

**EN/SC**  
**Mini EN/SC**  
SCSI-to-Ethernet Adapter

**Installation Guide**



 **ASANTÉ**

## **Copyright Notice**

Copyright 1993 by Asanté Technologies, Inc.

All rights reserved. No part of this manual, or any associated artwork, software, product design or design concept, may be copied, reproduced or stored, in whole or in part, in any form or by any means mechanical, electronic, optical, photocopying, recording or otherwise, including translation to another language or format, without the express written consent of Asanté Technologies, Inc.

EtherTalk and Installer are copyrighted programs of Apple Computer, Inc., and are licensed to Asanté Technologies, Inc. to distribute for use only in combination with Asanté Ethernet interface products. EtherTalk shall not be copied onto another disk or diskette (except for archive purposes) or into memory unless as part of the operation of Asanté Ethernet interface products.

## **Trademarks**

Asanté Technologies, MacCon+, MacCon3, FriendlyNet, EN/SC, DecNet, DEC, and the Connectivity Solution are trademarks of Asanté Technologies, Inc.

Apple, AppleTalk, EtherTalk, AppleShare, A/UX and Macintosh are registered trademarks of Apple Computer, Inc.

Ethernet is a registered trademark of the Xerox Corporation, Inc.

All brand names and products are trademarks or registered trademarks of their respective holders.

## **FCC Information**

This equipment is classified as a Class A computing device. Class A devices may be used only in commercial, business, or industrial environments.

This equipment generates, uses and can radiate radio frequency energy. If this equipment is not insulated properly in strict accordance with the instructions in this manual, then it may cause interference in this electronic environment. This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against radio frequency interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user at his own risk and expense will be required to correct the interference in a residential environment.

**EN/SC**  
**Mini EN/SC**  
SCSI-to-Ethernet Adapter  
  
Installation Guide

Asanté Technologies, Inc.  
821 Fox Lane  
San Jose, CA 95131

April 1993

Part Number 06-00075-00 Rev.A

## **Asanté Warranty**

Asanté Technologies, Inc. warrants that its Ethernet interface products will be free from defects in title, materials and manufacturing workmanship for a period of five (5) years from the date of purchase. If the Ethernet interface product is found to be defective, then, as your sole remedy and as the manufacturer's only obligation, Asanté Technologies, Inc. will repair or replace the product provided that (1) you call Asanté Technologies, Inc. for a Returned Merchandise Authorization (RMA) number, that (2) you clearly write this RMA number on the outside of the package, and that (3) you return it, postage prepaid, during the warranty period. This warranty is exclusive and is limited to Asanté Ethernet network interface products.

This warranty shall not apply to Asanté Ethernet interface products that have been subjected to abuse, misuse, abnormal electrical or environmental conditions, or any condition other than what can be considered normal use.

❖ **Note:** The warranty card must be filed with Asanté Technologies, Inc. within 30 days after date of purchase. ❖

## **Asanté Warranty Disclaimer**

Asanté Technologies, Inc. makes no other warranties, express, implied or otherwise, regarding Asanté Ethernet interface products, and specifically disclaims any warranty for merchantability or fitness for a particular purpose.

The exclusion of implied warranties is not permitted in some States and the exclusions specified herein may not apply to you. This warranty provides you with specific legal rights. There may be other rights that you have which vary from State to State.

## **Apple Warranty Disclaimer**

The following disclaimer is required by Apple Computer, Inc. It applies only to the EtherTalk computer software from Apple enclosed with Asanté Ethernet interface products. All Asanté software is covered by Asanté's limited warranty.

APPLE COMPUTER, INC. ("APPLE") MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE FOR A PARTICULAR PURPOSE, REGARDING THE APPLE SOFTWARE. APPLE DOES NOT WARRANT, GUARANTEE OR MAKE ANY REPRESENTATIONS REGARDING THE USE OR THE RESULTS OF THE USE OF THE APPLE SOFTWARE IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE APPLE SOFTWARE IS ASSUMED BY YOU. THE EXCLUSION OF WARRANTIES IS NOT PERMITTED BY SOME STATES. THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

IN NO EVENT WILL APPLE, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS 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 THE INABILITY TO USE THE APPLE SOFTWARE EVEN IF APPLE HAD BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE MAY NOT APPLY TO YOU. APPLE'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.

## **Limitation of Liability**

The liability of Asanté Technologies, Inc. arising from this warranty and sale shall be limited to a refund of the purchase price. In no event shall Asanté Technologies, Inc. be liable for costs of procurement of substitute products or services, or for any lost profits, or for any consequential, incidental, direct or indirect damages, however caused and on any theory of liability, arising from this warranty and sale. These limitations shall apply notwithstanding any failure of essential purpose of any remedy.

# Table of Contents

## **Introduction 1-1**

Summary of EN/SC adapter features 1-2

## **Installing the EN/SC Adapters 2-1**

Preparing for the Installation 2-2

Software: 2-2

Hardware: 2-2

Observing the safety rules 2-5

Link Integrity 2-5

Set adapter's SCSI address 2-6

Determine SCSI termination 2-7

Installing the EN/SC adapter as the only SCSI device 2-9

Installing the EN/SC adapter in a SCSI daisy-chain 2-13

Installing the EtherTalk software 2-16

Two types of software installations 2-16

About EtherTalk Phase 1 and Phase 2 2-17

Accessing network services 2-20

## **Troubleshooter Diagnostic Software 3-1**

Running Troubleshooter Diagnostics 3-2

Changing from EtherTalk to LocalTalk 3-2

Starting Troubleshooter Diagnostics 3-2

Running other diagnostic tests 3-5

Running the Loopback test 3-5

Running the Bandwidth Utilization test 3-6

Obtaining system configuration information 3-9

Quitting Troubleshooter Diagnostics 3-10

Restarting network services 3-10

Asking for Assistance 3-11

Technical Support Hours 3-11

## **Troubleshooting 4-1**

Check the basics 4-1

Run the Asanté Troubleshooter Diagnostics program 4-2

Other tips 4-2

About EtherTalk Phase 1 and Phase 2 4-2

Questions and Answers to common problems 4-3

# **EN/SC Adapter Family Specifications A-1**

LEDs on EN/SC adapter A-3

# **Ethernet Specifications B-1**

A few tips B-1

RJ-45 Connector B-2

# **Glossary G-1**

## List of Figures

- Figure 2-1 Cables provided with EN/SC and EN/SC PB
- Figure 2-2 Cables provided with Mini EN/SC
- Figure 2-3 Link Integrity on Mini EN/SC
- Figure 2-4 SCSI address on Mini EN/SC
- Figure 2-5 SCSI address on EN/SC
- Figure 2-6 Connecting EN/SC as single SCSI device
- Figure 2-7 Connecting Mini EN/SC as single SCSI device
- Figure 2-8 TN TP/AUI switch
- Figure 2-9 Connecting EN/SC to other SCSI devices
- Figure 2-10 Connecting Mini EN/SC to other SCSI devices
- Figure 2-11 Easy Install dialog box
- Figure 2-12 Chooser dialog box
- Figure 2-13 Network Control Panel
- Figure 3-1 Troubleshooter Warning Box
- Figure 3-2 Troubleshooter Window
- Figure 3-3 Bandwidth Utilization
- Figure A-1 EN/SC Ethernet Address
- Figure A-2 Mini EN/SC Ethernet Address
- Figure B-1 RJ-45 Connector and biscuit block pin-outs

# Asking for assistance

To contact Asanté Tech Support for help:

Telephone (800) 622-7464

(408) 435-0706

Fax (408) 432-6018

## Electronic mail

Applelink mail ASANTE.TECH

Internet mail support@asante.com

## Technical Support Hours

6:00 AM to 5:00 PM Pacific Standard Time, Monday—Friday

## Tell us what you think

---

There's always room for improvement and Asanté Technologies is always interested in your comments and suggestions about our product documentation. If you take the time to make suggestions, we will take the time to read and consider your suggestions for new documentation releases.

Please read through this Installation Guide and think about these questions:

- What do you like best about this Guide?
- What do you think is the least valuable or weakest part of this Guide?
- What is the most needed improvement you would make to this Guide?

You can fax your comments and suggestions to:

**Asanté Technologies**

**Attn: Technical Publications**

**(408) 432-1117**

or E-mail them through Internet to:

**techpubs@asante.com**

## Introduction

Thank you for purchasing an Asanté EN/SC or Mini EN/SC family SCSI-to-Ethernet adapter.

The EN/SC Ethernet adapter provides a convenient way to connect your Macintosh to Ethernet using the Macintosh's SCSI port. The adapter passes Ethernet packets between the Macintosh and the network using the Macintosh standard SCSI interface. With the EN/SC adapter, you can attach additional SCSI devices to your Macintosh such as a hard drive, scanner, or CD-ROM.

The EN/SC Adapter has two SCSI ports while the Mini EN/SC Adapter has a single SCSI port. The Mini EN/SC provides a special cable that allows attachment of other SCSI devices.

Asanté EN/SC adapters are compatible with Apple System Software 6.0.7 and higher. They support Macintosh hardware including, the Macintosh Plus, Classic, Classic II, Color Classic, LC, LCII, LCIII, SE, SE/30, II, IIx, IIcx, IIsi, IICI, IIvx, Duo Docking Stations, Performa 200, 400, 600 and all PowerBooks with SCSI ports. The EN/SC adapter family features are detailed in this chapter.

# Summary of EN/SC adapter features

---

Both the Asanté EN/SC adapter and the Mini EN/SC offer these features:

- Compliance with the IEEE 802.3 standard for 10Base2 (thin BNC), 10Base5 (thick) and 10BaseT (twisted-pair) Ethernet
- Compatibility with Apple® System 7, and EtherTalk Phase 1™ and Phase 2™
- Software support for AppleShare™, A/UX™, Novell NetWare™ for Macintosh, 3Com 3+Open™, 3Com 3+Share™, Sitka TOPS™, DEC Pathworks™, and other popular network software
- Support for AFP, TCP/IP, DecNet and LAT protocols
- Troubleshooter diagnostic software for testing and identifying problems

In addition the Mini EN/SC Adapter offers:

- A compact and portable Ethernet adapter
- User selectable link disable switch to operate with non-compliant 10BaseT networks
- Auto-sensing circuitry for 10BaseT and thin ports
- User selectable SCSI termination
- Unique SCSI T-connector cabling

In addition the EN/SC Adapter offers:

- Automatic termination when used with Macintoshes
- Internal termination when used with PowerBooks
- An additional SCSI port

❖ **Note:** In this manual, all references to the EN/SC Adapter will include the EN/SC Adapter and the Mini EN/SC Adapter, except in those cases when the Mini EN/SC differs.

The following table lists each adapter and the Macintosh computers and Ethernet cabling each supports:

---

**Mini EN/SC Adapter Family**

---

<b>Mini EN/SC</b>	<b>Macintosh</b>	<b>Ethernet cabling</b>
Mini EN/SC	PowerBooks and Most Macintoshes	10BaseT and Thin BNC
Mini EN/SC 10T	PowerBooks and Most Macintoshes	10BaseT only

---

**EN/SC Adapter Family**

---

<b>EN/SC</b>	<b>Macintosh</b>	<b>Ethernet cabling</b>
EN/SC	Most Macintoshes	10BaseT, Thin BNC, and Thick DB-15
EN/SC 10T	Most Macintoshes	10BaseT only
EN/SC PB	PowerBooks and Desktop Macintoshes	10BaseT, Thin BNC and Thick DB-15
EN/SC 10T PB	PowerBooks and Desktop Macintoshes	10BaseT only

---

- ❖ **Note:** The EN/SC family is compatible with all current Macintoshes except IIfx, Centris 610, 650, Quadra 700, 800 or 950.



## Installing the EN/SC Adapters

This chapter provides step-by-step instructions for installing Asanté EN/SC and Mini EN/SC adapters and Asanté EtherTalk Installer.

Please make sure you have prepared for the installation by completing each step described in this chapter.

The EN/SC adapter can be the only SCSI device you connect to the Macintosh or it can be one of several devices in a SCSI daisy-chain. The installation procedure for both configurations is described in this chapter.

To install the EN/SC adapter, you need to perform the following operations:

- Connect the EN/SC adapter to the Macintosh.
- Connect the EN/SC to the network cable.
- Connect power to EN/SC.
- Install the EtherTalk software.
- Restart.
- Verify installation by accessing network services.

# Preparing for the Installation

---

Before installing the Asanté EN/SC adapter, make sure you have the following:

## Software:

- An AFP-compliant network operating system and application software to run on the network
- Apple System Software 6.0.7 or higher
- Asanté EtherTalk 5.1 Installer or higher

## Hardware:

### SCSI Cable

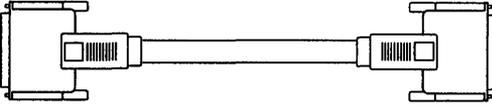
- The appropriate EN/SC Adapter for your computer  
If you have a PowerBook and use the EN/SC PB Adapter or the Mini EN/SC Adapter both have the correct cable and termination option.
- The correct Ethernet cable for your EN/SC Adapter.
- ❖ **Note:** During Installation, all references to the EN/SC Adapter will include the EN/SC Adapter and the Mini EN/SC Adapter, except in those cases when the Mini EN/SC differs.

Below is a list of the Asanté Ethernet adapters and the cable provided by Asanté.

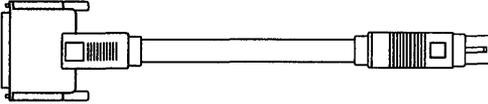
---

<b>Adapter</b>	<b>SCSI cable provided</b>
EN/SC and EN/SC 10T	DB-25 Male to DB-25 Male
EN/SC PB and EN/SC 10T PB	DB-25 Male to HDI-30 connector
Mini EN/SC and Mini EN/SC 10T	2 cables: DB-25 Male to DB-25 Male/DB-25 Female for Macintosh Desktop com- puters HDI-30 to DB-25Male/DB-25 Female for PowerBook

---

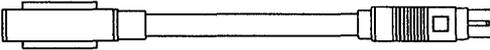


**EN/SC DB-25 to DB-25 SCSI cable  
for the desktop Macintosh (shipped with EN/SC, EN/SC 10T)**

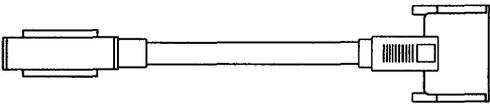


**EN/SC PB DB-25 to HDI-30 SCSI cable  
for the PowerBooks (shipped with EN/SC PB, EN/SC 10T PB)**

**Figure 2-1 Cables provided with EN/SC and EN/SC PB**



**Mini EN/SC DB-25/DB-25 to HDI-30 SCSI cable  
for Macintosh PowerBooks**



**Mini EN/SC DB-25/DB-25 to DB-25 SCSI cable for  
desktop Macintosh**

**Figure 2-2 Cables provided with Mini EN/SC**

It is important to identify the Ethernet type being used in your network, the connection and termination requirements. Each type of your Ethernet cable, must meet certain IEEE Ethernet length specifications. Please refer to Appendix B for detailed information on IEEE Ethernet length specifications.

---

<b>Ethernet</b>		
<b>Cable</b>	<b>Requires</b>	<b>Comments</b>
10BaseT	Hub and RJ-45 connector	10BaseT cable requires 10BaseT-compliant hub
Thin BNC	Pair of 50-ohm terminators and BNC T-connector	Thin cable requires one terminator for each end
Thick	External transceiver and DB-15 (AUI) connector	Adapter and connector are used to connect Macintosh to transceiver

---

## Observing the safety rules

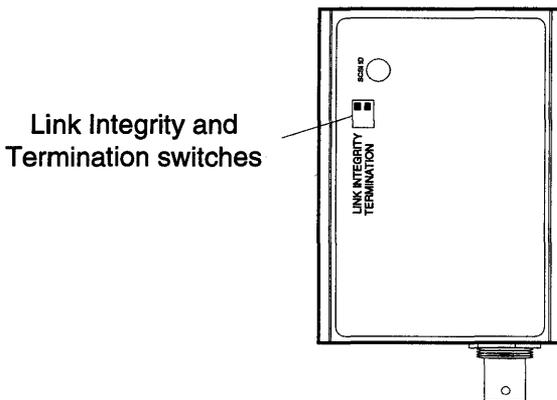
Observe the following safety precautions during the installation:

- Consult your network administrator about the EN/SC adapter installation and its effect on the network. Do not disrupt the network before informing your network administrator. Other users must be warned of the possible interruption of network operations.
- Prior to connecting and configuring the EN/SC, turn off the Macintosh and all peripherals connected to it.

## Link Integrity

On the bottom of the Mini EN/SC there is an ON/OFF switch for Link Integrity.

- If you have a 10BaseT compliant network, set the Link Integrity switch ON.
  - If your network is not 10BaseT-compliant, set the link integrity switch OFF.
- ❖ **Note:** When Link Integrity is OFF, the default 10BaseT port is selected. Auto-sensing for the 10BaseT and Thin ports on the Mini EN/SC Adapter is disabled.

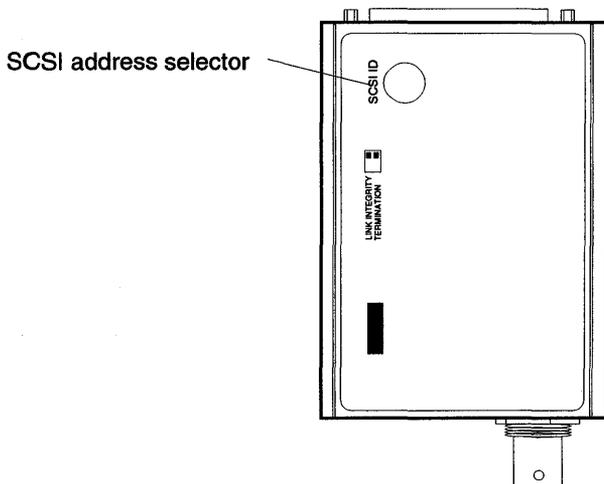


**Figure 2-3** Link integrity on Mini EN/SC

## Set adapter's SCSI address

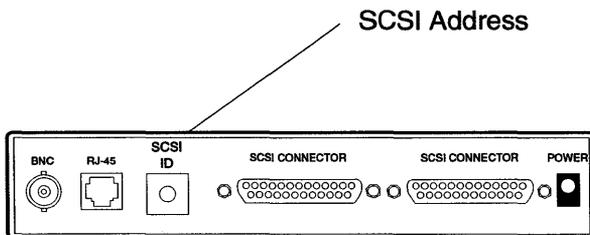
When you add a SCSI device to a Macintosh it must have a unique SCSI address between 1 and 6. A "0" address is usually reserved for the Macintosh internal hard drive. Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain.

- On the Mini EN/SC adapters set the SCSI address using the rotary switch on the bottom.



**Figure 2-4** SCSI address on Mini EN/SC

- ON the EN/SC adapters set the SCSI address using the rotary switch on the back.



**Figure 2-5** SCSI address on EN/SC

## Determine SCSI termination

Follow these simple rules and use the table to determine where you need to provide SCSI termination.

- In a SCSI chain the first and last device in the chain must be terminated with no termination in between.
- Termination is either internal or external. External termination requires a termination block. The first device is always the Macintosh, which is terminated internally.
- If you are not sure if your other SCSI device is internally terminated, check the documentation for the particular SCSI device.

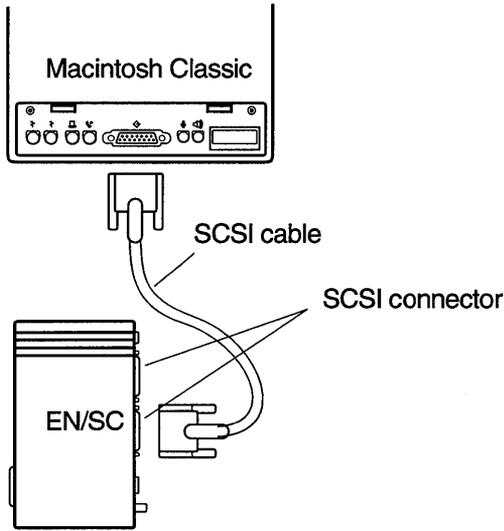
### EN/SC and Mini EN/SC SCSI Termination

Connecting to Powerbook	EN/SC	EN/SC PB	Mini EN/SC
If your adapter is the:			
• Only device	⊖	△	■
• First device in chain	□	□	▲
• Middle device in chain	□	⊖	▲
• Last device in chain	⊖	△	■

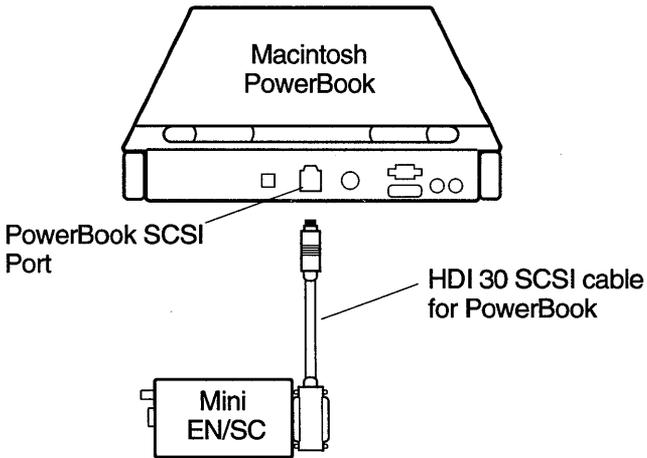
  

Connecting to Desktop Macintosh	EN/SC	EN/SC PB	Mini EN/SC
If your adapter is the:			
• Only device	△	△	■
• First device in chain	□	⊖	▲
• Middle device in chain	□	⊖	▲
• Last device in chain	⊖	△	■

- Termination required on last SCSI device.
- △ Internal termination or no termination required.
- Set SCSI switch to "ON".
- ▲ Set SCSI switch to "OFF".
- ⊖ Do NOT operate in this configuration.



**Figure 2-6** Connecting EN/SC as a single SCSI device



**Figure 2-7** Connecting Mini EN/SC as a single SCSI device

# Installing the EN/SC adapter as the only SCSI device

To install the Asanté EN/SC adapter when it is the only SCSI device attached to the Macintosh, perform the following steps:

**1** Make sure all devices are turned off.

**2** Using the rotary switch on the rear of the EN/SC Adapter or on the bottom of the Mini EN/SC Adapter, set the adapter's SCSI address. You can use any address between 1 and 6 (0 is reserved for the Macintosh hard drive).

- ❖ **Note:** Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain. If there is a duplicate SCSI address in the chain the EN/SC will not register at start-up.

**3** **Connect the EN/SC Adapter:**

### **To the Macintosh**

Using the cable provided with the adapter, plug one end of the SCSI cable into the EN/SC adapter SCSI port and the other end of the cable into the Macintosh SCSI port.

- ❖ **Note:** Please refer to the tables on pages 2-2 and 2-3.

**4** Follow the termination rules described on page 2-7.

**5** **Connect the EN/SC adapter to the Ethernet cable**

Depending on the type of Ethernet cable being used there are certain guidelines that you must follow during installation.

These guidelines are defined below.

#### **With 10BaseT cabling**

- Plug the RJ-45 connector on one end of the cable into the RJ-45 jack on the adapter. The RJ-45 connector's plastic tab snaps locked into the jack.
- Plug the other end of the cable into your 10Base T network hub.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.

#### **With Thin coaxial cabling**



#### **Caution**

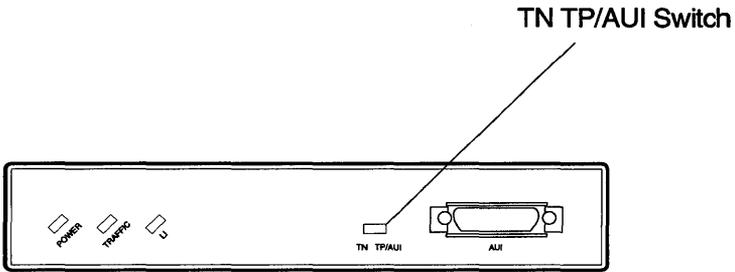
Check with your network administrator before connecting the EN/SC adapter to the network.

- Connect the "T" connector to the adapter's BNC port. The connector slips on, twists, and locks in place.
- If you have a bus topology and if the Macintosh is the first node or last node, terminate one end of the "T" connector using a 50-ohm BNC terminator.
- Move switch to **TN** on the front of the EN/SC adapter.

#### **With Thick coaxial cabling (EN/SC and EN/SC PB)**

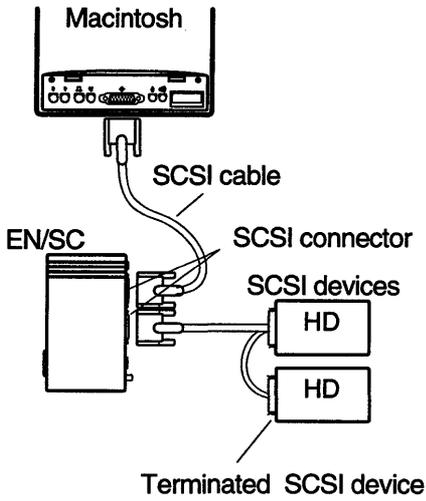
Connect a transceiver to the Thick Ethernet cable:

- Plug one end of the thick Ethernet drop cable into the AUI port on the EN/SC adapter.
- Plug the other end of the thick Ethernet drop cable into the Thick Ethernet backbone tap.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.

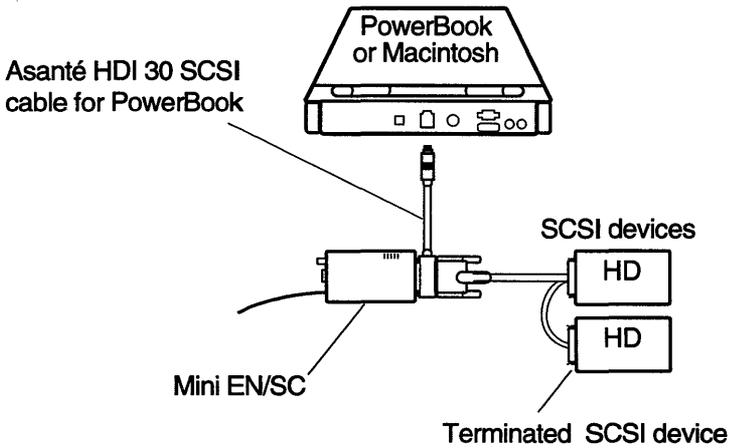


**Figure 2-8** TN TP/AUI switch

- 6** Connect the adapter to the Asanté power adapter provided. **Do not use any other power adapter.**
- ❖ **Note:** The EN/SC uses a 12 VAC power adapter and the Mini EN/SC uses a 12 VDC adapter. The power adapters are not interchangeable. It is important to use the power adapter that was shipped with the product.



**Figure 2-9** Connecting EN/SC to other SCSI devices



**Figure 2-10** Connecting Mini EN/SC to other SCSI devices

# Installing the EN/SC adapter in a SCSI daisy-chain

---

To install the Asanté EN/SC adapter with other SCSI devices, follow the standard requirements for connecting a device to a SCSI chain.

**1** Make sure all devices are turned off.

**2** Using the rotary switch, on the rear of the EN/SC Adapter or on the bottom of the Mini EN/SC Adapter, set the adapter's SCSI address. You can use any address between 1 and 6 (0 is reserved for the Macintosh hard drive).

❖ **Note:** Be careful not to duplicate the SCSI address of any other SCSI device in the SCSI daisy-chain.

**3** **Connect the EN/SC Adapter:**

**To a Macintosh (EN/SC, EN/SC-10T)**

Using the DB-25 to DB-25 SCSI cable supplied by Asanté plug one end of the cable into the Macintosh SCSI port and the other end into the EN/SC adapter SCSI port.

After connecting the adapter to the Macintosh, connect it to the other SCSI device using the appropriate SCSI cable.

**To a Powerbook (EN/SC PB, EN/SC-10T PB)**

Using the DB-25/DB-25 to HDI-30 SCSI cable supplied by Asanté plug one end of the cable into the PowerBook SCSI port and the other end into the EN/SC PB or EN/SC-10T PB adapter SCSI port.

The EN/SC PB and EN/SC-10T PB are internally terminated, and must be placed at the end of the SCSI chain.

## **To connect the Mini EN/SC Adapter to a Macintosh or PowerBook**

Follow the previous instructions for installing the EN/SC adapter using the cables listed below.

- DB-25/DB-25-to-HDI-30 SCSI cable for the Macintosh

- DB-25/DB-25-to-HDI-30 cable for the PowerBook  
(with DB-25/DB-25 “T” side connected to Mini)

After connecting the Mini EN/SC to the Macintosh or PowerBook, connect it to the other SCSI device using the appropriate SCSI cable.

If the Mini EN/SC is the last device, connect it to the SCSI device using the appropriate cable.

- ❖ **Note:** When connecting the Powerbook to the first device in the SCSI chain you can use the (the DB-25-to-HDI-30). To connect the first device to another device with a DB-25 SCSI port use a DB25/DB25 cable. This allows the Mini EN/SC to be attached in the middle of a SCSI chain.

The following steps are the same for the EN/SC and the Mini EN/SC.

**4** Terminate the SCSI daisy-chain. Refer to the table on page 2-7.

**5** **Connect the EN/SC adapter to the Ethernet cable**

Follow the appropriate guidelines for the Ethernet cable you are using.

#### **With 10BaseT cabling**

- Plug the RJ-45 connector on one end of the cable into the RJ-45 jack on the adapter. The RJ-45 connector's plastic tab snaps locked into the jack.
- Connect the other end of the cable into your 10BaseT network Hub or a block wired back to the hub.
- Move switch to **TP/AUI** on the front of the EN/SC adapter.

#### **With Thin coaxial cabling**



#### **Caution**

Check with your network administrator before connecting the EN/SC adapter to the network.

- Connect the “T” connector to the adapter's BNC port. The connector slips on, twists, and locks in place.

- If you have a bus topology and if the Macintosh is the first node or last node, terminate one end of the “T” connector using a 50-ohm BNC terminator.
- Move the switch on the front of the EN/SC adapter to **TN**.

**With Thick coaxial cabling (EN/SC and EN/SC PB only)**

Connect a transceiver to the Thick Ethernet cable:

- Plug one end of the thick Ethernet drop cable into the AUI port on the EN/SC adapter.
- Plug the other end of the thick Ethernet drop cable into the Thick Ethernet backbone tap.
- Move the switch on the front of the EN/SC adapter to **TP/AUI**.

**6** Connect the adapter to the Asanté power adapter provided. **Do not use any other power adapter.**

- ❖ **Note:** The EN/SC uses a 12 VAC power adapter and the Mini EN/SC uses a 12 VDC adapter. The power adapters are not interchangeable. It is important to use the power adapter that was shipped with the product.

Once you have physically connected the EN/SC adapter to the network you are ready to install the EtherTalk software.

# Installing the EtherTalk software

---

An EtherTalk Installer diskette is included with each Asanté EN/SC adapter. This diskette contains Asanté's EtherTalk driver, AppleTalk, and other Apple system extensions. Asanté's EtherTalk device driver allows AppleTalk to communicate with the EN/SC adapter.

## Two types of software installations

Asanté provides two types of installations—an **easy install** and a **customize install**. You should be experienced in network administration to perform the customize install.

For detailed information about each installation, click the **Help** button to display a help screen.

The following table explains which installation to choose:

---

<b>Choose</b>	<b>When</b>
Easy Install	<ul style="list-style-type: none"><li>• You want to install the AppleTalk version on the diskette and the Asanté Ethernet driver.</li><li>• Your network does not present any potential compatibility problems with the AppleTalk version on the diskette.</li><li>• You want access to EtherTalk Phase 2 network services.</li></ul>
Customize Install	<ul style="list-style-type: none"><li>• When your network has software that may conflict with the AppleTalk version on the Asanté diskette.</li><li>• You want to install only specific parts of Apple network software or just the Asanté driver software. Read the <i>Read Me First</i> file for more information about special situations and installation options.</li><li>• You need to install EtherTalk Phase 1 network services.</li></ul>

---

## About EtherTalk Phase 1 and Phase 2

EtherTalk Phase 1 is limited to 254 devices and allows only one zone. EtherTalk Phase 2 has virtually no limit (maximum—over 16 million devices) and allows multiple zones. Phase 2 also offers optimized network performance. The Easy Install provides EtherTalk Phase 2, now used by most networks. If you want to access networks using Phase 1, choose the customized installation.



### Caution

Before you install Asanté's EtherTalk software, disable all extensions and virus detection programs. Then restart your Macintosh.

**1** Read the *Read Me First* file before you install the EtherTalk software.

It contains information about your installation and helps you determine if you need to do a customized installation.

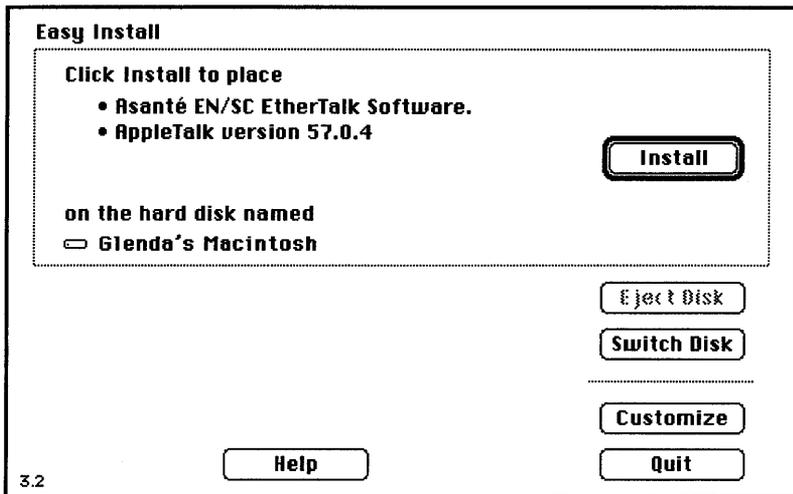
The installation instructions assume that you normally boot from your hard disk.

**2** Insert the Asanté EtherTalk Installer Disk.

**3** Double-click the **Installer** icon and click OK when the Installer banner appears.

The Easy Install dialog box appears.

- ❖ **Note:** To properly install the EtherTalk Installer program, you must double-click the **Installer** icon. Do not drag the files from the diskette to the System Folder.



**Figure 2-11** The Easy Install dialog box

**4** To perform an Easy Install, click **Install**.

The Installer program examines your Macintosh and installs the EN/SC EtherTalk driver and the current AppleTalk.

Click **Restart** when the system informs you that the installation is successful and prompts you to click.

**5** To perform a **Customize** install:

Only experienced Macintosh users should perform a customized installation. Open the *Read Me First* file on the diskette for an explanation of each installation option. Consult your network administrator if you do not understand the *Read Me First* file.

Click, **Customize**.

A dialogue box appears with a list of software options.

Select the appropriate software option. Use **Shift-click** to select multiple operations.

The system informs you when the installation is completed and prompts you to click **Restart**.

Click **Restart**.

- ❖ **Note:** If other Macintoshes on the network have Asanté EtherTalk drivers, we recommend that you upgrade all drivers to the most recent version.

## Accessing network services

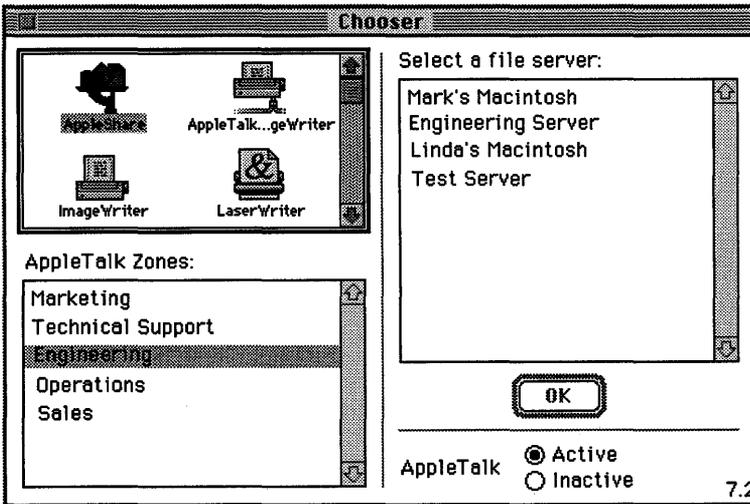
To connect to the Ethernet network you must meet the following requirements:

- AppleTalk must be active in the Chooser dialog box
- EtherTalk must be active in the Control Panel

Asanté EtherTalk driver software enables AppleTalk to interact with the EN/SC adapter and make a connection.

**1** Select Chooser from the Apple menu.

The Chooser dialog box appears displaying all network devices available and the AppleTalk zones.



**Figure 2-12** Example of Chooser dialog box

**2** Click the Active button if AppleTalk is not active.  
Close the Chooser dialog box.

**3** Select Control Panels from the Apple menu.

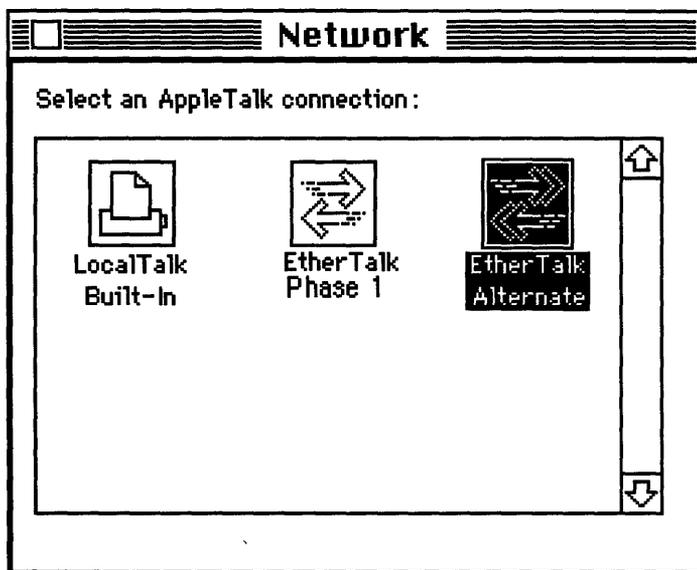
**4** Open the Network control panel.

The Network window contains three types of network icons, **Built-in LocalTalk**, **EtherTalk Phase 1** and **EtherTalk Alternate**.

**5** Select **EtherTalk Alternate**.

Click the EtherTalk icon in the network control panel.

- ❖ **Note:** If you wish to access Phase 1 network services (single arrow), click the Phase 1 icon. If you wish to access Phase 2 network services (double arrow), click the EtherTalk Alternate icon. Click OK to confirm your selection. When you double-click the EtherTalk Alternate icon, the default zone for the node is displayed.



**Figure 2-13** Network Control Panel

**6** Close the Network Control Panel.

Your connection to Ethernet remains active until you switch to LocalTalk, disconnect the cable, or remove the Asanté EN/SC adapter.

**7** Select Chooser and select a network resource such as AppleShare or another network service.

# TroubleShooter Diagnostic Software

The TroubleShooter diagnostic program is provided on the Asanté EtherTalk installer diskette together with the EtherTalk drivers. TroubleShooter helps you identify problems on your network by running diagnostic tests on the Asanté EN/SC adapter. It also provides configuration information about the Macintosh and the EN/SC adapter, such as the Ethernet address.

# Running Troubleshooter Diagnostics

---

The TroubleShooter diagnostic program reinitializes and reconfigures your Ethernet connection and sends data out the Ethernet port. Therefore, before you run TroubleShooter, you must:

- Save all open files and close all active applications.
- Log out of any active network services.
- Save all open files and close all active applications.
- Log out of any active network services.
- Change from EtherTalk to LocalTalk.
- If using System 7, turn off virtual memory.
- Restart your Macintosh with virus software, extensions, and inits disabled.

The following sections provide instructions for these operations.

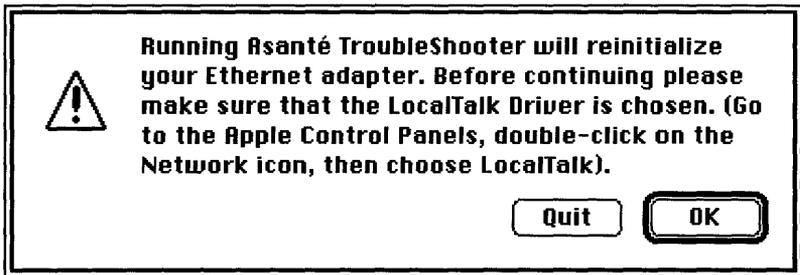
## Changing from EtherTalk to LocalTalk

- 1** Drag any remote volumes into the Trash.
- 2** Change from EtherTalk to LocalTalk by clicking the LocalTalk icon in the network control panel.
- 3** Disable virus software, extensions, and inits.
- 4** Restart.

## Starting TroubleShooter Diagnostics

- 1** Insert the Installer diskette.
- 2** Open the diskette's directory window and double-click the TroubleShooter icon to start the program.

TroubleShooter warns you to change your AppleTalk connection:



**Figure 3-1** TroubleShooter Warning Box

If you need to make this change, click **Quit**, make the change, restart Macintosh and TroubleShooter.

When you click **OK**, TroubleShooter loads and **automatically** runs the following three default tests:

- **Memory buffer test**  
Writes to and reads from the packet buffer RAM to verify its addressability and operation.
- **Network interface controller test**  
Writes to and reads from the controller register to verify its operation. Also issues a transmit command to verify the network interface controller's integrity.
- **Ping-Pong test**  
Transmits and receives special packets to verify communication with other systems on the network.  
If the Ping-Pong test fails, check your connectors and cables.

Troubleshooter opens the Troubleshooter window and displays the results of the following tests:

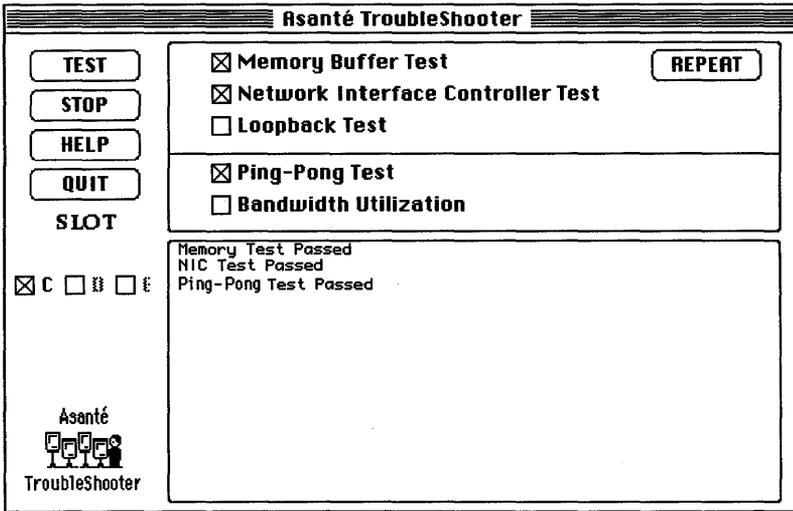


Figure 3-2 Troubleshooter Window

# Running other diagnostic tests

---

In addition to the three default tests, TroubleShooter offers the Loopback test and the Bandwidth Utilization test to validate operation of the EN/SC adapter.

## Running the Loopback test

The Loopback verifies the operation of major components of the interface circuitry, the adapter, the serial network interface, and the thin port transceiver by transmitting and receiving special packets.

If you have an adapter with BNC connectors, disconnect the network cable and attach the T-connector terminating both ends with a 50 ohm terminator.

To run the Loopback test, perform the following steps:

- 1** Click the Loopback Test checkbox to select the test.
- 2** Click **TEST** to start the loopback test.
- 3** If the first test fails, click **REPEAT**. If the tests are “passed” successfully, everything is operating properly.

If you leave your computer connected to the network during the Loopback test, the test may fail due to packet collisions. The test failure does not indicate that the equipment is faulty. Retry the test by clicking **REPEAT**. You need only one successful run to verify proper product operation.

If the Loopback test fails repeatedly, please call Technical Support.

## Running the Bandwidth Utilization test

- 1** Reconnect the Ethernet cable.
- 2** Click the Bandwidth Utilization checkbox to select the test.
- 3** Click the **TEST** button to start the test.
- 4** Data is collected from the network when you click the **TEST** button until you click the **STOP** button. The data represents activity on the network.
- 5** Click the **STOP** button or press any key on the keyboard to stop the test.
- 6** The performance statistics are displayed in the Troubleshooter dialog box.

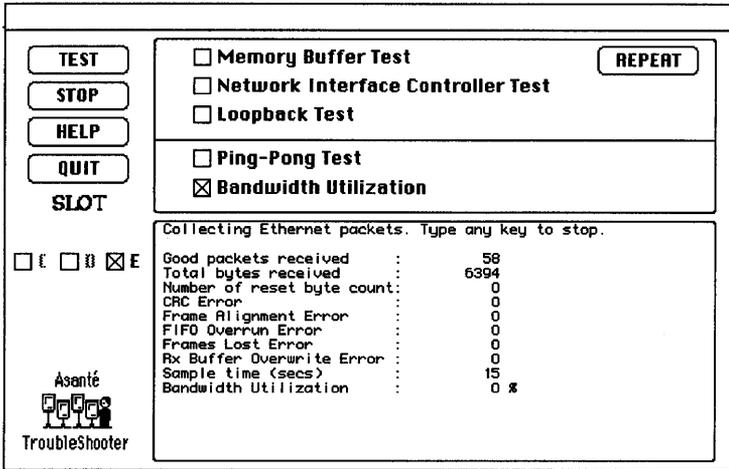
### If a Test Fails...

If a test fails, Troubleshooter displays an error message in the main dialog box. The error message generally consists of three parts:

- The name of the diagnostic test
- "Failed"
- A possible reason for the failure

Check the connections from your Macintosh to the Ethernet cable, and repeat the tests.

If the test fails repeatedly, make a note of the error message, quit the Troubleshooter diagnostics, and call Technical Support.



**Figure 3-3 Bandwidth Utilization**

When you run the Bandwidth Utilization Test it takes a “snap shot” of the network. This test can be used in conjunction with other network analysis tools to identify network problems. Certain network criteria is tested and displayed in the window. A brief description of the criteria is presented in the following list.

- **Good packets received**

Total good packets (error-free) received by the Asanté EN/SC adapter from the network. This allows you to evaluate the activity on the network. The activity level can be used as a benchmark to determine changes in network performance.

- **Total bytes received**

Total bytes received by the Asanté EN/SC adapter from the network. Good Packets received display total packets not the size of each packet. Total bytes received is more specific because it gives the actual byte count.

- **Number of reset byte count**

This number increments by (1) after every 10<sup>9</sup> byte received by Asanté EN/SC adapter from the network.

- **CRC Error**  
Indicates the number of packets with CRC (Cyclic Redundancy Check) errors received by Asanté EN/SC adapter from the network. When a packet is transmitted a mathematical calculation is done on the header and data. This is appended to the back of the frame. The receiver of the packet does the same mathematical computation. If the computations are not equal it is a CRC error and the packet is discarded.
- **Frame Alignment Error**  
Number of misaligned packets received by Asanté EN/SC adapter from the network. If an Ethernet Frame does not end in an 8 bit boundary it is misaligned.
- **FIFO Overrun Error**  
This occurs when FIFO (First In First Out) is disabled causing an overflow during reception. The reception of the packet is aborted.
- **Frame Lost Error**  
This represents the number of lost frames received by the Asanté EN/SC adapter from the network.
- **Receive Buffer Overwrite Error**  
This occurs when the receive buffer is full due to heavy network traffic.
- **Sample Time**  
The time from starting test to completion in seconds.
- **Bandwidth Utilization**  
Total bandwidth utilization of the network. If the bandwidth utilization is over 2 percent it will effect the FIFO Overrun Error and Frame Lost count errors.

# Obtaining system configuration information

---

TroubleShooter provides configuration information about your Macintosh and your EN/SC adapter.

The File menu provides the configuration information in two menu items—Get System Information and Get Adapter Information. The following information is displayed:

---

<b>Menu</b>	<b>Displays</b>
<b>Get System Information</b>	<ul style="list-style-type: none"><li>• System software version number</li><li>• Machine type</li><li>• Memory size</li><li>• ROM version number</li><li>• Installed AppleTalk version</li></ul>
<b>Get Adapter Information</b>	<ul style="list-style-type: none"><li>• Summary of the Ethernet interface hardware specifications:</li><li>• Expansion slot used</li><li>• Card type</li><li>• Card's 6 byte Ethernet address</li><li>• Card's buffer size</li><li>• Asanté driver version: version 5.1 and higher</li></ul>

---

## **Quitting Troubleshooter Diagnostics**

To quit Troubleshooter, click the QUIT button in the Troubleshooter dialog box or quit from the menu bar.

## **Restarting network services**

To restart network services, perform the following steps:

- 1** Restart your Macintosh.
- 2** Activate AppleTalk in the Chooser.
- 3** Select EtherTalk in the Network control panel.
- 4** Select Chooser and select a network resource such as AppleShare or another network service.

# Asking for Assistance

---

If you're having trouble or if a test has failed repeatedly, call your network administrator or Asanté Technical Support. Please write down the information in the following table before you call:

---

<b>Information</b>	<b>To obtain, select</b>
Apple system software and AppleTalk version	<b>Get System Information</b> in Troubleshooter File menu
Ethernet interface configuration	<b>Get Adapter Info</b> in the Troubleshooter File menu
EtherTalk software version of modules installed from Asanté Installer diskette	<b>Get Info</b> in the Troubleshooter File menu
LEDs on adapter	

---

To contact Asanté Technical Support for help:

<b>Telephone</b>	(800) 622-7464 (408) 435-0706
<b>Fax</b>	(408) 432-6018
<b>Applelink</b>	ASANTE.TECH
<b>Internet</b>	support@asante.com

## Technical Support Hours

6:00 AM to 5:00 PM Pacific Standard Time, Monday - Friday



## Troubleshooting

This chapter gives you some basic troubleshooting suggestions if you should encounter any problems installing or using an Asanté EN/SC Adapter or Mini EN/SC Adapter. If you are unable to solve a problem after reading this chapter, please call Asanté Technical Support for assistance at 800-622-7464 or 408-435-0706.

### Check the basics

---

If you have a problem accessing a network node, check the basic requirements shown below:

- 
- |  |   |
|--|---|
| AppleTalk is active in the Chooser.  | ✓ |
| EtherTalk is selected in the Network Control Panel. Make sure the same EtherTalk version (Phase 1 or Phase 2) is on the Macintosh as is used by the network.                               | ✓ |
| AppleTalk zones are visible, when applicable.  | ✓ |
| The SCSI chain and adapter is terminated correctly.  | ✓ |
| Verify that the cabling and connections are secure.  | ✓ |
| The LEDs on the adapter indicate no problems.<br>Refer to Appendix A for information about the LEDs.   | ✓ |
| The Asanté EtherTalk driver is installed on the start-up disk (the EN/SC EtherTalk icon should appear when you restart your Macintosh or EtherTalk Alternate is visible in Control Panel). | ✓ |
-

## **Run the Asanté TroubleShooter Diagnostics program**

---

Run the Asanté TroubleShooter Diagnostics program to identify problems in the installation. Refer to Chapter 3 for more information.

## **Other tips**

---

### **About EtherTalk Phase 1 and Phase 2**

If you have installed both Phase 1 and Phase 2, selecting Phase 1 may make Phase 2 network resources invisible and unavailable. The reverse is true for Phase 2. Switch from one EtherTalk icon to the other to see if this is the case.

Phase 1 networks are limited to 254 nodes and one zone. In a Phase 2 network up to 16 million nodes can be addressed on an Ethernet network. Phase 2 networks support multiple zones sharing the same physical cable. A great majority of network installations now use Phase 2 only.

## Questions and Answers to common problems

---

**Q** When I turn on my PowerBook using the EN/SC adapter, an error message appears and the network connection reverts to LocalTalk. What can I do?

**A** Select Network from the Control Panels and reselect EtherTalk. Network connections are sometimes broken when the PowerBook is in Sleep Mode or turned off.

Remove any old Ethernet drivers by re-running the old driver's Installer and holding down the option key and click on Installer's Customize option.

Reinstall the drivers from Asanté EtherTalk 5.1 or later, using the EN/SC driver Customize option. If the problem persists, call Technical support.

**Q** I am trying to run the Asanté Troubleshooter with an EN/SC PB adapter attached. Why is my system locking up?

**A** Make sure the virtual memory is turned off on the Macintosh. Restart without extensions loaded.

**Q** I connected all the cables and started up my computer but it does not boot. Why?

**A** There may be a duplicate SCSI address on the network. Make sure that each SCSI device has a unique SCSI address between 0 and 6 and that you have proper SCSI termination.

**Q** Why can't I see the EtherTalk icon at start-up and connect to another device on the network?

**A** Did the EN/SC extension load at start-up? Did you hold down the Shift key at start-up? If not, re-install the software using the Asanté EtherTalk installer disk. The EN/SC must be the first extension to load.

**Q** I have connected the Mini EN/SC adapter to the network but the power light is not on. Why?

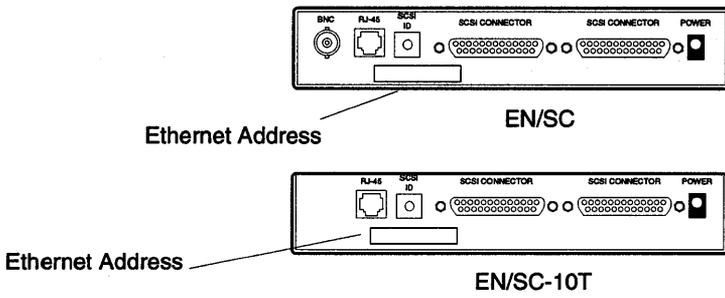
**A** The power light on the Mini EN/SC adapter is lit only if the SCSI cable is properly connected and the power adapter is plugged in. Unplug the power adapter, confirm that the SCSI cable is firmly attached and plug in the power adapter again.

## EN/SC Adapter Family Specifications

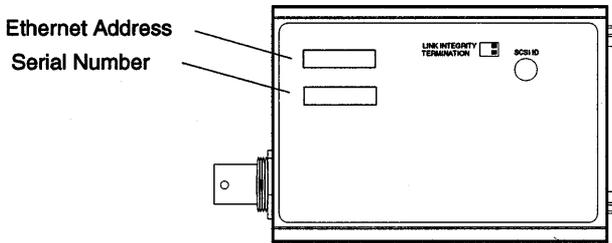
---

	EN/SC	Mini EN/SC
Systems supported	Apple System software 6.0.7 and above, all PowerBooks including Duo Docking Stations, and all Macintosh Plus, Classic, Classic II, Color Classic, LC, LCII, LCIII, SE, SE/30, II, IIx, IIcx, IIsi, IIci, IIvx, Performa 200, 400, and 600 computers.	
Standards supported	IEEE 802.3 Ethernet specifications for thick coaxial (10Base5), thin coaxial (10Base2), and Unshielded Twisted-Pair (10BaseT) media. Phase 1 and Phase 2 EtherTalk. Register-level compatible with Apple Computer's Ethernet cards. AppleTalk Filing Protocol and MacTCP.	
Software supported	AppleShare, Novell NetWare for Macintosh, 3Com 3+Open, 3Com 3+Share, Sitka TOPS, DEC Pathworks, A/UX and other popular network software. 100% System 7 compatible.	
Protocols supported	AFP, TCP/IP, DECnet	
SCSI address selection	Rotary switch EN/SC	
Power requirements	EN/SC <b>12VAC @ 1.25 Amps</b>	Mini EN/SC <b>12VDC @ 800mA</b>
Operating temperature	0° to 50° C Relative humidity: 10% - 90%, non-condensing	0° to 50°
Physical dimensions	EN/SC Length = 8" Width = 4" Height = 1.5"	Mini EN/SC Length = 4.25" Width = 3" Height = 1"
Ethernet address	Asanté Ethernet ID is 000094 xx xx xx EN/SC: located on rear of unit Mini EN/SC: located on bottom of unit	

---



**Figure A-1 EN/SC Ethernet Address**



**Figure A-2 Mini EN/SC Ethernet Address**

## LEDs on EN/SC adapter

---

### EN/SC Adapter

---

<b>Light</b>	<b>ON</b>	<b>OFF</b>	<b>BLINKING</b>
Power	ON	OFF Inoperable	Not Applicable
Traffic	Network Activity	No Network Activity	Network Activity
LI (Link Integrity)	Link OK	Link Disabled	Link OK

---

### Mini EN/SC Adapter

---

<b>Light</b>	<b>ON</b>	<b>OFF</b>	<b>BLINKING</b>
Power	ON	OFF Inoperable	Not Applicable
Network Activity	Network Activity	No Network Activity	Network Activity
Link Integrity	10BaseT Link Integrity OK	10BaseT Link Integrity Disabled	Not Applicable
Link Disable	10BaseT Link Integrity Disabled	10BaseT Link Integrity OK	Not Applicable
SCSI Termination	SCSI Termination ON	SCSI Termination OFF	Not Applicable

---



## Ethernet Specifications

<b>Parameter</b>	<b>10Base2</b>	<b>10Base5</b>	<b>10BaseT</b>
Cable	Thin	Thick	UTP
Impedance	50 ohms	50 ohms	100 ohms
Connector on cable	BNC	DB-15	RJ-45
Data transfer rate	10 Mbps	10 Mbps	10 Mbps
Topology	Bus	Bus/Star	Star
Segment length (maximum)	185 meters	500 meters	100 meters
Distance between nodes (minimum)	0.5 meter	1 meter	n/a
Nodes per segment (maximum)	30	500	n/a

### A few tips

- 10BaseT Ethernet

The wiring normally called for in 10BaseT is 26 to 22 AWG, which corresponds to the wire gauge of telephone unshielded twisted-pair cables. You need two pairs of wiring for each node.

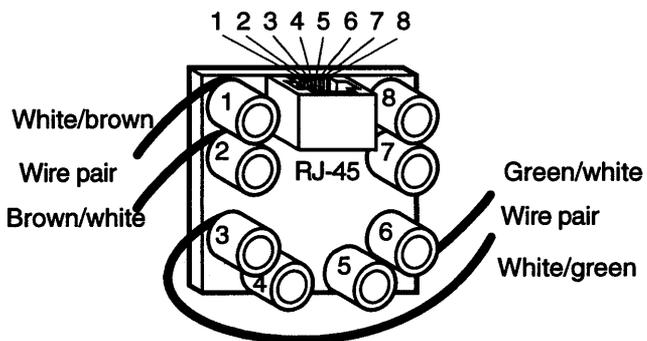
- When wiring 10BaseT connections, take precautions against splitting pairs. Be sure you maintain the same color mates for each pair used within the cable. If you don't follow a common color pairing, you can mix up the wires preventing the Ethernet signal from being transmitted.
- Be sure to check any cabling you plan to use. Older cabling may not be of adequate quality to support 100 meters between a device and the hub.

- When subdividing cable segments, do not randomly pick any length of cable. The IEEE recommends that Ethernet coaxial cable be subdivided at lengths of 23.4 meters (76.8 feet), or multiples of that length, in order to minimize internal signal reflections. Using less than 10 ft. of cable between devices causes reflections. These reflections reduce the signal strength for large networks. On small networks, such as those covering a single floor of a building, these reflections probably won't cause problems.
- You may want to install a wiring system in your building, or you may already have one, that allows you to run a 10BaseT cable to a wall jack.

## RJ-45 Connector

The pin numbers are for an Asanté 10BaseT card or Media Adapter positioned correctly with the notch on the 8 pin modular jack oriented down. Pin 1 is the left-most pin, and Pin 8 is the right-most pin.

Pin	Circuit	Signal Name
1	TD+	Data Transmit +
2	TD-	Data Transmit -
3	RD+	Data Receive +
4		Not used
5		Not used
6	RD-	Data Receive -
7		Not used
8		Not used



**Figure B-1** RJ-45 Connector and biscuit block pin-outs



# Glossary

## **Adapter**

A device that allows one system to connect to another system.

## **AppleTalk**

Apple Computer's networking software and protocols providing capabilities for communications and resource sharing among computers, printers, and other peripherals attached to the network. AppleTalk can be implemented on a variety of cable systems, including LocalTalk and Ethernet.

## **AppleTalk Phase 1**

AppleTalk Phase 1 is the original implementation of Apple's networking software and protocols. It has a restriction of 254 nodes per AppleTalk network and does not permit multiple zones.

## **AppleTalk Phase 2**

Apple released AppleTalk Phase 2 in 1991. AppleTalk Phase 2 does not have the network and zone restrictions of AppleTalk Phase 1. In the AppleTalk Phase 2 environment an AppleTalk network can have over 16 million nodes. Also, one AppleTalk network can be divided into multiple zones.

## **bandwidth**

The capacity of a network to carry information as measured by the maximum number of bits per second (bps) the network can transmit. The higher the bandwidth, the greater the amount of information that can be transmitted from one device to another.

## **bus topology**

In a bus network topology, all computers are connected with a single cable, with a terminator at each end.

## **EtherTalk**

Apple's data-link software that allows the AppleTalk protocol to run on Ethernet media. For information on EtherTalk Phase 1 and EtherTalk Phase 2, see AppleTalk Phase 1 and AppleTalk Phase 2.

## **Ethernet**

A data link protocol jointly developed by Intel, Xerox, and DEC and subsequently adopted by the IEEE as a standard. It uses the CSMA/CD access method and transmits 10 megabits per second.

## **IEEE (Institute of Electronic and Electrical Engineers)**

An organization responsible for setting standards for computers and communication in the United States.

## **LAN**

A LAN (local area network) provides connections between workstations and peripherals such as printers and disk servers in a confined geographical area, usually within a building, or an adjacent building.

## **LocalTalk**

The name for Apple Computer' network connectivity products. LocalTalk was formerly called the AppleTalk Personal Network Cabling System.

**node**

An addressable device on a network, such as a LaserWriter or a Macintosh.

**10Base2**

An implementation of the Ethernet IEEE standard on coaxial cable (Thin), a baseband medium, at 10 megabits per second. The maximum segment length is 185 meters.

**10Base5**

The original Ethernet medium, an implementation of the Ethernet IEEE standard on coaxial cable (Thick), a baseband medium, at 10 megabits per second. The maximum segment length is 500 meters.

**10BaseT**

An implementation of the Ethernet IEEE standard on 24 gauge unshielded, twisted-pair wiring, a baseband medium, at 10 megabits per second. The unshielded twisted pair (UTP) uses RJ-45 eight conductor plugs at each end.

**SCSI**

(Small Computer System Interface) An industry standard interface that provides high speed data transfer. SCSI ports have been standard on all Macintoshes since the Plus.

**Star Topology**

A network where all terminals are connected to a central hub. Starlan by AT&T is an example of a Star Topology.

**Terminator**

Responsible for keeping signals from echoing back and forth along SCSI cabling.

**unshielded twisted pair**

A cable made of two insulated wires twisted together to reduce electrical interference without shield under outer insulation.



# Index

## A

- Accessing network services 2-20
- Apple System Software 1-1
- AppleTalk 2-16, 2-20
- Asking for Assistance 3-11
- Automatic termination 1-2

## B

- Bandwidth utilization test 3-6
- Built-in LocaTalk and EtherTalk Alternate 2-21

## C

- Connect EN/SC to Macintosh 2-13
- Connect Mini EN/SC to Macintosh 2-13
- Connecting EN/SC as only device 2-9
- Connecting EN/SC as only SCSI device 2-9
- Connecting EN/SC in SCSI chain 2-13
- Customize Install 2-16

## E

- Easy Install 2-16
- EN/SC adapter family 1-3
- EN/SC adapter features 1-2
- EN/SC cables 2-3
- EN/SC Ethernet address A-2
- EN/SC LEDs A-3
- EN/SC specifications A-1
- Ethernet 1-3
- Ethernet cabling requirements 2-4
- Ethernet specifications B-1
- EtherTalk Phase 1 2-17, 4-2
- EtherTalk Phase 2 2-17, 4-2
- EtherTalk software 2-16

## G

- Get Adapter Information. 3-9

## **G**

Get Adapter Information. 3-9  
Get System Information 3-9

## **H**

Hardware requirements 2-2

## **I**

Installation EN/SC with 10BaseT 2-10  
Installation of EN/SC with Thick Ethernet 2-10  
Installation of EN/SC with Thin Ethernet 2-10  
Installation prerequisites 2-1  
Installing EN/SC in a SCSI chain with Thin Ethernet 2-14  
Installing EN/SC in daisy chain with Thick Ethernet 2-15  
Installing EN/SC in daisy chain with 10BaseT 2-14  
Installing EtherTalk software 2-16  
Installing Mini EN/SC 2-13

## **L**

Link integrity 2-5  
Loopback test 3-5

## **M**

Mini En/SC adapter family 1-3  
Mini EN/SC family 1-3

## **S**

Safety rules 2-5  
SCSI address 2-6  
SCSI termination 2-7  
Setting SCSI address 2-6  
Software requirements 2-2  
Summary of features 1-2

## **T**

telephone-tech support iv  
Thick Ethernet 2-4  
To connect EN/SC to PowerBook 2-13  
Troubleshooter check list 4-1



**Asanté Technologies, Inc.**  
**821 Fox Lane**  
**San Jose, CA 95131**

**April 1993**

**Part Number 06-00075-00 Rev. A**