



# *Telebit T1600*

*Fast Start Guide*

*90157-01 Rev. A*



# ***Telebit T1600***

***Fast Start Guide***

***90157-01 Rev. A***

# ***PREFACE***

This guide is provided to help you quickly install and configure the T1600 modem. If you carefully follow the instructions in this booklet, you may not need to refer to the T1600 Reference Manual unless you have special requirements or need more specific instructions. However, we recommend that you spend some time reviewing that manual for additional information which is not covered in this guide.

Copyright © 1990 Telebit Corporation. Telebit is a registered trademark of Telebit Corporation. Other brands or product names are trademarks or registered trademarks of their respective holders.

## **Installation**

### **Equipment Checklist**

Before installing the modem, make sure that you have the following equipment:

- An AC power cord and transformer provided with your modem.
- The 7-foot telephone cable supplied with your modem.
- A shielded RS-232D cable with a DB-25 male connector for the modem. Your computer dealer can assist you in obtaining the appropriate cable for your requirements.
- A small flat-blade screwdriver.

If you do not have the items listed above, obtain them before proceeding.

### **Connecting the Modem**

If you will be using the T1600 modem with a mini-computer or mainframe, you may need to first connect it to a terminal (or personal computer with a terminal emulation program) to preconfigure the modem before installing it in its final position.

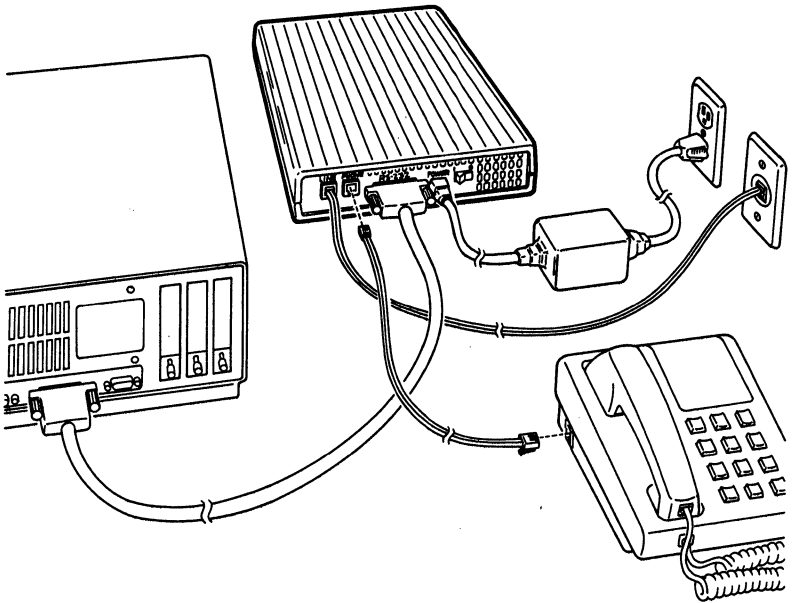
Make sure that the power switch (1/0) on the rear of the modem is turned off (0). Connect the power cord provided with your modem to the POWER connector on the back of the modem. The beveled edge of the plug should be facing up so that it mates with the retainer clip on the connector. Plug the other end of the AC power cord into a grounded AC wall outlet. Refer to Figure 1.

Attach a standard (straight-through) shielded RS-232D modem cable between the RS-232D connectors on the modem and your computer or terminal. Your equipment dealer can help you obtain the correct cable for your specific requirements.

If you have special cabling requirements, refer to Appendix B, Interface Description, in your T1600 Reference Manual.

Connect the telephone cable provided with your modem to the wall jack and to the TO LINE connector on your modem.

Optionally, connect your telephone to the TO PHONE connector. This allows you to use the telephone for normal voice calls when the modem is not in use. You also can dial a number using the telephone then switch to data communications mode by pressing the T/D (Talk Data) switch on the modem.



**Figure 1. T1600 Cable Connection**

## **Installation Verification Tests**

Turn on the modem by pressing the power switch located on the back panel. The MR (Modem Ready) indicator should light after one or two seconds, indicating that the modem has completed a series of self-diagnostic tests and is ready to use.

### **T/D (Talk/Data) Switch**

Next, press the T/D switch on the front of the modem. The T/D switch controls the modem's connection to the telephone line much like the hook switch on your telephone. You should hear a dial tone from the modem's speaker. Press the T/D switch again to put the modem back on-hook. This indicates that the phone line is properly connected to the modem.

If you do not hear the dial tone, you may have the TO LINE and TO PHONE connections reversed. If this is the case, reconnect the lines properly and restart the verification tests. If you have a telephone connected to the modem, lift the receiver on your telephone and listen for a dial tone. Press the T/D switch. The dial tone from the receiver should go away when the modem goes off-hook (OH indicator lit). Press the T/D switch again to put the modem back on-hook (OH indicator is off). The dial tone from the telephone receiver should return.

## **Pre-stored Configuration Selection**

The T1600 modem is supplied with a number of convenient prestored configurations.

The prestored configurations are the operating parameters most commonly used for data communications that are stored in the T1600's permanent memory.

Before using your T1600 modem, you should determine which configuration will best match your application.

The T1600 prestored configurations are as follows:

- **TTY (factory default)**  
Used with most asynchronous terminals or PC's emulating asynchronous terminal operation.
- **Unattended Answer Mode**  
Used with most asynchronous Front End Processor (FEP) host ports operating at a fixed interface speed of 9600 bps.
- **Intelligent Answer Mode**  
Used with most computers running intelligent software that interprets the modem result codes, and adjusts the interface speed accordingly. Modem result codes are sent to the computer. The modem interface speed follows the connect speed.
- **System V (HDB) UUCP**  
Used with most HoneyDanBer UUCP UNIX systems. (You must have "/usr/lib/uucp/Systems, Devices, and Dialers" files).  
  
For additional information when configuring the modem for UUCP protocol support, use your hardware and software configuration guides for your UNIX operating system or refer to the Nutshell handbook entitled *Managing UUCP And Usenet*, published by O' Reilly and Associates, Inc.  
  
For specific configuration guides, call your Technical Support representative at, 408-734-5200.

- **Ver 2 (BSD) UUCP 4.2-4-3 and SCO Xenix**

Used with most Version 2 UUCP systems. (You must have "/usr/lib/uucp/L.sys and L-devices" files).

For additional information when configuring the modem for UUCP protocol support, use your hardware and software configuration guides for your UNIX operating system or refer to the Nutshell handbook entitled *Managing UUCP And Usenet*, published by O' Reilly and Associates, Inc.

For specific configuration guides, call your Technical Support representative at, 408-734-5200.

- **Transparent Synchronous**

Use with most 9600 bps synchronous terminals or devices. Operates in V.32 transparent synchronous full-duplex mode at 9600 bps utilizing the DCE's clock.

- **IBM PC/MAC with SW flow control (XON/XOFF)**

Used with most PC software packages, that support software (XON/XOFF) flow control.

- **IBM PC/MAC with HW flow control (RTS/CTS)**

Used with most software packages, that support hardware (RTS/CTS) flow control.

Note: In order to use RTS/CTS control on a Macintosh, the communications software must support the feature and a special cable must be used as recommended in the software documentation.



- **Leased Line - Asynchronous Originate Mode**

Used in any asynchronous point-to-point, 2-wire leased V.32 application. The modem will connect automatically on a leased line to another T1600 modem, configured with the AT&F10 command, in asynchronous V.32 mode at 9600 bps.

- **Leased Line - Asynchronous Answer Mode**

Used in any point-to-point, 2-wire leased V.32 application. The modem will connect automatically on a leased line to another T1600 modem, configured with the AT&F11 command, in asynchronous V.32 mode at 9600 bps.

- **Leased Line - Synchronous Originate Mode**

Used in any synchronous point-to-point, 2-wire leased V.32 application. The modem will connect automatically on a leased line to another T1600 modem, configured with the AT&F12 command in synchronous V.32 mode at 9600 bps.

- **Leased Line - Synchronous Answer Mode**

Used in any synchronous point-to-point, 2-wire leased V.32 application. The modem will connect automatically on a leased line to another T1600 modem, configured with the AT&F13 command, in synchronous V.32 mode at 9600 bps.

Each prestored configuration of the T1600 modem can be easily selected via the T/D switch. The front panel indicators provide a visual display of the configuration selected.

The following configurations are also available via an AT&F command, but not by using the front panel indicators. Consult your T1600 Reference Manual for details.

- **Asynchronous/Synchronous**

When the modem is not online, the primary data and clock line operate in asynchronous mode. However, the modem switches to synchronous mode when a connection to another modem is established

- **HP 3000 (host)**

Used with an HP 3000 host system utilizing ENQ/ACK flow control.

- **HP 3000 (terminal)**

Used with an HP terminal utilizing ENQ/ACK flow control, which calls an HP 3000 host system utilizing the same flow control.

For future use, the chosen configuration may be loaded into one of two memory locations: A or B.

To load a prestored configuration into the T1600 nonvolatile memory using the front panel indicators, follow the steps below.

1. Turn off the modem power and determine the configuration you wish to reinitialize.

If the configuration is to be stored in Configuration A, set the A/B switch to position A. If the configuration is to be stored in Configuration B, set the A/B switch to position B.

2. Enter the Configuration Select Mode by holding down the T/D switch while turning on the power. Release the T/D switch when the CD and MR indicators are flashing.
3. View the configurations by pressing the T/D switch for less than two seconds. The front panel indicators will cycle through the various configurations shown in Table 1.
4. When the indicators correspond to the desired configuration, make your selection by holding down the T/D switch for more than two seconds.

When your choice is accepted, the indicators corresponding to the selected configuration will flash. The proper configuration will be stored into the memory space, A or B, as selected in Step 1.

**Table 1. Prestored Configurations**

Prestored Configuration	Front Panel LED					AT&F Command
	MR	OH	CD	HS	EC	
TTY (factory default)	●	●	●	●	●	AT&F or AT&F0
Unattended Answer Mode	●					AT&F1
Intelligent Answer Mode		●				AT&F2
System V (HDB) (UUCP)	●	●				AT&F3
Ver 2 (BSD) (UUCP) 4.2-4.3 and SCO Xenix			●			AT&F4
Transparent Sync	●		●			AT&F5
IBM PC/MAC/with SW flow control (XON/XOFF)				●		AT&F8
IBM PC/MAC/with HW flow control (RTS/CTS)	●			●		AT&F9
Leased Line Async Originate Mode		●		●		AT&F10
Leased Line Async Answer Mode	●	●		●		AT&F11
Leased Line Sync Originate Mode			●	●		AT&F12
Leased Line Sync Answer Mode	●		●	●		AT&F13

● = LED ON

5. Release the T/D switch when the indicators flash. The prestored settings are also loaded into the modem's current operating parameters except that auto-answer is always enabled. If, however, you turn the modem power off then on, auto-answer will no longer be enabled.

When the mode selection is complete, the indicators will go out, the memory will be updated, and the modem is configured for the selected mode. When the modem is ready, the MR indicator will illuminate.

## **A/B Switch Operation**

The A/B switch is used to select one of two possible modem configurations. When the modem is turned on, either Configuration A or B is loaded from non-volatile memory depending on the setting of the A/B switch. Changing the position of the switch resets the modem and loads the new configuration into memory.

Either configuration can be changed by saving the current operating parameters to nonvolatile memory using the AT&W command. The modem is shipped from the factory with both Configuration A and B set for asynchronous.

The current operating parameters can be modified and saved in nonvolatile memory as Configuration A or Configuration B via the AT&W command. Pressing the A/B switch resets the modem and loads the new configuration into the active configuration. When a new configuration is selected, its settings replace the current operating parameters.

## **Establishing A Connection**

### **Using the Dial Command**

To call another modem using tone dialing, enter AT DT followed by the telephone number to be called. For example:

**AT DT 555-6789**

The next example shows you how to have the modem dial through a PBX using pulse dialing (DP9), wait for an outside line (W), dial a long distance telephone number, wait for 8 seconds (,,,) then switch to tone dialing (T) to charge the call to a telephone credit card:

**AT DP9 W 0-408-555-6789,,,,T123-456-7890-1234**

### **Using the T/D Switch**

To dial a call manually, using the telephone, press the T/D switch while the modem is on-hook (OH indicator is off). The modem will then go off-hook. Dial a call using the telephone and press the T/D switch again as soon as the remote modem's answering tones are audible. Note that the T1600 may attempt to connect in either originate or answer mode depending on the current setting of the S100 register. Consult the T1600 Reference Manual for more details.

If you set the S104 register to 3, pressing the T/D switch will automatically dial the first or second number in the Number Directory depending on the current setting of the A/B switch. When the A/B switch is in the A position, the first number is dialed, whereas if the switch is in the B position, the second number is dialed. Again, consult the T1600 Reference Manual for more information.

## **Using the Auto Answer Feature**

The modem automatically answers an incoming call after a prespecified number of rings, and usually sends a carrier signal to the remote modem. If no originate signal is detected within a specified period of time, or if any character is sent from your equipment before the modems have established a communication link, the modem sends a NO CARRIER result code to the DTE computer or terminal.

If a carrier is detected, the modem sends a CONNECT XXXX result code indicating the transmission speed of the connection or the DTE interface speed depending on the X command setting.

## **Terminating a Connection**

To terminate a connection, disconnect through your communications software. Also, you can disconnect a call by pressing the T/D switch on the front panel of the modem.

If you will be dialing through a PBX or have other special dialing requirements, refer to your T1600 Reference Manual for additional information on dialing.



**TELEBIT**<sup>®</sup>  
When connectivity counts.