



# *PB 1400 Ethernet Card User's Guide*

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## *Copyright notice*

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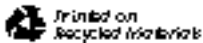
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USA

## *Part Number*

For additional copies of this manual, order Farallon part number 6120290-00-01.



# *Chapter 1*

## *Installation*

The Farallon PB 1400 Ethernet Card is an internal Ethernet adapter for the PowerBook 1400 computer. The PB 1400 Ethernet Card connects to traditional 10Base-T networks.

The PB 1400 Ethernet Card installs into the expansion slot on the PowerBook 1400. The PB 1400 Ethernet Card requires Macintosh System 7.5.3 or later, and at least eight megabytes of random-access memory (RAM). As with all Farallon Ethernet networking products, PB 1400 Ethernet Cards are fully compliant with IEEE Ethernet standards.

Installing a PB 1400 Ethernet Card involves three basic steps:

1. Installing the hardware (see pages 4–7)
2. Connecting to the network (see page 8)
3. Installing the software (see pages 9–12)

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## *Installing the hardware*

Important: The instructions below are general guidelines for hardware installation. It is important to consult your *Macintosh PowerBook User's Manual* before installing the PB 1400 Ethernet Card. In your PowerBook manual, look for the section called "Installing Expansion Cards." This section will give you specific instructions for opening your PowerBook, installing a card in the expansion slot, and reassembling the computer.

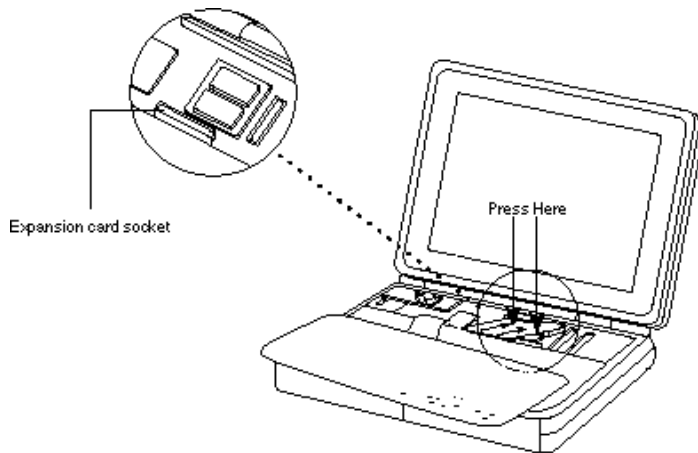
Farallon recommends that this card should be installed by an authorized Apple reseller. If you damage the computer while installing a computer component, the damage will not be covered by the computer's warranty.

1. Begin by powering down your PowerBook according to the instructions in your PowerBook manual.
2. Disconnect all the cables attached to the computer.
3. Remove the computer's battery.

Important: If you don't remove the battery and disconnect the cables before you install the card, you might damage your computer.

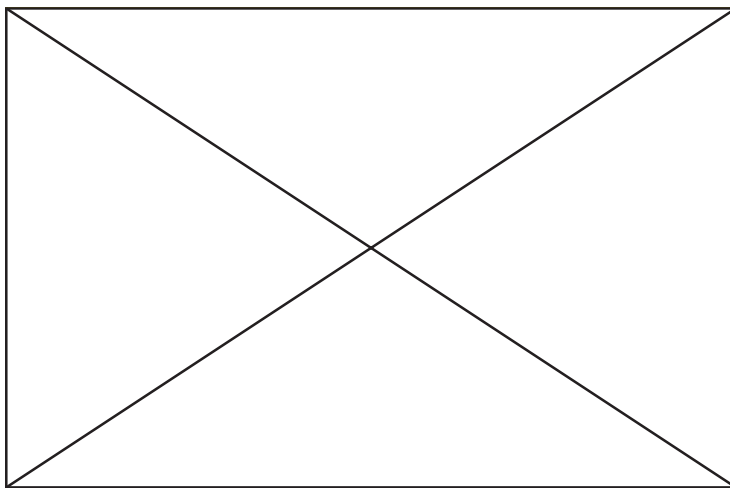
4. Open the door that covers the ports on the computer's back panel.
5. Using a standard screw driver, remove the cover over the expansion slot port.
6. Remove the speaker grill (located just above the keyboard). Slide the grill to the left to remove it.
7. Remove the keyboard. Insert your fingers under the top of the keyboard and gently flip it face down so the area beneath it is exposed.

8. Using a Phillips screwdriver, remove the five screws that hold down the heat shield. Remove the heat shield.
9. If a RAM card is present, gently lift up the RAM card (located to the right of the keyboard ribbon cable) and set it aside. You need to temporarily remove the RAM card to make room for the PB 1400 Ethernet Card. You'll reinstall the RAM card later.
10. Remove the PB 1400 Ethernet Card from its antistatic bag, handling the card by its edges to avoid touching the components.
11. Locate the internal expansion slot. (The slot is located to the right of the keyboard ribbon cable.)
12. Insert the RJ-45 port on the card into the empty space on the computer's back panel (with the components facing down). Press down lightly on the top of the card to help guide the Ethernet port through the hole in the back panel. Do not seat the PB 1400 Ethernet Card yet.



*Inserting the PB 1400 Ethernet Card*

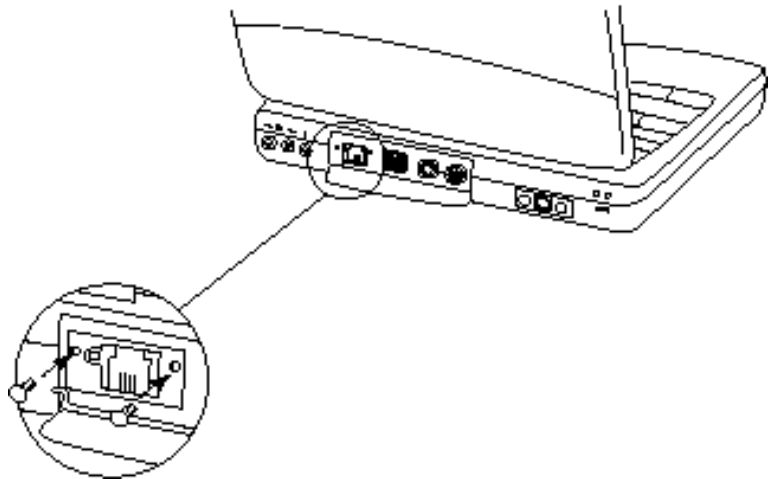
13. Place the RAM card beneath the PB 1400 Ethernet Card. (See the illustration below.) If necessary, you can gently raise the PB 1400 Ethernet Card and move it to the left to make room for the RAM card (do not bend the PB 1400 Ethernet Card). Align the RAM card over the RAM card slot, and press down firmly until the card's connector is fully seated in the slot.



*Reinserting the RAM card*

14. Align the PB 1400 Ethernet Card over the expansion slot, and press down firmly until the card's connector is fully seated in the slot. Do not force; if you meet resistance, pull the card out and try again.

15. To see if the card is properly connected, gently try to lift it out of the slot. It should resist and stay in place.
16. Reassemble your PowerBook according to the instructions in your PowerBook manual.
17. Attach the metal bracket that came with the card over the Ethernet port. Align the bracket's two holes with the holes beside the Ethernet port. Using a Phillips screwdriver, screw in the two metal screws that came with the card.



*Attaching the metal bracket*

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## Connecting to the network

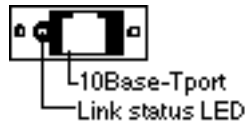
After the PB 1400 Ethernet Card is installed in your Macintosh, the next step is to connect it to your Ethernet network.

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### 10Base-T

The PB 1400 Ethernet Card comes with a 10Base-T cable for connecting to a 10Base-T Ethernet network. Plug one end of the 10Base-T cable into the port on the card, and connect the other end to your Ethernet network.

Start up your Macintosh and check to see that the card's LED is lit. (The LED is on the card's bracket next to the port.) A steady green light indicates that the card is receiving the link signal from the network.



*Bracket on the PB 1400 Ethernet Card*



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## *Installing the software*

After the PB 1400 Ethernet Card is connected to your network, complete the installation process by installing the Farallon software. Software installation for the PB 1400 Ethernet Card involves the following three steps:

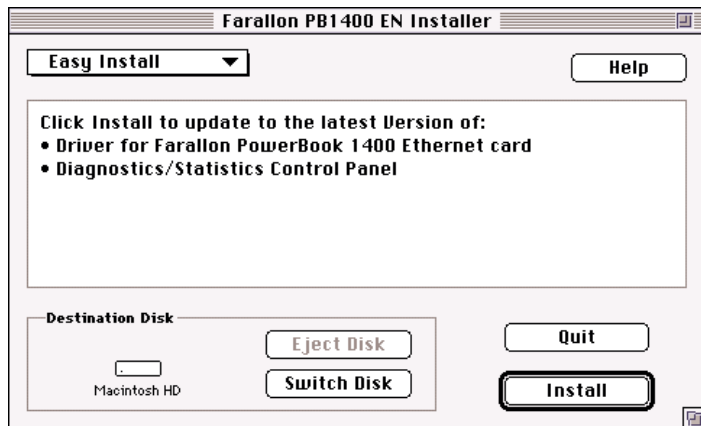
1. Running the installer
2. Configuring the networking software
3. Connecting to network services

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## *Running the installer*

Before installing Farallon software, restart your Macintosh while holding down the Shift key. This temporarily disables extensions that may cause conflicts. Then insert the PB 1400 Ethernet EN Installer disk into the floppy drive of your Macintosh.

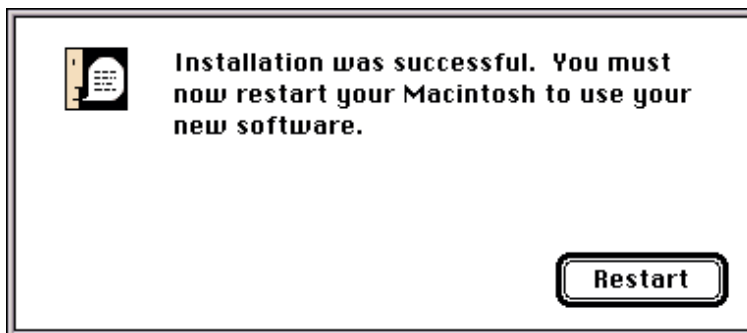
Double-click the Installer icon. The Farallon PB 1400 EN Installer dialog box appears.



Click the Install button. The Installer places networking software in your System folder.

Note: The Installer places the EN Driver for the Farallon PB 1400 Ethernet Card in your System file. This driver is an EtherTalk Alternative driver, and it replaces any existing EtherTalk Alternative driver. (Because the Macintosh System allows only one EtherTalk Alternative driver at a time, each new alternate driver that you install replaces the old one.) In general, this only affects your configuration if you have been using an external Ethernet adapter, such as a SCSI adapter, Farallon Mac/PB Adapter, or Ethernet PC Card.

After installation is complete, restart your Macintosh.



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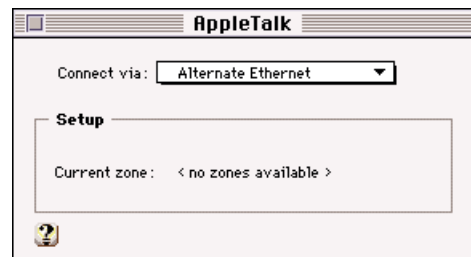
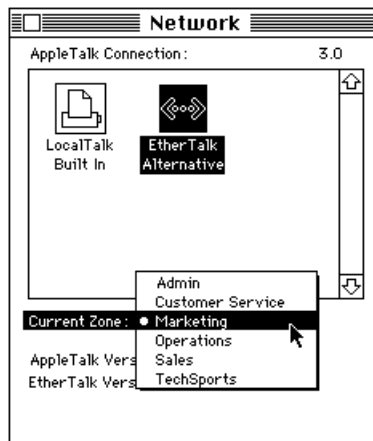
## Configuring the networking software

Note: Network software configuration for Macintosh computers running Open Transport is slightly different than for those running traditional Macintosh operating software with Classic Ethernet. Be sure to follow the appropriate instructions below.

For Classic Ethernet, open the Network control panel. For Open Transport, open the AppleTalk control panel.



For Classic Ethernet, click EtherTalk Alternative. For Open Transport, choose Alternate Ethernet from the pop-up menu. If a message asks you to confirm the change of network connections, click OK.



After the network connection has been changed, you can choose a zone. If zones are available, the Current Zone pop-up menu will be active.

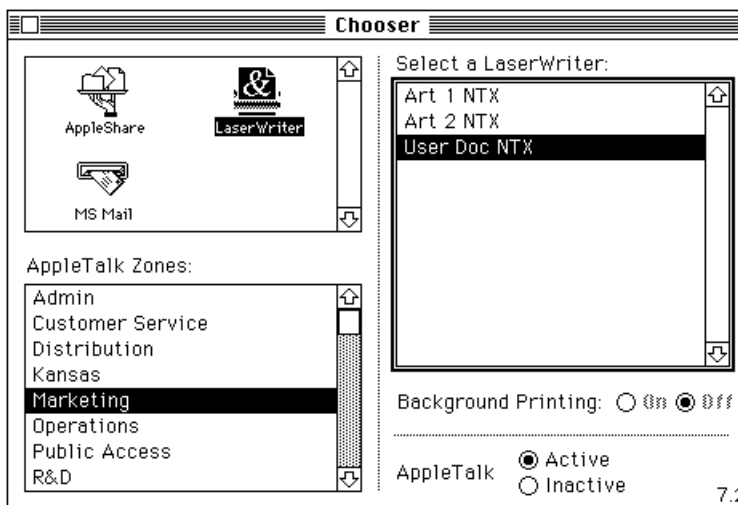
When you are finished, close the control panel. Your Macintosh is now configured for Ethernet.

## Connecting to network services

To connect to network services such as printers and e-mail, open the Chooser.



Select the network services that you want, and confirm that AppleTalk is active.



When you are finished, close the Chooser.

## *Chapter 2*

### *Operation*

Once your PB 1400 Ethernet Card is installed, you may want to know more about how it operates. This chapter covers operation in the following sections:

- The “Operation checklist” is an overview of the conditions necessary for proper PB 1400 Ethernet Card operation.
- “Using the PB 1400 EN Diagnostics control panel” explains how to use this control panel for obtaining information about your PB 1400 Ethernet Card.

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## *Operation checklist*

For proper PB 1400 Ethernet Card operation, verify the following:

- For Classic Ethernet, EtherTalk Alternative is selected in the Network control panel. For Open Transport, Alternate Ethernet is selected in the AppleTalk control panel.
- AppleTalk is active in the Chooser.
- The PB 1400 Ethernet Card is securely seated in the expansion slot.
- The Ethernet network connection is secure, and the Ethernet network follows standard guidelines. See “Network Guidelines” later in this chapter for network guidelines.
- The green link LED is lit.

## Using the PB 1400 EN Diagnostics control panel

As part of the software installation of your PB 1400 Ethernet Card, the Installer placed the PB 1400 EN Diagnostics control panel into your System folder. This control panel is included as an informational tool. While it is ideal for troubleshooting, the PB 1400 EN Diagnostics control panel is not necessary for basic PB 1400 Ethernet Card operation.



PB1400 EN Diagnostics

Double-click the PB 1400 EN Diagnostics icon. The ability to open the PB 1400 EN Diagnostics control panel indicates that the Ethernet connection is good.

PB1400 EN Diagnostics	
Valid Ethernet cards found in Slots:	
<input checked="" type="radio"/> 0	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3
	<input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6
Ethernet Address: 0000C51DFF07	
Driver Version: 1.4.5	
SNMP Statistics Collection:	
<input type="radio"/> On	<input type="button" value="Statistics..."/>
<input checked="" type="radio"/> Off (maximum performance)	
Farallon Computing, Inc.	<input type="button" value="Diagnostics..."/>

Once the control panel is open, it shows you the Ethernet address of your card and the version of the driver.

The control panel also allows you to view SNMP statistics. Select the On radio button, then click the Statistics... button.

Ethernet Statistics			
received		transmitted	
broadcast packets	0	broadcast packets	0
multicast packets	0	multicast packets	0
total packets	0	total packets	0
total bytes	0	total bytes	0
bad CRC packet	0	deferred transmission	0
collision packet	0	late collision	0
undersize packet	0	excessive collision	0
oversize packet	0	excessive deferral	0
missed packet	0	carrier sense lost	0
discard no protocol hndlr	0	packet monitored bad	0
FIFO overrun	0	FIFO underrun	0
frame alignment error	0	byte count mismatch	0

Update      Reset  
Cancel

The Ethernet Statistics dialog box displays a snapshot of network conditions at the time the box opened. Use the Update button to see a newer snapshot—the counters continue to increment as long as the statistics collection is enabled. Use the Reset button to clear the counters to zero and start a new count.

For more details about the items in the Ethernet Statistics box, see the following MIBs: RFC 1213, RFC 1284. These technical documents can be obtained from IEEE (Institute of Electrical and Electronic Engineers).



After you've finished reviewing Ethernet statistics, click the Cancel button to close the dialog box. Then select the Off radio button in the PB 1400 EN Diagnostics control panel to disable statistics collection. This allows your networking software to work more efficiently.

To run diagnostic tests on your PB 1400 Ethernet Card and its communication with the network, click the Diagnostics... button in the PB 1400 EN Diagnostics control panel.

Important: Before running the tests, be sure that the PB 1400 Ethernet Card is not connected to a heavily used network. The tests involve signalling which could disrupt other network operations. In addition, some tests will fail unless the network link is established. (The green link LED for the port on the PB 1400 Ethernet Card must be lit.)

	PASS	FAIL
<b>LoopBack Tests</b>		
• Media Access Control	<input type="radio"/>	<input type="radio"/>
• Encoder/Decoder	<input type="radio"/>	<input type="radio"/>
• Transceiver	<input type="radio"/>	<input type="radio"/>
<b>Cable Connection Test</b>	<input type="radio"/>	<input type="radio"/>
<input type="button" value="Cancel"/>	<input type="button" value="Test"/>	

In the Diagnostics dialog box, click the Test button. If the first test registers a failure, click the Test button again. If a second failure registers, verify that the link LED is lit. If any of the tests fail repeatedly, contact Farallon Technical Support.

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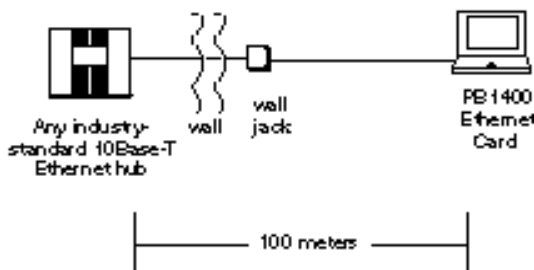
## *Network Guidelines*

This section serves as a review of basic guidelines for traditional 10Base-T networks. The guidelines will help you to verify that your network and your Farallon PB 1400 Ethernet Card will operate well together.

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### *Guidelines for traditional 10Base-T*

- Maximum length of 10Base-T segments = 100 meters (330 feet)
- Maximum number of nodes on a 10Base-T segment = 1
- Recommended cable type = EIA/TIA Category 3 (NEMA standard) or higher



## Appendix A

### Technical Specifications

#### *System requirements*

The Farallon PB 1400 Ethernet Card works in the PowerBook 1400. To use the PB 1400 Ethernet Card, you need a PowerBook 1400 with an available internal expansion slot and at least 8 MB of RAM, operating under System 7.5.3 or higher.

#### *Compatibility with Ethernet standards*

The Farallon PB 1400 Ethernet Card is designed in accordance with the IEEE Standard 802.3 10Base-T.

#### *Environmental characteristics*

Operating temperature:	0° to 40° Centigrade 32° to 104° Fahrenheit
Storage temperature:	-40° to 70° Centigrade -40° to 158° Fahrenheit
Operating humidity:	10% to 80% (noncondensing)
Storage humidity:	5% to 90% (noncondensing)

#### *Power Consumption*

110 mA @ 5 V

### *Ports, cables, and connectors*

10Base-T port on the card requires EIA/TIA Category 3 (NEMA standard) 10Base-T cable or higher with RJ-45 connectors



### *Regulatory notice—United States*

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. 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.

### *Regulatory notice—Canada*

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.



*Regulatory notice—European Community*

This Farallon product conforms to the European Community CE Mark standard for the design and manufacturing of information technology equipment. This standard covers a broad area of product design, including RF emissions and immunity from electrical disturbances.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures. Adequate measures include increasing the physical distance between this product and other electrical devices.

## *Farallon Technical Support*

Farallon Communications is committed to providing its customers with reliable products and excellent technical support. Please take a moment now to fill out the registration card enclosed in your PB 1400 Ethernet Card package so that we can notify you about any relevant updated product information.

Before contacting Farallon Customer Service, please look in this user's guide for answers to your questions and possible solutions to a problem. Also, be sure to read any paper release notes or electronic "ReadMe" files that you receive from Farallon.

If you contact us by telephone, please be at the site of the problem, prepared to reproduce it and to try some troubleshooting steps.

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### *How to reach us*

If you have any questions, concerns, or suggestions, please contact us by telephone, fax, or mail:

Phone: (510) 814-5000

Fax: (510) 814-5023

Farallon Communications  
Customer Service  
2470 Mariner Square Loop  
Alameda, California 94501-1010  
U.S.A.

You can also contact us via the Internet:

[info@farallon.com](mailto:info@farallon.com)

*Farallon BBS*

Farallon Bulletin Board Service: (510) 865-1321

*Farallon FAX-Back*

This service provides technical notes which answer the most commonly asked questions and offer solutions for many common problems encountered with Farallon products.

FAX-Back: (510) 814-5040 In the U.S. and Canada only

*Farallon Internet information resources*

Product information can be found on the Internet at the following addresses:

Anonymous FTP: [ftp.farallon.com/pub](ftp://ftp.farallon.com/pub)

World Wide Web: <http://www.farallon.com>

*Outside of the United States and Canada*

If you are not located in the United States or Canada, you can get service locally by contacting your nearest Farallon reseller or distributor. For a worldwide list of our distributors, see our Internet information resources or contact Farallon directly.

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## *Expanding your network with Farallon*

Farallon has a variety of networking products that allow you to add PC and Macintosh computers, notebooks, PowerBooks, personal digital assistants, printers, and hubs to your EtherWave 10Base-T, traditional 10Base-T, thinnet, or 100Base-TX network:



EtherWave® Macintosh and ISA Cards are Ethernet adapter cards for adding Macintosh and IBM PC-compatible computers to 10Base-T networks.



EtherWave Transceivers allow you to connect any device with Ethernet installed to a 10Base-T network.



EtherWave PowerBook PC Cards are Ethernet adapters for connecting PC Card-equipped computers, PowerBooks, and PC notebooks to 10Base-T networks.



EtherWave Mac/PB Adapters provide a high-speed serial port connection to 10Base-T networks for slotless Macintosh computers, PowerBooks, and Newton personal digital assistants.



EtherWave Printer Adapters allow you to add LocalTalk printers to 10Base-T networks.



EtherWave MultiPrinter Adapters allow you to add several LocalTalk printers to 10Base-T networks.



EtherMac Cards are Ethernet adapter cards for adding Macintosh computers to 10Base-T and thinnet Ethernet networks.



EtherMac Transceivers allow you to connect any device with on-board Ethernet to a 10Base-T or thinnet network.



EtherMac PowerBook PC Cards are Ethernet adapters for connecting PC Card-equipped computers, PowerBooks, and PC notebooks to 10Base-T and thinnet networks.



EtherMac Mac/PB, Printer, and MultiPrinter Adapters allow you to add slotless Macintosh computers, PowerBooks, Newton personal digital assistants, and printers to 10Base-T or thinnet networks.





The Ether10-T Starlet® series of hubs are Ethernet hubs with four, eight, or sixteen 10Base-T ports, and one thinnet port.



The Ether10-T StarController™ is an intelligent hub with twelve 10Base-T ports and an uplink port that can be configured for a thinnet, AUI, or twisted-pair connection.



Fast EtherTX-10/100™ Cards are Ethernet adapter cards for adding PCI and NuBus computers to Fast Ethernet 100Base-TX networks.



The Fast Starlet 100TX/8™ Repeater and the Fast Starlet 10/100™ Bridge are for building Fast Ethernet 100Base-TX networks.

An RJ-45 Crossover Cable (Farallon part number TE471) allows you to connect two similar, non-EtherWave devices to the two ends of an EtherWave daisy chain.

# Warranty

## *Limited Warranty and Limitation of Remedies*

Farallon warrants to you, the end user, that the accompanying Farallon product, which may include third party products or technology (the "Product") will be free from defects in materials and workmanship under normal use. This is a lifetime warranty on the following products: all EtherWave® products, all EtherMac™ products, all EtherThin® products, Ether10-T™ transceivers, Ether10-T™ Starlet®, Fast EtherTX-10/100™ cards and PhoneNET® Connectors. This warranty will expire one (1) year from date of purchase on the Farallon® Concentrator, Fast Starlet® hubs, all bridges, routers, and all other hardware products not listed above as having a lifetime warranty. This warranty will expire ninety (90) days from date of purchase on all software, whether "stand-alone" or delivered as part of a hardware product. Farallon's entire liability and your sole remedy under this warranty during the warranty period is that Farallon shall, at its option, either repair the Product or refund the original purchase price of the Product.

In order to make a claim under this warranty you must comply with the following procedure:

1. Contact Farallon Customer Service within the warranty period to obtain a Return Materials Authorization ("RMA") number.
2. Return the defective Product and proof of purchase, shipping prepaid, to Farallon with the RMA number prominently displayed on the outside of the package.

If you are located outside of the United States or Canada, please contact your dealer in order to arrange for warranty service.

THE ABOVE WARRANTIES ARE MADE BY FARALLON ALONE, AND THEY ARE THE ONLY WARRANTIES MADE BY ANYONE REGARDING THE ENCLOSED PRODUCT. FARALLON AND ITS LICENSOR(S) MAKE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE ENCLOSED PRODUCT. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED ABOVE, FARALLON AND ITS LICENSOR(S) DO NOT WARRANT, GUARANTEE OR MAKE ANY REPRESENTATION REGARDING THE USE OR THE RESULTS OF THE USE OF THE PRODUCT IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE PRODUCT IS ASSUMED BY YOU. THE EXCLUSION OF IMPLIED WARRANTIES IS NOT PERMITTED BY SOME STATES OR JURISDICTIONS, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN THAT CASE, ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO NINETY (90) DAYS FROM THE DATE OF DELIVERY OF THE PRODUCT. THERE MAY BE OTHER RIGHTS THAT YOU MAY HAVE WHICH VARY FROM JURISDICTION TO JURISDICTION.

REGARDLESS OF WHETHER OR NOT ANY REMEDY SET FORTH HEREIN FAILS OF ITS ESSENTIAL PURPOSE, IN NO EVENT WILL FARALLON, ITS LICENSOR(S) AND THE DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS OF ANY OF THEM BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, AND THE LIKE) ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT EVEN IF FARALLON OR ITS LICENSOR(S) HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. FARALLON AND ITS LICENSOR(S) LIABILITY TO YOU FOR ACTUAL DAMAGES FROM ANY CAUSE WHATSOEVER, AND REGARDLESS OF THE FORM OF THE ACTION (WHETHER IN CONTRACT, TORT [INCLUDING NEGLIGENCE], PRODUCT LIABILITY OR OTHERWISE), WILL BE LIMITED TO \$50.

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