

VIKING

TECHNICAL Practice

TELECOM SOLUTIONS FOR THE 21ST CENTURY

SA-X12

Self Amplified Paging
Expander/Adapter

May 18, 2011

Expand Existing Paging Systems and Add Remote Control to the New Speakers



The Viking **SA-X12** expander / adapter is an economical way to expand an existing paging system, while adding remote control to the new speakers. The **SA-X12** can be connected to any existing paging audio source including 600 ohm line level, 4, 8, or 16 ohm speaker level, or even 25 volt and 70 volt paging systems. It can also be connected directly to the 2-wire protocol (40VDC + Audio) of another **SA-X12** or the Viking **SA-25** paging controller to add even more self amplified speakers.

The **SA-X12** takes audio from any paging or background music source, and combines it with 40 volts DC

to run Viking self amplified speakers. The added Viking **SA Series** speakers will have the features of the existing paging system, plus have the added feature of being remote controllable.

The **SA-X12** can directly drive up to 12 Viking self amplified speakers which include the model **SA-1S** self amplifier ceiling speaker, and the **SA-1H** self amplified paging horn. Viking self amplified speakers have these advantages: 1) Audio and power are on the same pair (less copper). 2) Power is 40VDC for lower current and smaller gauge wire (less copper than older 4-wire 24 volt systems). 3) Non-Polarity sensitive for easier wiring. 4) Each speaker is infrared remote controllable so there is no need to install volume controls on the walls, or climb up ladders to adjust the volume.

The **SA-IR** Infrared Remote and **SA Series** speakers are available separately.

Features

- Powers up to 12 Viking self amplified speakers
- Viking **SA Series** speakers are remote controllable
- Expand existing paging systems
- Adapts to any paging system

Phone...715.386.8861

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<http://www.vikingelectronics.com>

Applications

- 600 ohm line level paging systems
- 4, 8, or 16 ohm paging systems
- 25 volt and 70 volt paging systems
- Expand a Viking **SA-25** paging system

Specifications

Power: 120V AC/13.8V AC 1.25A UL listed adapter provided

Dimensions: 135mm x 90mm x 45mm (5.25" x 3.5" x 1.73")

Shipping Weight: 0.9kg (2 lbs.)

Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% noncondensing humidity

Paging Output: Viking 2-wire protocols (40VDC + audio)

Speakers: Up to 12 Viking self amplified speakers

Maximum Wire Run Length: See chart on page 3

Connections: (1) 2.1mm barrel jack, (6) cage clamp screw terminals

IF YOU HAVE A PROBLEM WITH A VIKING PRODUCT, PLEASE CONTACT: VIKING TECHNICAL SUPPORT AT (715) 386-8666

Our Technical Support Department is available for assistance Monday 8am - 4pm and Tuesday through Friday 8am - 5pm central time. So that we can give you better service, before you call please:

1. Know the model number, the serial number and what software version you have (see serial label).
2. Have your Technical Practice in front of you.
3. It is best if you are on site.

RETURNING PRODUCT FOR REPAIR

The following procedure is for equipment that needs repair:

1. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (RA) number. The customer **MUST** have a complete description of the problem, with all pertinent information regarding the defect, such as options set, conditions, symptoms, methods to duplicate problem, frequency of failure, etc.
2. Packing: Return equipment in original box or in proper packing so that damage will not occur while in transit. Static sensitive equipment such as a circuit board should be in an anti-static bag, sandwiched between foam and individually boxed. All equipment should be wrapped to avoid packing material lodging in or sticking to the equipment. Include ALL parts of the equipment. C.O.D. or freight collect shipments cannot be accepted. Ship cartons prepaid to:
Viking Electronics, 1531 Industrial Street, Hudson, WI 54016
3. Return shipping address: Be sure to include your return shipping address inside the box. We cannot ship to a PO Box.
4. RA number on carton: In large printing, write the R.A. number on the outside of each carton being returned.

RETURNING PRODUCT FOR EXCHANGE

The following procedure is for equipment that has failed out-of-box (within 10 days of purchase):

1. Customer must contact Viking's Technical Support at 715-386-8666 to determine possible causes for the problem. The customer **MUST** be able to step through recommended tests for diagnosis.
2. If the Technical Support Product Specialist determines that the equipment is defective based on the customer's input and troubleshooting, a Return Authorization (R.A.) number will be issued. This number is valid for fourteen (14) calendar days from the date of issue.
3. After obtaining the R.A. number, return the approved equipment to your distributor, referencing the R.A. number. Your distributor will then replace the product over the counter at no charge. The distributor will then return the product to Viking using the same R.A. number.
4. **The distributor will NOT exchange this product without first obtaining the R.A. number from you. If you haven't followed the steps listed in 1, 2 and 3, be aware that you will have to pay a restocking charge.**

LIMITED WARRANTY

Viking warrants its products to be free from defects in the workmanship or materials, under normal use and service, for a period of one year from the date of purchase from any authorized Viking distributor or 18 months from the date manufactured, whichever ever is greater. If at any time during the warranty period, the product is deemed defective or malfunctions, return the product to Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI., 54016. Customer must contact Viking's Technical Support Department at 715-386-8666 to obtain a Return Authorization (R.A.) number.

This warranty does not cover any damage to the product due to lightning, over voltage, under voltage, accident, misuse, abuse, negligence or any damage caused by use of the product by the purchaser or others.

NO OTHER WARRANTIES. VIKING MAKES NO WARRANTIES RELATING TO ITS PRODUCTS OTHER THAN AS DESCRIBED ABOVE AND DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

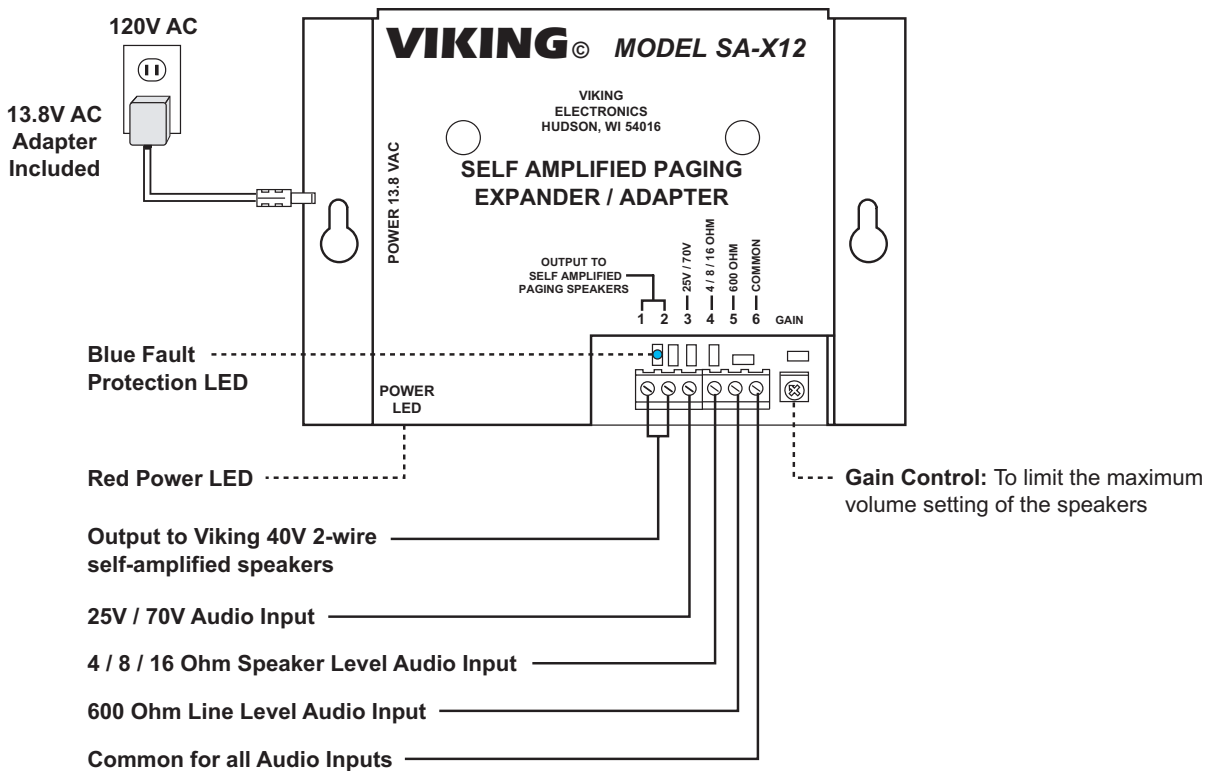
EXCLUSION OF CONSEQUENTIAL DAMAGES. VIKING SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE TO PURCHASER, OR ANY OTHER PARTY, FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR EXEMPLARY DAMAGES ARISING OUT OF OR RELATED TO THE SALE OR USE OF THE PRODUCT SOLD HEREUNDER.

EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY. WHETHER IN AN ACTION BASED ON CONTRACT, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR ANY OTHER LEGAL THEORY, ANY LIABILITY OF VIKING SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT, OR AT VIKING'S OPTION, REFUND OF THE PURCHASE PRICE AS THE EXCLUSIVE REMEDY AND ANY LIABILITY OF VIKING SHALL BE SO LIMITED.

IT IS EXPRESSLY UNDERSTOOD AND AGREED THAT EACH AND EVERY PROVISION OF THIS AGREEMENT WHICH PROVIDES FOR DISCLAIMER OF WARRANTIES, EXCLUSION OF CONSEQUENTIAL DAMAGES, AND EXCLUSIVE REMEDY AND LIMITATION OF LIABILITY, ARE SEVERABLE FROM ANY OTHER PROVISION AND EACH PROVISION IS A SEPARABLE AND INDEPENDENT ELEMENT OF RISK ALLOCATION AND IS INTENDED TO BE ENFORCED AS SUCH.

Features Overview

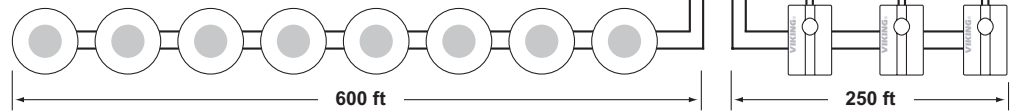
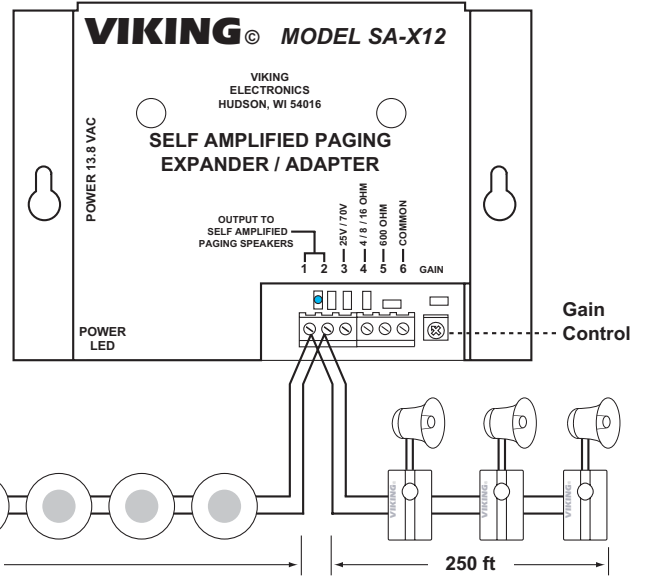
⚠ IMPORTANT: Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges.



Installation

A. Wiring Viking SA Series Two-Wire Self-Amplified Speakers

Step 1.	Determine the wire run length and number of self-amplified speakers for each run.
Step 2.	Use the chart below to determine the minimum recommended wire gauge to use.
Step 3.	Wire each run to pins 1 and 2.
Step 4.	Adjust the volume of each speaker with the Viking SA-IR Infrared Remote Control.
Step 5.	Use the Gain control to limit the maximum speaker volume when the infrared remote has them turned up all the way.



Example: Eight (8) SA-1S speakers on a 600 ft long wire run. Use at minimum #18 AWG copper wire pair as recommended in the chart below.

Example: Three (3) SA-1H horns on a 250 ft long wire run. Use at minimum #24 AWG copper wire pair as recommended in the chart below.

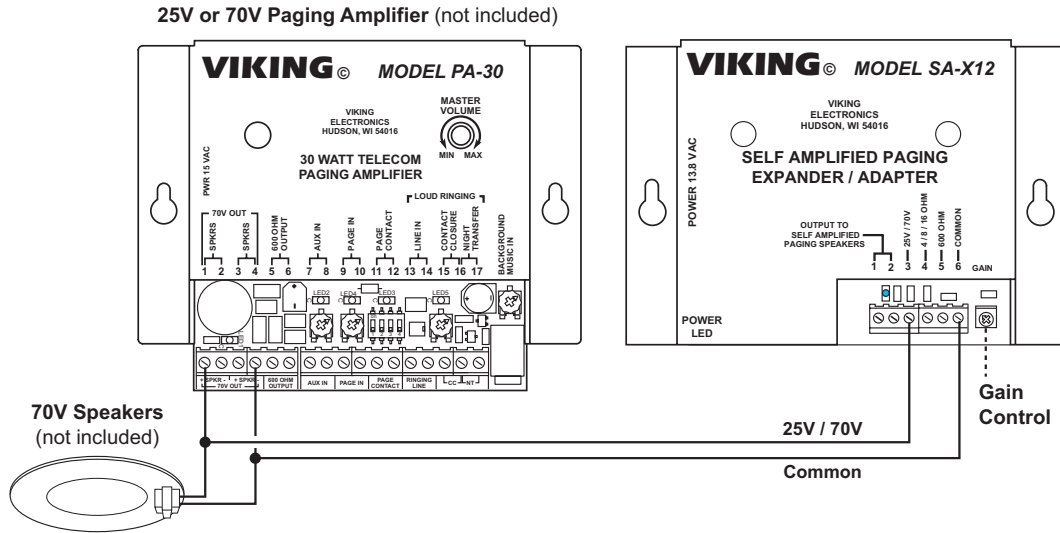
Recommended Minimum AWG (American Wire Gauge) Size for Viking SA Series Self-Amplified Speakers on a Two-Wire Run

Number of Speakers on the Two-Wire Run	12	#24	#24	#24	#22	#18	#18	#16							
	10	#24	#24	#24	#24	#20	#18	#18	#16						
	8	#24	#24	#24	#24	#22	#20	#18	#16	#16					
	6	#24	#24	#24	#24	#24	#24	#22	#20	#18	#16				
	5	#24	#24	#24	#24	#24	#24	#24	#20	#20	#18	#16			
	4	#24	#24	#24	#24	#24	#24	#24	#22	#20	#18	#16	#16		
	3	#24	#24	#24	#24	#24	#24	#24	#24	#24	#22	#20	#18	#16	
	2	#24	#24	#24	#24	#24	#24	#24	#24	#24	#24	#22	#20	#18	
	1	#24	#24	#24	#24	#24	#24	#24	#24	#24	#24	#24	#24	#24	
			100	200	250	300	400	500	600	800	1000	1200	1600	2000	2500
			Total Distance of Two-Wire Run in Feet												

B. Wiring Input Audio

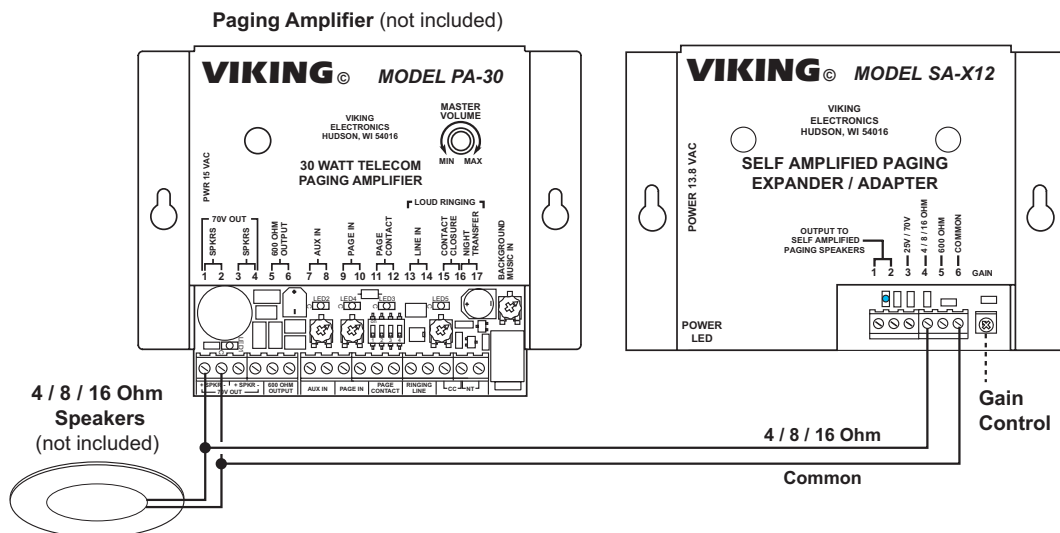
The **SA-X12** can be connected to any existing paging audio source including 600 ohm line level, 4, 8, or 16 ohm speaker level, or even 25V and 70V paging systems. It can also be connected directly to the 2-wire protocol (40VDC + audio) of another **SA-X12** or the Viking **SA-25** paging controller. The added Viking **SA Series** speakers will have the features of the existing paging system, plus have the added feature of being remote controllable.

1. 25V / 70V Paging System



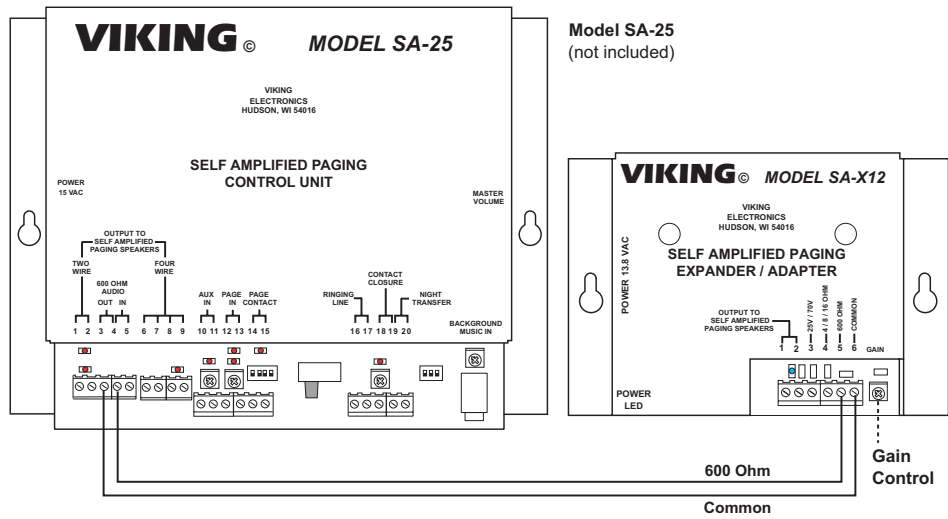
Step 1.	Connect the output of any 25V or 70V paging amplifier to screw terminals 3 & 6 of the SA-X12 .
Step 2.	Add up to 12 Viking 2-wire self amplified remote controllable speakers as shown on page 3.
Step 3.	Use the Gain Control to limit the maximum speaker volume when the infrared remote has them turned up.

2. 4 / 8 / 16 Ohm Speaker Level



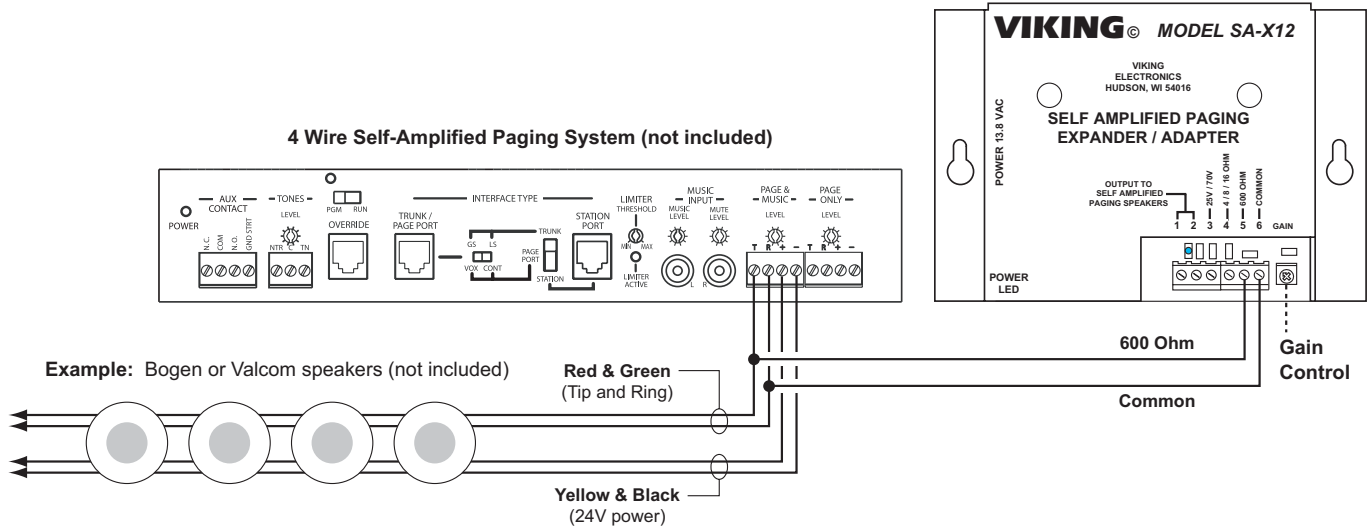
Step 1.	Connect the output of any paging amplifier directly driving 4, 8 or 16 ohm speakers to screw terminals 4 & 6 of the SA-X12 .
Step 2.	Add up to 12 Viking 2-wire self amplified remote controllable speakers as shown on page 3.
Step 3.	Use the Gain Control to limit the maximum speaker volume when the infrared remote has them turned up.

3. 600 Ohm Line Level Audio



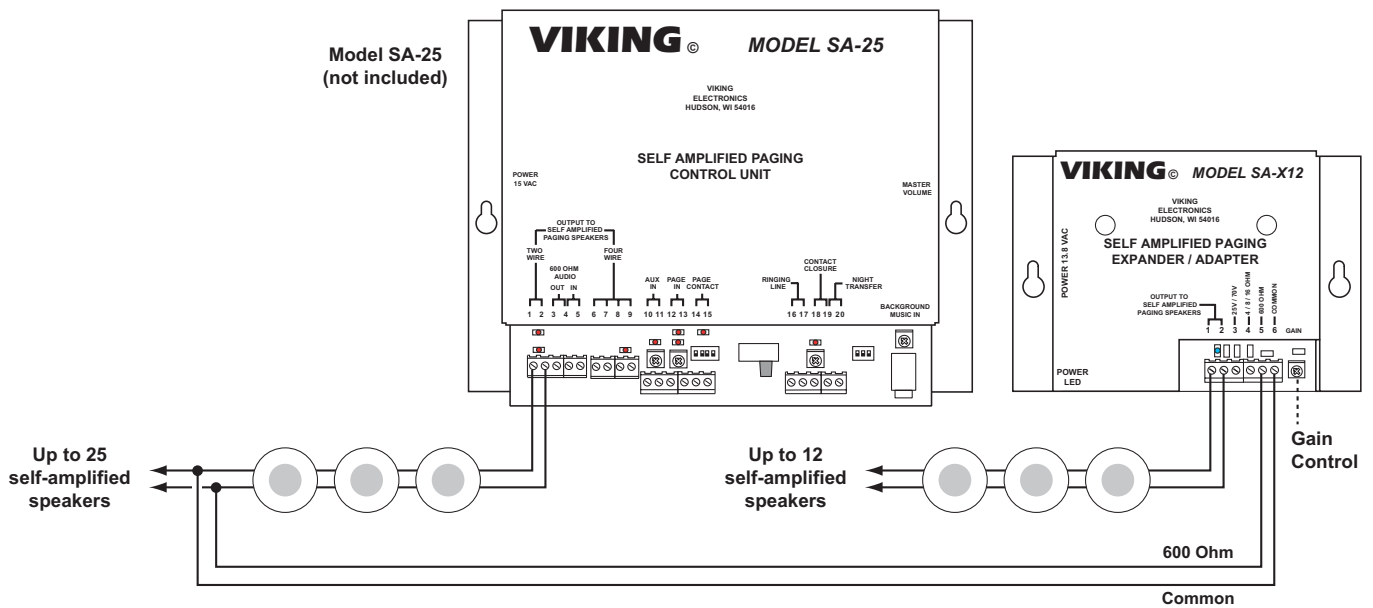
Step 1.	Connect the 600 ohm line level output of any pre-amplifier or paging system to screw terminals 5 & 6 of the SA-X12 .
Step 2.	Add up to 12 Viking 2-wire self amplified remote controllable speakers as shown on page 3.
Step 3.	Use the Gain Control to limit the maximum speaker volume when the infrared remote has them turned up.

4. Valcom or Bogen 4-Wire Speakers



Step 1.	Connect the audio output pair anywhere along a 4 wire self-amplified paging system speaker run to screw terminals 5 & 6 of the SA-X12 .
Step 2.	Add up to 12 Viking 2-wire self amplified remote controllable speakers as shown on page 3.
Step 3.	Use the Gain Control to limit the maximum speaker volume when the infrared remote has them turned up.

5. Expand a Viking 2-Wire Speaker Run



Step 1.	Connect anywhere along a Viking 2 wire self-amplified paging system speaker wire run to screw terminals 5 & 6 of the SA-X12 .
Step 2.	Add up to 12 Viking 2-wire self amplified remote controllable speakers as shown on page 3.
Step 3.	Use the Gain Control to limit the maximum speaker volume when the infrared remote has them turned up.

Operation

The **SA-X12** takes audio from any paging or background music source, and combines it with 40VDC to run Viking self amplified speakers. The added Viking **SA Series** speakers will have the features of the existing paging system, plus have the added feature of being remote controllable.

The **SA-IR** remote control functions essentially like a TV remote control. Point the remote at the Viking **SA Series** speaker you wish to control and push the buttons. The speaker volume can be stepped up or down, or the speaker can be totally muted. When the speaker is muted, pressing the mute button again, or the volume up or down buttons, will release the mute. A short “beep” will be heard through the speaker when the mute is activated. A long “beep” will be heard through the speaker when the “MUTE” button is pressed again releasing the mute.

If the **SA-X12** is used to expand more speakers to a Viking **SA-25** paging control unit, the added speakers will be compatible with the **SA-25**'s “Smart Mode” feature. In this special “Smart Mode” the **SA-IR** Remote Control “MUTE” button functions as a “mute background music button”. All paging and loud ringing sound will be amplified through the speaker, but the speaker then mutes the background music. This feature is useful for speakers which are mounted in a meeting room in which pages need to be heard, but background music would be obstructive. This feature enables an office with background music to become a quiet meeting room with the push of a button.

Product Support Line...715.386.8666

Fax Back Line...715.386.4345

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