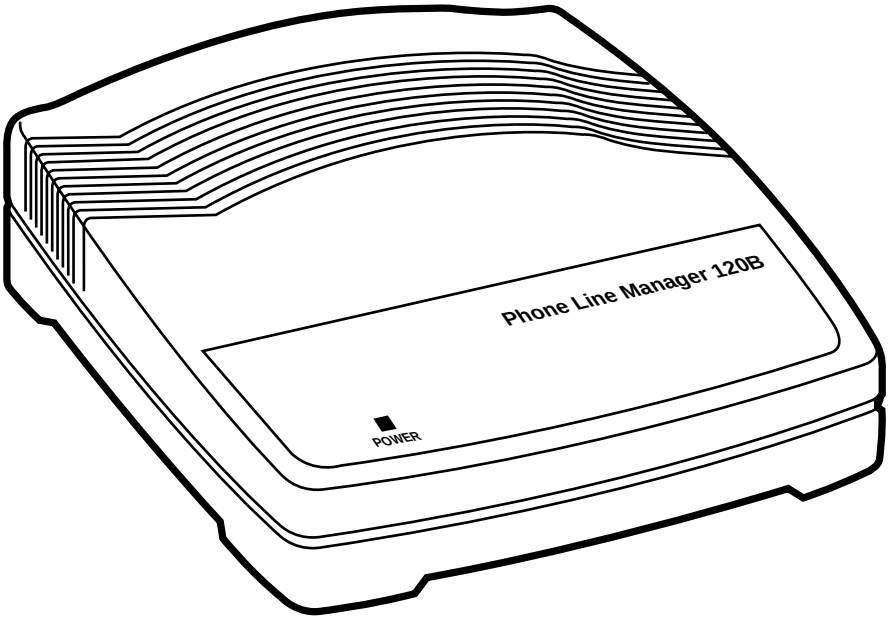
BLACK BOX®
NETWORK SERVICES

FEBRUARY 1997
FX121A

Line Share 120B



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FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENT

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

Caution:

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

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

TRADEMARKS

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1. Specifications

Data Rate — Transparent

Interface Type — 2-wire (tip & ring)

Line Type — 2-wire dial

Number of Ports — 3

Operation — Full duplex

Programming — From DTMF tones of phone

Ringer Equivalency — 1 B

Indicators — ON

Connectors — (4) RJ-11 female

Size — 2.3"H x 6.5"W x 7.3"D (5.8 x 16.5 x 18.5 cm)

Weight — 2.4 lb. (1.1 kg)

2. Introduction

The Line Share 120B is a state-of-the-art telephone line sharing device that eliminates the extra dedicated telephone lines used to operate a fax, modem, or other telephone devices.

The Line Share 120B quickly directs incoming telephone calls to one of three appropriate destinations, typically a computer modem (or fax/modem) or facsimile machine, or any other telephone device that responds to a standard phone company ring signal.

Listed below are examples of various phone-line devices that can be connected to the Line Share 120B.

- Fax/modem
- Computer modem
- Facsimile
- Answering machine
- Telephone
- Bulletin Board System (BBS)
- Credit card authorization terminal
- Security alarm and monitoring system
- Point-of-sale terminal
- Call diverter
- Fluid storage system
- Energy management system
- Money order dispensing system
- Laser fax cartridge
- Remote diagnostic system
- Time and attendance system
- Flow monitoring system

2.1 Before You Begin

This guide is designed to help you install and use the Line Share 120B. Please read through this guide before attempting to connect or operate the Line Share 120B.

2.2 Important Notes

According to standard industry practice, surge protection is recommended for use with all electronic devices. A surge suppressor and/or line conditioning should be used on the input power supply, as well as on the connected telephone line.

Call Waiting: Fax and modem transmissions could be disrupted by the call-waiting beep tone.

Call Forwarding: If Call Forwarding is enabled, the Line Share 120B cannot process calls on that line.

Phone Company Voice Mail: This service is compatible with the Line Share 120B if used in conjunction with the phone company's Distinctive Ring Service (service activation required).

Please read through the rest of this guide to learn how to properly install and operate the Line Share 120B.

3. Installation

3.1 Unpacking the Line Share 120B

The package you received should include the following:

- (1) Line Share 120B
- (1) AC Power Adapter
- (1) Telephone Line Cord
- This User's Manual

If any of these items are missing or damaged, call Black Box immediately at 724-746-5500.

3.2 Installing the Line Share 120B

The Line Share 120B is a single-line device that can be installed on any type of modular system that consists of one or more lines, with one or more phones. A modular system consists of phone cables that can be connected and disconnected from a telephone device.

3.2.1 Ports on the Line Share 120B

The rear panel of the Line Share 120B includes four modular ports and a power input port, as shown:

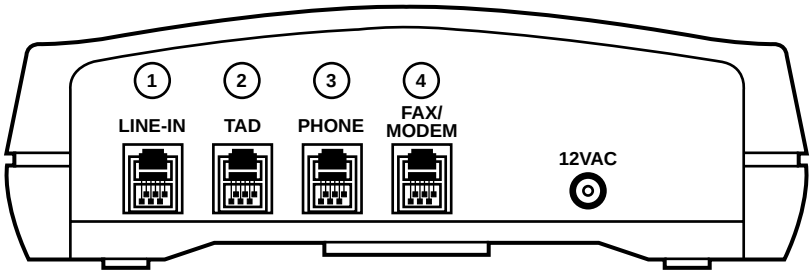

Figure 3-1. Rear Panel of the Line Share 120B.

1. Connect a single telephone line from a standard telephone (wall) jack to this port.

2. Connect your Telephone Answering Device (TAD) or integrated phone/answering machine to this port. The Line Share 120B will route all voice calls to the TAD and Phone ports simultaneously.

3. Depending on the installation, a single line phone, an integrated phone/answering machine, multiple phones, or a telephone system (KSU or PBX) can be connected to this port. The Line Share 120B will route all voice calls to the Tad and Phone ports simultaneously.

4. The fax machine must be connected to the Fax/Modem port to enable the Line Share 120B to automatically transfer a fax call with a fax CalliNG (CNG) tone to the fax machine. A computer modem or fax/modem can connect to this port in lieu of a fax machine.

   (See **Section 5.1** for an explanation of CNG tones.)

3.2.2 PLACING THE LINE SHARE 120B

The Line Share 120B can be placed on either a flat surface, or mounted on a wall. To mount the Line Share 120B on a wall, follow these steps:

1. Mark the positions for two mounting screws (not supplied) on the wall. The positions should be 3-1/4" apart (vertically). Drill the two holes, then thread the screws into the wall. The screws should extend 3/16". Do not over-tighten the screws.

2. Align the keyholes on the back of the Line Share 120B with the two screws, then push in and press down to secure it to the wall.

NOTE

If you place the Line Share 120B on a flat surface, do not place it in close proximity to any peripheral equipment. Keep it approximately 2 to 3 feet (60 to 90 cm) away from all electronic equipment).

(The Line Share 120B can be mounted on the wall with the connected telephone line cords above or below the unit.)

Once telephone equipment is connected to the Line Share 120B, you can place the telephone line cords through the line guides on the bottom of the Line Share 120B to reduce tangling.

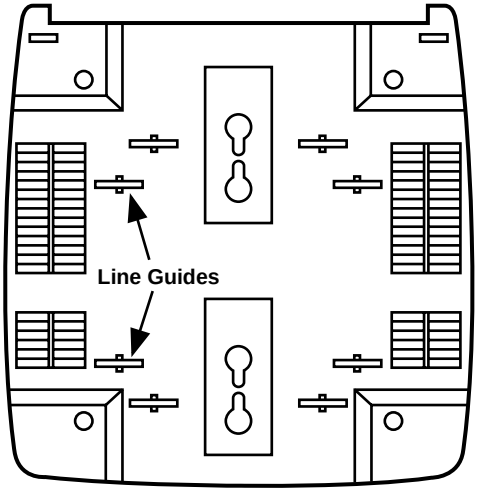

Figure 3-2. Bottom of the Line Share 120B.

3.2.3. Connecting the Line Share 120B

This section explains how to install the Line Share 120B in most phone configurations that appear in a home or office. You can install the Line Share 120B in one of the following phone configurations:

- a single telephone line
- a telephone system

Installation procedures for each of these configurations are provided in the following sections.

To perform the installation procedures in the following sections, you may need the following equipment:

- telephone cables to connect the Line Share 120B to your telephone (wall) jack.
- extension cables—required if the connecting equipment is not located near the Line Share 120B.
- additional telephone cables—typically supplied with equipment by the manufacturer. You need additional telephone cables for as many pieces of equipment as you intend to connect to the Line Share 120B. If the equipment manufacturer does not provide the required cables, you can purchase them from your dealer.

3.2.4 Installation on a Single Telephone Line

Figure 3-3 shows a complete installation for a single phone line connection. While the connections to the telephone (wall) jack may be different for other types of phone systems, the connections to the Line Share 120B remain the same for all phone configurations.

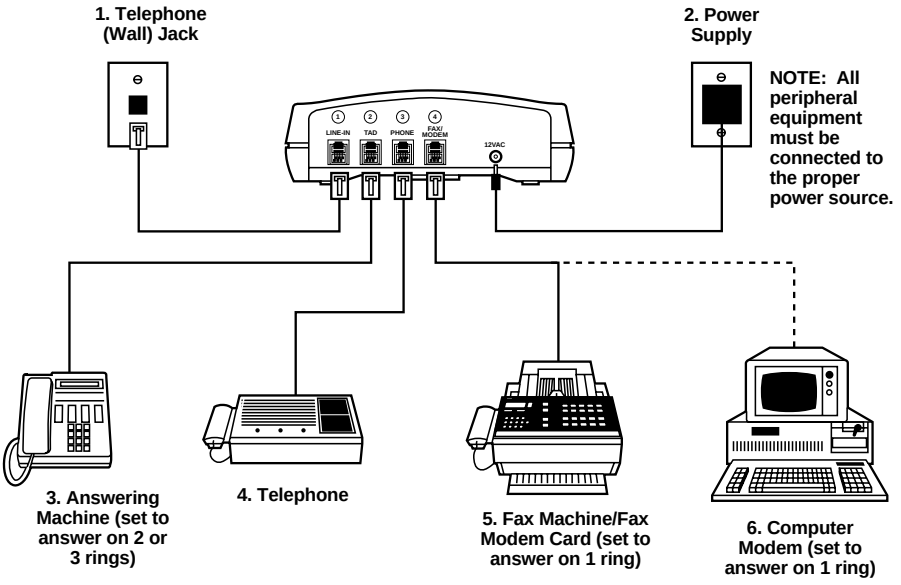

Figure 3-3. Installation for a Single-Phone-Line Connection.

1. Plug one end of a telephone line cord into the LINE-IN port on the Line Share 120B. Plug the other end of the telephone line cord into the telephone (wall) jack.

2. Plug the small end of the AC power cord provided with the Line Share 120B into the power input port labeled “12 VAC” on the Line Share 120B. Plug the adapter into a standard AC outlet.

   The green LED flashes rapidly for about 5 seconds when power is applied and then remains lit, indicating its ON status.

3. To connect an answering machine, plug one end of a telephone line cord into the TAD port on the Line Share 120B.

4. To connect a phone, plug one end of a telephone line cord into the Phone port on the Line Share 120B.

5. To connect a fax machine, plug one end of a telephone line cord into the Fax/Modem port on the Line Share 120B.

   Set the fax to answer on one ring.

6. To connect a telephone device such as a computer modem, in lieu of a fax machine, plug one end of a telephone line cord into the Fax/Modem port on the Line Share 120B.

   Set the modem to answer on one ring.

NOTE

To connect a Caller ID device with the Line Share 120B, simply plug the Caller ID into the Phone port, then plug your phone into the Caller ID.

The default for Caller ID operation is OFF.

To turn Caller ID ON, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 1 1 6 * (three beeps) 4 0 2 * (three beeps) *
3. Hang up the phone.

To turn Caller ID OFF, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 0 1 6 * (three beeps) 4 0 1 * (three beeps) *
3. Hang up the phone.

NOTE

Caller ID is a service provided by your local telephone company. (Service activation required.)

4. Operation

4.1 Fax CNG Tones

Before operating the Line Share 120B, be sure that you understand the following information concerning fax equipment that is used with the Line Share 120B.

Fax CNG tones: Most faxes send audible beep tones called CNG (CalliNG) tones. This tone is a distinct beep that repeats every three seconds. Once a fax has dialed the destination fax number, it generates this tone while waiting for the receiving fax to answer.

Not all faxes transmit this tone when they place a call. Most, but not all faxes produce this tone through their auto-dial feature or speed-dial memory position, or by the operator pressing the fax machine's start button after the number is dialed.

For best results, callers should have your fax number programmed into their fax machine's "speed-dial" memory.

4.2 Standard Operations

The Line Share 120B has two operating modes: Office Mode and Home Mode.

OFFICE-MODE OPERATION

When a call comes in, the Line Share 120B answers the call on the first ring (second ring if Caller ID is turned ON). During the next four seconds, the Line Share 120B listens for the following signals:

- a CNG tone
- an access code for the Fax/Modem port

If the Line Share 120B detects one of these signals, it routes the call to the Fax/Modem port.

After four seconds, the call will be routed to the Phone and TAD ports if tones are not detected.

If the Line Share 120B transfers an unwanted call to the Fax/Modem port, it will automatically reduce the number of rings to your telephones to two rings to ensure optimum connect time.

The Line Share 120B will reset the ring count to six rings after ten minutes of inactivity on the Fax/Modem port. You can also manually reset the Line Share 120B to six rings by performing one of the following steps:

- Lift the receiver of any phone device on the line connected to the Line Share 120B and hang it up.
- Answer a call from any phone before the call is routed to the Fax/Modem port.
- Place an outbound call from any phone connected on the line connected to the Line Share 120B.

The default operating mode for the LineShare 120B is the Office mode.

To return the Line Share 120B to the Office mode, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 2 1 0 * (three beeps) *
3. Hang up the phone.

NOTE

Extension phones not connected directly to the Line Share 120B will ring only one time if the Line Share 120B is in the Office mode (2 times if Caller ID is turned ON). In the Home mode, all phones will ring up to six times (factory setting).

HOME-MODE OPERATION

When a call comes in, all the phones begin to ring (including extension phones, phones connected to the Phone and TAD ports). The Line Share 120B allows six rings to the telephones before it automatically transfers the call to the Fax/Modem port. If you or your answering machine answer the call before this transfer occurs, the Line Share 120B listens for the following signals:

- a CNG tone
- an access code for the Fax/Modem port

If the Line Share 120B detects one of these signals, it routes the call to the Fax/Modem port.

If the Line Share 120B transfers an unanswered call to the Fax/Modem port, it will automatically reduce the number of rings to your telephones to two rings to ensure optimum connect time (extension phones will ring until the fax or modem answers the call).

The Line Share 120B will reset the ring count to six rings after ten minutes of inactivity on the Fax/Modem port. You can also manually reset the Line Share 120B to six rings by performing one of the following steps:

- Lift the receiver of any phone device on the line connected to the Line Share 120B and hang it up.
- Answer a call from any phone before the call is routed to the Fax/Modem port.
- Place an outbound call from any phone connected on the line connected to the Line Share 120B.

The default operating mode for the Line Share 120B is the Office mode.

To operate the Line Share 120B in the Home mode, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 2 1 1 * (three beeps) *
3. Hang up the phone.

NOTE

Extension phones not connected directly to the Line Share 120B will ring only one time if the Line Share 120B is in the Office mode (two times if Caller ID is turned ON). In the Home mode, all phones will ring up to six times (factory setting).

4.3 Answering Incoming Calls

You can answer incoming calls from an extension phone or from a phone device connected to the Tad or Phone port. You can then conduct the call normally, for as long as you like.

1. If, after answering a call, you hear silence on the line, the call is likely coming from a fax that does not produce a CNG tone. Simply transfer the call to the Fax/Modem port by pressing # 1 1 from a tone phone or 3 from a rotary/pulse dialing phone.

2. To transfer a voice call to the Fax/Modem port, press # 1 1 from a tone phone or 3 from a rotary/pulse dialing phone.

3. In the Home mode, if you hear a CNG tone or an access code for the Fax/Modem port, hang up the phone.

4.4 Answering Calls with an Answering Machine

If your answering machine answers a call from the Tad port, the caller can perform the following tasks:

- record a voice message on the Tad and/or
- transfer their call to the Fax/Modem port

We recommend that you use your answering machine announcement message to provide callers with instructions for transferring their calls. Following is a sample announcement message that you may wish to use:

"* *Hello, this is _____. If you wish to send a fax, press * 1 1 on your tone phone, or leave a message at the tone.*"

NOTE

Callers cannot transfer a call to the Fax/Modem port from a pulse dialing fax.

*If the Line Share 120B is in the Home mode, you should leave a four second silent period at the beginning of the outgoing message you use on your answering machine.

NOTE

Fax calls that do not produce a CNG tone will route automatically to your answering machine. To allow the Line Share 120B to transfer these calls to the Fax/Modem port, you must program the Line Share 120B for this transfer.

To turn this automatic transfer ON, perform the following steps:

1. Take the phone in the PHONE port off-hook.

2. Press # * 1 1 * (three beeps) *

3. Hang up the phone.

To turn this automatic transfer OFF, perform the following steps:

1. Take the phone in the PHONE port off-hook.

2. Press # * 0 1 * (three beeps) *

3. Hang up the phone.

With this feature turned ON, the Line Share 120B will monitor the line for 30 seconds after the answering machine answers a call. If the answering machine disconnects from the call during this time, the Line Share 120B automatically transfers the call to the Fax/Modem port. To accommodate these timing parameters, your outgoing message should be no less than 15 seconds, and no longer than 20 seconds. (Single-cassette answering machines are not recommended for use with this feature because of timing limitations of these types of machines.)

4.5 Retrieving Answering-Machine Messages from a Remote Location

To disable the Line Share 120B and retrieve your answering-machine messages, follow these steps:

1. Dial your phone number and wait for the answering machine to answer the call.
2. After your answering machine answers the call, press * on your tone phone.
3. Follow the remote retrieval procedures for your answering machine.
4. After retrieving your messages, hang up. The Line Share 120B resets for the next call.

4.6 Placing an Outbound Call

You can place an outbound call from the Phone port, unless another port is in use. If another port is in use, you will hear a busy signal when you attempt to place a call. If the line is clear when the calling device goes off-hook, you receive a dial tone and can place the call normally.

During an outbound call, you can also receive a transmission from someone who is ready to transmit.

To route this transmission to the Fax/Modem port, any time during a conversation, press # 1 1 from a tone phone, or 3 from a rotary/pulse dialing phone (rotary/pulse transfers are not possible until 20 seconds after dialing the last digit of the phone number).

(Picking up an extension phone not connected to the TAD or Phone port during a data or fax transmission may interrupt the call.)

4.7 Receiving a Computer Call

Unlike a fax call, inbound computer calls do not produce identifying tones; they remain silent until another modem answers the call.

To receive a computer call to the Fax/Modem port, instruct the caller to use one of the following methods. (In this example, use a modem.)

4.8 Dialing the Destination (Receiving) Computer through the Originating (Calling) Computer

To have the calling modem automatically "over dial" the Fax/Modem port access code and access the modem connected to the Line Share 120B, the caller must take into consideration whether the call is local or long distance.

For remote access to the Fax/Modem port on the Line Share 120B, instruct the caller to use the following dialing string in the modem's software:

ATDT (phone number),#11,#11,#11,#11 (for OFFICE mode)

ATDT (phone number),,,#11,#11,#11,#11 (for HOME mode)

The calling modem picks up its phone line and dials the phone number. The comma (,) tells the modem to wait about two seconds and then repeatedly dial the access code.

NOTE

Not all modem comma (,) commands delay dialing for a two-second interval. See your modem User's Manual and adjust the number of commas you use accordingly.

In the Office mode, the Line Share 120B will answer a call, detect the tones, and route the call to the Fax/Modem port.

In the Home mode, you or your answering machine will answer the call, then the Line Share 120B will detect the tones and route the call to the Fax/Modem port (see note below).

For long distance remote access to the Fax/Modem port of the Line Share 120B, instruct the caller to use the following dialing string in the modem's software:

ATDT 1 (phone number),,,#11,#11,#11,#11 (for Office mode)

ATDT 1 (phone number),,,,,#11,#11,#11,#11 (for Home mode)

NOTE

In the Home mode, the commas entered before the #11 are set to your answering machine's two-ring answer. Use three additional commas for each ring that your answering machine is set to answer above two rings.

4.9 Distinctive Ring Service Compatibility

When you add a second or third phone number to your single line, the Line Share 120B works smoothly to route calls without depending on access codes or routing tones.

The phone company's Distinctive Ring service is offered in most areas across the U.S. Phone companies offer this service under various names. Check with your local phone company for details.

The Line Share 120B routes the additional phone numbers (ring styles) as follows:

standard ring: Phone and TAD ports

two-burst ring: Fax/Modem port

The default for Distinctive Ring detection is OFF.

To turn Distinctive Ring detection ON, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 1 1 4 * (three beeps) *
3. Hang up the phone.

To turn Distinctive Ring detection OFF, perform the following steps:

1. Take the phone in the PHONE port off-hook.
2. Press # * 0 1 4 * (three beeps) *
3. Hang up the phone.

Contact Technical Support for more information about using the Line Share 120B with the Distinctive Ring service.

4.10 Remote Message Notification

The Line Share 120B can automatically send a special tone message to any desired telephone number—local or long distance—every time you receive a voice message, fax document, or data transmission.

One application using Remote Message Notification would allow the Line Share 120B to notify you when a message is received on your answering machine. During the notification call from the Line Share 120B, you can retrieve the message from your answering machine (if the answering machine is able to play back messages remotely).

NOTE

The Remote Message Notification is programmable ON/OFF with various settings (default OFF). Contact Technical Support for more information.

5. Troubleshooting/Helpful Hints

- *Why are fax calls being routed to my telephone and/or answering machine?*

- If the Line Share 120B is in the Home mode, it will wait for you or your answering machine to answer a call before it routes calls to the Fax/Modem port.

  If the Line Share 120B is in the Office mode, these are calls that did not produce routing tones.

  See **Section 4.3** for routing instructions.

- *Why can't I receive faxes when I'm away from the Line Share 120B? (When an answering machine is connected to the Line Share 120B.)*

- Check the following settings and procedures:

1. Instruct callers to press # 1 1 to send a fax.

2. Make sure you left 4 seconds of recorded silence (only when using the Home mode) before recording the outgoing message you use on your answering machine.

3. Set your fax to answer on one ring.

4. Set your answering machine to answer on two rings.

- *Why don't fax calls transfer to the fax when I answer the phone?*

- Some fax machines do not produce fax tones, therefore, when you receive this type of call, press # 1 1 on your tone phone, then hang up.

- *Why don't fax calls transfer to the fax when my answering machine answers a call (Line Share 120B is in the Home mode)?*

- You may not have the four second silence at the beginning of your answering machine announcement message. If you do, contact Technical Support for more information.

- *The LED doesn't light on the Line Share 120B. What should I do?*

1. Check your power connection. If power is connected properly, make sure that you are using a 12-volt AC power adapter.

2. Verify that the phone line is properly connected to the LINE IN port.

- *I don't have dial tone with the phone(s) connected to the Line Share 120B. What should I do?*

- Check all of the phone line connections and repair or replace any damaged cables.

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