

VIKING PRODUCT MANUAL

COMMUNICATION & SECURITY SOLUTIONS

Line Powered Remote Access Device

The **RAD-1A** remote access device gives authorized users remote access to one way paging amplifiers, digital announcers and other audio programs. A programmable access code prohibits access by unauthorized users.

The **RAD-1A** answers on the first ring and disconnects on CPC, call time out, silence time out, busy, return to dial tone or by dialing **#7**. Separate 600 ohm audio and telephone line outputs are provided, allowing connection to audio amplifiers, digital announcers, or phone systems. The user does not have to hang up and redial the **RAD-1A** to access other features.



IMPORTANT: This product does not eliminate the possibility of toll fraud! To further protect against fraudulent calls, use with a TR-1 Toll Restrictor, for more info see DOD 705.

Features

- **Status LED turns on when the unit is active and brightens to indicate the presence of audio**
- Programmable 6 digit security code
- **Programmable 1 - 6 digit access code**
- **Separate 600 ohm audio and telephone line output**
- **Disconnects on CPC, call time out, silence time out, busy, return dial tone detection or by dialing #7**
- **Programmable 2 hour call timer**
- **Programmable 1 - 99 second silence timer**
- **Alternate screw terminal connection for telephone line out**
- Connects phone line to the 600 ohm input/output of one-way paging amplifiers, digital announcers and other audio programs
- Relay contacts available for systems that need a dry contact closure (activate whenever the unit's output is active)
- Non-volatile memory (no batteries required)

Applications

Remote Access To:

- Paging systems (Viking's **PA-2A, PA-15, PA-30, PA-60**)
- Digital announcers
- Advertisements, radio or church programs
- Audio monitoring for security purposes

www.VikingElectronics.com
Information: 715-386-8861

Specifications

- Power:** Telephone Line Powered (24V DC 20mA minimum)
- Dimensions:** 5.25" x 3.5" x 1.75" (133mm x 89mm x 44mm)
- Shipping Weight:** 0.90 lbs (0.41 kg)
- Environmental:** 32°F to 90°F (0°C to 32°C) with 5% to 95% non-condensing humidity
- Relay Contact Ratings:** .5A @ 125VAC / 1A @ 30VDC
- Audio Loss (through unit):** 1 dB
- Connections:** (2) RJ11 modular jacks, 7-position screw terminal strip

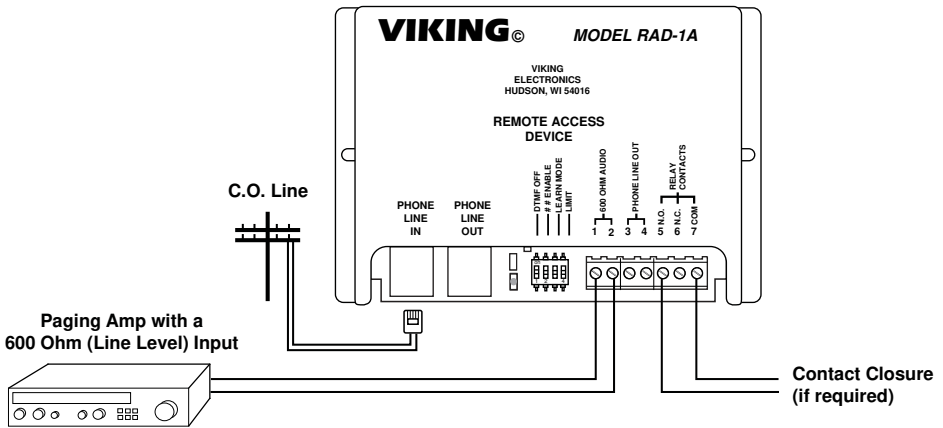
Installation and Applications

⚠ 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.

Connect your local incoming line to the modular jack labeled **PHONE LINE IN** and connect the modular jack labeled **PHONE LINE OUT** to an unused analog station, telephone line or 600 ohm audio device. Some typical applications are shown in the following sections.

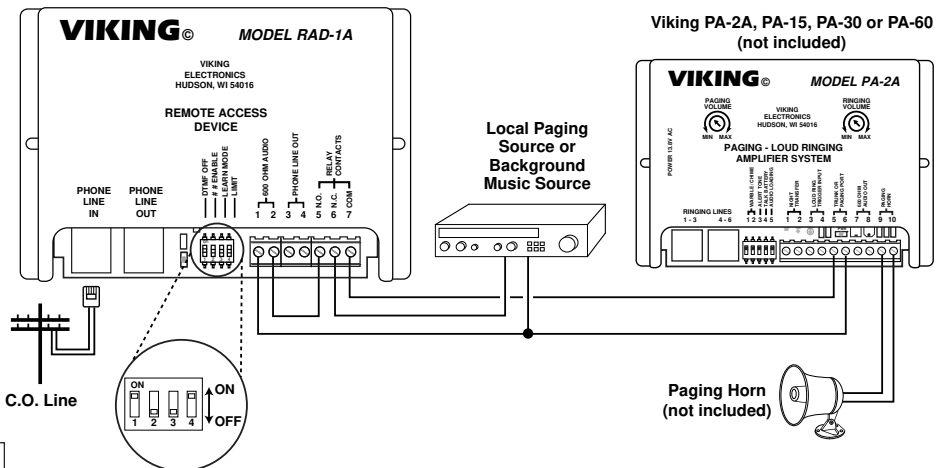
A. Access Simple One Way Paging Systems

The **RAD-1A** can be used to access paging systems remotely. The **RAD-1A** can hang-up on silence. Use a low value like 2 or 3 seconds for the silence time out setting (see **Programming** section **D**). If no audio is detected in the programmed amount of time, the **RAD-1A** will disconnect.



B. Access One Way Paging Systems with Background Music Sources

The **RAD-1A** can be used to access paging systems remotely. If the **RAD-1A** is to be used with a paging system that requires Touch Tone zone selections, the **RAD-1A** can be set to ignore Touch Tones. Setting DIP switch 1 to the **ON** position (see below) will disable the **RAD-1A's** ability to see Touch Tones so commands are only seen by the paging system. Be sure to set DIP switch 1 to the **OFF** position if additional programming is needed.



E. Line Extender

The **RAD-1A** can be used to access another line remotely. See **Application Note 874**. **Note:** For best performance, the **RAD-AMP** is recommended, see **DOD 415** for more information.

F. Remote Service Operation

The **RAD-1A** can be used to access the **SO-24A** Service Observing unit. See **Application Note 874**. **Note:** For best performance, the **RAD-AMP** is recommended, see **DOD 415** for more information.

G. Access PABX Features (DISA)

The **RAD-1A** can be used to access your phone system remotely. See **Application Note 874**. **Note:** For best performance, the **RAD-AMP** is recommended, see **DOD 415** for more information.

Programming

A. Accessing the Programming Mode

The **RAD-1A** can be programmed from any Touch Tone phone using a C.O. line, analog PABX/KSU station, or a **DLE-200B** Line Simulator, see **DOD 605** for more information. **Note:** While programming, if no Touch Tones are entered for 20 seconds, the **RAD-1A** will give 3 beeps and disconnect.

1. Using the Security Code

Step 1.	From the Touch Tone phone, call the line attached to the RAD-1A 's PHONE LINE IN jack.
Step 2.	When the RAD-1A answers, enter *, plus the 6 digit security code (factory set to 845464 , see Section B). A double beep should then be heard indicating you have entered the programming mode.

2. Without the Security Code

Step 1.	Set DIP switch 3 to ON as shown on page 5. Incoming calls will enter the Programming mode without a security code.
Step 2.	From a Touch Tone phone, call the line attached to the RAD-1A 's PHONE LINE IN jack.
Step 3.	When the RAD-1A answers, a double beep will be heard and the RAD-1A will automatically enter the programming mode.
Step 4.	When finished programming, set DIP switch 3 back to OFF .

B. Security Code

The security code allows the user/installer to program the **RAD-1A**. The factory set security code is 845464 (V-I-K-I-N-G). It is recommended that the factory security code be changed. **Note:** The security code must be 6 digits and cannot include a * or a #.

Example: To store 123456 as the security code:

Step 1.	Access programming as shown in Programming section A above.
Step 2.	Enter 123456 #47.
Step 3.	Hang-up.

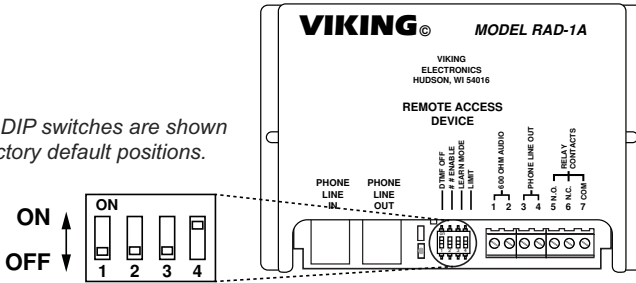
Enter Your Security Code Here:

#47

C. DIP Switch Settings

Switch	Position	Description
1	ON	Disable all DTMF (Touch Tone) detection
1	OFF	Enable all DTMF (Touch Tone) detection (factory default)
2	ON	Operating Features require ##
2	OFF	Operating Features require # only (factory default)
3	ON	No security code required to enter the programming mode
3	OFF	Security code required to enter the programming mode (factory default)
4	ON	Prevents audio amplitude at line in from exceeding FCC Part 68 limits (factory default)
4	OFF	Audio amplitude at line in is not limited

Note: DIP switches are shown in factory default positions.



D. Programming and Remote Access Features (requires a Touch Tone Phone)

If a valid Touch Tone sequence is entered while programming, a double beep will be heard. Three beeps indicate an error. To begin programming, call the **RAD-1A**. When the **RAD-1A** answers, you have 20 seconds to enter * followed by your 6 digit security code (a double beep should be heard). The **RAD-1A** may now be programmed.

Note: While programming, if no Touch Tones are entered for 20 seconds, the RAD-1A will give 3 beeps and disconnect.

Programming Features	Enter Digits	+ Location
Security code (6 digits 0-9) (factory set to 845464)	6 digits	+ #47
Access Code (1 - 6 digits, 0-9, no digits disables) (factory disabled)	1 - 6 digits	+ #45
Call timer (0-1 hours, 00-59 minutes, 00-59 seconds) (3 second minimum) (factory disabled)	5 digits	+ #48
Silence Time Out (01 - 99 seconds) (factory disabled)	2 digits	+ #49
Alert tones on (factory default)	* 9	
Alert tones off	* 0	
Connection beeps (0 = after lines are connected (default), 1 = before lines are connected).....	0 or 1	+ #50
Return dial tone detection (0 = disabled (default), 1 = enabled)	0 or 1	+ #51
Exit programming and disconnect	#7	
Set all programming features to factory settings	###	

Note: To disable or eliminate the use of any of the above features, enter the # + location number (45, 48, or 49) without any preceding numbers).

The **RAD-1A** allows remote access to any 600 ohm audio device. This can be very useful for remote access to paging systems. The **RAD-1A** will answer an incoming call on the first ring. The **RAD-1A** offers either unsecured access, or secured access to the 600 Ohm input/output of one-way paging amplifiers, digital announcers and other audio programs.

A. Unsecured Access

If the access code has not been programmed, the unit is "Unsecured." In this mode, the **RAD-1A** answers the inbound call, double beeps (if alert tones are ON), and bridges the line to the device connected to the **RAD-1A**'s output.

B. Secured Access (Dip Switch 1 OFF)

When an access code has been programmed, the **RAD-1A** answers the inbound call and prompts the caller with a single beep. The caller is then required to enter a 1 - 6 digit access code. If the proper access code is not entered within 20 seconds, the **RAD-1A** will triple beep and hang up. When a valid access code has been entered, the **RAD-1A** will double beep (if alert tones are ON) and bridge the line to the device connected to the **RAD-1A**'s output.

Important: *It is crucial that the installer and system owner understands the functions and capabilities of both the **RAD-1A** and the lines and/or PABX stations connected to the **RAD-1A**, so that any and all toll fraud and other system abuse possibilities are understood. This enables the installer and owner to make risk managing decisions about the system into which the **RAD-1A** is installed. Viking Electronics Inc. is not able to assume responsibility since it is a function of the entire system assembled by the installer/owner. A Viking **TR-1** Toll Restrictor may be added to help prevent toll abuse if the PABX and **RAD-1A** toll restriction is not adequate, see **DOD 705** for more information.*

Promote Your Business While Customers Hold and more ...

The **DVA-2WA** is a digital announcer with a built in 2 watt amplifier. Designed to provide music and promotion on hold, the **DVA-2WA** can playback in a continuous loop or alternate between promotions and an auxiliary music source in timed intervals. Any number of multiple messages may be recorded.

The announcer comes with four professionally pre-recorded promotion on hold messages, a power supply and cabling for an easy plug and play installation.

The output of the **DVA-2WA** may also be connected directly to loudspeakers for repeated messages or played at the push of a button for museum displays, information booths, point of interest locations, retail applications, etc.

The **DVA-2WA**'s non-volatile memory eliminates the need for batteries or costly built in tape decks. This provides the convenience of recording at the shop or professional studio and then shipping to the installation site.



For more info, see DOD 110

Add Paging and Multiple Line Loud Ringing to Any Phone System

The **PA-2A** provides loud ringing and paging to electronic key systems, 1A2 Key systems, PABX's as well as No-KSU phones and multiline phones.

Paging is accomplished by connecting the **PA-2A** to a paging port or unused telephone line input (trunk port) of nearly any phone system.

The **PA-2A** will also generate adjustable loud ringing from up to 6 analog lines 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-2A** is easy to install and eliminates the installation of multiple bells, relays and paging cards.



The unit comes complete with a power supply, amplifier and (1) Viking 25AE paging horn.

For more info, see DOD 485

Warranty

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

Our Technical Support Department is available for assistance Monday 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 product manual 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 Viking product 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.

TWO YEAR 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 two years from the date of purchase from any authorized Viking distributor. 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. This warranty does not cover non-EWP products that have been exposed to wet or corrosive environments. This warranty does not cover stainless steel surfaces that have not been properly maintained.

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.

FCC REQUIREMENTS

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the side of this equipment is a label that contains, among other information, a product identifier in the format US:AAEQ##TXXXX. If requested, this number must be provided to the telephone company.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive REN's on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total REN's, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

The plug used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this RAD-1A does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

If the RAD-1A causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications

to maintain uninterrupted service.

If trouble is experienced with the RAD-1A, for repair or warranty information, please contact:

Viking Electronics, Inc., 1531 Industrial Street, Hudson, WI 54016 715-386-8666

If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to Party Line Service is subject to State Tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

WHEN PROGRAMMING EMERGENCY NUMBERS AND (OR) MAKING TEST CALLS TO EMERGENCY NUMBERS:

Remain on the line and briefly explain to the dispatcher the reason for the call. Perform such activities in the off-peak hours, such as early morning or late evenings.

It is recommended that the customer install an AC surge arrester in the AC outlet to which this device is connected. This is to avoid damaging the equipment caused by local lightning strikes and other electrical surges.

PART 15 LIMITATIONS

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Product Support: 715-386-8666

Due to the dynamic nature of the product design, the information contained in this document is subject to change without notice. Viking Electronics, and its affiliates and/or subsidiaries assume no responsibility for errors and omissions contained in this information. Revisions of this document or new editions of it may be issued to incorporate such changes.