Ethernet Adapter (260-5505/A/B) Network Faxback Doc. # 5614

The Tandy Ethernet Adapter will operate in either a Thin Ethernet or a standard "thick" Ethernet network environment. The following table and sections describe characteristics and interconnection of standard and Thin Ethernet network types.

	THIN ETHERNET (STANDARD/EXTENDED)		THICK ETHERNET
ADAPTER PORT SELECTION - W3	BNC Port (factory default)		AUI Port
CABLE TYPE	Flexible/economical RG58 A/U		Rugged/Installed Trunk Coaxial
MINIMUM NODE SPACING	.5 meters		2.5 meters (between tap marks)
MAXIMUM CABLE SEGMENT LENGTH	185 meters	300 meters	500 meters
MAXIMUM SEGMENTS IN-LINE	5	3	3 (+ two repeater links)
NETWORK SPAN WITH REPEATERS	925 meters	900 meters	2500 meters
COMPUTERS/ CABLE SEGMENTS	30	100	100
TOTAL COMPUTERS IN NETWORK	1024		1024

THIN ETHERNET NETWORK

A Thin Ethernet cable segment consists of the total length of all cables used between network computers in a continuous chain. A repeater is used to attach the next cable segment. The Tandy Ethernet Adapter will function without jumper changes on cable segments from .5 to 300 meters long.

If your network uses standard 185-meter cable segments all Thin Ethernet cable segments in the network can be up to 185 meters long. Five standard-length cable segments can be connected in-line, using commercially-available repeaters, for a total network span of 925 meters. No more than four repeaters may be on the signal path between any two network computers. The standard 185-meter segment length allows you to use Thin Ethernet components that meet the IEEE standard. If your network is using extended-length 300 meter segments all Thin Ethernet cable segments in the network can be up to 300 meters long. Three 300-meter cable segments may be connected in-line, using repeaters, for a total network span of 900 meters. No more than two repeaters may be in the signal path between any two network computers. All repeaters, transceivers, and LAN adapters on a 300-meter segment must be designed for operation on extended length segments.

Note that you cannot use Tandy Ethernet Adapters on 300-meter cable segments unless all other LAN adapters and repeaters used in the network are also capable of operation on the extended segment length.

CONNECTING TO THIN ETHERNET CABLE

First, attach the BNC "T" connector (supplied with the Tandy Ethernet Adapter) to the BNC network port at the rear of the computer.

Next, attach one end of the coaxial cable to an open end of the "T" connector on the first computer. Align the notches in the cable-end with the posts on the "T" connector, push the cable in, and twist about one-quarter turn. Avoid severe bending or kinking of the cable.

Attach the other end of the cable to an open end of the "T" connector at the rear of the second computer. Continue making connections to the rest of the computers. Do not exceed 300 meters of interconnection cable without using a signal repeater to attach another network segment.

When all computers have been connected, attach a 50 Ohm cable terminator at each of every segment.

STANDARD ETHERNET NETWORK

A standard Ethernet cable segment is a continuous thick coaxial cable up to 500 meters in length. An Ethernet network is composed of a main cable segment (or "spine") with additional segments ("ribs") attached to the main cable segment through repeaters. Computers are generally attached to the rib segments, but may also be attached to the spine segment.

Ethernet network connections are made to go through AUI drop-cables. The AUI drop-cable can be up to 50 meters in length. One end of the drop-cable is attached to the AUI port on the Tandy Ethernet Adapter. The other end of the drop-cable is attached to the Ethernet cable segment through a MAU.

The Tandy Ethernet Adapter can use MAUs that meet the IEEE 802.3 standard as well as the Ethernet version 1 or 2 standards. MAU connections must be made at marked 2.5 meter intervals on thick Ethernet cable. A 50 Ohm cable terminator must be installed at the end of every cable segment. Signal repeaters are used to interconnect 500-meter segments for larger networks. Repeaters retime and amplify network signals and are available with single or multiple output connections. If a MAU transceiver is equipped with the system quality error (SQE) test function, the test must be disabled for use with a repeater. Repeater links that use fiber optic cables can be used to extend the total network span to 2500 meters.

CONNECTING TO THICK ETHERNET CABLE

Starting with the first computer to be connected, attach a drop-cable to the AUI port on the Tandy Ethernet Adapter. A sliding latch is provided on the AUI port that locks the cable to the connector. The sliding-latch is snug and requires some effort to lock in place.

Attach a MAU transceiver at a marked location on the Ethernet cable (Ethernet trunk coaxial cable is marked at 2.5 meter intervals). Several types of cable-tap kits are available; follow the instructions provided with the kit you are

using.

Connect the other end of the AUI drop-cable to the MAU transceiver. Lock the sliding-latch to hold the AUI connector in place.

Attach all of the computers and segments to the main or "spine" Ethernet cable in similar fashion. Use a signal repeater to attach each additional cable segment or "rib" (500 meters each, maximum). Attach a 50 Ohm cable terminator at each end of every cable segment.

INTERCONNECTING THIN AND THICK ETHERNET

Thin Ethernet cable segments can be connected to thick Ethernet cable segments through a signal repeater or a BNC to N-type adapter. If you are interconnecting through a repeater, attach the repeater to the Ethernet cable through a MAU transceiver.

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