

TECHNICAL Practice

TELECOM SOLUTIONS FOR THE 21ST CENTURY

LSD-2

Line Sharing Device

April 9, 2007

A Smart Line Sharing Device with Inbound Switching Capability

Why pay for a dedicated line for your elevator/emergency phone or alarm panel?

The **LSD-2** Line Sharing Device allows the user to share an existing phone line with an emergency phone or other priority alarm device. This can save hundreds of dollars a year over leasing a dedicated phone line. The **LSD-2** can be used on any C.O. line or analog PABX/KSU station.

An outbound call on the **DEVICE 2 (PRIORITY)** port takes priority over a call in progress on the **DEVICE 1** port. Any call in progress on the **DEVICE 1** port will be disconnected for 2 seconds, returning dial tone to the **DEVICE 2 (PRIORITY)** port. A busy signal is then sent to the **DEVICE 1** port.

For incoming calls, the **LSD-2** can route calls to the **DEVICE 2 (PRIORITY)** port using Caller ID, Distinctive Ring, or Quick Call Back. All other calls will be routed to the **DEVICE 1**. Alternatively, the **LSD-2** can be set up so that all inbound calls are routed to the **DEVICE 2 (PRIORITY)** port. **Note:** Caller ID is not passed through the **LSD-2** to the devices.

Important: When the emergency device is in use, the phone line is not available for normal use. Any additional emergency calls will have to be made on another phone line. For this reason the **LSD-2** is not recommended for single line applications. **Note:** With some Central Office equipment, it may take up to 20 seconds to disconnect an incoming call to the non-priority device. The emergency device must be capable of delaying this long before dialing.



Features

- **Adjustable disconnect time**
- Routes both incoming and outgoing calls
- Allows an Emergency device to share a phone line with other devices (fax machines, phones, modems)
- Gives priority to the Emergency devices
- Incoming calls routed to one of two ports by Caller ID, Distinctive Ring or Quick Call Back
- Status LED displays mode of operation
- Can store up to 12 Caller ID numbers
- Provides a busy signal to the phone port when an Emergency device is in use

Applications

- Share an existing phone line with an emergency device such as:
 - Emergency phones
 - Area of refuge phones
 - Alarm panels
 - ATM's
 - Card readers
 - Any device that needs instant access to a phone line

Specifications

Power: 120VAC / 12VDC 500mA UL listed adapter provided
Dimensions: 133mm x 89mm x 44mm (5.25" x 3.5" x 1.75")
Shipping Weight: .9 kg (2 lbs)
Environmental: 0° C to 32° C (32° F to 90° F) with 5% to 95% non-condensing humidity
Talk Battery: 35V DC
Connections: 6 screw terminals

Phone...715.386.8861

<http://www.vikingelectronics.com>

Warranty

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

Our Technical Support Department is available for assistance weekdays between 8 a.m. and 5 p.m. 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 P.O. 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 product over the counter at no charge. The distributor will then return the product to Viking 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.**

WARRANTY

Viking warrants its products to be free from defects in the workmanship or materials, under normal use and service, for a period of one year from the date of purchase from any authorized Viking distributor or 18 months from the date manufactured, whichever ever is greater. 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.

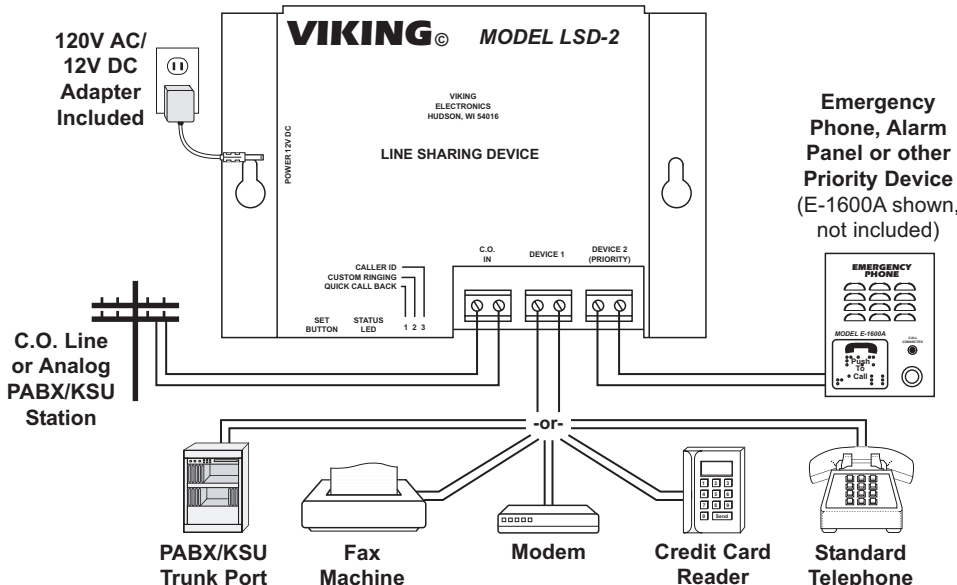
Viking's sole responsibility shall be to repair or replace (at Viking's option) the material within the terms stated above. VIKING SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND INCLUDING INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING DIRECTLY OR INDIRECTLY FROM ANY BREACH OF ANY WARRANTY EXPRESSED OR IMPLIED, OR FOR ANY OTHER FAILURE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXCLUDED BEYOND THE ONE YEAR DURATION OF THIS WARRANTY. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Installation

Step 1.	Connect the incoming phone line or analog PABX station to the terminal positions marked CO IN .
Step 2.	Connect the standard phones, unused trunk port or other non-priority device to the terminal positions marked DEVICE 1 .
Step 3.	Connect the Emergency Phone, Alarm Panel or other priority device to the terminal positions marked DEVICE 2 (PRIORITY) .
Step 4.	Connect the 12VDC wall adapter to the LSD-2 .

Note: Be sure the **LSD-2** has power available at all times. If power is lost, the phone line will be connected to the priority device only.



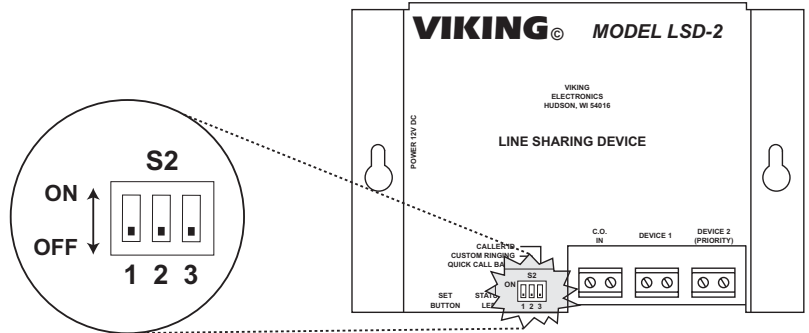
IMPORTANT: Electronic devices are susceptible to lightning and power station electrical surges from both the AC outlet and the telephone line. It is recommended that a surge protector be installed to protect against such surges. Contact Panamax at (800) 472-5555 or Electronic Specialists Inc. at (800) 225-4876.

Programming

If all of the switches are in the **OFF** position, all inbound calls are routed to the **DEVICE 2 (PRIORITY)** port. Once any of the DIP switches are turned on, inbound calls default to the **DEVICE 1** port unless the selected method is detected by the **LSD-2**. The **LSD-2** can use three different methods to determine if an incoming call is to be switched to the **DEVICE 2 (PRIORITY)** port, instead of defaulting to the **DEVICE 1** port. Each of these methods can be switched on or off using the DIP switches located on the front edge of the board. When mixing modes of operation, the **LSD-2** uses all the modes that are turned on, and if any of the selected triggers are detected, the incoming call will be routed to the **DEVICE 2 (PRIORITY)** port. If a selected trigger(s) is not detected, the inbound call will ring through to the **DEVICE 1** port. For more information on these modes, see **Operation** section **C**.

Note: To force all calls to be routed to the **DEVICE 1** port, simply set DIP switch 3 to the **ON** position, but do not program any caller ID numbers.

Switch	ON/OFF	Description
1	ON	Quick Call Back Mode
1	OFF	Disable Quick Call Back Mode
2	ON	Distinctive Ring Mode
2	OFF	Disable Distinctive Ring Mode
3	ON	Caller ID Mode
3	OFF	Disable Caller ID Mode



Note: When all switches are **OFF**, all inbound calls are routed to the **DEVICE 2 (PRIORITY)** port.

A. Call Back Mode

To place the **LSD-2** in Call Back Mode, move DIP switch **1** to the **ON** position.

B. Distinctive Ring Mode

To use the Distinctive Ring Mode, first purchase distinctive ringing service from your local phone service provider. Then move DIP switch **2** to the **ON** position. **Note:** In this mode the **LSD-2** detects double or triple custom ringing.

C. Caller ID Mode

Step 1.	Move DIP switch 3 to the ON position.
Step 2.	Call into the LSD-2 , if a Caller ID is received that is not stored in the unit, the LSD-2 Status LED will go into a fast flash mode.
Step 3.	While the LED is flashing fast, push the SET button. This will store the new Caller ID number into memory and re-ring the DEVICE 2 (PRIORITY) port. Note: If more than 12 numbers are attempted to be stored, the LSD-2 will re-ring the DEVICE 1 port. If the Caller ID number is already stored in memory, the LED will not fast flash and the call will be automatically routed to the DEVICE 2 (PRIORITY) port. To clear out the Caller ID memory, press and hold the SET button while powering up the LSD-2 . The status LED will wink off showing that all 12 memory locations have been cleared.

D. Disconnect Time

The length of time that the **LSD-2** disconnects the **DEVICE 1** port before gaining fresh dial tone for a **DEVICE 2 (PRIORITY)** call, is factory set to 2 seconds. If this is not enough time for the line to return fresh dial tone, the **LSD-2** can be programmed to delay anywhere from 1 to 20 seconds.

Step 1.	With the LSD-2 sitting in idle state, momentarily press the SET button and wait for the STATUS LED to blink the current disconnect time in seconds. If the STATUS LED blinks twice, the disconnect time is set to 2 seconds.
Step 2.	The STATUS LED remains off for approximately four seconds, during this time you may press the SET button once for each second of disconnect time required (Example: five times for 5 seconds). The LSD-2 will confirm by blinking the new disconnect time on the STATUS LED . If the LED flashes fast, the maximum setting has been exceeded.

Important: Be sure that the auto-dialing device on the **DEVICE 2 (PRIORITY)** port can be programmed to provide a longer delay time than the **LSD-2**'s disconnect time. This assures that the auto-dialing device waits until there is fresh dial tone before dialing.

Operation

A. LED Status

LED Status	Operation
Lit up	Power is applied to the LSD-2 .
Flash	The LSD-2 is active.
Flash After Ring	In the Quick Call Back mode, the LED will continue to flash for 20 seconds.
Fast Flash	In the Caller ID mode, the LED will fast flash if a Caller ID number is received that is not in memory.

B. Outbound Calls

When the **LSD-2** is idle, the Status LED will be lit solid, and both ports are connected to an internally generated 35V DC talk battery. If a device attached to the **DEVICE 1** port goes off-hook, the phone line will be switched to the **DEVICE 1** port. If the device attached to the **DEVICE 2 (PRIORITY)** port goes off-hook, the phone line will be switched to the **DEVICE 2 (PRIORITY)** port. If the device attached to the **DEVICE 2 (PRIORITY)** port goes off-hook while a call is in progress on the **DEVICE 1** port, both ports will be switched away from the phone line for two seconds (programmable from 1-10 seconds), simulating a two second hang-up. The **LSD-2** then reconnects the **DEVICE 2 (PRIORITY)** port to the phone line. The device attached to the **DEVICE 2 (PRIORITY)** port receives fresh dial tone and is now able to dial out. While the **DEVICE 2 (PRIORITY)** port is in use, a simulated busy tone is generated to any device attempting to go off-hook on the **DEVICE 1** port.

C. Inbound Calls

1. Quick Call Back Mode (switch 1 ON)

To use the Quick Call Back mode, call into the **LSD-2** from another phone line, listen for a single ring back tone and hang-up. Wait 6 seconds, then call back to the **LSD-2** (within 20 seconds). The **LSD-2** will route the incoming call to the **DEVICE 2 (PRIORITY)** port instead of defaulting to the **DEVICE 1** port (see **Programming** section **A**).

2. Custom Ring Mode (switch 2 ON)

Custom Ring switching relies on "Distinctive" or "Custom Ring" services provided by your local telephone company. Any call with a custom ring cadence will be routed to the **DEVICE 2 (PRIORITY)** port. Inbound calls with standard ring cadence will be routed to the **DEVICE 1** port. The **LSD-2** accepts both double and triple custom ring cadences as custom (see **Programming** section **B**).

3. Caller ID Mode (switch 3 ON)

Caller ID switching relies on Caller ID services provided by your local telephone company. Any number programmed into one of the 12 Caller ID memory positions will be automatically routed to the **DEVICE 2 (PRIORITY)** port (see **Programming** section **C**).

4. All Inbound Calls Routed to the **DEVICE 2 (PRIORITY)** Port

If a priority device, such as an emergency phone, is sharing a line with an "outbound only" device, such as a credit card reader, or "outbound only" trunk, set all switches OFF and all inbound calls will be routed to the **DEVICE 2 (PRIORITY)** port.

5. All Inbound Calls Routed to the **DEVICE 1** Port

If all inbound calls are to be routed to the **DEVICE 1** port, set DIP switches 1 & 2 OFF and 3 to the ON position, but do not program any caller ID numbers.

Product Support Line...715.386.8666

Fax Back Line...715.386.4345

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.