You have accessed an older version of a Paradyne product document.

Paradyne is no longer a subsidiary of AT&T. Any reference to AT&T Paradyne is amended to read Paradyne Corporation.

AREA CODE CHANGE

Please note that the area code for Paradyne Corporation in Largo, Florida has changed from 813 to 727.

For any Paradyne telephone number that appears in this manual with an 813 area code, dial 727 instead.

PARADYNE™

3705-A2-GB90-20
Issue 3
October 1995

DataPort PCX Modem
User's Guide

AT&T Paradyne Technical Support 800-237-0016
AT&T Paradyne BBS 813-532-5254

Notice

Changes and enhancements to the product and to the information herein will be documented and issued as a new release of this manual.

A customer opinion card is provided with this publication and your comments are appreciated. If the form has been removed, address comments to AT&T Paradyne Corporation, Technical Publications, 8545 126th Ave. N., P.O. Box 2826, Largo, Florida, 34649-2826. AT&T Paradyne may use or distribute any of the information supplied, as appropriate, without incurring any obligation whatsoever.

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Mandatory Customer Information

DataPort PCX Modem
FCC Registration number: See label on modem
Ringer Equivalence number (REN): See label on modem
Canadian Certification number: See label on modem
Canadian DOC Load number: See label on modem

The Universal Service Order Code (USOC) for Permissive mode is RJ11C. The Canadian equivalent to the USOC is CA11A.

Warranty

AT&T Paradyne provides a limited warranty to this product. Refer to Appendix F, *Limited Warranty*, for more information.

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EMI Warnings

⚠ WARNING:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

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

The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless the changes or modifications are expressly approved by AT&T Paradyne.

⚠ WARNING:

This Class B digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
3. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
4. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.

5. General purpose cables are provided with this product. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer.

6. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.

7. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are **interconnected**, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.

In addition, if the equipment is to be used with telecommunications circuits, take the following precautions:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.

Government Requirements and Equipment Return

Certain governments require that instructions pertaining to modem connection to the public switched telephone network be included in the installation and operation manual. Specific instructions are listed in the following sections.

United States

Notice to Users of the Public Switched Telephone Network

1. This equipment complies with Part 68 of the FCC rules. On the equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.
2. The Universal Service Order Code (USOC) associated with the services the equipment is to be connected is RJ11C.

3. The Ringer Equivalence Number (REN) is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum RENs for the calling area.
4. If the modem causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
5. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.
6. If you are experiencing technical difficulties with your modem, please try to verify the problem before contacting AT&T Paradyne technical assistance. **AT&T Paradyne technical support is available by calling 1-800-237-0016** (or 1-813-531-4373).

   If you still experience trouble with your modem within the first 30 days of purchase, return it to its place of purchase. After 30 days, contact AT&T Paradyne technical support for product return information and a Return Material Authorization (RMA) number. Do not return the product without an RMA number.

   To return your modem, prepare a note with the following information:

   Your Name (or Company)
   Address for Return Shipment and Telephone Number
   Contact Name (if different from above)
   Billing Address (if different from above)
   Purchase Order Number Associated with the Equipment
   Brief Description of the Problem
   RMA Number

   Package the modem carefully for shipping, including the note containing the necessary information. Mark the package to the attention of the Repair Center, and send it to the address below:

   AT&T Paradyne
   8550 Ulmerton Road
   Largo, Florida 34641
   Attn: Repair Center, Bldg. B

   For warranty information, refer to Appendix F.

   If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.
7. No repairs may be made by the end use customer.

8. This modem cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)
9. The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine of such business, or other entity, or individual. To program this information, follow the steps outlined in the manual supplied with your fax software.
10. An FCC compliant telephone cord with modular plugs is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

Canada

Notice to Users of the Canadian Public Switched Telephone Network

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone line and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Load Number (LN) for this equipment is shown on the label on the modem. The Load Number assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all devices does not exceed 100.

Canadian customers, if your equipment is in need of repair within the first 30 days of purchase, return it to its place of purchase. If repairs are needed after 30 days, call 800-237-0016 (or 813-531-4373) or arrange to have your equipment repaired by contacting Inventory Control Office, 100 York Blvd., Suite 200, Richmond Hill, Ontario L4B 1J8, telephone 416-494-0453.

For the internal modem, the following cautions apply.

CAUTION:

This modem card is intended to be installed in UL Listed/CSA Certified equipment in the field by the user in the manufacturer's defined operator access area. Check the equipment operating/installation instructions and/or equipment manufacturer to verify/confirm if your equipment is suitable for user-installed application cards.

CAUTION:

Cette carte modem est destinée à être installée par l'utilisateur, sur place et à l'interieur de la zone definie par la fabricant, dans un appareil certifié CSA. Consulter le mode d'emploi ou le fabricant de l'appareil pour vérifier ou confirmer si l'utilisateur peut y installer lui-même des cartes périphériques.

CAUTION:

Always disconnect modem board (the one with the telephone plug/jack) from telephone system when installing or when covers are removed from the host product.

CAUTION:

Toujours débrancher la ligne téléphonique de la carte modem (munie d'une prise ou d'une fiche) avant de proceder à l'installation dans l'appareil ou lorsque le couvercle de celui-ci est retiré.

Contents

Introduction

1

Congratulations on your purchase of the AT&T DataPort™ PCX modem. DataPort PCX modems support high-speed data communications as well as Class 1 fax (Group III). There are two models:

3705	V.32bis External
3706	V.32bis Internal

Features

DataPort PCX modems have the following features:

- Dial line (modem to modem) rates from 14,400 bps to 75 bps
- CCITT V.17 (14,400 bps), V.29 (9600 bps), and V.27ter (4800 bps) fax modulations
- DTE Data (modem to computer) rates from 57,600 bps to 300 bps
- CCITT V.42 and MNP® 4–2 error control protocols, and CCITT V.42bis and MNP 5 data compression protocols using software that supports RPI™, such as QuickLink II Fax™
- COM 1–4 and IRQ 2–5 selections (internal models)
- On-board 16550A-compatible UART (internal models)
- Free QuickLink II Fax communications and fax software and documentation
- Five-year warranty

Important Telephone Numbers

AT&T Paradyne offers a dial-in Bulletin Board System (BBS) that provides information on DataPort modems, including documentation updates and software initialization strings. The telephone number for the BBS is **1-813-532-5254**.

Smith Micro Software, the maker of QuickLink II Fax, maintains a BBS at **1-714-362-5822**.

If you would like to order other AT&T Paradyne products, dial **1-800-554-4996** to talk to a sales representative.

If you wish to speak directly to a Technical Support representative, dial **1-800-237-0016** (or 1-813-531-4373), Monday through Friday, between 8 am and 8 pm, Eastern time. So that we may assist you better, please have your PC and modem powered on, and be prepared to tell us the following:

- The model number and serial number of your modem
- The date you purchased your modem
- The type of PC and software you are using

Please contact Technical Support if you believe there is a flaw in your modem.

If the modem needs to be returned within the first 30 days of purchase, then return it to the place of purchase.

If it is necessary for you to return your modem after 30 days, Technical Support will provide you with a Return Material Authorization (RMA) number. Do not return a product without an RMA number. See Step 6 of the *Government Requirements and Equipment Return* section (on page E in the front of this book) for return information.

Model Number _____ (3705 or 3706)

Serial Number _____

Date Purchased _____

External Modem Installation

2

This Chapter describes how to install an external DataPort PCX modem (Model 3705).

External DataPort PCX Modem Package

Your package contains the following:

- One DataPort PCX standalone external modem.
- One modular 6-foot RJ11 telephone cord.
- One 110 Vac power transformer.
- QuickLink II Fax software diskette and user's guide.
- This User's Guide and a Warranty Card. A technical information update sheet may also be included.

Required Equipment

For normal operation, you must provide the following:

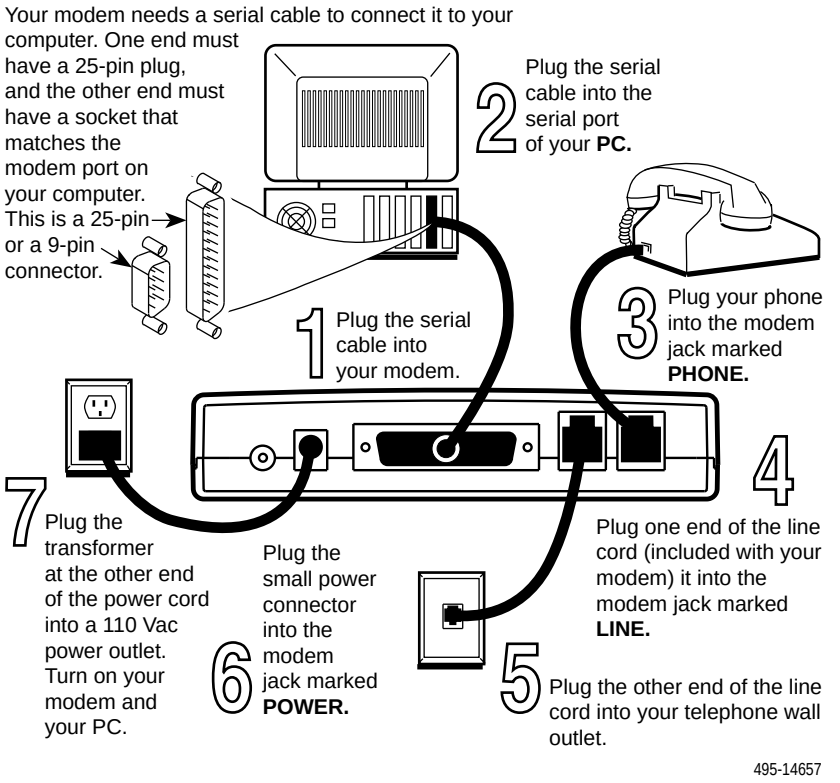
- An RJ11 telephone outlet.
- A 110 Vac wall outlet.
- A shielded RS-232 serial cable with a male 25-pin (DB25P) connector to connect to the modem, and either a 25- or 9-pin serial connector to connect to the PC. (Check your PC serial connector.)
- A telephone with an RJ11 modular telephone cord (if you wish to use the same outlet for modem and voice calls).
- An IBM-compatible PC. It should have 386 20 MHz or faster processor for best results.

External DataPort PCX Modem Installation

Turn OFF the computer and disconnect the power cord. Be sure the modem is in a space large enough for good ventilation. Install using the figure below.

CAUTION:

Use only the power supply that came with your modem.



Go to Chapter 4, *Testing Your Modem,* to verify your installation.

Internal Modem Installation

3

This chapter describes how to install an internal DataPort PCX modem (Model 3706).

Internal DataPort PCX Modem Package

Your package contains the following:

- One internal DataPort PCX modem.
- One RJ11 modular 6-foot telephone cord.
- QuickLink II Fax software diskette and user's guide.
- This User's Guide and Warranty Card. A technical information update sheet may also be included.

Required Equipment

The internal version of the DataPort PCX modem can be installed only in an IBM-compatible personal computer. For proper operation, you must provide the following:

- An available 8-bit or 16-bit expansion slot within the PC.
- An available COM port (modem supports COM ports 1–4 and IRQs 2–5).
- An RJ11 telephone outlet.
- A telephone with an RJ11 modular telephone cord (if you wish to use the same outlet for both modem and voice calls).
- An IBM-compatible PC. It should have 386 20 MHz or faster processor for best results.

Internal DataPort PCX Modem Installation

Use the following procedure to install your modem into an IBM-compatible PC. Review the entire procedure before beginning to install your modem, and do not remove the modem from its protective anti-ESD (electrostatic discharge) bag until you are ready to place it into your PC.

COM Port and IRQ Configuration

COM port configuration is often the cause of much confusion when installing internal modems. Before attempting to install your internal DataPort PCX modem, verify which COM ports are available on your PC by running the COMTEST program provided on the QuickLink II Fax diskette.

Select the diskette labeled QuickLink II Fax and insert it into your floppy drive.

You can run the COMTEST program from DOS or Windows. To run from DOS, type at the command prompt. To run from Windows, select Run from the Program Manager File menu and type in the Command Line window.

TYPE: a:\comtest (or b:\comtest if you are using your b: drive)

PRESS: Enter (or Return)

The COMTEST program recommends COM port and IRQ settings appropriate for your PC.

The DataPort PCX modem is shipped from the factory configured for COM port 1 (COM1) and interrupt 4 (IRQ4). If those settings are already in use in your computer, the COMTEST program recommends different settings. Make a note of the recommended settings so you can change the modem switches before you install the modem.

Installation Procedure

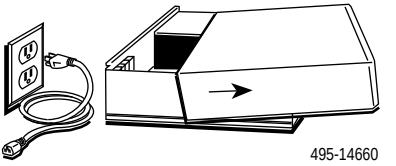
1. **Turn Off your PC, and unplug it.**

   Also turn off all attached devices, such as monitors and printers.

WARNING:

Failure to turn Off the computer while installing or removing the modem could harm you and/or damage the equipment.

2. **Remove the PC's cover according to the manufacturer's directions.**



3. **Select an available expansion slot.**

   If there is already a modem in your PC, remove it and use the same slot. To use a new slot, remove the screw that holds the slot cover (metal bracket) in place. Remove the slot cover but retain the screw.

4. **Ground yourself by touching the PC's chassis before removing the modem from its shipping bag.**

CAUTION:

The DataPort PCX modem is shipped from the factory in an anti-ESD (electrostatic discharge) bag. This is to protect the modem from any static electricity which is very harmful to electronic equipment. Do not remove the modem from the anti-ESD bag until you are ready to install it. Next, ground yourself by touching the PC's chassis before removing the modem from its protective anti-ESD bag.

5. **Remove the modem from its shipping bag.**

CAUTION:

Do not touch the contacts along the bottom edge or any components on the modem. Handle the modem only by its outer edges.

Keep the ESD bag in case the modem must be removed or returned for service.

6. **Verify that the modem's switch settings are configured for the correct COM port.** See Figure 3-1 and Table 3-1.

   Configure the switches for the COM port/IRQ settings recommended by the COMTEST program you ran before installation. If you change the switches, remember the new settings for when you install your communications software.

   Use a small pointed object, such as a pen tip, to change switches. Table 3-1 lists switch settings for each COM port. Refer to the documentation for your PC to verify if any jumpers or switches within the PC should be changed.

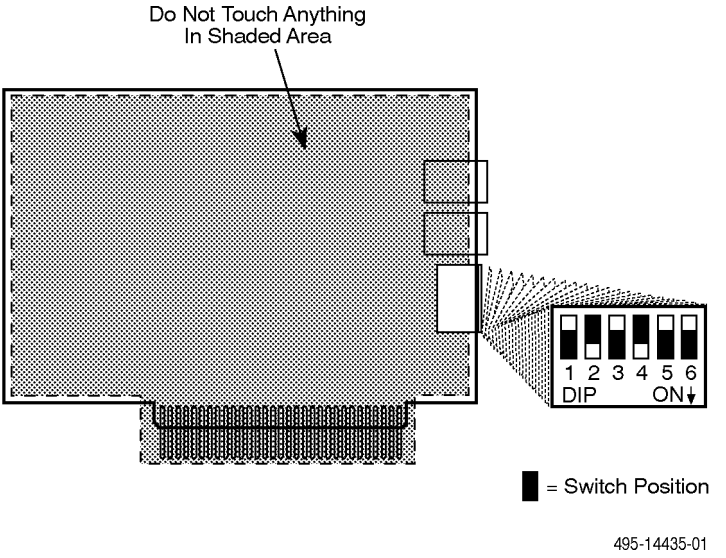


Figure 3-1. COM Port Switch Location

Table 3-1. COM Port and Interrupt Settings

COMPort/IRQ	Address	Pos 1	Pos 2	Pos 3	Pos 4	Pos 5	Pos 6
COM1/IRQ4	3F8-3FF	**ON**	**ON**	**Off**	**Off**	**ON**	**Off**
COM2/IRQ3	2F8-2FF	Off	ON	Off	ON	Off	Off
COM3/IRQ4	3E8-3EF	ON	Off	Off	Off	ON	Off
COM4/IRQ3	2E8-2EF	Off	Off	Off	ON	Off	Off
COM3/IRQ2	3E8-3EF	ON	Off	ON	Off	Off	Off
COM4/IRQ2	2E8-2EF	Off	Off	ON	Off	Off	Off
COM3/IRQ5	3E8-3EF	ON	Off	Off	Off	Off	ON
COM4/IRQ5	2E8-2EF	Off	Off	Off	Off	Off	ON

Bold indicates factory setting.

7. **Carefully insert the modem card into the expansion slot and fasten the metal bracket.**

   Hold the modem so that the bracket with the phone jacks faces the rear of the PC. Press down until the contacts along the bottom edge of the modem are seated firmly in the expansion slot connector. Fasten the bracket with the screw that was removed in Step 3.

8. **Replace the cover on the PC.**
9. **Connect the line cord.** See Figure 3-2**.** Plug one end of the modular telephone cord into the connector labeled LINE.
10. **Connect a telephone.** Plug the line cord of your telephone into the modular connector labeled PHONE. A telephone is not required for modem operation.
11. **Plug in and turn on your PC and continue with Chapter 4, *Testing Your Modem*, to verify your installation.**

WARNING:

In the future, any time you remove the cover of your PC, first ensure that the telephone line cord has been detached from the modem.

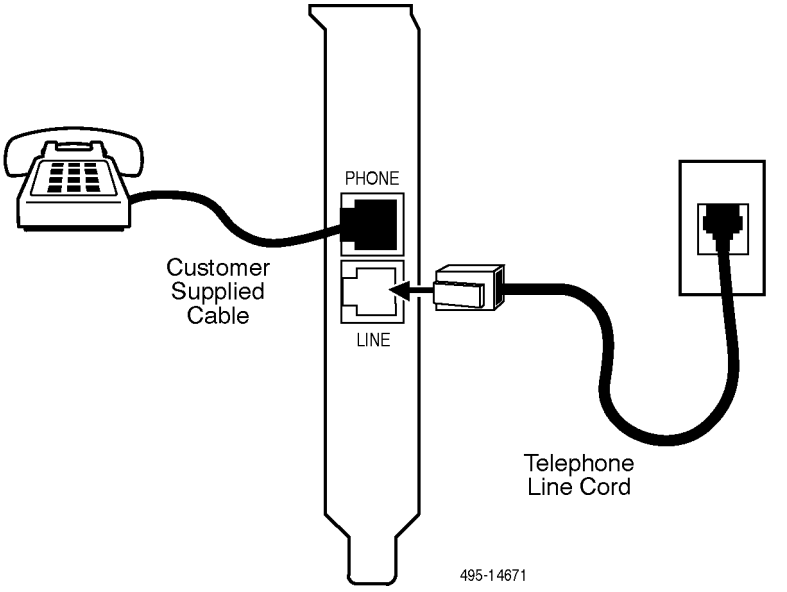


Figure 3-2. Internal Modem Connections

Testing Your Modem

4

Software Installation Overview

RPI is the protocol used between your modem and your PC. The Windows™ version of the QuickLink II Fax diskette installs a Windows RPI driver (WinRPI) that allows you to use any Windows fax or communications application. See Table D-2 in Appendix D for a list of DOS applications that support RPI.

Some communications applications may include an error correction protocol driver called DAPI, which will conflict with WinRPI. For the DataPort PCX modem to work properly, disable DAPI when WinRPI is enabled. See the communication application users manual for instructions.

QuickLink II Fax provides basic features and functionality for both data and fax communications. It also provides error correction and data compression services for the modem. QuickLink II Fax is thoroughly tested by AT&T Paradyne to ensure compatibility with your DataPort PCX modem.

Before installing the software, make sure the modem is connected to your computer and turned ON.

If you are installing the **Windows** version, insert the diskette into your disk drive, select Run from the Windows File menu, and enter **a:\install** or **b:\install**. Respond as prompted by the program. To ensure WinRPI compatibility with any Windows communications application, check the Compression and Error Correction Software Drivers box on the installation screen. *Allow the installation program to restart Windows.* See *About WinRPI* at the end of this chapter.

If you do not choose to install QuickLink II Fax, uncheck the QuickLink II Fax for Windows box to install only the WinRPI.

If you are installing the **DOS** version, insert the diskette into your disk drive, change to either drive a: or drive b:, and type **dosinst** at the DOS prompt. Respond as prompted by the program.

See Appendix C for information about the initialization command string for QuickLink II Fax.

Testing Your Connections

The purpose of this section is to verify both the modem-to-computer connection and the modem-to-dial-line connection.

Modem Connection Test

1. **Turn your computer ON.**

   (The internal DataPort PCX modem derives power from the PC; therefore, it automatically powers ON.)

2. **If you are using the QuickLink II Fax software supplied with your modem, install and start the software. If you have already installed the software you intend to use, go to Step 3.**

   Follow the installation and start-up procedures described in the QuickLink II Fax support documentation. **An overview of the installation appears at the beginning of this chapter.**

3. **Start your communications program.**

   Refer to your software's documentation for start-up procedures.

   If you decide not to use the provided software, then select the DataPort PCX modem driver that appears in your software. If a DataPort PCX driver is not listed, try the suggestions in Appendix C. You must have installed the Compression and Error Correction Software Drivers discussed earlier in this chapter.

   If you are unable to set up your software for the DataPort PCX, load the QuickLink II Fax software on your computer and use it to dial into the AT&T Paradyne BBS. Information specific to your software may be available on the BBS.

4. **Test the modem connection by typing AT and then pressing Enter.**

   The modem should respond with an **OK**. This indicates that your modem and computer are communicating correctly. Now test the connection between your modem and the telephone line by following the procedures in the *Dial-Line Connection Test* section.

   If an OK does not appear, verify that the modem and communications software are configured for the same COM port, and repeat this step. (For the external modem, the TR LED should be ON.)

   If the modem still does not respond, refer to Chapter 6, *Troubleshooting*, for additional tips.

Dial-Line Connection Test

The following procedures test the connection of your modem to the dial telephone line. Step 1 verifies the dial-line connection, and Step 2 allows you to dial the AT&T BBS and log on as a new user.

If you are using Pulse (rotary) dialing, type ATDP instead of the ATDT shown in this chapter. If you need to dial some other number in addition to or instead of 1 before the area code, or you are calling from the 813 area code, change your dial strings appropriately. Your modem must dial the same way you would dial using your telephone, with the same prefixes and pauses for dial tone. See the Dial command in Appendix B for information about special dialing modifiers you can insert in a dial string.

1. **Enter the following dial string:**

   TYPE: ATDT 1813-532-5254;h

   PRESS: Enter

   The dial string consists of the dial command (ATD), the Tone dial modifier (T), the telephone number (spaces and dashes are not required, and are only used to enhance readability), semicolon (;) modifier which allows additional commands to be added to a single line, and the hang up (h) command which disconnects the call.

If the modem is correctly connected, you will hear a dial tone as the modem goes off-hook, and then the tones of the modem dialing the telephone number. (On the external modem, the OH (off-hook) light turns ON.)

The modem then hangs up and displays an OK. (The OH light turns Off.)

This brief test indicates that your modem is correctly connected to the telephone line. If you would like to register on the AT&T Paradyne BBS, proceed to Step 2.

If you do not hear a dial tone, make sure the telephone cord is connected to both the modem and the telephone wall outlet. Otherwise, refer to Chapter 6, *Troubleshooting*.

2. **Dial the AT&T Paradyne BBS and log on as a new user.**

   TYPE: ATDT1813-532-5254

   PRESS: Enter

   At this point, you hear the modem go off-hook, dial the telephone number, and connect with another modem.

   Next, a series of high-pitched tones can be heard as the two modems determine how to transfer data, at what speed, and whether to use error control.

   When this handshaking process is complete, a CONNECT message appears on your screen.

3. **Enter your name and any other requested information as you are prompted for it.**

   You are now logged on to the AT&T Paradyne BBS. If you wish, you can scan the BBS for documentation updates and general information about your DataPort PCX modem and other dial modem products offered by AT&T.

About WinRPI

WinRPI provides data compression and error correction for Windows communications and fax applications. Install WinRPI by checking the Compression and Error Correction Software Drivers box on the QuickLink II Fax installation screen, whether or not you want to install the QuickLink II Fax application.

Software Setup

This section shows how to set up your DataPort PCS modem for some popular online services and communications programs.

Make sure that the COM port setting for your software (sometimes called Connector or Port) is set to the COM port you are using for your DataPort PCX modem.

Table 4-1 shows which modem type you should select from the list your software provides, and a typical initialization command string. (Spaces are shown for clarity and are optional.)

Table 4-1. Software Initialization Strings

Service or Program	Modem Type	Initialization String
America Online™	Generic (Hayes Compatible)	AT &F &C1 &D2 &K3 W2 +H11 ^M
CompuServe™ – WinCIM 1.4	Hayes®	AT &C1 &D2 &K3 W2 S0=0 S7=90 S95=44 +H11^M
Reuters℠	Hayes or Hayes Compatible	AT &C1 &D2 &K3 +H11
PROCOMM® PLUS for Windows	AT&T DataPort 14.4/FAX (Class 1)	AT &F &C1 &D2 W2 S7=90 +H11 ^M
QuickLink II Fax™	Class 1 Fax/Modem	AT &F &C1 &D2 W2 S7=90 +H11 ^M
WinFax PRO™ 4.0	AT&T Paradyne Corp. DataPort 14.4	AT &F &C1 &D2 K3 +H11 \

Using AT Commands

5

You can change the way your modem works by using AT commands. However, your modem's factory default configuration works for most applications; also software in your PC may automatically reconfigure your modem as required. You should find that you rarely need to enter AT commands yourself. If you do, however, please read *AT Command Guidelines* first.

AT Command Guidelines

The following are guidelines for using AT commands.

- Most AT commands are entered using the format **AT*Xn*** where ***X*** is the AT command and ***n*** is the specific value for that command. Some of the modem's internal settings, called S-registers, are changed directly using a command of the format **ATS*r*=*n***, where ***r*** is the S-register number and ***n*** is the value it is to be set to.
- AT commands must be entered while the DataPort PCX modem is in **Command mode**. When the DataPort PCX modem is in **online Command mode** (when the modem is online with another modem) and RPI is enabled, the only valid AT command is **ATH**. Command mode is an idle state in which the modem interprets entries from the computer as commands, not data.
- The **escape sequence** (which consists of three consecutive plus characters — **+++**) is used to enter online Command mode from **Data mode**. Data mode is a state where all entries made from the computer are considered data and are transmitted and received between modems. To return to Data mode from online

Command mode, use the **ATO** command. The command is valid only when RPI is disabled.

- All commands (except the A/ repeat command and the +++ escape sequence) must begin with the characters **AT** (attention) and end by pressing the Enter key.
- The AT (or at) prefix can be upper- or lowercase, but the modem will not recognize mixed case prefixes (At or aT).
- The data **character format** (how your data is structured) for the AT command set must match the format used by the other modem in a link, and must be one of the following. It can be set using your communications software:
  - — 8 data bits + no parity + 1 stop bit.
  - — 7 data bits + parity + 1 stop bit (parity can be odd, even, mark, or space).
- Commands can be entered one at a time or in strings (several commands at once). Spaces, parentheses, and hyphens are ignored.
- Commands described in this manual with the suffix ***n*** have several options associated with them. For example, in the L*n* command, L0 sets the speaker volume to Low and L3 sets the speaker volume to High. When no value is specified for such commands, the command is treated as if a zero were entered. For example, the command string ATL has the same effect as ATL0.
- Valid commands are acknowledged with numeric or word **result codes** (unless the result codes have been disabled using the Q1 command). Appendix E lists all available result codes with numeric and word equivalents.

Entering AT Commands Using QuickLink II Fax

To enter AT commands using QuickLink II Fax, type them in the Terminal Window (the area under the menu and button bar), then press the Enter or Return key on your computer keyboard. Responses from the modem are returned to the Terminal Window. For example, to view the configuration option settings in your DataPort PCX modem, type **at&v** and press Enter.

The modem responds with a display of active modem settings.

Troubleshooting

6

Most modem problems are a result of incorrect cabling or incorrect settings within your communications or fax software. This chapter provides a list of common problems (**P:**) that you may encounter after installation, followed by likely solutions (**S:**).

Configuration Problems

P: Your modem stops responding after it receives a command string from you or your communications program.

S: Reset the modem's default configuration with the AT&F command.

P: You do not know what initialization string is required for an application.

S: If the default configuration does not work satisfactorily, follow the guidelines in Appendix C.

Power Problems

P: Your modem does not power ON, or does not respond.

S: Ensure that all related software is directed to the correct COM/IRQ combination. Check your COM port using the Control Panel Ports icon under Microsoft Windows, or the "Test an installed modem" feature of the COMTEST program. Set QuickLink II Fax to communicate with this port using the Modem Setup window.

S: For an external modem, make sure the AC power transformer is plugged into an AC power source, its low-voltage lead is plugged into the modem, and the modem is turned ON.

S: For an external modem, use only the power supply that came with your modem.

S: For an internal modem, remove the telephone cord from the modem, turn the PC Off and unplug it, open the PC, and make sure that the modem is properly seated in the expansion slot.

S: If your modem replaced an internal modem, remove or disable the old modem. Refer to your PC documentation.

Command Echo Problems

P: You enter commands from the keyboard, but nothing appears on your monitor. (You type AT and nothing happens.)

S: Make sure your communications program is set for the COM port that your modem is connected to (external modem) or configured for (internal modem).

For the external modem, this can be done by holding down a keyboard character and watching the modem's SD light to see if it flashes. If it flashes as keys are pressed, the modem is receiving the data from the PC. Turn character echo ON as described in the next solution.

S: Issue the ATE1 command (character echo ON) to make sure that characters can be echoed back to your monitor. An OK response should appear. Type AT and press Enter to make sure characters are displayed on your monitor.

S: For an external modem, make sure that the cable between the modem and the PC is a standard RS-232 cable that supports flow control and modem control signals. If the cable is not the correct type or has been cut or crushed, replace it. (Null modem cables, also known as crossover cables, cannot be used.)

S: For an external modem, if your computer has more than one serial port, try connecting the cable to another port.

S: Make sure that your communications software has a valid character format. Valid formats consists of 8 data bits with no parity, or 7 data bits with even, odd, mark or space parity.

S: Make sure that your software is set to a valid DTE rate. The DataPort PCX supports DTE data rates from 57,600 bps to 300 bps. Your software may refer to this as the Baud Rate.

S: Make sure that your communications software is offline and in Terminal mode.

Dial Problems

P: The message NO DIALTONE appears after dialing a telephone number.

S: Make sure that the telephone cord is connected to the modem and wall outlet. Dial the telephone number again.

S: Attach a telephone directly to the wall outlet and verify that a dial tone exists. If one does not, contact your local telephone company.

S: Use the ATM1 or ATM2 command to turn the speaker ON and listen for a dial tone when you issue an ATD*n* (Dial) command. If no dial tone is heard, you may have a bad telephone cord.

S: Disable the Dial Tone Detect command (X0, X1, and X3) before dialing. This forces the modem to dial without detecting a dial tone on the telephone line. This type of dialing is known as Blind Dialing.

P: The message NO CARRIER appears after dialing a telephone number.

S: Make sure you dialed a correct and valid telephone number, and that a modem is connected to the other side.

S: Try dialing a number known to be valid, such as the AT&T Paradyne BBS.

S: Make sure that no additional characters are sent to the modem during the connection process. The modem automatically aborts the call if it receives any.

Answer Problems

P: Your modem does not answer.

S: Make sure the telephone cord is connected to the modem's LINE connector.

S: Attach a telephone to the wall telephone outlet and verify that it rings during incoming calls.

S: Make sure that the Auto-Answer Ring Number configuration option (S0) is set to a value other than 0 (disable). Use the ATS0? command to view the setting of S0.

S: Make sure that the computer is providing DTR to the modem (on the external modem, the TR LED should be lit). If the computer does not provide DTR to the modem, verify that the modem's &D command (DTR Action) is set for Ignore (&D0).

P: Your modem answers when you do not want it to.

S: Ensure that your communication software is not running.

S: Ensure that S-register S0 is set to 0.

S: If you have an external modem, turn it off.

Connect Problems

P: Your modem dials, but does not connect.

S: If the modem is operating behind a PBX, determine whether a 9 and W (Wait for dialtone) must precede the telephone number.

S: Determine whether you should use Tone (ATDT) or Pulse (ATDP) dialing.

S: During the dialing or handshaking process, if any key on the keyboard is pressed, the call will disconnect. This is known as any-key abort and is standard operation for dial modems. Try dialing again, and wait for the CONNECT or BUSY message to display before entering data from the keyboard.

P: Your modem answers, but does not connect.

S: Make sure that the modem is configured for Automode (ATF0). This allows the modem to connect to any modem that recognizes CCITT V.32bis, V.32, V.23, V.22bis, V.22, V.21, and Bell 212A and 103J modulation schemes. The DataPort PCX modem does not support other vendors' proprietary modulation schemes.

S: Determine the originating modem's modulation scheme, and then use ATFn (select modulation) to force your modem to operate at the same modulation scheme as the originating modem.

S: To test your modem's hardware, perform a Local Analog Loopback test (AT&T1) and verify that data entered at the computer is echoed back to the computer. Before starting the test, disable Error Control mode using either the AT\N0 or AT\N1 command. Issue the AT&T1 command, and begin to enter data from your keyboard. It should appear on your monitor. To stop the test, escape to command mode (+++) and issue the AT&T0 command.

Disconnect Problems

P: Your modem dials and connects with another modem, but after a moment, disconnects the call.

S: Your modem might be trying to communicate with an older modem that does not support error control. (This is known as an error control disconnect, where the modem is configured to establish a call using error correction. If the modems cannot negotiate error control, then a disconnect occurs.)

Disable error control in your modem by entering an AT\N0 command. This places your modem into Buffer mode, a non-error control mode. Try dialing the number again.

To restore error control to your modem, turn your modem off and on.

S: You may have a poor telephone line connection. Try dialing again.

S: Your telephone may have Call Waiting enabled. Refer to your local telephone book for procedures to disable this feature. You may add the disable code to your dial strings.

S: To test your modem hardware, perform a Local Analog Loopback test (AT&T1) and verify that data entered at the computer is echoed back to the computer. Before starting the test, disable Error Control mode using either the AT\N0 or AT\N1 command. Issue the AT&T1 command, and begin to enter data from your keyboard. It should appear on your monitor. To stop the test, escape to Command mode (+++) and issue the AT&T0 command.

P: Your modem does not disconnect the call and hang up.

S: Change the setting of the &D command from Ignore (&D0) to Standard RS-232 operation (&D2).

File Transfer Problems

P: You are transmitting a compressed file, but the throughput seems to be slow.

S: MNP5 data compression can add more overhead to a compressed file. Disable data compression using the QuickLink II Fax Connection Setup window, and resend the file.

P: You experience several errors while transferring a file.

S: Verify that your modem and communications software are configured for the same type of flow control, for example, either RTS/CTS (AT&K3) or XON/XOFF (AT&K4).

If you are using XON/XOFF flow control, make sure the modem's parity matches the computer's parity. Verify this within the communications software.

Make sure that your modem's parity matches the parity of the remote end. A mismatch in parity will cause eccentric errors, such as a single line constantly being repeated.

S: Set the software's DTE rate (the speed of the modem-to-computer connection) to a lower speed. (Your software may refer to this as the Baud Rate.) The internal DataPort PCX modems use a 16550A-compatible UART; however, the external DataPort PCX modems depend on the computer's COM port UART. If you know your PC has a slower UART such as an 8250, or you do not know what kind of UART it has, do not exceed a DTE rate of 19,200 bps. If a successful transfer occurs at low speeds, then you may want to upgrade your computer's COM port UART.

S: Use a different file transfer protocol. Some protocols, such as Ymodem-G, are very sensitive and may cancel your file transfer. Try the Zmodem protocol.

S: The Xmodem protocol may conflict with error control (such as V.42). Issue the AT\N0 command to turn off error control when you are using Xmodem.

S: For Windows systems, ensure that the flow control setting of the port under the Control Panel is the same as that specified in your communications program.

Character Format Problems

P: You make a successful connection, but nonsensical strings of characters appear on your screen.

S: The other modem may be configured for a different character set. Check the number of data bits, type of parity, and number of stop bits required by the remote system you are trying to communicate with.

Refer to your software documentation for instructions on changing your character set. In QuickLink II Fax, use the Line Settings window.

S: If there is an Autobaud setting in your software, disable it.

S: Configure the modem for no error control (AT\N0).

P: You are unable to log on to an online service.

S: Verify the character structure of the online service and make appropriate changes in your software before dialing. Some services, such as CompuServe™ and GEnie℠, require a character format of 7E1 (7 data bits, even parity, and 1 stop bit).

S: Configure the modem for 2400 bps (ATF5) with no error control (AT\N0) and try to call again.

Rate and Protocol Problems

P: Your modem is configured to operate at its maximum speed, but connects at a lower speed, such as 2400 bps.

S: With Automode enabled (ATF0), your modem will match its dial-line rate and modulation scheme with the other modem's dial-line rate. Therefore, if the other modem is configured to operate at 2400 bps (V.22bis), the DataPort PCX modem will connect at that rate. Ask the remote modem's owner to determine the highest rate the remote modem can support.

S: The DataPort PCX modem does not support other vendors' proprietary systems and may be forced by the other modem to connect at a lower rate.

P: Your modem is configured for V.17 fax (14,400 bps), but faxes at a lower speed.

S: The other fax modem/fax machine may not support V.17 fax.

S: Make sure that your fax software supports V.17 fax.

S: Make sure that 14,400 bps is selected as the send and receive rate in your fax software.

P: Your modem never connects using V.42bis compression.

S: Ensure that the software you are using supports RPI.

S: Ensure that V.42bis support is enabled in the software. In QuickLink II Fax, use the Connection Setup window.

S: Ensure that RPI is enabled both in the software and in the modem (AT+H*n* command). QuickLink II Fax automatically supports RPI.

Fax Problems

P: Modem cannot send or receive a fax.

S: Make sure that your fax software is correctly installed.

S: Check your fax software to see if there is an Answer mode or Receive Fax setting that must be enabled.

S: Make sure your fax software is set up for Class 1 fax.

P: Sections of your fax are missing.

S: This often indicates a noisy telephone line or a flow control problem. To resolve the flow control problem, try using hardware flow control (RTS/CTS). This must be enabled in your software (refer to the software's documentation) and set within your modem using the AT&K3 command (RTS/CTS flow control).

P: Your fax did not complete, and your modem displays result codes in the numeric format.

S: For some reason your modem and software are no longer communicating, and, as a result, your modem is stuck in fax mode. Type ATE1V1 and press Enter. The software should respond with an OK. Try sending or receiving the fax again.

Front Panel Status Lights

A

Table A-1 describes each front panel LED on DataPort PCX external modems.

Table A-1. LED Descriptions (1 of 2)

LED Label	Description
TST	**Test Mode.** When ON, the modem is executing a test.
CD	**Carrier Detect.** When ON, the modem has established a connection with a modem at the other end of the telephone line. This LED follows the status of the CD signal, Pin 8 of the EIA RS-232 interface. (This description assumes that the &C command is configured for standard EIA RS-232 operation (&C1). Refer to the &C command in Appendix B for more information.)
OH	**Off-Hook.** When ON, the modem is connected to the telephone line and a data or fax call is in progress.
RD	**Receive Data.** When ON, the modem is sending data to your computer. This LED follows the status of the RXD signal, Pin 3 of the EIA RS-232 interface.
SD	**Send Data.** When ON the computer is sending data to the modem. This LED follows the status of the TXD signal, Pin 2 of the EIA RS-232 interface.

Table A-1. LED Descriptions (2 of 2)

LED Label	Description
TR	**Terminal Ready.** When ON, the computer is attached and ready to send data to or receive data from the modem. Note that if the &D command is set for Ignore (&D0), then this LED is always ON. If the correct COM port is not selected, this LED will not light. The &D command (DTR Action) must be set for standard EIA RS-232 operation (&D2) for the LED to function this way. When Off, data cannot flow between the two devices. This LED follows the status of the DTR signal, Pin 20 of the EIA RS-232 interface.
MR	**Modem Ready.** When ON, the modem is ready to send data to or receive data from the computer. This LED follows the status of the DSR signal, Pin 6 of the EIA RS-232 interface.

AT Commands and S-Registers

B

Table B-1 lists AT commands and S-registers supported by the DataPort PCX modem. This table lists standard AT commands and S-registers first (e.g., ATA and ATS0=0), followed by extended AT commands: the ampersand (&) commands (AT&C*n*); the backslash (\) commands (AT\K*n*); the percent (%) commands (AT%E*n*), and the plus (+) commands (AT+FCLASS). **Boldface** type indicates factory default settings (see the &F command).

See *AT Command Guidelines* in Chapter 5 for an explanation of command entry and usage.

Table B-1. AT Command and S-Register List (1 of 21)

AT Command/ S-Register	Description
+++	ESCAPE SEQUENCE Causes the DataPort PCX modem to exit Data mode and enter online Command mode. The O command returns you to Data mode. The escape sequence must be preceded and followed by a pause to distinguish it from data. (See S12.) The value of the escape character can be changed. (See S2.)
A/	REPEAT LAST COMMAND Repeats the previous command string entered. Do not precede the A/ command with AT or follow it with a carriage return.

Table B-1. AT Command and S-Register List (2 of 21)

AT Command/ S-Register	Description
A	ANSWER MODE The Answer command causes the DataPort PCX modem to go off-hook and answer an incoming call. The Answer command also puts the modem in data (Answer) mode in talk/data operation. (See D*n*.)
B*n*	CCITT/BELL MODE Determines the protocol used if the dial-line rate is set to 300 or 1200 bps. It has no effect if the rate is set to another value. (See F*n*.) B, B0 V.21 or V.22 (300 or 1200 bps) **B1 Bell 103 or Bell 212A (300 or 1200 bps)**
D*n*	DIAL Any digit or symbol (0–9, *, #, A, B, C, D) may be dialed as a touch-tone, but only 0–9 can be dialed in Pulse Dial mode. Spaces, hyphens, and parentheses are ignored. DIAL COMMAND MODIFIERS The following modifiers can be used in a dial string: T Touch-tone dialing. Any digit 0–9, * , # , A, B, C, or D is valid. P Pulse dialing. Only the digits 0–9 are valid; other characters are ignored. W Wait for dial tone. The modem waits for a second dial tone before processing the dial string. This can be the initial dial tone or can be used when dialing through a tandem PBX. For example: ATDT9W555-6789 , Pause. The modem pauses before processing the next character in the dial string. Pause length is determined by the value of S8 (Pause Time). ! Hook flash. The modem goes on-hook for 0.5 seconds, then returns off-hook.

Table B-1. AT Command and S-Register List (3 of 21)

AT Command/ S-Register	Description
	(DIAL COMMAND MODIFIERS, continued) ; Return to Command mode. Allows AT command strings that exceed the length limit to be linked together. This is useful when using a calling card number or an international telephone number. The modem remains in Command mode until a dial string ends without a semicolon. @ Quiet answer. The modem waits for 5 seconds of silence before continuing with the next part of the dial string. If silence is not detected in the amount of time specified by S-register S7, the modem terminates the call and sends NO ANSWER or BUSY to the computer. & Wait for credit card dialing tone. If the tone is not detected in the time specified by S7, the modem aborts the dialing sequence. returns on-hook, and generates an error message. Spaces, hyphens, and parentheses These may be included for readability, but do not affect dialing. No characters If a Dial command is entered with no numbers or modifiers, the modem goes online and proceeds with handshaking in Originate mode. It identifies itself as a fax modem or a data modem according to the setting of +FCLASS. **NOTE:** Before the modem goes online, any character from the DTE aborts the dial sequence.
DL	DIAL LAST NUMBER Redials the last number dialed. Only the last part of dial strings separated by the Return to Command dial modifier (:) is redialed.

Table B-1. AT Command and S-Register List (4 of 21)

AT Command/ S-Register	Description
DS=*n*	DIAL STORED NUMBER Dials telephone number stored in directory location *n* (where *n* is a number, 0–3). The DataPort PCX modem supports four telephone directory entries. (See &Z.)
E*n*	COMMAND CHARACTER ECHO Controls whether characters entered at your keyboard are displayed on your monitor when the modem is in command mode. E, E0 Disables echo **E1 Enables echo**
F*n*	SELECT LINE MODULATION Controls the line modulation and VF rate and modifies the setting of N*n.* **F0 Selects auto-detect mode. All supported speeds and modulations are available for selection by the remote modem.** F1 Selects V.21 or Bell 103J (300 bps) according to the setting of B*n*. F2 Not supported. F3 Selects V.23. The originating modem's rate is set to 75 bps, and the answering modem's rate is set to 1200 bps. F4 Selects V.22 or Bell 212A (1200 bps) according to the setting of B*n*. F5 Selects V.22bis (2400 bps). F6 Selects V.32bis or V.32 at 4800 bps. F7 Selects V.32bis at 7200 bps. F8 Selects V.32bis or V.32 at 9600 bps. F9 Selects V.32bis at 12,000 bps. F10 Selects V.32bis at 14,400 bps.

Table B-1. AT Command and S-Register List (5 of 21)

AT Command/ S-Register	Description
H*n*	HOOK CONTROL Controls the modem's on-hook or off-hook status. The ATH or ATH0 command causes the modem to go on-hook, disconnecting the call. It also forces the modem into Talk mode; if the telephone receiver is lifted off-hook before the ATH0 command is entered, the connection is maintained. The ATH1 command causes the modem to go off-hook, causing a "Make Busy" condition. It also forces the modem into data (Originate) mode. This is like the ATD command with no number, except that automatic disconnects do not occur. H, H0 On-hook H1 Off-hook
I*n*	IDENTIFICATION Returns information about the modem. I, I0 Displays product code (14400). I1 Displays a checksum value. I2 Displays OK result code. I3 Displays the firmware revision level, model, and interface. I4 Displays a firmware-dependent code. I5 Displays country code. I6 Displays data pump model and revision code.
L*n*	SPEAKER VOLUME Adjusts the volume of the modem's speaker. **L, L0, L1 Low volume (Default for &F0)** L2 Medium volume (Default for &F1) L3 High volume

Table B-1. AT Command and S-Register List (6 of 21)

AT Command/ S-Register	Description
M*n*	SPEAKER ON/OFF CONTROL Determines the status of the modem's speaker. M, M0 Speaker always Off. **M1 Speaker On until carrier signal becomes active.** M2 Speaker always ON. M3 Speaker off while dialing, on while handshaking, until carrier signal becomes active.
N*n*	AUTOMODE ENABLE Enables or disables Automode detection. The setting of N is affected by the ATF*n* command: ATF0 is equivalent to N1; ATF1 through F10 set N to 0. However, the N1 command does not set an F*n* value. When F0 (Automode) is active but N0 (Disable Automode) is issued, subsequent connections are attempted at the most recently sensed DTE rate. N0 Disables Automode detection. **N1 Enables Automode detection.**
O*n*	RETURN ONLINE TO DATA MODE When the DataPort PCX modem is set to AT+H0 (RPI disabled), AT0 forces the modem from online Command mode to Data mode, with or without a retrain. If result codes are enabled, the O command also displays the current VF rate. When RPI is enabled, AT0 is not supported. O, O0 Returns to online Data mode without a retrain. O1 Retrains then returns to online Data mode.
P	PULSE DIAL Specifies rotary-type dialing. See D*n.*

Table B-1. AT Command and S-Register List (7 of 21)

AT Command/ S-Register	Description
Q*n*	RESULT CODES Allows modem response messages, such as OK and BUSY, to be displayed. Refer to the V and X commands for more information. See Table E-1 in Appendix E for a list of result codes. **Q**, **Q0** **Enables result codes** Q1 Disables result codes
S*n*=*r*	CHANGE S-REGISTER Assigns a new value to the specified S-register. *n* = S-register *r* = new value of S-register
S*n*?	VIEW S-REGISTER Displays the value of a specific S-register *n* (for example, ATS0?).
S0=*n*	AUTO-ANSWER RING NUMBER Number of rings before the DataPort PCX modem answers. Accepts a ring count from 0 to 255. Factory setting is **0**. If set to 0, a call must be answered manually, or by issuing the A command. **0 = Disable** 1 to 255 = Number of rings before modem will answer
S2=*n*	AT ESCAPE CHARACTER Sets the AT Escape Character to a value from 0 to 127. A setting greater than 127 disables the escape sequence. Factory setting is **43**, the ASCII **+** character.
S3=*n*	CARRIAGE RETURN CHARACTER Sets the Carriage Return Character to a value from 0 to 127. Factory setting is **13**, the ASCII carriage return.

Table B-1. AT Command and S-Register List (8 of 21)

AT Command/ S-Register	Description
S4=*n*	LINE FEED CHARACTER Sets the Line Feed Character to a value from 0 to 127. Factory setting is **10**, the ASCII line feed character.
S5=*n*	BACKSPACE CHARACTER Sets the backspace character to a value from 0 to 32. The modem will not recognize a backspace character of a higher value. Factory setting is **08**, the ASCII backspace character.
S6=*n*	BLIND DIAL PAUSE TIME Sets the amount of time the DataPort PCX modem waits before dialing when Dial Tone Detect is disabled (see X*n*). Accepts a pause time from 0 to 255 seconds, but values of 0 and 1 have the same effect as a value of 2. Factory setting is **2 seconds**.
S7=*n*	NO ANSWER TIMEOUT Sets the amount of time the DataPort PCX modem waits before abandoning a call that produces no answer tone. Accepts a value from 0 to 255 seconds, but a value of 0 has the same effect as a value of 1. The timer is reset each time a “W” or “@” is encountered in the Dial string. (See D*n*.) Factory setting is **50 seconds**.
S8=*n*	PAUSE TIME FOR THE “,” DIAL MODIFIER Sets the length of the pause invoked by a comma in the Dial command string. (See D*n*.) Accepts a value from 0 to 255 seconds. Factory setting is **2 seconds**.
S9=*n*	CARRIER DETECT RESPONSE TIME Determines how long the remote modem’s carrier signal must be present before it is recognized by your modem. Accepts a value from 1 to 255 in 0.1 second increments. Factory setting is **6 (0.6 seconds)**.

Table B-1. AT Command and S-Register List (9 of 21)

AT Command/ S-Register	Description
S10=*n*	NO CARRIER DISCONNECT 255 = Disable Sets the amount of time the DataPort PCX modem will wait before disconnecting when no carrier signal is detected. Accepts a value from 0 to 254 in 0.1 second increments. S10 must be set to a value higher than the value of S9 or the modem will disconnect before it recognizes the carrier. Factory setting is **14 (1.4 seconds)**.
S11=*n*	DTMF TONE ON TIMER Sets the duration of a DTMF tone (touch-tone). Accepts a value from 50 to 255 milliseconds. A value less than 50 defaults to 50 milliseconds. Factory setting is **95 milliseconds**.
S12=*n*	ESCAPE GUARD TIME Sets the duration of the pause required before and after an escape sequence (+++) for it to be treated as an escape sequence and not data. Accepts a value from 0 to 255 in 20 millisecond increments. Factory setting is **50 (1 second)**.
S18=*n*	TEST TIMEOUT Sets the duration of any test initiated by the &T command. If S18=0, a test runs indefinitely unless manually canceled (see &T0). Accepts a value of 0 for Disable, or from 1 to 255 seconds. Factory setting is **0 (Disable)**.
S25=*n*	DELAY TO DTR Sets the length of time that the modem will ignore DTR before taking the action specified by &D*n*. S25 specifies duration in seconds for synchronous modes and 10-millisecond increments for other modes. Accepts a value from 0 to 255. Factory setting is **5**.

Table B-1. AT Command and S-Register List (10 of 21)

AT Command/ S-Register	Description
S26=*n*	RTS-TO-CTS DELAY Sets the amount of time the DataPort PCX modem waits after receiving the RTS signal before sending the CTS signal to the computer. Accepts a value from 0 to 255 in 10 millisecond increments. S26 has no effect if the modem is not in synchronous mode, or if RTS Action (&R) is set to Ignore. Factory setting is **1** (**10 milliseconds**).
S36	RESERVED
S37=*n*	LINE CONNECTION SPEED Sets the line connection speed (see F*n*). Invalid numbers are treated as 0. **0 = Automode (F0)** 1–3 = 300 bps (F1) 4 = Reserved 5 = V.22 1200 bps (F4) 6 = V.22bis 2400 bps (F5) 7 = V.23 (F3) 8 = V.32/V.32bis 4800 bps (F6) 9 = V.32/V.32bis 9600 bps (F8) 10 = V.32bis 12 kbps (F9) 11 = V.32bis 14.4 kbps (F10) 12 = V.32bis 7200 bps (F7) 13–15 = Reserved
S38 S40 S41 S44 S46	RESERVED

Table B-1. AT Command and S-Register List (11 of 21)

AT Command/ S-Register	Description
S95	EXTENDED RESULT CODES Sets an override of the W*n* command option. NOTE: The following values are bit positions, not decimal S-register contents. An option is selected if its associated bit is set to 1. 0 = CONNECT result code shows DCE speed instead of DTE speed 1 = Reserved 2 = Enable CARRIER *x* result code (*x*=rate) 3 = Enable PROTOCOL NONE result code 4–7 = Reserved
T	TONE DIAL Specifies touch-tone dialing. This is the default type. (See D*n.)*
V*n*	RESULT CODE FORMAT Determines the way result codes are sent to the DTE. V, V0 Result codes displayed as numbers **V1 Result codes displayed as text**
W*n*	CONNECT MESSAGE CONTROL Controls the format of the CONNECT result code displayed upon connection (only). **W0 CONNECT shows DTE rate** W1 CONNECT shows VF rate, protocol, and DTE rate W2 CONNECT shows VF rate

Table B-1. AT Command and S-Register List (12 of 21)

AT Command/ S-Register	Description
X*n*	EXTENDED RESULT CODES, BUSY TONE DETECT X*n* controls two different parameters. Extended result codes are shown in Table E-1 in Appendix E. Busy Tone Detect determines whether the modem monitors the line for a busy signal. X, X0 Disables extended result codes and busy tone detect. X1 Enables extended result codes and disables busy tone detect. X2 Enables extended result codes and disables busy tone detect. X3 Enables extended result codes and busy tone detect. **X4 Enables all result codes and busy tone detect.**
Y*n*	LONG SPACE DISCONNECT Determines whether the DataPort PCX modem disconnects if a long space (more than 1.6 seconds) is detected, and sends a long space (4 seconds) when it disconnects. A cleardown is transmitted instead of a long space in V.32bis or V.32 modes, but a received long space still causes a disconnect if this option is enabled. **Y, Y0 Disable** Y1 Enable

Table B-1. AT Command and S-Register List (13 of 21)

AT Command/ S-Register	Description
Zn	RESET AND LOAD ACTIVE Resets the modem and loads user-defined configuration options. Z, Z0 Loads the stored profile 0 configuration options into Active. Z1 Loads the stored profile 1 configuration options into Active.
&Cn	LSD (LINE SIGNAL DETECT) CONTROL Determines the handling of the remote LSD signal. &C, &C0 Forced On (Default for &F0) **&C1 Follows standard RS-232 operation. LSD is ON when RXD output is possible. (Default for &F1)**

Table B-1. AT Command and S-Register List (14 of 21)

AT Command/ S-Register	Description
&D*n*	DTR (DATA TERMINAL READY) ACTION Determines the handling of the Data Terminal Ready signal. &D, &D0 Interprets DTR according to the value of &Q*n* as follows: &Q0, &Q6: DTR is ignored (assumed on). &Q1: When DTR turns Off, the modem hangs up. Auto-answer is not affected. &Q2, &Q3: When DTR turns Off, the modem hangs up. Auto-answer is disabled. &D1 Interprets DTR according to the value of &Q*n* as follows: &Q0, &Q1, &Q6: When DTR turns off, the modem returns to asynchronous command state without disconnecting. &Q2, &Q3: When DTR turns Off, the modem hangs up. Auto-answer is disabled **&D2 Interprets DTR according to the value of &Q*n* as follows:** **&Q0, &Q1, &Q6: When DTR turns Off, the modem hangs up. Auto-answer is disabled.** &D3 Interprets DTR according to the value of &Q*n* as follows: &Q0, &Q1, &Q6: When DTR turns off, the modem performs a soft reset as if the Z command were received. &Q2, &Q3: When DTR turns Off, the modem hangs up. Auto-answer is disabled.

Table B-1. AT Command and S-Register List (15 of 21)

AT Command/ S-Register	Description
&F*n*	SELECT FACTORY DEFAULT CONFIGURATION OPTIONS **&F, &F0 Loads Factory 0 configuration options into Active memory.** &F1 Loads Factory 1 configuration options into Active memory. Factory default settings (&F0) are indicated by bold type in this table. &F1 settings differ only for the L*n* and &C*n* options, and are shown in those sections of this appendix.
&G*n*	V.22BIS AND V.22 GUARD TONE Determines the nature of the V.22bis and V.22 Guard Tone. **&G, &G0 Disable** &G1 Disable &G2 1800 Hz guard tone **NOTE:** The ability to change this value is mandatory in some countries; it is not used in North America.
&K*n*	FLOW CONTROL Determines the flow control settings for data passed between the computer and the DataPort PCX modem. &K, &K0 Disables hardware and software flow control. **&K3 Enables RTS/CTS (hardware) flow control.** &K4 Enables XON/XOFF (software) flow control. &K5 Transparent XON/XOFF (software) flow control. (XON and XOFF characters are passed from DTE to DTE.) &K6 Enables both XON/XOFF and RTS/CTS flow control. (Default for fax modes.)

Table B-1. AT Command and S-Register List (16 of 21)

AT Command/ S-Register	Description
&M*n*	ASYNC/SYNC MODE AND COMPUTER DIALER TYPE *Applies to external DataPort PCX modem only.* Determines the DTR operating mode. The modem treats the &M command as a subset of the &Q command. &M1, &M2, and &M3 are for serial interface operation (external modem) only. **&M**, **&M0 Enables direct asynchronous operation.** &M1 Enables synchronous Connect mode with asynchronous offline Command mode. &M2 Enables synchronous Connect mode with asynchronous offline Command mode, and enables DTR dialing of directory slot 0. &M3 Enables synchronous Connect mode, and allows DTR to act as a talk/data switch. A call is manually initiated when DTR is inactive. When DTR becomes active, handshaking proceeds in originate or answer mode (depending on the modem state).

Table B-1. AT Command and S-Register List (17 of 21)

AT Command/ S-Register	Description
&Q*n*	ASYNC/SYNC MODE AND COMPUTER DIALER TYPE Determines the DTR operating mode. &Q is an extension of the &M command. &Q1, &Q2, and &Q3 are for the serial interfaced (external) modem only. &Q, &Q0 Enables direct asynchronous operation. &Q1 Enables synchronous Connect mode with asynchronous offline Command mode. &Q2 Enables synchronous Connect mode with asynchronous offline Command mode, and enables DTR dialing of directory slot 0. &Q3 Enables synchronous Connect mode, and allows DTR to act as a talk/data switch. A call is manually initiated when DTR is inactive. When DTR becomes active, handshaking proceeds in originate or answer mode (depending on modem state). **&Q5 Enables asynchronous operation in Error Control mode.** &Q6 Enables asynchronous operation in normal mode (speed buffering).
&R*n*	RTS/CTS ACTION Determines the handling of the CTS (Clear To Send) signal relative to the RTS (Request To Send) signal. &R, &R0 In synchronous mode, CTS tracks the state of RTS. S26 defines the RTS to CTS delay. **&R1 In synchronous mode, treats CTS as always ON; RTS transitions are ignored.**
&S*n*	DSR CONTROL Determines the handling of the DSR (Data Set Ready) signal. **&S, &S0 Forced On.** &S1 DSR becomes active after answer tone is detected, and inactive after the carrier is lost.

Table B-1. AT Command and S-Register List (18 of 21)

AT Command/ S-Register	Description
&T*n*	TESTS *RPI must be disabled before test commands can be used. Set AT+H0 to disable RPI.* Initiates and terminates Loopback and Pattern tests. Only one test can run at a time. The modem must be in Buffer or Direct mode (\N*n*). If the modem is not offline (disconnected) for tests &T1, and &T8, the tests will take it offline. The modem must be online (connected) for tests &T3 and &T7. When tests &T7 and &T8 end, the modem sends the DTE a message showing the number of 1,024-byte blocks in error. &T, &T0 Stops test in progress and displays results. &T1 Local Analog Loopback test. &T3 Local Digital Loopback test. &T4 Accepts request for Remote Digital Loopback test received over the VF line. **&T5 Denies request for Remote Digital Loopback test.** &T6 Remote Digital Loopback test. &T7 Remote Digital Loopback test with Pattern. &T8 Local Analog Loopback test with Pattern. S18 determines how long a test runs.
&V*n*	VIEW CONFIGURATION OPTIONS &V, &V0 Displays current configuration options.
&W*n*	WRITE (SAVE) CHANGES TO MEMORY Saves configuration options in one of two user areas. (See also Z and &Y commands.) &W, &W0 Saves current configuration options to Stored Profile 0. &W1 Saves current configuration options to Stored Profile 1.

Table B-1. AT Command and S-Register List (19 of 21)

AT Command/ S-Register	Description
&X*n*	TRANSMIT CLOCK SOURCE Determines the source of timing. **&X, &X0 Internal. The modem generates the clock signal.** &X1, &X2 Provided for compatibility only.
&Y*n*	DESIGNATE DEFAULT STORED PROFILE Determines which stored profile (0 or 1) is loaded when the modem is turned on. **&Y, &Y0 Use stored profile 0.** &Y1 Use stored profile 1.
&Z*n=x*	STORE TELEPHONE NUMBERS Stores telephone number *x* into directory *n* (0, 1, 2, or 3). The phone number can contain up to 35 characters appropriate to the dial type (Touch-tone or Pulse), and readability characters such as hyphens. (See the D and DS commands for more information.)

Table B-1. AT Command and S-Register List (20 of 21)

AT Command/ S-Register	Description
\K*n*	BUFFER CONTROL, SEND BREAK CONTROL, BREAK FORCES ESCAPE Controls whether buffered data is discarded upon a break sequence (Buffer Control), whether a break sequence is sent before data (Send Break Control), and whether a break sequence forces the DataPort PCX modem into Command mode (Break Forces Escape). \K, \K0 Discards data, sends break before data, and enables Break Forces Escape. \K1 Discards data, sends break before data, and disables Break Forces Escape. \K2 Keeps data, sends break before data, and enables Break Forces Escape. \K3 Keeps data, sends break before data, and disables Break Forces Escape. \K4 Keeps data, sends data before break, and enables Break Forces Escape. **\K5 Keeps data, sends data before break, and disables Break Forces Escape.**
\N*n*	OPERATING MODE Determines the mode to be negotiated in subsequent connections. \N, \N0 Buffer mode \N1 Direct mode (external modem) or Buffer mode (internal modem)
%E*n*	LINE QUALITY MONITOR Determines whether and for what purpose the modem will monitor line quality. %E, %E0 Disable line quality monitor. %E1 Enable line quality monitor and auto-retrain. **%E2 Enable line quality monitor and fallback and fall forward rate negotiation.**

Table B-1. AT Command and S-Register List (21 of 21)

AT Command/ S-Register	Description
%L	LINE SIGNAL LEVEL Returns a value indicating the received line signal in dBm. **NOTE:** This value is not sensed at the telephone line connector.
%Q	LINE SIGNAL QUALITY Returns a value indicating the line signal quality. This is the value checked for the %E1 or %E2 options.
+FCLASS?	FAX/DATA MODE QUERY Displays the fax or data mode expressed as a number 0 (for data mode), or 1 (for Fax Class 1).
+FCLASS=*n*	FAX/DATA MODE SET Determines whether the modem operates in fax or data mode. *n* can be one of two values: **0 = Data** 1 = Fax Class 1 (EIA/TIA 578)
+H*n*	RPI TOGGLE Determines whether Rockwell Protocol Interface (RPI) processing is used. RPI uses WinRPI, running on your PC, for error correction and data compression services. The initialization string must include +H11 for WinRPI to function. **+H, +H0 Disable RPI.** +H11 Enable RPI.

Communications and Fax Software Settings

C

This appendix lists the recommended settings for several communications, remote communications, and fax software packages. **Refer to your software's user's guide for the location of these configuration parameters.**

Guidelines for All Software

These overall guidelines apply when using the DataPort PCX with any software:

- If your software has an **Autobaud** selection, make sure it is Off or Disabled.
- Your DataPort PCX modem and computer (DTE) communicate via your computer's serial port at a variety of DTE data rates (baud rates) ranging from 300 bps to 57,600 bps. Use your software package to select the highest possible DTE rate that your computer can support.
- If you manually change the DTE rate while the DataPort PCX modem is offline, enter **AT** and press the **Enter** key before receiving a data transfer. This is known as Autobaud, where the DataPort PCX modem uses the "A" character to gather information about the baud rate and character structure, and ensures that the modem is configured to the new speed.

For an external modem, if your serial port is configured for 38,400 bps or higher and you notice errors in your data transmission, try configuring it to 19,200 bps. Before using higher data rates again, verify that your serial port has a 16550A compatible UART that can handle 38,400 bps or higher.

For an internal modem in an 8-bit slot, do not attempt DTE rates higher than 19,200 bps. An internal modem in a 16-bit slot supports higher rates.

- Your DataPort PCX modem supports **Class 1 fax**. If the DataPort PCX modem is not listed in your fax software setup, use a generic Class 1 fax driver, if available.
- If no DataPort PCX modem driver is listed in your communications software package, select any Hayes-compatible modem. This selection will not affect your data rate.
- Use **Hardware** flow control (RTS/CTS) if possible. This is the recommended flow control method, and the DataPort PCX default.
- If your software has a **Lock Speed** selection, make sure it is ON.

These and other guidelines are summarized in the following tables. Table C-1 lists settings you might be required to change or verify in your communications or fax software. Table C-2 lists settings you might be required to change or verify in your modem.

Table C-1. Software Configuration Guidelines

Configuration Option	Setting (If Available)	Likely Uses
Autobaud	Off or Disable	
Baud Rate (DTE Rate)	Maximum computer can handle; if in doubt, use 19,200 bps	
COM/IRQ	As identified by COMTEST	
Data Bits/Parity/Stop Bits	8-N-1, or as recommended by the remote system owner	BBSs and online services, including AT&T Paradyne BBS
Hardware Flow Control (RTS/CTS)	ON or Enable	
Lock Speed	ON or Enable	
Modem Type / Driver	DataPort PCX *or* generic (Hayes-compatible) Class 1 Fax Modem	
Software Flow Control (Xon/Xoff)	Off or Disable	
Terminal Emulation	VT100 ANSI	Mainframe connections AT&T Paradyne BBS

Table C-2. Modem Configuration Guidelines

Configuration Option	Setting	AT Command
DTR Action	RS-232	&D2 (Default)
Hardware Flow Control (RTS/CTS Flow Control)	RTS (Modem)/ CTS (DTE)	&K3 (Default)
Line Rate (VF Rate)	Maximum Possible	F0 (Default)
LSD Control	RS-232	&C1 (Default)
Result Codes	Enable all	V1, W0, X4 (Defaults)
RPI	Enable	+H11

Guidelines for Specific Software

The AT&T Paradyne BBS (**813-532-5254**) has the latest updates, special settings, and initialization strings for some popular communications and fax packages. If you cannot get your software to work using the guidelines in this appendix, install QuickLink II Fax™ temporarily so that you can use it to check the BBS for further information.

If your configuration requires settings to your software or your modem that are not mentioned here or on the BBS, please let us know by writing to Technical Publications, telephoning Technical Support, or uploading information to the BBS.

QuickLink II Fax is shipped already configured for DataPort PCX modems:

- The init string is AT&FE1V1&C1&D2S0=0S7=90
- **Baud Rate** is 19,200 bps
- **Hardware Flow Control** is selected
- **Autobaud** is Off

Add the +H11 command to the initialization string to enable RPI. If you add no other commands, your initialization string should look like this:

AT&FE1V1&C1&D2S0=0S7=90+H11

If you do not intend to receive a fax from another user, then change **Answer Mode** to Data Only.

NOTE:

Change the initialization string and Answer Mode using the Modem Setup window of QuickLink II Fax.

Technical Specifications

D

Table D-1 lists technical specifications for the DataPort PCX modem. Table D-2 lists software that supports RPI.

Table D-1. DataPort PCX Technical Specifications (1 of 3)

Specifications	Description
APPROVALS – External Modem (Model 3705)	
(120 Vac, 60 Hz only)	
FCC Part 15	Class B
FCC Part 68	Registration Number: See label on modem
UL	Listed to UL 1950 or Equivalent
CSA	Certified to CSA C22.2 No. 950
DOC CS-03	Certification Number: See label on modem
APPROVALS – Internal Modem (Model 3706)	
FCC Part 15	Class B
FCC Part 68	Registration Number: See label on modem
UL	Listed as an accessory to UL 1950 or equivalent
CSA	Certified as add-on to CSA C22.2 No. 950
DOC CS-03	Certification Number: See label on modem

Table D-1. DataPort PCX Technical Specifications (2 of 3)

Specifications	Description
AC POWER REQUIREMENTS – External Modem Only (Wall-Mount Transformer)	INPUT: 120 Vac ± 10%, 60 Hz, 15W 230 Vac ± 10%, 50 Hz (not for North America) OUTPUT: 9 Vac, 1000 mA, 9VA (Model 3705)
POWER CONSUMPTION	
External Modem	
Model 3705	3500 milliwatts (maximum)
Internal Modem	
Model 3706	2000 miliwatts (maximum)
DIMENSIONS – External Modem	
Weight	.84 pounds (.38 kg) not including power transformer
Length	7.03 inches (17.85 cm)
Width	5.02 inches (12.75 cm)
Height	1.32 inches (3.35 cm)
DIMENSIONS – Internal Modem	
Weight	.21 pounds (96 g)
Length	5.1 inches (13.0 cm)
Width	0.8 inches (1.9 cm)
Height (Board only)	2.9 inches (7.3 cm)
ENVIRONMENT	
Operating Temperature	32°F (0°C) to 122°F (50°C)
Storage Temperature	–4°F (–20°C) to 158°F (70°C)
Shock and Vibration	Withstands normal shipping
DTE INTERFACE – External Modem Only	
25-pin D-subminiature connector	EIA-232-D/CCITT V.24

Table D-1. DataPort PCX Technical Specifications (3 of 3)

Specifications	Description
DATA RATES	
Dial Line	14,400, 12,000, 9600, 7200, 4800, 2400, 1200, or 300–0 bps
DTE	57,600, 38,400, 19,200, 9600, 4800, 2400, 1200, 300, or 75 bps
FAX RATES	14,400, 12,000, 9600, 7200, 4800, or 2400 bps
COMPATIBILITY	*Dial-Line Modulations* CCITT V.32bis (14,400, 12,000, 9600, 7200, 4800 bps) CCITT V.32 (9600, 4800 bps) CCITT V.22bis (2400 bps) CCITT V.22 (1200 bps) CCITT V.21 (300 bps) CCITT V.23 (75/1200 bps) Bell 212A (1200 bps) Bell 103J (300 bps) *Fax Modulations* CCITT V.17 (14,400 bps, Group 3 Fax) CCITT V.29 (9600, 7200 bps, Group 3 Fax) CCITT V.27ter (4800, 2400 bps)
ERROR CONTROL (with QuickLink II Fax)	CCITT V.42 MNP 4, MNP 3, MNP 2
DATA COMPRESSION (with QuickLink II Fax)	CCITT V.42bis MNP 5

Table D-2. Software That Supports RPI

Product Name	Minimum Version	Company
BitCom® BitFax®	6.04 (DOS) 3.03 (Windows) 4.06 (DOS) 2.12 (Windows)	Cheyenne Software
COMit™	1.123 (DOS) 1.24 (Windows)	Tradewind Software, Inc.
DataCOMM™ DataFAX™	1.40 (DOS) 3.20 (Windows) 5.00	Trio Information Systems, Inc.
ExpressFax™	3.00	Novell, Inc.
FaxTalk® Plus FaxTalk® Messenger	1.70B (DOS) 1.50B (Windows) Any	Thought Communications, Inc.
PROCOMM® PLUS	2.00	Datastorm Technologies, Inc.
QuickLink™ II Fax	3.03 (DOS) 1.43 (Windows)	Smith Micro Software Inc.
SuperVoice®	2.00	Pacific Image Communications, Inc.
VODAX©	2.08	Tapmon, Inc.
WinComm™ LITE WinComm™ PRO	1.00 2.00	Delrina Corporation

Result Codes

E

Result codes (Table E-1) are informational messages sent from the DataPort PCX modem and displayed on your monitor. They can inform you of the status of a call (RING, NO ANSWER), whether or not a command is valid (OK, ERROR), or at what rate the modem has connected (CONNECT 14400). Refer to the Q*n*, V*n*, and X*n* commands in Appendix B for more information.

Table E-1. DataPort PCX Result Codes (1 of 2)

Numbers (ATV0)	Word (ATV1)	Description
0	OK	Command executed
1	CONNECT	Modem connected to line
2	RING	Modem receiving a ring voltage from the dial line
3	NO CARRIER	Modem lost or does not detect carrier signal, or does not detect answer tone
4	ERROR	Invalid command
5	CONNECT 1200[1]	Connection at 1200 bps
6	NO DIALTONE[2]	No dial tone detected
7	BUSY[3]	Busy or trunk busy signal detected
8	NO ANSWER	No “quiet” answer @
9	CONNECT 0600[1]	DTE connection at 600 bps
10	CONNECT 2400[1, 4]	Connection at 2400 bps

[1] For ATX0, result code 1 or CONNECT is displayed instead.
[2] For ATX0 and X1, result code 3 or NO CARRIER is displayed instead.
[3] For ATX0, X1, and X2, result code 3 or NO CARRIER is displayed instead.
[4] Refers to DTE rate or DCE rate depending on setting of ATW*n*.

Table E-1. DataPort PCX Result Codes (2 of 2)

Numbers (ATV0)	Word (ATV1)	Description
11	CONNECT 4800[1, 4]	Connection at 4800 bps
12	CONNECT 9600[1, 4]	Connection at 9600 bps
13	CONNECT 7200[1, 4]	Connection at 7200 bps
14	CONNECT 12000[1, 4]	Connection at 12,000 bps
15	CONNECT 14400[1, 4]	Connection at 14,400 bps
16	CONNECT 19200[1]	DTE connection at 19,200 bps
17	CONNECT 38400[1]	DTE connection at 38,400 bps
18	CONNECT 57600[1]	DTE connection at 57,600 bps
22	CONNECT 75TX/1200RX[1]	V.23 Originate connection
23	CONNECT 1200TX/75RX[1]	V.23 Answer connection
33	FAX	Fax connection in fax mode
35	DATA	Data connection in fax mode
40	CARRIER 300	V.21 or Bell 103J carrier detected
44	CARRIER 1200/75	V.23 bwd channel carrier detected
45	CARRIER 75/1200	V.23 fwd channel carrier detected
46	CARRIER 1200	V.22 or Bell 212A carrier detected
47	CARRIER 2400	V.22bis carrier detected
48	CARRIER 4800	V.32 or V.32bis carrier detected
49	CARRIER 7200	V.32bis carrier detected
50	CARRIER 9600	V.32 or V.32bis carrier detected
51	CARRIER 12000	V.32bis carrier detected
52	CARRIER 14400	V.32bis carrier detected
66	COMPRESSION:CLASS5	MNP5 compression enabled
67	COMPRESSION:V.42 BIS	V.42bis compression enabled
69	COMPRESSION:NONE	No data compression enabled
76	PROTOCOL:NONE	Standard asynchronous mode
+F4	+FCERROR	V.21 signal received when high speed fax expected

[1] For ATX0, result code 1 or CONNECT is displayed instead.
[4] Refers to DTE rate or DCE rate depending on setting of ATW*n*.

Limited Warranty

F

What is covered:

Any defect in material and workmanship.

For how long:

Five years.

What we will do:

If your AT&T Paradyne product is defective and returned within 30 days of the date it was purchased, we will replace it at no charge to you. If returned after 30 days of the date of purchase, but within five years, we will repair it or replace it, at our option.

If we repair your AT&T Paradyne product, we may use new or reconditioned replacement parts. If we choose to replace your AT&T Paradyne product, we may replace it with a new or reconditioned one of the same or similar design.

Limitations:

We will not pay for loss of time, inconvenience, loss of use of your AT&T Paradyne product, or property damage caused by your AT&T Paradyne product or its failure to work, or any other incidental or consequential damages.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions may not apply to you.

What we ask you to do:

Perform warranty registration. Your modem is shipped with one or both of: auto-registration software (on diskette) and/or a warranty registration card. Use the software (if available) or the card to validate your warranty.

To get warranty service for your AT&T Paradyne product, you must either (a) register your product or (b) provide proof of purchase. This warranty is not transferrable.

If you have technical difficulty with your DataPort PCX modem, please call **800-237-0016** (or 813-531-4373 if you are outside of the USA). If necessary, you will be provided product return instructions and an **RMA** number. **Do not return a product without first obtaining an RMA number.** We cannot guarantee proper credit or return of your merchandise without an RMA number.

If you ship your AT&T Paradyne product to us, you must prepay all shipping and insurance costs. See Step 6 of the *Government Requirements and Equipment Return* section in the front of this guide. Follow the product packaging procedures listed in that section. We suggest that you retain your original packing material in the event you need to ship your AT&T Paradyne product.

Repair or replacement of your AT&T Paradyne product at our repair center is your exclusive remedy.

What this warranty does not cover:

This warranty does not cover damage while in transit to or from our repair center or damage resulting from accidents, alterations, unauthorized repair, failure to follow instructions, misuse, fire, flood, and acts of God. We, at our option, may replace rather than repair your AT&T Paradyne product with a new or reconditioned one of the same or similar design.

This warranty is the only one we give on your AT&T Paradyne product, and it sets forth all our responsibilities regarding your AT&T Paradyne product. There are no other express warranties.

State Law Rights:

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Glossary

A

Active

A nonvolatile configuration area containing the most recently saved configuration options.

analog signal

A type of signal used to transmit data over telephone lines.

Answer mode

The state in which a modem is ready to receive an incoming call. This occurs when an ATA (Answer) command is issued.

asynchronous transmission

A data transmission that is synchronized by a transmission start bit at the beginning of a character (five to eight bits) and one or more stop bits at the end.

AT command set

A group of commands, issued from an asynchronous computer, that allows control of the modem while in Command mode.

AT command string

This consists of several AT commands issued at once. The string is preceded with an AT prefix.

AT prefix

A prefix issued before every AT command (except A/ and +++) which identifies the computer's data rate, parity, and character length.

autobaud

Modem automatically determines the asynchronous computer data rate when using AT commands.

B

BBS

Bulletin Board System.

Bell 103J

An AT&T Bell standard for 300 bps data transmission.

Bell 212A

An AT&T Bell standard for 1200 bps data transmission.

bis

Latin for “twice.” Used to denote the second version of a standard or recommendation, as in V.32bis.

bps

Bits per second. Indicates the rate of data transmission between devices.

buffer

A storage area used to compensate for differences in data flow rate when transmitting data from one device to another.

C

CCITT

A committee established by the United Nations to recommend communications standards and policies. Now called ITU-T.

CD

Carrier Detect. A signal between the local and remote ends of a network indicating that energy exists on the transmission circuit. Associated with Pin 8 on an RS-232 interface.

chassis ground

Pin 1 of an RS-232 interface.

Class 1

A fax modem standard. Under Class 1 computer software handles most of the protocol, compression, and conversion tasks.

COM port

A computer's serial communications port used to transmit to and receive data from a modem. The modem connects directly to this port.

Command mode

One of two general operating modes; the other is Data mode. When in Command mode, the modem accepts commands instead of transmitting or receiving data.

communications software

Software installed on a computer that controls the modem.

configuration option

Modem software that sets specific operating parameters for the modem. Sometimes referred to as straps.

CTS

Clear To Send. A signal, sent to the computer via Pin 5 of an RS-232 interface, indicating that the modem is ready for the computer to transmit data.

D

data compression

The elimination of empty fields, redundancies, and gaps in order to reduce storage capacity needs and the amount of data to be transmitted. Anything that is eliminated is restored after the data is received.

Data mode

One of two general operating modes; the other is Command mode. When in Data mode, the modem considers any input from the computer to be data and transmits it across the telephone line to the remote modem.

DCE

Data Communications Equipment. A modem.

dial command modifiers

A modifier used in the dial string that instructs the modem how to process a dialed telephone number.

dial string

A series of characters that consists of numbers and modifiers used to dial a telephone number.

digital signal

A type of signal used to transfer data between a locally attached computer and a modem.

download

A file transfer in which a file is received from another computer.

DSR

Data Set Ready. A signal from the modem to the computer, sent via Pin 6 of an RS-232 interface, that indicates the modem is turned ON and is connected to the computer.

DTE

Data Terminal Equipment. The equipment, such as computers and printers, that provides or creates data.

DTR

Data Terminal Ready. A signal from the computer to the modem, sent via Pin 20 of an RS-232 interface, that indicates the modem is turned ON and is connected to the computer.

E

EIA/TIA 578

An Electronic Industries Association's standard for fax modems.

error control

A method used by the modem to detect and correct data transmission errors.

escape sequence

Default setting is +++. This sequence lets you switch your modem from Data mode to Command mode.

extended result codes

An asynchronous message (in either numbers or words) that includes data rate information that the modem sends to the computer after executing or trying to execute a command.

F

factory defaults

A predetermined set of configuration options containing the optimum settings for operation on asynchronous dial networks.

fax software

Software installed on a computer that allows a modem to send and receive facsimiles from another fax modem or fax machine.

flow control

A process in which devices stop and start the flow of data in a network to avoid losing data.

full duplex

Simultaneous two-way communications.

G

Group III

A fax standard that specifies a rate of transmission of about one page per minute.

H

handshaking

The exchange of predetermined codes and signals (tones) to establish a connection between two modems.

I

idle state

A state in which the modem's configuration options can be modified or commands can be issued to the modem using AT commands.

L

long space disconnect

A disconnect can occur if the modem receives an extended space from a remote modem; for example, when a remote modem is commanded to disconnect, it transmits a continuous space to the modem before disconnecting.

loopback test

Any test that verifies the integrity of a device by sending data from one device to another, and then checking the received data for errors. Various loopback tests can be used to isolate a problem to the computer, modem, or telephone line.

M

MNP

Microcom Networking Protocol. Levels 4 through 2 of this protocol, similar to CCITT V.42, detect and correct data errors caused by poor telephone line conditions. Level 5, similar to CCITT V.42bis, includes data compression.

modem

MOdulator/DEModulator. A device used to convert data from a digital signal to an analog signal so that the data can be transmitted over a telephone line, and to convert an analog signal received over a telephone line back into digital data.

O

off-hook

The state of a telephone or modem that is being used.

on-hook

The state of a telephone or modem that is not being used.

Originate mode

The state in which a modem is ready to initiate a call.

P

parity

A way of checking data accuracy by counting the number of bits that have a value of one.

PBX

Telephone switching equipment (Private Branch Exchange) dedicated to one customer. A PBX connects private telephones to each other and to the public dial network.

protocol

The rules for timing, format, error control, and flow control during data transmission.

pulse dialing

One of two dialing methods, in which telephone numbers are sent as pulses (brief changes in voltage or current intensity) across the telephone line. Rotary telephones use pulse dialing.

R

result code

An asynchronous message (in either numbers or words) that the modem sends to the computer after executing or trying to execute a command.

RPI (Rockwell Protocol Interface)

A technique for modem/computer communication that permits data compression and error control services to be provided by the computer.

RS-232

An Electronic Industries Association's standard defining the 25-position interface between data terminal equipment and data communications equipment.

RTS

Request To Send. A signal from the computer to the modem, sent via Pin 4 of an RS-232 interface, that states the computer has data to send.

RXD

Receive Data. Pin 3 of an RS-232 interface that is used by the computer to receive data from the modem. Conversely, the modem uses Pin 3 to transmit data to the computer.

S

S-register

A part of the modem's memory that contains values that determine the modem's operating characteristics.

synchronous transmission

Data transmission that is synchronized by timing signals. Characters are sent at a fixed rate. This type of transmission is more efficient than asynchronous transmission.

T

ter

Latin for “thrice.” Used to denote the third version of a standard or recommendation, as in V.27ter.

tone dialing

One of two dialing methods, in which telephone numbers are sent as tones across the telephone lines.

training

A process where two modems try to establish a connection over the telephone line.

TXD

Transmit Data. Pin 2 of an RS-232 interface that is used by the computer to transmit data to the modem. Conversely, the modem uses Pin 2 to receive data from the computer.

U

UART

Universal Asynchronous Receiver and Transmitter. UARTs send and receive data on asynchronous serial EIA RS-232 lines. The internal DataPort PCX modem has a 16550A-compatible UART; the external DataPort PCX modem uses the UART on your computer’s COM port.

upload

A file transfer in which you send a file to another computer.

V

V.17

A CCITT fax communications standard for modems operating half-duplex with synchronous data at 14,400 bps.

V.21

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data at 300 bps over dial telephone lines.

V.22

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data at 1200 bps over dial telephone lines.

V.22bis

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data at 2400 or 1200 bps over dial telephone lines.

V.23

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data at 1200 or 600 bps over dial or leased telephone lines.

V.27ter

A CCITT fax communications standard for modems operating half-duplex with synchronous data at 2400 and 4800 bps.

V.29

A CCITT fax communications standard for modems operating half-duplex with synchronous data at 7200 and 9600 bps.

V.32

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data at 9600 or 4800 bps over dial or leased telephone lines.

V.32bis

A CCITT standard for modems operating full-duplex with asynchronous or synchronous data over dial or leased telephone lines at 14,400, 12,000, 9600, 7200, or 4800 bps.

V.42

A CCITT standard for error control protocol.

V.42bis

A CCITT standard for data compression.

X

XOFF

A character that tells the computer or modem to stop transmitting data.

XON

A character that tells the computer or modem to resume transmitting data.

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