

# VIKING PRODUCT MANUAL

COMMUNICATION &amp; SECURITY SOLUTIONS

## Line Verification Panel with Key Switch

ASME A17.1-2010 code requires that "the two-way communications means within the (elevator) car shall include a means to verify operability of the telephone line". When your local municipality adopts this ASME A17.1 code the **LV-1K** can be added to fulfill all requirements for visual and audible signaling when it is determined the telephone line is not functioning.

The **LV-1K** is essentially four products in one. First, it can be added to any new or existing Viking **1600A Series** elevator emergency as a single phone stand alone solution. With the **LV-1K** installed, the **1600A Series** phone will check the telephone line for actual dial tone on a daily basis. The **LV-1K** also continuously monitors for loss of Talk Battery voltage and will immediately provide an audible and visual indication when the telephone line has been accidentally cut or disconnected.

Second, it can be wired to a Viking model **LC-6** six port concentrator, to provide visual and audible signaling for any grouping of elevators that are controlled by the same "FIRE RECALL" switch. The **LC-6** not only allows 2 to 6 Viking elevator emergency phones share the same **LV-1K** Line Verification Panel, but it also allows the cost savings of those phones being able to share a single telephone line, and still meet all requirements of ASME A17.1.

Third, it can be added to any Viking **1600-IP Series** elevator emergency phone as a stand alone solution. The **LV-1K** continuously monitors the **1600-IP Series** phone's relay output for a loss of PoE power or communication with the server. The



**LV-1K** will immediately provide an audible and visual indication when the LAN connection has been accidentally cut, disconnected or is out-of-service.

Fourth, since the **LV-1K** continuously watches for loss of Talk Battery voltage, it can be used to provide an audible and visual indication when any analog station or telephone line has been accidentally cut or disconnected from any telecom device.

In accordance to ASME A17.1, the **LV-1K** is labeled "ELEVATOR COMMUNICATION FAILURE" in 1/4" high red letters, and will sound an audible signal every 30 seconds and flash a red light when a telephone line fault is detected. Authorized personnel can silence the audible signal with the included key switch. The LED will remain flashing until the fault is corrected.

### Features

- Complies with ASME A17.1 Elevator Code
- Immediately detects a cut or disconnected phone line
- Allows Viking Model **1600A Series** phones to daily test for dial tone
- Compatible with Viking Model **LC-6** Six Port Line Concentrator
- Works with any analog device on any analog line
- Works with Viking **1600-IP** phones to detect LAN connection failures
- Volume adjustable audible signaling
- Mounts in standard double gang electrical box

### Applications

- Single Viking **1600A Series** (DOD# 215) or **1600-IP Series** (DOD# 255) elevator emergency phones
- Add to the Viking model **LC-6** (DOD# 245) for use with banks of two to six **1600A Series** elevator emergency phones
- Any other analog device on any analog station or phone line

### Specifications

**Power:** 120V AC/ 12V DC UL Listed adapter provided

**Dimensions:** 124mm x 124mm x 33mm (4.9" x 4.9" x 1.3")

**Shipping Weight:** 0.7 kg (1.5 lbs.)

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

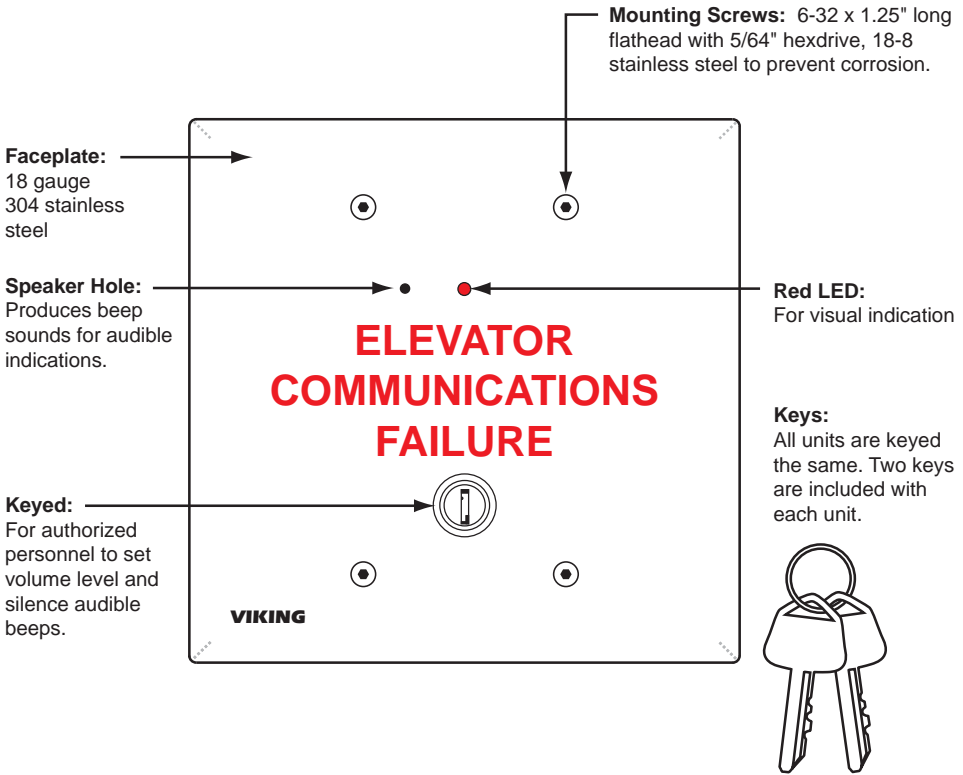
**Maximum Power Supply Wire Length:** 244m (500 ft) with #24 gauge wire

**Connections:** (8) color-coded wires with (8) gel-filled butt connectors

[www.vikingelectronics.com](http://www.vikingelectronics.com)

Information: (715) 386-8861

## Features Overview



## Installation

**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.

### A. Mounting

The LV-1K is designed to be flush mounted into a standard double gang rough-in box. A 5/64th hexkey and four 6-32 x 1.25" long stainless steel hexdrive flathead screws are included to mount it to the double gang box.

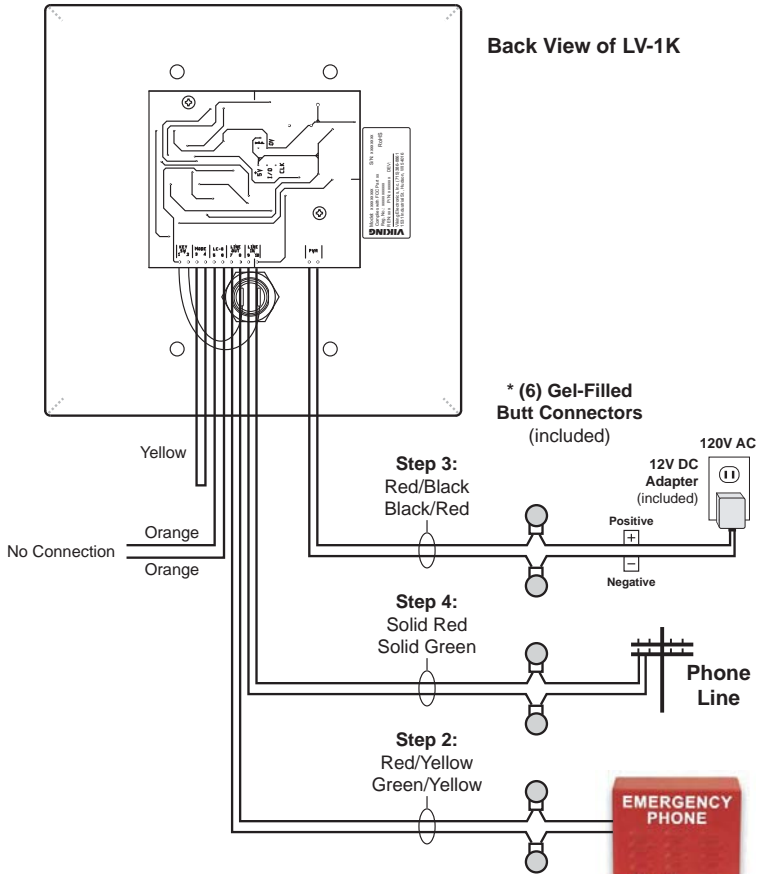
### B. Wiring

The LV-1K can be wired one of four different ways. For single emergency phone applications, the LV-1K can be wired to a single 1600A Series analog phone, or a single 1600-IP Series VoIP phone. When a Viking LC-6 is used the LV-1K can be wired as an accessory to the LC-6, or the LV-1K can be wired to any other analog telecom device.

# 1. Single 1600A Series Phone Wiring

When the LV-1K is wired in the below sequence, it will also test the unit for proper operation.

<b>Step 1.</b>	Set the <b>1600A Series</b> emergency phone's DIP switch 2 to ON, so that it automatically answers an incoming call.
<b>Step 2.</b>	Connect the Red/Yellow and Green/Yellow wires to the <b>1600A Series</b> emergency phone.
<b>Step 3.</b>	Connect the Red/Black and Black/Red wires to the included 12 volt power adapter ( <b>LV-1K</b> is not polarity sensitive). Once powered up, the <b>LV-1K</b> will make a buzzing sound indicating the <b>1600A Series</b> emergency phone is attempting to test the presence of telephone line dial tone. Since the telephone line is not yet connected, the <b>LV-1K</b> will start continuously flashing its red LED and sounding the beep tones every 30 seconds to show there is a line failure. The buzzing will be heard every five minutes as the <b>1600A Series</b> emergency phone continues attempting to test the presence of telephone line dial tone.
<b>Step 4.</b>	Connect the solid Red and solid Green wires to the telephone line. Within five minutes the <b>1600A Series</b> emergency phone should detect the presence of telephone line dial tone, and the <b>LV-1K</b> will clear its audible and visual indications.



**\* Note:** The gel-filled (water-tight) butt connectors are designed for insulation displacement on 19-26 gauge wire with a maximum insulation of 0.082 inches. Do not strip wires prior to terminating.

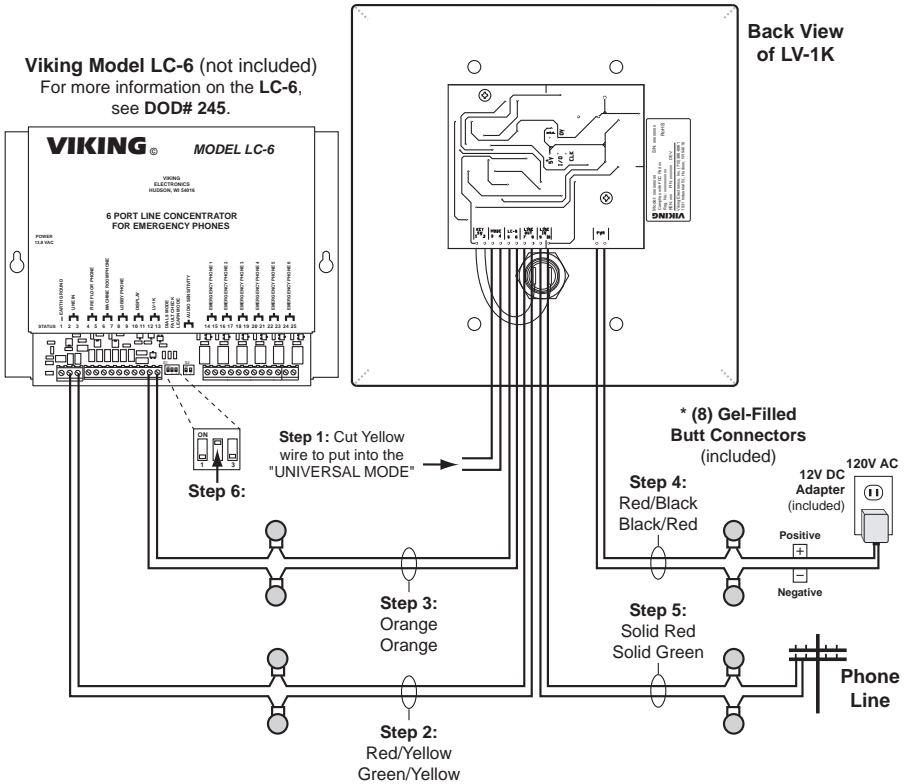


**1600A Series Emergency Phone**  
(not included)

## 2. Wiring to the Viking Model LC-6

When the **LV-1K** is wired in the below sequence, it will also test the unit for proper operation.

<b>Step 1.</b>	Cut the <b>YELLOW</b> wire loop to put the <b>LV-1K</b> into the "Universal Mode".
<b>Step 2.</b>	Connect the <b>RED/YELLOW</b> and <b>GREEN/YELLOW</b> wires to <b>LC-6</b> screw terminals 2 and 3.
<b>Step 3.</b>	Connect both <b>ORANGE</b> wires to <b>LC-6</b> screw terminals 12 and 13.
<b>Step 4.</b>	Keeping the solid red and solid green wires disconnected, connect the <b>RED/BLACK</b> and <b>BLACK/RED</b> wires to the included 12 volt power supply (the <b>LV-1K</b> is not polarity sensitive). Once powered up, the <b>LV-1K</b> will start continuously flashing its red LED and sounding the beep tones every 30 seconds to show there is a line failure.
<b>Step 5.</b>	Connect the solid <b>RED</b> and solid <b>GREEN</b> wires to the telephone line. The <b>LV-1K</b> will detect the presence of Talk Battery voltage and clear its audible and visual indications.
<b>Step 6.</b>	With the <b>LC-6</b> powered up, flip its DIP Switch position 2 to <b>ON</b> . This will cause the <b>LC-6</b> to run its own Line Verification Test which verifies the telephone line has loop current and that each of the emergency phones will answer an incoming call. If the <b>LC-6</b> finds a fault, it will signal the <b>LV-1K</b> on the orange wire pair causing the <b>LV-1K</b> to show there is a line failure. If this is the case, refer to the <b>LC-6</b> Technical Practice ( <b>DOD# 245</b> ), to clear the fault before proceeding. Tip: If less than six emergency phones are used, the <b>LC-6</b> needs to be programmed with the actual number of emergency phones used.

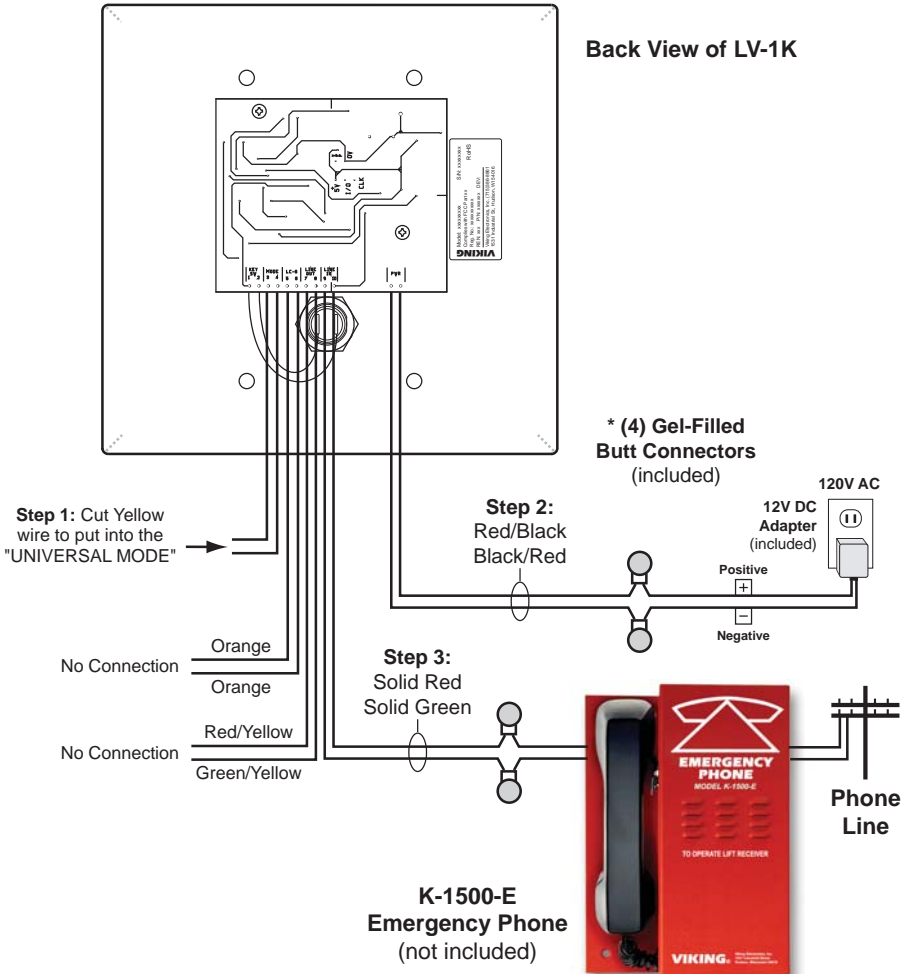


**\* Note:** The gel-filled (water-tight) butt connectors are designed for insulation displacement on 19-26 gauge wire with a maximum insulation of 0.082 inches. Do not strip wires prior to terminating.

### 3. Wiring to Any Other Analog Device on Any Station or Phone Line

When the LV-1K is wired in the below sequence, it will also test the unit for proper operation.

<b>Step 1.</b>	Cut the YELLOW wire loop to put the LV-1K into the "Universal Mode".
<b>Step 2.</b>	Connect the RED/BLACK and BLACK/RED wires to the included 12 volt power supply (the LV-1K is not polarity sensitive). Once powered up, the LV-1K will start continuously flashing its red LED and sounding the beep tones every 30 seconds to show there is a line failure.
<b>Step 3.</b>	Connect the phone line directly to the analog device, and from there continue on to the LV-1K's solid RED and solid GREEN wires. This configuration will be sure to detect when the line has been accidentally cut or disconnected all the way up to the device. Once the telephone line has been connected to the LV-1K, it will detect the presence of Talk Battery voltage and clear its audible and visual indications.

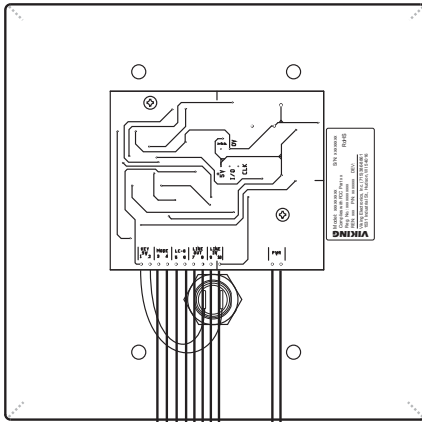


**\* Note:** The gel-filled (water-tight) butt connectors are designed for insulation displacement on 19-26 gauge wire with a maximum insulation of 0.082 inches. Do not strip wires prior to terminating.

#### 4. Wiring to 1600-IP Series VoIP Phone

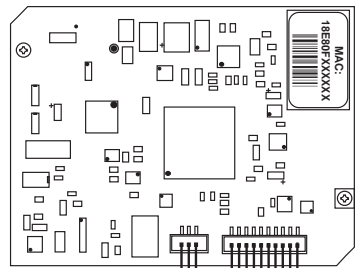
When the LV-1K is wired in the below sequence, it will also test the unit for proper operation.

<b>Step 1.</b>	Cut the YELLOW wire loop to put the LV-1K into the "Universal Mode".
<b>Step 2.</b>	Connect the 12VDC power supply's positive (+) wires to the 1600-IP's BLUE wire.
<b>Step 3.</b>	Connect the 12VDC power supply's negative (-) wires to the LV-1K's BLACK/RED wire.
<b>Step 4.</b>	Connect the LV-1K's BLACK/RED wire to the 1600-IP's GREY wire.
<b>Step 5.</b>	With the 1600-IP Series phone disconnected from the LAN, plug the 12VDC power adapter into an AC outlet. The LV-1K will start continuously flashing its red LED and sounding the beep tones every 30 seconds to show there is a connection failure.
<b>Step 6.</b>	Connect the 1600-IP Series phone back to the LAN and the LV-1K will clear its audible and visual indications. If the LV-1K is still held in the alarm state, be sure the 1600-IP Series phone's relay output is programmed in the "LV-1K Control" mode. (See operation section D).

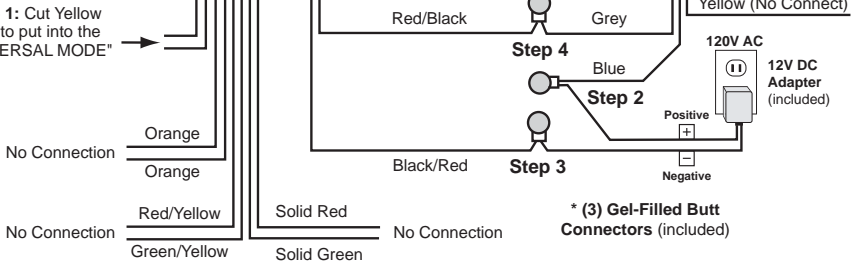


Back View of LV-1K

Back View of 1600-IP Series Phone Board



**Step 1:** Cut Yellow wire to put into the "UNIVERSAL MODE"



**\* Note:** The gel-filled (water-tight) butt connectors are designed for insulation displacement on 19-26 gauge wire with a maximum insulation of 0.082 inches. Do not strip wires prior to terminating.

## Programming

The LV-1K has two programmable items. First, it can be set to run in either the "1600A" mode or the "Universal" mode. Second, the loudness of the audible signaling beeps can be programmed.

### A. 1600A Mode or Universal Mode

The LV-1K comes factory set in the 1600A mode. Keep the unit in this mode when using the LV-1K with a Viking 1600A Series emergency phone. When in this mode, in addition to continuously monitoring the phone line for loss of talk battery, it will also signal the 1600A Series emergency phone daily, to check for actual dial tone to further prove the telephone line is operating properly.

When the LV-1K is used with one of the 1600-IP Series phones, the Viking Model LC-6 or any other analog telecom device, cut the YELLOW wire loop, as shown in the Installation section, to put the unit into the Universal mode.

## B. Audible Signaling Volume ( Feature not available when wired to 1600-IP VoIP Phone)

There are 4 programmable volume levels for the audible beeps. The beeps are factory set to the loudest volume, and it is recommended they be left loud so in the event a telephone line failure is detected, it will be recognized as quickly as possible. If it is determined that lower volume level audible signaling beeps are desired, authorized personnel can do this with the supplied keys.

When the **LV-1K** is powered up and idle (not in the alarm state), insert key and turn ON to the right. Two beeps will be heard. Keep the key in the ON position and six seconds later the beeps will be heard walking down in volume from loudest to one step lower, and lower, and lowest. The beeps will continue to loop through the four volume levels. Once you decide you hear the desired volume level, turn the key back OFF to set that volume level.

# Operation

## A. Single 1600A Series Phone

With the **LV-1K** installed, the **1600A Series** phone will check the telephone line on a daily basis. If dial tone is not detected the **LV-1K** will sound an audible beep signal every 30 seconds and continuously flash its red LED light. The **LV-1K** also continuously monitors for loss of Talk Battery voltage and will immediately provide the same audible and visual indication when the telephone line has been accidentally cut or disconnected.

Once a line failure is detected, authorized personnel can silence the audible beep signals with the included key switch. Insert the key and turn ON to the right. Two beeps will be heard, then turn key immediately OFF and remove. The LED will remain flashing until the fault is corrected. The audible beep signals will remain silent for this event only. Future line failure detections will sound the audible beep signals again, which can again be silenced.

When the **LV-1K** is actively showing a non functional telephone line state, the phone line will be watched for talk battery and dial tone to return. Once the telephone line is functional again, the **LV-1K** will clear within five minutes.

When used in this application, the key can be used to manually force an immediate dial tone test, (which otherwise happens automatically once a day). With the **LV-1K** in the normal state (not showing a failure), insert the key and turn ON to the right. Two beeps will be heard, then turn key immediately OFF and remove. The **LV-1K** will make a buzzing sound indicating that it is signaling the **1600A Series** emergency phone to check for dial tone. If the **1600A Series** phone is in use, the **LV-1K** will not produce a buzzing sound because the **1600A Series** phone will be unable to check for dial tone. Within two minutes of the phone line becoming available, the dial tone test will run. If the phone line does not become available within an hour, the **LV-1K** will signal this as a fault.

## B. When Wired to the LC-6

A Viking model **LC-6** Six Port Line Concentrator can be used for any grouping of elevators that are controlled by the same "FIRE RECALL" switch. The **LC-6** not only allows 2 to 6 Viking elevator emergency phones share the same **LV-1K** Line Verification Panel, but also allows the cost savings of those phones being able to share a single telephone line, and still meet all requirements of ASME A17.1. Note: The **LC-6** additionally features the ability to install three other service phones. A Fire Floor Phone, a Lobby Phone, and a Machine Room Phone can all call, or be called, by any of the elevator emergency phones.

The **LC-6** has the ability to check the incoming telephone line for operability on a daily basis. The lines running from the **LC-6** to each of the Viking **1600A Series** emergency phone will also be tested at this same time.

When a fault is detected, the **LV-1K** will sound an audible beep signal every 30 seconds and continuously flash its red LED light. Once noticed, authorized personnel can silence the audible beep signals with the included key switch. Insert the key and turn ON to the right. Two beeps will be heard, then turn key immediately OFF and remove. The LED will remain flashing until the fault is corrected. The audible beep signals will remain silent for this event only. Future line failure detections will sound the audible beep signals again, which can again be silenced. Once the fault is corrected, the alarm state will clear within two minutes.

## C. When Wired to any Other Analog Device

The **LV-1K** will continuously monitor for loss of Talk Battery voltage indicating the telephone line has been accidentally cut or disconnected. When this fault is detected the **LV-1K** will sound an audible beep signal every 30 seconds and continuously flash its red LED light. Once noticed, authorized personnel can silence the audible beep signals with the included key switch. Insert the key and turn ON to the right. Two beeps will be heard, then turn key immediately OFF and remove. The LED will remain flashing until the fault is corrected. The audible beep signals will remain silent for this event only. Future line failure detections will sound the audible beep signals again, which can again be silenced. Once the fault is corrected, the alarm state will clear.

## D. Single 1600-IP Series VoIP Phone

The Viking **1600-IP Series** phone needs its relay output to be programmed into the "LV-1K Control" mode. This can be done by entering digits **4#26** when in Touch Tone programming. Or, when using Viking's IP Programming software, within the "Phone Settings" tab, Select "**LV-1K Control**" as the relay option. Once programmed, the **1600-IP Series** phone will hold its relay output active, as long as it is powered up and can communicate with the LAN. If either communication or PoE power are lost, the relay will open, indicating a fault condition.

The **LV-1K** will continuously monitor the **1600-IP Series** phone's output relay. When a fault is detected, the **LV-1K** will sound an audible beep signal every 30 seconds and continuously flash its red LED light. Once noticed, authorized personnel can silence the audible beep signals with the included key switch. Insert the key and turn ON to the right. Two beeps will be heard, then turn key immediately OFF And remove. The LED will remain flashing until the fault is corrected. The audible beep signals will remain silent for this event only. Future line failure detections will sound the audible beep signals again, which can again be silenced. Once the failure is corrected, the alarm state will clear.

## 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, 8:00am - 5:00pm 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.

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.