

# **Asanté FriendlyNet Adapter Family**

## **Installation Guide**

Asanté Technologies, Inc.  
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San Jose, CA 95131

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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.

## **Asanté Warranty**

Asanté Technologies, Inc. warrants that its Asanté FriendlyNet Adapters will be free from defects in title, materials and manufacturing workmanship for as long as you own the product. If a FriendlyNet Adapter 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 (see "Asking for Assistance" for information on how to contact us). This warranty is exclusive and is limited to Asanté FriendlyNet Adapters.

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

## **Warranty Disclaimers**

Asanté Technologies, Inc. makes no other warranties, express, implied or otherwise, regarding Asanté FriendlyNet Adapters, 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.

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# Asking for Assistance

To contact Asanté Technical Support:

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Bulletin Board Service (BBS) <sup>b</sup>	(408) 432-1416
ARA BBS <sup>b</sup> (guest log in)	(408) 894-0765)
Applelink mail <sup>c</sup> /BBS <sup>b</sup>	ASANTE.TECH
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Internet mail <sup>c</sup>	support@asante.com

a Please request catalog of contents.

b Download INDEX.TXT file for catalog of contents.

c When sending email, please include your full name, US mailing address, phone number, the product name and a description of the problem.

## Technical Support Hours

6:00 AM to 6:00 PM Pacific Standard Time USA, Monday–Friday

# **Tell Us What You Think**

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

Please read through this manual and think about these questions:

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

Fax your comments and suggestions to:

**Asanté Technical Publications at (408) 894-0363**

or

E-mail them through Internet:

**techpubs@asante.com**

## Introducing the FriendlyNet Adapters

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Thank you for purchasing a FriendlyNet™ adapter from Asanté Technologies.

Using a FriendlyNet Adapter, you can connect a Macintosh® computer or any system with an AAUI Ethernet port (Apple Attachment Unit Interface) to an Ethernet network with 10BaseT, thin or thick cabling.

### FriendlyNet Adapter Features

The FriendlyNet Adapter is easy to install—you plug its AAUI connector into the system's AAUI port and connect the adapter to the Ethernet cable.

The FriendlyNet Adapters have the following features:

- ❑ Support of any Apple Macintosh computer, Zenith Data Systems portable, IBM® ThinkPad 300 portable, Apple Laser-Writer IIg printer, Pro 630 printer, or other system with an AAUI Ethernet port
- ❑ Support of Apple's Ethernet Cabling System
- ❑ Full compatibility with IEEE 802.3 specifications for 10BaseT, 10Base2, and 10Base5 Ethernet
- ❑ Full compatibility with System 7.0 and all popular network operating systems including AppleShare, TOPS, NetWare, 3+Open, Unix, DEC Pathworks, and all AFP (AppleTalk Filing Protocol) compatible software
- ❑ Thin Ethernet, self-terminating and non-terminating BNC adapters
- ❑ One-meter long cable for easy placement on desk or floor

The Asanté FriendlyNet Adapters work with all Ethernet interface cards compliant with Apple Ethernet Cabling System specifications.

## Five FriendlyNet Adapters

The FriendlyNet Adapter Family includes five adapters.

The following table shows which FriendlyNet Adapter you should use for your Ethernet network:

**Table 1 FriendlyNet Adapters**

FriendlyNet Adapter	Port	Ethernet Cable Type
FriendlyNet 10T	RJ-45	Unshielded Twisted Pair
FriendlyNet TN	(self-terminating) BNC	Thin (10Base2)
FriendlyNet BNC	(non-terminating) BNC	Thin (10Base2)
FriendlyNet 10T/TN	RJ-45 and (non-terminating) BNC	Unshielded Twisted Pair or Thin (10Base2)
FriendlyNet TK	AUI	Thick (10Base5)

### For Thin Ethernet and Amphenol Wiring System

The FriendlyNet TN Adapter has self-terminating BNC connectors while the FriendlyNet BNC and 10T/TN Adapters have non-terminating connectors.

If you are using an Amphenol® thin self-terminating wall jack, we recommend you use the FriendlyNet BNC or 10T/TN Adapter and not the TN Adapter.

The following sections provide detailed instructions for installing each FriendlyNet Adapter.

# Installing a FriendlyNet 10T

---

To install the FriendlyNet 10T Adapter:

- 1** Locate the AAUI connector on the system you're connecting to the Ethernet.
- 2** Plug the AAUI connector on the adapter's cable end into the AAUI connector on the system.
- 3** Plug the UTP (Unshielded Twisted Pair) Ethernet cable into the RJ-45 connector on the FriendlyNet 10T Adapter. See Figure 1.

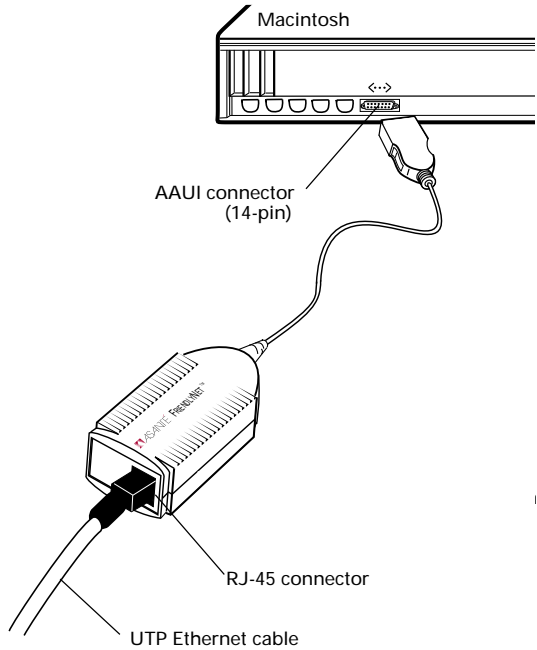


Figure 1 FriendlyNet 10T Adapter

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# Installing a FriendlyNet TN

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To install a FriendlyNet TN Adapter:

- 1** Locate the AAUI connector on the system you're connecting to the Ethernet and plug in the adapter's AAUI connector.
- 2** If the thin Ethernet cable does not have a T-connector or BNC barrel connecting two cable segments, splice the cable with the appropriate BNC hardware.  
  
If the Ethernet cable does have a T-connector or a BNC barrel, remove either.
- 3** Attach the Ethernet cable segments to the adapter's BNC connectors as shown in Figure 2.

If the node is at the end of a segment, remove the T-connector and terminator on the segment cable and connect the cable to a BNC connector on the adapter. You do not need to use a terminator on the FriendlyNet TN Adapter; it is self-terminating.

△ **Note:** Check with your network administrator before disconnecting the Ethernet cable. Other users must be warned of the interruption of network operations. Even if the network uses self-terminating media or connectors, users downstream from the break will be affected.

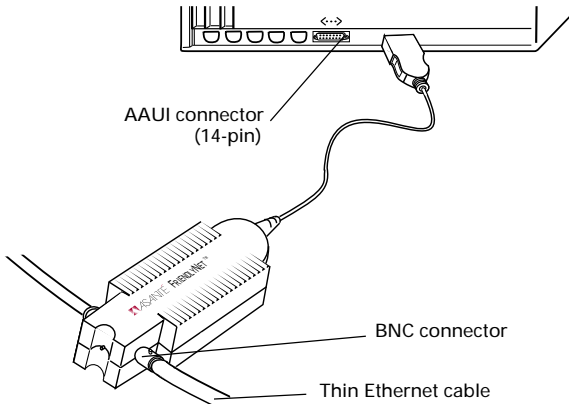


Figure 2 FriendlyNet TN Adapter

# Installing a FriendlyNet BNC

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To install a FriendlyNet BNC Adapter:

- 1** Locate the AAUI connector on the system you're connecting to the Ethernet and plug in the adapter's AAUI connector.
- 2** If the thin Ethernet cable does not have a T-connector or BNC barrel connecting two cable segments, splice the cable with the appropriate BNC hardware.  
  
If the Ethernet cable does have a BNC barrel, remove it and replace it with a T-connector.
- 3** Attach the T-connector on the cable to the FriendlyNet BNC Adapter as shown in Figure 3.

If the node is at the end of a network segment, make sure the segment cable is terminated with a 50 ohm terminator at one end of the T-connector.

△ **Note:** Check with your network administrator before disconnecting the Ethernet cable. Other users must be warned of the interruption of network operations. Even if the network uses self-terminating media or connectors, users downstream from the break will be affected.

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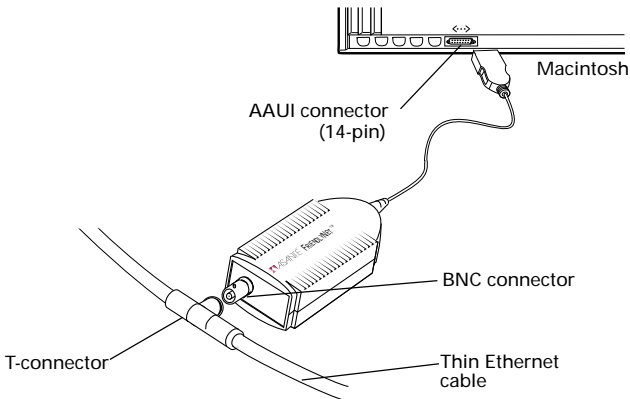


Figure 3 FriendlyNet BNC Adapter

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# Installing a FriendlyNet TK

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To install a FriendlyNet TK Adapter:

- 1** Locate the AAUI connector on the system you're connecting to the Ethernet and plug the FriendlyNet cable's (provided by Asanté) AAUI connector into it.  
  
Plug the other end of the cable into the adapter's RJ-45 port.
- 2** Plug the adapter's AUI connector into the AUI connector on one end of the thick transceiver cable.
- 3** Plug the AUI connector on the other end of the transceiver cable into a thickenet tap or into a multiport transceiver's AUI connector (fan-out box).
- 4** Plug the AC power adapter into the adapter's AC port.

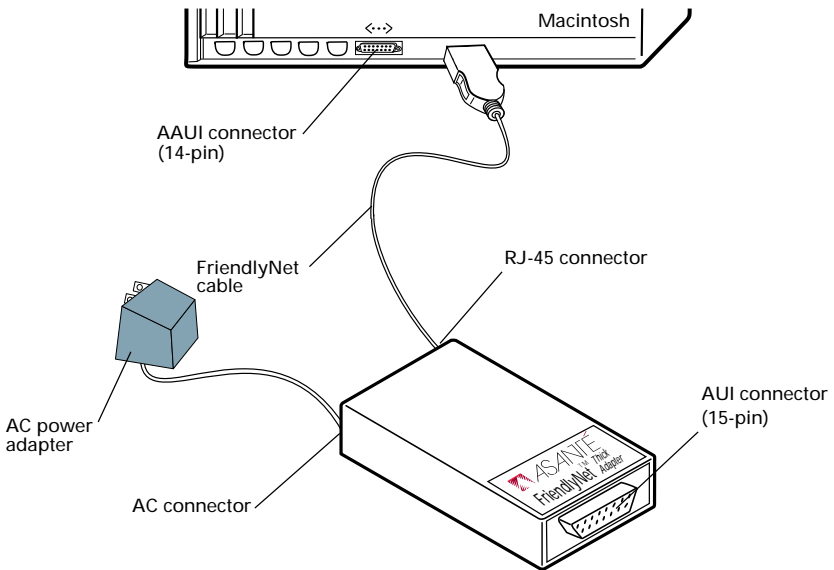


Figure 4 FriendlyNet TK Adapter

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# Installing a FriendlyNet 10T/TN

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The FriendlyNet 10T/TN Adapter provides the flexibility of 10BaseT or thin Ethernet connectivity and is non-terminating.

The adapter automatically detects what type of medium is used; configuration is not required.

To connect a system to 10BaseT Ethernet cabling, install the adapter the same way as you install the FriendlyNet 10T Adapter.

To connect a system to thin Ethernet cabling, install the adapter the same way as you install the FriendlyNet BNC Adapter.

- △ Note: You cannot use both ports on the adapter at the same time.

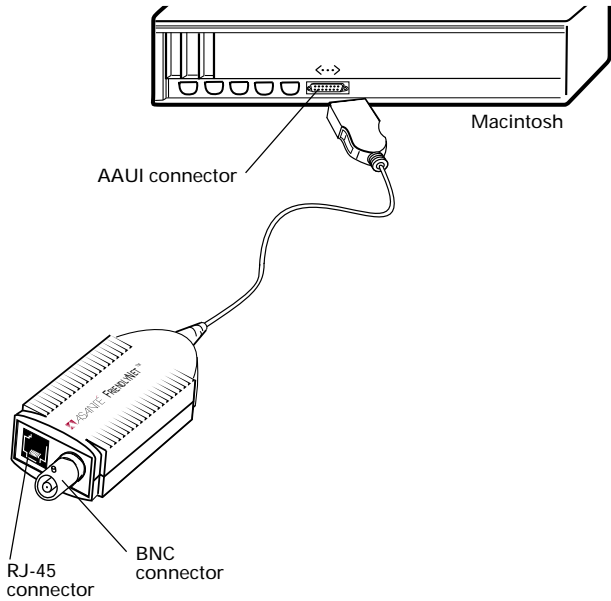


Figure 5 FriendlyNet 10T/TN Adapter

# Technical Specifications

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These sections contain technical specifications for the FriendlyNet Adapters, the AAUI and AUI connectors, Ethernet cabling.

## FriendlyNet Adapter Specifications

### Physical Dimensions

FriendlyNet 10T—3.5" x 1" x 1.8"

FriendlyNet BNC—3.5" x 1" x 1.8" (not including BNC connector)

FriendlyNet 10T/TN—3.5" x 1" x 1.8" (not including BNC connector)

FriendlyNet TN—3.5" x .75" x 1.4"

FriendlyNet TK—4" x .9" x 2.4"

### Power

FriendlyNet 10T—60mA @5Vdc

FriendlyNet BNC—80mA @5Vdc

FriendlyNet TN—55mA @5Vdc

FriendlyNet 10T/TN—100mA @5Vdc

FriendlyNet TK—666mA @12Vac

### LEDs

⚡ —Power

LI —Link integrity detected

### Environmental

Operating temperature: 0-55 degrees C

Operating humidity: 5 to 85% non-condensing.

Storage temperature: -30-80 degrees C.

Storage humidity: 5-90%, non-condensing.

### Standards Compatibility

Full compliance with the IEEE 802.3 Ethernet specifications for unshielded twisted-pair (10BaseT), thin-coaxial (10Base2) and thick-coaxial (10Base5) media.

### Hardware Supported

Support of all computers and printers with a built-in AAUI Ethernet port, including the Power Macintosh® family, Macintosh Quadra® family, Zenith Data Systems® portable, IBM ThinkPad® 300 portable and Apple LaserWriter® printers with built-in Ethernet.

## Software Supported

The Asanté FriendlyNet Adapters are physical layer devices which support any software or protocol that operates on Ethernet networks including AppleShare, Novell NetWare, DECnet, DEC Pathworks and TCP/IP.

## Warranty—Lifetime

## Port Configurations

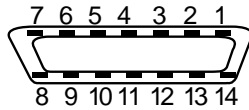
FriendlyNet Adapter	Ports
FriendlyNet 10T	RJ-45 and AAUI
FriendlyNet TN	BNC (self-terminating) and AAUI
FriendlyNet BNC	BNC (non-terminating) and AAUI
FriendlyNet 10T/TN	RJ-45, BNC (non-terminating) and AAUI
FriendlyNet TK	AUI and AAUI

## AAUI Connector Pin-Outs

The AAUI is a 14-pin connector used in the Apple Ethernet Cabling System and in the Asanté FriendlyNet system as a universal interface to various external transceiver units (MAUs).

**Table 2 AAUI connector pin-outs**

Pin	Circuit	Signal name
09	TX+	Transmit +
10	TX-	Transmit -
02	RX+	Receive +
03	RX-	Receive -
05	CD+	Collision Detect +
06	CD-	Collision Detect -
07	+5 V	
04	GND	

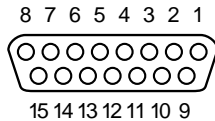


**Figure 6 AAUI connector pin number assignments**

# AUI Connector Pin-Outs

**Table 3 AUI connector pin-outs**

Pin	Circuit	Signal name
03	DO+	Data Out + (transmit pair)
10	DO-	Data Out -
11	DO S	Data Out Shield
05	DI+	Data In + (transmit pair)
12	DI-	Data In -
04	DI S	Data In Shield
07	CO+	Control Out + (optional)
15	CO-	Control Out -
08	COS	Control Out Shield
02	CI+	Control In + (optional)
09	CI-	Control In -
01	CI S	Control In shield
06	VC	Voltage Common (power pair)
13	VP	Voltage Plus
14	VS	Voltage Shield
Shell	PG	Protective Ground



**Figure 7 AUI connector pin number assignment**

# Cable Specifications

**Table 4 Ethernet requirements**

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









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