TECHNICAL Practice

TELECOM SOLUTIONS FOR THE 21ST CENTURY

RAD-1A
Remote Access Device
May 18, 2012

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 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.

This product does not eliminate the possibility of toll fraud! To further protect against fraudulent calls, use with a Viking TR-1 Toll Restrictor (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 6 digit access code
- **Separate 600 ohm audio and telephone line outputs**
- **Disconnects on CPC, call time out, silence time out, busy or by dialing #7**
- **Programmable 2 hour call timer**
- **Programmable 1-99 second silence timer**
- **Alternate screw terminal connection for phone 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 **CPA-7B** or **PA-2A**)
- Digital announcers, dictation equipment
- Advertisements, radio or church programs
- Audio monitoring for security purposes

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Specifications

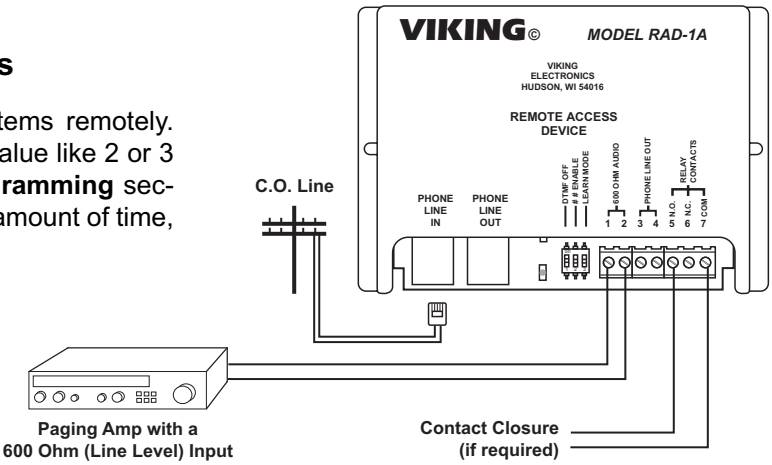
Power: Telephone Line Powered (24V DC 20mA minimum)
Dimensions: 133mm x 89mm x 44mm (5.25" x 3.5" x 1.75")
Shipping Weight: 1.13 kg (2.5 lbs)
Environmental: 0°C to 32°C (32°F to 90°F) with 5% to 95% non-condensing humidity
Relay Contact Ratings: .5A @ 125VAC / 1A @ 30VDC
Audio Loss (through unit): 1 dB
Connections: (2) RJ11 modular jacks, 7-position screw terminal strip

Installation and Applications

A. Access Simple One Way Paging Systems

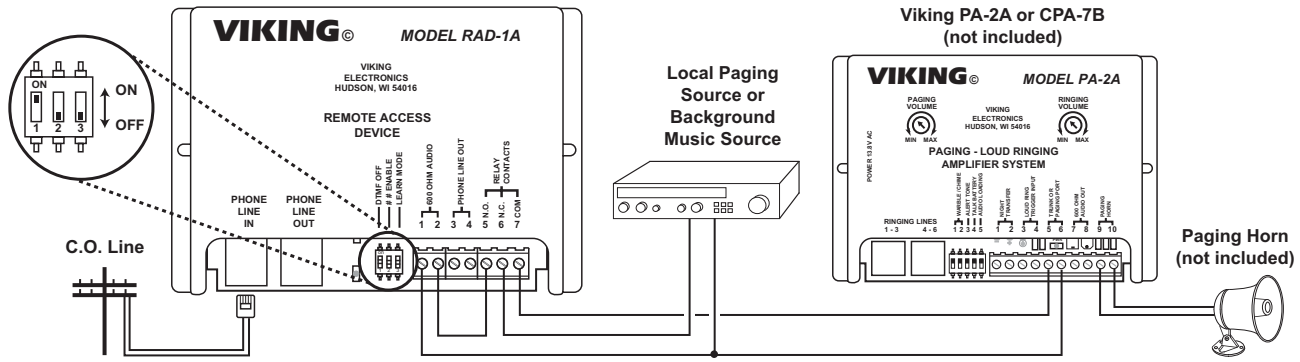
The **RAD-1A** can be used to access paging systems remotely. The **RAD-1A** can hang-up on silence. Use a low value like 2 or 3 seconds for the silence time out setting (see **Programming** section **D**). If no audio is detected in the programmed amount of time, the **RAD-1A** will disconnect.

IMPORTANT: *Electronic devices are susceptible to lightning surges from the telephone line. It is recommended that a surge protector be installed to protect against such surges.*



B. Access One Way Paging Systems with Background Music Sources

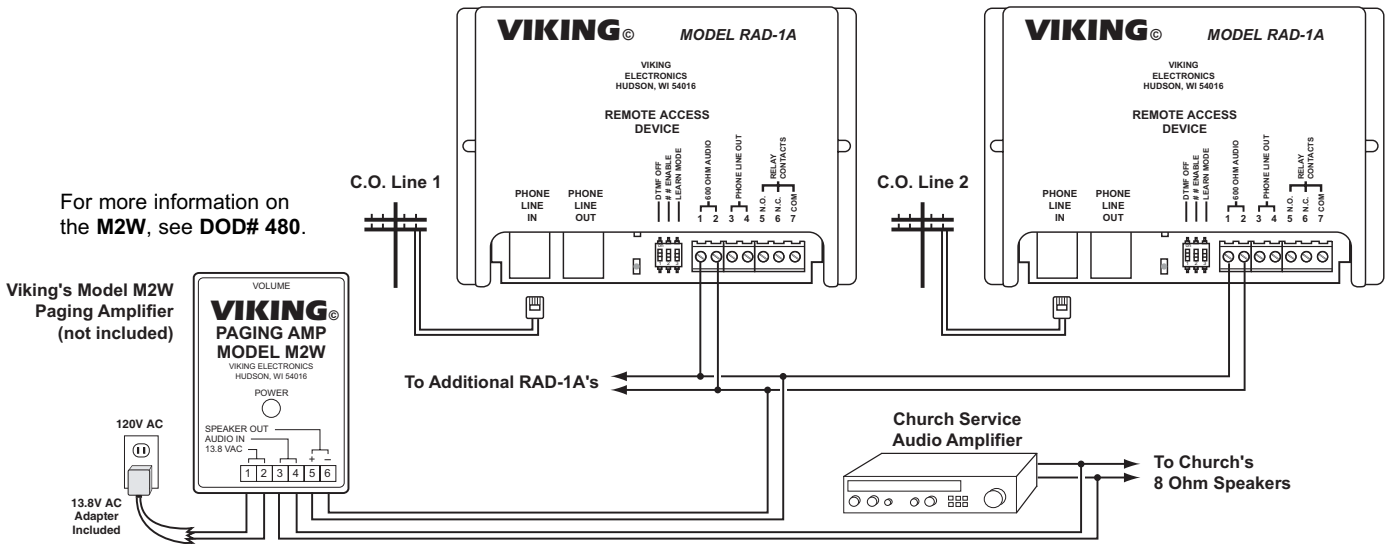
The **RAD-1A** can be used to access paging systems remotely. If the **RAD-1A** is to be used with a paging system that requires Touch Tone zone selections, the **RAD-1A** can be set to ignore Touch Tones. Setting DIP switch 1 to the **ON** position (see below) will disable the **RAD-1A's** ability to 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.



For more information on the **CPA-7B**, see **DOD# 455**.
For more information on the **PA-2A**, see **DOD# 485**.

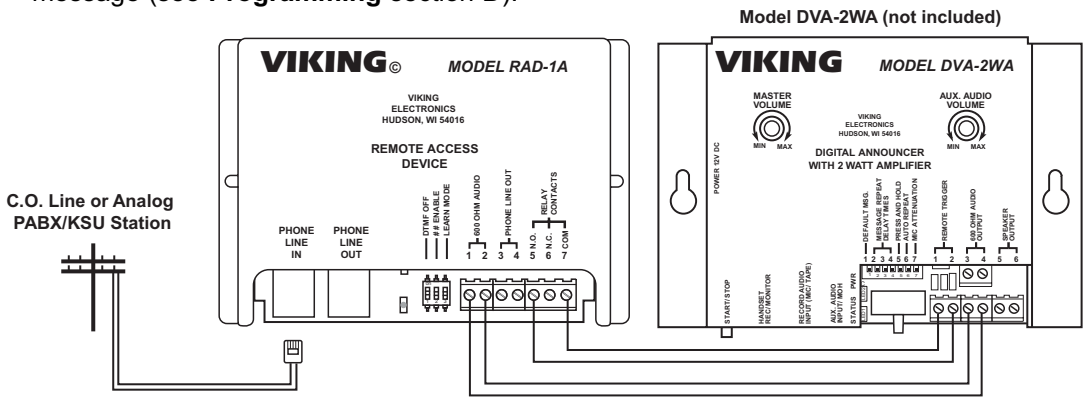
C. Monitoring Church Services

Multiple **RAD-1A**'s can be used for Church Service monitoring (one unit for each incoming phone line). In this mode, if CPC is not available, set the maximum call timer to a value slightly longer than the Church service (see **Programming** section **D**).



D. Single Line 7.5 Minute Digital Announcer

In this application, the **RAD-1A** will answer the line and trigger the message on the **DVA-2WA** to play from the beginning. The **RAD-1A** Call Timer (if used) must be programmed to a time long enough for the **DVA-2WA** to play its entire message (see **Programming** section **D**).



Note: *For this application, switch* ***5*** *on the* ***DVA-2WA*** *must be* ***ON****. Installation and programming specifications for the* ***DVA-2WA*** *are available in the* ***DVA-2WA*** *Technical Practice,* ***DOD# 110****.*

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 Observation

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.

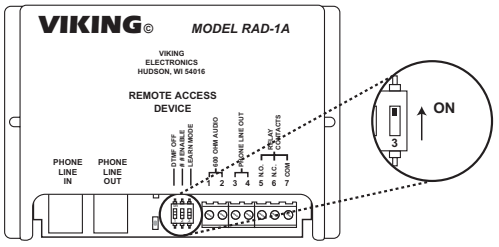
1. Using the Security Code

Step 1.	From a 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.

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

2. Without the Security Code

Step 1.	Set DIP switch 3 to **ON** as shown to the right. 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**.



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

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. **Example:** To store 123456 as the security code:

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

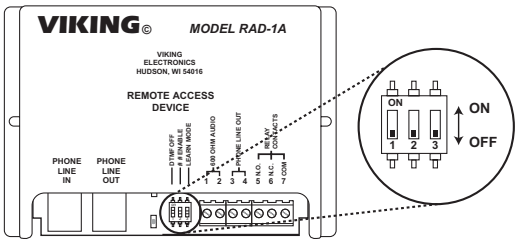
Enter Your Security Code Here:

						#47

Note: *The security code must be 6 digits and cannot include a ∗ or a* ***#****.*

C. DIP Switch Programming

Switch	Position	Description
1	ON	Disables all DTMF (Touch Tone) detection
1	OFF	Enables all DTMF (Touch Tone) detection (factory default)
2	ON	(Do Not Use)
2	OFF	Normal Operation (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)



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.*

Quick Programming Features	Enter Digits	- then -	Enter Memory Location
Security code (6 digits, 0-9) (factory set to 845464)	**6 digits**	then	**#47**
Access Code (6 digits, 0-9, no digits disables) (factory disabled)	**6 digits**	then	**#45**
Call timer (0-1 hrs, 00-59 mins, 00-59 secs) (factory disabled, 3 sec minimum)	**5 digits**	then	**#48**
Silence time out (01 - 99 seconds) (factory disabled)	**2 digits**	then	**#49**
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.*			
Alert tones on (factory setting)	**∗ 9**		
Alert tones off	**∗ 0**		
Exit Programming and disconnect	**# 7**		
Set all programming features to factory settings	**###**		

Operation

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 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 in which the **RAD-1A** is put into. 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.*

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.