



10/100 Ethernet PC Card for CardBus

Model DFE-660TX

User's Guide

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Introduction

Thank you for choosing D-Link DFE-660TX, the value leader among Ethernet / Fast Ethernet adapters for CardBus notebook PCs. This chapter provides a general description of DFE-660TX features, with a summary of features at the end of the chapter. Installation instructions are given in Chapters 2 and 3.

General Description

The D-Link DFE-660TX 10/100 Ethernet PC Card for CardBus notebook PCs is a credit-card sized Ethernet / Fast-Ethernet adapter for connecting a notebook PC to an IEEE 802.3 or 802.3u Ethernet network. The notebook PC must be equipped with CardBus (32 bit) extension bus and Type II or Type III PC Card slot (s).

NOTE: *The terms "PC Card" and "CardBus" are used throughout this manual to refer to those objects as defined in the PCMCIA / PC Card standards published by Personal Computer Memory Card Industry Association (PCMCIA). The term "slot" is used in this manual is synonymous with "socket" where the standards use the latter term in reference to the physical receptacles of a host notebook computer, for insertion/connection of PC Cards. More information on the standards is available from PCMCIA's www server at <http://www.pc-card.com>.*

The DFE-660TX automatically detects the parameters of its Ethernet environment, and automatically negotiates and determines its own speed and duplex settings as required for maximum performance in

its environment. (The autonegotiation function is effective only when the DFE-660TX is connected to the network by a device (switch or hub) which also has autonegotiation functionality.)

Inside its compact case, the D-Link DFE-660TX holds an Ethernet controller, network processing interface, a 68-pin PC Card Standard front-end plug which connects to the notebook PC, and a 15-pin back-end receptacle for connecting the media coupler. The DFE-660TX requires no pre-installation setup -- simply insert its front end into the notebook PC's PC-Card slot.

The DFE-660TX is supplied with a media coupler which plugs into the back end (15-pin receptacle) of the DFE-660TX. The other end of the media coupler has an RJ-45 receptacle which receives the network cable. The media coupler features LED indicators for linkage and activity states, and for the speed and duplex settings.

About Fast Ethernet

Fast Ethernet is a network technology specified by IEEE Standard 802.3u. It extends the traditional 10Mbps (10 megabit/sec) Ethernet technology to achieve 100Mbps (100 megabit/sec) transmission and reception. Because Fast Ethernet retains the traditional Ethernet CSMA/CD (Carrier Sense, Multiple Access, Collision Detect) protocol, it remains wholly compatible with 10Mbps Ethernet while providing a tenfold increase in network capacity.

The Fast Ethernet standard specifies three subtypes, corresponding to three media types:

100Base-TX (using two twisted pairs in EIA 568 Category 5 UTP or STP cable)

100Base-T4 (using four twisted pairs in a Category 3, Category 4, or Category 5 UTP cable)

100Base-FX (using two fiber-optic strands).

The DFE-660TX provides half-duplex 100Base-TX operation (in Category 5 twisted-pair cable environments). It does not provide 100Base-T4 or 100Base-FX operation. To provide for traditional 10Mbps Ethernet operation in twisted-pair cable environments, the DFE-660TX also offers 10Mbps Ethernet operation, in full-duplex and half-duplex modes. The DFE-660TX's autonegotiation capability provides for automatic selection of the best operation mode.

About Autonegotiation

The basic idea of autonegotiation can be understood by reflecting for a moment on the familiar process of making a dialup connection between two modems. You have probably heard some gravelly-sounding exchanges between your local modem and a modem at the other end of a telephone line. (These exchanges are ordinarily played out through a speaker in your local modem). As irritating as those few seconds of noise may be, they do let you know that your modem and the remote modem are on the job, preparing for your intended communication with the remote computer.

The preparatory work of the two modems during those few seconds before you see the “connect” message is to *negotiate* the best data communication scheme which is supported by both modems, and which is suitable for the quality of the telephone-line connection between them. The parameters to be settled between the two modems include best baud rate, compression method, and error correction method. When the two modems have tested the phone-line quality and have switched to the combination of parameters which will provide the best data communication, then you are given the “connect” message which signals the end of the inter-modem negotiation and the beginning of your intended communication with the remote computer.

Autonegotiation between devices within an Ethernet LAN is similar in concept, but much briefer. The two devices involved in the autonegotiation will be your DFE-660TX and the switch or hub through which it is connected into the LAN. (Switches ordinarily provide for autonegotiation; traditional hubs do not.) The parameters to be negotiated between the DFE-660TX and its supporting switch or hub include speed (100Mbps = Fast Ethernet, or 10Mbps = traditional Ethernet) and duplex mode (half-duplex or full-duplex).

Startup communication between the two devices occurs when both devices are operating, the cable connection between them is good, and the connected notebook PC's network software is loaded. As soon as those conditions are satisfied, the preparatory process of autonegotiation between the DFE-660TX and its supporting device begins and proceeds automatically.

If the supporting switch or hub has autonegotiation functionality, then it and the DFE-660TX exchange a series of messages in which each device signals its capabilities and listens for corresponding information about the other. The autonegotiation process requires only a few milliseconds, and the two devices select the best communication parameters supported by both devices.

If the supporting device does not have autonegotiation functionality, then its monotone (single capability) message will be recognized by the DFE-660TX's autonegotiation facility, and the DFE-660TX will simply switch to the one of its own capabilities which matches that of the supporting device.

Once the autonegotiation is completed, then the line is ready, and it will provide an optimal data channel between the DFE-660TX and the supporting device. The line will remain ready without further autonegotiation action until the linkage is broken. Autonegotiation then reoccurs at any time that the linkage is restored, again making the line ready for optimal data communications.

LED Indicators

The media coupler features three LED indicators:

1. 10/100 Indicator

Steady green indicates Fast Ethernet selected.

Dark indicates 10Mbps Ethernet selected.

2. Half /Full Indicator

Steady green indicates Full-Duplex selected.

Dark indicates Half-Duplex selected.

3. Ln/Act Indicator

Steady green indicates that there is good linkage to the network ("Linkage" state, quiescent).

Flashing green indicates that the DFE-660TX is transmitting or receiving ("Activity" state). In 10Mbps mode, flashing will be regular and periodic. In 100 Mbps mode, flashing may be irregular, with longer dark periods during heavy traffic activity.

Summary of Features

Features of Model DFE-660TX 10/100 Ethernet PC Card:

- 100Mbps and 10Mbps data rates in compliance with IEEE 802.3 Ethernet standards 100Base-TX and 10Base-T
- Complies with PCMCIA V2.x, JEIDA V4.x, and 32-Bit CardBus Standards
- CardBus standard 68-pin front-end connector
- 15-pin back-end connector for media coupler
- Full-Duplex capable in 10Mbps and 100Mbps modes

- Autonegotiation per IEEE 802.3u specification
- No manual setup switches — fully automatic configuration
- Power consumption 2 watts (max.)
- Laser-welded stainless steel case
- RJ-45 connector with auto-detection of network speed
- Software support:
 - Install Program
 - Diagnostic Program
 - NDIS 2.0 for Banyan
 - NDIS 2.0 for IBM Lan Support/Services
 - NDIS 2.0 for IBM Wrap Server, Lan Server, and
Communication Manager 1.x
 - NDIS 2.0 for MicroSoft Lan Manager for DOS
 - NDIS 2.0 for MicroSoft Network Client 3.0 for DOS
 - NDIS 2.0 for WIN/TCP PathWay Access
 - NetWare DOS ODI
 - NetWare Lite
 - Personal NetWare
 - Windows 95
 - Windows 95 OSR2
 - Windows NT 3.51
 - Windows NT 4.0
 - Packet Driver for NCSA
 - Packet Driver for FTP PC/TCP
 - Packet Driver for IPX
 - Packet Driver for Winsock

Hardware Installation

Unpack and Inspect

NOTE: Under ordinary circumstances, the DFE-660TX 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 DFE-660TX.

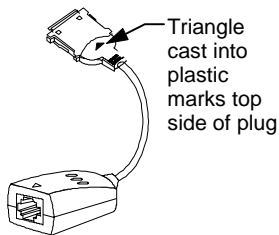
Open the shipping carton and carefully remove all items. In addition to this User's Guide, ascertain that you have:

- One DFE-660TX 10/100 Ethernet PC Card
- One plastic storage bag for the DFE-660TX
- One media coupler
- One D-Link DFE-660TX Software Diskette

Yellow arrow
on top side of
PC Card points
to front end plug



DFE-660TX
10/100 Ethernet PC Card



Media Coupler

In the event that any item is missing, or if you find any mismatch or damage, promptly contact your dealer for correction.

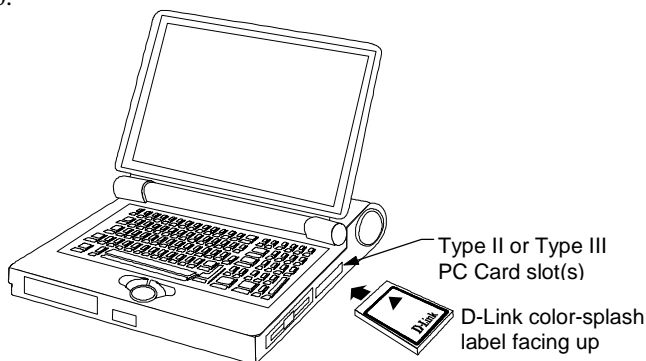
Hardware Installation

Follow these four steps to install the DFE-660TX:

Step 1 Insert the DFE-660TX

Under the PC Card standard and the corresponding Japanese JEIDA standard, PC Cards may safely be "hot swapped" -- it is not necessary to switch the computer's power off before installing or removing the DFE-660TX, or any other PC Card.

Find/select an open Type II or Type III PC Card slot on your notebook computer's side or rear panel. Hold the DFE-660TX with the colorful D-Link splash label upward. Notice that the splash label features a yellow triangle or "arrow," which points to the front end of the PC Card. Insert the front end of the PC Card into the CardBus slot, and slide the PC Card all the way into the slot until it reaches a firm stop.

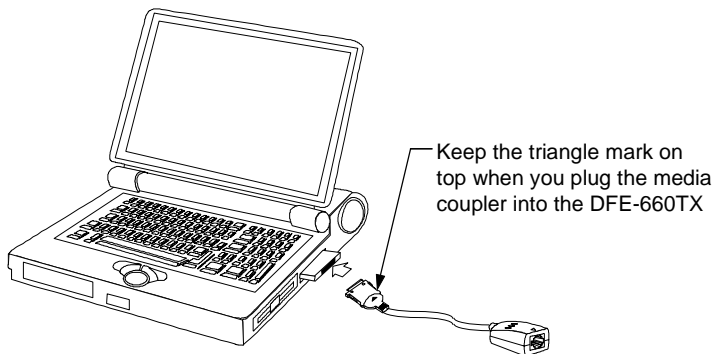


NOTE: Many notebook PCs feature a stacked pair of PC Card slots, logically (but not physically) designated as Slot 1 and Slot 2.

It is most usual for the lower one of the two slots in the stack to be designated Slot 1, but there are exceptions. In the subsequent procedure for DFE-660TX software installation, it might be useful for you to know whether your DFE-660TX is installed in Slot 1 or Slot 2. Under Windows 95, you can check by opening the Control Panel / PC Card display. Under DOS it is also possible to make a software check, but it is more difficult. If it develops that you need to make a trial-and-error determination or correction, then it is easy to do: just reinstall the DFE-660TX in another slot.

Step 2 Attach the Media Coupler

The back-end receptacle of the DFE-660TX remains accessible (approximately flush with the case of the computer) when the DFE-660TX is properly seated in its PC Card slot. Taking care to keep the top side of the media coupler plug up, insert the plug into the DFE-660TX's receptacle until it is firmly seated and latched. (The top side of the plug is labeled with a triangle molded into the plastic.)

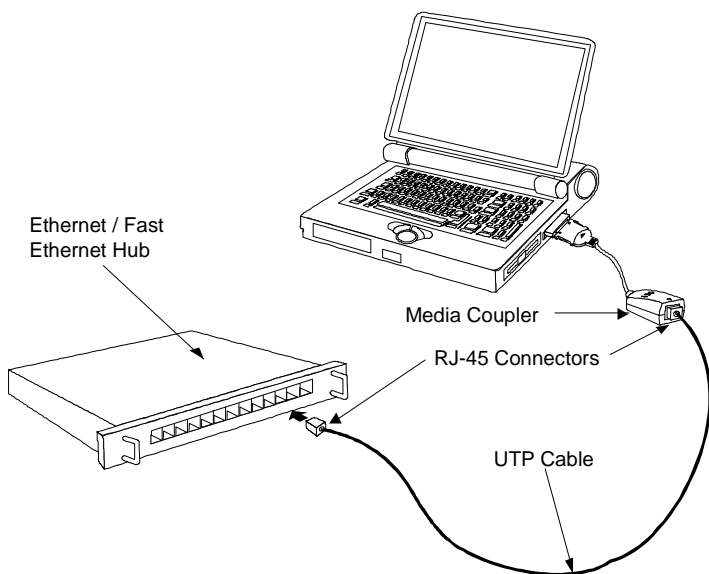


NOTE: *When the media coupler plug is firmly seated, it is held in place by small latching hooks at either side of the plug. To avoid damage when detaching the plug from the DFE-660TX, it is necessary to depress the latch wings of*

the plug. See the following section, " Remove the DFE-660TX."

Step 3 Connect to the Network Medium

Make the network connection by running a UTP cable from the supporting switch or hub to your media coupler. Simply plug one end (RJ-45 plug) of the cable into an available port of the switch or hub, and plug the other end (RJ-45 plug) into the RJ-45 socket of your media coupler.



UTP cable connecting media coupler to the supporting hub

Step 4 Confirm Connection (Ln/Act Indicator)

When the notebook computer's power is ON, the DFE-660TX is firmly seated in the slot connector, the media adapter plug is firmly

engaged (and latched) in the back-end receptacle of the DFE-660TX, the media adapter has a good cable connection to the supporting hub, and the supporting hub is power on and functioning properly, then the media coupler's Ln/Act LED glows steady green ("Linkage" state).

If the Ln/Act LED remains dark without apparent cause, then the most likely fault is poor engagement of the 68-pin front-end plug. Review the following section titled "Remove the DFE-660TX," then remove the DFE-660TX from its slot. Repeat the procedures of the above Step 1, "Insert the DFE-660TX," taking care to ensure that the DFE-660TX is right side up and front-end first, and that it seats firmly in a suitable PC Card slot of your notebook. Repeat the procedures of Steps 2 and 3 as necessary get the Ln/Act LED confirmation.

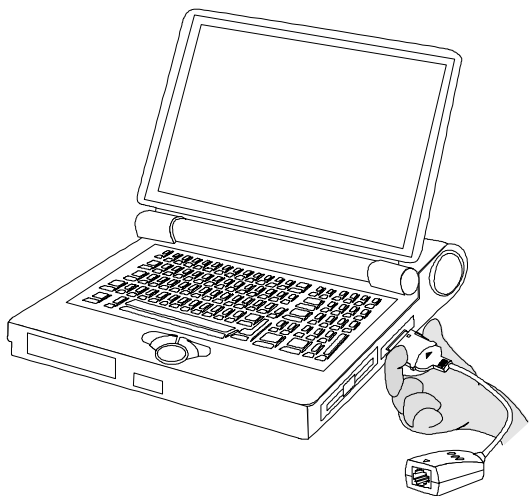
NOTE: *You might need to wait a few seconds following notebook powerup, or following insertion of a PC Card, for the software processing to be completed. The Ln/Act indicator will remain dark until the software processing is completed.*

Remove the DFE-660TX

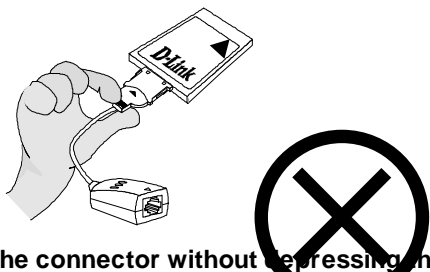
Follow these two steps to remove the DFE-660TX from its slot:

Step 1 Disconnect the Media Coupler Plug from the DFE-660TX

Unplug the media coupler from the DFE-660TX before ejecting the DFE-660TX from the PC Card slot. The media coupler plug is held in place by small latching hooks at either side of the plug. To remove the media coupler plug from the DFE-660TX, it is necessary to unlatch the hooks by depressing the two small latch wings of the plug. Use thumb and forefinger to squeeze the latch wings into the plug body and gently pull the plug out of its receptacle.



Depress clip wings while unplugging the connector



Don't pull the connector without depressing the clip wings

WARNING: Pulling the coupler plug out of its receptacle without depressing the clip wings will cause damage to the plug.

Step 2 Eject the DFE-660TX from the Computer

Firmly press the computer's PC Card Eject button to disengage the DFE-660TX from the slot connector. The DFE-660TX will then

protrude from the PC Card slot. Grip its protruding end between your fingers and withdraw it from the PC Card slot.

Connect the Network Cable

Category 5 UTP cable is good enough to qualify under both the Fast Ethernet cabling rules and the traditional Ethernet cabling rules. The maximum individual cable run between any station and its supporting hub or switch is 100m. The maximum individual cable run joining two hubs is 10m in general, but is 100m when both hubs qualify as Ethernet Class 2 Repeaters (*all* D-Link Ethernet hubs do qualify). But these cable runs may need to be shorter than the given individual maximum lengths, because their lengths are also restricted by the rule that the maximum *aggregated* cable run between any two stations is 205m.

Connecting for Fast Ethernet

Category 5 UTP cable is required for Fast Ethernet operation. The maximum length of cable between the DFE-660TX and the supporting hub is 300 ft. The cable must be “straight” (not a “crossover” cable), with an RJ-45 plug at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the media coupler, and the other end into a port of the supporting hub.

Connecting for 10Mbps Ethernet

Category 3, Category 4, and Category 5 UTP cable, as well as EIA/TIA - 568 100-ohm STP cable, all qualify under traditional Ethernet cabling rules. The maximum cable run between the DFE-660TX and the supporting hub is 300 ft. The cable must be “straight” (not a “crossover” cable) with RJ-45 plug at each end.

Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the media coupler, and the other end into a port of the supporting hub.

Software Installation

Hardware installation as described in Chapter 2 must be completed before you proceed with software installation.

Instructions for software installation are given as README files on the D-Link DFE-660TX Software Diskette. The diskette also holds the Installation Director program, which helps you access the installation instructions appropriate to your station OS and the network environment.

Run Installation Director

For proper function of Installation Director, it is necessary that the DFE-660TX be plugged into a PC Card slot of the notebook PC. Ascertain that the DFE-660TX is in place, according to Step 1 of Hardware Installation, above, then insert the D-Link DFE-660TX Software Diskette into the diskette drive of the notebook PC. Then select that drive as the active drive. In the Run dialog box, or at the command prompt, type the letter designator for that drive (here assumed to be A), and complete the line as follows:

`A:\install.exe`

Then key <Enter> to run Installation Director. It will guide you to, and display, the appropriate installation instructions. Installation Director provides installation instructions for every combination of platform OS and network environment in which the DFE-660TX can be used.

During your Installation Director run, if you choose DOS as your station OS, then in some cases Installation Director will provide additional services. In such cases, you will be prompted to select a target directory for storage of software modules that Installation Director will copy over from the D-Link DFE-660TX Software Diskette. The README text will provide full information on the additional services provided..

Installation Director also provides access to the Diagnostic Program, which may be used to check the hardware components of the DFE-660TX, as well as its proper interoperation with your network.

Installing 16-bit NetWare Client for DOS

If your notebook PC is running MS-DOS or an equivalent OS, then you will need to install the traditional 16-bit NetWare Client for DOS. Installation Director includes a Quick Install option for the DFE-660TX support software required for interoperation with the 16-bit NetWare Client for DOS. The screen text, status line guide text, and helptext of Installation Director will assist you through the Quick Install procedure.

Troubleshooting

Troubleshooting the Hardware Installation

If you experience any problems with the hardware installation, first ascertain that all network cable connections are firm, that the proper grade of cable is used for the network connection, and that the cable makeup is correct (straight — without un-needed crossovers in the connector wiring). Check that the supporting hub is power-on and operating normally, and that the hub is properly qualified (under 10Base-T and/or 100Base-TX standards).

Troubleshooting the Software Installation

You Get the "DFE-660TX PC Card Not Detected" Error

You are running Installation Director, and in the Main Menu you have selected

Quick Install 16-bit Driver for Dos Netware Client

The Quick Install run is then interrupted by an error message which says that the DFE-660TX PC Card is not detected by the system.

You have followed the instruction given by the error message, to repeat Step 1 of the Hardware Installation procedure given at the beginning of Chapter 2 of the User's Guide. And you have then re-run Installation Director. And the same error message has come up.

Proceed as follows:

1. Exit Installation Director. Examine the CONFIG.SYS file in the root directory of your notebook PC's startup drive (hard drive). Ascertain that CONFIG.SYS contains a DEVICE statement for Extended Memory Manager (EMM). Such a statement should resemble the following example,

```
DEVICE = C:\DOS\EMM386.EXE X=D000-D7FF
```

2. If there is no similar DEVICE statement in your notebook PC's CONFIG.SYS file, then edit the CONFIG.SYS file, adding a statement copied exactly from the above example.
3. If there such a statement in CONFIG.SYS but the "DFE-660TX PC Card not detected" error appears on each attempted Quick Install run anyway, then edit that statement to read exactly the same as the above example.
4. If, after you have completed the above instructions, the "DFE-660TX PC Card not detected" error still appears on each subsequent restart of the notebook PC, then please contact your dealer or your nearest D-Link office, as listed at the end of this User's Guide.

You need to "unload the conflicting network driver"

You are running Installation Director, and in the Main Menu you have selected

Quick Install 16-bit Driver for Dos Netware Client.

Then you have seen the warning message which advises that the presence in memory of another network card driver could cause a system halt. (That warning messages appears in every Quick Install run — it does not indicate that there is another network card driver already loaded into memory.) Then you have elected to continue the Quick Install run. And the Quick Install run has indeed produced a halt (system hangup).

If you have not been through all of those steps, then you should not be reading this. You should be in Chapter 3, Software Installation. And you should be staying on track with your Quick Install run. Continue reading here ***only if*** your Quick Install run is actually obstructed by a system halt (so that you can only restore your control of the notebook PC by a restart). And ***only if*** after your restart (which provides assurance of a "clean" DOS environment) you have tried Quick Install once more (and experienced the system halt once more). Only then should you conclude that you must "unload the conflicting network driver."

Stay Cool and Get Help

The first thing you need to know is that "unload the conflicting network driver" is easier said than done. If you have easy access to a network administrator (or other resident expert), now might be a good time to go for help. If you do not have ready access to an expert, then help may be available from the dealer who has supplied your DFE-660TX, and you can also get help by calling D-Link Technical Support at the D-Link office nearest to you (see the list of office locations at the end of this User's Guide).

"Unload" Really Means "Avoid Loading at Startup"

It is true that driver programs and related software modules, such as those supplied on your D-Link DFE-660TX Software Diskette, are often written so that the addition of a "/u" switch or "-u" option to the command line for loading the driver will cause unloading of the same driver (if it is in fact already loaded). But such unloading is only possible under special circumstances. So, as a practical matter, what we really must do is *avoid loading of the conflicting driver* upon startup of the notebook PC.

A software installation procedure (such as "Quick Install 16-bit Driver for DOS NetWare Client") copies the necessary drivers and related modules from the supplied DFE-660TX Software Diskette, into the target directory of the notebook PC's hard drive or other

storage. The installation program also adds commands to the computer's AUTOEXEC.BAT file, so that each time the computer is subsequently booted up (and you then make certain choices in the startup menus, if any), the drivers and related modules are automatically loaded into memory.

The "conflicting driver" problem now at hand arises because certain commands already present in your notebook PC's AUTOEXEC.BAT file are being executed during bootup, and are causing some kind of previously installed network driver module to be loaded into memory. The presence of that network driver in memory is now making it impossible to load the DFE-660TX network driver software (16-bit driver for DOS NetWare client).

So the fix is to delete from AUTOEXEC.BAT the line which is causing the conflicting driver to be loaded. Thus we will *avoid loading of the conflicting driver* when we next restart the notebook PC. And the trick is to delete that line from AUTOEXEC.BAT without deleting or changing anything which needs to remain unchanged in AUTOEXEC.BAT (so that your notebook PC will behave as you expect it to after each startup).

B

DFE-660TX Specifications

Network Type:

- Ethernet 100Base-TX

Ethernet IEEE 802.3u standard for 100Mbps baseband CSMA/CD local area network

- Ethernet 10BASE-T

Ethernet IEEE 802.3 standard for 10Mbps baseband CSMA/CD local area network

Jumperless Hardware

Autonegotiation functionality

Media interface: RJ-45

LAN Chip Set:

- Interface controller, DC-21143
- Transceiver interface, LXT-970LC

EMI Certifications:

FCC Class B

VCCI Class B

CISPR B

Canada ICES-003, Class B

CE Certification

Host interface: CardBus

I/O base address assigned by Plug and Play system

Interrupt Number Assigned by Plug and Play system

Physical Dimensions: 85.6 × 54.0 × 5.0 mm

Environment:

Storage: -20° to 80°C, (4° to 176° F)

Operating: 0° to 55° C, (32° to 131° F)

Humidity: 10% to 90% non-condensing

Power Consumption: 2.0W

PCB Construction: 2 layers

Device Drivers*

- NDIS 2.0 for Banyan
- NDIS 2.0 for IBM Lan Support/Services

- NDIS 2.0 for IBM Wrap Server, Lan Server, and Communication Manager 1.x
- NDIS 2.0 for MicroSoft Network Client 3.0 for DOS
- NetWare Lite
- Windows 95
- Windows NT 3.51
- Packet Driver for NCSA
- Packet Driver for IPX
- Packet Driver for FTP PC/TCP
- NDIS 2.0 for MicroSoft Lan Manager for DOS
- NDIS 2.0 for WIN/TCP PathWay Access
- NetWare DOS ODI
- Personal NetWare
- Windows 95 OSR2
- Windows NT 4.0
- Packet Driver for Winsock
-

*Check <http://www.dlink.com> for newest releases of drivers.

Contacting Technical Support

You can find software updates and user documentation on the D-Link website.

D-Link provides free technical support for customers within the United States and within Canada for the duration of the warranty period on this product.

U.S. and Canadian customers can contact D-Link technical support through our web site, or by phone.

Tech Support for customers within the United States:

D-Link Technical Support over the Telephone:

(877) 453-5465

24 hours/ 7 days a week

D-Link Technical Support over the Internet:

<http://support.dlink.com>

email:support@dlink.com

Tech Support for customers within Canada:

D-Link Technical Support over the Telephone:

(800) 361-5265

Monday to Friday 7:30am to 12:00am EST

D-Link Technical Support over the Internet:

<http://support.dlink.ca>

email:support@dlink.ca

When contacting technical support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

D-Link®

Building Networks for People

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited Warranty:

- Only to the person or entity that originally purchased the product from D-Link or its authorized reseller or distributor, and
- Only for products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, or addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link product described below ("Hardware") will be free from material defects in workmanship and materials under normal use from the date of original retail purchase of the product, for the period set forth below ("Warranty Period"), except as otherwise stated herein.

- Hardware (excluding power supplies and fans): One (1) year
- Power supplies and fans: One (1) year
- Spare parts and spare kits: Ninety (90) days

The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund the actual purchase price paid. Any repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement hardware need not be new or have an identical make, model or part. D-Link may, at its option, replace the defective Hardware or any part thereof with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement hardware will be warranted for the remainder of the original Warranty Period or ninety (90) days, whichever is longer, and is subject to the same limitations and exclusions. If a material defect is incapable of correction, or if D-Link determines that it is not practical to repair or replace the defective Hardware, the actual price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware or part thereof that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Software Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Software Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. The customer's sole and exclusive remedy and the entire liability of D-Link and its suppliers under this Limited Warranty will be, at D-Link's option, to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund the portion of the actual purchase price paid that is attributable to the Software. Except as otherwise agreed by D-

Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Replacement Software will be warranted for the remainder of the original Warranty Period and is subject to the same limitations and exclusions. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for Hardware and Software portions of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same, along with proof of purchase of the product (such as a copy of the dated purchase invoice for the product) if the product is not registered.
- The customer must obtain a Case ID Number from D-Link Technical Support at 1-877-453-5465, who will attempt to assist the customer in resolving any suspected defects with the product. If the product is considered defective, the customer must obtain a Return Material Authorization ("RMA") number by completing the RMA form and entering the assigned Case ID Number at <https://rma.dlink.com/>.
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the product and will not ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to **D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708**. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link. Return shipping charges shall be prepaid by D-Link if you use an address in the United States, otherwise we will ship the product to you freight collect. Expedited shipping is available upon request and provided shipping charges are prepaid by the customer.

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: The Limited Warranty provided herein by D-Link does not cover: Products that, in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care,

repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; and Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. While necessary maintenance or repairs on your Product can be performed by any company, we recommend that you use only an Authorized D-Link Service Office. Improper or incorrectly performed maintenance or repair voids this Limited Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO THE DURATION OF THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability: TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY.

Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This Limited Warranty provides specific legal rights and you may also have other rights which vary from state to state.

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CE Mark Warning: This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: 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 instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does 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.

For detailed warranty information applicable to products purchased outside the United States, please contact the corresponding local D-Link office.

Registration



Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.