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CIB 3128

Basic Telephone and Modem
Interface 2

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Basic Telephone And Modem Interface 2

The Basic Telephone and Modem Interface 2 (BTMI-2) allows you to connect most types of on-premises telephones, including Touch-Tone and rotary telephones, and data devices to your MERLIN® Communications System. The BTMI-2 (Figure 1) can be used to connect modems (auto answer and originating), transaction terminals, cordless telephones, answering machines, facsimile (FAX) machines, integrated voice and data terminals, etc. This document contains installation, administration, and user instructions for the BTMI-2. Keep it handy for future reference.

NOTE: The BTMI-2 can also be used with the Off-Premises Range Extender (OPRE) to provide off-premises station service on MERLIN Communications Systems. For further information, refer to CIB 3125 which comes with the Off-Premises Range Extender.

The BTMI-2 is compatible with:

- MERLIN II Communications System (all releases)
- MERLIN Plus Communications System (all releases)
- MERLIN Communications System Models 1030/3070 (Feature Modules 3 and 5)
- MERLIN Communications System Models 206/410/820 (Feature Packages 1 and 2)

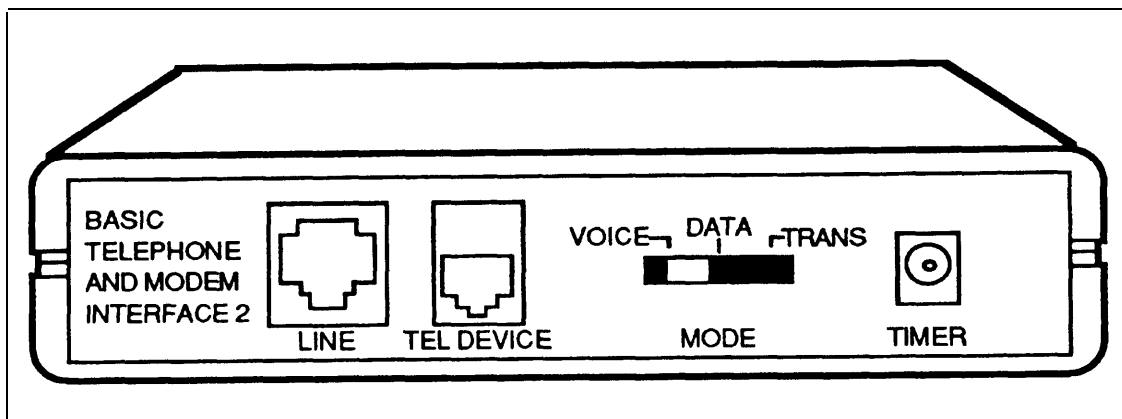


FIGURE 1 Basic Telephone and Modem Interface 2

The BTMI-2 has three jacks and a MODE switch on its faceplate. The jacks are labeled LINE, TEL. DEVICE, and TIMER and are used in various BTMI-2 installations. The MODE switch determines whether the connected device receives a call waiting tone when a call comes in while the line is busy. This switch is initially set to *DATA* for no call waiting tone.

To set the MODE switch for call waiting, slide the switch to *VOICE* (the left position). Call waiting may be used in any telephone set installation described in this document *unless* you have connected a data device, such as a modem, to the BTMI-2. To place and answer calls, refer to the section of this document titled "User Instructions for the BTMI-2."

NOTE: The normal MODE switch settings are *VOICE* and *DATA*. The rightmost position, *TRANS*, is not used at present and is intended for a future MERLIN Communications System release.

System administration for a basic telephone connected with a BTMI-2 cannot be performed after the BTMI-2 is connected. To program features for your basic telephone(s) connected to the BTMI-2, you can use Centralized Programming or, before you connect the BTMI-2, connect a voice terminal directly to the control station jack to which you plan to connect the BTMI-2, and program from there. For further information refer to the section of this document titled "Administration and Programming for the BTMI-2."

Installation

The BTMI-2 may be used with the following equipment:

- One telephone or data device
- Two telephones and/or data devices
- A timer and a transformer for timer-controlled operation

This connection turns the BTMI-2 ringing generator on and off automatically. This connection may be used with the other telephone installations described in this section.

- Two MERLIN Communications Systems

Two MERLIN Communications Systems can be connected using one or two BTMI-2s.

A two-system connection using *one* BTMI-2 provides one system with access to the second system's intercom numbers and outside lines (full direct access). The second system can access intercom numbers on the first system, but must be transferred (limited access).

A two-system connection using *two* BTMI-2 provides both systems with full direct access to each other's intercom numbers and outside lines.

NOTE: If you have a Model 1030 or 3070 with Feature Module 5, do not connect the BTMI-2 to a voice terminal jack that is used for an attendant position (e.g., receptionist or secretary).

BEFORE CONNECTING THE BTMI-2

The BTMI-2 comes with a 7-foot, 4-pair (D8W) modular cord to connect the BTMI-2 to your communications system. Based on the type of connection you choose, you may need any of the following additional equipment:

- 2-Pair modular (D4CH or D4BU) line cords
- 267A2 Line bridging adapter
- Z100A Filter
- Timer
- Transformer

You can purchase the modular line cords and line bridging adapter through your equipment supplier or at a store that carries electronic equipment. You can purchase a timer or a transformer from a store that carries electronics equipment.

Compatible Transformers for the BTMI-2

If you purchase a transformer to use with your BTMI-2, it must conform to the following specifications:

- 6-volts dc to 12-volts dc.
- Center pin negative.
- Plug size has a 2.0 mm inner diameter and 5.5 mm outer diameter, coaxial.

CHOOSING A LOCATION

The location of your BTMI-2 and the device(s) to be connected for all installations documented in this section must be based on the following guidelines:

- The BTMI-2 cannot be located more than 1000 feet from the control unit.
- The device(s) connected to the BTMI-2 should not be located more than 1000 feet from the BTMI-2.

CONNECTING ONE TELEPHONE OR DATA DEVICE

For this installation you will need a 4-pair modular cord (provided) and a 2-pair modular cord (not provided).

- 1 Plug one end of the 4-pair modular cord into the jack labeled LINE on the BTMI-2 (Figure 2).
- 2 Connect the other end of this cord to one of your system's voice terminal jacks using any of the following methods:
 - > Directly to a voice terminal jack on the control unit
 - > To a modular voice terminal extension cord connected directly to a voice terminal jack on your control unit
 - > To a modular wall jack that terminates in a jack field connected directly to a voice terminal jack on your control unit
- 3 Plug one end of the 2-pair modular cord into the jack labeled TEL. DEVICE on the BTMI-2.
- 4 Plug the other end into the line jack on your telephone or data device.
- 5 Set the MODE switch to *VOICE* or *DATA*.

NOTE: Do not use the MODE switch setting, *VOICE*, if you have connected a data device, such as a modem, to the BTMI-2.

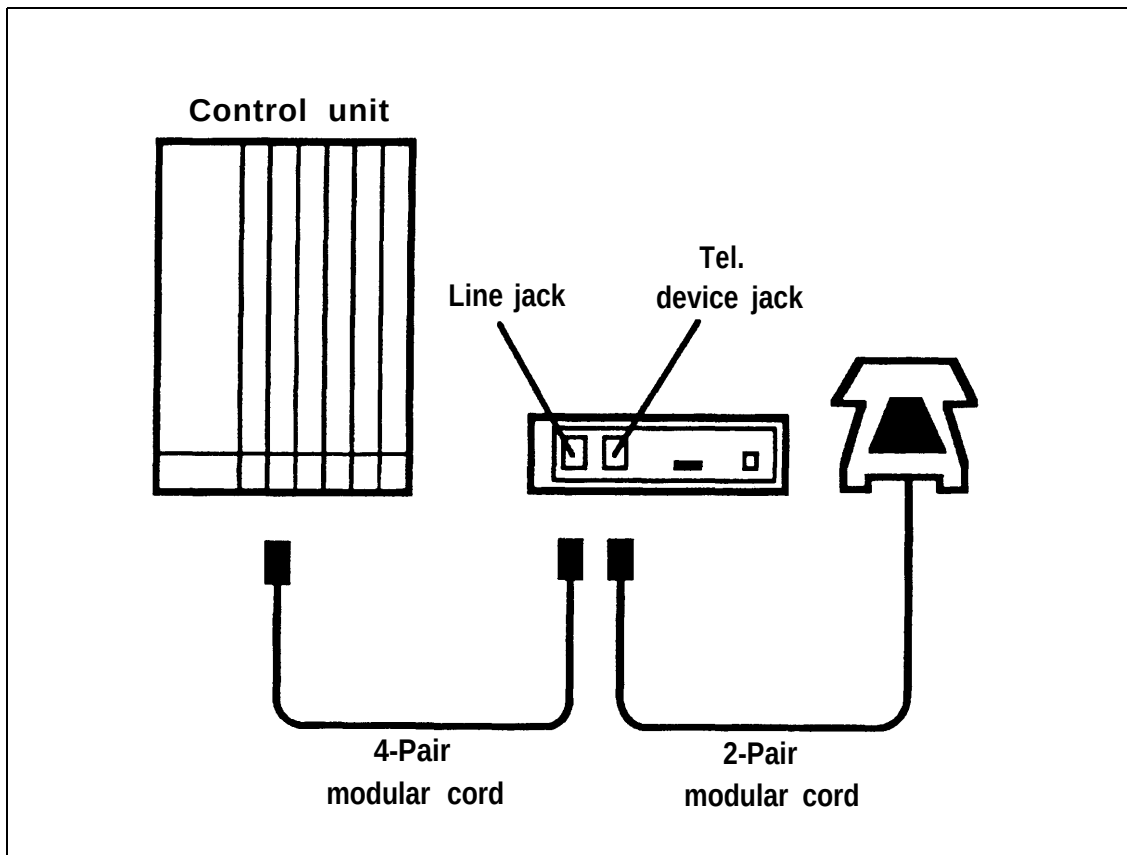


FIGURE 2 Connecting One Telephone or Data Device to the BTMI-2

CONNECTING TWO TELEPHONES OR DATA DEVICES

For this installation you will need a 4-pair modular cord (provided), two 2-pair modular cords (not provided) and a 267A2 line bridging adapter (not provided).

- 1 Plug one end of the 4-pair modular cord into the jack labeled LINE on the BTMI-2 (Figure 3).
- 2 Connect the other end of this cord to one of your system's voice terminal jacks using any of the following methods:
 - > Directly to a voice terminal jack on the control unit
 - > To a modular voice terminal extension cord connected directly to a voice terminal jack on your control unit
 - > To a modular wall jack that terminates in a jack field connected directly to a voice terminal jack on your control unit
- 3 Plug the line bridging adapter into the modular jack on one of the telephone or data devices to be connected.

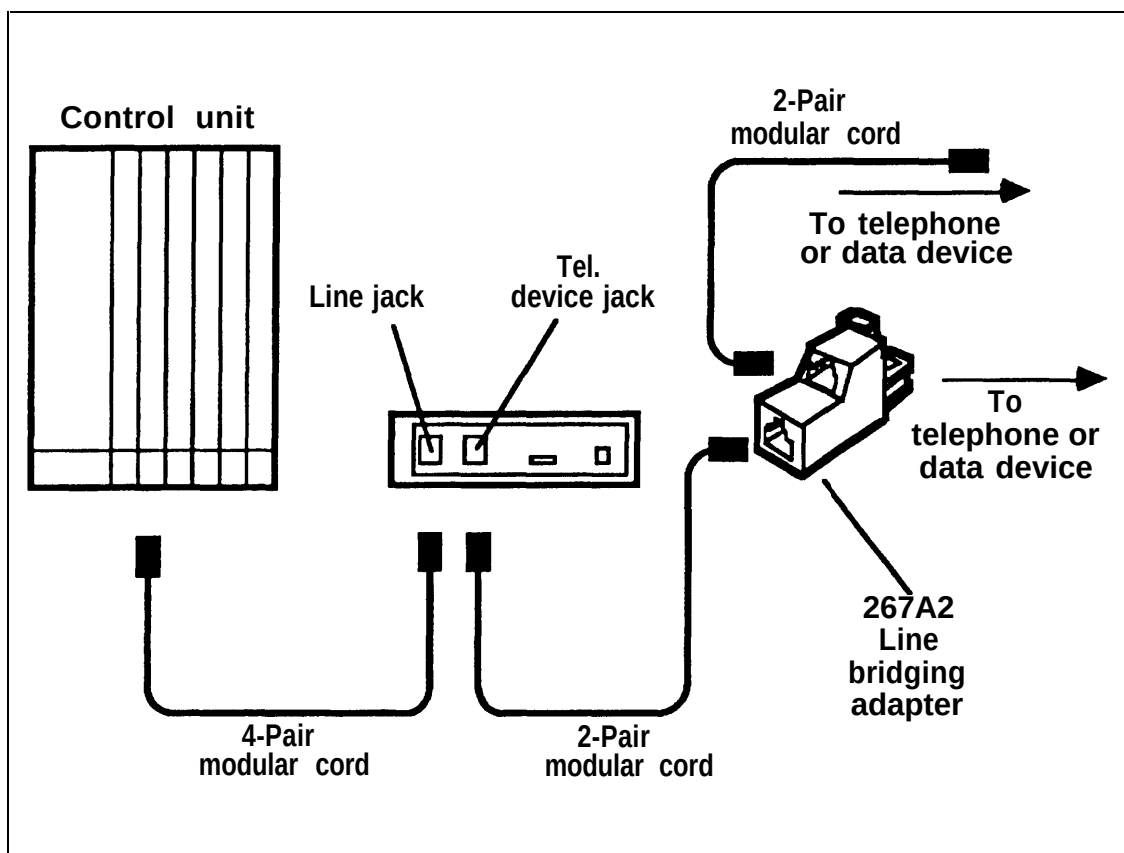


FIGURE 3 Connecting Two Telephones or Data Devices to the BTMI-2

- 4 Plug a 2-pair modular cord into each of the jacks on the line bridging adapter.

- 5 Plug one of these 2-pair modular cords into the jack labeled TEL. DEVICE on the BTMI-2.
- 6 Plug the other 2-pair modular cord into the line jack on your second telephone or data device.
- 7 Set the MODE switch to *VOICE* or *DATA*.

NOTE: Do not use the MODE switch setting, *VOICE*, if you have connected a data device, such as a modem, to the BTMI-2.

CONNECTING A CORDLESS TELEPHONE

When using a cordless telephone with a BTMI-2, you must install a Z100A Filter between the BTMI-2 and cordless telephone. The filter is available at AT&T phone center stores and is compatible with all cordless telephones.

- 1 Plug the modular cord from the Z100A Filter into the jack labeled TEL. DEVICE on the BTMI-2 (Figure 4).
- 2 Plug the cordless telephone's modular cord into the filter's jack.
- 3 Set the MODE switch to *VOICE*.

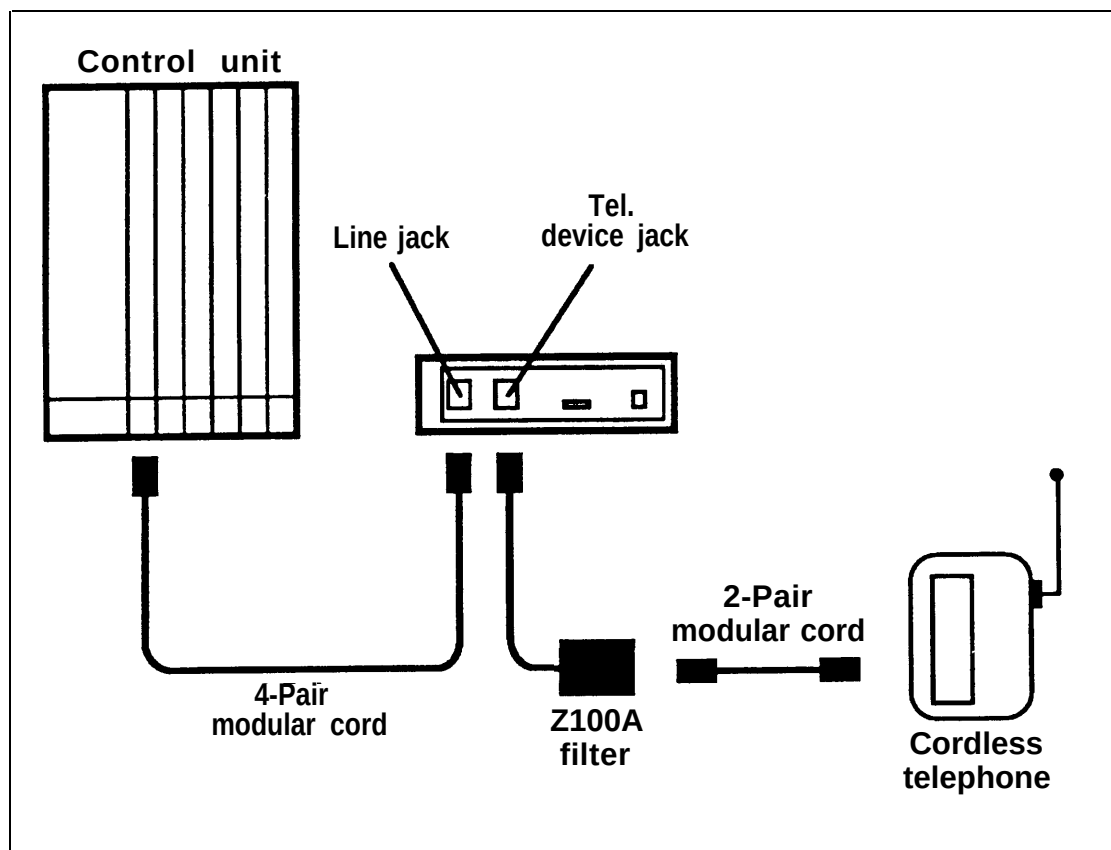


FIGURE 4 Connecting a Cordless Telephone

CONNECTING A TIMER AND TRANSFORMER FOR TIMED OPERATION

For this installation you need a timer and a transformer (not provided). Refer to the information under "Compatible Transformers for the BTMI-2" for a description of compatible transformers.

- 1 Plug the timer into a 117-volt outlet (Figure 5).
- 2 Set the timer for the desired on/off times as indicated in the manufacturer's instructions.
- 3 Plug the power module end of the transformer into the timer.
- 4 Plug the other end of the transformer into the jack labeled **TIMER** on the BTMI-2.
- 5 Set the **MODE** switch to *VOICE* or *DATA*.
- 6 Connect the telephone equipment as previously described.

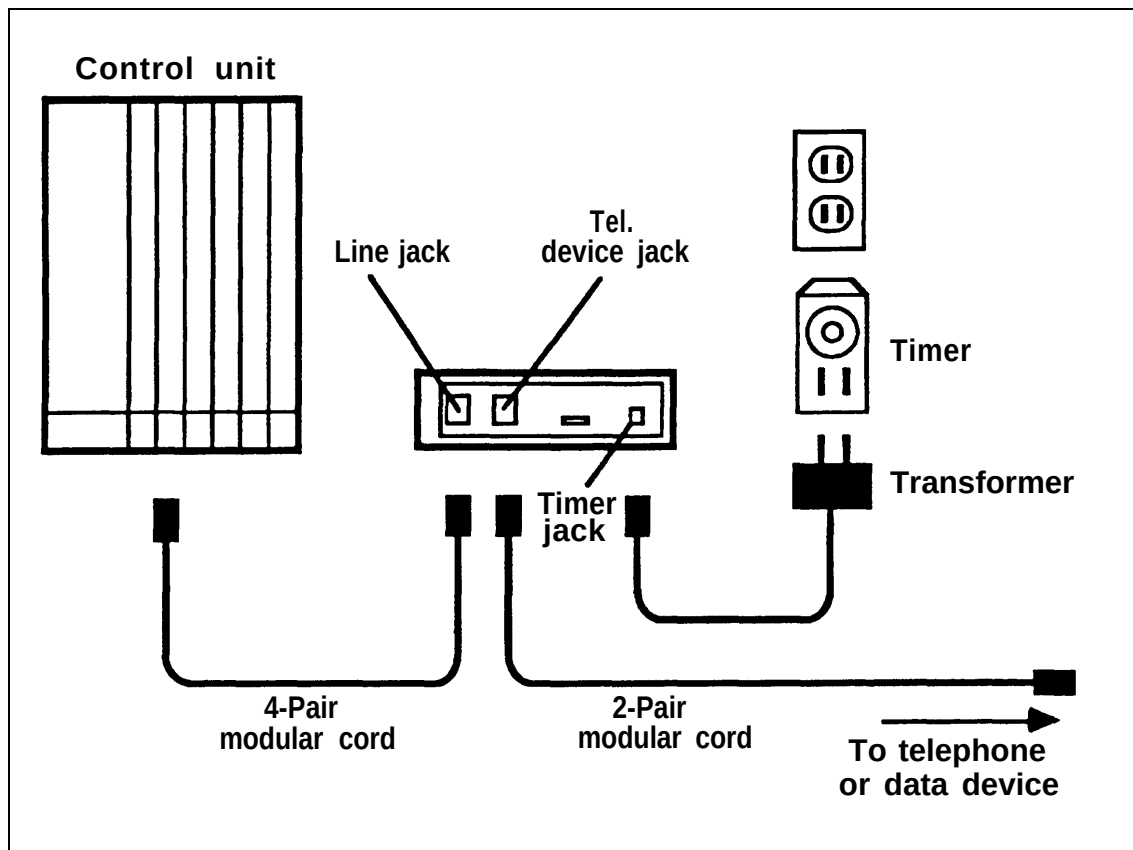


FIGURE 5 Connecting a Timer and a Transformer for Timed Operation

CONNECTING TWO MERLIN COMMUNICATIONS SYSTEMS

You can connect two MERLIN Communications Systems using the BTMI-2. There are two possible installations.

If you connect two systems using one BTMI-2, one system has full direct access to outside lines administered to the BTMI-2's station jack and intercom numbers of the second system. The second system has access to the first system's intercom numbers as an incoming line appearance, e.g., a call from the second system to the first system is handled like an outside call and can be transferred.

NOTE: To enhance access to your system's lines with this type of installation:

- If you have a MERLIN II system with Feature Module 2; use the Direct Inward System Access (DISA) feature. Refer to your *MERLIN II Communications System with Feature Module 2 System Manual* for further information.
- If you have a MERLIN Plus Communications System Release 2, use the Direct Extension Dialing (DXD) feature. Refer to your *MERLIN Plus Communications System Release 2 System Manual* for further information.

You can connect two communications systems using two BTMI-2s, giving both systems full direct access to each other's outside lines and intercom numbers. Each installation is explained in the following paragraphs.

Connecting Two Communications Systems Using One BTMI-2 (Full Direct Access on One System and Limited Access on the Other)

For this installation you need one BTMI-2, a 4-pair modular cord (provided) and a 2-pair modular cord (not provided).

NOTE: In this section, the communications systems are referred to as System A and System B. When connected, System B will have full direct access, System A will have limited access.

- 1 Plug one end of the 4-pair modular cord into a voice terminal jack on the System A control unit (Figure 6). (Note the station number for this jack. A person on System A will have to use this intercom number to access System B.)
- 2 Plug the other end of the cord into the jack labeled LINE on the BTMI-2.
- 3 Plug one end of the 2-pair modular cord into a line jack on the System B control unit.

NOTE: This line now represents the BTMI-2 and should be administered with DISA or DXD as previously mentioned.

- 4 Plug the other end into the jack labeled TEL. DEVICE on the BTMI-2.
- 5 Set the MODE switch to *DATA*.

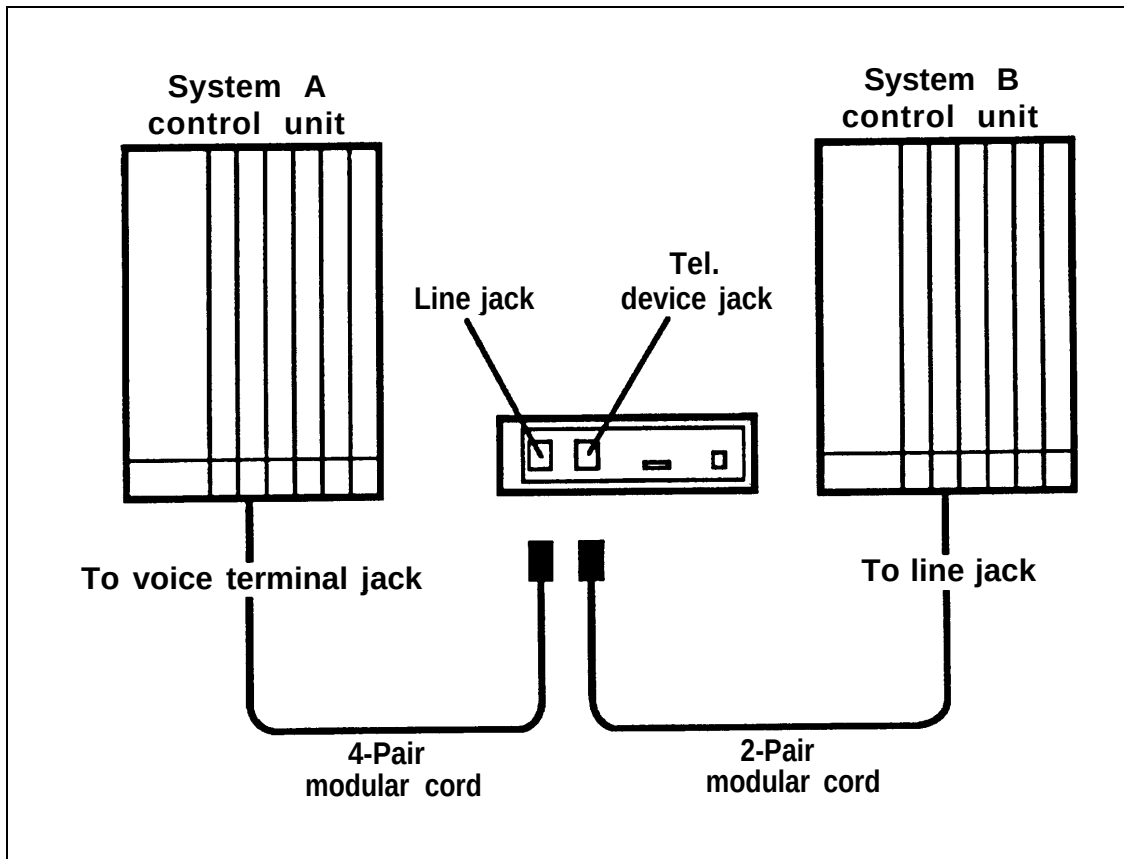


FIGURE 6 Connecting Two Communications Systems Using One BTMI-2

System B now has full direct access to System A's intercom numbers and outside lines. System A has access only to System B's intercom numbers. An intercom call from System A to System B must be transferred by the person answering on System B.

Placing Intercom and Outside Calls to System A from System B (Full Direct Access)

- 1 Touch the line button associated with the BTMI-2 at any station on System B.
- 2 Lift the handset (you hear the BTMI-2 dial tone) and dial the intercom number for the person on System A or if you want to make an outside call, dial 9 and the outside telephone number.

Placing Intercom Calls to System B from System A (Limited Access)

- 1 Touch **Intercom** from any station on System A.
- 2 Lift the handset and dial the intercom number that the BTMI-2 is connected to on **your** communications system.

The associated line on System B rings.

NOTE: The attendant or the person answering must transfer your call to the appropriate person.

Connecting Two MERLIN Communications Systems Using Two BTMI-2 (Full Direct Access on Both Systems)

For this installation, you need two BTMI-2s, two 4-pair cords (included) and two 2-pair modular cords (not included). In these instructions, the systems are referred to as System A and System B; the BTMI-2s are referred to as BTMI-2 A and BTMI-2 B.

- 1 Plug one end of a 4-pair modular cord into a voice terminal jack on the System A control unit (Figure 7).
- 2 Plug the other end of the cord into the jack labeled LINE on BTMI-2 A.
- 3 Plug one end of a 2-pair modular cord into an unused line jack on the System B control unit.
- 4 Plug the other end of the cord into the jack labeled TEL. DEVICE on BTMI-2 A.
- 5 Set the MODE switch to *DATA* on BTMI-2 A.
- 6 Plug one end of the other 4-pair modular cord into a voice terminal jack in the System B control unit (Figure 7).
- 7 Plug the other end into the line jack on BTMI-2 B.
- 8 Plug one end of the other 2-pair modular cord into an unused line jack in the System A control unit.
- 9 Plug the other end into the jack labeled TEL. DEVICE on BTMI-2 B.
- 10 Set the MODE switch to *DATA* on BTMI-2 B.

NOTE: The lines connected to a BTMI-2 in this installation must be programmed for No Ring under Ringing Options and *must not* be included in any Automatic Line Selection list.

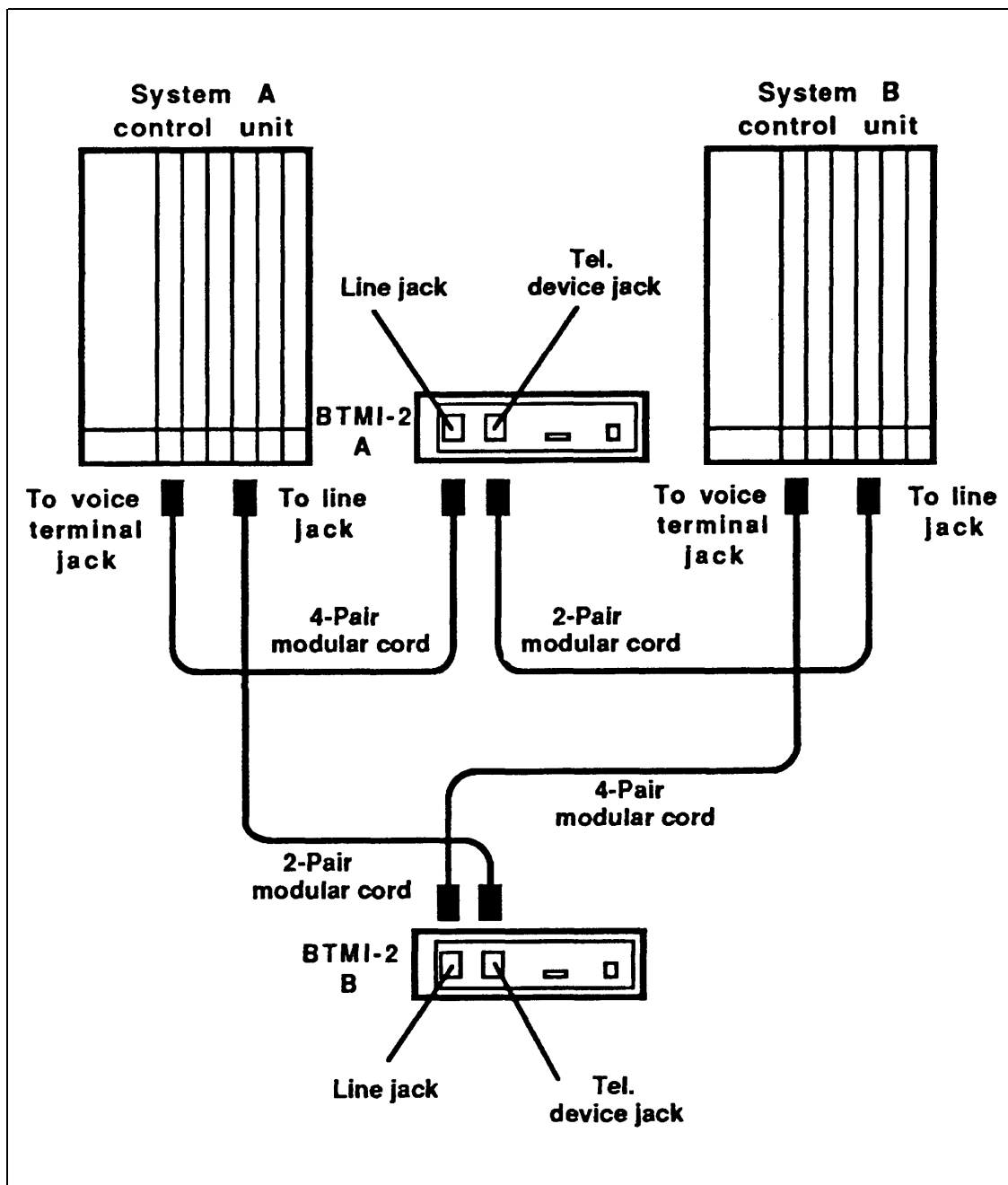


FIGURE 7 Connecting Two Communications Systems Using Two BTMI-2s

System A and System B now have full direct access to each other's intercom numbers and outside lines.

***Placing Intercom and Outside Calls From Either System
(Full Direct Access on Both Systems)***

- 1 Touch the line button associated with the BTMI-2.
- 2 Lift the handset (you hear the BTMI-2 dial tone) and dial the intercom number for the person on the other system or if you want to make an outside call, dial 9 and the outside telephone number.

Administration and Programming for the BTMI-2

This section describes administration and programming for basic telephones connected to a BTMI-2.

ADMINISTRATION

You use the same procedures for administering basic telephones connected to a BTMI-2 that you use for administering standard voice terminals. Review the features listed under “Programming” before administering the BTMI-2.

PROGRAMMING

The following information describes how to program basic telephones connected to the BTMI-2. There is a brief explanation of features that can be used with the BTMI-2, as well as a quick guide to programming these features under “Assigning Features.” For further information regarding the features listed, refer to the appropriate manual listed in the following table:

If you have:	Then refer to:
MERLIN II System with Feature Module 2	<i>MERLIN II System with Feature Module 2 System Manual</i>
MERLIN II System with Feature Module 1	<i>MERLIN II System Manual</i>
MERLIN Plus System Release 2	<i>MERLIN Plus Communications System Release 2 System Manual</i>
MERLIN Plus System	<i>MERLIN Plus System Manual</i>
Models 1030/3070 with Feature Modules 3 or 5	<i>Administration Manual: Models 1030/3070 with Feature Module 3 (or 5)</i>
Models 206/410/820 with Feature Packages 1 or 2	<i>Feature Package 1 (or 2) User's Guide: Models 206/410/820</i>

ASSIGNING FEATURES

Use the following guidelines to help you assign lines or line pools and features to basic telephones connected to the BTMI-2.

- 1 To assign lines or line pools, refer to the information in the manual listed for your system under “Line Assignments.”

NOTE: If you have a MERLIN II System with Feature Module 2 and a square system configuration and would like to use Direct Inward System Access (DISA), the DISA lines must be administered to the BTMI-2.

- 2 If you want the basic telephone to have call restrictions, refer to the information in the manual listed for your system under Call Restrictions.
- 3 To program the following features for your basic telephone(s), you can use Centralized Programming or, before you connect the BTMI-2, connect a voice terminal directly to the station jack to which you plan to connect the BTMI-2, and program the features from there.

NOTE: There is a Feature Programming Chart at the end of this section for some of the features listed. For further information, refer to the administration information provided with your MERLIN system.

- **Ringing Options.** If you don’t want the basic telephone to ring on every line, you can specify which lines ring when a call comes in by programming Ringing Options for the telephone. Refer to the information under “Ringing Options” in the manual listed for your system.
- **Automatic Line Selection.** To specify the order in which the system makes lines available, program an Automatic Line Selection sequence for the basic telephone. Be sure to program Automatic Line Selection only for those lines to be used by the basic telephone.

NOTE: If you have connected two MERLIN Communications Systems using two BTMI-2s, the lines connected to the BTMI-2s *must* be programmed for No Ring under Ringing Options and *must not* be included in any Automatic Line Selection list.

- **Voice Announcement Disable.** Basic telephones can receive ringing intercom calls, but *not* intercom calls with voice announcement. Therefore, you *must* program Voice Announcement Disable for the telephone.
- **Last Number Redial.** Redial the number you dialed most recently using a 3-digit code.
- **Saved Number Redial.** Save a number indefinitely for later redialing using a 3-digit code.

- 4 When you are finished programming, leave Centralized Programming or disconnect the voice terminal.
- 5 If you have not programmed with Centralized Programming, connect the BTMI-2 to the station jack on which the programming was done and connect the basic telephone to the BTMI-2.

Feature Programming Chart	
Feature	Programming Code
Automatic Line Selection	1 Dial **. 2 Touch the line buttons in the order you prefer. 3 To program other features, dial ** again. Otherwise, leave programming mode.
Voice Announcement Disable (Required)	For Models 1030/3070 and Models 206/410/820: 1 Touch Intercom Voice. <i>The green light beside Intercom-Voice is off.</i> For MERLIN II systems and MERLIN Plus systems (all releases): 1 Touch Intercom Voice. 2 Dial *35. <i>The green light beside Intercom-Voice is off.</i>
For MERLIN II systems and Models 1030/3070:	
Saved Number Redial	1 Touch the button you want to program. 2 Dial #23*74.
Last Number Redial	1 Touch the button you want to program. 2 Dial #24*73.

NOTE: Saved Number Redial and Last Number Redial are default settings and need not be programmed with a MERLIN Plus system or Models 206/410/820.

User Instructions for the BTMI-2

This section provides instructions on how to access special MERLIN system features using a basic Touch-Tone telephone through the BTMI-2. Keep this document by your basic telephone and refer to it if you need help.

Here are the considerations for using the BTMI-2:

- There are three modes of operation: Data, Voice, and Transparent. They each function as follows:
 - > Data mode is intended for use with data equipment, including answering machines, facsimile machines, and modems.
 - > Voice mode is intended for use with basic Touch-Tone or rotary telephones and provides a call waiting signal.
 - > Transparent mode is intended to accommodate future changes and is not to be used at this time. If the BTMI-2 is accidentally set to this mode, you will *not* be able to make intercom calls but you will hear an outside line dial tone whenever the basic telephone is taken off-hook.
- While both Voice and Data modes allow you to use special MERLIN system features in addition to making and answering calls, it is best to set the proper mode for the equipment that is connected. For example, if a modem is connected to the BTMI-2 while it is set to Voice mode, the modem may receive extraneous data whenever a call waiting signal is sent.
- The voice announced intercom call feature must be disabled so that calls originated with **Intercom-Voice** are changed to ringing intercom calls on the basic telephone. To program this disabling feature, replace the basic telephone with a MERLIN system voice terminal and follow the instructions provided for "Voice Announcement Enable/Disable" in your MERLIN System Manual or "Programming Voice Announcement Disable" in your MERLIN System Models 1030 and 3070 Administration Manual.

- A basic Touch-Tone telephone connected to the BTMI-2 has special features of the MERLIN communications system available to it. Consult your system administrator to see which of the following features are administered or programmed for your basic telephone:
 - > Using Last Number Redial
 - > Using Saved Number Redial
 - > Putting calls on Hold (for MERLIN II, Models 1030/3070, and MERLIN Plus systems only)
 - > Transferring calls
 - > Speed dialing (personal and system)
 - > Getting messages
 - > Picking up calls
 - > Using Recall
- The BTMI-2 does *not* support the following features:
 - > Conference calls
 - > Line or pool selection

NOTE: Pressing the switchhook only disconnects calls. It does *not* transfer calls or place calls on hold.

PLACING AND ANSWERING CALLS

Placing Intercom Calls

- 1 Lift the handset.
- 2 Listen for the intercom dial tone.
- 3 Dial the intercom number.

Placing Outside Calls

- 1 Lift the handset.
- 2 Listen for the intercom dial tone.
- 3 Dial 9 for an outside line dial tone.†
- 4 Dial the outside number.

Answering Calls

- 1 Lift the handset.
- 2 Begin your conversation.

Answering Call Waiting Calls

If the BTMI-2 is in voice mode, you will hear a call waiting signal (two beeps) whenever a call comes in while you are on another call.

To drop the first call and answer the waiting call:

- 1 Hang up the handset.
Telephone rings.
- 2 Lift the handset.
- 3 Begin your conversation.

† If your system type is Pooled with Dial Access, dial the appropriate pool number for an outside line dial tone.

USING MERLIN SYSTEM FEATURES

Consult your system administrator to see which of the following features have been administered or programmed for your basic Touch-Tone telephone.

Using Last Number Redial

To redial the last number you called:

- 1 Lift the handset.
- 2 Listen for the intercom dial tone.
- 3 Dial 9 for an outside line dial tone.†
- 4 When you hear the dial tone, dial #24.

Using Saved Number Redial

You can save a busy or unanswered telephone number to try again at a later time.

- 1 Before hanging up the handset from a busy or unanswered call, dial #23.
- 2 To redial the number, lift the handset and dial 9 for an outside line dial tone.†
- 3 Dial #23.

Putting Calls on Hold

This feature is available with MERLIN II, Models 1030/3070, and with MERLIN Plus systems only.

To place an active call on hold:

- 1 Dial #58.
The call is placed on hold.

To retrieve a call on hold:

- 1 Dial #*.

† If your system type is Pooled with Dial Access, dial the appropriate pool number for an outside line dial tone.

If you hear a call waiting tone and want to place the first call on hold while you answer the second call:

To handle a call waiting call:

- 1 Dial #58.
The first call is placed on hold.
- 2 Hang up the handset.
The phone rings for the second call.
- 3 Answer the second call.

To return to the first call:

- 1 Dial #*.
- 2 Continue your conversation.

Transferring Calls

You can transfer calls to another intercom number.

- 1 Dial #55.
- 2 Dial the intercom number.
- 3 Hang up the handset.

Speed Dialing

Your system administrator can assign speed dial codes to the following:

- Telephone numbers you dial frequently
- PBX, Centrex, or Custom Calling features

Ask your system administrator for the numbers assigned to Personal Speed Dial and System Speed Dial codes.

Personal Speed Dialing

- 1 Lift the handset.
- 2 Dial 9 for the outside line dial tone.[†]
- 3 Dial the Personal Speed Dial code.

[†] If your system type is Pooled with Dial Access, dial the appropriate pool number for an outside line dial tone.

System Speed Dialing

- 1 Lift the handset.
- 2 Dial 9 for the outside line dial tone.[†]
- 3 Dial the System Speed Dial code.

Getting Messages

If the basic telephone connected to the BTMI-2 has a message lamp, it can be turned on from the attendant console when a message is waiting.

If the message light is on:

- 1 Call the attendant for your message.

To turn off the message light:

- 1 Dial #54.

Picking Up Calls

You can pick up a call ringing at another phone.

- 1 Lift the handset.
- 2 Dial *9.
- 3 Dial the intercom number of the ringing phone.

Using Recall

The Recall feature allows you to complete a call and hear a new dial tone without hanging up the handset.

- 1 When you complete the call, dial #50.
You hear the dial tone for your next call.

[†] If your system type is Pooled with Dial Access, dial the appropriate pool number for an outside line dial tone.