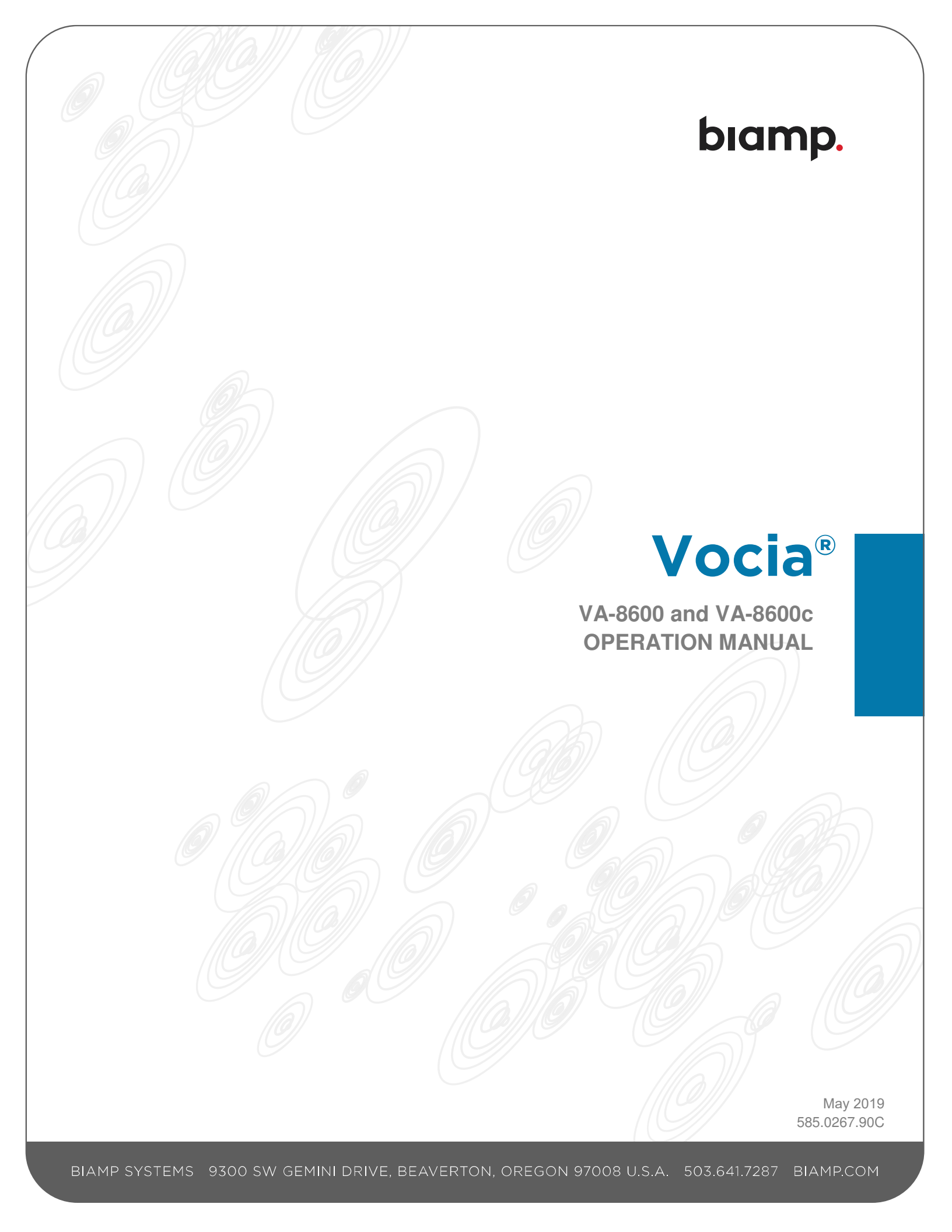




biamp.

Vocia®

**VA-8600 and VA-8600c
OPERATION MANUAL**

May 2019
585.0267.90C

VA-8600 Product Description

The VA-8600 is a networked multi-channel amplifier. It is CobraNet enabled and features eight channels of modular amplification and DSP with optional channel-to-channel or device-to-device failover.

The VA-8600c is a networked multi-channel amplifier. It is CobraNet enabled and features eight channels of modular amplification and DSP with optional channel-to-channel or device-to-device failover.

AM-600: Basic Amplifier Module for VA-8600.

AM-600c: Amplifier module with standards-compliant ground fault detection for VA-8600.

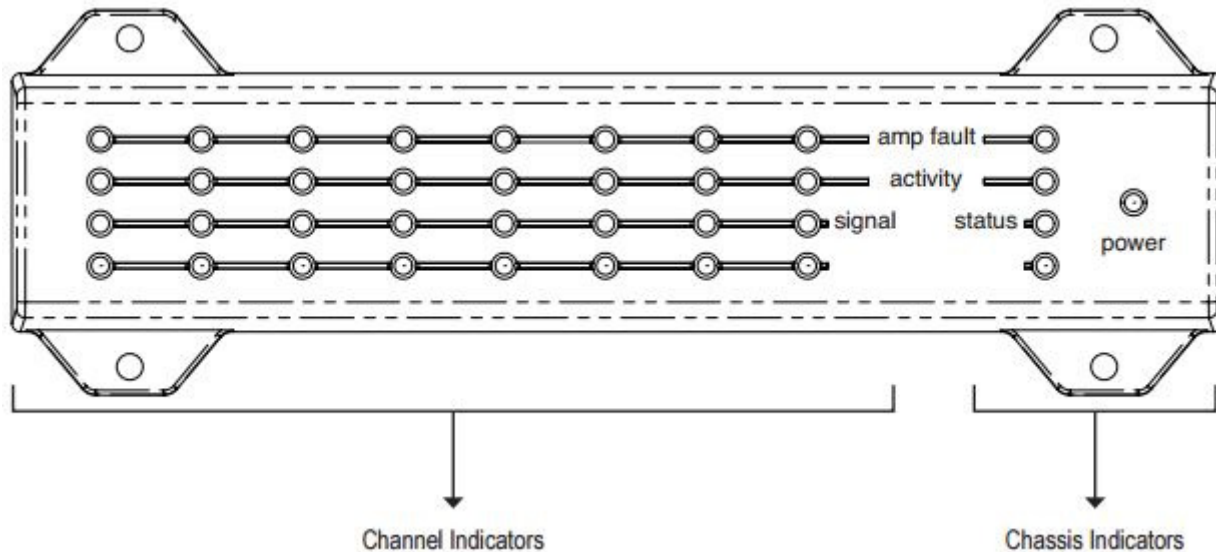
Setup and Use

The Vocia software provides an intuitive interface for configuration of the VA-8600 and VA-8600c Amplifiers. The information supplied by this manual relates to physical connections and assignment. For more details on software setup, please consult the Vocia Help File.

Installation

The unit requires one 3.5 inch (88.9mm) high and 19 inch (483mm) wide rack space with 17.5 inch (444mm) depth. Mounting the unit using four screws with washers will prevent marring of the front panel. PVC or nylon washers are appropriate.

Install the unit away from heat sources, such as vents and radiators, and in rooms with adequate ventilation. Ensure that air can circulate freely behind, beside, and above the unit. Do not exceed the maximum ambient operating temperature of 18°-108° F (-8° - 42°C). Be aware of conditions in an enclosed rack that may cause the temperature to exceed ambient room conditions.



System Indicators

The LED indicators on the front panel provide information about the function and operational status of the VA-8600 and VA-8600c chassis and any installed AM-600 or AM-600c amplifier modules. Columns one through eight correspond to the eight amplifier module slots. The remaining LEDs correspond to the VA-8600 and VA-8600c chassis.

Amplifier Chassis Indicators

These indicators relate to the entire amplifier unit (chassis).

Power

AC power is a green LED indicator. This will illuminate when a Mains supply is applied to the unit.

Amp Fault

An amber LED illuminates when a chassis fault has occurred.

- **Flashing Amber LED** - Warning - the amplifier chassis or an AM-600 module is not operating within normal limits. If the condition causing the warning is not corrected, chassis failure may occur.
- **Solid Amber LED** - Fault - the amplifier chassis or AM-600 has failed - audio may have stopped.

Activity

Activity indicates the configuration status of the Amplifier.

- **LED off** - the unit is not active.
- **Green LED** - the unit is configured and passing audio.
- **Amber LED** - the unit is configured as a redundant device in a failover configuration.
- **Red LED** - Configuration load failure.

Status

Status indicates the health of the amplifier hardware.

- **Green LED** - indicates that the unit powered up normally.
- **Amber Flashing LED** - shown briefly during the power-up self test.
- **Red LED** - the unit experienced a problem during the power-on self test.

Amp Channel Indicators

These indicators relate to each amplifier channel.

Amp Fault

An amber LED illuminates when a chassis or amplifier module fault has occurred.

- **Flashing Amber LED** - Warning -the amplifier chassis or an AM-600 module is not operating within normal limits. If the condition causing the warning is not corrected, chassis failure may occur.
- **Solid Amber LED** – Fault - the amplifier chassis or AM-600 has failed - audio may have stopped.

Activity

The Activity LED will illuminate when the channel is configured.

- **Green LED** - configured and actively passing audio.
- **Amber LED** - channel is acting as a standby channel for failover applications.

Signal

Red	Amber	Green	Dark
Signal above clip threshold > 0dBFS	Signal above nominal but below clip threshold > -3dBFS < 0dBFS	Signal above minimum but below nominal threshold > -50dBFS < -3dBFS	Signal below minimum threshold < -50dBFS

AC Power Socket

Provides for connection of the appropriate power cord. Each amplifier uses a switch mode power supply that has an operating voltage of 100-240V at 50/60 Hz. (5.5 to 2.3 Amps)

CAUTION

Do not remove or defeat the ground prong on the power cord, as this will constitute a shock hazard. Equipment should be connected to a mains socket outlet with a protective earthing connection. This plug is the main disconnecting device and should remain readily operable. There are no user interchangeable parts. Please contact Biamp Technical Support or your local distributor for all service requirements.

Network Connections

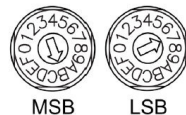
The amplifier is a CobraNet device. A Primary and Secondary CobraNet connection is provided for this. All CobraNet routing and bundle assignments are processed by the Voca devices locally. Voca makes dynamic use of available bundles in CobraNet. A 100Base-T Ethernet switch (not repeater hub) is required when networking multiple units. CobraNet utilizes standard CAT5, CAT5e, CAT6, or CAT7 cabling, which has a specified maximum length of 328 feet (100 meters). Additional Ethernet switches, or switches which provide fiber-optic interface, can be used to extend the physical distance between units within a network. Please note that CobraNet limits network extensions to seven hops (one-way transmissions) within a network. The CobraNet network connection is configured with the primary connector on the left and the secondary (redundant) connector on the right. The primary and secondary CobraNet ports are provided to facilitate connection redundancy. Each connector provides two LEDs that indicate Ethernet link and network activity.

Left LED	Right LED	Description
None	None	No Data Connectivity or CobraNet activity
None	Green	Link established
Flashing yellow	Green	Link established and CobraNet activity detected; The unit is acting as a CobraNet Performer
Flashing yellow	Flashing green	Link established and CobraNet activity detected; The unit is acting as a CobraNet Conductor
Flashing yellow	None	CobraNet fault. Check cabling and configuration for errors

Device ID switches

The rotary ID switches give the unit a unique Device ID. The switches are in hexadecimal format. All units of the same device type must have a unique Device ID to function properly within a Voca Paging World. The Factory Default Device ID is 01. A Device ID of 00 is invalid and cannot be used.

To assign a Device ID of hex 07, leave the MSB switch on 0 and turn the LSB switch to 7. Device ID switches should be set using a 0.1 inch (2.5mm) to 0.12 inch (3.0mm) flat blade screwdriver.



NOTE

Changes made to the Device ID while connected to the network require a power cycle of the device in order to take effect.

Network Module (NM-1)

NM-1 is the Network Module that is included with VA-8600 and VA-8600c. This module provides connectivity for control and audio via the dual CobraNet interface and logic ports for the device failover functionality. The RJ45 connector labeled "Ethernet" is not used at this time.

Reset Button

Reset button, when held down for 5 seconds, performs a chassis restart. The Status indicator will flash yellow during restart and will turn solid green once the process is complete.

Logic I/O

The Logic I/O connector on the NM-1 facilitates redundant device failover only. It is not a general-purpose contact closure interface. See the Amplifier-to-Amplifier Failover section below.

Page Active Relays

An optional Page Active Relay card can be added to the VA-8600(c) to provide a contact closure audio activity is detected on a particular output channel. Please see the PARM-1 datasheet or manual for operating instructions. Note that if the Page Active Relay module is being used 3:1 or 7:1 failover will not be available as it requires the failover module to be placed in slot 9 (as well). Channel to Channel failover does not require a module and therefore can be used in conjunction with the PARM-1 card.

AM-600/AM-600c

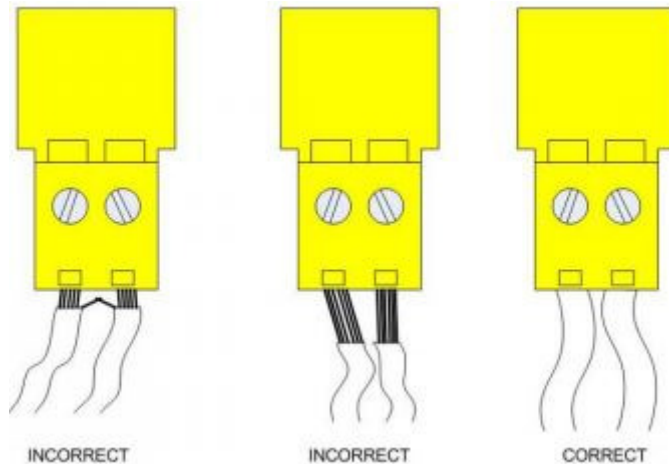
A VA-8600 or VA-8600c chassis can be populated with up to eight AM-600 or AM-600c cards. The AM600c reports a fault if it detects a short to ground on a speaker line, where this short would compromise the capability of the amplifier to deliver emergency messages

CAUTION

All Speaker wiring connections should be made by qualified personnel and with the amplifier power removed. The 100V output requires Class 3 wiring. Please refer to a qualified electrician or other qualified person according to local codes.

Amplifier Output Connections

Use the yellow plug-in barrier strip connectors to connect loudspeaker level outputs. If stranded speaker wire is used, be sure to incorporate all strands into the connector, as stray strands can short to the adjacent terminal or chassis. Do not leave excessive bare wire outside the terminals, as this can lead to shorts.



Please note: The VA-8600 and VA-8600c are powerful amplifiers and can damage loudspeakers. Please treat the VA-8600 and VA-8600c outputs as you would AC mains power outlets. Always check the loudspeaker's continuous and peak power capabilities and match the amplifier settings accordingly.

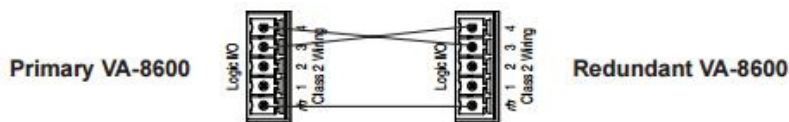
Amplifier-to-Amplifier Failover

Vocia supports one-to-one automatic amplifier failover in case of fault. Failover is triggered by one of the following conditions:

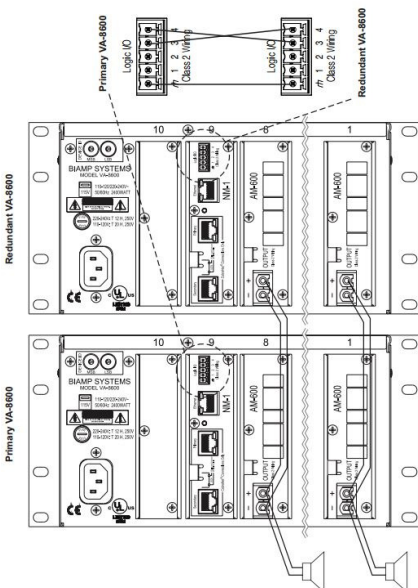
- Chassis fault
- Channel fault
- Loss of power
- Loss of CobraNet link
- Loss of Logic I/O

Only faults (e.g., heat sink fault and channel failure fault) trigger the failover mechanism. Warnings indicate abnormal system conditions that do not immediately impair audio and do not trigger the failover mechanism.

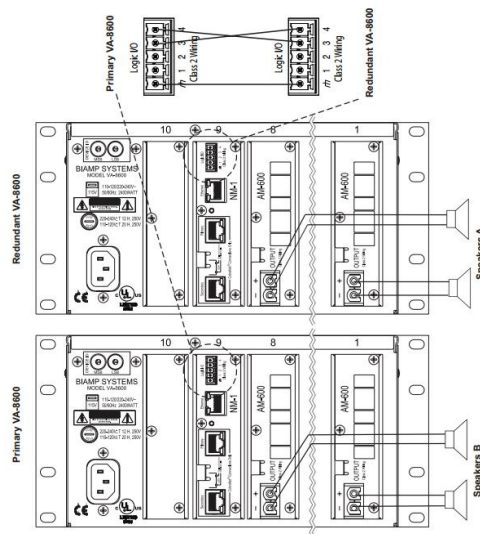
The redundant amplifier must have the same configuration as the primary amplifier (i.e., amplifier module count, watts per module, load configuration). A wire failover link cable must be connected between the primary and the redundant amplifier as shown below. Connect ground to ground and logic 4 of the primary amplifier to logic 3 of the redundant amplifier; connect logic 3 of the primary amplifier to logic 4 of the redundant amplifier. Leave logic 1 and 2 disconnected. The redundant amplifier can be wired in parallel to the existing speaker line or it can be connected to a redundant speaker line (see figure below). Relays isolate the output terminals on the secondary VA-8600 or VA-8600c unit. Relays are normally open. When a configuration is received, relays close on the primary VA-8600 or VA-8600c and remain open on the redundant VA-8600 or VA-8600c. On failover, the relay position is switched.



After replacing the faulty amplifier, a power cycle is required to recover from failover. The primary device will resume control after the fail condition is cleared and the unit is re-powered.



Parallel

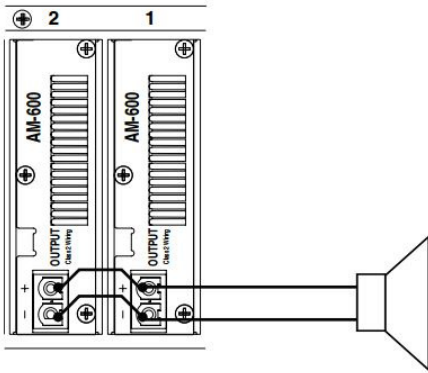


Redundant

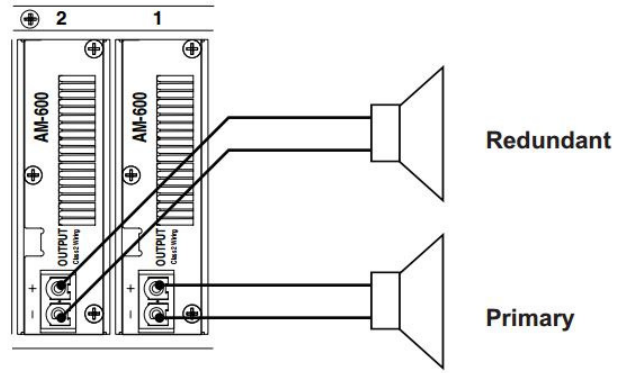
Channel-to-Channel Failover

In addition to entire amplifier failover, Vocia supports channel-to-channel failover, which is triggered by one of the following conditions: • Heat Sink fault • Short Circuit fault • Channel Failure fault The wire failover link cable is not required when wiring channel-to-channel failover.

Parallel Wiring



Redundant Wiring



The redundant channel can be wired in parallel to the existing speaker line (shown above) or connected to a redundant speaker line. The primary amplifier module will resume control after the fault condition is cleared and the unit is re-powered.

VA-8600 Specification

VA-8600/VA-8600c 115 VAC Current Draw and Heat Output

To determine the AC line current draw and heat output for the configuration, start by finding the total power for the configured Vocia chassis. Then refer to the column that describes the type of audio levels the amplifier will be producing. If your configuration uses more amplifier modules than the number shown, add 0.3 amps and 112 BTU/hr for each additional module in the chassis.

TOTAL CONFIGURED OUTPUT POWER (WATTS)	NUMBER OF AM600 CARDS	IDLE AMPS	IDLE BTU/HR	1/8 POWER PINK NOISE	BTU/HR	1/3 POWER PINK NOISE	BTU/HR	FULL POWER SINE WAVE	BTU/HR
No cards	0	0.3	106	NA	NA	NA	NA	NA	NA
100	1	0.6	218	0.7	227	0.9	244	1.6	406
200	1	0.6	218	0.8	239	1.3	271	2.7	491
300	1	0.6	218	1.0	251	1.6	300	3.8	590
400	1	0.6	218	1.1	263	2.0	333	4.9	668
500	1	0.6	218	1.3	278	2.4	356	6.1	788
600	1	0.6	218	1.4	297	2.8	413	7.3	910
700	2	0.8	331	1.8	418	3.4	551	8.9	1211
800	2	0.8	331	2.0	430	3.8	577	10.0	1296
900	2	0.8	331	2.1	442	4.2	607	11.1	1395
1,000	2	0.8	331	2.2	454	4.5	640	12.2	1473
1,100	2	0.8	331	2.4	469	4.9	663	13.4	1592
1,200	2	0.8	331	2.5	488	5.3	720	14.5	1715
1,300	3	1.1	443	3.0	609	6.0	858	16.2	2015
1,400	3	1.1	443	3.1	621	6.3	884	17.3	2101
1,500	3	1.1	443	3.2	633	6.7	914	18.4	2199
1,600	3	1.1	443	3.4	644	7.1	947	19.5	2278
1,700	3	1.1	443	3.5	660	7.4	970	20.6	2397
1,800	3	1.1	443	3.7	679	7.8	1026	21.8	2520
1,900	4	1.4	556	4.1	800	8.5	1165	23.4*	2820
2,000	4	1.4	556	4.2	812	8.8	1191	24.5*	2905
2,100	4	1.4	556	4.4	824	9.2	1221	25.7*	3004
2,200	4	1.4	556	4.5	835	9.6	1254	26.7*	3083
2,300	4	1.4	556	4.7	851	9.9	1276	27.9*	3202
2,400	4	1.4	556	4.8	870	10.4	1333	29.1*	3325

Notes:

For 230 VAC, multiply the current by 0.5.

For each additional module above 4, add 0.3 A to the current draw and 112 BTU/hr to the heat output.

* Burst mode only. Protective thermal limiting will reduce long-term AC current and continuous power output.