Add Paging and Loud Ringing with Background Music to Any Phone System

The PA-30 can directly drive up to thirty (30) 8 ohm paging speakers or fifty (50) 70 volt or 25 volt paging speakers.

The PA-30 provides loud ringing and paging to electronic key systems, 1A2 Key systems, PABX’s as well as No-KSU phones and multi-line phones.

Paging is accomplished by connecting the PA-30 to a paging port or unused telephone line input (trunk port) of nearly any phone system.

The PA-30 will also generate adjustable loud ringing from a ringing analog line or from a dry contact closure. Either a loud electronic warble, or one of three other soft chime sounds may be selected. An external “night transfer” switch can be added to turn loud ringing on or off in night bell applications.

The PA-30 is easy to install and eliminates the installation of multiple bells, relays and paging cards. The unit comes complete with a power supply, and integrated 30 watt amplifier.

Features

- 30 Watts of paging power
- Drive up to (30) 8 ohm speakers
- Drive up to (50) 70V or 25V speakers
- Master volume control
- Separate volume controls for Auxiliary Input, Paging, Ringing Tones and Background Music
- Choose from up to 4 ringing sounds:
  - Electronic warble (traditional loud ringer)
  - Double gong (two identical “gong” tones)
  - Quadruple chime (four descending chime tones)
  - Door chime (ding-dong)
- Provides loud ringing or night bell
- Night transfer switch
- Page from an unused trunk port or paging port
- Can provide background music from an external source
- Use as a low cost stand alone power amplifier
- 600 Ohm output to drive additional amplifiers
- Use multiple units for more paging power

Applications

- Amplified loud paging
- Loud ringing
- Night bell
- Background music

Specifications

Power: 120V AC/15V AC 2.2A UL listed adapter provided
Dimensions: 133mm x 89mm x 44mm (5.25” x 3.5” x 1.75”)
Shipping Weight: 1.36 kg (3 lbs)
Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% non-condensing humidity
Paging Output: 30 watts - powers up to (30) 8 ohm speakers or (50) 70V or 25V speakers
Talk Battery: 40V DC
Connections: (1) 3.5mm (1/8”) audio jack, (1) 17 position screw terminal block

Phone...715.386.8861  
info@vikingelectronics.com  
http://www.vikingelectronics.com
# Warranty

**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 - 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 carts 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 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. 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, which 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 (RA) 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 HEREBY.**

**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

**LED Indicators**
- Loud Ringing Activated
- Page Contact Activated
- Page In Audio Level
- Aux In Audio Level
- Power

**Volume Controls**
- Aux Input
- Paging
- Ringing / Alert Tone
- Background Music

**Background Music In** - Connect to any music source to provide background music

**Night Transfer** - To enable/disable loud ringing

**Contact Closure** - To trigger loud ringing

**Line In** - A ringing line will trigger loud ringing.
Installation and Programming

A. Amplified Loud Paging

1. Paging Port

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Move the TALK BATTERY DIP switch to the OFF position (DIP switch 1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>Connect pins 9 and 10 to the paging port output.</td>
</tr>
<tr>
<td>Step 3.</td>
<td>Connect pins 11 and 12 to the paging contacts (if available).</td>
</tr>
<tr>
<td>Step 4.</td>
<td>Adjust the page level trim pot so the Page LED flashes with page audio.</td>
</tr>
</tbody>
</table>

**Important:** Page Alert Tone is not given when page contacts are not provided.

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.

2. Trunk/Line Port

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Move the TALK BATTERY DIP switch to the ON position (DIP switch 1).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>Connect pins 9 and 10 to an unused telephone line input (trunk port).</td>
</tr>
<tr>
<td>Step 3.</td>
<td>Adjust the page level trim pot so the page LED flashes with page audio.</td>
</tr>
</tbody>
</table>

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.

B. Loud Ringing/Night Bell

1. Ringing Analog Lines

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect pins 13 and 14 to a ringing line or PABX station.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>The loud ringing pot may be adjusted to set volume.</td>
</tr>
<tr>
<td>Step 3.</td>
<td>A night transfer switch may be added to pins 16 and 17 to enable and disable loud ringing.</td>
</tr>
</tbody>
</table>

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.
2. Dry Contact (Common Audible) Closure (contacts not included)

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect the dry contact closure to pins 15 and 16.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>A dry contact closure will initiate loud ringing.</td>
</tr>
</tbody>
</table>

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.

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C. Auxiliary Input

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect pins 7 and 8 to any other line level audio source.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>Adjust the aux in level trim pot so the aux in LED flashes with aux audio.</td>
</tr>
</tbody>
</table>

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.

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D. Background Music

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect a background music source to the background music in jack using the 1/8&quot; (3.5mm) cable provided.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>Adjust the background music trim pot to the desired volume.</td>
</tr>
<tr>
<td>Step 3.</td>
<td>Background music will play when all other inputs are idle.</td>
</tr>
</tbody>
</table>

**Note:** For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.
E. Additional Paging Power

When more than (30) 8 ohm speakers are required, an additional PA-30 can be added.

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect the main PA-30 as described on previous pages.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>Move the talk battery DIP switch to the OFF position (DIP switch 1)</td>
</tr>
<tr>
<td>Step 3.</td>
<td>Connect the main PA-30 600 Ohm Output (pins 5 and 6) to a second PA-30 Page In (pins 9 and 10).</td>
</tr>
<tr>
<td>Step 4.</td>
<td>Add a jumper wire across the Page Contact (pins 11 and 12) of the second PA-30.</td>
</tr>
</tbody>
</table>

F. 70 Volt or 25 Volt Speakers

<table>
<thead>
<tr>
<th>Step 1.</th>
<th>Connect pins 1 &amp; 4 to the 70 volt or 25 volt speakers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2.</td>
<td>For increased volume levels change the speaker’s “tap” to a higher power level.</td>
</tr>
</tbody>
</table>

Note: For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.

G. Very Loud Paging

If very loud paging is required, one or two 8-Ohm speakers can be connected in a way that provides 6dB of additional speaker volume.

Connect one or two 8-Ohm speakers to pins 1 and 4.

Note: For information on speakers to use, ambient noise levels and speaker wiring, see Fax Back Document 498.
H. DIP Switch Programming

<table>
<thead>
<tr>
<th>Switch</th>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
<td>Talk Battery disabled (use for paging port)</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
<td>Talk Battery enabled (use for trunk input)</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
<td>Normal Priority: Aux In → Page → Ringing → Background Music</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
<td>Alternative Priority: Page → Aux In → Ringing → Background Music</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switch 3</th>
<th>Switch 4</th>
<th>Sound Output Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>Electronic Warble</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>Double Gong</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>Quadruple Chime</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>Door Chime</td>
</tr>
</tbody>
</table>

Sound Output Specifications

All tones require a minimum of 180ms of ringing voltage (or contact closure) to trigger. Once triggered, the electronic warble will run continuously until ringing stops (or contacts open). All other tones (double gong, quadruple chime, doorbell) will run through their full sequence once and will not cycle again until the ringing stops (or contact opens) for at least 50ms and a second ring signal (or contact closure) triggers them again.

A. Electronic Warble (Traditional Loud Ringer)

[Diagram of Electronic Warble]

Frequency alternates between 1440 Hz and 1140 Hz 20 times per second.

B. Double Gong (Two “Gong” Tones)

[Diagram of Double Gong]

C. Quadruple Chime (Four Descending Chime Tones)

[Diagram of Quadruple Chime]

D. Door Chime (Ding-Dong)

[Diagram of Door Chime]
A. Background Music In
This audio input allows background music from an external source to plug into the PA-30. While any other input is active, background music is turned off, so music will only be heard through the speakers when all other inputs are idle. A 3.5mm (1/8”) audio cable is provided, and the music level can be set using the trim POT just behind the Background Music input jack.

B. Loud Ringing
1. Line In
   This input provides loud ringing through the speakers whenever ringing voltage is detected. Connect an analog ringing line to screw terminals 13 & 14 for this feature.

2. Contact Closure
   This input provides loud ringing through the speakers whenever a contact closure is detected. Some phone systems provide a “common audible” dry contact closure whenever a call is coming in. Wire the contact closure across screw terminals 15 & 16 to provide loud ringing from the PA-30.

3. Night Transfer
   This input can be used to disable loud ringing. For example, if loud ringing is only necessary during off business hours, an external switch can be added to disable loud ringing during the day, and transfer it back on at night. Wire an external switch across screw terminals 16 & 17. When the switch is closed, loud ringing will be disabled.

4. Loud Ringing Sounds
   The PA-30 can produce one of 4 selectable loud ringing sounds. Use DIP Switches 3 and 4 to choose between Electronic Warble, Double Gong, Quadruple Chime, or Door Chime sounds for loud ringing. Select the Electronic Warble tone (traditional loud ringing) for noisy areas. The softer chime tones work well in less noisy environments.

C. Paging
1. Page In
   This audio input allows paging from a phone system’s Paging Port, a phone system’s unused Telephone Line Input (Trunk Port), or even a simple dedicated analog phone. Wire the appropriate page source to screw terminals 9 & 10.

   If paging from a phone system’s unused Telephone Line Input (Trunk Port), or dedicated analog phone, DIP Switch 1 must be turned ON so the PA-30 will provide the necessary 40V DC of Talk Battery. To page, either access that Trunk Port or go off hook on the analog phone. Loop current will be detected and activate paging. Wait for the Page Alert Tone to pass, and then speak.

   If paging from a Paging Port and the Page Contacts are not used, the PA-30 relies on a Voice Activation Switch (VOX) feature that will switch to paging when voice audio is detected. This means the voice audio must be loud enough to be detected; in addition, there is not an opportunity for the PA-30 to produce a page alert tone. The VOX sensitivity can be adjusted using the Page Level Trim Pot located just behind the Page In screw terminals. Adjust this Pot so the Page LED flashes with page audio. To page, simply access the phone systems paging port and speak.

   If paging from a Paging Port and Page Contacts are used (see below), the PA-30 will provide a Page Alert Tone. To page, simply access the phone systems paging port, wait for the Page Alert Tone to pass, and then speak.

2. Page Contacts
   Page Contacts are only useful if paging from a phone system’s Paging Port (see above). If a Page Contact Closure is available from the phone system, wire it to screw terminals 11 & 12. A contact closure will activate the PA-30’s Paging Input.

D. Aux In
   This audio input allows any additional audio sources to be connected into the PA-30 on screw terminals 7 & 8. Possible uses are: audio from another paging system, clock controlled tones to announce work shift times (see Viking model CTG-1), emergency siren (see Viking model MTG-10), digitally recorded announcements (see Viking model DVA-500A or DVA-2WA), etc.

   The PA-30 relies on a Voice Activation Switch (VOX) feature that will switch to the Aux Input when audio is loud enough to be detected. The VOX sensitivity can be adjusted using the Aux In Level Trim Pot located just behind the Aux In screw terminals. Adjust this Pot so the Aux In LED flashes with Aux audio.

E. 600 Ohm Output
   This audio output is provided so that additional paging amplifiers can be added if additional paging power is needed. This is a 600 ohm line level output that can be connected into any single ended amplifier input (such as a second PA-30).

F. Master Volume
   A master volume control is provided. This adjustment only affects the gain of the PA-30’s output amplifier. Use it to set the power level going to the speakers.
G. Priorities

Since there are multiple uses and inputs to the PA-30, priorities need to be established to prevent contentions. If two inputs are activated at the same time, the one with the highest priority will take effect. Examples: Paging is higher priority than Loud Ringing, so Paging would interrupt loud ringing tones. Background Music input is always the lowest priority, and thus can be interrupted by any other input. Two different DIP Switch programmable Priority selections are available as listed below.

<table>
<thead>
<tr>
<th>Normal Priority (DIP Switch 2 OFF)</th>
<th>Alternative Priority (DIP Switch 2 ON)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aux In</td>
<td>1. Paging</td>
</tr>
<tr>
<td>2. Paging</td>
<td>2. Aux In</td>
</tr>
<tr>
<td>3. Ringing</td>
<td>3. Ringing</td>
</tr>
<tr>
<td>4. Background Music</td>
<td>4. Background Music</td>
</tr>
</tbody>
</table>

H. Speakers

1. Typical 8-Ohm Speakers

The PA-30 contains two separate high current amplifiers, each of which can drive up to fifteen 8-ohm speakers. This means the PA-30 is capable of driving a total of thirty 8-ohm speakers. For best results, connect ½ of the speakers across screw terminals 1 & 2 (the first amplifier), and connect the other ½ of the speakers across screw terminals 3 & 4 (the second amplifier), to balance out the power handling.

2. Managing Power Losses

An important part of installing any paging system is to understand how amplifier power is lost, and then know how to take measure to reduce this loss if needed. For example, if eight 8-ohm speakers are all connected together, their combined parallel impedance would be 1 ohm (8 ohms divided by 8 speakers equals 1 ohm). If these eight speakers are wired 125 feet away from the PA-30 using #16 gauge wire, ½ of the paging power would be lost in the long run. This is because a 125 foot full loop of #16 wire contains 1 ohm of total resistance, so half the power would be lost in the wire, and ½ the power would be produced across the speakers. For reference, ½ power is a 3dB loss.

There may be enough amplifier “headroom” for this to be acceptable in most applications, but in applications in which this much power loss is not acceptable, some measures can be taken to get some additional power to the distant speakers as listed below:

1. Use heavier gauge wire. Every 3 gauge sizes heavier represents ½ the resistance.
2. Double-up on the existing gauge wire.
3. Have more wire runs and fewer speakers in parallel for each run. Each speaker wired on its own “homerun” would maximize this approach.
4. Install the PA-30 closer to where the speakers are installed to minimize the wire run lengths.
5. Use 70 volt speakers as described below.

3. 70-Volt Speakers

Paging systems often utilize 70 volt speakers as a way to distribute audio with a minimal amount of power loss in the wire run. Typically, 70 volt speakers have an integral step down transformer that converts the high 70 volt signal down to a lower voltage, but higher current signal the speaker needs. The benefits of running a high voltage paging system are identical to the benefits of running high voltage power lines. That is, the higher the voltage is, the lower the current becomes. This is good because, as with lower current, there is less loss of power in the long wire runs due to resistance in the wire.

Since the PA-30 has two amplifiers that are running in differential mode, the output across them together will have double the voltage swing. This Bridge Tied Load (BTL) strapping of the two amplifiers enables the use of 70 volt speakers when wired across screw terminals 1 and 4. If increased volume levels are needed, use a higher power tap on the 70 volt speaker. Even though the PA-30 is able to drive either 70 volt or 8 ohm speakers, it is not recommended to mix 70 volt speakers and 8 ohm speakers on the same PA-30, because the 8 ohms speakers will play louder at any given volume setting.

4. Very Loud Paging

If the installation requires very loud paging, one or two 8 ohm speakers can be BTL strapped across the PA-30’s two amplifiers, (like 70 volt speakers as described above). Connecting one or two 8 ohm speakers across screw terminals 1 and 4 of the PA-30 will provide 6dB more speaker volume than normal. If more than two 8 ohm speakers are needed, wiring them as described in section “1.” above will provide best results.

Product Support Line...715.386.8666
Fax Back Line...715.386.4345

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