Designed, Manufactured and Supported in the USA

VIKING PRODUCT MANUAL

SECURITY & COMMUNICATION SOLUTIONS

FXI-1A
FXO / FXS / Telecom Smart Paging Interface
January 6, 2020

Interface Your Paging System with Virtually Any Telecom or IP Phone System

Viking's **FXI-1A** universal paging interface allows you to provide paging from virtually any type of phone system instead of from a microphone. You can also provide background music and electronic night bell over the audio system.

The **FXI-1A** provides 30V talk battery for interfacing with an **FXO,** plain old telephone, or unused analog line input/trunk port. With the flip of a switch, the unit can connect to a **FXS** or **PABX** station ring trip port. **No power supply is required in this mode.** In the event that it must be connected to a "dry" 600 Ohm paging port, the built-in voice activation (**VOX**) is in control. This configuration is useful when interfacing with systems that do not provide a paging contact closure, such as Panasonic, South Western Bell, Intertel, etc.

In all modes the **FXI-1A** provides normally open or normally closed relay contacts to activate the central paging amplifier equipment or connect to an external background music source. After paging, the **FXI-1A** auto disconnects on **CPC**, busy signal, silence or page timer. An electronic night bell over paging feature can be activated from a momentary phone system contact closure.

Features

- Select: **FXO** (loop start), **FXS** (ring trip) or paging port (**VOX** relay) interface mode
- No power supply required in FXS interface mode
- 30V DC talk battery for interfacing with **FXO** or unused phone system line input/trunk port
- Floating 600 Ohm paging output with volume control
- Normally open or closed relay for external paging amp activation or interfacing the paging amp with an external background music source
- Pre-page page tone (on/off)
- Compatible with 24 to 48 volt **FXS** operation
- Calling party control (**CPC**) detection for immediate disconnect
- Busy signal detect disconnect
- **Adjustable silence disconnect time, 2.5 to 10 seconds or disabled**
- Selectible **VOX** trigger sensitivity, High or Low
- **Adjustable page time out, 5 to 60 seconds or disabled**
- Screw terminal block connections
- Wall mount housing: (2) #6x3/4 panhead screws included

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

Applications

- Integrate your paging system with virtually any phone system
- Suppress background music during paging
- Provides contact closure to activate paging system if not provided by the phone system
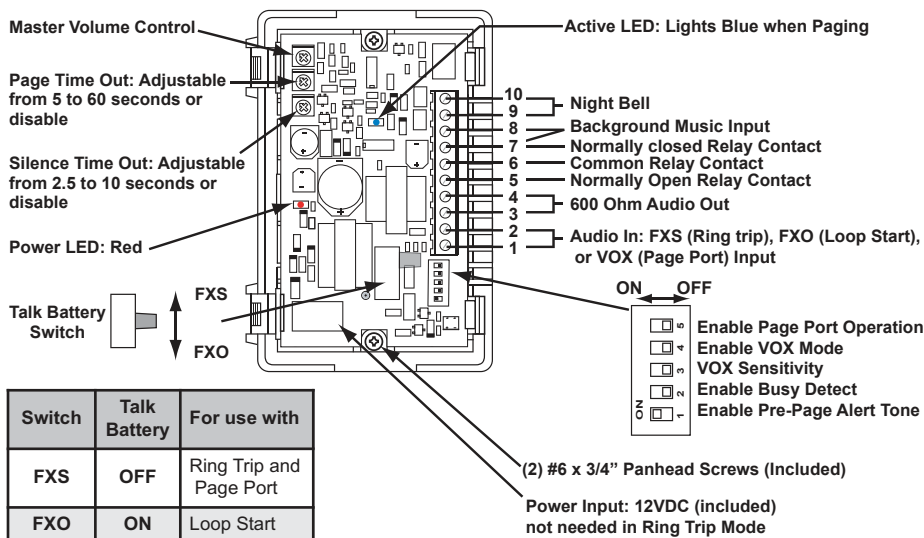- Add pre-page tone to your paging system

Specifications

Power: 120V AC/12V DC @ 500mA, UL listed adapter included (not required in **FXS** mode)
Dimensions: 4.38" x 2.97" x 1.38" (111mm x 76mm x 36mm)
Shipping Weight: 1.06 lbs (.48 kg)
Environmental: 32°F to 90°F (0°C to 32°C) with 5% to 95% non-condensing humidity
Relay Contacts: 30V DC@1A, 110V DC@0.3A, 125V AC@0.5A
VOX Minimum Audio Signal to Activate Relay: -28dbm minimum / -25dbm minimum @ 1KHz with VOX sensitivity switch at normal / lower positions
VOX Time Out Disconnect: 2.5 to 10 seconds or disabled
Page Time Out Disconnect: 5 to 60 seconds or disabled
Talk Battery: 30V DC
Connections: 10 position cage clamp terminal strip

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.*

Internal View of the FXI-1A

Master Volume Control

Page Time Out: Adjustable from 5 to 60 seconds or disable

Silence Time Out: Adjustable from 2.5 to 10 seconds or disable

Power LED: Red

Talk Battery Switch

FXS

FXO

Active LED: Lights Blue when Paging

10
9 — Night Bell
8 — Background Music Input
7 — Normally closed Relay Contact
6 — Common Relay Contact
5 — Normally Open Relay Contact
4
3 — 600 Ohm Audio Out
2
1 — Audio In: FXS (Ring trip), FXO (Loop Start), or VOX (Page Port) Input

ON   **OFF**

5 — Enable Page Port Operation
4 — Enable VOX Mode
3 — VOX Sensitivity
2 — Enable Busy Detect
1 — Enable Pre-Page Alert Tone

(2) #6 x 3/4" Panhead Screws (Included)

Power Input: 12VDC (included) not needed in Ring Trip Mode

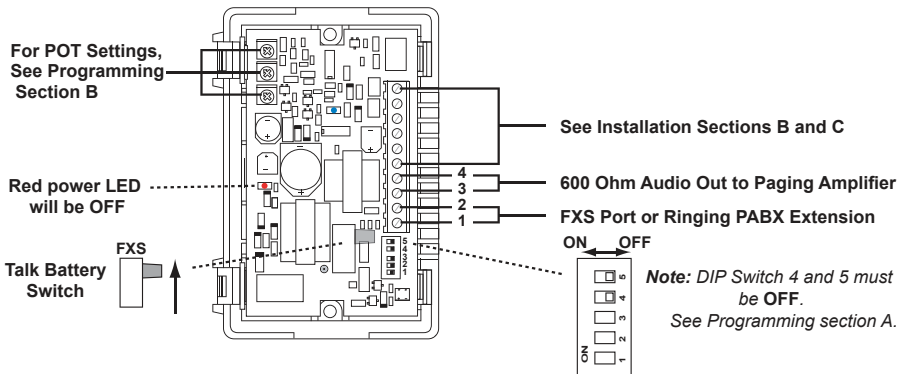| Switch	Talk Battery	For use with
FXS	OFF	Ring Trip and Page Port
FXO	ON	Loop Start

A. Page Input Type

Use one of the following three diagrams (depending on the type of page input that will be used), to connect the paging source. In all three cases, the 600 Ohm Audio Output can connect to a paging amplifier. The Relay Contacts can be used to either switch in and out background music (See Installation section B), or trigger the paging amp (See Installation section C).

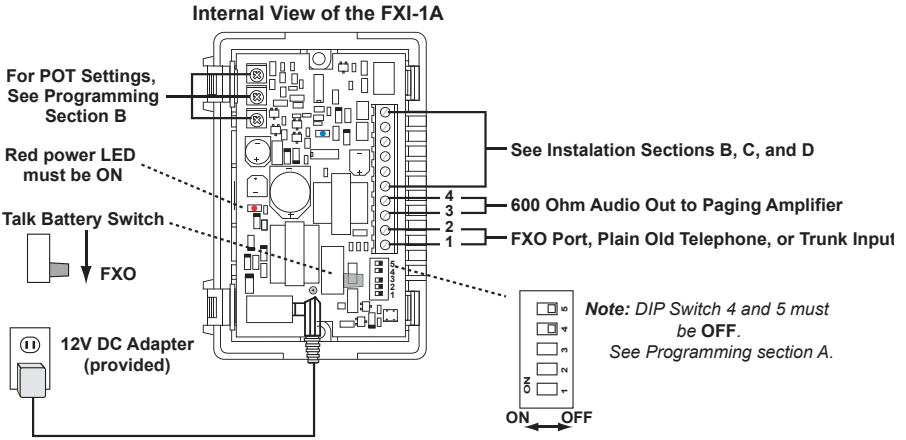### 1. FXS (Ring Trip) Mode (Not Using the Included Power Supply)

Select this mode if connecting to a FXS Port, or a Ringing PABX Extension. The **FXI-1A** will answer a ringing line, activate its relay, and pass the paging audio onto the amplifier. It will then drop the call based on Page Time Out, Silence Time Out, detecting a Busy Signal or Calling Party Control (CPC). See Operation section A for further details.

Internal View of the FXI-1A

For POT Settings, See Programming Section B

Red power LED will be OFF

Talk Battery Switch

FXS

See Installation Sections B and C

4
3
2
1 — 600 Ohm Audio Out to Paging Amplifier

FXS Port or Ringing PABX Extension

ON   **OFF**

Note: DIP Switch 4 and 5 must be OFF.
See Programming section A.

2. FXO (Loop Start) Mode – Power Required

Select this mode if connecting to a FXO Port, a Plain Old Telephone, or a Trunk Input of a PABX or Key System. The **FXI-1A** provides 30 VDC Talk Battery. When the port, phone, or trunk has seized the line, the **FXI-1A** will activate its relay, and audio will pass through the **FXI-1A** to the paging amplifier. See Operation section B for further details.

Internal View of the FXI-1A

For POT Settings, See Programming Section B

Red power LED must be ON

Talk Battery Switch

FXO

12V DC Adapter (provided)

See Instalation Sections B, C, and D

4
3
2
1

600 Ohm Audio Out to Paging Amplifier

FXO Port, Plain Old Telephone, or Trunk Input

Note: DIP Switch 4 and 5 must be **OFF**. See Programming section A.
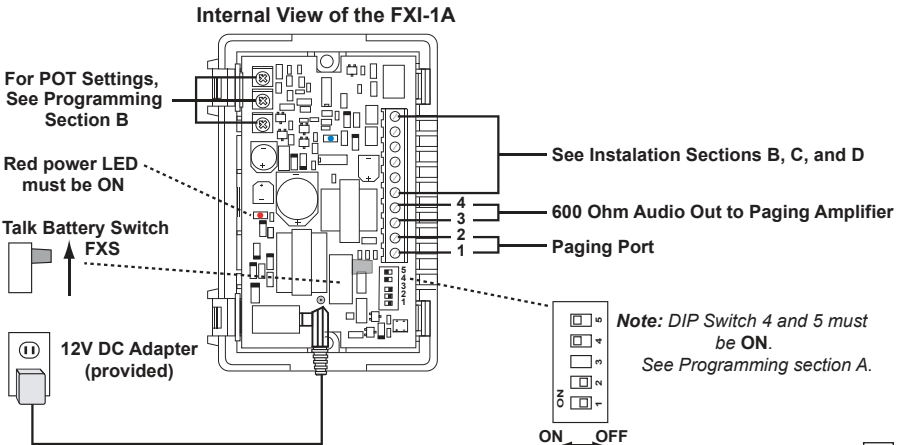
ON   OFF

3. VOX (Paging Port) Mode – Power Required

Select this mode if connecting to a Paging Port. When the **FXI-1A** detects audio it will activate its relay and pass the paging audio onto the amplifier until the Silence Time Out is reached. See Operation section C for further details.

Note 1: The Page Alert Tone is not recommended in this mode, so keep DIP Switch 1 in the OFF position.
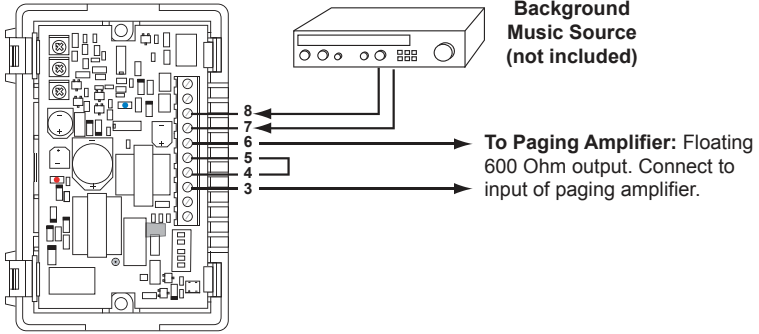
*Note 2: Since this mode is dependent on detecting audio, it is important to set the Silence Time Out POT to a time setting that works best for the application. It is also recommended to keep the Busy Detect feature disabled (DIP Switch 2 OFF), and to set the Page Time Out POT to the Disabled position (fully clockwise). This way the **FXI-1A** stops paging only when the paging source goes silent.*

Internal View of the FXI-1A

For POT Settings, See Programming Section B

Red power LED must be ON

Talk Battery Switch
FXS

12V DC Adapter (provided)

See Instalation Sections B, C, and D

4
3
2
1

600 Ohm Audio Out to Paging Amplifier

Paging Port

Note: DIP Switch 4 and 5 must be **ON**. See Programming section A.

ON   OFF

B. Add Background Music

If there is not a background music input on the paging amplifier, the **FXI-1A** relay contacts can be used as shown below to add a background music source. This application works with all paging input types (FXS, FXO, and VOX), and the music is suppressed during paging.
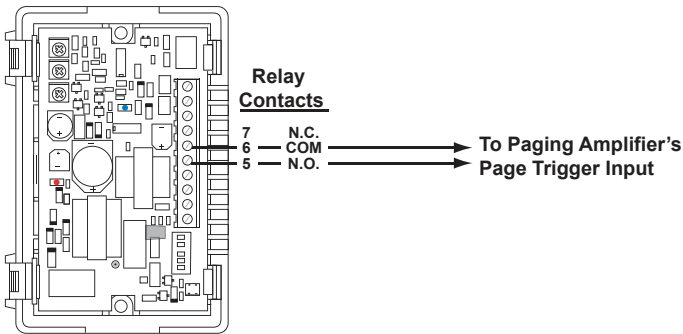
Internal View of the FXI-1A

Background Music Source (not included)

8
7
6
5
4
3

To Paging Amplifier: Floating 600 Ohm output. Connect to input of paging amplifier.

C. Page Trigger

If the **FXI-1A** relay contacts are not being used for adding background music (as shown above), they can be used as a page trigger. Connect the common and normally open contacts to the paging amplifier's Page Trigger input. The contacts will provide a contact closure when paging is active.
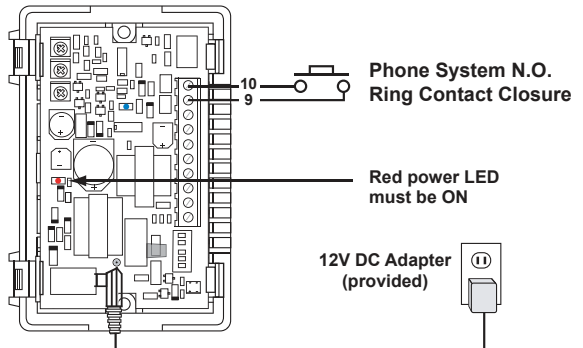
Internal View of the FXI-1A

Relay Contacts

7 — N.C.
6 — COM
5 — N.O.

To Paging Amplifier's Page Trigger Input

D. Night Bell Over Page – Power Required (FXO or VOX Only)

If the phone system provides a "Night Bell" contact closure output, it can be connected as shown below. The **FXI-1A** will produce a loud ringing warble tone on contact closure. Not compatible with FXS (Ring Trip) Mode. See Operation section D for more details.
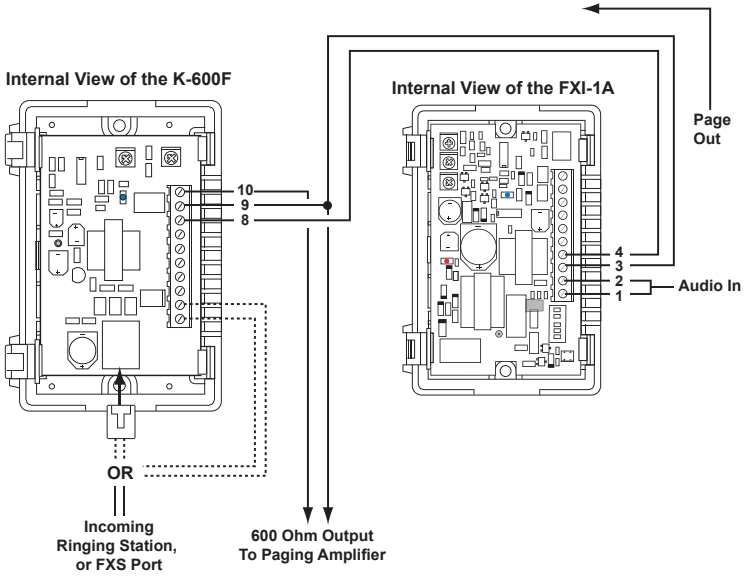
Internal View of the FXI-1A

10
9

Phone System N.O. Ring Contact Closure

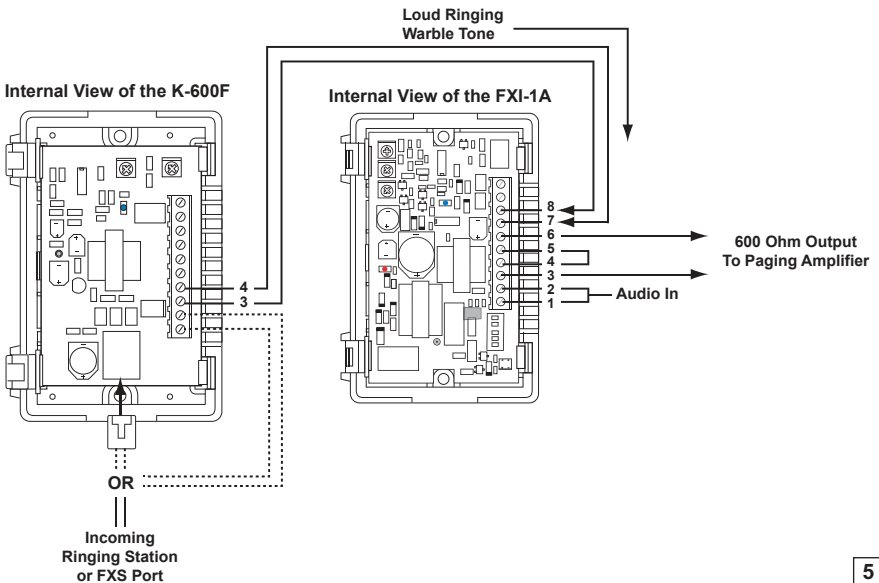**Red power LED must be ON**

12V DC Adapter (provided)

E. Add Loud Ringing From a Ringing Station or FXS Port

If the phone system does not provide a "Night Bell" contact closure output, loud ringing can be achieved from a ringing station, or a ringing FSX port, with the addition of a Viking Model **K-600F** Night Bell Over Paging Adapter. The two products can be wired so that either paging has priority or loud ringing has priority. If both events happen at the same time, the higher priority will take precedence. The loud ringing warble tone will follow the cadence of the incoming ring signal.
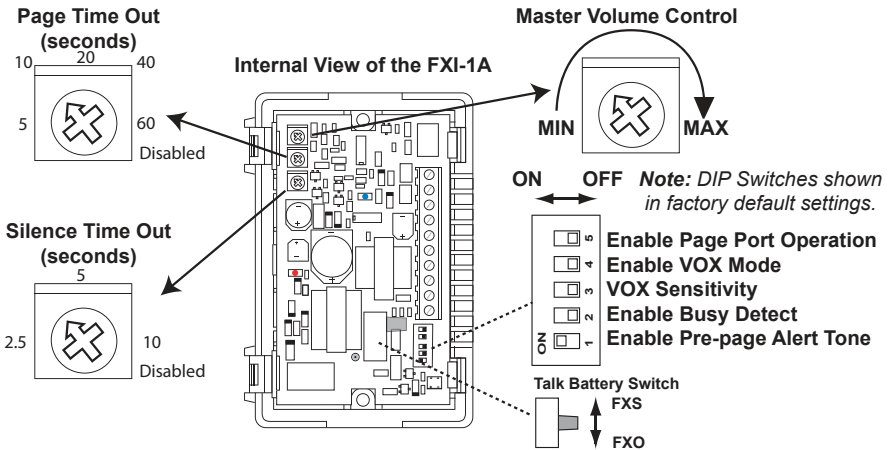
1. Loud Ringing has Priority

Internal View of the K-600F

Internal View of the FXI-1A

Page Out

10
9
8

4
3
2
1

Audio In

OR

Incoming Ringing Station, or FXS Port

600 Ohm Output To Paging Amplifier

2. Paging has Priority

Loud Ringing Warble Tone

Internal View of the K-600F

Internal View of the FXI-1A

8
7
6
5
4
3
2
1

600 Ohm Output To Paging Amplifier

Audio In

4
3

OR

Incoming Ringing Station or FXS Port

A. DIP Switch Programming (* factory default setting)

Switch	Position	Description
5	ON	Enables Page Port Operation
5	OFF*	Disables Page Port Operation
4	ON	Enables Vox Mode
4	OFF*	Disables Vox Mode
3	ON	Lower Vox Sensitivity
3	OFF*	Normal Vox Sensitivity
2	ON	Enables Busy Detection Disconnect
2	OFF*	Disables Busy Detection Disconnect
1	ON*	Enables the Pre-Page Alert Tone - a High tone before the page
1	OFF	Disables the Pre-Page Alert Tone

B. POT Programming (Shown at factory default setting)

Page Time Out (seconds)
10 20 40
5 60
Disabled

Internal View of the FXI-1A

Master Volume Control
MIN MAX

ON ← → OFF *Note: DIP Switches shown in factory default settings.*

5 — Enable Page Port Operation
4 — Enable VOX Mode
3 — VOX Sensitivity
2 — Enable Busy Detect
1 — Enable Pre-page Alert Tone
ON

Silence Time Out (seconds)
5
2.5 10
Disabled

Talk Battery Switch
FXS
FXO

NOTE: *If both the Page Time Out POT and Silence Time Out POT are turned to the "Disabled" position, and if the phone system does not provide a CPC or Busy Signal, the **FXI-1A** will appear as if it is locked up. In actuality, the **FXI-1A** simply does not have anything to tell it the page has ended. When this happens, the only way to clear the ongoing page is to power down the unit by disconnecting the power and/or disconnecting it from the ringing station. Be sure to move the Page and Silence Time Out POTS from the "Disabled" position before reconnecting.*

C. Talk Battery Switch (FXS vs FXO)

1. FXS

An FXS port is an analog output RJ11 port just like a station port on a phone system or PABX extension. It provides talk battery, dial tone and ring voltage. In the FXS mode, the **FXI-1A** is triggered by ring voltage to seize the line, it is then powered by the talk battery being provided, so the supplied 12VDC power supply is not needed.

2. FXO

An FXO port is an analog input RJ11 port just like a POTS trunk input on a PABX or key system. An FXO port receives talk battery and ring voltage. In the FXO mode, the **FXI-1A** provides 30V talk battery to connect to an FXO port, trunk input, or plain analog phone.

A. FXS (Ring Trip) Mode

In this mode an external power adapter is typically not needed. The unit can be powered by a ringing line and will answer after 1 second at which time it will activate the relay contacts and provide a pre-page alert tone if enabled (Dip switch 1). The **FXI-1A** will release the relay and hang up after a break in loop current (CPC) or if any of the following are enabled; silence time out, busy detect, or page time out.

B. FXO (Loop Start) Mode

In this mode the unit waits until loop is detected (when a FXO port, telephone, or PABX trunk coming off hook), then activates the relay contacts and provides a pre-page alert tone if enabled (Dip switch 1). The **FXI-1A** will release the relay, end the page, and provide a 2 second CPC signal, on either loss of loop current or if any of the following are enabled; silence time out, busy detect, or page time out.

C. VOX (Page Port) Mode

Dip switch 4 and 5 must be ON and the Talk Battery switch should be in the FXS position. In this mode the unit waits until audio is detected then activates the relay contacts. The **FXI-1A** ends the page when audio stops and the silence time out is met.
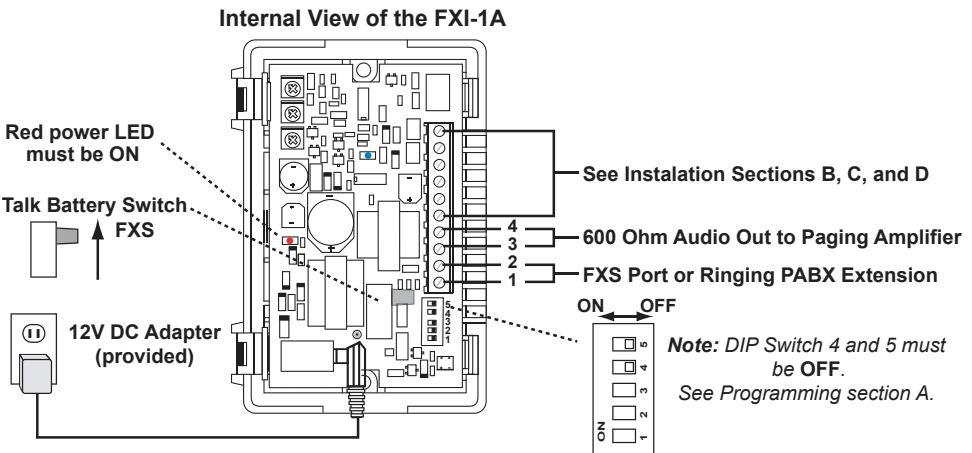
D. Night Bell Over Page

If the unit is powered and not currently paging or providing a CPC, a momentary closure on the Night Bell input for 50mS or more will trigger a 1 second pause followed by relay activation, a 1.5 second warble tone, and relay release. A continuous closure on the night bell input causes the 1 second pause, 1.5 second warble tone cycle to repeat until the closure is removed.

Troubleshooting

Some VoIP products provide a low power ring signal designed for electronic phones that adaptor-powered equipment can detect easily, but line-powered equipment may have trouble powering a relay from this weak signal.

In this case it is recommended to use FXO (Loop Start) mode if possible by changing to an unused trunk input, otherwise connect the equipment as shown in the special "FXS Power Assist (Ring Trip) Mode".

FXS Power Assist (Ring Trip) Mode - Power Required

Internal View of the FXI-1A

Red power LED must be ON

Talk Battery Switch
FXS

12V DC Adapter (provided)

See Instalation Sections B, C, and D

4
3 — 600 Ohm Audio Out to Paging Amplifier
2
1 — FXS Port or Ringing PABX Extension

ON   OFF

Note: DIP Switch 4 and 5 must be OFF.
See Programming section A.

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:AAAEQ##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:AAAEQ##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 FXI-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 FXI-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 FXI-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.