412MLSS
824MLSS
1236MLSS
1648MLSS

# Incoming/Outgoing Multi-Line Sharing Switch

## 412MLSS

## 824MLSS

October 1999

# 412MLSS
# (4 Line X 12 Port)
# 824MLSS
# (8 Line X 24 Port)
# 1236MLSS
# (12 Line X 36 Port)
# 1648MLSS
# (16 Line X 48 Port)

# Plug and Play
# Incoming/Outgoing
# Multi-Line Sharing Switch

FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



# Table of Contents

**Chapter** **Page**

# 1. Specifications

## Agency Approvals
FCC Part 68 Registered
FCC Part 15 Registered
Ringer Equivalence 0.7B
UL Listed 81J1, E81356, CSA-Power Supply

## Power Requirements
Wall mount AC adapter
9 volt 1.0 amp, 115 VAC, 60 Hz, UL, CSA
(Note: 1236MLSS and 1648MLSS utilize two power supplies)

## Size
412MLSS, 2.45”H x 11.45”W x 10.20”D
824MLSS, 4.25”H x 11.45”W x 10.20”D
1236MLSS, 5.25"H x 19"W x 10.2"D
1648MLSS, 7"H x 19"W x 10.2"D

## Weight
412MLSS, 5 lbs.
824MLSS, 7 lbs.
1236MLSS, 11 lbs.
1648MLSS, 14 lbs.

## User Connections
4(8, 12 or 16) RJ11 modular jacks for telephone lines
12(24, 36 or 48) RJ11 modular jacks for Industry Standard Telephone (IST) devices
Mini-jack(s) for power supply

## Status Indicators
Power-on LED(s)
4(8, 12 or 16) telephone line-in-use LEDs
12(24, 36 or 48) IST device-in-use LEDs

# 2. Equipment

Unpack and verify the following items as part of your MLSS system :

- One of the following: 412MLSS, 824MLSS, 1236MLSS ([1] 412MLSS & [1] 824MLSS), or a 1648MLSS ([2] 824MLSS's) units.
- Wall mount AC adapter (1236MLSS and 1648MLSS supplied with two adapters)
- Hook & loop fasteners w/ mounting instructions
- Warranty Registration Card
- This manual

1236MLSS and 1648MLSS will also include:
- One 11.45" x 10.2" black 0.090" steel shelf
- One 19" W black 0.125" steel shelf faceplate
- Four truss-head screws, 10-32, 3/8$^{th}$" long
- Four nylon insert nuts, 10-32
- Eight truss-head screws, 10-32, 1/2" long
- Shelf assembly instructions

If any portions of the MLSS system are missing, you should contact your supplier.

# 3. Introduction

The Multi-Line Sharing Switch (MLSS) is designed to allow a company to share the minimal quantity of telephone lines required to support the maximum number of industry standard telephone (IST) devices. An IST is any type of telecommunications device that works on a standard telephone company telephone line, such as: modems, fax machines, fax/modems, credit card terminals, etc. By reducing the quantity of telephone lines needed, the MLSS can save a company hundreds to thousands of dollars per year in telephone line installation costs and recurring monthly line charges.

The MLSS can work with any type of standard telephone line - POTS (Plain Old Telephone Service), Centrex, touch-tone or rotary. Any industry standard telephone device can function on the MLSS as if it were on its own dedicated line. The MLSS can connect directly to dedicated telephone lines, share telephone lines with any type of telephone system, or share industry standard telephone extensions on any telephone system.

The 412MLSS can support up to twelve (12) IST devices and four (4) telephone lines. The 824MLSS can support up to twenty-four (24) IST devices and eight (8) telephone lines. The 412MLSS can be field expanded to a 824MLSS by purchasing the 412EXP expansion kit. The 1236MLSS can support up to thirty-six (36) IST devices and twelve (12) telephone lines. The 1648MLSS can support up to 48 (48) IST devices and sixteen (16) telephone lines. Please see section 4.4 Networking Multiple MLSS Units for other possible line and device combinations.

The MLSS has inbound and outbound calling capabilities. On inbound calls, ringing lines connect directly through to specific IST ports. This ring-through capability of the MLSS allows the unit to reside in front of many telephone systems: KSU or PBX, analog or digital. In this situation, the MLSS can share outgoing IST devices with a main pool of voice telephone lines. On outbound calls, the quantity of lines available is determined by the number lines attached and enabled for outgoing access. Some or all lines can be restricted for incoming calls only.

The MLSS is an electronic switch and has been designed for durability and ease of maintenance, but some care should be taken when handling it. Do not expose the MLSS to high humidity or extreme electrical fields. As with all electronic devices, you should take precautions against static electricity.

# 4. Installation

The MLSS is installed by selecting an appropriate location away from direct sources of heat or cold. The MLSS can be stacked on a desk or table, or mounted vertically on a wall. Typically the MLSS is located in the same area as other computer network or telephone equipment. All device and power connections are made in the rear of the unit.

**ALL CONNECTIONS OR DISCONNECTIONS MUST BE MADE WITH POWER REMOVED FROM THE UNIT. CONNECTING OR DISCONNECTING LINES OR PORTS WHILE POWER IS APPLIED WILL VOID THE MANUFACTURERS WARRANTY. ALSO, DO NOT ATTEMPT TO OPEN THE UNIT SINCE THERE ARE NO USER CONTROLS OR USER REPLACEABLE PARTS AND OPENING THE UNIT WILL VOID THE MANUFACTURERS WARRANTY!**

We have included adhesive-backed hook & loop fasteners. The hook & loop fastener is designed to mount the unit to a wall or other vertical surface. The hook & loop fasteners are also useful installed between the two MLSS units on the 12 x 36 and 16 x 48 models to provide rackmount stability. To use the hook & loop fastener, keep the hook and loop halves together while peeling the plastic backing from one side and stick it to one of the bottom corners of the unit. Repeat process for all four corners. Now peel the remaining plastic backing from the hook and loop halves. Carefully line the unit up

where you want to mount it and press the unit firmly to the mounting surface. Once installed using the hook & loop fastener, the unit may be removed from the mounting surface by grasping the unit and pulling firmly away from the mounting surface. To re-mount, align the hook & loop halves together and press firmly together.

The 1648MLSS, 1236MLSS, 824MLSS and the 412MLSS units have been designed to mount in a 19" rack. The rack mount kit is included with the 1236MLSS and the 1648MLSS, and it is an optional accessory for the 412MLSS and the 824MLSS. First, locate the four pre-drilled holes in the bottom of the faceplate and front of the shelf. Align the faceplate holes with the shelf holes and then insert the four 3/8$^{th}$" screws through the holes. Place the four nylon insert nuts onto the back of the screws. Tighten the screws until hand-tight. The shelf can now be mounted onto a standard 19" rack using the included ½" screws. Once the shelf is mounted, the MLSS units can be placed onto the shelf with front panel LEDs facing forward or with the RJ11 connectors facing forward for patch-panel applications.

## 4.1 Connecting the Telephone Lines and IST Devices

(Please Note: In the following description and throughout this manual, the first number listed refers to the LINE or IST Ports available on the 412MLSS. The second number listed within the parenthesis refers to the LINE or IST Ports available on the 824MLSS).

Connect the telephone lines to the LINE Ports numbered 1 through 4(8), starting with LINE Port 1. If connecting less than 4(8) lines, leave the higher numbered LINE Ports unconnected. Similarly, connect the RJ11 modular line cords from the IST devices to the desired IST Ports, starting with IST Port 1. If connecting less than 12(24) IST devices, leave the higher numbered IST Ports unconnected. Please see the following chart for additional information concerning the connection of the Line Ports and Incoming IST Ports. The back of this manual includes a Connection Log that can be used to document the wiring connections and telephone lines. (See Chapter 8).

When connecting telephone lines and IST devices to the MLSS, it is important that the devices which are to receive incoming calls are connected to the Incoming IST Ports as listed in the chart below. The highest priority incoming call device should be connected to IST Port 1, and its associated telephone line should be connected to LINE Port 1. The next highest priority incoming call device should be connected to IST Port 2 and its associated telephone line should be connected to LINE Port 2, etc. Incoming calls to the first line ports of the MLSS are passed directly through to the first IST Ports; therefore, the quantity of IST devices that can accept incoming calls is equal to the quantity of telephone lines connected to the MLSS.

**INCOMING IST PORTS**

| LINE Port | IST Port |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 13 |
| 6 | 14 |
| 7 | 15 |
| 8 | 16 |

After connecting the incoming IST devices and associated lines to the MLSS, proceed in connecting any additional outgoing devices and telephone lines to the respective MLSS IST Ports and LINE Ports.

The RJ11 connector jacks on the back panel labeled DATA are for field service and diagnostic use only, and should be left unconnected in the MLSS setup.

## 4.2 Setting the Switches

SW1 (and SW2 on the 824MLSS) on the front panel of the MLSS must be set to identify the line connections and operation as follows. Switches SW1-1 and SW1-5 correspond to Line 1, switches SW1-2 and SW1-6 correspond to Line 2, etc. (SW2 is configured identically to SW1 on the 824MLSS model, and controls Lines 5 through 8.)

**SW1 configuration**

| | **Line 1** | **Line 2** | **Line 3** | **Line 4** | **Line 1** | **Line 2** | **Line 3** | **Line 4** |
|---|---|---|---|---|---|---|---|---|
| | SW1 -1 | SW1 -2 | SW1 -3 | SW1 -4 | SW1 -5 | SW1 -6 | SW1 -7 | SW1 -8 |
| **Line present** | ON | ON | ON | ON | | | | |
| **Line not present** | OFF | OFF | OFF | OFF | | | | |
| **Hunt enabled** | | | | | ON | ON | ON | ON |
| **Hunt disabled** | | | | | OFF | OFF | OFF | OFF |

**SW2 configuration**

| | **Line 5** | **Line 6** | **Line 7** | **Line 8** | **Line 5** | **Line 6** | **Line 7** | **Line 8** |
|---|---|---|---|---|---|---|---|---|

| | SW1 -1 | SW1 -2 | SW1 -3 | SW1 -4 | SW1 -5 | SW1 -6 | SW1 -7 | SW1 -8 |
|---|---|---|---|---|---|---|---|---|
| **Line present** | ON | ON | ON | ON | | | | |
| **Line not present** | OFF | OFF | OFF | OFF | | | | |
| **Hunt enabled** | | | | | ON | ON | ON | ON |
| **Hunt disabled** | | | | | OFF | OFF | OFF | OFF |

The **Line Present/Not Present** settings determine which of the lines are checked for purposes of **Outgoing** line access. When a device connected to an IST Port goes off-hook, the MLSS will search for an available line. The MLSS always searches the higher numbered line ports first. Example: If four (4) lines are connected to the MLSS, the MLSS will check LINE Port 4 first, then LINE Port 3, then LINE Port 2, etc. The only exception to this is the first IST ports (those IST ports that have a corresponding line connected to them). These IST ports check their "own" line first. Example: IST Port 2 checks for line availability (dial tone) on LINE Port 2 first. If LINE Port 2 is not available (another device is using it), the MLSS will check LINE Port 4, then LINE Port 3, etc. If all lines are in use, then the requesting IST PORT will be placed in queue and will continue to search for the next available line.

Each "line present" switch is factory set initially in the "ON" position. If a LINE Port has no line connected to it, or if the Line is to be restricted for incoming calls only, the "line present" switch should be set to the "OFF" position. It is highly recommended to disable Line Ports that do not have lines attached since the delay caused by trying to access a Line Port without a line attached will most likely cause a “NO DIAL TONE DETECTED” message to appear from most modems.

The **Hunt Enabled/Disabled** settings determine the mode of operation for handling an incoming call. When hunt is disabled (the Hunt Enabled/Disabled switch is in the "OFF" position), an incoming call is connected through to the same numbered IST Port. Example: LINE Port 1 connects to IST Port 1, LINE Port 2 to IST Port 2, etc. If the desired IST Port is in use (connected to another line), the call is left unconnected in the MLSS causing a ring-no-answer (RNA) condition. This is desirable on a modem or fax line, since normally an incoming line is associated with a single device that must be available when called. However, when the MLSS is installed with similar IST devices or in front of a telephone system KSU or PBX, this RNA condition defeats the hunt sequence that a telephone company normally provides when an incoming call is directed to a main number which is busy. In such an application set hunt enabled "ON" for each line which is connected to the MLSS in front of the KSU or PBX. This permits the MLSS to hunt from IST Port to IST Port on an incoming call when the first (or more) ports in the sequence are busy.

In most applications, the Hunt Enabled/Disabled switches should be in the "OFF" position. The switches should be set to the "ON" position only when an application calls for an incoming call ringing into a device that is busy to forward to the next device. The following are incoming call applications where hunt enabled should be set to the "ON"

position: modem pooling, fax pooling and when sharing lines with a KSU or PBX telephone system.

Since the MLSS routes the 4(8) telephone lines directly through to the Incoming IST Ports, as listed in Section 4.1 of this manual, take this into account when placing the MLSS in front of a KSU or PBX system, or when matching incoming telephone numbers with IST devices during installation. Only the Incoming IST device ports are capable of receiving incoming calls. You **MUST** set at least 2 consecutive Hunt Enable switches ON to create a complete loop and function properly! On the 824MLSS you can create more than one hunt group by having a switch set to "OFF" between each hunt group.
Each "hunt enabled" switch is factory set initially in the "OFF" position.

## 4.3 Connecting the AC Adapter

Lastly, plug the supplied wall-mount AC adapter into a suitable electrical receptacle, and plug the mini-plug into the power outlet receptacle on the back of the MLSS. To protect the MLSS from electrical surges and brownouts, it is recommended that an electrical surge protector be used.

The MLSS will illuminate all the front panel LED's to indicate a self-test, and will then leave the POWER LED illuminated if the self-test is successful. If the POWER LED does not stay on, remove power, check all your connections and re-apply power. If the problem repeats, see the trouble shooting information at the end of this document.

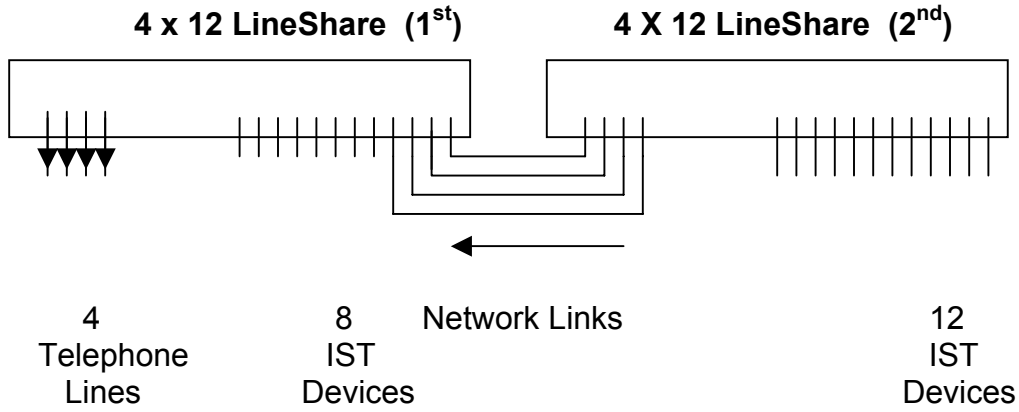
## 4.4 Networking Multiple MLSS Units Together

The Multi-Line Sharing Switches can be networked together to provide additional IST device ports, telephone line ports or both. The preferred method of networking the MLSS units together will depend on the quantity of IST devices, the telephone line utilization and the application. **Please note the following examples use 4x12 MLSS units for ease of explanation and diagrams. The same connections apply to 4x12 or 8x24 MLSS units. If you have further questions regarding a networking application or need further assistance in how to program or set the dip switches on the MLSS's in a networked application, please contact 3i directly by phone, fax or Email.**

### Example #1 – Providing Additional IST Device Ports

When an application requires more IST ports than one MLSS can provide, two or more MLSS units can be networked together to satisfy the demand for additional IST ports. Connecting the IST ports on the 1st MLSS to the line ports on the 2nd MLSS networks the two MLSS units together. Providing more than one networking connection between the two MLSS units will permit more than one IST device on the 2nd MLSS to simultaneously access the telephone lines on the 1st MLSS. Networking two 4x12 MLSS units together in this manner will effectively create a 4 x 20 MLSS. Networking two 8 x 24 MLSS units together in this manner, creates an 8 x 40 MLSS, three 8 x 24's will create an 8 x 56 MLSS.

## 4 x 20 Network Application

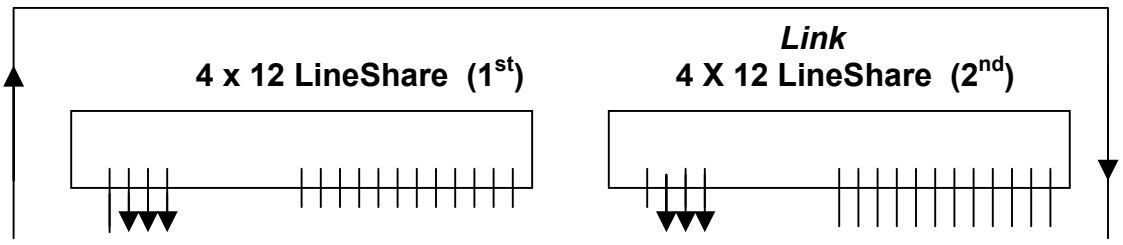


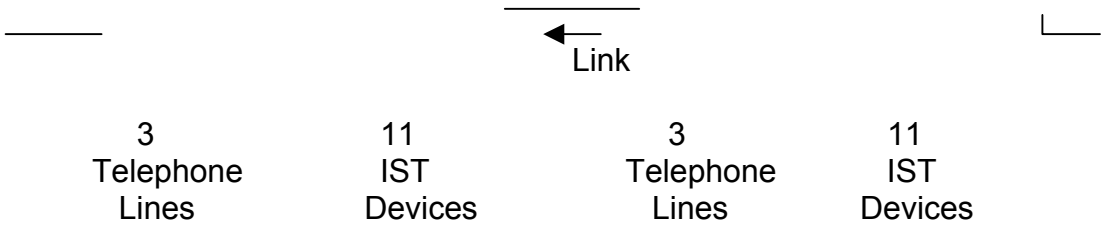

In the above example, IST devices on the 1st and the 2nd MLSS, will have equal outbound access to the four telephone lines since four (4) network links have been provided. For inbound calls on the Plug and Play incoming/outgoing MLSS, the four (4) telephone lines will ring the first four (4) IST ports on the 1st MLSS. All other IST ports (5-12) on the 1st MLSS and all IST ports (1-12) on the 2nd MLSS are for outbound calling only.

### Example #2 – Providing Additional Line Ports and Device Ports

If the quantity of telephone lines and IST devices that are required for your application exceed the capacity of one MLSS, then two or more MLSS units can be "networked" together. In this application, to increase the MLSS capacity to handle the quantity of lines and device ports needed, connect one half of the telephone lines to the 1st MLSS and the other half of the telephone lines to the 2nd MLSS while leaving at least one Line port and one IST port open on each MLSS for networking. By connecting Line Port #1 on the 1st MLSS to the last IST port on the 2nd MLSS, and by connecting Line Port #1 on the 2nd MLSS to the last IST port on the 1st MLSS, an outgoing call from any IST port can access the telephone lines on any networked MLSS.
Networking two MLSS units together in this manner will allow an IST device to search and gain access to an available telephone line connected to either MLSS. Networking two 4x12 MLSS units together by this method, will effectively create a 6 Line x 22 IST port MLSS. Networking two 8x24 MLSS units together will create a 14x46 MLSS, three 8 x 24s will create a 21 x 69 MLSS.

## 6 x 22 Networked Application






In the above example, IST devices on the 1st and the 2nd MLSS will have equal outbound access to the three telephone lines on their own MLSS. The forth outbound call will be networked to the other MLSS and have access to the three telephone lines over the provided network link. For inbound, the three telephone lines on each MLSS will ring the direct connect IST ports (2-4) on the same MLSS. All other IST ports (except network links) are for outbound calling only.

# 5. Operation

## 5.1 Incoming Calls

Incoming calls to the first LINE Ports of the MLSS are passed directly through to the Incoming IST Ports. Therefore, the quantity of IST devices that can accept incoming calls is equal to the quantity of telephone lines connected to the MLSS. Example: four (4) IST devices (Ports 1-4) can receive incoming calls if four (4) telephone lines are connected to the MLSS.

Incoming calls to an Incoming IST port that is busy will forward to the next available Incoming IST Port if the hunt enable switches for those lines are in the "ON" position. When a Line Port is ringing an IST Port, the Line Port LED and the IST Port LED will both illuminate solid. The IST device will ring until answered or indefinitely until the originating party hangs up. Once answered, both the Line Port and IST Port LEDs will remain on throughout the duration of the call. If the IST Port is currently busy with a call on another line, the outside originating caller (into the MLSS) will receive a ring-back signal until the intended IST Port does become available and answers. If the “Hunt Enable Switch” parameter for the intended IST Port is set to ON, then the ringing will be passed to the next Primary IST Port and that IST Port’s LED will illuminate.

When the IST device hangs up (goes on-hook) and terminates the incoming call, The IST Port LED will extinguish immediately (upon sensing the IST on-hook). The Line Port LED will flash for up to 15 seconds to allow the line to stabilize and the telephone company to release the line before allowing another IST Port to select the line for an outgoing connection. If a second incoming call comes in on the same line before the end of the 15 second period, the MLSS will accept and process the call.

## 5.2 Outgoing Calls

An IST device connected to a port on the MLSS can access dial tone to make an outbound call. The quantity of IST devices that can be in use simultaneously is equal to the quantity of telephone lines connected to the MLSS and enabled for outgoing access.

Outgoing calls will illuminate the IST Port LED and the Line Port LED. If the Line Ports are unavailable (busy on another call with another IST Port), then the originating outgoing IST Port LED will flash until an outgoing Line Port does become available. If any of the Line Ports have the Line Present Switch (SW1 and/or SW2) set to ON, and there is no Line attached, the Line Port LED will flash and then pass the call to the next Line Port. When an available Line Port is accessed, both the IST Port and the Line Port LEDs will illuminate solid and remain ON throughout the duration of the call.

When an IST device hangs up (goes on-hook) and terminates the outgoing call, the IST Port LED will extinguish first and the Line Port LED will flash for several seconds (to allow the line to stabilize) before another IST Port can access the line for dial tone and outgoing calls.

## 5.3 Data Transmission Speed

The MLSS is designed to transmit data at the highest level of speed allowable present and future on an analog telephone line

## 5.4 Power Failure Transfer

The MLSS provides straight through connections of all lines on power-off. The following outlines the power failure connections.

| **LINE Port** | **IST Port** |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 13 |
| 6 | 14 |
| 7 | 15 |

8 16

The quantity of telephone lines connected to the MLSS determines the quantity of straight through power fail connections available.

### 5.5 Non-Volatile Memory

The MLSS retains its programming during power outages and while the MLSS is electrically unplugged. When the electrical power comes on, the MLSS is ready to go.

# 6. Trouble-Shooting

If you encounter a problem when you install or operate the MLSS unit, please review this section for likely causes and what to do if you eliminate these possibilities, and the problem continues to occur.

### 6.1 Common Problems and Solutions

**Problem 1 - Power LED does not illuminate.**

Check whether the power supply is properly connected to the power receptacle on the back panel of the MLSS. Also, check whether the power supply is connected to a live power outlet. Verify that the power supply connected to the MLSS is the original power supply provided with the MLSS.

**Problem 2 - IST Port receives no dial tone when going "OFF Hook."**

First, determine whether a LINE Port is available (not being used by another IST Port). Second, check the switch settings on the front panel of the MLSS. All switch settings corresponding to the Line Present/Not Present switches should be in the "ON" position for each LINE Port that a live telephone line to be used for outgoing calls is connected to. **The Line Present/Not Present switches should be in the "OFF" position for each LINE Port that is for incoming calls only or that does not have a live telephone line connected to it.** It is highly recommended to disable Line Ports that do not have lines attached since the delay caused by trying to access a Line Port without a line attached will most likely cause a “NO DIAL TONE DETECTED” message to appear from most modems. Third, check the telephone line before it is connected to the MLSS

for dial tone. Fourth, verify that the telephone line cords connected to the LINE Ports and IST Ports are working properly.

**Problem 3 - Modem or other IST device does not access dial tone on outgoing calls.**

Check all connections for proper installation. Determine whether the IST Port that the modem is connected to is operating properly. Do this by connecting a standard telephone to that port. If you receive dial tone when going "OFF Hook" with the telephone, the MLSS is operating properly. Check the Operations/User's Manual of the modem or other IST device for proper operating procedures for that device. You may need to increase the amount of time the device listens for (waits to detect) dial tone. Try all of the trouble-shooting solutions listed in Problem 2.

**Problem 4 - IST device (modem, fax, etc.) does not receive an incoming call.**

Verify that the IST device is connected to an IST Port that corresponds to a LINE Port. Example: an IST device connected to IST Port 4 will not receive incoming calls if there is not a live telephone line connected to LINE Port 4.
Test the IST device directly on a telephone line without being connected to the MLSS. If the IST device continues not to answer incoming calls, check the Operations/User's Manual of the device for proper operating procedures. Try all of the trouble-shooting solutions listed in Problem 2.

## 6.2 Contacting Your Dealer, Installer or Value Added Reseller

If your MLSS seems to be malfunctioning, do not attempt to alter or repair the unit. Call your Dealer, Installer or Value Added Reseller. Before you call, please make a record of the history of the problem. Your Dealer, Installer or Value Added Reseller will be able to provide more efficient and accurate assistance if you have a complete description including:

- The nature and duration of the problem;
- When the problem occurs;
- The LINE Ports and/or IST Ports involved in the problem;
- Any particular application that, when used, appears to create the problem or make it worse.

Dealers, Installers, Value Added Resellers, Distributors and End Users of the MLSS are welcome to call 3i Technical Support for assistance in trouble-shooting. The 3i Technical Support staff is available via telephone (412-429-2900) from 9:00 a.m. to 5:00 p.m. Eastern Standard Time, Monday thru Friday. You may also reach 3i's Technical Support Staff via fax (412-429-1889), or e-mail at techsupport@innovativeideasinc.com.

### 6.3 Return Authorization

If the above trouble-shooting solutions have not corrected the problem, and your Dealer, Installer, or Value Added Reseller is not able to correct the problem, the 3i Technical Support Staff must be contacted. If the 3i Technical Support staff is unable to solve the problem and determines a replacement MLSS is necessary, an RMA (Return Materials Authorization) number will be issued.

### Out of Box Failure:

If the MLSS fails within the first thirty (30) days of purchase, the unit must be returned to the original place of purchase. **The 3i RMA number must be communicated to the original place of purchase for proper return and exchange.**

### Warranty Repairs:

After thirty (30) days of initial use, 3i will repair or replace any unit free of charge**,** which falls under the warranty guidelines. The Distributor, the Dealer, or the End User may request an RMA from 3i for the defective product. Upon receipt of the defective product, 3i will determine whether a repair or replacement is necessary. Defective products should be returned in 3i's original packaging, and the carton must include all components and other items originally packaged with the product. The customer will ship products to 3i prepaid. Products repaired or replaced by 3i will be shipped prepaid to the customer.

### Out of Warranty Repairs:

3i may repair or replace at its current repair prices any unit, which does not fall under the warranty guidelines. See the above warranty repair section for details on the RMA request for repair or replacement of the product. The customer will pay the shipping charges to and from 3i for all out of warranty repairs. All repairs are warranted for 90 days.

## 7. Limited Warranty

3i warranties all products against defects in material or workmanship for one (1) year under normal and proper use. During the one (1) year warranty period, upon notification that a defect in material or workmanship exists, and a determination by 3i that such a defect exists, then 3i shall at its option, repair or replace the defective products at no charge. Defective products under warranty returned to 3i with the proper Return Material Authorization (RMA) are to be shipped prepaid to 3i. Products repaired or replaced by 3i will be shipped prepaid to the customer.

3i warranties repaired or replaced parts of products serviced by 3i after the one (1) year warranty period for a period of ninety (90) days after shipment of the serviced products by 3i. This warranty applies to the repaired products under normal and proper use. During the ninety (90) day warranty period, upon notification to 3i that a defect in the repaired or replaced portion of the product exists, and a determination by 3i that such a defect exists, then 3i shall at its option, repair or replace the defective repaired or replaced part at no charge. Defective products under the repair warranty returned to 3i with the proper Returned Material Authorization (RMA) are to be shipped prepaid to 3i. Products repaired or replaced by 3i will be shipped prepaid to the customer.

This warranty does not extend to any 3i products that have been subjected to misuse, improper storage, neglect, accident, improper installation or have been modified or repaired by any party other than 3i or its authorized repair agents.

**THE WARRANTIES SET FORTH ABOVE ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. 3i WILL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR THE COST OF REMOVAL OR REINSTALLATION OF GOODS OR THE COST OF DISASSEMBLY OR REASSEMBLY OF EQUIPMENT IN CONNECTION THEREWITH, OR THE LOSS OF THE USE OF BUYER'S EQUIPMENT OR FACILITIES, OR THE LOSS OF BUSINESS, OR GOOD WILL, OR PROFITS, OR THE COST OF INSPECTION OR STORAGE.**

**3i SHALL IN NO EVENT BE LIABLE TO CUSTOMER FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, OR COMMERCIAL LOSS FROM ANY CAUSES, OR FOR LOSS, DAMAGE OR EXPENSE DIRECTLY OR INDIRECTLY ARISING FROM CUSTOMER'S INABILITY TO USE THE EQUIPMENT EITHER SEPARATELY OR IN COMBINATION WITH ANY OTHER EQUIPMENT. IN NO EVENT SHALL 3i'S LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**

# 8. MLSS I/O Connection Log

| **IST Device Name/ Location** | **MLSS IST Port #** | **MLSS Line Port #** And Power Fail conn. | **Line Port Enabled?** (Outbound) | **Line Port Hunt Enabled?** (Inbound) | **Telephone Line #** |
|---|---|---|---|---|---|
| | **1** | **1** | | | |
| | **2** | **2** | | | |
| | **3** | **3** | | | |
| | **4** | **4** | | | |
| | **5** | | | | |
| | **6** | | | | |
| | **7** | | | | |
| | **8** | | | | |
| | **9** | | | | |
| | **10** | | | | |
| | **11** | | | | |
| | **12** | | | | |
| | **13** | **5** | | | |
| | **14** | **6** | | | |
| | **15** | **7** | | | |
| | **16** | **8** | | | |
| | **17** | | | | |
| | **18** | | | | |
| | **19** | | | | |
| | **20** | | | | |
| | **21** | | | | |
| | **22** | | | | |
| | **23** | | | | |
| | **24** | | | | |


TELE-MOVERS, INC


3i
innovative ideas inc.