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MERLIN LEGEND TM
Communications System
Release 2.0
Data User's Guide

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Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Federal Communications Commission (FCC) Electromagnetic Interference Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Canadian Department of Communications (DOC) Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Present Appareil Numerique n'emet pas de bruits radioelectrlques depassant les limites applicable aux appareils numeriques de la class A prescribes clans le Reglement sur le brouillage radioelectrlque edicte par le ministere des Communications du Canada.

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The exclamation point in an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS

Always follow these basic safety precautions when using your telephone equipment. These precautions reduce the risk of fire, electrical shock, and injury to you and damage to the equipment.

- Read and understand all instructions.
- Follow all warnings and instructions marked on or packed with the telephone.
- Do not use the telephone near water, as in a wet basement. The telephone can be hazardous if immersed in water. To avoid the possibility of electrical shock, do not use it when you are wet. If you accidentally drop it into water, do not retrieve it until you have first unplugged the line cord from the modular wall jack. Do not plug the telephone back in until it has dried thoroughly.

-
- Do not use the telephone during electrical storms in your immediate area. There is a remote risk of electrical shock from lightning.
 - Unplug the telephone from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use liquid or aerosol cleaners on the telephone.
 - Never push objects of any kind into the telephone through openings or slots. Never spill liquid of any kind on the telephone.
 - Do not use the telephone near a gas leak. If you suspect a gas leak, report it immediately, but use a telephone away from the area in question. The telephone's electrical contacts could generate a tiny spark. While unlikely, it is possible that the spark could ignite heavy concentrations of gas.
 - To reduce the risk of electrical shock, do not disassemble the telephone. There are no user-serviceable parts inside. Opening or removing covers may expose you to hazardous voltages, and incorrect reassembly can cause electrical shock when the telephone is used.
 - Call your sales representative or authorized dealer when service or repair work is needed.
 - Auxiliary equipment includes answering machines, alerts, modems, and fax machines. To connect one of these devices, you must first have a **Multi-Function Module (MFM)**.

**WARNING:**

- *For your personal safety, DO NOT install an MFM yourself.*
- *ONLY an authorized technician or dealer representative shall install, set options, or repair an MFM.*
- *To eliminate the risk of personal injury due to electrical shock, DO NOT attempt to install or remove an MFM from your MLX telephone. Opening or removing the module cover of your telephone may expose you to dangerous voltages.*

SAVE THESE INSTRUCTIONS

About This Guide

This book describes the data stations supported by the system and how to make and receive data calls on these stations when using the MERLIN LEGEND™ Communications System. This guide does not provide instructions for setting up your data station or loading and running your communications software. Refer to the appropriate documentation with your communications software and equipment for these instructions.

Conventions

The following typographical conventions are used in this book:

- **Bold type** is used for telephone buttons.
Press **SA Ring** to select an SA button.
- The Carriage Return key is represented by [↵]. However, your keyboard may show [ENTER] or [RETURN].
- *Italic type* is used for emphasis and as a substitute for information for which you must supply a specific value.
Dial *dial-out code*.
- Constant width type is used for information on telephone display screens or on a PC screen.
Connected
Call Status: Idle
- **Bold constant width** type indicates information that you enter exactly as shown.
Type #; dial **#82**.

How to Comment on This Guide

We welcome your feedback on this book. Please use the feedback form on the next page. If the form is missing, send your comments to A. Sherwood, AT&T, 99 Jefferson Road, Rm. # 2A25, Parsippany, NJ 07054.

About Data Communication Equipment

1

This chapter provides an overview of the features and equipment used for data communications with the telephone communications system. It describes the following:

- data stations
- modem pools
- data hunt groups
- communications software setup
- synchronous mode vs. asynchronous mode

For information on setting up your data station and loading and running your communications software, refer to your equipment or communications software documentation or contact your system manager. Your system manager is

responsible for administering and managing your communications system.

Terminology

General terms used in describing data transfer in this guide are defined as follows.

asynchronous data transmission — A method of transmitting a short bit stream of data, such as printable characters represented by a 7- or 8-bit ASCII code. Each string of data bits is preceded by a start bit and followed by a stop bit, thus permitting data to be transmitted at irregular intervals.

control unit — The housing, carriers, power supply module, processor module, and line/trunk and station modules of a communications system.

conversion resource (or modem pool) — A pair, or group of pairs, of modems and data modules with interconnected RS-232 interfaces that converts digital signals to analog, or analog signals to digital, thereby allowing users with digital data stations to communicate with users who have analog data stations and vice versa.

data hunt group (DHG) — A group of analog or digital data stations that share a common access code. Calls are connected in a round-robin fashion to the first available data station in the group.

endpoint — The final destination in the path of an electrical or telecommunications signal.

local area network (LAN) — A networking arrangement designed for a limited geographical area.

MLX port — A digital point of access into a communications system, computer, network, or electronic device.

tip/ring (T/R) — The contacts and associated conductors of a single-line telephone plug or jack.

synchronous — A method of transmitting a continuous digital data stream in which the transmission of each binary is synchronized with a master clock.

Data Stations

A data station is a combination of Data Terminal Equipment (DTE), such as a computer terminal, personal computer (PC), printer, optical scanner, or fax machine, and Data Communications Equipment (DCE), such as a modem or data module.

DTE connects to the communications system via the DCE which has capabilities similar to a telephone. The DCE places the data call, maintains its connection, and terminates the data call.

NOTE:

Depending on your equipment, your DCE and DTE may have options which can be set for transferring or receiving data, such as parity and bit rate setting. Also, options may be different depending on whether you are transferring data synchronously or asynchronously. Be sure to check your DTE or DCE documentation for a list of available options and when and how these options can be changed.

There are two types of data stations: analog and digital. Calls between analog and digital data stations are possible only if the communications system includes a conversion resource called a *modem pool* which is described later in this chapter.

Analog Data Stations

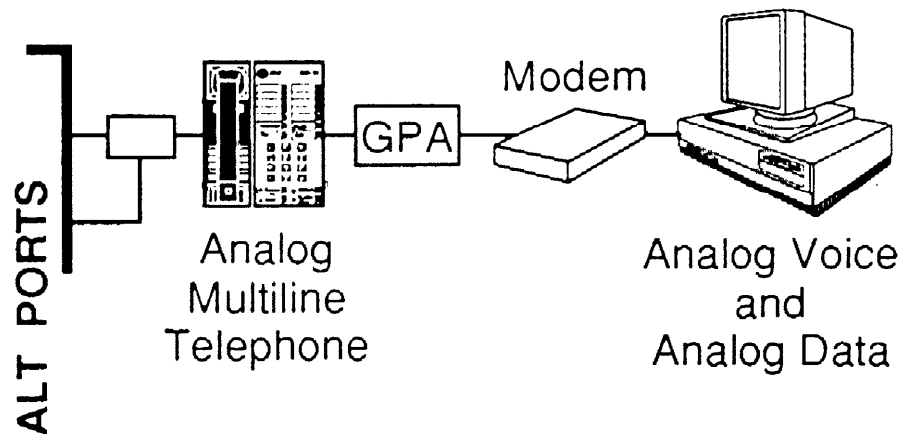
Analog data stations use modems to send and receive information.

Modems convert outgoing digital signals from the data terminal into analog signals for transmission, and convert incoming analog signals to digital signals for the data terminal. It may provide dialing and answering capabilities for the data station, depending on modem features.

Except for an analog multiline telephone, a telephone connected to a modem operates independently from the data station. The modem handles the data call over the regular telephone company network or with another data station inside the system.

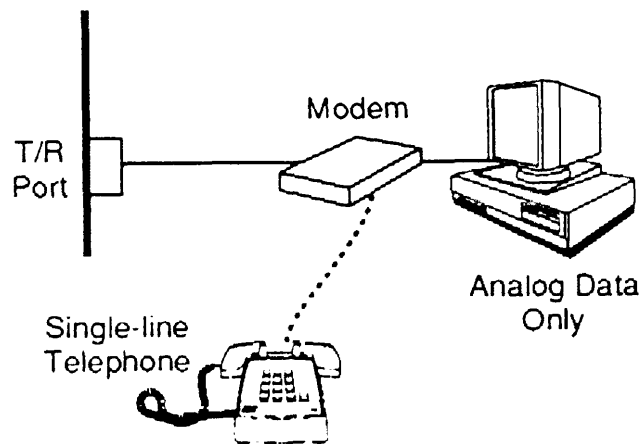
The following analog data stations are supported:

- **Analog Voice and Analog Data.** This endpoint includes an analog multiline telephone and a data terminal or PC connected to the system via a modem. A General Purpose Adapter (GPA) supplies the tip/ring (T/R) interface for the modem.

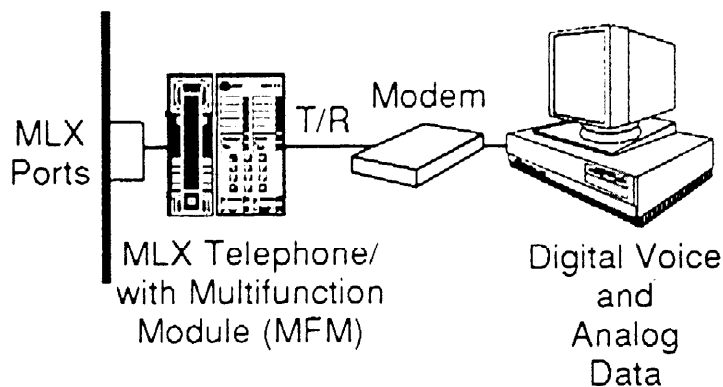


About Data Communication Equipment

- **Analog Data-only Station.** This endpoint includes a terminal connected to the control unit via a modem. The modem may accommodate a telephone; however, the data station and telephone would not be independent of each other (for example, the telephone and data terminal *cannot* be used simultaneously).



- **Digital Voice and Analog Data.** This endpoint connects via a modem to a T/R interface supplied by a Multi-Function Module (MFM) in an MLX telephone which, in turn, connects to the control unit. The modem converts the digital signal to an analog signal that is sent through the MFM (in the MLX telephone) to the control unit. The voice communication capabilities of the MLX telephone and data station are completely independent of each other.



Digital Data Stations

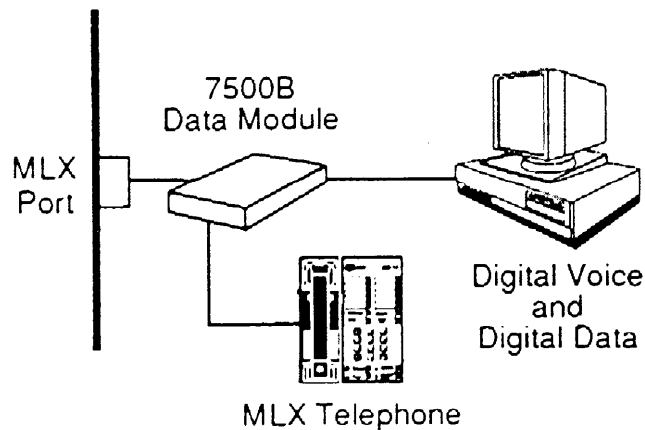
At a digital data station, you connect a data module to a DTE to place and answer data calls at that station. A data module transmits digital data to other digital data stations, including a local host computer or local area network (LAN) workstation.

The communications system uses the 75006 Data Module to connect to digital DTE. It connects on the system end through an MLX port. It may share the MLX port with an MLX telephone; however, the two units operate independently of each other. The data module may also provide dialing and answering capabilities to the data station.

The 7500B Data Module handles the data call over digital telephone company facilities such as Primary Rate Interface (PRI) or with another data station inside the system.

The following digital data stations are supported.

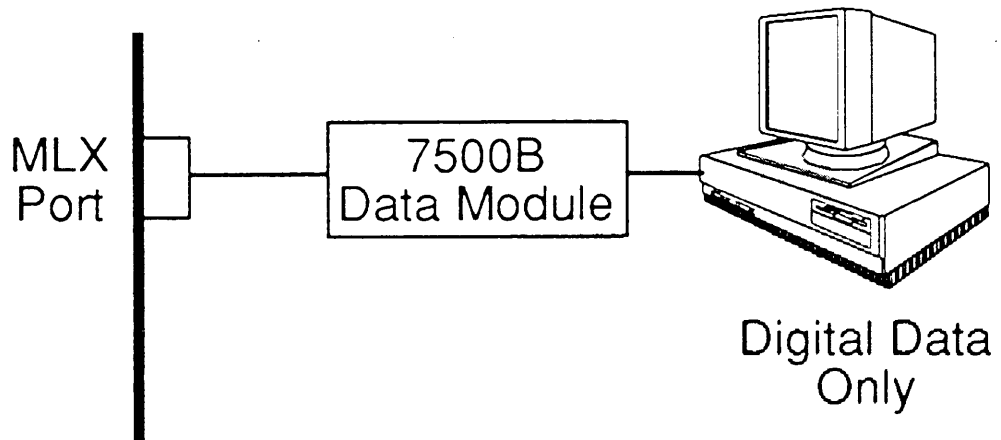
- **Digital Voice and Digital Data.** This endpoint connects to the control unit via a 7500B Data Module. The data module also has an attached MLX telephone. The MLX port is shared by both the telephone and the data station but they operate independently of each other.



NOTE:

For a Digital Voice and Digital Data station, the MLX telephone *cannot* contain a Multi-Function Module (MFM). If you cannot communicate with the switch, verify that the MLX telephone does not contain an MFM.

- **Digital Data-only.** This endpoint connects to the control unit via a 7500B Data Module, but it does not include an MLX telephone.



Modem Pools

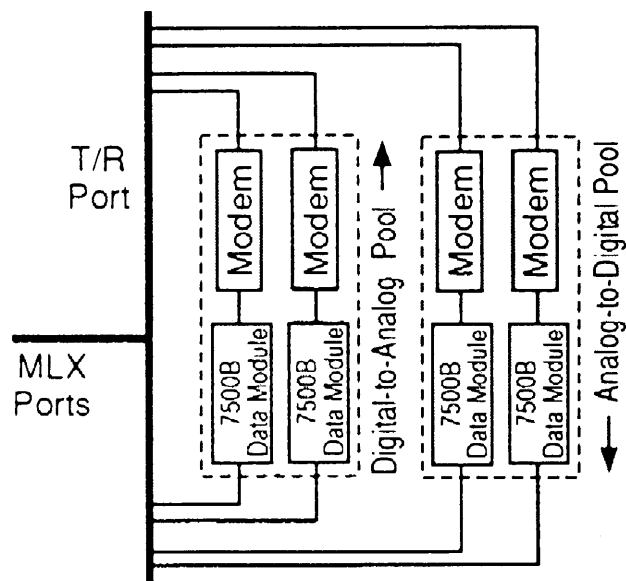
A modem pool acts as a conversion resource to accommodate communication between analog and digital data stations. The modem pool can be one or more pairs of DCEs, a pair being one data module connected via RS-232 interface to a modem.

A modem pool can be used for call origination in one direction only:

- **Analog to Digital** which enables an analog data station to communicate with a digital data station
- **Digital to Analog** which enables a digital data station to communicate with an analog data station

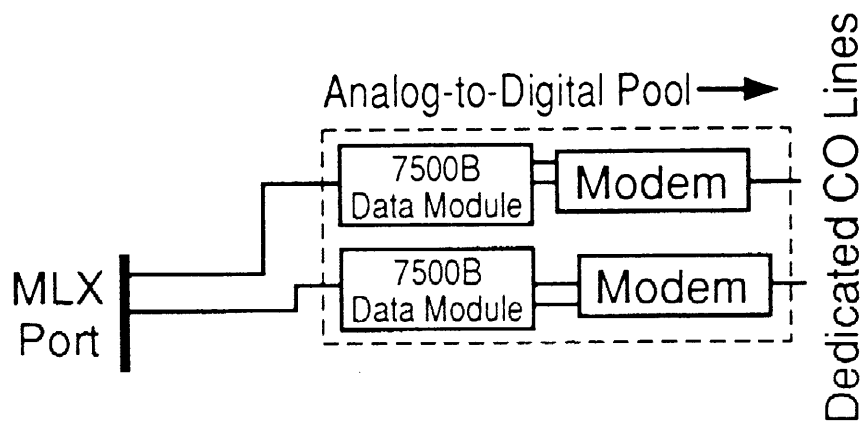
About Data Communication Equipment

Once communication is established between digital and analog data stations, the communication is full duplex. The following illustration shows an example of modem pools for incoming and outgoing calls.



About Data Communication Equipment

Dedicated outside analog lines can be connected directly into analog modems in an analog-to-digital modem pool (and through a data module to an MLX port on the system), as shown in the following illustration.



Data Hunt Groups

The data hunt group feature is used to designate a group of either modems or 7500B Data Modules (not both) to receive calls in a modem pool or to communicate with a local host computer or workstation on a LAN. One of the important aspects of a modem pool is the specific direction of call origination. All the units (for example, modems) on one side of the modem pool can be grouped into a data hunt group so users only need to dial one number for any pair.

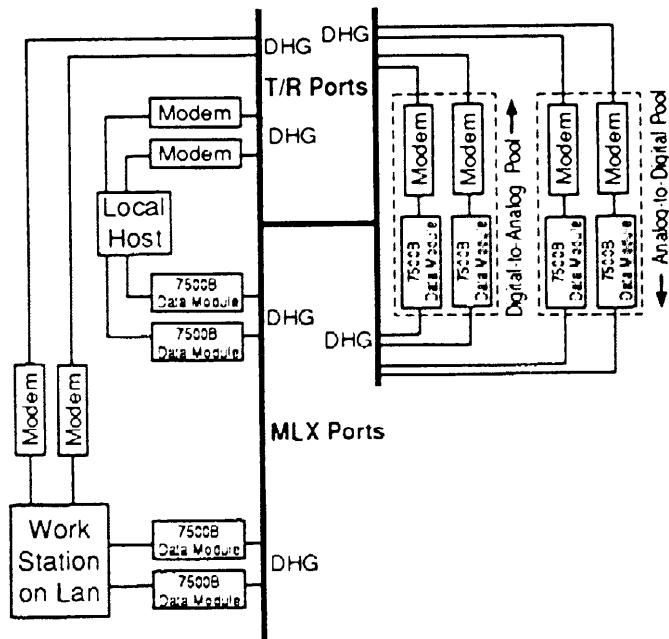
Inside callers can use that number to reach the data hunt group. An individual line/trunk can be assigned to ring directly into the data hunt group so that outside callers can use the modem pool as well.

Calls to the group are distributed among group members in a circular pattern. The system hunts for the first available modem or data module, starting with the one after the one that received the last call. If all group members are unavailable, the caller hears ringback.

Your company can assign up to 32 data hunt groups. Each data hunt group can have a maximum of 20 members. A data station can be a member of only one hunt group.

About Data Communication Equipment

The following illustration shows an example of modem pools as well as local host and workstations on a LAN assigned to data hunt groups.



Communications Software Setup

Before you can begin making and receiving data calls, you must properly connect your DTE and DCE equipment, then install a communications software or terminal emulation package to establish communication to transfer or receive data.

Some data communications setup is performed through keyboard instructions which are provided in your modem or data module documentation. You may also be required to use your communications software or terminal emulation package to perform certain setup commands for your DCE equipment to work with your data station. Although each data station's communication setup depends on configuration, location, and specific equipment limitations and requirements, the following list offers suggestions of the items to be checked:

- Verify or set the appropriate options on the DTE and DCE, such as bit rate or parity. It is important to note that even though your DCE equipment can operate at 2400 baud, your PC or terminal may not be able to handle that speed.
- Set flow control as appropriate for your equipment and software.

- Set the break key used by your communications software.
- Make any other changes necessary for your DTE hardware and system software to operate correctly with the DCE and communications software.

If you are setting up your data station to receive data, you may need to enable an auto-answer feature for your communications software or DCE to receive incoming calls. Refer to your communications software or equipment documentation for details.

NOTE:

Auto-answer features for your communications software or DCE are not related to the Auto Answer All feature for the analog multiline telephone.

Synchronous Mode vs. Asynchronous Mode

The instructions for data transfer in this guide are mostly for asynchronous mode. However, you can set up your 7500B Data Module to operate in synchronous mode at speeds of up to 64 kbps. Setting synchronous communication is done through the data module's front panel. (Instructions for this are provided in the data module's documentation package.) For synchronous communication, you are required to install either a Multipurpose Enhancement board or a High-Speed Synchronous Enhancement board in the 7500B Data Module.

Feature Finder

2

This section identifies the features and procedures available for data users.

Feature Finder

If you have . . .	See . . .	Page
An analog data station (connected via a modem)	Making Analog Data Calls	3-3
A digital data station (connected via a 7500B Data Module)	Making Digital Data Calls	3-14
If you want to . . .	See. . .	Page
Call a digital data station from an analog data station	Calling Through an Analog-to-Digital Modem Pool	3-24
Call an analog data station from a digital data station	Calling Through a Digital-to-Analog Modem Pool	3-32

Feature Finder

If you want to . . .	See . . .	Page
Track outgoing data calls for billing, forecasting, or budget reports	Account Code Entry	4-3
Enable automatic answer capability of modem to answer data calls when you are unavailable	Auto Answer All	4-5
Monitor data equipment in use (data station must have either analog multiline or MLX telephone)	Data Status	4-7
Prevent loss of data by ensuring that data transmission is not interrupted accidentally	Privacy	4-11
Permit quick dialing of frequently used numbers	Personal Speed Dial System Speed Dial	4-9 4-13

Making and Answering Data Calls

3

This chapter explains how to do the following:

- make data calls
- receive data calls
- make calls between analog and digital stations using a modem pool
- answer data calls

If you have a modem, your station is analog. See “Making Analog Data Calls.” If you have an 7500B Data Module, your station is digital. See “Making Digital Data Calls.” If you are calling an analog data station from a digital data station or vice versa, see “Making Data Calls Using a Modem Pool.”

NOTE:

These instructions are general and may be different from the detailed instructions supplied with your modem or data module. You must follow the instructions supplied with your modem or data module.

Making Analog Data Calls

You can use analog data equipment to do the following:

- call another analog station
- call a digital station through a modem pool
- answer a data call

How you make data calls depends on your data station equipment.

- Use your telephone dialpad to dial the data call if your analog data station connects to an analog multiline telephone via a General Purpose Adapter (GPA).
- Use your terminal keyboard to enter commands which place the data call if you have an analog data-only station or if your analog data station connects to an Multi-function Module (MFM) in your MLX telephone.

Your data terminal screen may report the status of your call. The text for call progress messages depends on your modem and data communication software and may be provided in your modem documentation.

Privacy Feature

For data stations connected to analog multiline telephones via a GPA, you do not need to invoke the privacy feature. Privacy is not automatically activated on other analog data station configurations so the instructions include activating this feature when necessary.

System Data Features

When placing data calls, you can use System Speed Dial or Personal Speed Dial codes instead of manually dialing the inside extension or outside telephone number. For data calls requiring account code entry, you can include the account code entry when dialing the outside telephone number. If you have an analog multiline telephone, you can program a Data Status button to monitor your data equipment (this feature is available for digital multiline telephones as well). See Chapter 4 for instructions on using these features.

Making Direct Analog Data Calls

You can call the following endpoints directly from your analog data station without using the modem pool:

- inside analog data stations which include
 - a local host computer connected via a modem
 - workstations on a local area network (LAN) connected via modems
- outside analog data stations

For illustrations and general descriptions of analog data station connections, see Chapter 1.

To Call Inside Analog Stations

Before beginning a data call:

- Put your modem in the command state using the instructions provided with your modem and communications software.
- If using a General Purpose Adapter, verify that the adapter is in Basic Mode.
- Have an **Auto Answer All** button programmed to indicate to the switch that the GPA is present. The button need not be toggled on to place a call.

Make sure that you have the extension number of the analog data station you are calling.

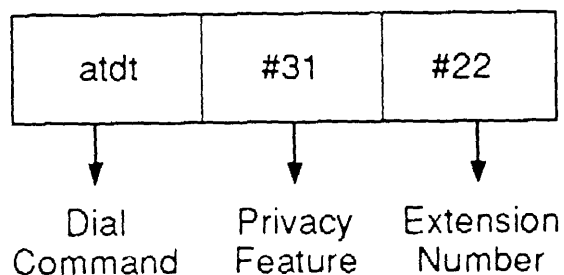
Inside Call: From Analog Data Station Connected to Analog Multiline Telephone via GPA:

1. Verify that the GPA adapter is in Basic Mode.
2. Select line button, **ICOM Ring** or **SA Ring** button.
3. Lift the handset or press **Speakerphone**.
4. Dial the analog data station extension or analog data hunt group extension.
You hear a steady tone when the connection is successful.
5. Put your modem in the data state using the instructions supplied in your modem documentation. For some modems, this may be referred to as the “ready” state.
This takes the call away from the voice connection.
6. Hang up the handset or press **Speaker** to turn off the speaker on your multiline telephone.
The data call is automatically private.
7. Use the instructions supplied with your modem and data communications software to send data, receive data, and disconnect the call.

Inside Call: From Analog Data-only Station or Analog Data Station Connected to a Multi-function Module (in an MLX Telephone):

1. If necessary, verify that the modem is in command state.
2. Enter the appropriate modem command for dialing:
atdt
3. Enter **#31** for privacy.
4. Dial the analog data station extension.

For example, when using a Hayes ® - type modem to make an inside call to another analog data station at extension 22 with privacy activated, you would enter:



5. Press **[↵]**.
6. Use the instructions supplied with your modem and data communications software to send data, receive data, and disconnect the call.

To Call Outside Analog Data Stations

There are two ways to dial outside lines depending on the system operating mode:

- If your analog multiline telephone has **SA** buttons and you place an outside data calls using an **SA** button, you must dial a dial-out code before the telephone number. When you place the call on data stations where you use the terminal keyboard to make the call and you press [↵] after typing the dialing sequence, an **SA** button is automatically selected. Your dialing sequence must still include a dial-out code before the telephone number.
- If your telephone has **ICOM** buttons and you place outside data calls using an analog multiline telephone, you must select a button labeled with a personal line number to make an outside call. Dial-out codes are not needed. (See your telephone user's guide for details on line buttons.) When you place the call on data stations where you use your terminal keyboard to make the call and you press [↵] after typing the dialing sequence, an **ICOM** button is automatically selected. You can select an outside line assigned to your data station from an **ICOM** button by dialing the dial-out code (usually 9). Ask your system manager for the appropriate dial-out code.

Make sure you have the telephone number of the analog data station you are calling.

NOTE:

For analog data stations, you must enter a pause (,) in the dialing sequence to ensure that the system has time to access an outside line.

For example, if the dial-out code is 9 and the number you are calling is 555-1212, you would enter on your terminal keyboard:

9,5551212

using the comma to insert a pause.

When dialing from an analog multiline telephone, you dial the dial-out code and wait for dial tone before proceeding to dial the number.

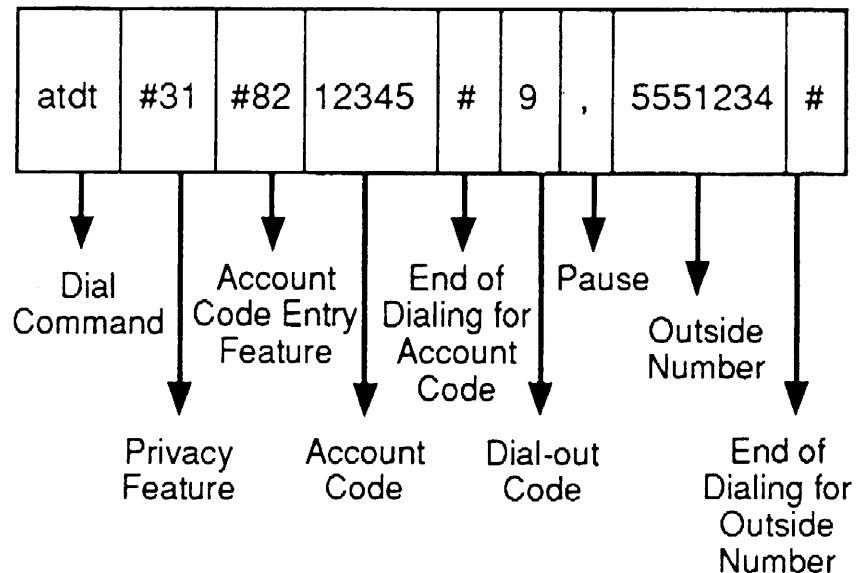
Outside Call: From Analog Data Station Connected to Analog Multiline Telephone via GPA:

1. Verify that the GPA adapter is in Basic Mode.
2. Select the line button, **ICOM Ring** or **SA Ring** button.
3. Lift the handset or press **Speakerphone**.
4. Dial the dial-out code, if you selected an **SA** or **ICOM** button, and the outside telephone number for the outside analog data station. You must wait after dialing the dial-out code for dial tone before entering the outside number.
You hear a steady tone when the connection is successful.
5. Put your modem in the data state using the instructions supplied in your modem documentation.
6. Hang up the handset or press **Speaker** to turn off the speaker on your multiline telephone.
The data call is automatically private.
7. Use the instructions supplied with your modem and communications software to send data, receive data, and disconnect the call.

Outside Call: From Analog Data-only Station or Analog Data Station Connected to an Multi-function Module (in an MLX Telephone):

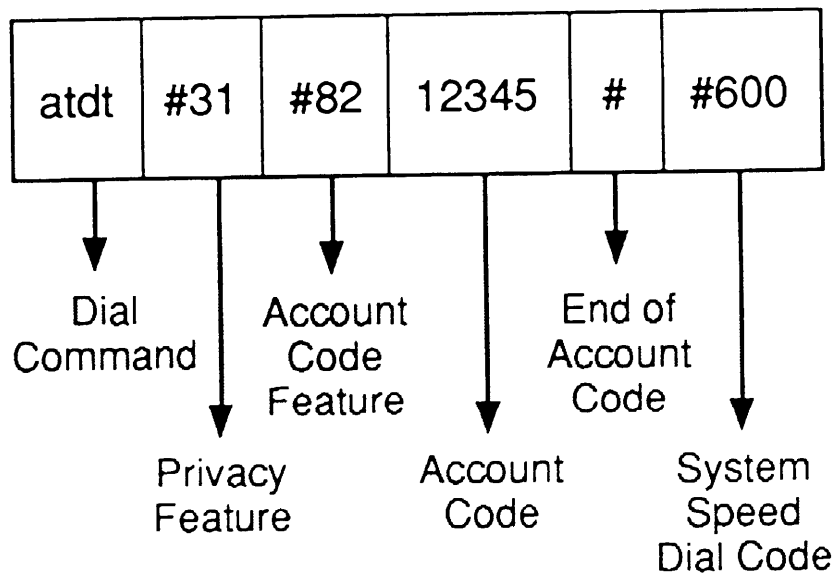
1. Put your modem in the command state using the instructions provided with your modem and communications software.
2. Enter the modem command **atdt**.
3. Enter **#31** for privacy.
4. Enter the dial-out code, a comma for a pause, and the outside telephone number. Account code may be included.

For example, if you are using a Hayes-type modem to make an outside call to another analog data station at telephone number 555-1234 with an account code of 12345, the dial-out code of 9 and privacy activated, you would enter:



Making and Answering Data Calls

You can also use a System Speed Dial code. If you use the previous example but replace the dial-out code and telephone number with the system speed dial code 600, you would enter:



5. Press [↵] .
6. Use the instructions supplied with your modem or data communications software to send data, receive data, and disconnect the call.

To Answer Data Calls on an Analog Data Station

Your modem may be able to answer incoming data calls automatically, such as electronic mail messages or data transfers, if your computer or data terminal is on.

You can answer data calls on an analog data station in two ways.

1. Automatic answer:

- You must have the **Auto Answer All** button (programmed on your telephone) toggled ON. (See Chapter 4 for programming this button.)
- You must have the GPA set to **Auto**.
- You must have the auto answer feature on your modem set according to the instructions in your modem documentation.
Call is automatically private.

2. Manual answer:

1. Lift your handset to answer the call.
2. Switch from voice to data using the instructions in your modem documentation.
3. Hang up the handset or turn speakerphone off.
Call is automatically private.

Making Digital Data Calls

The following instructions provide examples of asynchronous data calls. Synchronous data calls are controlled from the front panel of the 7500B Data Module. See your data module documentation for details.

You can use your digital data equipment to do the following:

- call another digital data station
- call an analog data station through a modem pool
- answer a data call

The instructions in this guide for answering calls are general. You must also use the instructions in the documentation supplied with your 7500B Data Module.

The method you use to make a data call depends on your digital data station configuration and whether the data station you are calling is inside or outside your facility.

Privacy Feature

Privacy is automatically activated on all inside and outside digital data calls.

System Data Features

When placing data calls, you can use System Speed Dial or Personal Speed Dial codes instead of dialing the inside extension or outside telephone number. For data calls requiring account code entry, you can include the account code entry when dialing the outside telephone number. On a digital multiline telephone, you can program a Data Status button to monitor your data equipment. (This feature is available for analog multiline telephones as well.) See Chapter 4 for instructions on using these features.

Making Direct Digital Data Calls

You can call the following endpoints directly from your digital data station without using the modem pool:

- inside digital data stations connected via a 7500B Data Module which include
 - a local host computer connected via a 7500B Data Module
 - workstations on a local area network (LAN) connected via 7500B Data Module
- outside digital data stations using trunks supplied in Primary Rate Interface (PRI) service

For illustrations and general descriptions of digital data station connections, see Chapter 1.

To Call Inside Digital Data Stations

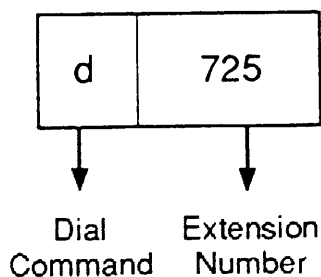
To make an inside data call from a digital data station connected via a 7500B Data Module to another digital data station connected via a 7500B Data Module, use the following instructions. The attached telephone (if any) is independent from the data station, thus it is not used for the data call. If you have an MLX telephone connected to the data module, verify that the telephone does not contain a Multi-Function Module (MFM).

Make sure you have the extension number of the digital data station you are calling.

Inside Call: From a Digital Data Station Connected to a 7500B Data Module:

1. At the CMD: prompt, type the dial command and the inside extension.

For example to call extension 725, you would type:



2. Press [↵] .

The call progress messages appear.

3. To disconnect the call:

- a. While in data mode, enter:

+++

- b. At the CMD : prompt, enter

e

for end. The CLEARING ENDED message appears on your computer screen.

To Call Outside Digital Data Stations

If your telephone has **SA** buttons, an **SA** button is automatically selected after you type the dialing sequence and press [↵]. However, your dialing sequence must still include a dial-out code before the telephone number.

If your telephone has **ICOM** buttons, an **ICOM** button is automatically selected after you type the dialing sequence and press [↵]. You can select an outside line assigned to your data station by dialing the dial-out code (usually 9). To dial a specific DFT (outside line) to access PRI services, your dial-out code would be a DSO channel number (for example, 801, 802, etc.) Ask your system manager for your dial-out code or the appropriate channel number to use in dialing from your digital data station.

Make sure you have the telephone number of the digital data station you are calling.

NOTE:

You do not enter a pause (,) in the dialing sequence to separate the dial-out code or channel number from the telephone number when calling from a digital data station.

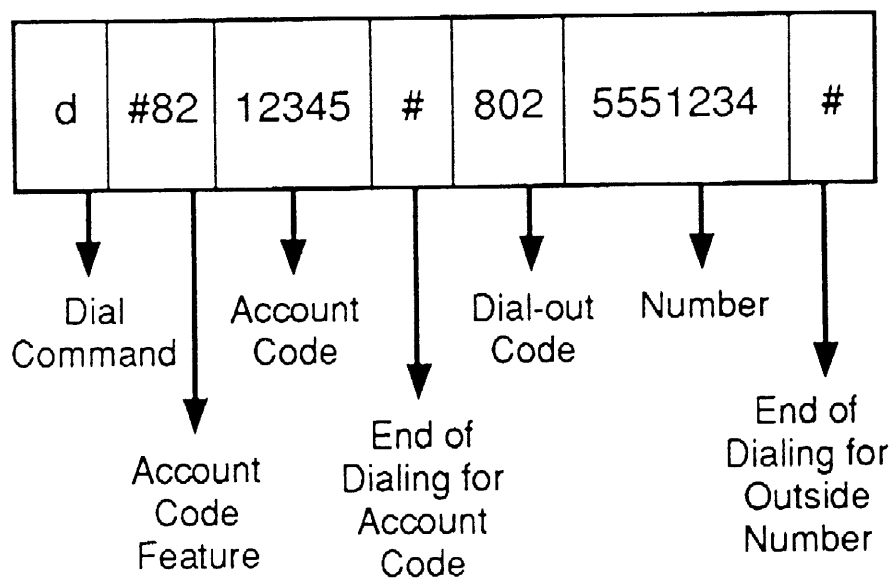
Outside Calls: From a Digital Data Station Connected via a 7500B Data Module:

1. At the CMD: prompt, enter the dial command:

d

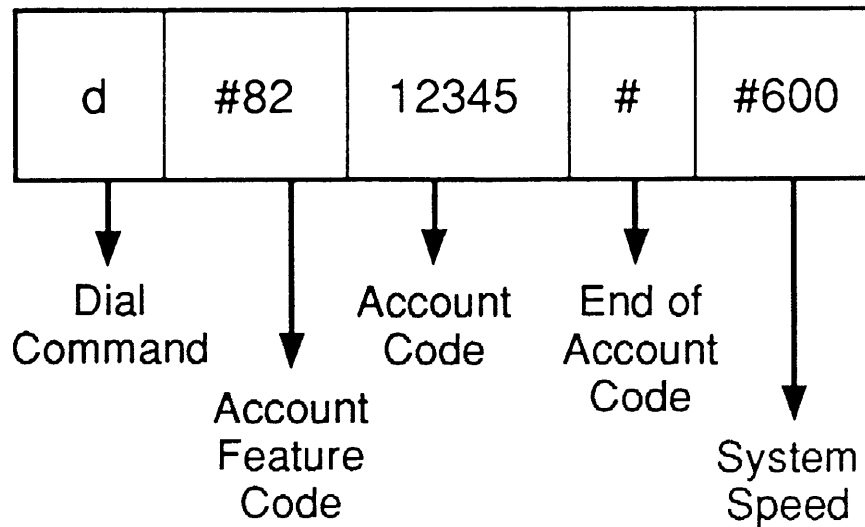
2. Enter the dial-out code and telephone number for the outside digital data station. You may also enter an account code.

For example, if you are making an outside call to another digital data station at telephone number 555-1234 with an account code of 12345 and the dial-out code of 802, you would enter:



Making and Answering Data Calls

You can also use a System Speed Dial code to dial the number which must include the dial-out code. For example, if the System Speed Dial code is 600, you would enter:



3. Press [↵]. The call progress messages appear.
4. To disconnect the call:
 - a. While in data mode, enter

+++

- b. At the CMD : prompt, enter

e

for end. The CLEARING ENDED message appears on your computer screen

To use System Speed Dial, Personal Speed Dial or Account Code Entry, see Chapter 4.

To Answer Data Calls on a Digital Data Station

The 7500B Data Module automatically answers incoming data calls, such as electronic mail messages, when your computer or data terminal is on and you have it set for automatic answer. See the instructions supplied with your 7500B Data Module for further details.

Making Data Calls Through a Modem Pool

You can call digital data stations from an analog data station or vice versa using a modem pool. Some modem and 7500B Data Module pairs may be included in a data hunt group. In this case, you would dial or type the data hunt group extension instead of the data station's extension. For more information and a general description on modem pools and data hunt groups, see Chapter 1.

NOTE:

Synchronous data calls cannot be made through a modem pool.

Two-Stage Dialing

Calls through a modem pool are placed using two-stage dialing:

- In the first stage, you enter the modem pool extension or data hunt group extension on, if available, for the analog-to-digital or digital-to-analog modem pool you are calling.
- In the second stage, you enter the extension of the analog or digital data station for inside calls. For outside calls, you enter the dial-out code and telephone number of the outside analog or digital data station. You can enter account codes on the second stage of dialing.

NOTE:

You cannot enter an account code in the first stage of dialing through a modem pool. If you enter the account code during the second stage of dialing, the account code is associated with the extension for the modem or 75006 Data Module in the outgoing side of the modem pool.

Calling Through an Analog-to-Digital Modem Pool

You can call the following endpoints through an analog-to-digital modem pool:

- inside calls to digital data stations which include
 - calls to a local host computer connected via a 7500B Data Module
 - calls to a workstation on a local area network (LAN) connected via a 7500B Data Module
- outside calls to digital data stations using a Primary Rate Interface (PRI) digital line/trunk or pool (telephones with SA buttons only).

If you are not using an analog multiline telephone, the first stage is not automatically private, The second stage of the call is automatically private.

Inside or Outside Call: From an Analog Data Station Connected to Analog Multiline Telephone via a GPA — to a Digital Data Station:

1. Verify that the GPA adapter is in Basic Mode.
2. Select the line button, **ICOM Ring** or **SA Ring** button,
3. Lift the handset or press **Speakerphone**.
4. First Stage Dialing:
 - a. Dial the extension of the data hunt group for the analog-to-digital modem pool you are calling. You hear a steady tone when the connection is successful.
 - b. Put your modem in the data state using the instructions supplied in your modem documentation. For some modems, this may be referred to as the “ready” state. This takes the call away from the voice connection.
 - c. Hang up the handset or press **Speaker** to turn off the speaker on your multiline telephone, The data call is automatically private.

A message similar to the following appears on your terminal screen:

```
Connected
Call Status: Idle
Type H for help:
```

5. Second Stage Dialing:

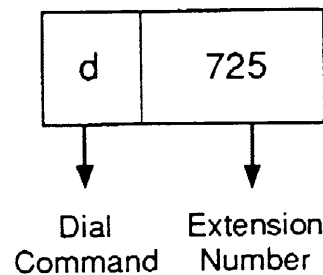
- To call an inside digital data station:

a. Enter the dial command:

d

b. Enter the extension number of the digital data station you are calling.

For example, to call a digital data station at extension 725, type



- To call an outside digital data station:

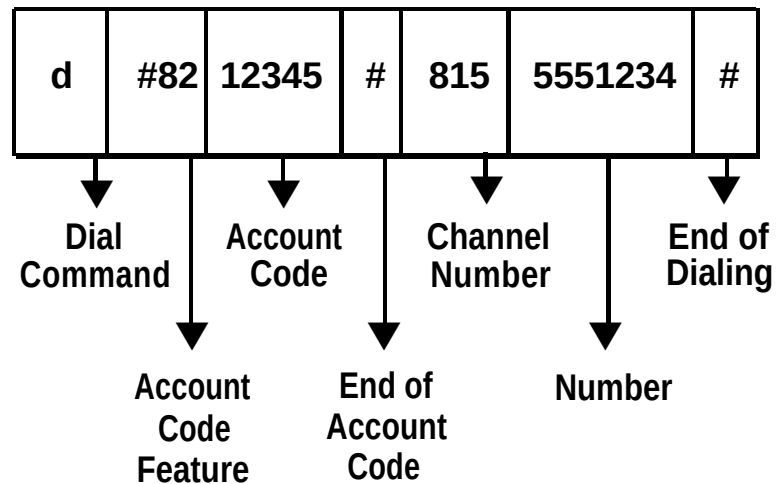
a. Enter the dial command:

d

b. Enter the outside telephone number for the outside digital data station you are calling. You must include a DSO channel number to access PRI because digital calls must be made using PRI services. An account code may be included as well.

Making and Answering Data Calls

For example, using an account code of 12345 and a DSO channel number 815 (used to access the ACCUNET® Switched Digital Data Services line) to call a digital data station at telephone number 555-1234, you would enter:



6. Press [↵] .
7. Use the instructions supplied with your modem and/or data communications software to send data, receive data, and disconnect the call.

To use System Speed Dial, Personal Speed Dial, or Account Code Entry, see Chapter 4.

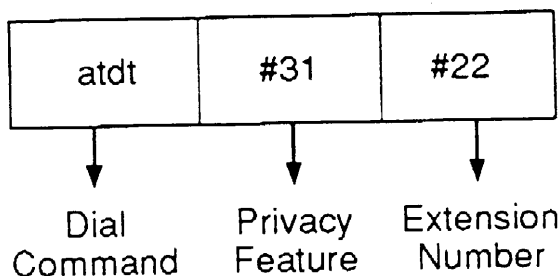
Inside or Outside Call: From an Analog Data-Only Station or an Analog Data Station Connected via a Multi-function Module (in the MLX Telephone)— to a Digital Data Station:

1. First Stage Dialing:
 - a. If necessary, verify that the modem is in command state.
 - b. Enter the appropriate modem command:

atdt

- c. Enter **#31** for privacy.
- d. Enter the data hunt group extension for the analog-to-digital modem pool you are calling.

For example, when using a Hayes-type modem to make an inside call to a data hunt group at extension 22 with privacy activated, you would enter:



- e. Press [↵] .

- f. When you are connected to the 7500B Data Module in the pool, a message similar to the following appears:

Connected
Call Status: Idle
Type H for help:

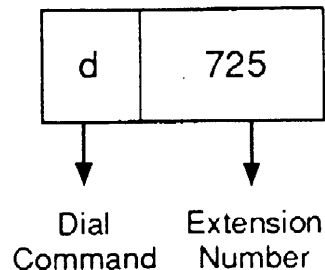
2. Second Stage Dialing:

- To call an inside digital data station:
 - a. At the CMD: prompt, type the dial command:

d

- b. Enter the inside extension.

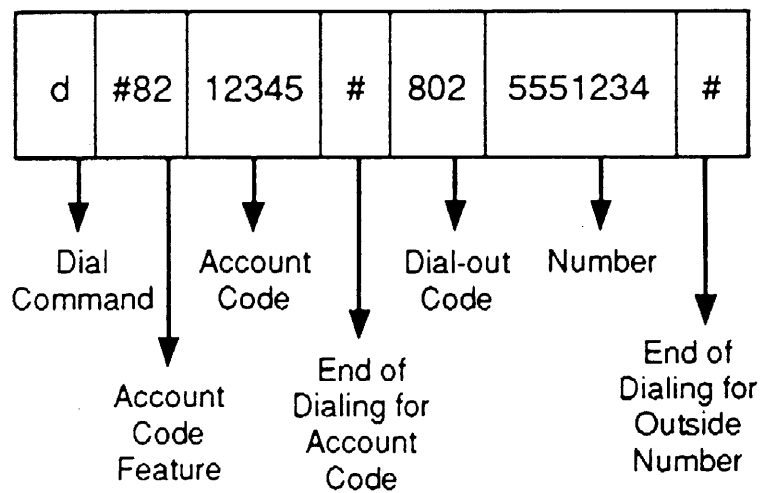
For example to call extension 725, you would enter:



Making and Answering Data Calls

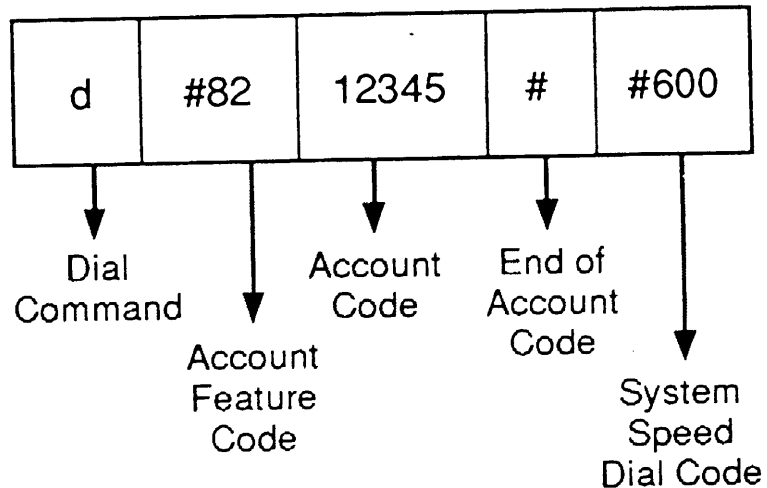
- To call an outside digital data station:
 - a. At the CMD: prompt, type the dial command:
 - d**
 - b. Enter the dial-out code (or DSO channel number) and telephone number for the outside digital data station. You may also enter an account code.

For example, if you are making an outside call to another digital data station at telephone number 555-1234 with an account code of 12345 and the dial-out code of 802, you would enter:



Making and Answering Data Calls

You can also use a System Speed Dial code to dial the number which must include the dial-out code, For example, if the System Speed Dial code is 600, you would type:



3. Press [↵]. The call progress messages appear.
4. Use the instructions supplied with your modem and/or data communications software to send data, receive data, and disconnect the call.
Both stages will be disconnected.

Calling Through a Digital-to-Analog Modem Pool

When using a digital data station, you can call the following endpoints through a digital-to-analog modem pool:

- inside calls to analog data stations which include
 - calls to a local host computer connected via a modem
 - calls to a workstation on a LAN connected via a modem
- outside calls to analog data stations

Inside or Outside Calls: From an Digital Data Station to an Analog Data Station:

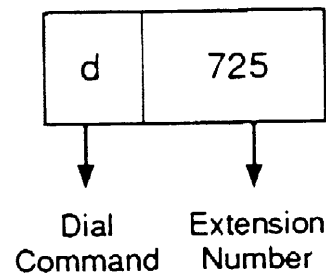
The following are general instructions for placing and receiving calls. See the instructions supplied with your 7500B Data Module for further details.

1. First Stage Dialing:
 - a. At the CMD: prompt, enter the dial command:

d

- b. Enter the inside extension.

For example to call extension 725, you would enter:



- c. Press [↵] .

When you are connected to the 7500B Data Module in the pool, a message similar to the following appears on your screen:

```
CONNECTED - MODE 2  
END SPEED - 2400
```

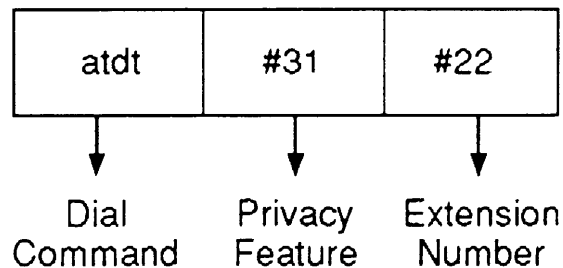
2. Second Stage Dialing:

- To call an inside analog data station:
 - a. Enter the appropriate modem command for dialing:

atdt

- b. Enter **#31** for privacy.
 - c. Dial the analog data station extension.

For example, when using a Hayes-type modem to make an inside call to another analog data station at extension 22 with privacy activated, you would enter:



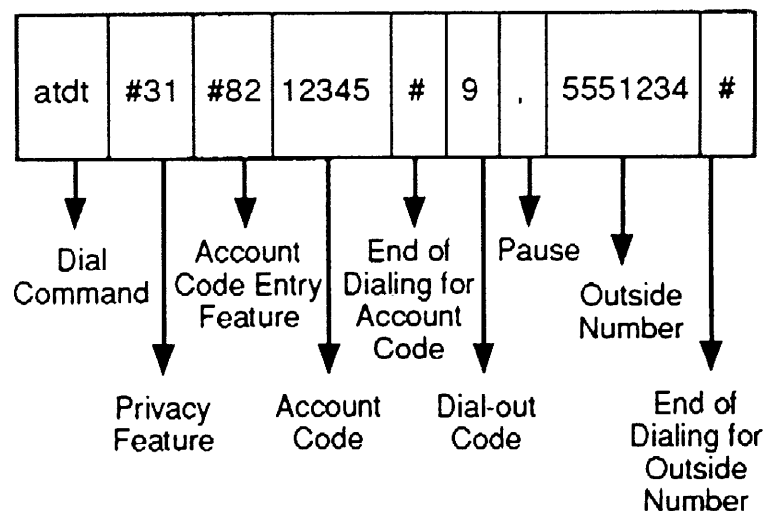
- To call an outside analog data station:
 - a. Enter the appropriate modem command for dialing:

atdt

Making and Answering Data Calls

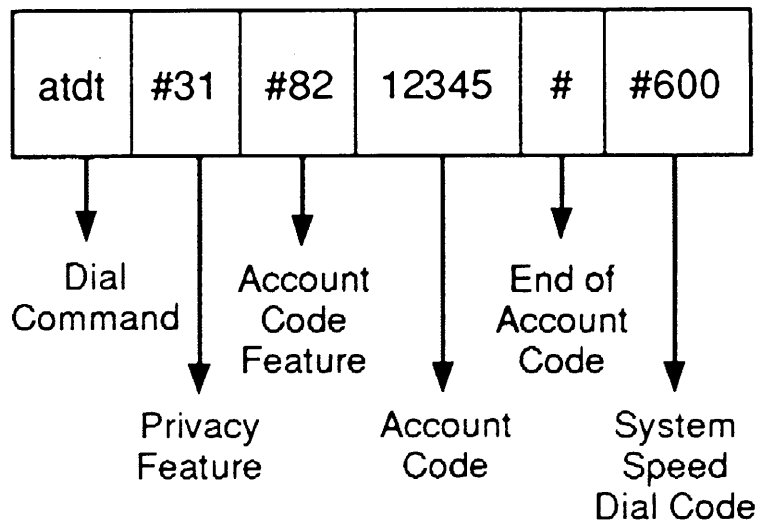
- b. Enter **#31** for privacy.
- c. Enter the dial-out code, a comma to insert a pause, and the outside telephone number. You may also enter an account code.

For example, if you are using a Hayes-type modem to make an outside call to analog data station at telephone number 555-1234 with an account code of 12345, the dial-out code of 9 and privacy activated, you would enter:



Making and Answering Data Calls

You can also use a System Speed Dial code. If you use the previous example but replace the dial-out code and telephone number with the System Speed Dial code 600, you would enter:



3. Press **[↵]** .
4. To disconnect the call,
 - a. While in data mode, enter:

+++

- b. At the CMD: prompt, enter:

e

for end. The **CLEARING ENDED** message appears on your computer screen.

Dialing In From An Outside Data Station Through a Modem Pool

To dial an inside data station from a data station located in another building or off-site, you would use the same two-stage dialing method.

For the first stage, you dial the telephone number for the appropriate modem pool or the number for the data hunt group that provides access to the appropriate modem pool.

When you receive confirmation that you are connected, you use the second stage dialing procedure of the appropriate modem pool as described in this chapter.

For example, assume you are using an outside digital data station to call an inside analog data station. You would call the digital-to-analog modem pool, using either the telephone number or the data hunt group number for that modem pool. When your first stage dialing is confirmed, you would use the second-stage dialing steps for calling an inside analog data station provided under “Calling Through a Digital-to-Analog Modem Pool”. This would complete your connection.

Features

4

This chapter lists system data features and provides instructions for programming and using them. Some features must be programmed on your telephone before you can use them. Others are built into the system and do not need programming. The system can use the following features for data. However, not all data station types can use all of the features. The following table shows the features for each station type.

Data Station Features

Feature Name	Data Terminal	Modem
Account Code Entry	See Note 5	See Note 5
Auto Answer All	See Note 5	See Notes 1 & 6
Data Status	See Note 2	See Note 2
Privacy	See Note 3	See Note 4
Personal Speed Dial	See Note 5	See Note 5
System Speed Dial	See Note 5	See Note 5

NOTE:

1. Feature is programmable for Analog Voice and Analog Data Station.
2. Feature is programmable on Multiline Telephone.
3. Privacy is automatic.
4. Privacy is automatically private for Analog Voice and Analog Data Station. Privacy can also be invoked while dialing.
5. Feature can be invoked while dialing.
6. 7500B Data Module and some modems have Auto Answer features. (See the device's documentation for details.)

Account Code Entry

The Account Code Entry feature lets your company track incoming and outgoing data and voice calls and identify the employee, project, or client associated with the call.

The account codes and instructions on when to use them are supplied by your company.

If your system is set-up for account codes, your company can choose to make account code entry one of the following:

- Required. You must enter an account code before making a data call
- Optional. You can choose to enter an account code before a data call or not at all.

Analog Data Stations Connected to an MFM (in an MLX Telephone)

1. Follow instructions in Chapter 3 for dialing. Account code is entered after dial command.
 - a. Type **#82**.
 - b. Type account code and end with a #.
2. Continue with data call procedures.

Analog Data Stations Connected to an Analog Multiline Telephone via a GPA

1. Follow instructions in Chapter 3 for dialing. Account code is entered after dial command.
 - a. Press **Feature**.
 - b. Dial **#82**
 - c. Dial the account code and end with a #.
2. Continue with data call procedures.

Digital Data Stations

1. Follow instructions in Chapter 3 for dialing. Account code is entered after dial command.
 - a. Type **#82**.
 - b. Type account code and end with a #.
2. Continue with data call procedures.

Auto Answer All

Use these instructions only if your data station includes an analog multiline telephone.

Check to see that your modem and your computer or data terminal are both set to on to ensure that you receive data calls.

Your modem automatically answers incoming data calls if your General Purpose Adapter is in Auto Mode (automatic answer) and you press a programmed **Auto Answer All** button on your telephone to send all calls to the modem to be answered. For example, you can receive electronic mail messages at your computer or data terminal while you are away from your desk.

NOTE:

- This feature applies only to an Analog Data Station connected to an Analog Multiline Telephone via a GPA.
- This feature is specific to the analog multiline telephone and is not related to auto-answer features supplied by the modem or data communications software.

Programming an Auto Answer All Button on a Analog Multiline Telephone

1. Label the button to be programmed as **Auto Answer All**.
2. Slide **T/P** switch to **P**.
3. Press **Auto Answer All**.
4. Dial * **754**
5. Slide **T/P** switch to center to end programming.

Data Status

The Data Status feature allows monitoring station activity (busy, not busy) of any data station. Although this feature is similar to having Auto Dial button in that it lights the green LED to indicate station busy, pressing the button has no effect on the data call nor does it dial the data station number. Thus, the button does not interfere with a data call in progress, unlike an Auto Dial button which would proceed to dial its programmed number.

Programming a Data Status Button

- On an MLX Display Telephone:
 1. Label the button **Data Status** with the extension of the equipment to be monitored.
 2. Press **Menu** (on 2-line display, press **More**).
 3. Select Ext Program [Prog].
 4. Select Start.
 5. Press the labeled button.
 6. Select ListFeature [List].
 7. Select Data Status [Data].

8. Respond to the prompt with the extension number of the equipment to be monitored.
9. Select **Enter**.
10. Press **Home**.

■ On an MLX Non-Display Telephone:

1. Label the button **Data Status** including the extension of the equipment to be monitored.
2. Press **Feature** and dial **00**.
3. Press the labeled button.
4. Dial **★ 83**.
5. Dial the extension number of the equipment to be monitored.
6. Press **Feature** and dial **★ 00**.

■ On an Analog Multiline Telephone:

1. Label the button **Data Status** including the extension of the equipment to be monitored.
2. Slide **T/P** switch to **P**.
3. Press the labeled button.
4. Dial **★ 83**.
5. Dial the extension number of the equipment to be monitored.
6. Slide the **T/P** switch to the center to end programming.

Personal Speed Dial

Use Personal Speed Dial on your MLX-10D telephone to dial 2-digit codes instead of the entire dialing sequence for numbers you call most often. Personal Speed Dial can be used for account codes, long distance access codes, and area codes. Up to 24 two-digit Personal Speed Dial codes can be programmed for your data station. The number programmed for each Personal Speed Dial code must include a dial-out code, if one is required, a pause to allow the system to provide a dial tone to your data station, and **#31** for privacy.

When programming Personal Speed Dial numbers, you must press **##** to provide an end of dialing character for the system. You will see only one **#** on the display.

NOTE:

Use this feature on telephones that have **only** 10 or less buttons. If you have a MLX-20L telephone, you can program Personal Directory entries instead of Personal Speed Dial codes. If you have any other MLX or analog telephone, program Auto Dial buttons. Programming Personal Speed Dial codes on telephones with more than 10 buttons may delete features you have already programmed onto buttons.

NOTE:

For analog data-only and analog data stations connected to a Multi-Function Module (in an MLX Telephone), Personal Speed Dial codes must be programmed centrally for you to activate them. Your system manager can give you a list of Personal Speed Dial codes and the numbers they represent.

Using Personal Speed Dial

1. Type #.
2. Type the Personal Speed Dial code (01-24).

Privacy

Privacy is automatically activated on data calls from digital data stations or from analog data stations connected to an analog multiline telephone via a GPA. Use these instructions only if your analog data station does not have an analog multiline telephone connected.

For analog data-only stations and analog data stations connected to a Multi-Function Module (in an MLX telephone), use Privacy before you make a data call to prevent unwanted interruptions during transmission. Privacy prevents co-workers from accidentally connecting to your data call and causing a loss of data by using the same line or trying to use the Barge-in feature. Co-workers picking up the line you are using hear a busy signal instead of being connected.

For analog data-only stations or analog data stations connected to a Multi-Function Module (in an MLX telephone), you activate Privacy by dialing a feature code. Once activated, the feature remains active until turned off.

It is a good idea to activate Privacy on every data call you make or every time you are expecting a call so your calls are not interrupted. You cannot activate Privacy from analog data stations while a data call is in progress.

NOTE:

If you activate Privacy for a data call, it remains on until you turn it off. If the system activates Privacy automatically, it automatically turns off Privacy as well.

To Activate Privacy on an Analog Data-Only Station and Analog Data Station Connected to a Multi-Function Module (in an MLX Telephone)

1. Follow the instructions in Chapter 3 for dialing. Privacy is entered after the modem's dial command.
2. Type **#31**.
3. Continue with the procedures for dialing the number.

To Turn Off Privacy

1. Press **Feature**.
2. Dial **★ 31**.

If you have a programmed **Privacy** button, you can also toggle the button to turn off privacy.

System Speed Dial

System Speed Dial lets you dial a 3-digit code for frequently used numbers that are important to you and other data station users. (These codes are often used to ensure security of telephone numbers for outside host computers.) Your company can provide you with a list of System Speed Dial codes and the numbers they represent. The System Speed Dial Code must include the dial-out code. When using a System Speed Dial Code, you do not enter a # after the code in the dial sequence

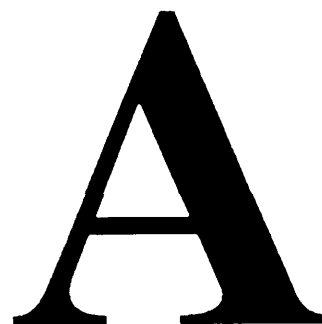
Digital Data Stations, Analog Data-Only Stations, and Analog Data Stations Connected to a Multi-Function Module (in an MLX Telephone)

1. Follow the instructions in Chapter 3 for dialing. The Speed Dial Code is entered after all feature codes or feature code entries, for example account code entry.
2. Enter a # before entering the 3-digit Sytem Speed Dial code.
3. Type the System Speed Dial code (600-729).

Analog Data Stations Connected to an Analog Multiline Telephone via a GPA

1. Follow the instructions in Chapter 3 for dialing. The Speed Dial Code is entered after all feature codes or feature code entries, for example account code entry
2. Enter a # before entering the 3-digit System Speed Dial code.
3. Dial the Speed Dial code (600-729).

Call Progress Messages



Your computer screen shows messages about the progress of your call—for example, when it's ringing or when the number is busy. The following table shows examples of messages you may see on your computer screen when you place and receive data calls on the 7500B Data Module.

Call Progress Messages

Display	Description
CALLING 723 or 95551234	You are placing a call, and the digits being dialed (including the dial-out code for outside calls) appear.
RINGING RINGING	Your call is ringing at the data station you called. This message appears only when you call another digital data station.
INCOMING CALL	You are receiving an incoming data call.
CONNECTED-MODE 2 FAR END SPEED 1200	The call you placed or received is answered, and you can begin data transmission, The mode of data transport and transmission speed selected are shown.
CLEARING ENDED	You disconnected a data call. If the data user at the other end disconnects the call, FAR END REQUESTED appears after this message.

Call Progress Messages

Display	Description
WRONG ADDRESS	You typed an invalid character in your dialing sequence or dialed incorrectly— space and (dash) are invalld characters.
ACCESS DENIED	The call you are making is not permitted.
BUSY BUSY	The data station you are calling is busy.
BUSY	The line/trunk you want to use is not available.
NETWORK BUSY	No B channel is available.
CALL OPTION ERROR	The feature is not applicable for the data call.
WRONG CALL TYPE	You called an analog data station, and you did not dial using a modem pool.
FAR END REQUESTED	You called an analog station connected to an MFM (in an MLX telephone) and you did not dial using a modem pool.

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