Allied Telesyn Ethernet Network Adapter

For PCI Bus Computers and IEEE 802.3 Compliant LANs

Installation Guide

AT-2450 T for Twisted Pair Media
AT-2450 BT for Thinnet Coaxial and Twisted Pair Media
AT-2450 FT for Fiber Optic and Twisted Pair Media

PN 613--10656-00 Rev. B

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This equipment must be operated in accordance with safety precautions and Radio Frequency Interference (RFI) considerations. Be sure to read the safety and emissions information starting on page 46.

Dieses Gerät ist gemäß den einschlägigen Sicherheits- und Funkentstörungsbestimmungen zu betreiben. Bitte lesen Sie die diesbezüglichen Informationen ab Seite 46.

Dette udstyr skal anvendes i overensstemmelse med sikkerhedsreglerne og under hensyntagen til risikoen for afgivelse af radiofrekvensforstyrrelser (RFI). Oplysningerne på side 47 ff vedrørende sikkerhed og forstyrrelser bør derfor gennemlæses omhyggeligt.

Cet équipement doit fonctionner en respectant certaines précautions en matière de sécurité et de parasites en radiofréquence. Lisez les informations qui commencent à la page 47 et qui sont consacrées à la sécurité et aux émissions.

Dit apparaat moet in overeenstemming met veiligheidsmaatregelen en Radio Frequentiestoring (Radio Frequency Interference of RFI) worden gebruikt. Lees de informatie aangaande veiligheid en uitstraling op pagina 48.

Tätä laitetta tulisi käyttää varotoimenpiteiden ja radiotaajuista interferenssiä (RFI) koskevien näkökohtien mukaan. Sivulta 48 alkavat turvallisuus- ja emissiotiedot tulisi lukea ehdottomasti.

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Questa apparecchiatura deve essere fatta funzionare in conformità delle precauzioni sulla sicurezza e delle considerazioni sull' interferenza a radio frequenza. Non mancate di leggere le informazioni sulla sicurezza e sulle emissioni, che cominciano a pagina 49.

Este equipamento deve ser operado de acordo com precauções de segurança e considerações respeitantes à Interferência de Frequência Radiofónica (RFI). É essencial ler as informações sobre segurança e emissões, a partir da página 50.

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Denna utrustning måste användas i enlighet med rådande säkerhetsbestämmelser och med hänsyn tagen till risken för elektromagnetiska störningar. Läs säkerhets- och utsläppsinformationen med början på sid. 51.

For Your Information

This manual covers . . .

the most common applications of the AT-2450 PCI Ethernet Adapter Card. Topics are:

- ❑ Overview of what the adapter card does and what it needs
- ❑ Installing network software and drivers with:

  Windows 95®
  Windows NT®
  ODI Workstation
  Windows® for Workgroups
- ❑ Installing the adapter card in your computer
- ❑ Cabling
- ❑ Simple troubleshooting

CardAssistant readme files cover . . .

detailed information on over two dozen installation environments. The utility `setup24` in the CardAssistant diskette provides a viewer to choose the information for your application.

CardAssistant online help covers . . .

installation topics for Windows 95 and Windows NT. Help runs with the 32-bit Windows version of CardAssistant (`ca.exe`).

Online services available . . .

- ❑ Internet (Web site and FTP server)
- ❑ CompuServe®
- ❑ Allied Telesyn bulletin board service

See “Where To Find Us” on page 55.

Contents

Chapter 1
About the AT-2450 PCI Ethernet Adapter Card

The Allied Telesyn AT-2450 PCI Ethernet Adapter Card is your PC's link to a client/server or peer-to-peer Ethernet Local Area Network (LAN). With your computer on the network, you have access to a whole new world of computing. The AT-2450 PCI Ethernet Adapter Card allows you to share files and databases and take advantage of remote processing power and services like electronic mail and Internet access.

The AT-2450 PCI Ethernet Adapter Card Package

When opening your Allied Telesyn product, make sure that the package you have received is complete and in good condition. The package includes:

- ❑ Ethernet network adapter card
- ❑ CardAssistant diskette
- ❑ Manual

The AT-2450 PCI Ethernet Adapter Card offers full compliance with IEEE 802.2, IEEE 802.3, ISO/IEC 8802-3, and PCI 2.0 specifications.

The AT-2450 adapter card family supports the 10BASE-T, 10BASE2 and 10BASE-FL network media as shown in Table 1.

Table 1: Supported Network Media

Card Model	10BASE-T	10BASE2	10BASE5	10BASE-FL
AT-2450T	Supported	N/A	N/A	N/A
AT-2450BT	Supported	Supported	N/A	N/A
AT-2450FT	Supported	N/A	N/A	Supported

What *Else* You Need

To use the Allied Telesyn AT-2450 PCI Ethernet Adapter Card, you must have access to an Ethernet network running network software like Novell® NetWare® or Microsoft® Windows® 95.

To connect to the network, you will also need cables, connectors, and terminators, depending on the Ethernet medium you use.

Your computer must be an IBM-PC or compatible with the following specifications:

- ❑ A Peripheral Control Interface (PCI) bus with available slot
- ❑ Compatible operating system such as Windows 95, Windows NT, Windows for Workgroups, Windows 3.1, DOS, OS/2® or SCO® UNIX®
- ❑ Approximately 32K of available RAM, depending on the driver installed
- ❑ 512K of available RAM and DOS or Windows 95 or NT when running CardAssistant setup/diagnostics software

Considerations for Installing the Card, Network Software, and Drivers

Most of the network software manufacturers provide an installation program that allows you to perform the entire installation by making dialog-box choices. As part of the network installation, the install script prompts for the adapter card driver files. The driver files for the AT-2450 PCI Ethernet Adapter Card are found on the Allied Telesyn CardAssistant diskette, which you will be prompted to insert into a floppy drive.

Drivers for Workstations. Table 2 lists drivers for use in a PC workstation.

Table 2: Which Driver to Use in a Workstation

Network Software	Card Driver Path\Filename
Windows 95	\AT2450M.SYS
NetWare for DOS	\AT24ODI.COM
NetWare Requester for OS/2	\OS2ODI\AT2450.SYS
Personal NetWare	\AT24ODI.COM
Windows for Workgroups	\AT2450.386
PC/TCP-compatible TCP/IP	\AT2450.COM

Drivers for Servers. Table 3 shows the drivers for use in a server.

Table 3: Which Driver to Use in a Server

Network Software	Card Driver Path \Filename
Windows NT	\AT2450M.SYS
NetWare v4.x	\NWSERVER\AT2450.LAN

Table 3: Which Driver to Use in a Server

Network Software	Card Driver Path \Filename
NetWare v3.1x	\NWSERVER\AT2450.LAN

Some networking software does not provide an install program for the driver. In this case, follow the manufacturer's instructions for installing the networking software; the readme files on the CardAssistant diskette may also provide helpful installation notes.

UNIX driver. A driver for SCO UNIX may be found at Allied Telesyn's web site; the URL is http://www.alliedtelesyn.com.

Chapter 2

Installing the Card in a PCI Slot

Refer to your computer's manual for specific information on installing card-cage accessories in your computer.

WARNING

High voltages inside the computer present a safety hazard. Make sure the power is OFF before removing the cover.

CAUTION

This LAN adapter card is for use only with IBM or compatible UL-listed personal computers that have installation instructions detailing installation of card-cage accessories. Installation should be performed with precautions to prevent damage to static-sensitive components.

NOTE

Windows 95 Installation: Skip ahead to Chapter 3, "Installation with Windows 95" **BEFORE** plugging the card into the computer. Resume here as indicated in the procedure for installing software and drivers.

1. Make sure the computer's power is turned OFF.
2. Pick the PCI card slot you wish to use. Follow the manufacturer's instructions for adding a card.

TIP: When installing the AT-2450FT, temporarily remove the shields from the fiber-optics cable connectors to give the connectors more clearance.

3. Attach the cable to the media port. Refer to Chapter 9, Cabling, for information on media issues.

NOTE

In some mixed ISA/PCI PCs you must make sure the AT-2450's PCI slot has a unique interrupt request (IRQ) number assigned. Allocation of interrupts is controlled by the PCI computer's Basic Input/Output System (BIOS). Usually PCI IRQs are accessed through menus of "CMOS Setup," ISA Configuration Utility (ICU), or "BIOS Setup" available when booting the computer. See the PCI computer manual(s) for setup access and instructions.

Chapter 3

Installation with Windows 95

Installing Network Software and Drivers

NOTE

Run the CLEAN95 utility on the CardAssistant diskette before inserting the AT-2450 adapter card in the computer.

1. Turn your computer on and boot into Windows 95. Insert the ATI CardAssistant diskette into the 3.5" diskette drive.
2. Double-click the computer icon in the upper left-hand corner of the screen.
3. Double-click the 3.5" diskette icon.
4. Double-click the CLEAN95.EXE icon.
5. Click the Install Drivers button. Check for the message: “Driver installation successfully completed.” Click the OK button.
6. Remove the diskette, shutdown Windows 95, power off your computer, and unplug it.
7. Install the adapter card by following the instructions that came with your computer. See Chapter 2, “Installing the Card in a PCI Slot.” Then turn the computer on again.
8. Upon restarting your computer, Windows 95 finds the card you installed. If prompted by Windows 95, insert the Windows 95 setup CD-ROM or diskettes.

9. Reboot the computer into Windows 95 as prompted. Windows 95 will complete the driver installation process.

Removing an Outdated Driver from the Windows 95 Network Control Panel

If you did not run the CLEAN95 utility before plugging in the AT-2450 adapter card, Windows will have installed an incorrect driver for the card. You should remove this driver as follows:

1. From the “My Computer” icon (the icon in the upper left-hand corner of the Windows 95 screen), choose “Control Panel”. Then choose “Network”.
2. From the “Configuratrion” tab of the “Network” dialog box, select the adapter to remove: The name will be similar to “AMD PC Net Ethernet Family”. Then choose “Remove”.
3. Do not shutdown or restart Windows 95 at this time. To install the AT-2450 driver, complete the steps listed in “Installing Network Software and Drivers” above.

Chapter 4

Installation with ODI Workstation

Installing Network Software and Drivers

1. Insert a DOS boot diskette in the diskette drive, turn your computer on, and boot into DOS.
2. Insert the Novell Workstation Installation diskette "WS_DOS1" into the drive and run "Install".
3. Follow the installation instructions, making the appropriate changes for your system such as altering startup files and Windows support.
4. The ODI workstation driver is in the root directory of the CardAssistant diskette. Insert this diskette when prompted for the drivers.
5. The AT-2450 should appear in the "Insert the Driver Disk" menu. Select the driver and press ENTER.
6. Once the driver is installed, complete the installation of the network software and then reboot the computer to load the driver files.

Chapter 5

Installation with Windows for Workgroups

Installing Network Software and Drivers

1. From the “Network” group in Program Manager, choose “Network Setup”.
2. In the “Network Setup” dialog box, choose “Networks”.
3. In the “Networks” dialog box, verify that “Install Microsoft Windows Network” is selected. Then choose “OK”.
4. In the “Network Setup” dialog box, choose “Sharing”.
5. In the “Sharing” dialog box, select whether to allow file and/or printer sharing with other users.
6. In the “Network Setup” dialog box, choose “Drivers”. Then, in the “Network Drivers” dialog box, choose “Add Adapter”.
7. In the “Add Network Adapter” dialog box, select “Unlisted or Updated Network Adapter”. Then choose “OK”.
8. Insert the AT-2450 CardAssistant diskette into your floppy drive. Then, in the text box of the “Install Driver” dialog box, type:
   `<drive>:`
   where <drive> is the drive letter of the floppy drive containing your CardAssistant diskette. Then choose “OK”.
9. In the “Network Adapters” list of the “Unlisted or Updated Network Adapter” dialog box, verify that “ATI AT2450” is highlighted. Then choose “OK”.

10. In the “Network Drivers” dialog box, verify that “ATI AT2450 [NDIS2/NDIS3]” and its default protocols, “Microsoft NetBEUI” and “IPX/SPX Compatible Transport with NetBIOS”, appear in the “Network Drivers” list. Then choose “Close”.
11. In the “Network Setup” dialog box, choose “OK”.
12. If prompted, insert the required Windows for Workgroups diskette(s) into your floppy drive and then choose “OK”.
13. If prompted, reinsert the CardAssistant diskette into your floppy drive. In the text box of the “Install Driver” dialog box, type:
    `<drive>:`
    where <drive> is the drive letter of the floppy drive containing CardAssistant diskette. Then choose “OK”.
14. From the “Windows Setup” dialog box, choose “Restart Computer”. Then, when the DOS BIOS message appears, reboot your computer by turning the power switch off and on. Do not use the RESET or CONTROL - ALT - DELETE method.
15. Once the driver is installed, complete the installation of the network software and then reboot the computer to load the driver files.

Chapter 6

Installation with Windows NT

Installing Network Software and Drivers

NOTE

The Windows Miniport (NDIS) driver supports Windows NT 3.5 or later. If you are running version 3.1, you can either upgrade your copy of Windows NT or download the 3.1 driver, AT2450.SYS, from the ATI web site; the URL is http://www.alliedtelesyn.com.

1. If the AT-2450 adapter card is already installed, reboot into Windows NT. If you have not installed the AT-2450 adapter card into your computer, shutdown the computer, turn it off and unplug it. Install the card by following the instructions that came with your computer and in Chapter 2, “Installing the Card in a PCI Slot.” Then turn the computer on again. Boot into Windows NT.
2. NT 3.5x: Open the Main program group by double-clicking its icon.
   NT 4.0: Double-click the Network icon in the Control Panel.
3. NT 3.5x: Double-click the Control Panel icon; double-click the Network icon. From the Network box, click Add Adapter.
   NT 4.0: Select the Adapters tab; click the Add button.

4. NT 3.5x: From the Network Adapter Card drop-down list in the Add Network Adapter dialog box, choose "<OTHER> Requires Disk from Manufacturer". Then click Continue.
   NT 4.0: From the Select Network Adapter pop-up window, do not select from the Network Adapter list; choose the Have Disk button.
5. Insert the CardAssistant diskette into your floppy disk drive and click OK.

NOTE

For 32-bit ODI support with NT, use the path `<drive>:\NWSERVER`, where `<drive>` is the letter of the floppy drive.

6. Verify that "ATI AT2450 Ethernet Adapter" appears in the Choose OEM Option dialog box. Then click OK.
7. In the Network Settings dialog box, verify that "ATI AT2450 Ethernet Adapter" appears in the Installed Adapter Cards list. Then click OK.
8. The MAC (Media Access Control) Address dialog box appears. If this is the only AT-2450 to be installed in the computer, leave the address field blank and click OK for Auto Scan. Otherwise enter the card's MAC address, found on the Station Address label inside the manual cover, and click OK.
9. Windows NT prompts you to configure the protocols you will be using for network communications.
10. From the Network Settings Change dialog box, click Restart Now.
11. After the Windows NT operating system shuts down, restart your computer by turning the power switch off and on. Do not use the RESET or CONTROL - ALT - DELETE method.

12. This completes the card installation. Once the driver is installed, complete the installation of the network software and then reboot the computer to load the driver files.

Removing an Outdated Driver from the Windows NT Network Control Panel

If any drivers need to be removed from your existing installation, remove them first, shutdown the NT Operating system and reboot.

1. NT 3.5x: From the Main program group, choose “Control Panel”. Then choose “Network”.
   NT 4.0: Double-click the Network icon in the Control Panel.
2. NT 3.5x: From the “Network Settings” dialog box, select the adapter to remove. Then choose “Remove”.
   NT 4.0: Select the Adapters tab. Select the adapter to remove. Then choose “Remove”.
3. From the “Network Settings” dialog box, verify that the selected adapter has been removed from the “Installed Adapter Cards” list. Then choose “OK”.
4. From the “Network Settings Change” dialog box, choose “Restart Now”.
5. After the Windows NT operating system shuts down and the DOS BIOS message appears, reboot your computer by turning the power switch off and on. Do not use the RESET or CONTROL - ALT - DELETE method.
6. Log on to Windows NT.
7. Follow the instructions in “Installing Network Software and Drivers” on page 13 to install your AT-2450 Ethernet Adapter.

Chapter 7

Selecting Media Type and Duplex Mode with CardAssistant

The ATI CardAssistant program is used for changing media, turning on full duplex, and viewing the card configuration. Pop-up menus list the possible resource settings, with the current setting highlighted. CardAssistant can be run under DOS or 32-bit Windows (Win 95 or Win NT 3.5x and greater).

Running CardAssistant in DOS Mode. The DOS version of CardAssistant, `setup24`, is the one to use if your primary operating system is Windows 3.x, Windows for Workgroups 3.x, Windows NT 3.1, DOS, or UNIX. Do not run CardAssistant from the Windows DOS Prompt.

1. Boot into DOS, preventing the driver from loading by pressing one of the following:

   F5 to bypass all configuration files

   F8 to step through configuration files and bypass lines that load driver software

2. Insert the installation diskette into the 3.5" floppy drive.
3. Type:
   `<drive>:setup24`
   where `<drive>` is the disk drive containing the CardAssistant program.
4. The main menu comes up and you are ready to select the card (or one of the cards if more than one is installed).

Most AT-2450 settings are handled automatically by the PCI BIOS and cannot be modified with CardAssistant. The Configuration dialog box allows you to select media port on dual-port model cards (default is Auto Select) and change to full duplex (requires a full-duplex hub) (default is Half Duplex). Press F10 when complete to accept changes.

Installing and Running CardAssistant in 32-bit Windows Mode. If you are using Windows 95 or Windows NT 3.5x, use the 32-bit Windows version of CardAssistant.

1. If CardAssistant is installed on your hard disk, skip to step 5.
2. Insert the installation diskette into the appropriate floppy drive.
3. Type: *<drive>*:ca
   where *<drive>* is the disk drive containing the CardAssistant program.

NOTE

In Windows NT, select Yes when asked if you wish to install the CardAssistant driver.

4. Install CardAssistant onto your hard disk by selecting the Install command from the File menu.
5. Type:
   path\ca
   where *path*\ is the optional drive and directory.
6. The main menu comes up and you are ready to select one of the menu items.

Viewing Configuration, Selecting Port, and Setting Duplex

Figure 1 shows an example configuration display. You can use either the keyboard or mouse to make selections and save or cancel your configuration changes.

1. Run CardAssistant. See “Running CardAssistant in DOS Mode” or “Installing and Running CardAssistant in 32-bit Windows Mode” on page 18.

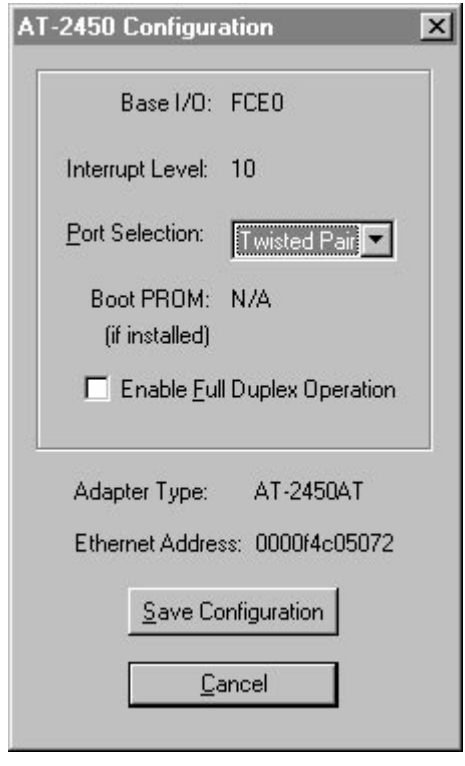

Figure 1:
Configuration Dialog Box in CardAssistant (Windows 95 Version)

2. The Main Menu appears. If you are running CardAssistant from DOS, select the card by pressing ENTER. Then press ENTER again to select Configuration. If you are running CardAssistant from 32-bit Windows, select the Configuration menu item.

Your computer's PCI BIOS assigns values for the I/O parameters shown (Base I/O, Interrupt) to avoid conflicts. In CardAssistant these values are read-only. For more information about I/O conflicts, refer to your computer's documentation on PCI setup, CMOS setup, or ISA Configuration Utility (ICU).

Changing media selection (AT-2450BT and -FT). The AT-2450BT and -FT adapter cards are configured to automatically sense which port is connected. For most applications, there is no need to change this. You can simply connect a media cable to one port or the other. It is possible, however, to manually set the card to a particular port.

1. Select the Port Selection field using the arrow keys or mouse and press ENTER.
2. Select the media choice and press ENTER.
3. If you are running CardAssistant from DOS, press F10 to save the change. If you are running CardAssistant from 32-bit Windows, select the Save Configuration button.

Full Duplex Operation. By default the card works in half duplex mode. In this mode, the card can at a given time either send or receive data, but not both. Selecting full duplex enables the card to send and receive simultaneously. Full duplex operation is only effective if a full-duplex hub is at the other end of the Ethernet segment.

1. In the configuration window, select Full Duplex. If you are running CardAssistant from DOS, press ENTER to reveal the duplex mode choices.
2. If you are running CardAssistant from DOS, press F10 to save the change. If you are running CardAssistant from 32-bit Windows, select the Save Configuration button.

Support for Multiple Adapter Cards

You can have up to four Allied Telesyn AT-2450 adapter cards in a single computer (workstation or server). Each needs its own driver loaded (or the same driver loaded on a re-entrant basis). If more than one card is installed and configured in the host when you run CardAssistant, the configuration window displays a column of settings for each card. You can tell which column is for which card by checking the node address. The node address displayed agrees with the label on the card itself.

If you are connected to two separate networks or running different drivers or protocol stacks, you will want to know which driver (or driver instance) is linked to which card. In this case, run CardAssistant, note the Base I/O assigned to each node address, and consult the specific readme file for your network software for instructions on linking the cards to the drivers.

Temporarily Removing the Driver

When running diagnostics or viewing the card configuration, or when the AT-2450 PCI Ethernet Adapter Card is not installed, you must not have a driver running. You can accomplish this by booting the computer from a DOS diskette or partition with references to the driver removed or commented out from configuration files. If you are running DOS 6.0 or higher, you can press the F5 key when the "Starting MS-DOS" message is displayed, and this will bypass the `AUTOEXEC.BAT` and `CONFIG.SYS` files. In Windows 95, you can boot without loading drivers by pressing F8 and selecting Safe Mode option. For more information and specific procedures, see your operating system documentation and the individual readme file for your network software on the CardAssistant diskette.

Running CardAssistant in DOS Command-Line Mode

When you wish to prepare and configure several AT-2450 PCI Ethernet Adapter Card cards for users in an assembly-line approach, you can either use configuration parameters in the command line or you can write a file that invokes CardAssistant when read. The syntax for running CardAssistant in command-line mode (from DOS) is as follows:

```
setup24 [parameters]
```

where `parameters` is replaced with the parameters you wish to modify from their default values. If you intend to use the default value for a parameter, it may be omitted.

Table 4 lists the parameters that may be set.

Table 4: Command-Line Mode Parameter Names

Parameter	Function
`/p =` *port*	port = `UTP, BNC, AUI, FIBER port, or AUTO`
`/X`	performs diagnostics
`/d =` *mode*	mode = `full or half-duplex (default)`
`/W =` *filename*	writes configuration file
`/R =` *filename*	reads configuration file

The `/X` parameter is a specialized switch that tells CardAssistant to perform diagnostic checks on the AT-2450 PCI Ethernet Adapter Card installed in the computer instead of executing the setup program. This switch should be used on its own (i.e., without specifying other parameters) and with no driver loaded.

The /R= and /W= parameters are used instead of the command-line configuration switches to create a configuration file that setup24 can use to configure subsequent cards. You use the /W= switch to create a file from an adapter card and the /R= switch to configure a card by reading the configuration from the file.

When configuring cards using command-line parameters, setup24 can configure only one AT-2450 PCI Ethernet Adapter Card at a time. If multiple boards are to be installed, either run CardAssistant interactively, or use a configuration file.

Boot ROM Socket

The AT-2450 PCI Ethernet Adapter Card is shipped with an unpopulated boot ROM socket. For a diskless workstation, or for remote or centralized booting, the card needs a boot ROM to allow it to load the operating system over the network. Because the boot ROM access is enabled by the physical presence of the ROM, the boot ROM must be physically removed to enable ROMless operation. If it is installed, your operating system must be configured for remote boot. Consult your computer manufacturer's documentation.

Boot ROMs are application-specific. Allied Telesyn supplies a range of boot ROMs for different network environments. Contact your Allied Telesyn representative for more information.

Chapter 8

Running Diagnostics Checks with CardAssistant

The ATI CardAssistant program is used for simple diagnostics checks to confirm that the AT-2450 PCI Ethernet Adapter Card is functioning properly. Diagnostics runs in DOS mode with no drivers loaded. The following procedure allows you to boot without loading drivers; for more information, see “Temporarily Removing the Driver” on page 21, your operating system documentation, and the individual readme file for your network software on the CardAssistant diskette.

1. Run CardAssistant in DOS mode. To prevent the drivers from loading, press one of the following when DOS begins to boot:

   F5 to bypass all batch and configuration files

   F8 to step through batch and configuration files and bypass individual lines that load driver software

2. Insert the CardAssistant diskette into the appropriate floppy drive (unless the program `setup24.exe` is on your hard drive).
3. Type:
   path`\setup24`
   where *path*`\` is the optional drive and directory.
4. The main menu comes up and you are ready to select the card (or one of the cards if more than one is installed). Select the Diagnostics menu.

   Type:

   D ENTER

Card test. The CardAssistant diagnostic routines test the board and the configuration for functional problems. The routines are:

- PC bus interface
- Interrupt test
- Internal loopback
- MAC address
- Boot ROM (if installed)

The diagnostic routines display whether the card passed each test.

Network test. The CardAssistant Network test is a live send/receive exercise, involving sending packets to a respondent (or more) on the network and counting the responses. It is similar to a TCP/IP ping at a low level. You must have at least two machines running the test in `setup24`. With the responder's Network test window open, press F5 to start the sending machine. The sender counts packets sent and received. The number of packets received should be the number sent times the number of respondents.

Chapter 9
Cabling

Overview

This chapter provides information on cabling conventions. For complete rules of cabling, see ISO/IEEE Publication 8802-3.

10BASE-T Connection

The AT-2450T PCI Ethernet Adapter Card is for use with 10BASE-T segments, using an 8-pin (4-pair) RJ45 jack for the network cable, shown in Figure 2.

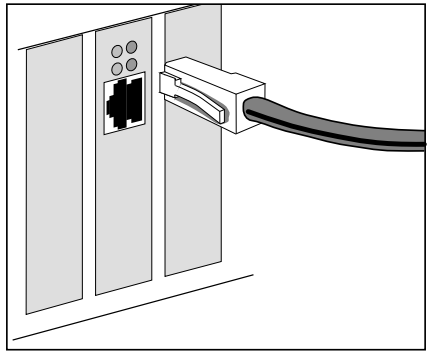

Figure 2: AT-2450 PCI Ethernet Adapter Card UTP Port and RJ45 Connector

Cable length must not exceed 100 meters (328 ft.).

Important 10BASE-T Cable Considerations. There are various grades of voice-quality and data-quality cables available. The five common modular cable specifications and their applicability to 10BASE-T network use are shown in Table 5.

Table 5: Usable and Unusable 10BASE-T Cable

Cable Level	Cable Description	AC Char.	Specifi-cation	Twist/ Foot	10BASE-T OK?
1	Unshielded untwisted	N/A	CCITT	none	NO!
2	Unshielded Indv.Twisted Pairs	100 Ω ±30 Ω	RS232 1BASE5 AT&T PDS	none	NO!
3	Typ. Unshielded Indv. Twisted Pairs	100 Ω ±15 Ω	TI, AT&T ISDN 10BASE-T IBM Type 3	3-5	YES
4	Unshielded Enhanced Indv. Twisted Pairs	100 Ω ±30 Ω	EIA, TIA 10BASE-T NEMA	5-8	YES
5	Shielded Indv. Twisted Pairs	100 Ω ±30 Ω	EIA, TIA 10BASE-T	8-10	YES

These can appear to be similar externally, and their DC characteristics are also similar, although their AC characteristics, and therefore high-speed data transmission characteristics, are radically different. As a rule of thumb, if a cable type is flat, it is typically untwisted, and will cause problems. If a cable is more or less round in section, it will typically work.

If any voice-quality cabling is used in a 10BASE-T network, data movement is slow, collision-prone, or non-existent. The LNK indicator on the interface will usually indicate a valid link in such a case. Be sure that all cabling used with the 10BASE-T adapter

card connections is of level 3, 4, or 5.

Check cable schematics against the ones shown in Figure 3.

Figure 3: Usable and Unusable 10BASE-T Cable

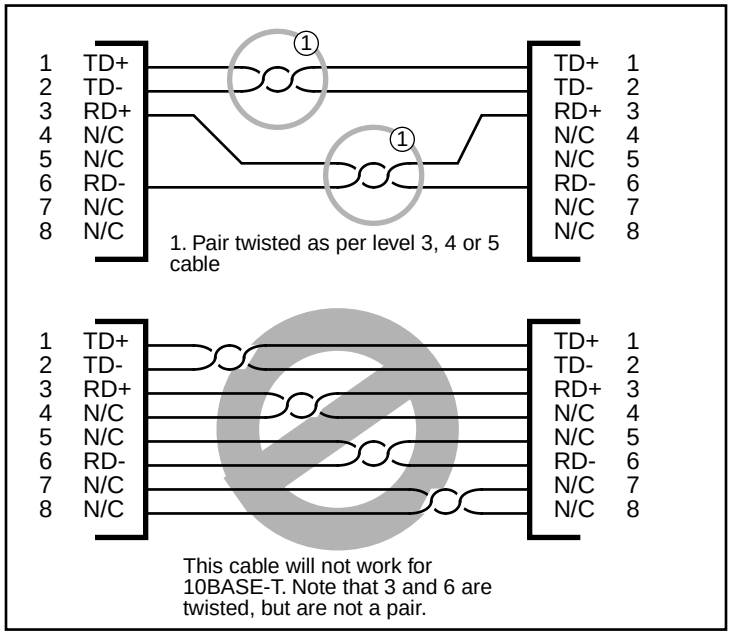

Figure 4 shows the orientation of pin 1 on the RJ45 connector.

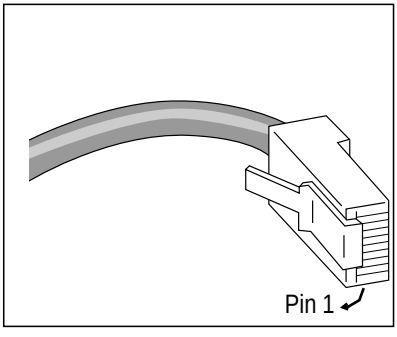

Figure 4: Pin 1 Orientation on an RJ45 Connector

10BASE2 RG58/BNC Connection

In addition to an RJ45 connector, the AT-2450BT PCI Ethernet Adapter Card has a BNC connector for 10BASE2 standard thin Ethernet RG58 coaxial cable. The maximum segment length is 185 meters (606 ft.), and the minimum length between nodes is 0.5 meters (1.64 ft.). The coaxial cable should be connected to the adapter card via a T-connector and *must* be terminated with a 50 Ω terminator at each end of the network segment. (As the default, Allied Telesyn 10BASE2 hubs offer 50 Ω termination internally.) For correct termination of the AT-2450BT at the end of a segment, see Figure 5. The connection must *not* be made as in Figure 6.

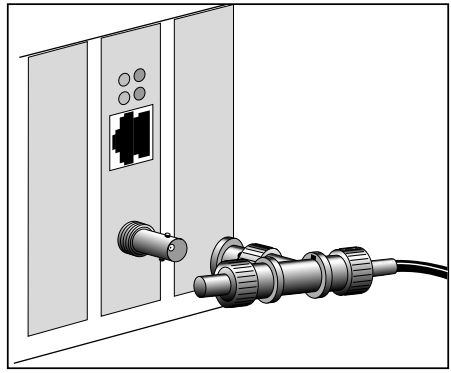

Figure 5: BNC Receptacle for 10BASE2 (Shown Terminated)

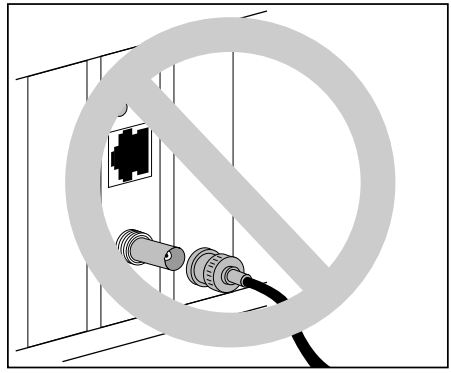

Figure 6: Incorrectly Connected BNC for 10BASE2

10BASE-FL/FOIRL (Fiber Optic) Connection

ST™ Connector. The AT-2450FT ST PCI Ethernet Adapter Card provides both an RJ45 for 10BASE-T Ethernet and ST-type transmit and receive connectors for 10BASE-FL or FOIRL Ethernet network segments. (See Figure 7.)

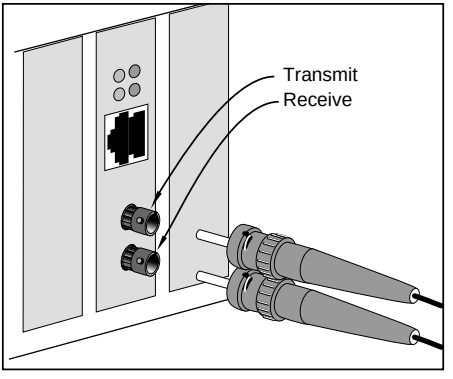

Figure 7: ST-Type Connector for FOIRL and 10BASE-FL Medium

SC Connector. The AT-2450FT SC PCI Ethernet Adapter Card offers both an RJ45 and an SC port for 10BASE-FL or FOIRL Ethernet network. (See Figure 8.)

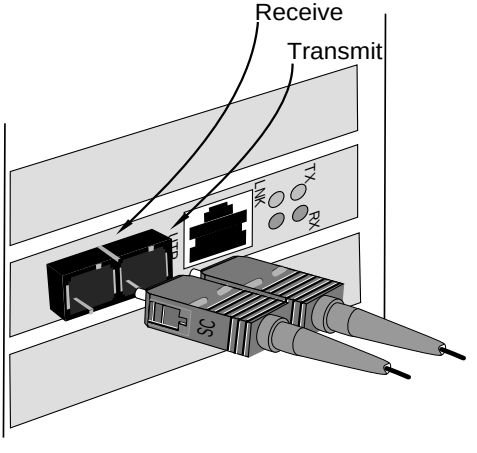

Figure 8: SC-Type Connector for FOIRL and 10BASE-FL Medium

WARNING

Hazardous light emissions may exist in fiber optic systems. Severe eye damage may result if precautions are not taken. Never look into a transmitting fiber optic device, transceiver, repeater, or cable.

Maximum segment length is 1000 meters (3279 ft.) for FOIRL and 2000 meters (6558 ft.) for 10BASE-FL. In a 10BASE-FL or FOIRL segment, the cables connect the transmit receptacle at one end of the segment to the receive receptacle at the other end and vice versa. Be sure to align the key on the cable connector with the keyway on the adapter card receptacle when attaching the cable. Forcing cable insertion can cause receptacle or connector damage.

Communication Status Indicators

Table 6 shows the functions of the four status indicators located below the RJ45 receptacle.

Table 6: AT-2450 PCI Ethernet Adapter Card Status Indicators

LED Color	Label	Indicates	Used by
Green	TX	Transmitting packet	All media
Yellow	RX	Receiving packet	All media
Green	LNK	Valid receive link signal	10BASE-T 10BASE-FL FOIRL
Yellow	COL	Collision detected	All media

Chapter 10
Troubleshooting

A network is a complex combination of hardware and software, all of which must function for data communication to work. Problems are most likely to occur when the card is first being installed or when someone changes something in the network. A problem could be caused in your computer or in cabling or in many places elsewhere in the network.

If your computer is supported by a system administrator or network administrator, this person can often provide the most help in resolving a problem. Allied Telesyn dealers also provide technical support for installation problems. But if one of these local resources is not successful solving your problem, you can obtain assistance directly from Allied Telesyn by fax or by telephone. See “Where To Find Us” on page 39.

Identify the Exact Symptoms

If your computer is unable to communicate across the network, carefully observe the symptoms. Gather information about the system and its components, such as device drivers, memory and extensions (e.g., QEMM), other peripheral cards and the use of I/O ports and IRQs. Log your interaction with the computer, noting the conditions, your actions and the responses. Analyzing this information will help you diagnose the cause of the failure. The technical support fax order form on page 40 can help you organize the information you need to begin resolving a problem.

Experiment with Possible Solutions

This chapter provides the common factors to check in troubleshooting. It is by no means exhaustive since there are too many environmental factors to take into account.

The first rule of troubleshooting is to isolate the problem. As you experiment, vary only one factor at a time. Substitute known good equipment and see if the problem persists or is eliminated.

- ❑ Do not overlook the obvious—make sure the card is seated in the computer and that the cables and connectors are securely attached.
- ❑ Check your computer manual for BIOS Setup instructions (sometimes called "CMOS Setup"). Make sure the PCI slot is enabled and has a unique interrupt request (IRQ) assigned to it.
- ❑ If the LNK indicator does not light with UTP or fiber media, make sure the cabling is intact and connected to a functioning network port. Swap fiber optic connectors between receptacles to verify TX-RX connection.
- ❑ If the LNK indicator lights on a 10BASE-T segment, but data transfer is slow, collision-prone, or non-existent, verify that your cable is of level 3, 4, or 5 (see "10BASE-T Connection" on page 27). Level 1 and 2 voice-quality cable will not work properly.

  If the cable is more or less round in section, you probably have data grade cable, correctly paired, and no transmission problems. If, however, the cable appears flat in section (as "Silver Satin" telephone-type cable) you probably have voice-grade cable and transmission problems. If it looks like telephone cable, double-check it.
- ❑ If the computer is on a 10BASE2 segment, make sure the cable is connected with T-connectors, terminated at the ends with 50 Ω terminators, and grounded in only one place.

- If you are using `EMM386.EXE`, verify that you have version 4.49 or higher. Lower versions of EMM386 can cause a PCI machine to lock up or reboot. Version 4.49 ships with DOS 6.22 and is available on the Microsoft forum on CompuServe.
- If you suspect the network adapter card is not working properly, disconnect the computer from the network and run CardAssistant diagnostics after rebooting with no drivers loaded.
- If CardAssistant software does not detect the card, it could mean a conflict between the card and another device, a card failure, or a slot failure. Try installing the AT-2450 in another computer. You may need to reconfigure the other device to avoid the conflict.
- If the card passes diagnostics, try reconnecting the computer to the network. A failure may be caused by physical medium connections or by corrupted network software. You can test the connectors, terminators, and cables by swapping them for known good ones.
- Replace corrupted network software.

Manual/Adapter Card/CardAssistant/Driver Compatibility

This manual is intended for use only with the AT-2450 PCI Ethernet Adapter Card 8-interrupt jumperless adapter cards with which it was shipped. The manual will incorrectly reflect the use of earlier adapter cards.

The Release 3 CardAssistant software and card drivers shipped with this manual are backward-compatible with respect to the AT-2450 PCI Ethernet Adapter Card, and will operate correctly with earlier versions of the card.

Get Technical Support

You can contact the dealer where you bought your AT-2450 PCI Ethernet Adapter Card for local assistance. If local help is unable to resolve your problem, Allied Telesyn offers technical support via fax or telephone. In North America, support engineers are available between the hours of 6:30 a.m. and 5 p.m. Pacific time.

Please photocopy and complete the technical support order on the next two pages. Then fax or call the support office for your region. See “Where To Find Us” on page 39. The voice and fax telephone numbers for technical support are listed for each regional office.

Where To Find Us

For Technical Support or Service		
Location	Phone	Fax
Americas United States, Canada, Mexico, Central America, South America	1 (800) 428-4835	1 (425) 481-3790
Asia Singapore, Taiwan, Thailand, Malaysia, Indonesia, Korea, Philippines, China, India	(+65) 3815-613	(+65) 3833-830
Australia Australia, New Zealand	(612) 416-0619	(612) 416-9764
France France, Belgium, Luxembourg, The Netherlands, Middle East, Africa	(+33) 1-60-92-15-32	(+33) 1-69-28-37-49
Germany Germany, Switzerland, Austria, Eastern Europe	(+49) 30-435-900-126	(+49) 30-435-70-650
Hong Kong	(+852) 2-529-4111	(+852) 2 529-7661
Italy Italy, Spain, Portugal, Greece, Turkey, Israel	(+39) 2-416047	(+39) 2-419282
Japan	(+81) 3-3443-5640	(+81) 3-3443-2443
United Kingdom United Kingdom, Denmark, Norway, Sweden, Finland, Iceland	(+44) 1-235-442560	(+44) 1-235-442490
Technical Bulletin Board Service	1 (425) 483-7979	
Technical Support E-mail Address	TS1@alliedtelesyn.com	
CompuServe	Go ALLIED	
World Wide Web	http://www.alliedtelesyn.com	
FTP Server	Address: ftp.alliedtelesyn.com [lowercase letters] Login: anonymous [lowercase letters] Password: your e-mail address [requested by the server at login]	

Allied Telesyn Technical Support Fax Order

Name _____

Company _____

Address _____ **City** _____

State/Province _____ **Zip/Postal Code** _____

Phone _____ **Fax** _____

Computer Characterization

Processor ❒ Cyrix ❒ Pentium ❒ Pentium II ❒ Other _____

Speed ❒ 100 ❒ 133 ❒ 166 ❒ 200 ❒ 300 ❒ 333 ❒ Other _____

Coprocessor _____ **RAM Memory** _____ Megabytes

Chip Set
❒ Chips & Technology ❒ Suntec ❒ VLSI ❒ Headlin
❒ G2 ❒ Bioteq ❒ Paradigm ❒ UMC
❒ Symphony ❒ Eteq ❒ DFI ❒ Opti
❒ Del ❒ Hedaka ❒ IBM
❒ Other _____

BIOS ❒ Phoenix ❒ Award ❒ AMI ❒ Other Version _____

Ports LPT1 IRQ _____ COM1 IRQ _____ COM3 IRQ _____
LPT2 IRQ _____ COM2 IRQ _____ COM4 IRQ _____

Adapter Card ❒ AT-2450T ❒ AT-2450BT ❒ AT-2450FT

IRQ _____ I/O Base Address _____

Boot ROM ❒ Installed ❒ Not installed

Adapter Card Driver Filename _____
Size _____K Timestamp _____

Drive Controller ❒ MFM ❒ IDE ❒ EIDE ❒ SCSI

IRQ _____ Manufacturer _____ Model/Rev _____

Video Display Adapter

IRQ _____ Manufacturer _____ Model/Rev _____

Incident Summary

Conditions (List the steps that led up to the problem.)

Detailed Description

Please also fax printouts of your `AUTOEXEC.BAT` **file and other batch and configuration files.**

For Information Regarding Allied Telesyn International Corp.

Allied Telesyn International Corp.
Suite 200
19015 North Creek Parkway
Bothell, WA 98011
Tel: 1 (425) 487-8880
Fax: 1 (425) 489-9191

Allied Telesyn International Corp.
950 Kifer Road
Sunnyvale, CA 94086
Tel: 1 (800) 424-4284 (USA and Canada)
Fax: 1 (408) 736-0100

For Sales Information

Australia

Lindfield, NSW
Tel: (612) 416-0619, Fax: (612) 416-9764

Canada

Rexdale, Ontario
Tel: (416) 675-6738, Fax: (416) 675-0057

Richmond, British Columbia
Tel: (604) 244-0678, Fax: (604) 270-3644

England

Abingdon, Oxon
Tel: (+44) 1235-442500, Fax: (+44) 1235-442590

France

Les Ulis
Tel: (+33) 1-60921525, Fax: (+33) 169-28-37-49

Germany

Berlin
Tel: (+49) 30-435-90-00, Fax: (+49) 30-435-706-50

Freising
Tel: (+49) 8161-9906-0, Fax: (+49) 8161-9906-22

Hong Kong

Mongkok
Tel: (+852) 2-529-4111, Fax: (+852) 2-529-7661

Italy

Milano
Tel: (+39) 2-416047, Fax: (+39) 2-419282

Japan

Machida-shi, Tokyo
Tel: (+81) 427-21-8141, Fax: (+81) 427-21-8848

Yodogawa-ku, Osaka
Tel: (+81) 6-391-6310, Fax: (+81) 6-391-6325

Singapore

Tel: (+65) 383-3832, Fax: (+65) 383-3830

United States

Scottsdale, AZ
Tel: (602) 423-7087 Fax: (602) 423-7088

Los Ageles, CA
Tel: (310) 412-8684, Fax: (310) 412-8685

Mission Viejo, CA
Tel: (714) 699-0628, Fax: (714) 699-0276

San Diego, CA
Tel: (619) 279-3899, Fax: (619) 279-3897

Santa Ana, CA
Tel: (714) 838-0434, Fax: (714) 838-9721

Clearwater, FL
Tel: (813) 726-0022, Fax: (813) 726-0234

Norcross, GA
Tel: (770) 448-7214, Fax: (770) 448-2600

Reading, MA
Tel & Fax: (617) 944-3492

Eden Prairie, MN
Tel: (612) 829-7506, Fax: (612) 903-5284

St. Louis, MO
Tel: (314) 894-6160, Fax: (314) 894-3773

Dover, NH
Tel: (603) 743-3010, Fax: (603) 743-6327

Plaistow, NH
Tel: (603) 382-0815, Fax: (603) 382-0818

Portsmouth, NH
Tel: (603) 431-6461, Fax: (603) 431-1649

Morrisville, NC
Tel: (919) 468-0831, Fax: (919) 468-0829

Lake Oswego, OR
Tel: (503) 699-3130, Fax: (503) 636-6575

Austin, TX
Tel: (512) 261-6378, Fax: (512) 261-6379

Dallas, TX
Tel: (214) 365-9471, Fax: (214) 365-9472

San Antonio, TX
Tel: (210) 646-8744

Vienna, VA
Tel: (703) 506-0196, Fax: (703) 506-1986

Adapter Card Manual Feedback

We would like you to tell us the type of additional information you would like to see in the manual. If there are topics you want to be covered in the manual, please photocopy this page, answer the questions and fax or mail this information. The mailing address is at the bottom of the page. Your comments are valuable when we plan future revisions of the manual.

On a scale of 1 to 10 (10 being most important), my uses of the manual information are:

CardAssistant Installation	_____	CardAssistant Operation	_____
Diagnostics	_____	Card I/O Configuration	_____
Batch Configuration	_____	Troubleshooting	_____
Multiple Cards Installation	_____	Network Software	_____
Driver Installation	_____	Adapter Card Operation	_____
Driver Selection	_____	Cabling	_____

I found the following the most valuable _____

_____

_____

I would like the following more developed _____

_____

_____

I would find the manual more useful if _____

_____

_____

Please fax or mail your feedback. Fax to 1-425-481-3790. Or mail to:

Allied Telesyn
Technical Communications Department
Suite 200
19015 North Creek Parkway
Bothell, WA 98011 USA

Electrical Safety and Installation Requirements

U.S. Federal Communications Commission

DECLARATION OF CONFORMITY

Manufacturers Name:	**Allied Telesyn International**
Manufacturers Address:	950 Kifer Road Sunnyvale, CA 94086 USA
Manufacturers Telephone:	408-730-0950
Declares that the product:	PCI Ethernet Adapter Card
Model Number:	AT-2450T, AT-2450BT, AT-2450FT

Complies with FCC Part 15B, Class B Limits:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

RADIATED ENERGY

Note: 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 instructions, 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 the 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.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Industry Canada

This Class B digital apparatus meets all 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.

STANDARDS: This product meets the following standards.

RFI Emission	EN55022 Class B
Immunity	EN50082-1
Electrical Safety	EN60950, UL1950, CSA 950 EN60825

SAFETY

LIGHTNING DANGER

DANGER: DO NOT WORK on equipment or CABLES during periods of LIGHTNING ACTIVITY.

AT-2450FT: This is a "CLASS 1 LED PRODUCT"

OPERATING TEMPERATURE

This product is designed for a maximum ambient temperature of 40˚ C.

All Countries: Install product in accordance with local and National Electrical Codes.

NORMEN: Dieses Produkt erfüllt die Anforderungen der nachfolgenden Normen.

Hochfrequenzstörung	EN55022 Klasse B
Störsicherheit	EN50082-1
Elektrische Sicherheit	EN60950, UL1950, CSA 950 EN60825

SICHERHEIT

GEFAHR DURCH BLITZSCHLAG

GEFAHR: Keine Arbeiten am Gerät oder an den Kabeln während eines Gewitters ausführen.

AT-2450FT: Das ist ein "LED Produkt der Klasse 1"

BETRIEBSTEMPERATUR

Dieses Produkt wurde für den Betrieb in einer Umgebungstemperatur von nicht mehr als 40˚ C entworfen.

Alle Länder: Installation muß örtlichen und nationalen elektrischen Vorschriften entsprechen.

STANDARDER : Dette produkt tilfredsstiller de følgende standarder.

Radiofrekvens forstyrrelsesemission	EN55022 Klasse B
Immunitet	EN50082-1
Elektrisk sikkerhed.	EN60950, UL1950, CSA 950 EN60825

SIKKERHED

FARE UNDER UVEJR

FARE: UNDLAD at arbejde på udstyr eller KABLER i perioder med LYNAKTIVITET.

AT-2450FT: Dette er et "Produkt under Klasse 1 LED"

Betjeningstemperatur

Dette apparat er konstrueret til en omgivende temperatur på maksimum 40 grader C.

Alle lande: Installation af produktet skal ske i overensstemmelse med lokal og national lovgivning for elektriske installationer.

EISEN: Dit product voldoet aan de volgende eisen.

RFI Emissie	EN55022 Klasse B
Immuniteit	EN50082-1
Electrische Veiligheid	EN60950, UL1950, CSA 950 EN60825

VEILIGHEID

GEVAAR VOOR BLIKSEMINSLAG

GEVAAR: NIET aan toestellen of KABELS WERKEN bij BLIKSEM.

AT-2450FT: Dit is een "Klasse 1 LED-produkt"

Bedrijfstemperatuur

De omgevingstemperatuur voor dit produkt mag niet meer bedragen dan 40 graden Celsius.

Alle landen: het toestel installeren overeenkomstig de lokale en nationale elektrische voorschriften.

NORMES: ce produit est conforme aux normes de suivantes :

Emission d'interférences radioélectriques	EN55022 Classe B
Immunité	EN50082 - 1
Sécurité électrique	EN60950, UL1950, CSA 950 EN60825

SÉCURITÉ

DANGER DE FOUDRE

DANGER : NE PAS MANIER le matériel ou les CÂBLES lors d'activité orageuse.

AT-2450FT: Ce matériel est un "Produit à diode électroluminescente de classe 1"

TEMPÉRATURE DE FONCTIONNEMENT

Ce matériel est capable de tolérer une température ambiante maximum de 40 degrés Celsius.

Pour tous pays : Installer le matériel conformément aux normes électriques nationales et locales.

STANDARDIT: Tämä tuote on seuraavien standardien mukainen.

Radioaaltojen häirintä	EN55022 Luokka B
Kestävyys	EN50082-1
Sähköturvallisuus	EN60950, UL1950, CSA 950 EN60825

TURVALLISUUS

SALAMANISKUVAARA

HENGENVAARA: ÄLÄ TYöSKENTELE laitteiden tai KAAPELEIDEN KANSSA SALAMOINNIN AIKANA.

AT-2450FT: Tämä on "ensimmäisen luokan valodiodituote"

KÄYTTöLÄMPöTILA

Tämä tuote on suunniteltu ympäröivän ilman maksimilämpötilalle 40˚C.

Kaikki maat: Asenna tuote paikallisten ja kansallisten sähköturvallisuusmääräysten mukaisesti.

STANDARD: Questo prodotto è conforme ai seguenti standard.

Emissione RFI (interferenza di radiofrequenza)	EN55022 Classe B
Immunità	EN50082-1
Sicurezza elettrica	EN60950, UL1950, CSA 950 EN60825

NORME DI SICUREZZA

PERICOLO DI FULMINI

PERICOLO: NON LAVORARE sul dispositivo o sui CAVI durante PRECIPITAZIONI TEMPORALESCHE.

AT-2450FT: Questo è un "Prodotto con LED di Classe 1"

Temperatura di funzionamento

Questo prodotto è concepito per una temperatura ambientale massima di 40 gradi centigradi.

Tutti i paesi: installare il prodotto in conformità delle vigenti normative elettriche nazionali.

SIKKERHETSNORMER: Dette produktet tilfredsstiller følgende sikkerhetsnormer.

RFI stråling	EN55022 Klasse B
Immunitet	EN50082-1
Elektrisk sikkerhet	EN60950, UL1950, CSA 950 EN60825

SIKKERHET

FARE FOR LYNNEDSLAG

FARE: ARBEID IKKE på utstyr eller KABLER i TORDENVÆR.

AT-2450FT: Dette er et "klasse 1 LED produkt"

Driftstemperatur

Dette produktet er konstruert for bruk i maksimum romtemperatur på 40 grader celsius.

Alle land: Produktet må installeres i samsvar med de lokale og nasjonale elektriske koder.

PADRÕES: Este produto atende aos seguintes padrões.

Emissão de interferência de radiofrequência	EN55022 Classe B
Imunidade	EN50082-1
Segurança Eléctrica	EN60950, UL1950, CSA 950 EN60825

SEGURANÇA

PERIGO DE CHOQUE CAUSADO POR RAIO

PERIGO: NÃO TRABALHE no equipamento ou nos CABOS durante períodos suscetíveis a QUEDAS DE RAIO.

AT-2450FT: Este é um "PRODUTO CLASSE 1 LED"

TEMPERATURA DE FUNCIONAMENTO

Este produto foi projetado para uma temperatura ambiente máxima de 40 graus centígrados.

Todos os países: Instale o produto de acordo com as normas nacionais e locais para instalações elétricas.

ESTÁNDARES: Este producto cumple con los siguientes estándares.

Emisión RFI	EN55022 Clase B
Inmunidad	EN50082-1
Seguridad eléctrica	EN60950, UL1950, CSA 950 EN60825

SEGURIDAD

PELIGRO DE RAYOS

PELIGRO: NO REALICE NINGUN TIPO DE TRABAJO O CONEXION en los equipos o en LOS CABLES durante TORMENTAS ELECTRICAS.

FT: Este es un "producto de diodo luminiscente (LED) clase 1"

Temperatura requerida para la operación

Este producto está diseñado para una temperatura ambiental máxima de 40 grados C.

Para todos los países: Monte el producto de acuerdo con los Códigos Eléctricos locales y nacionales.

STANDARDER: Denna produkt uppfyller följande standarder.

Radiostörning	EN55022 Klass B
Immunitet	EN50082-1
Elsäkerhet	EN60950, UL1950, CSA 950 EN60825

SÄKERHET

FARA FöR BLIXTNEDSLAG

FARA: ARBETA EJ på utrustningen eller kablarna vid ÅSKVÄDER.

AT-2450FT : Detta är en "Klass 1 lysdiodprodukt"

DRIFTSTEMPERATUR

Denna produkt är konstruerad för rumstemperatur ej överstigande 40 grader Celsius.

Alla länder: Installera produkten i enlighet med lokala och statliga bestämmelser för elektrisk utrustning.

Index

Where To Find Us

For Technical Support or Service		
Location	Phone	Fax
Americas United States, Canada, Mexico, Central America, South America	1 (800) 428-4835	1 (425) 481-3790
Asia Singapore, Taiwan, Thailand, Malaysia, Indonesia, Korea, Philippines, China, India	(+65) 3815-613	(+65) 3833-830
Australia Australia, New Zealand	(612) 416-0619	(612) 416-9764
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