

THOMAS-CONRAD AND ARCNET®:  
TAKING PERFORMANCE TO THE LIMIT.



**THOMAS-CONRAD**  
CORPORATION



## ARCNET: THE MOST POPULAR PROTOCOL IN THE WORLD.



There are a lot of reasons to choose ARCNET for your network. But the most compelling is its adaptability. For starting a network, or updating an existing system, ARCNET has unsurpassed flexibility.

ARCNET's flexible topology makes it work with ease in a wide variety of office or plant environments. You can connect PC's from a few feet apart to 20,000 feet apart. From the 1st floor to the 75th floor. And just as important, ARCNET automatically prevents one station from hogging the network, allowing collision-free, equal access.

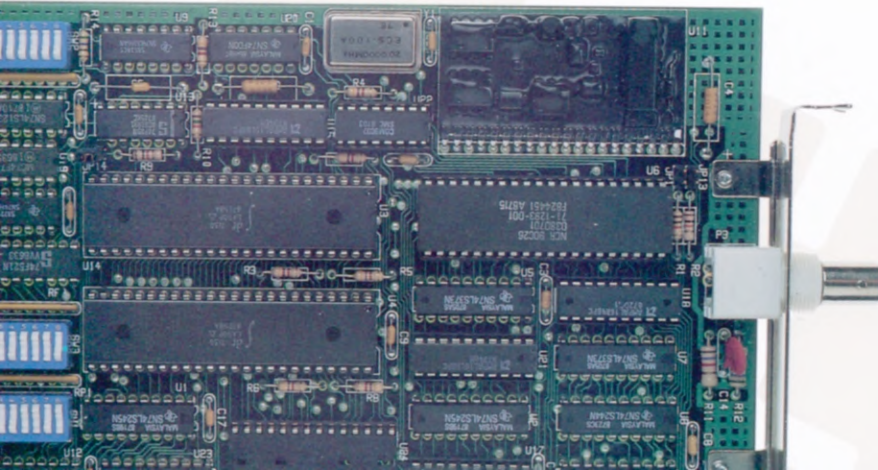
ARCNET's connection logic is very simple. So simple, that you can add, relocate, connect and disconnect PC's without affecting the rest of your network. With a star topology, a bus topology or a combination of both. And it is so reliable, you know you'll get the same solid performance, day in and day out.

ARCNET's utility is possible largely because it allows a choice of cabling types, from fiber optics to coaxial to twisted pair. While coax is the industry standard for computer connections, fiber optic cable is the "wire" of the future — especially important in plant installations where electrical "noise" is a problem, or in network installations where security is a prime concern.

ARCNET is supported by most of today's acknowledged top network operating systems; such as Novell's® Netware™, Western Digital's® Vianet™ and Banyan's® Vines™. What's more, its token-passing format assures the kind of high throughput that equates to productivity in the workplace. And after all, isn't that the bottom line?

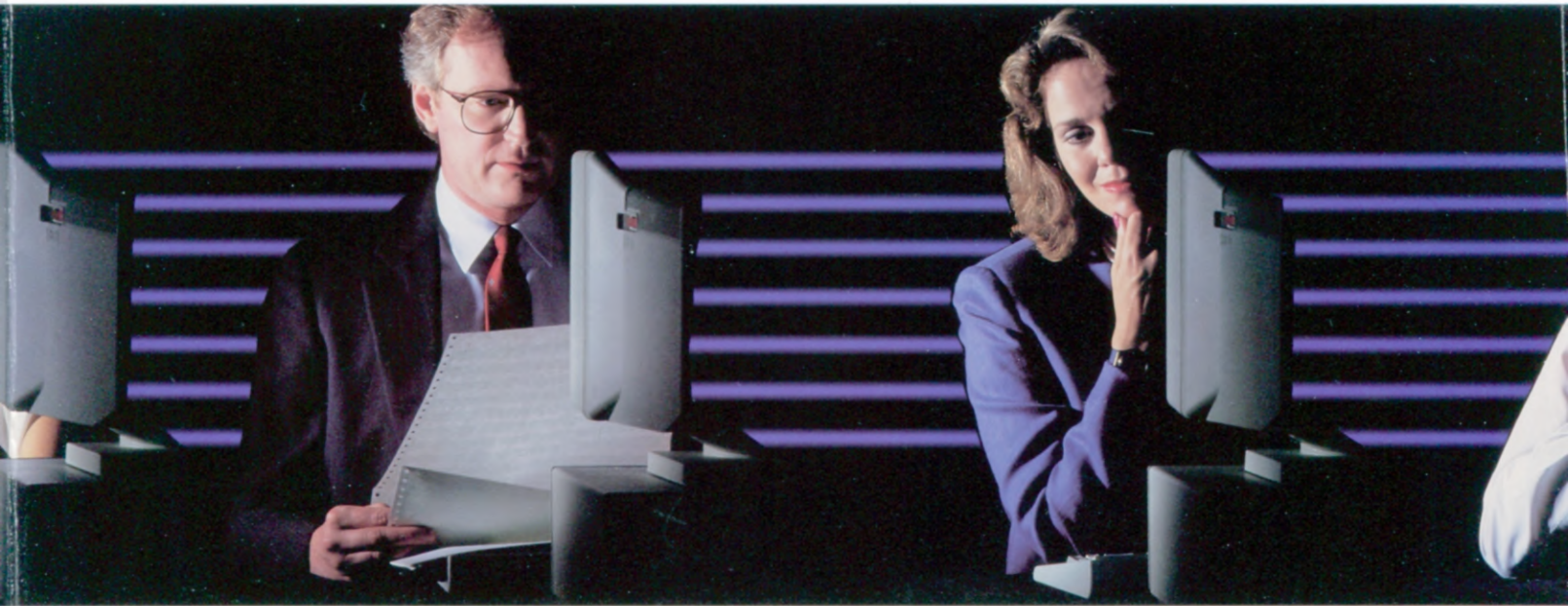
It is — if your cost-per-node is reasonable.

Here again, ARCNET stands out. If you were to survey ARCNET's worldwide user base of almost 1,000,000, you'd find the majority made their purchase decisions because of ARCNET's cost-effective technology, and because ARCNET's features satisfy almost every user's network needs. In actual use, ARCNET simply outperforms other protocols, and does it at a lower cost. Small surprise, then, that PC Magazine named ARCNET its Editor's Choice in their benchmark comparison of LAN protocols (PC Magazine, December 9, 1986).





## OUT-PERFORMING. OUT-PRODUCING. OUT FRONT.



From two to two hundred nodes, ARCNET has higher performance ratings in terms of data throughput vs. other LAN protocols. In part, because more people involved with networking understand performance, not as a theoretical measurement of optimum speed, but as it relates to real-world productivity. And too, networking managers are factoring in the "downtime" often associated with many other topologies.

*System reliability* should be your number one concern when choosing a network and equipment, if, like many businesses, yours is utterly dependent on its computer system. That's the reason for our absolute dedication to quality.

At Thomas-Conrad, our commitment to manufacturing high-quality products has earned us a world-wide reputation as the top-performing, dependable source for ARCNET components. And our

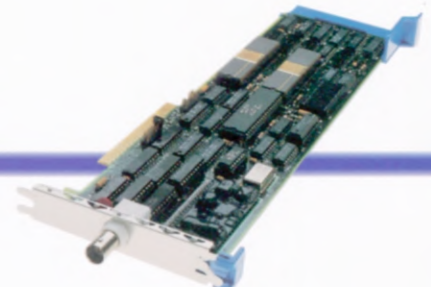
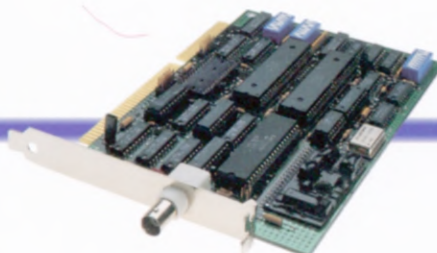
dedication to developing high-performance products has resulted in some significant technical achievements:

Our 8-bit cards were the first to run on the 16 MHz machines. We introduced ARCNET LAN users to the first affordable 16-Bit Data Bus interface cards, maximizing performance on AT computers. We repeated that feat by taking throughput for PS/2 users to the limit. And we are constantly working on other innovative products for computer networks.

Thomas-Conrad is recognized as the manufacturer of choice for reliable, quality-engineered components supporting the ARCNET protocol. It costs lots of time and money to find a defective card on a network, so it pays to specify the cards with the industry's lowest failure rate. Our line of trouble-free products has become the network support system of choice

for many major corporations throughout the world. Not to mention hundreds of law firms, financial institutions, insurance firms and other companies, both large and small. Many customers have discovered that ARCNET and Thomas-Conrad work where others will not; that's part of the reason for our continuing commitment to deliver design innovation, quality engineering and first-class support to our customers.

Every single product we make is backed by a two-year warranty; and, with an understanding that growth is the aim of every business, we have "designed-in" on-site upgradability into our products. This means that a network using an 8-port active hub can be upgraded to a 16-port hub with the installation of an additional board — and larger networks can be linked by "daisy chains" of active hubs, up to hundreds of nodes.





## THOMAS-CONRAD. YOUR CONNECTION WITH SUCCESS.



By choosing Thomas-Conrad, you'll discover an array of products that elevate all the computers on a network to the highest level of ARCNET performance obtainable. That's literally what we call "taking performance to the limit".

**ARC-CARDS** are available in an 8-Bit version for IBM PC/XT/ATs and compatibles, a 16-Bit version for 286/386 ATs and a 16-Bit version for PS/2™ Micro Channel™ computers. The 16-Bit ARC-CARDS will improve across-the-board network performance by an average of 10–15%, when installed in the file server alone. In comparison to 8-bit cards, when installed in both the file server and workstations, 16-bit cards will increase performance by as much as 50%.

All ARC-CARDS also operate in computers with bus speeds up to 20MHz. They come with software drivers for multiple base address and interrupt selections, and use only 16K of system address space, instead of the more prevalent 64K used by other network interface

cards. ARC-CARDS can also work with other add-in cards, such as enhanced graphic adapters, expanded memory cards and 3278/79 emulation adapters. Up to four ARCNET networks can be bridged in any workstation or file server. ARC-CARDS work with the IBM® 3270 PC control program and indeed, with virtually all network operating software supporting ARCNET: from Netware to Vianet, to Vines and more. Now that's compatibility. And all ARC-CARDS have an auto-boot PROM socket, for implementing diskless workstations.

**Active hubs** are available in 8, 16 and 64 port versions, which can include both coax and fiber optic connections. Activity LEDs for each port provide a positive indicator for ease in troubleshooting. Active hubs regenerate incoming signals,

linking stations on the system for long connections. **Passive hubs** relay network signals and provide four coaxial cable ports for short connections.

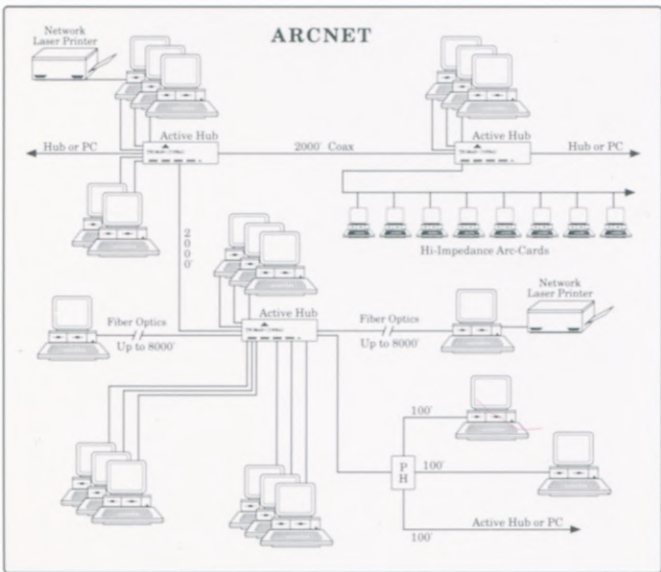
And Thomas-Conrad's **Safety Net** software for ARCNET LANs allows operation of a parallel LAN, for those networks that cannot endure downtime for any reason. If one network shuts down, the other continues to operate without interruption. How's that for fail-safe?

Now that you've discovered how Thomas-Conrad helps users get the best return from their network investment in ARCNET, isn't it time you learned more? For complete information, or for the name of a dealer near you, call Toll-Free **800-332-8683**.





**MAXIMUM PERFORMANCE  
FOR YOUR NETWORK INVESTMENT**



ARCNET's flexible topology is ideal for anticipating business growth.  
Example: bus topology integrated into overall system star topology.



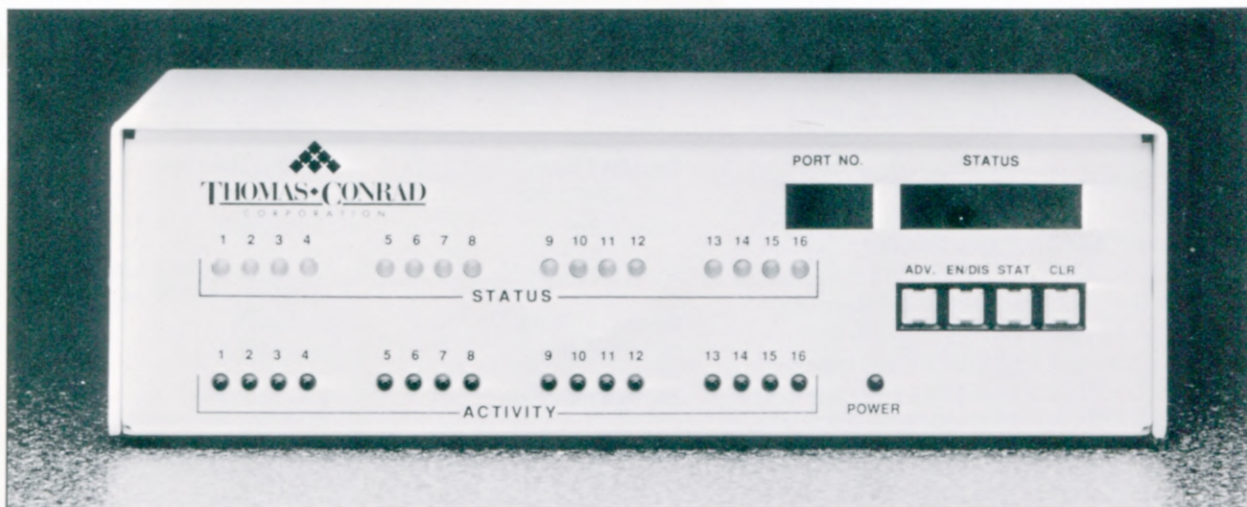




8403 Cross Park Drive, Building One/C Austin, Texas 78754  
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# TC6150 SMART HUB



## INTELLIGENT HUBS FOR ARCNET® LANs

### TC6150 Active Hub

- ◆ On-board diagnostic facilities
- ◆ Digital display of reconfiguration attempts by port
- ◆ Status and Activity LEDs for each port
- ◆ Four position keypad to control hub displays, enable/disable ports
- ◆ Up to 16 ports
- ◆ ARCNET compatible
- ◆ Configurable with coax, fiber optic and twisted pair ports
- ◆ Modular design, field expandable
- ◆ 2 year warranty

The TC6150 is an intelligent version of the TC6050 Active Hub. It is available with the same configurations, features and services as the TC6050 Active Hub. In addition the TC6150 provides displays, operator interfaces and on-board intelligence which assist in the diagnosis of ARCNET networks.

### Activity/Status Displays

Activity LEDs are provided for each port on all Thomas-Conrad ARCNET

Active Hubs. TC6150 Hubs have a second set of LEDs which display the status of each individual port. Status LEDs are bi-color devices which indicate whether the port is enabled or disabled, and denote the initiation of a reconfiguration or "recon" by one of the nodes connected to the port.

### Status Display:

Status	Display
enabled	= off-state
disabled	= red
reconfiguration	= green

### Reconfiguration Display

A six position numeric display is provided on the front of the TC6150 Hub to indicate the number of reconfigurations attempted by the station connected to each individual port. Two positions on the display identify the port, the other four display the number of recons attempted.



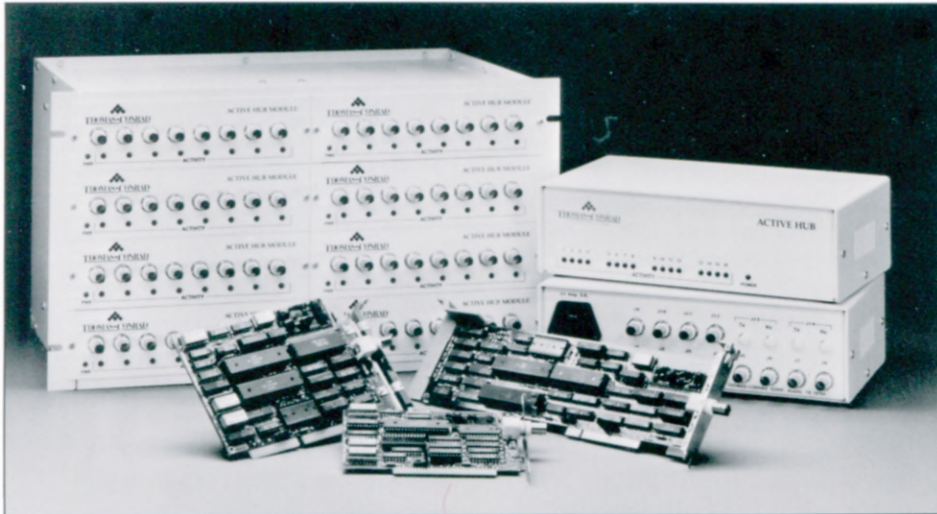
## Keypad

A four position keypad, located below the reconfiguration display, allows an operator to control the diagnostic features of the TC6150. The keypad allows the operator to sequence through the ports on the TC6150, clear the reconfiguration count and enable or disable the current port.

Thomas-Conrad's TC6150 Active Hub digitally conditions, amplifies, and relays signals between stations on an ARCNET local area network. It has all of the same features as the TC6050 Active Hub. When connected together, TC6150s and TC6050s can support the maximum ARCNET network span of 20,000 feet.

All TC6150 base unit configurations are expandable with the addition of an "expansion module." TC6150 expansion modules are available in the same configurations as the base unit and can be added to accommodate a mixed media environment.

<b>Dimensions</b>	(inches) 11.00w x 3.20h x 6.75d
<b>Weight</b>	(pounds) 5
<b>Power Requirements</b>	120VAC at 0.60A, 50/60 Hz 240VAC at 0.30A, 50/60Hz
<b>Temperature Range</b>	Operating: 0°C to 70°C Storage: -40°C to +70°C
<b>Relative Humidity</b>	Operating: 10% to 80% Storage: 5% to 80% (non-condensing)
<b>Coaxial Cable Connector Type</b>	RG62/U, 93 Ohm
<b>Max. Length</b>	BNC (feet) 2000
<b>Fiber Optic Cable Connector Type</b>	50/125 μm, 65.2/125 μm, 85/125 μm, 100/140 μm, 200 μm PCS.
<b>Max. Length</b>	SMA-style (feet) 8000
<b>Twisted Pair Plus</b>	120-150 Ohm (shielding recommended)
<b>Connector Type</b>	RJ-11
<b>Max. Length</b>	(feet) 800



## ORDERING INFORMATION

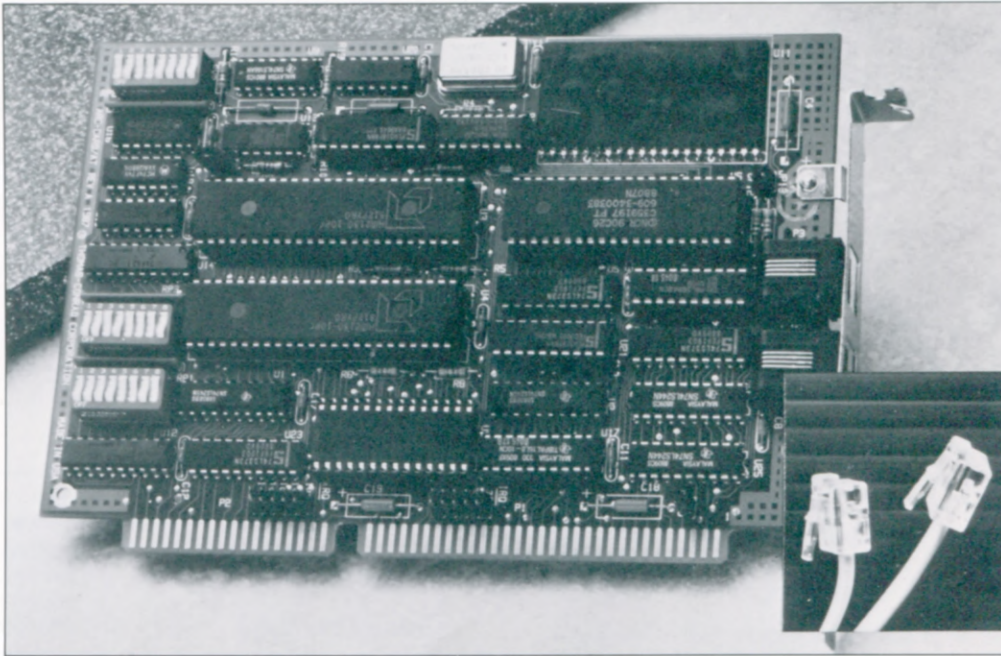
Thomas-Conrad products are available through a worldwide network of distributors and dealers. For more information and the location of your nearest sales office, contact Thomas-Conrad Corporation, 8403 Cross Park Drive, Building One/C, Austin, Texas 78754. In Austin, call 836-1935. Outside of Austin, call 800-332-8683.

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# TWISTED PAIR (TP+) ARC-CARDS



## ENHANCED TWISTED PAIR FOR ARCNET® LANS

### Thomas-Conrad Twisted Pair Plus (TP+) ARC-CARD Interface Boards

- ◆ For PC, XT, AT, Micro Channel™ and compatible computers
- ◆ Use with conventional or shielded twisted pair cable
- ◆ Compatible with common (RJ-11) telephone connectors
- ◆ Supports 800-foot bus configurations
- ◆ Up to 28 workstations per bus
- ◆ Supports IBM® cabling system

Thomas-Conrad offers several options for its ARC-CARDS for those networks which run on twisted pair transmission media. The Twisted Pair Plus option utilizes EIA Standard RS-485 signaling to significantly improve the performance parameters usually associated with twisted pair cabling.

With Twisted Pair Plus, bus topology spans can be doubled from the conventional 400-feet to 800-feet. The number of possible workstations on a bus is also increased with RS-485 signaling to a maximum of 28.

The susceptibility of twisted pair cable to EMI or noise is significantly improved with ARC-CARD/TP+ interfaces. For extremely noisy environments, it is recommended that shielded twisted pair be used with the Twisted Pair Plus ARC-CARDS.



## Thomas-Conrad's Twisted Pair Plus ARC-CARD Family

The TC6042-TP+ is designed for IBM PCs, XTs, ATs, PS/2™ Models 25 and 30, and compatible computers. The TC6045-TP+ interfaces 16 bit AT style computers, and the TC6046-TP+ adapts IBM-PS/2 Models 50, 60, 70 and 80 Micro Channel computers to an ARCNET local area network.

### Features Common To All Thomas-Conrad ARC-CARDS Are:

- ◆ ARCNET compatible
  - Supports modified token passing access scheme
  - Operates at 2.5 Mbps.
  - Connects up to 255 workstations
- ◆ Auto boot ROM socket
- ◆ 2 year warranty
- ◆ 2 selectable modes of operation: enhanced and compatible

### Enhanced mode (with Thomas-Conrad's enhanced Novell® driver):

- ◆ uses only 16K address space and no I/O space
- ◆ Completely memory mapped
- ◆ Coexists with several add-in boards such as VGA, EMS, and 3278/79 emulation adapter

- ◆ Bridges up to 4 ARCNET networks in one file server
- ◆ Certified Novell compatibility

### Compatible mode (with Novell RX-Net® Driver):

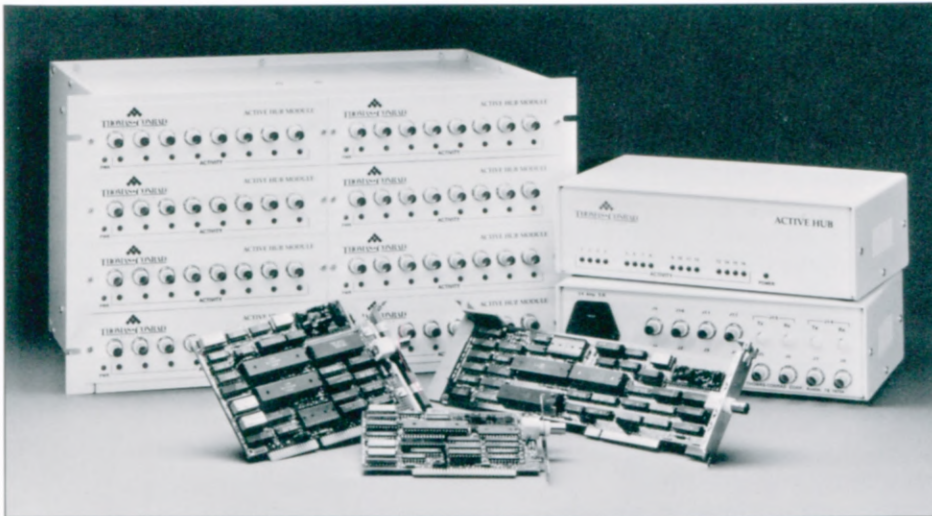
- ◆ Fully compatible with the ARCNET drivers supplied by Novell and Banyan®

### Connection Parameters

The following rules must be observed when configuring your network with twisted pair cabling:

- ◆ Maximum distance between first and last node on the bus is 800 feet
- ◆ Maximum distance within the network must not exceed 20,000 feet

Temperature Range	Operating: 0°C to 70°C Storage: -40°C to +70°C
Relative Humidity	Operating: 10% to 80% Storage: 5% to 80% (non-condensing)
Twisted Pair Cable	120-150 Ohm (shielding recommended)
Connector Type	RJ-11
Max. Length	(feet) 800



## ORDERING INFORMATION

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