

# VIKING PRODUCT MANUAL

COMMUNICATION &amp; SECURITY SOLUTIONS

**SO-24A**  
Service  
Observation Unit  
July 28, 2014

## Add Silent Observation to Most Phone Systems

The **SO-24A** allows supervisors to silently monitor employee phones without disrupting the activity at their workstation. The information gathered may be used for quality purposes, to train, motivate even **assist** customer service and telemarketing representatives.

A supervisor may enter the conversation by dialing a “\*.” A cassette recorder output permits automatic or manual recording of conversations (see page 6, **Operation** sections **D** and **E**).

The **SO-24A** features improved audio and can now be easily expanded to 240 stations by installing additional 24 line units. The **SO-24A** can be programmed with a 2, 3 or 4 digit dial up code to match station extension numbers (see page 6, **Operation** section **B**).



### Features

- 24 station capacity can be expanded to 240 stations at any time
- Compatible with analog PABX/KSU stations
- Configurable for digital phones (requires the **SO-24 AK** and a dedicated pair of wires between the handset and the **SO-24A**)
- Monitor stations from an unused phone system line input or to a dedicated single line phone
- Add remote observing with a **RAD-AMP** Remote Access Device
- Built-in talk assist (dial \*)
- **Dial up code can be programmed to match the phone system's station or extension numbers**
- Cassette recorder output with automatic or touch tone control (see page 6, **Operation** sections **D** & **E**)
- Automatic gain control equalizes in and out-bound conversation levels
- Call progress tones for observing supervisor

### Applications

- Telemarketing Centers
- Direct Sales Outlets
- Travel Agencies
- Customer Service Departments
- Airline Employment Services
- Collection Agencies
- Credit Bureaus
- Insurance Companies

**[www.vikingelectronics.com](http://www.vikingelectronics.com)**  
**Information: (715) 386-8861**

### Specifications

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

**Dimensions:** 210mm x 159mm x 45mm (8.25" x 6.25" x 1.75")

**Shipping Weight:** 1.36 kg (3 lbs)

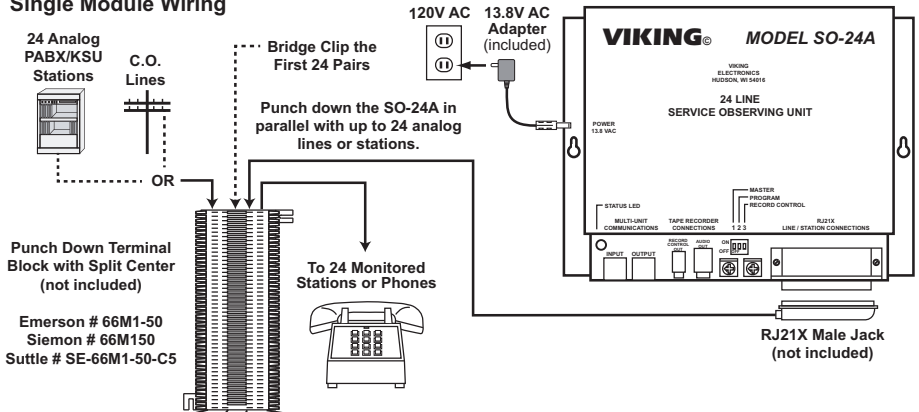
**Environmental:** 0° C to 32° C (32° F to 90° F) with 5% to 95% non-condensing humidity

**Talk Battery:** 40V DC

**Connections:** (1) RJ21X, (1) 3.5mm (1/8") audio jack and cable, (1) 2.5mm (3/32") control jack and cable, (2) RJ-14 type multi-module interconnect and interconnect cord

# Wiring

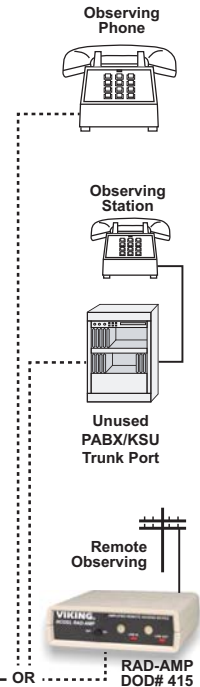
## A. Single Module Wiring



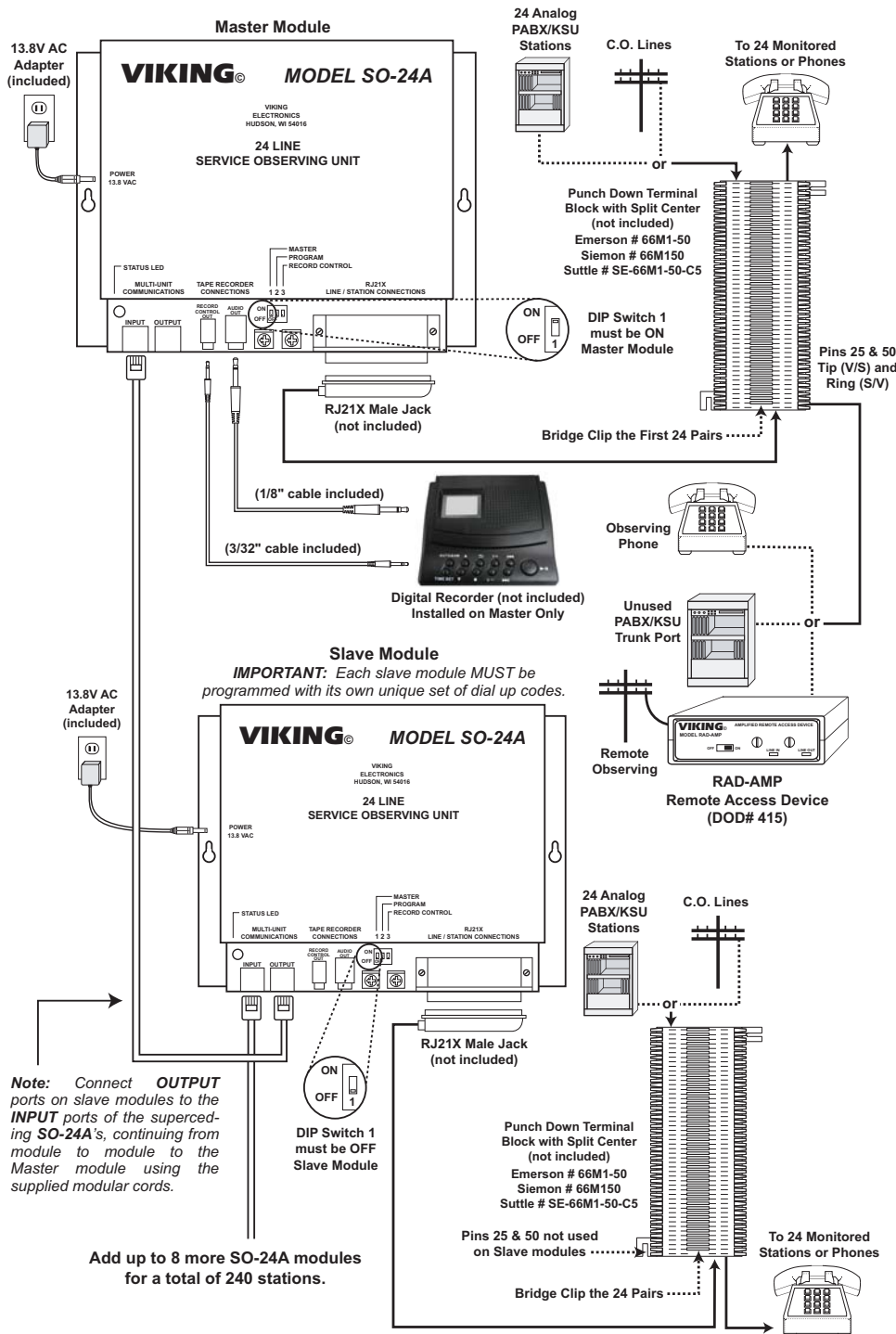
Row 1 Lines In	Row 2 Unused	Row 3 SO-24A	Row 4 To Phones	Factory Default 2-Digit Dial Up Code	User Programmable 2, 3, or 4 Digit Dial Up Code*	Memory Location:
1T		W/BL	1T	01		#01
1R		BL/W	1R			
2T		W/O	2T	02		#02
2R		O/W	2R			
3T		W/G	3T	03		#03
3R		G/W	3R			
4T		W/BN	4T	04		#04
4R		BN/W	4R			
5T		W/S	5T	05		#05
5R		S/W	5R			
6T		R/BL	6T	06		#06
6R		BL/R	6R			
7T		R/O	7T	07		#07
7R		O/R	7R			
8T		R/G	8T	08		#08
8R		G/R	8R			
9T		R/BN	9T	09		#09
9R		BN/R	9R			
10T		R/S	10T	10		#10
10R		S/R	10R			
11T		BK/BL	11T	11		#11
11R		BL/BK	11R			
12T		BK/O	12T	12		#12
12R		O/BK	12R			
13T		BK/GN	13T	13		#13
13R		GN/BK	13R			
14T		BK/BN	14T	14		#14
14R		BN/BK	14R			
15T		BK/S	15T	15		#15
15R		S/BK	15R			
16T		Y/BL	16T	16		#16
16R		BL/Y	16R			
17T		Y/O	17T	17		#17
17R		O/Y	17R			
18T		Y/G	18T	18		#18
18R		G/Y	18R			
19T		Y/BN	19T	19		#19
19R		BN/Y	19R			
20T		Y/S	20T	20		#20
20R		S/Y	20R			
21T		V/BL	21T	21		#21
21R		BL/V	21R			
22T		V/O	22T	22		#22
22R		O/V	22R			
23T		V/G	23T	23		#23
23R		G/V	23R			
24T		V/BN	24T	24		#24
24R		BN/V	24R			
		V/S	25T			
		S/V	25R			

**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.

**\*Note:** When using multiple units, see **DOD# 943** for a programming chart to manage dial up codes for up to 10 units.



### B. Multi-Module Wiring



## Definitions

**“66” Punchdown Terminal Block:** A connection peripheral used to interface telephone lines easily.

**Analog Communication:** The type of communication in which a standard residential type phone may be used. The **SO-24A** can monitor any analog communication path that is compatible with standard analog telecom equipment.

**Dial Up Code:** The 2, 3 or 4 digit Touch Tone code dialed from the observing phone to listen to a specific analog station or line.

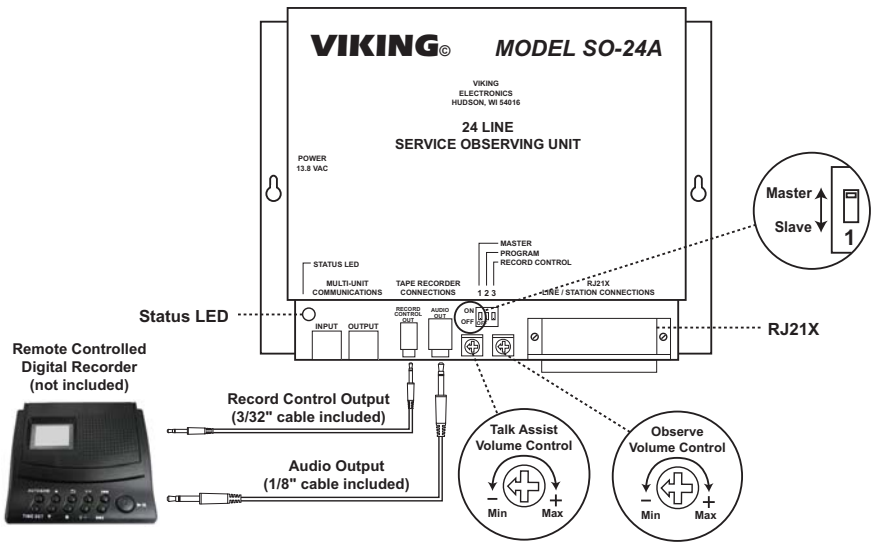
**Digital Communication:** The type of communication used on digital phone systems in which proprietary phones must be used. The **SO-24A** can monitor certain digital systems. This requires the **SO-24 AK** and a dedicated pair of wires between each phone and the **SO-24A**. The audio must be taken from the digital phone's receiver (earpiece) for each of the stations to be observed, following the wiring table shown in **Wiring** section **A**. **Note:** When using the “Talk Assist” feature with the **SO-24 AK**, the outside party will not hear the supervisor, **ONLY** the inside agent will hear the supervisor. For more information on Digital System Interfaces, see DOD# 819.

**Master Module:** The primary **SO-24A** module in a multi-unit configuration (DIP switch 1 ON) or the only module in a single-module system.

**Slave Module(s):** Any module(s) in addition to the Master module, used to increase capacity (DIP switch 1 OFF).

## Installation

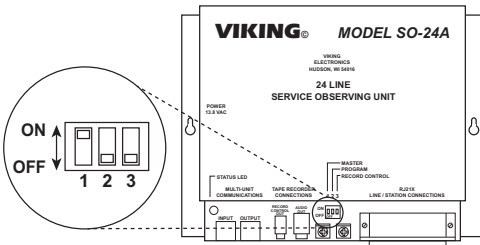
A **SO-24A** system consists of at least one Master **SO-24A** module, and as many as nine (9) Slave modules. Multiple **SO-24A** modules are interconnected from module to module, using the supplied modular cords, daisy-chaining the modules from **INPUT** to **OUTPUT**. If more than one **SO-24A** module is being installed, it will be necessary to set DIP switch 1 to OFF on each slave module. The observing phone and optional tape recorder must be connected to the Master module.



## Programming

### A. DIP Switch Settings

Switch	Position	Description
1	ON	Master
1	OFF	Slave
2	ON	Program Mode
2	OFF	Normal Operation
3	ON	Record control automatic
4	3	Dial "9" to record



**Important:** Set DIP switches before powering up the unit(s).

## B. Accessing the Programming Mode

<b>Step 1.</b>	Set DIP switch 2 to <b>ON</b> for the module being programmed..
<b>Step 2.</b>	Come off-hook on the observing phone and dial a *.
<b>Step 3.</b>	Two beeps will be heard. (Modules not being programmed - status LED's will turn off)
<b>Step 4.</b>	When finished programming, hang-up and set DIP switch 2 to <b>OFF</b> .

**Note:** For multi-module systems, program each module separately. The status LED for the module being programmed will remain lit, while all other module's LEDs will turn off.

## C. Setting the Number of Digits (for Dial Up Codes)

The dial up codes are factory set to two digits (01-24). Each **SO-24A** in a multi-module configuration needs to be programmed with the same number of digits for all dial up codes. To program the number of digits, use the chart below:

To Program...	Step 1:	Step 2:
... two digit dial up codes	Access <b>Programming</b> as shown in section <b>B</b>	Enter digits: <b>2 # 00</b>
... three digit dial up codes	Access <b>Programming</b> as shown in section <b>B</b>	Enter digits: <b>3 # 00</b>
... four digit dial up codes	Access <b>Programming</b> as shown in section <b>B</b>	Enter digits: <b>4 # 00</b>

**Important:** All **SO-24A**'s in a system **MUST** be programmed with the same number of dial up code digits.

## D. Dial Up Codes

The **SO-24A** is factory set with the dial up codes for locations 1-24 factory set to 01-24. The dial up codes may be programmed to match the extension number of the line/station being observed or any other numbering scheme as long as all access codes are the same length (see section **C**). **Important:** Each module must be programmed with its own unique set of dial up codes. **Note:** When using multiple units, see **DOD# 943** for a programming chart to manage dial up codes for up to 10 units.

To Program...	Step 1:	Step 2:	Step 3:
...dial up code 231 for location 03	Access <b>Programming</b> as shown in section <b>B</b>	Select 3-digit dial up codes as shown in <b>Programming</b> section <b>C</b>	Enter: <b>231 #03</b>
...dial up code 15 for location 15	Access <b>Programming</b> as shown in section <b>B</b>	Select 2-digit dial up codes as shown in <b>Programming</b> section <b>C</b>	Enter: <b>15 #15</b>
...dial up code 2714 for location 14	Access <b>Programming</b> as shown in section <b>B</b>	Select 4-digit dial up codes as shown in <b>Programming</b> section <b>C</b>	Enter: <b>2714 #14</b>

## E. Talk Assist

The talk assist feature can be activated any time a location is being observed and a "\*" is dialed at the observing phone. To prevent accidental talk assist, the feature may be disabled by entering \*0 while in the programming mode (see section **B**). Enter \*1 to enable talk assist.

## F. Quick Programming Guide

Description	Enter Digits	+ Location
To set dial up codes to two digits (factory setting) .....	<b>2</b>	<b>#00</b>
To set dial up codes to three digits .....	<b>3</b>	<b>#00</b>
To set dial up codes to four digits .....	<b>4</b>	<b>#00</b>
To program dial up codes .....	<b>2-4 digits</b>	<b>#01-#24</b>
To enable talk assist option (factory setting) .....	<b>*1</b>	
To disable talk assist .....	<b>*0</b>	
To set all programming features and dial up codes to factory settings .....	<b>###</b>	
To activate the digital recorder automatically when a station is being observed .....	set DIP switch 3 to <b>ON</b>	

## Operation

From the observing port, any of the stations can be accessed by dialing a programmable 2, 3 or 4 digit Touch Tone dial up code. Stations being observed are unaware that they are being monitored. Automatic gain control equalizes in and outbound conversation levels. If assistance is required, the observer can quickly enter the conversation by dialing a Touch Tone "\*". An audio out jack provides a microphone level signal for a tape recorder while the record control jack provides remote operation of the tape recorder on command. Additional **SO-24A**'s may be used to add 24 additional stations or lines at a time. A multi-module configuration of **SO-24A**'s is capable of supporting 240 lines or stations.

A. Accessing the SO-24A

The **SO-24A** provides balanced 40V talk battery with dial tone on the observing wire pair. A manager or training supervisor may access the **SO-24A** observing port dial tone from an unused trunk input on any PABX/KSU or via a dedicated Touch Tone phone. The **SO-24A** may also be remotely accessed through the **RAD-AMP** Remote Access Devices, for more information on the **RAD-AMP**, see **DOD# 415**.

B. Selecting a Line or Station

Once the observing port is accessed, dial any of the twenty-four to two hundred forty lines or stations by dialing the two, three or four digit dial up code programmed to that station (see Installation chart). Nothing can be heard by the station being observed. Another station may be selected by dialing a **#** followed by another two, three or four digit dial up code. You may also hang up and then re-access the observing port to dial another dial up code.

C. Talk Assist

Though the **SO-24A** monitors silently, a manager may enter the conversation to provide assistance at any time by dialing a **\*.** To prevent accidental interruptions, this feature may be disabled (see **Programming** section E).

D. Manually Controlled Digital Recording

A remotely controllable digital recorder may be started and stopped when interfaced with the **SO-24A** using the provided cables (see **Installation**). To start the recorder, dial a Touch Tone **9.** To stop the recorder, dial a Touch Tone **#** or hang up.

E. Automatic Tape Recording

Set DIP switch **3** to **ON** (see **Programming** section A) and all monitored conversations will be recorded. If a multi-module system (Master and Slaves) is installed, set DIP switch **3** on all modules to **ON**.

F. Status LED

The status LED will turn off when a Touch Tone is present from the observing phone, and will wink once per second while observing a station.

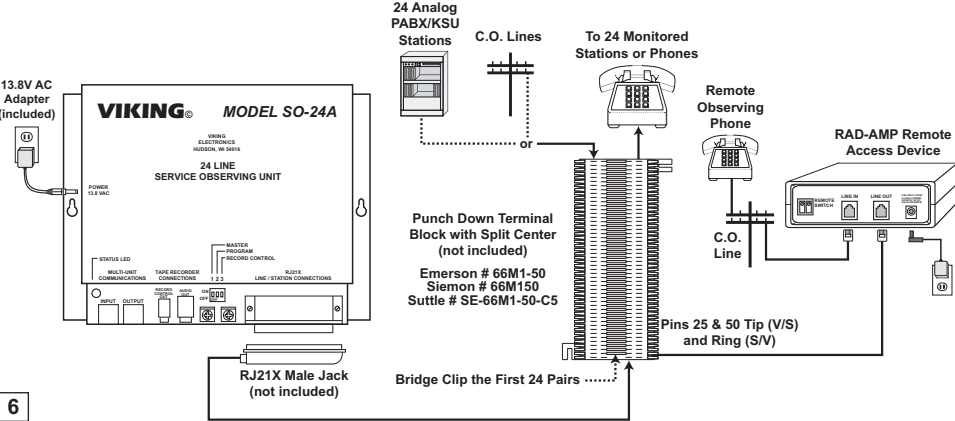
G. Quick Operation Guide

Description	Enter Digits
To select another line or station .....	# + new dial up code
To join conversation using talk assist feature .....	*
To manually start recorder .....	9
To stop recorder .....	# or hang up
To discontinue observing .....	Hang up

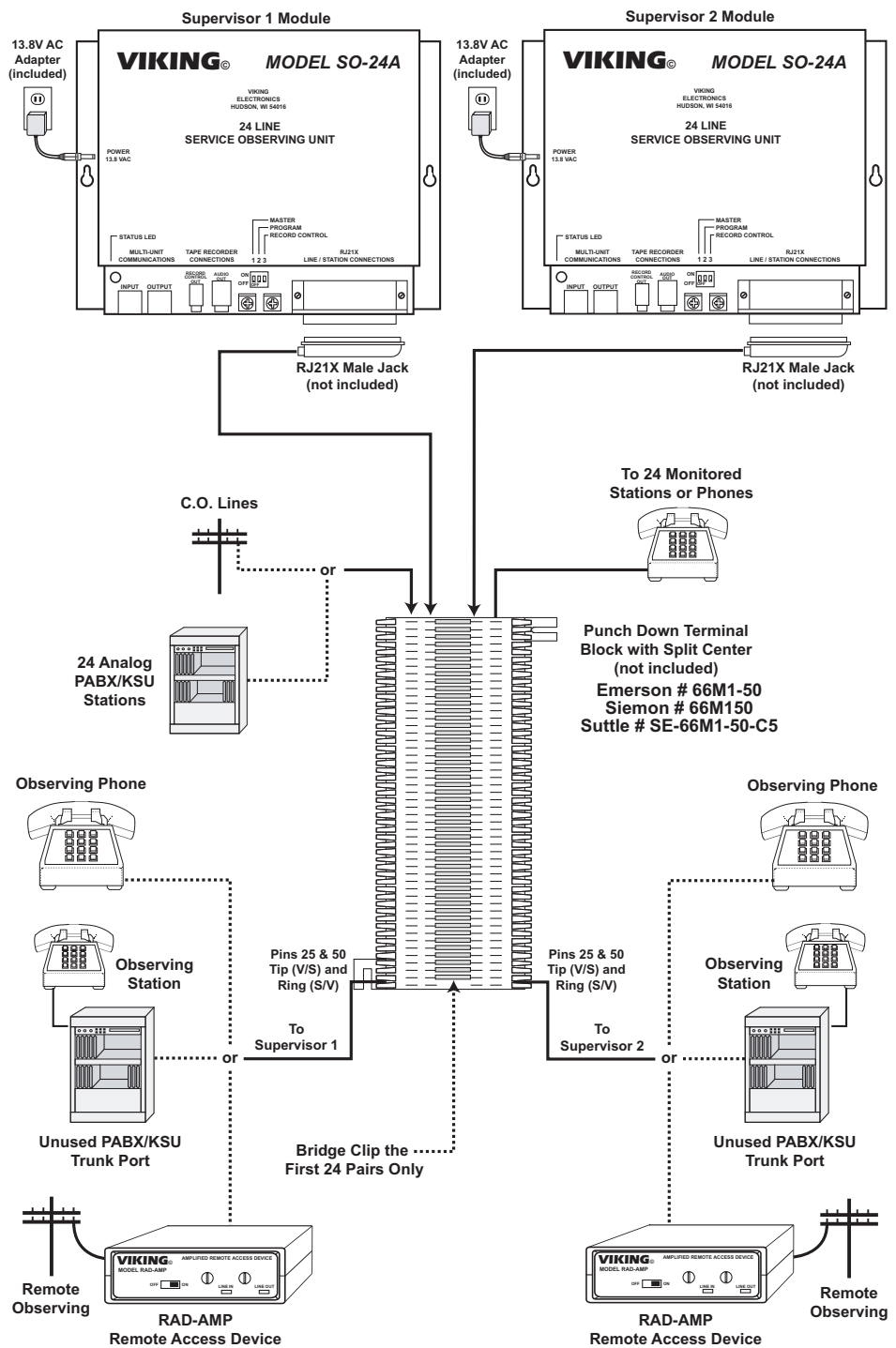
Applications

A. Remote Observing

The **SO-24A** may be used remotely by adding the **RAD-AMP** to the monitoring output. **Important:** When using this combination, the **SO-24A** dial up codes can **NOT** begin with the number 7. This is because **#7** is the hang-up command for the **RAD-AMP**.



B. Multiple Supervisors



## 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 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 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 SO-24A 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 SO-24A 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 SO-24A, 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.