3COM IMPACT ISDN EXTERNAL DIGITAL MODEM QUICK START INSTRUCTIONS

Part Number 09-0700-002

The following information will help you install the 3Com® Impact™ ISDN External digital modem models 3C871, 3C872, 3C876, or 3C877. Refer to the *3Com Impact ISDN External Digital Modem User Guide* for additional information.

Site Preparation

The Basic Rate ISDN line and computer serial port must be properly configured.

Ordering, Installing, and Configuring the ISDN Line

3Com has determined the optimal ISDN line configurations for the 3Com Impact digital modem and has provided that configuration data to many telephone companies. To simplify the ordering process for an ISDN digital line, use the following simplified ISDN ordering code:

3ComA * J6

If your digital modem has an internal analog fax modem (Models 3C872 and 3C877), then two directory numbers (telephone numbers) will be required to allow a voice call and a fax modem call to occur at the same time. When you tell the telephone company the ISDN ordering code (3ComA * J6) let the representative know that you will need two directory numbers.

If your telephone company does not support simplified ISDN ordering codes, refer to Table 1 for ISDN ordering information.

An internal Network Termination Type 1 device (NT1) is built into the 3Com Impact digital modem, so an external NT1 is not usable. When the telephone company installs the ISDN

line at your location, be sure it provides you with the following information. For future reference, write the information in the blank spaces.

ISDN Switch Type: (See Table 1) _____

Phone #1: (Local ISDN Directory Number 1) _____

SPID #1: (Service Profile Identifier Number 1) _____

Phone #2: (Local ISDN Directory Number 2) _____

SPID #2: (Service Profile Identifier Number 2) _____

Table 1 ISDN Ordering Information by Switch Type

ISDN Line Configuration Parameter	ISDN Switch Type			
	AT&T® 5ESS Custom	AT&T 5ESS National ISDN-1	Northern Telecom® DMS100 National ISDN-1	Siemens® EWSD National ISDN-1
Line Code	2B1Q (no NT1 required)	2B1Q (no NT1 required)	2B1Q (no NT1 required)	2B1Q (no NT1 required)
Directory Numbers	1*	1*	2	1*
Channels	2B alternate circuit-switched data and voice	2B alternate circuit-switched data and voice	2B alternate circuit-switched data and voice	2B alternate circuit-switched data and voice
Terminal Type	A with Point-to-Point	A with Point-to-Point	Functional PVC 2	Functional
TEI	Dynamic	Dynamic	Dynamic	Dynamic
Call Appearances	Idle	Idle	—	—
Supplemental Voice Features	None	None	None	None
EKTS Features	No	No	No	No
D Channel Packet	No	No	No	No
B Channel Packet	No	No	No	No

* Two directory numbers are required for Models 3C872 and 3C877. This allows a voice call and a call using the internal analog fax modem to occur at the same time.

The 3Com Impact digital modem has an RS-232-C asynchronous interface port that operates at data rates of up to 115.2 Kbps. Some computers may need additional hardware or driver software for reliable operation.

IBM PCs and Compatible Computers

An IBM® PC or compatible computer must have a buffered UART (universal asynchronous receiver/transmitter) chip, called the 16550 UART, to operate at 115 Kbps. Under Microsoft® Windows™, run the Microsoft Diagnostic Program (**msd**) at the DOS prompt and select COM Ports within msd. The UARTs present in your computer are listed under each COM port.

To operate at the maximum data rate, install an enhanced 16550 UART expansion card in your PC. If you have a nonupgradable PC with a slower UART (16450 or 8250), the 3Com Impact digital modem can operate at lower data rates, since it automatically adjusts to the PC serial COM port data rate. The COMM.DRV driver for Windows 3.1 only allows data rates of up to 38.4 Kbps. If you have a UART that supports higher rates than this (for example, 16550), you must install the TurboCom™ enhanced driver that is provided with the digital modem.

Apple Macintosh Computers

Motorola® 68XXX-based Macintosh® systems support a maximum asynchronous serial port data rate of 57.6 Kbps. Power Macintosh™ computers may operate at higher serial port data rates.

Installing the 3Com Impact Digital Modem

Follow the appropriate procedure for installing the 3Com Impact digital modem in your computer. Refer to Figure 1 during the installation procedure.
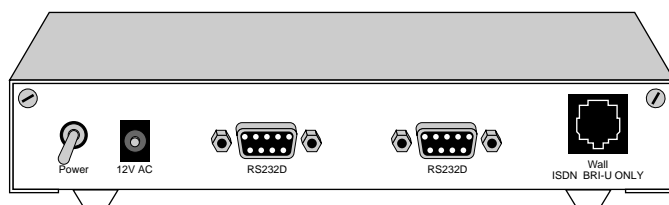
Figure 1   3Com Impact Digital Modem Rear Panel

Installing the Digital Modem in an IBM-compatible PC

To install the 3Com Impact digital modem in an IBM or compatible PC, follow these steps:

1 Turn off the computer.

2 Insert the 9-pin male end of the 3Com Impact digital modem-to-PC serial signal cable into the connector labeled Computer on the digital modem's back panel and tighten the connector screws.

3 Connect the other end of the 3Com Impact digital modem-to-PC serial signal cable to a serial communications (COM) port on the back of your PC and tighten the connector screws.

4 Connect the 3Com Impact digital modem power cable to the connector marked 12V AC on the back panel of the digital modem.

5 Plug the transformer end of the power cable into a standard 117V ac wall outlet.

6 Connect the RJ-45 (8-pin) connector end of the RJ-45/RJ-11 ISDN cable to the RJ-45 connector labeled Wall on the digital modem's back panel.

7 Connect the RJ-11 (6-pin) connector end of the RJ-45/RJ-11 ISDN cable to the RJ-11 telephone ISDN jack.

⚠️ **CAUTION:** *The 3Com Impact digital modem is designed to operate with Basic Rate ISDN 2B1Q U Interface network terminations. An internal Network Termination device (NT1) is built into the digital modem. Do not connect the 3Com Impact digital modem ISDN port to a standard analog telephone jack or to an external NT1 device. Make sure that it is connected to the ISDN jack.*

8 Turn on the 3Com Impact digital modem by toggling the power switch on the back panel to the On position.

9 Turn on the computer's power switch.

10 Go to the section "Configuration for IBM PC or Compatible Computer" to configure the 3Com Impact digital modem for your computer.

Installing the Digital Modem in an Apple Macintosh Computer

To install the 3Com Impact digital modem in an Apple Macintosh computer, follow these steps:

1 Turn off the computer.

2 Insert the 9-pin male end of the 3Com Impact digital modem-to-Macintosh serial signal cable into the connector labeled Computer on the digital modem's back panel and tighten the connector screws.

3 Connect the other end of the 3Com Impact digital modem-to-Macintosh serial signal cable to the serial communications port on the back of the Macintosh.

The serial communications port is the mini-DIN, 8-pin serial port connector, indicated on the Macintosh connector panel by the telephone handset imprint.

4 Connect the 3Com Impact digital modem power cable to the connector marked 12V AC on the back panel of the digital modem.

5   Plug the transformer end of the power cable into a
standard 117V ac wall outlet.

6   Connect the RJ-45 (8-pin) connector end of the RJ-45/RJ-11
ISDN cable to the RJ-45 connector labeled Wall on the
digital modem's back panel.

7   Connect the RJ-11 (6-pin) connector end of the RJ-45/RJ-11
ISDN cable to the RJ-11 telephone ISDN jack.

⚠   **CAUTION:** *The 3Com Impact digital modem is designed to
operate with Basic Rate ISDN 2B1Q U Interface network
terminations. An internal Network Termination device (NT1)
is built into the digital modem. Do not connect the 3Com
Impact digital modem ISDN port to a standard analog
telephone jack or to an external NT1 device. Make sure that it
is connected to the ISDN jack.*

8   Turn on the 3Com Impact digital modem by toggling the
power switch on the back panel to the On position.

9   Turn on the computer's power switch and restart.

10 Go to the section "Configuration for Apple Macintosh
Computer" to configure the 3Com Impact digital modem for
your computer.

Configuring the 3Com Impact Digital Modem

The 3Com Impact digital modem requires the five essential
configuration parameters below before it can operate
properly on an ISDN line. Before configuring the digital
modem, make sure you have this information readily
available. These five parameters are provided to you at the
time of installation of your ISDN line by the telephone
company installer.

■   ISDN Switch Type

■   Phone #1 (local directory telephone number)

■   SPID #1 (Service Profile Identifier)

- Phone #2 (if required by the telephone company)
- SPID #2 (if required by the telephone company)

Each of these items is stored in special S registers within the digital modem. These S registers are set by issuing ATSxx= commands to the digital modem. The 3Com Impact digital modem software will automatically issue the AT commands to set the S registers as part of the configuration process.

The following three sections describe how to configure the 3Com Impact digital modem using the Windows, DOS, or Macintosh operating systems, respectively.

After you configure the digital modem and verify that it is working properly, you should install the TurboCom software. Refer to the installation instructions that came with the TurboCom software. This software is required only for IBM PC or compatible computers running Windows 3.X.

Configuration for IBM PC or Compatible Computer

You can configure the 3Com Impact digital modem for an IBM PC or compatible using either the Windows-based installation program or the MS-DOS®–based installation program.

Configuration Using Windows

To configure the digital modem for an IBM PC or compatible computer using Windows:

1 Insert the 3Com Impact DOS & Windows Installation Diagnostic Utilities diskette into an available diskette drive.

2 Select Run from the File menu. In the Run dialog box, type:

```
a:setup
```

The check box labeled Run Minimized should be left unchecked.

3 Click OK.

The installation process begins copying the configuration program to the hard disk. A message box provides the status of the installation and indicates when it is complete.

4 Double-click the 3Com Impact icon to access the 3Com Impact Configuration dialog box.

COM1 is the default COM port.

- If the digital modem is connected to COM1, the 3Com Impact Configuration dialog box appears, as shown in Figure 2. Go on to step 5.

- If the digital modem is not connected to COM1, the COM Port Provisioning dialog box appears. Choose the COM port to which the digital modem is connected. Click Connect. The 3Com Impact Configuration dialog box appears, as shown in Figure 2.
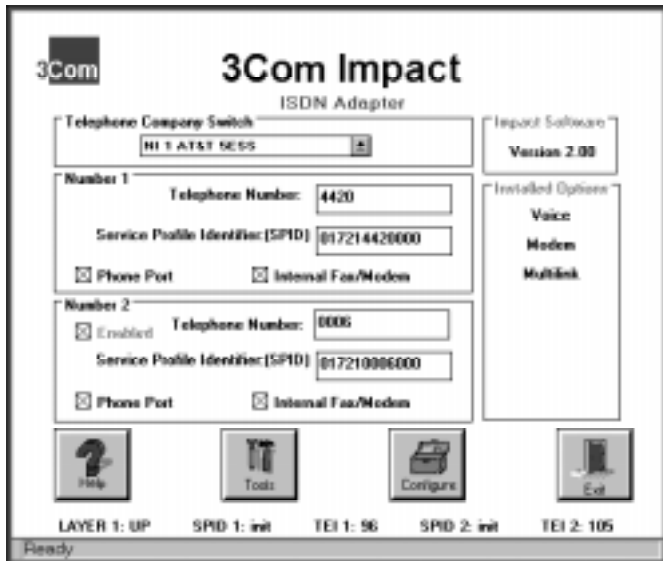

Figure 2   Configuration Dialog Box

A status bar below the Help, Tools, Configure, and Exit buttons provides the following ISDN status information:

- Layer 1 status
- Service Profile Identifier (SPID) for telephone numbers 1 and 2
- Terminal Endpoint Identifiers (TEI) 1 and 2 (for information purposes only)

A message bar at the bottom of the dialog box provides help for completing the fields. If you click in a field, the message bar tells you what information to enter in the field. The message bar also provides status information about the digital modem. If the digital modem is disconnected from the ISDN telephone line, for example, a message indicates this condition.

The right side of the dialog box shows the digital modem software version, along with any installed options (such as Multilink PPP or internal analog fax modem).

5   Select the type of switch, as specified by your telephone company, from the Telephone Company Switch drop-down list box.

6   Click in the Telephone Number field in the Number 1 area and enter the telephone number to which your digital modem is connected.

7   Click in the Service Profile Identifier (SPID) field and enter the corresponding SPID for the telephone number you entered in the previous step.

You should have received this SPID from your telephone company.

⚠️   **CAUTION:** *If the ISDN line has been configured with only one telephone number (Point-to-Point), do not include the SPID.*

8   Specify which device should receive the calls coming to Telephone Number 1.

You can select Phone Port or Internal Fax/Modem. If your model has the internal analog fax modem installed (Models 3C872 and 3C877), you can select both.

If both boxes are checked, the internal analog fax modem and the phone will both ring, enabling you to answer using either device.

9   If you have a second telephone number associated with your ISDN telephone line (some telephone companies require two), enter the number and corresponding SPID in the appropriate fields in the Number 2 area.

10   Specify which device should receive the calls coming to Telephone Number 2.

11   Click the Configure button to download the parameters listed in steps 5 through 10 to your digital modem's S registers.

12   If you have changed the Telephone Company Switch type, you must reset the digital modem by turning the power switch off and then on.

13   Verify the configuration.

Check the status bar (located beneath the Help, Tools, Configure, and Exit buttons of the Configuration dialog box) to verify correct configuration. If the parameters were configured accurately and the digital modem is ready to send and receive calls, the status bar fields will appear as shown below. Note that the TEI number(s) are not configured by the user. The TEI number is provided by the telephone company for informational purposes only.

- Layer 1: UP
- SPID 1: Init
- TEI 1: Number from 0 to 127
- SPID 2: Init (if required)
- TEI 2: Number from 0 to 127 (if required)

14   Click Exit to leave the utility.

This completes the configuration procedure.

15   Install the TurboCom software.

Refer to the installation instructions that came with the TurboCom software.

After the TurboCom software is installed, proceed to the "Placing and Receiving Calls" section in Chapter 2 of the *3Com Impact ISDN External Digital Modem User Guide.*

Configuration Using DOS

To configure the digital modem for an IBM PC or compatible computer using DOS:

1 Create a directory on the hard drive, insert the 3Com Impact DOS & Windows Installation Diagnostic Utilities diskette into the PC's diskette drive, and copy all the files from the utility diskette to the hard drive.

Copy the files to a new DOS directory. For example, to create a directory dddd on your C drive at the C:\> DOS prompt, type:

```
md c:\dddd
```

To copy all files from the diskette to a directory \dddd at the A:\> DOS prompt, type:

```
copy a:*.* c:\dddd
```

2 Execute INSTALL from the hard drive.

At the C:\> DOS prompt, type:

```
INSTALL
```

The configuration program launches and presents the Port Settings screen. To move the cursor around the screen, use the [Up Arrow] and [Down Arrow] keys. To select a parameter, use the [Space Bar].

3 Use the [Space Bar] to select the digital modem's COM port and COM port data rate.

This sets the speed of communication between the 3Com Impact digital modem and the computer during configuration.

When you select the port, the standard interrupt (IRQ) associated with that port is automatically chosen. Select the COM port data rate based on the data rate required by the destination digital modem and the maximum data rate supported by your computer's COM port.

The program does not allow you to select a data rate that exceeds the speed of your COM port.

4 Press [F10] to connect to the 3Com Impact digital modem via the chosen COM port.

The Configuration screen will appear.

5 In the Phone #1 field, enter the telephone number to which your digital modem is connected.

6 Enter the corresponding Service Profile Identifier (SPID) in the SPID #1 field for the telephone number you entered in the previous step.

You should have received this SPID from your telephone company.

CAUTION: *If the ISDN line has been configured with only one telephone number (Point-to-Point), do not include the SPID.*

7 Specify which device should receive the calls coming to Phone #1.

You can select Phone Port or Internal Fax/Modem. If your model has the internal analog fax modem (Models 3C872 and 3C877), you can select both. The Phone Port and Internal Fax/Modem check boxes associated with Phone #1 appear to the right of Phone #1.

If both boxes are checked, the internal analog fax modem and the phone will both ring, enabling you to answer using either device.

8 If you have a second telephone number associated with your ISDN telephone line (some telephone companies require two), enter the number and corresponding SPID in the Phone #2 and SPID #2 fields.

9 Specify which device should receive the calls coming to Phone #2.

10 Confirm that the parameters listed in steps 5 through 9 are correct.

When these parameters are updated, the information is read back to the screen. Check to see that the values have been correctly entered.

11 Press [F10] to update the information in the 3Com Impact digital modem.

12 Reset the digital modem by turning the power switch off and then on again.

If the parameters match those registered at the telephone company ISDN switch, the D channel LED lights for a few minutes, flashes for several seconds, and then turns off. If the LED continues to flash or remains lit, see Chapter 3, "Troubleshooting," in the *3Com Impact ISDN External Digital Modem User Guide.*

13 Press [Esc] to return to the main menu.

Once in the main menu, exit the program.

14 Go to the section "Placing and Receiving Calls" in Chapter 2 of the *3Com Impact ISDN External Digital Modem User Guide* to place your first call.

Configuration for Apple Macintosh Computer

To configure the digital modem for an Apple Macintosh computer:

1 Insert the 3Com Impact Installer Diagnostic Utilities software utility diskette into the diskette drive and copy the files by selecting them and dragging them to the hard drive icon.

The Macintosh operating system automatically places the files in the appropriate folders.

2 Open the 3Com Impact Mac folder and double-click the 3Com Impact Installer program icon to launch it.

The utility program presents the Port Settings screen. To move the cursor around the screen, use the [Tab] key. Select the Modem port and click OK. The Utility dialog box appears.

3 In the Phone Number 1 field, enter the telephone number to which your digital modem is connected.

4 Enter the corresponding Service Profile Identifier (SPID) in the SPID field for the telephone number you entered in the previous step.

You should have received this SPID from your telephone company.

⚠ **CAUTION:** *If the ISDN line has been configured with only one telephone number (Point-to-Point), do not include the SPID.*

5 Specify which device should receive the calls coming to Phone Number 1.

You can select Phone Port or Internal Fax/Modem. If your model has the internal analog fax modem installed (Models 3C872 and 3C877), you can select both.

If both boxes are checked, the internal analog fax modem and the phone will both ring, enabling you to answer using either device.

6 If you have a second telephone number associated with your ISDN telephone line (some telephone companies require two), enter the number and corresponding SPID in the Phone Number 2 and SPID Number 2 fields.

7 Specify which device should receive the calls coming to Phone Number 2.

8 Confirm that the parameters listed in steps 3 through 7 are correct.

9 Click the Update Configuration button to update this information to the 3Com Impact digital modem.

10   Reset the digital modem by turning the power switch off
and then on again.

If the parameters match those registered at the telephone
company ISDN switch, the D channel LED lights for a few
minutes, flashes for several seconds, and then turns off. If the
LED continues to flash or remains lit, see Chapter 3,
"Troubleshooting," in the *3Com Impact ISDN External Digital
Modem User Guide.*

11   Go to the section "Placing and Receiving Calls" in
Chapter 2 of the *3Com Impact ISDN External Digital
Modem User Guide* to place your first call.

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