

## Technical Data

### HP EtherTwist Hub Plus and Hub Plus/48

#### Part Numbers

28688B and 28699A

The HP EtherTwist hubs are Type 10BASE-T multiport repeaters for use in twisted-pair LANs. These hubs deliver industry-leading price/performance in both large and small networks. They offer network management, and they support growing topologies with flexible backbone connections.

The HP EtherTwist Hub Plus and Hub Plus/48 are designed for networks that require LAN-based network management. They provide 12 and 48 twisted-pair ports, respectively.

The EtherTwist hubs are part of the HP EtherTwist family of network components. These LAN components – hubs, bridges, adapter cards, and transceivers – provide your network with high performance in a low-cost hardware solution. Easily racked together and connected with a thin coaxial cable between their integrated BNC ports, the hubs, bridges, and routers merge with each another along a virtual extended backplane. This gives you full cardcage-like functionality without the expense and limitations of a cardcage design. Using only a few different hardware components, each designed for optimum price/performance, you can build a network that ranges from a few nodes to thousands.

#### Features

- † Provides 12 twisted-pair ports (Hub Plus) or 48 ports (Hub Plus/48).
- † Complies with IEEE 802.3 Type 10BASE-T standard.
- † Supports 100 meters of cable to each PC adapter card or twisted-pair transceiver. Greater distances are possible with low-loss cable.

- ┆ Allows choice of 50-pin or 8-pin connections. You can connect a 25-pair bundle (50-pin Telco connector) or individual 4-pair cables with modular RJ-45 plugs (using an optional 12-port modular adapter, HP 28638A).
- ┆ Supports both IEEE 802.3 and Ethernet 1.0 and 2.0 standards.
- ┆ Includes BNC and AUI ports for simultaneous connection to both thin coaxial cable and (via transceiver) thick coaxial, fiber-optic, or twisted-pair cable.
- ┆ Isolates network faults by automatically segmenting ports disturbing the network.
- ┆ Includes LEDs for a quick visual check of individual link status, port segmentation, collisions, activity, and power.
- ┆ Provides console (RS-232) port for out-of-band management, which allows users to read network statistics and configure ports in the hub. This port connects to a terminal or terminal emulator either directly or via modem.
- ┆ Is transparent to network operating system software.
- ┆ Supports fully existing HP StarLAN 10 networks.
- ┆ Supports SNMP/IP-based network management.
- ┆ Includes link test diagnostics to perform loopback test on any path through the network.
- ┆ Mounts on wall (flat or on end) or mount in racks with cables facing front or back.
- ┆ Supports a redundant link so one port can back up another for intra link connections

## Flexible Cabling

The EtherTwist hubs provide flexible connections for both subnets and backbones. The twisted-pair ports let you take advantage of twisted-pair LAN cabling, with its ease of installation and administration. Twisted-pair connections are made through a 50-pin Telco connector on the back of the hub (4 on a Hub Plus/48). This allows you to make a single connection using a 25-pair bundle (typically running to a cross-connect block). Or you can attach a 12-port modular adapter (HP 28638A purchased separately), which breaks out the 50-pin connector to 12 modular (RJ-45) jacks; these provide the connections for 4-pair cables that serve individual stations on the network.

You can make backbone connections to the hub using the integrated ThinLAN (BNC) port for thin coax, and the AUI port for thick coax or optical fiber. Both the ThinLAN and AUI ports can be connected at the

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same time. You can connect multiple hubs to a thin coaxial backplane, which in turn can be connected to another backbone via the AUI port.

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In addition, you can cascade hubs with twisted-pair cabling, using either a direct connection between twisted-pair ports on each hub, or using a twisted-pair to AUI connection through a twisted-pair transceiver (HP 28685B).

### Compatibility to Meet Your Changing Needs

HP's EtherTwist hubs are fully compliant with the 10BASE-T standard. HP has done extensive compatibility testing with other 10BASE-T equipment on the market today, giving you the confidence you need to build a multivendor network that best fits your business requirements. In addition, the HP EtherTwist hubs are completely backward-compatible with HP StarLAN 10 adapter cards, transceivers, and hubs through configuration of the link integrity signal (link beat).

### Maximum Reliability Through Fault Isolation

An HP EtherTwist hub automatically identifies any segment disturbing the network and disconnects it from the rest of the network (autosegmentation), ensuring network integrity. Once the problem is corrected, the hub automatically reconnects the segment.

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## Control of Your Network with Hub Management

The HP EtherTwist Hub Plus and Hub Plus/48 support SNMP/IP and can communicate over the LAN with HP OpenView Hub Manager for DOS (HP 28686D) and HP OpenView Interconnect Manager for HP-UX. From a single network management station, a network administrator can monitor and control any Hub Plus on the network. Hub Manager continuously updates the OpenView Windows graphical network map to display the current state of the network, and notifies the network administrator of network events. Configuring, monitoring, and controlling the network is made easy with the HP OpenView device managers and the HP EtherTwist Hub Pluses.

Coupled with HP OpenView Resource Manager, the HP Hub Pluses are capable of providing instrumentation-like functions across your network. This will eliminate the need for a LAN analyzer per segment. HP EASE (Embedded Advanced Sampling Environment) is a breakthrough technology that allows HP EtherTwist devices to do protocol analysis. This will identify top talkers, heavy users, errors, and communication pairs.

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## HP WireTest and Cabling

HP EtherTwist local area networks use twisted-pair cabling (ordinary telephone wire). Two pairs of 22, 24, or 26 AWG unshielded twisted-pair wire are required for each connection. Shielded twisted-pair wire can also be used.

The HP WireTest Service is available to qualify your existing telephone cabling for use in a Type 10BASE-T network. Contact your local HP Sales and Support Office or your HP Authorized LAN Dealer for information and availability of this service. If you have a large network and wish to do your own testing, you can purchase the HP 28687A Wire Test Instrument.

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## Specifications

### Environmental Characteristics

**Operating Temperature:**

0°C to 55°C (32°F to 131°F)

**Relative Humidity:**

5% to 95% at 40°C (104°F) noncondensing

### Physical and Electrical Characteristics: **HP EtherTwist Hub Plus**

**Dimensions:** 42.55 cm by 23.50 cm by 4.37 cm  
(16.75 in by 9.25 in by 1.72 in)

**Weight:** 2.72 kg (6.0 lb)

**Power Consumption:**

ac Voltage:	100–120	200–240 V
Current:	0.5 A max	0.5 A max
Frequency:	50/60 Hz	50/60 Hz

### HP EtherTwist Hub Plus/48

**Dimensions:** 42.55 cm by 23.50 cm by 8.87 cm  
(16.75 in by 9.25 in by 3.49 in)

**Weight:** 3.77 kg (8.3 lb)

**Power Consumption:**

ac Voltage:	100–120	200–240 V
Current:	0.6 A max	0.5 A max
Frequency:	50/60 Hz	50/60 Hz

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## Standards

**Emissions:**

VDE 0871 Level A

VCCI Class 1

FCC Part 15 Class A

**Safety:**

UL 1950

IEC 950/EN60950

CSA 220

CSA 950

**Radiated Emission Immunity:** IEC 801–2.3.4

## Warranty

The HP 28688B and HP 28699A EtherTwist Hub Pluses are warranted for one year against defects. Check with your local Hewlett–Packard Sales and Support Office or your authorized HP LAN Dealer for more information.

## Ordering Information

**HP 28688B** EtherTwist Hub Plus

**HP 28699A** EtherTwist Hub Plus/48

**HP 28638A** Modular Adapter

**HP 28689B** Troubleshooting Kit