Introduction

The D-Link DE-220P Series is a new line of Plug and Play Ethernet adapters based on the technology of D-Link's best-selling DE-220 Ethernet adapters. Plug and Play(PnP) technology provides automatic con-figuration of newly installed devices without user intervention, eliminating much guess-work from in-stallation of PC upgrades.

Ease of use is the hallmark of the DE-220P Series. After installing a DE-220P Series card, configuration is exceedingly simple for both traditional (non-PnP) systems and the newer PnP-compliant systems.

For PnP systems, simply install the DE-220P Series card into an expansion slot. Configuration by the sys-tem software then proceeds automatically. If multiple network interface cards are installed, the PnP system guarantees that there are no conflicts among them.

For non-PnP systems, just install the DE-220P Series adapter into an available expansion slot, then run the supplied setup program, `setup.exe`. Online help an-swers your questions , and an advanced diagnostic

program is supplied for testing adapter functions and communication with other computers on the network.

Features

DE-220P Series Ethernet adapters comply with IEEE 802.3 Ethernet standards, and use VLSI components for enhanced reliability. The following features distinguish D-Link DE-220P Series Ethernet adapters:

♦   Easy Installation

 DE-220P Series Ethernet adapters have no physical jumpers or DIP switches. Thus it is never necessary to remove a DE-220P Series card in order to reconfigure. When installed in a PnP-compliant system, configuration is handled entirely by system software, with no user intervention. In non-PnP systems, configuration is accomplished by running the supplied setup program.

♦   Support for 16-bit Expansion Slots

 DE-220P Series Ethernet cards can be installed in 16-bit (AT-style) expansion slots.

♦   DE-2000 Drivers

DE-220P Series Ethernet adapters are fully compatible with network drivers for Novell NE-2000 adapters.

♦   Diagnostic Program

A supplied diagnostic program tests all functions of the DE-220P Series adapter and verifies its communication with another computer on your network.

♦   LEDs

Two LEDs provide network state information:

1. PWR/Tx Indicator

Steady green (Power indicator) shows that the adapter has power (computer power is ON and power is supplied to the adapter).

Flashing green (Transmission indicator) shows that the computer is transmitting onto the network.   This function applies only when the network medium is twisted-pair cable.[1]

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[1] See Footnote 5, Page 2-12.

2. LNK/Rx Indicator

Steady green (Linkage indicator) shows that there is a good data linkage to the network.

Flashing green (Reception indicator) shows that the computer is receiving from the network. This function applies only when the network medium is twisted-pair cable.[2]

♦ Remote boot option

A Remote Boot ROM is available per optional order. The Remote Boot ROM easily snaps into a mount on the DE-220P Series card to provide for remote booting of computers which do not store a boot program.

♦ Runs a wide variety of networking software

DE-220P Series Ethernet adapters can be used with these networking systems:

D-Link LANsmart	D-Link TCP/IP for DOS
NDIS driver	Novell NetWare 3.x and 4.x ODI driver
MS LAN Manager	Windows for Workgroups

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[2] See Footnote 5, Page 2-12.

Windows 95	Windows NT & Windows NT Advanced Server
SUN PC-NFS	DEC Pathworks
Banyan VINES	IBM LAN Server & PC LAN Support Program
Packet Driver	3Com 3+Open & 3Com 3+Share
FTP PC/TCP	WIN/TCP Pathway Access for DOS
SCO UNIX	AT&T UNIX
UNIXware	Solaris UNIX

Overview of PnP

Plug and Play technology (PnP) is defined by Plug and Play ISA Specification v.1.0a. A fully functional PnP system includes a PnP-compliant operating system, a PnP system BIOS, and PnP-compliant interface cards. Windows 95 is the first popular PnP-compliant operating system. Computer mainboards with PnP BIOS's are just reaching the market.

In the interim, PnP technology still provides substantial benefits. For example, after installing a non-PnP-compliant Ethernet adapter card (a traditional, non-PnP-compliant card may be called a *legacy card*) into

an expansion slot of a PnP-compliant mainboard, the user can run the ISA Configuration Utility (ICU) to configure the adapter.

Installation

*CAUTION***:**   *Under ordinary circumstances, a DE-220P Series card will not be affected by static charge as may be received through your body during handling of the unit. In special circumstances where you may carry an extraordinarily high static charge, it is good practice to reduce the charge by touching a ground before handling the adapter.*

Installation of a DE-220P Series Ethernet adapter requires these three steps:

♦   Insert the adapter into an available expansion slot.

♦   Connect network cable to the adapter.

♦   For non-PnP systems, configure the adapter by running the supplied setup program, setup . exe. (For PnP-compliant systems, this step is fully automated and requires no action .)

This chapter provides detailed procedures for these three steps. When these steps are completed , you may

run the diagnostic routines of Setup.exe program to test the configuration.

Single-Adapter installation

1. Shut down the computer, unplug its power cord, and remove the chassis cover.

2. Insert the DE-220P Series card into the connector of any open ISA expansion slot.   Ascertain that the card is fully seated in the expansion slot connector.

3. Install the bracket screw which secures the card to the computer chassis.

4. Replace the computer's chassis cover.

5. For non-PnP systems, configure the DE-220P Series adapter by running the supplied setup program, `setup.exe`. (For PnP-compliant systems, this step is fully automated and requires no action.)

Multiple-Adapter Installation

Multiple DE-220P Series cards may be installed in a computer to provide for multiple addresses, or in the case of a server, to provide for network segmentation.

Multiple Cards in a PnP System

No special attention is needed when installing multiple DE-220P Series cards in a PnP-compliant system (so long as Plug and Play is enabled[3]). Install the several cards into their expansion slots, following the four steps set out in the "Single-Adapter Installation" section above (repeating steps 2 and 3 for each card). When computer power is switched on, the PnP system will auto- matically select coordinated (conflict-free) configuration settings for the several cards.

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[3] Plug and Play functionality of the NOS may be toggled between enable and disable by a selection in your setup.exe run.

Multiple Cards in a Non-PnP System

In non-PnP systems, the procedure for configuring multiple DE-220P Series cards is basically a sequence of separate single-adapter procedures: make a preliminary installation of each card alone in turn, make a setup.exe run to configure that card, then remove that card and go on to the next.

CAUTION: *The following procedure involves operation of the computer without its chassis housing in place. Caution is necessary in order to avoid contact with exposed high-voltage parts. Accidental contact with exposed internal parts can cause personal injury, and can cause damage to the computer equipment.*

1. Make a preliminary installation of the first DE-220P Series card by completing Steps 1 through 3 as set out in the "Single-Adapter Installation" sec-   tion above.

2. Restore power to the computer, and configure the card by running the supplied setup program, setup.exe. Make a note of the configuration settings that you select, to help you select *different* settings in configuring the remaining cards.

3. Shut down the computer and unplug its power cord. Remove the (configured) card, and install the next DE-220P Series card into any open expansion slot.

4. Restore power to the computer, and configure the card by running the supplied setup program,

`setup.exe`. Be certain that you select different configuration settings from those that have been selected for another card. Make a note of the con-figuration settings you select, to help you select *different* settings in configuring remaining cards.

5   Repeat Steps 3 and 4 as necessary to configure all DE-220P Series cards which are to be included in the multiple-card installation.

6.   Shut down the computer and unplug its power-cord.   Re-install all of the configured cards.   Re-place the computer's chassis cover.

Network Cable Connections

Before connecting a network cable to the DE-220P Series adapter, ascertain that your DE-220P model suits your network cable medium, as summarized in the following table.[4] Then refer to one of the three

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[4] Models DE-220PCT and DE-220PCAT feature multiple network cable connectors for convenience during network cable upgrades, and for versatility when your equipment is moved between areas with different types of network media.   Only one network cable may be connected to any adapter in any given installation.

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sections following, according to your network cable type.

Model	Network Cable Types
DE-220PT	Twisted-Pair[5] only
DE-220PCT	Thin Coaxial[6] and Twisted-Pair
DE-220PCAT	Thick Coaxial[7], Thin Coaxial, and Twisted-Pair

[5] Twisted-pair (TP) cable features RJ-45 connectors, and is available with or without EM shield. TP cable without EM shield is also known as 10BaseT cable or UTP (Unshielded Twisted-Pair) cable. TP cable with EM shield is known as screened twisted-pair cable, and the EM shield may be either an aluminum sheath or a copper braid enclosing the twisted-pair bundle.

[6] This medium features BNC connectors and is known by a variety of other names, including 10Base2 cable, BNC cable, and RG-58 cable.

[7] This medium features AUI connectors and is also known as 10Base5 cable. It is sometimes called by names such as "frozen yellow garden hose," due to its bulk, weight, and stiffness.

The Network Medium is Twisted-Pair Cable

1. Ascertain that you have a straight[8] twisted-pair cable not more than 100 meters (328 feet) in length for the network connection.

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[8] Pins 1 and 2 must be a pair (the connected wires must be a twisted pair in the cable makeup) and pins 3 and 6 must be a pair. Each pin must connect straight through the cable (that is pin 1 through to pin 1 of the opposite connector, pin 2 to pin 2, pin 3 to pin 3, and pin 6 to pin 6; pins 4, 5, 7, 8 are not used).

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2. The cable will have an RJ-45 plug on each end. Plug one end into the RJ-45 receptacle of the DE-220P Series adapter, and plug the other end into an available port of a 10Base-T hub. Push each RJ-45 plug into its receptacle until its retainer snaps into place.

The Network Medium is Thin Coaxial Cable

1. Connect a BNC T-connector onto the BNC receptacle of the DE-220P Series card.

2. Connect the network feed cable onto either open end of the BNC T-connector.

3a. If the cable continues on to an additional station or stations, then connect the continuation cable onto the remaining open end of the BNC T-connector.

3b. If the network cable does not continue to additional stations (your computer is at the end of the cable), then connect a 50-ohm terminator to the remaining open end of the BNC T-connector.

The Network Medium is Thick Coaxial Cable

1. If there is no Ethernet transceiver (tap) in place for your computer's station on the network cable, then install a transceiver (not supplied).

2 Connect one end of an AUI cable to the Ethernet transceiver.

3. Connect the other end of the AUI cable to the AUI connector of the DE-220PCAT.

Specifications

Model:	DE-220PCAT	DE-220PCT	DE-220PT
AUI connector for thick coaxial	YES	NO	NO
BNC connector for thin coaxial	YES	YES	NO
RJ-45 connector for twisted-pair	YES	YES	YES
CE / FCC Class B	YES	YES	YES
Maximum power consumption	3.5 Watts	3.5 Watts	1 Watt
Size (cm)	15.8 x 10	15.8 x 7.4	15.8 x7.4
IRQ options	3, 5, 9, 10, 11, 12, 15		
I/O Base Address options	240H, 260H, 280H, 2A0H, 2C0H, 2E0H, 300H, 320H, 340H, 360H, 380H		
Boot ROM Size	16K (supplied per optional order)		
Boot Base Address options	C800H, CC00H, D000, D400H, D800H, DC00H		
LED Indicators	Power/Tx (Green), Rx/Link (Green)		
Operating Temp.	32° F to 131° (0° C to 55℃)		
Storage Temp.	-4° F to 176°F (0℃ to 80℃)		
Humidity	10% to 90% non-condensing		