mm); Note: Battery Cabinet is available in red by special order (RPQ)
4003-8801	Custom Message Ordering, select 4003-8801 and specify message type from the choices below: • 4003-0204, from CD • 4003-0205, from transcript • 4003-0206, from message archive
4003-9836	Aftermarket Message Kit, 8 standard messages; (restores original messages if local changes are no longer wanted)

Note: CSFM listed models

Table 6: Non-fire alarm accessories

SKU	Description
4003-9835	Telephone Zone Controller (TZC); use to select zones connected to background music and for general paging; cabinet; size: 13 in. H x 7 3/4 in. W x 2 1/8 in. 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 see note Table 6	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 for each zone; alarm paging connects to all zones; requires 4003-9841 bracket when mounted in booster cabinet; 80 W max input, 40 W max output for each zone; (same size as 4003-9840 Class A/B Splitter)
4003-9848 see note Table 6	Supervised Volume Control Module (SP-SVC); for background music, disabled during alarm

Note: CSFM listed models

Note: Equipment is FM Approved to ANSI/UL864 Control Unit Accessory to FM Standards

System interconnection reference

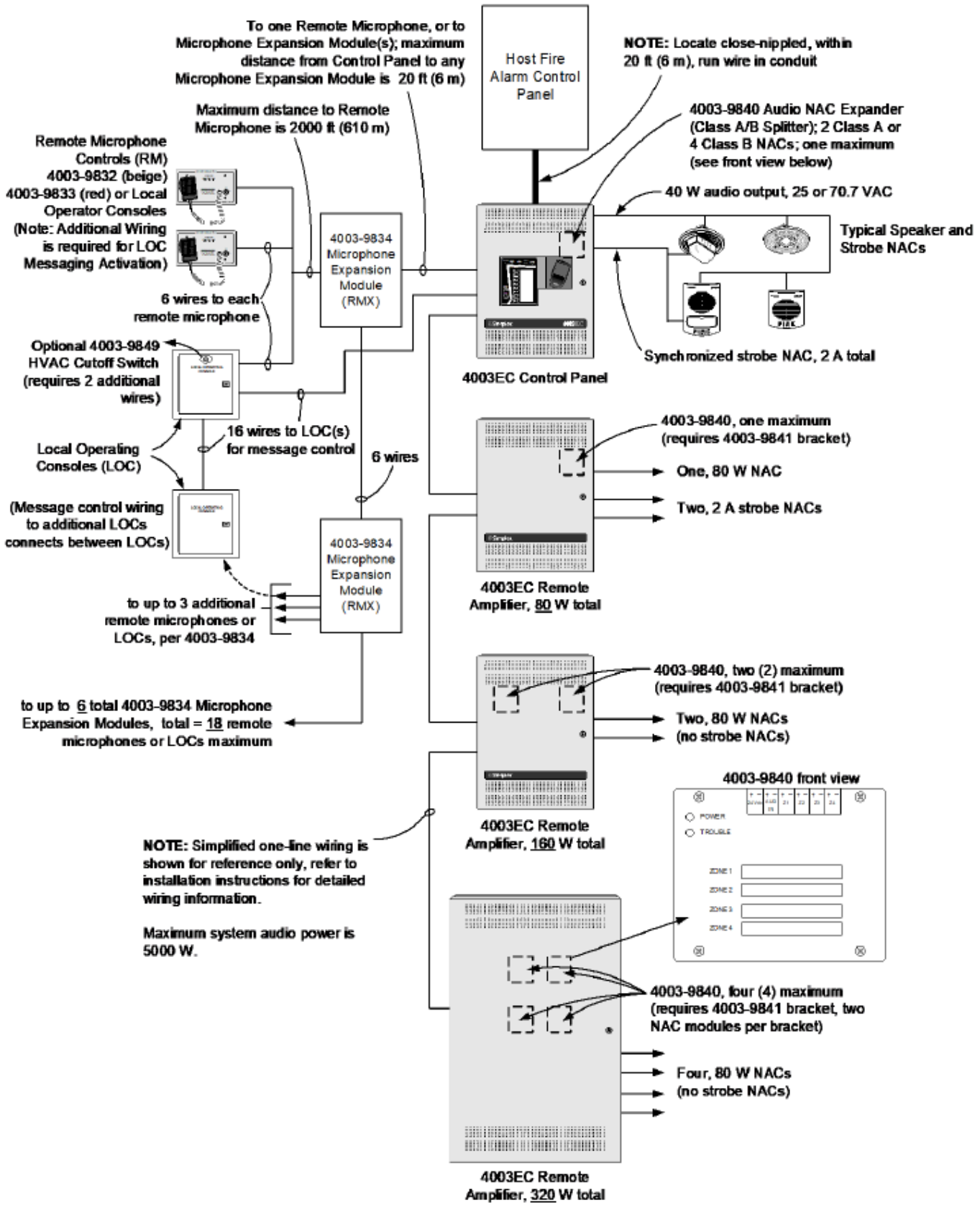

Figure 3: System interconnection reference

Remote microphone control

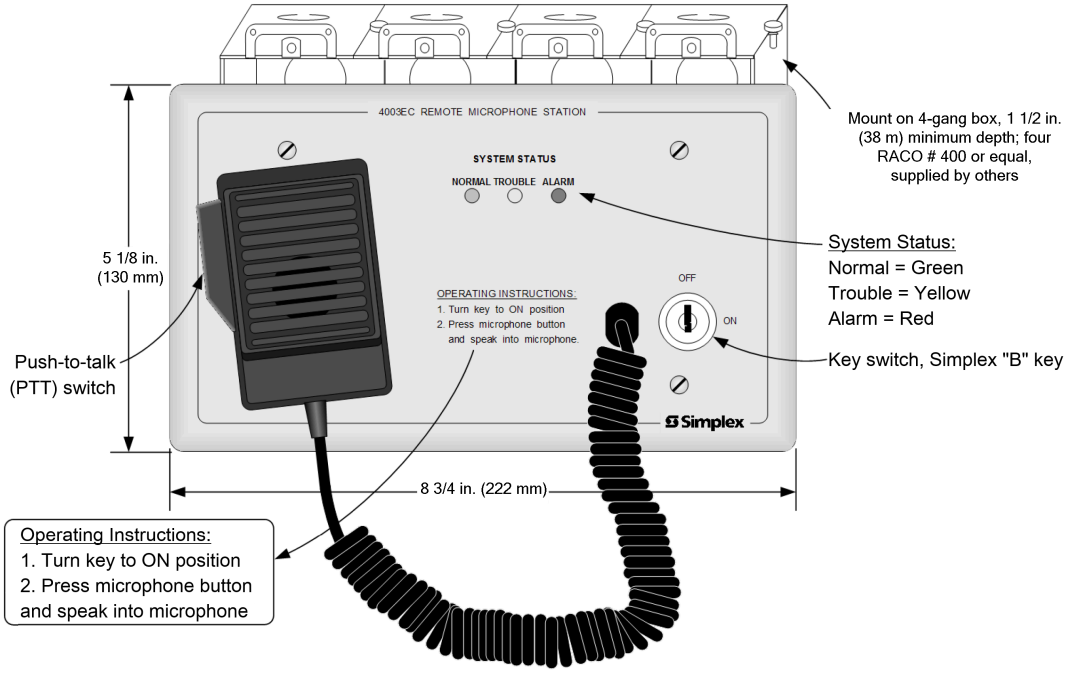

Figure 4: Remote microphone controls

Local Operating Console (LOC) reference

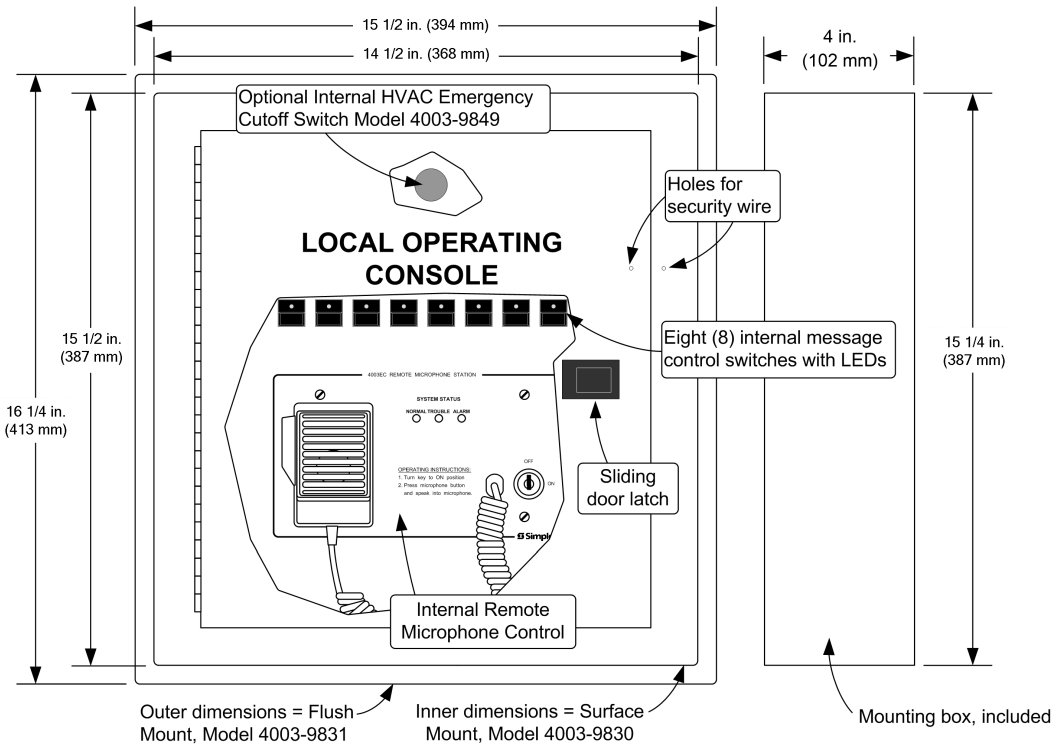

Figure 5: Local Operating Console (LOC)

4003EC control unit internal reference

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

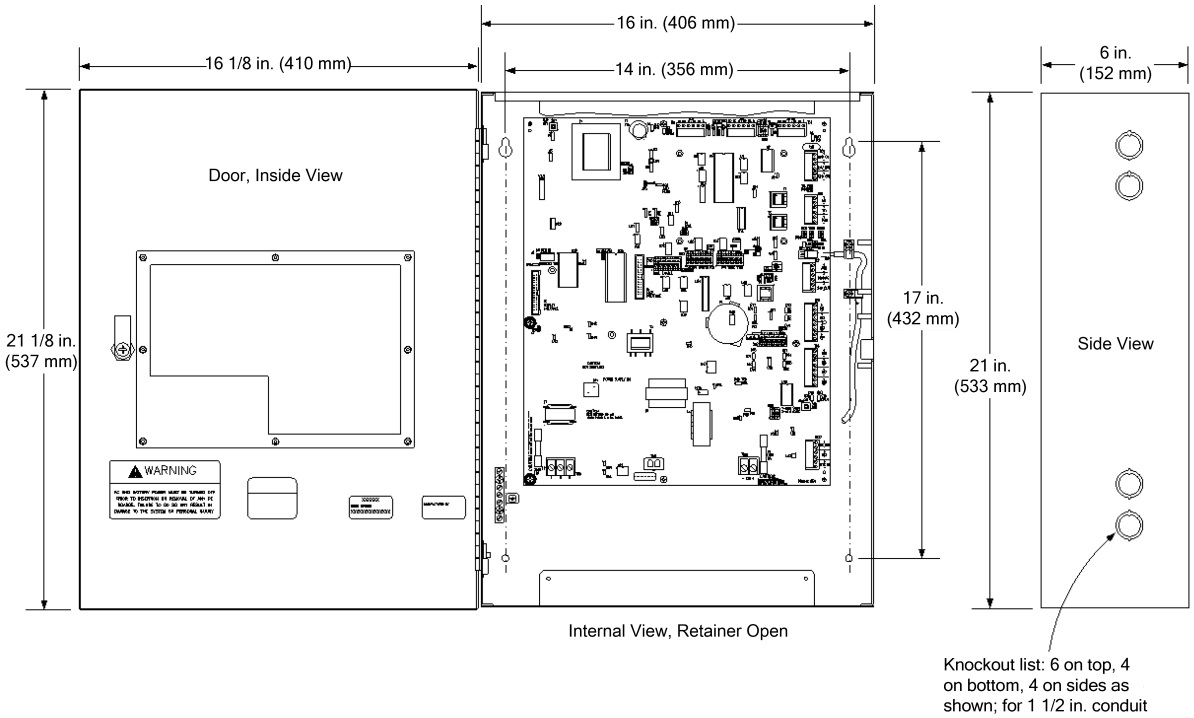

Figure 6: 4003EC control unit internal reference

320 W booster dimension reference

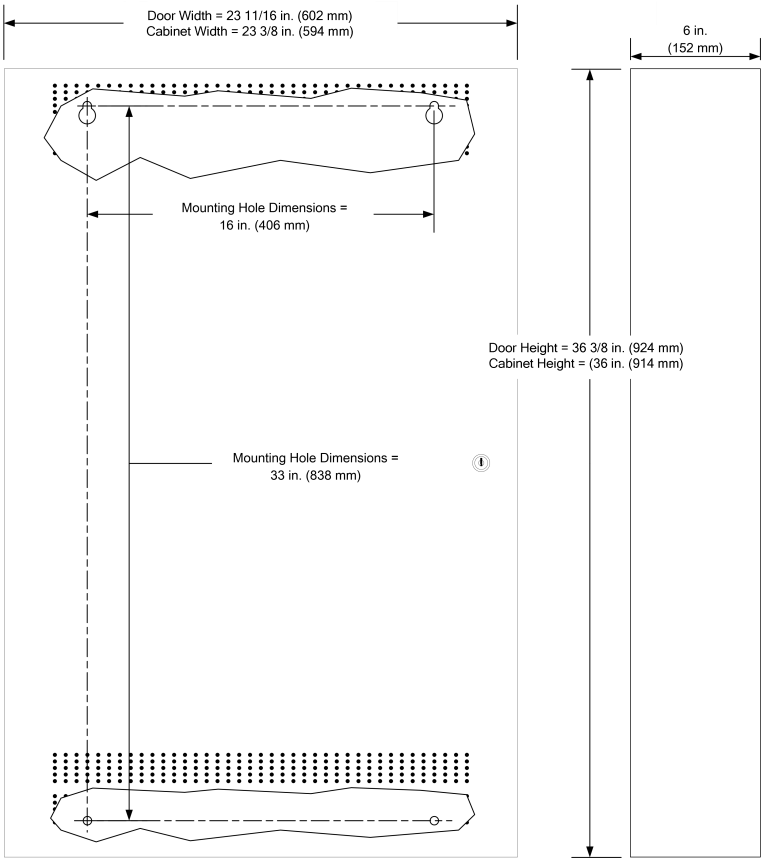

Figure 7: 320 W booster dimension reference

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

Instructions reference

Product		Instructions
4003EC Control Units	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
Addressable Paging Splitter (SP4-APS)		P84577-001
Supervised Volume Control (SP-SVC)		P84598-001
NAC Interface Module (NACIM)		P83487-001
Telephone Zone Controller (TZC)		P84567-001
Battery Cabinet		P83096-001

Reference application - generic host unit to 4003EC

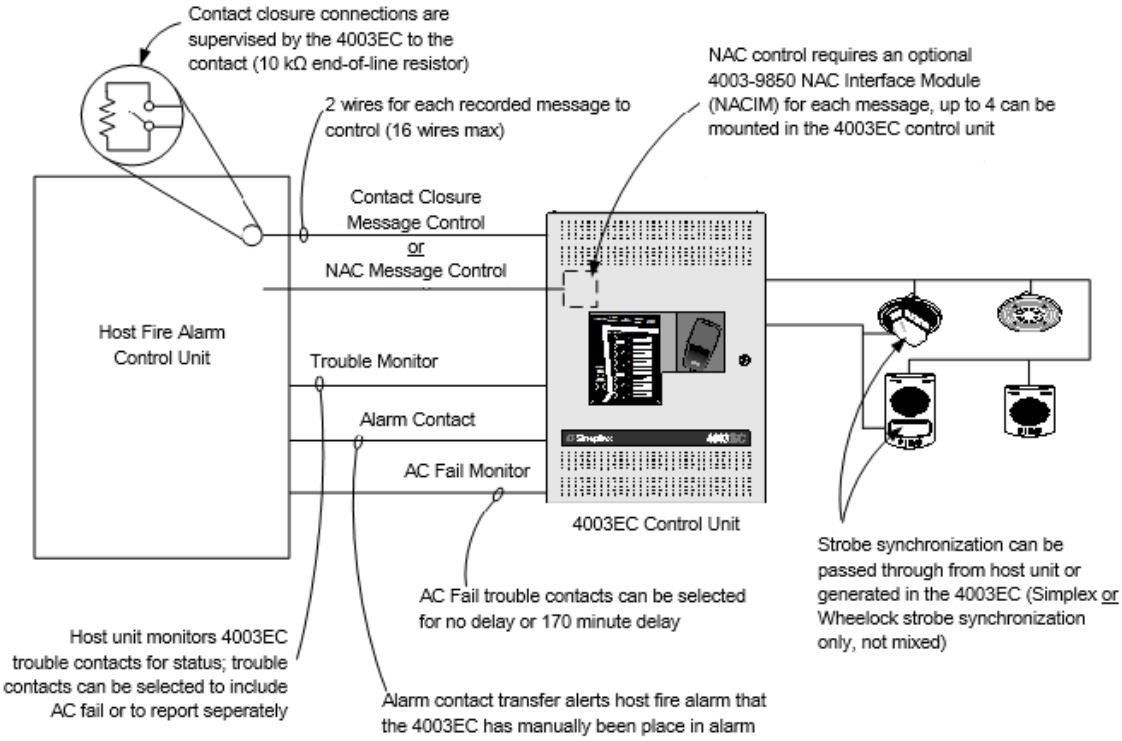

Figure 8: Reference application - generic host unit to 4003EC

Specifications

Table 7: General specifications

	Product type	Ratings
AC input ratings	**4003EC Control Units** (4003-9301, 4003-9302, and 4003-9304)	2.4 A maximum at 102 VAC to 132 VAC, 60 Hz
		1.2 A maximum at 204 VAC to 264 VAC, 50/60 Hz
	80 W Booster Amplifiers (APB/80) (4003-9810, 4003-9811, and 4003-9813)	3.8 A maximum at 102 VAC to 132 VAC, 60 Hz
		1.9 A maximum at 204 VAC to 264 VAC, 50/60 Hz
	160 W Booster Amplifiers (APB/160) (4003-9814, 4003-9815, and 4003-9817)	3.8 A maximum at 102 VAC to 132 VAC, 60 Hz
		1.9 A maximum at 204 VAC to 264 VAC, 50/60 Hz
	320 W Booster Amplifiers (APB/320) (4003-9818, 4003-9819, and 4003-9821)	7.4 A maximum at 102 VAC to 132 VAC, 60 Hz
		3.7 A maximum at 204 VAC to 264 VAC, 50/60 Hz
Strobe NAC ratings, regulated 24 DC		2 A for each 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 P84714-003 for additional information.
Battery currents	**4003EC Control Units** (4003-9301, 4003-9302, and 4003-9304)	Supervisory Current = 130 mA
		Alarm Current = 4.7 A maximum
	80 W Booster Amplifiers (APB/80) (4003-9810, 4003-9811, and 4003-9813)	Supervisory Current = 120 mA
		Alarm Current = 10.1 A maximum, including 500 mA Auxiliary output
	160 W Booster Amplifiers (APB/160) (4003-9814, 4003-9815, and 4003-9817)	Supervisory Current = 120 mA
		Alarm Current = 10.1 A maximum, including 500 mA Auxiliary output
	320 W Booster Amplifiers (APB/320) (4003-9818, 4003-9819, and 4003-9821)	Supervisory Current = 120 mA, each power supply/amplifier set
		Alarm Current = 10.1 A maximum, each 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 V, 12 V batteries).
Total amplifier power for each system		5000 W maximum
Booster input requirements	Input voltages are selectable for 1 VRMS, 25 VRMS, or 70.7 VRMS; output voltage and input voltage can be selected differently (25 VRMS versus 70.7 VRMS)	
	with 25 VRMS Input	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 one remote microphone is connected to the 4003EC control unit
Remote Microphone Controls for Alarm (RM) (4003-9832, and 4003-9833)		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 unit power
Addressable Paging Splitter (SP4-APS) (4003-9845)		120 mA; splitter uses 1.35 W of input power for each 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 unit 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 V, 12 V)
Environmental	Operating temperature range	32°F to 120°F (0°C to 49°C)
	Operating humidity range	Up to 93% RH, non-condensing at 90°F (32°C) maximum

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