

# **D-Link<sup>®</sup>**

## 10BASE-T Ethernet Mini Hubs

Models DE-809TP  
DE-809TC

## User's Guide

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Sixth Edition (Oct. 2004)

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Printed In Taiwan



RECYCLABLE

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## **Class B for Model DE-809TC**

### **FCC ID No: KA2HPC09TC1**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ◆ Reorient or relocate the receiving antenna.
- ◆ Increase the separation between the equipment and receiver.
- ◆ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by user's authority to operate this equipment.

## VCCI I Warning For Model DE-809TP

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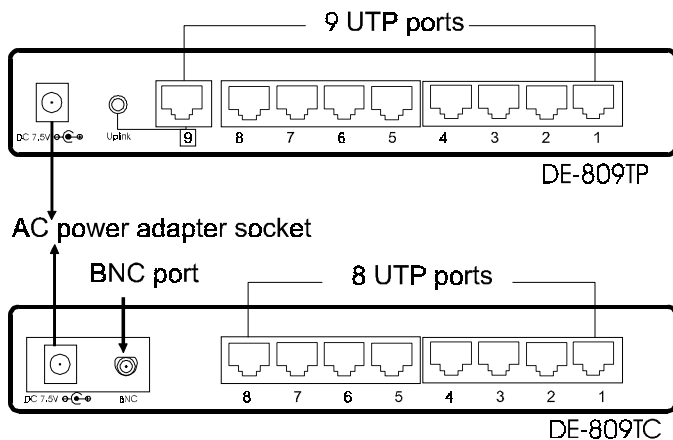
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# Introduction

This User's Guide tells you how to install the following 10BASE-T Ethernet Mini Hub models:

- ◆ **DE-809TP** (9 UTP ports)
- ◆ **DE-809TC** (8 UTP ports & 1 BNC port)



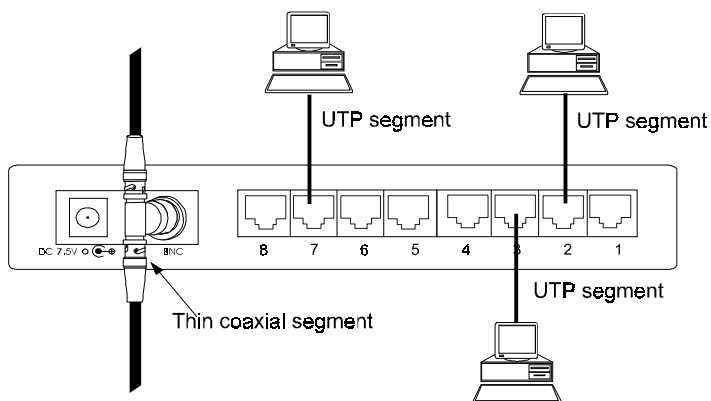
Port connectors on back panel of Mini Hubs

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The Mini Hubs are the palm-size compact 10BASE-T hubs that offer all the features of standard equipment rack-mount 10BASE-T hubs, including automatic port participation, collision detection, diagnostic LED report, and hub cascading.

Following is a summary of the features of the Mini Hubs:

- ◆ **9-port hubs.** Each Mini Hub provides nine ports. Model DE-809TP provides nine UTP ports (nine RJ-45 connectors); one of these ports can be used for either 10BASE-T connection or cascading with another Mini Hub. Model DE-809TC provides eight UTP ports (eight RJ-45 connectors) and one BNC port.
- ◆ **Cascading.** Through an “Uplink” switch, a UTP port of the DE-809TP can be used for cascading with another Mini Hub. The DE-809TC provides a BNC port for cascading with other hubs without sacrificing any UTP port.
- ◆ **Backbone connection.** The BNC port on the DE-809TC also allows the portable Mini Hub to be attached to a coaxial backbone to be part of a larger network.
- ◆ **Installation flexibility.** The Mini Hub is ideal for a small-size network with nine or fewer nodes. Its cascading port however permits the network to expand to 32 ports or more.
- ◆ **Compact, lightweight.** The Mini Hub’s small size makes it easy to install even at installation sites with tight space. It takes little space on a desktop, and its light weight allows it to be easily mounted on a wall.



**Ethernet segments connected to Mini-Hub**









# 2

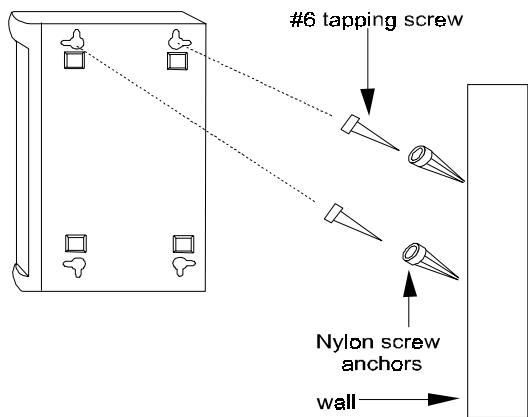
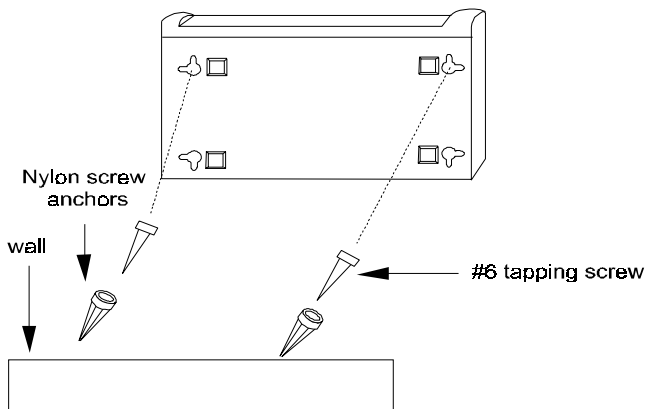
## *Installation*

### **Mounting Hub on Wall**

The Mini Hub can be mounted on a wall. Four mounting slots are provided on the bottom side of the hub for this purpose. Make sure that the front panel is exposed to allow you to view the LEDs at work.

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**Distance: 155.6 mm / 6.13 in. (top diagram)**



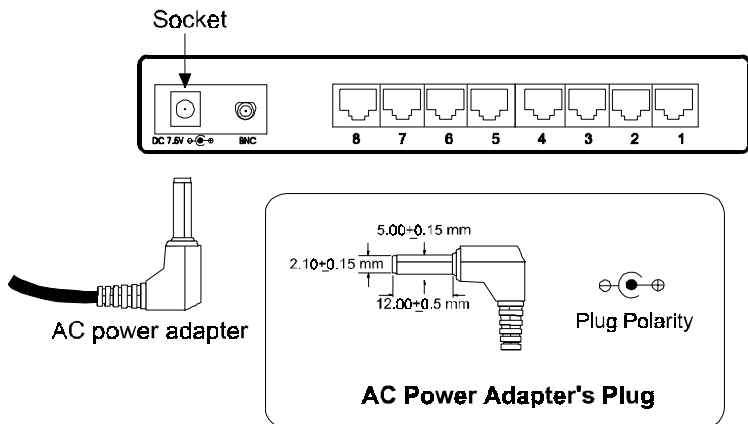
**Distance: 70.5 mm/2.74 in. (bottom diagram)**

## Connecting AC Power Adapter

The Mini Hub uses an external AC power adapter. There is no power switch. The hub is powered on once the AC power adapter is connected to an AC power source and the hub's AC power socket.

**Caution:** *To prevent damage to your hub, before you begin using the AC power adapter, double-check its input AC voltage. The AC power adapter's input voltage must conform to its AC power source's voltage. Appendix A lists the specifications of the AC power adapters applicable to Mini Hubs and to different countries.*

*If you use an AC power adapter supplied by yourself, and your country is not listed in the appendix, check with your networking products dealer to make sure that you use a proper AC power adapter.*



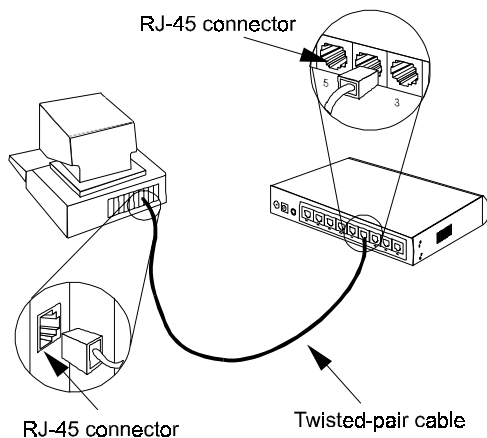
**Caution:** Use AC power adapter with correct AC voltage only.

## Connecting UTP Segments

This section describes the connection procedure from a UTP port of the hub to a UTP port of a station, bridge, router, and other Ethernet devices. It does not describe the connection to a 10BASE-T hub. The UTP cable extended from a UTP port is called a UTP segment, and can be up to 100 meters long.

Note that, for Mini Hub model DE-809TP, UTP port labeled “9” must be in the **Normal** position in order to be connectable to a station, bridge or router. To connect this port to a UTP port of a 10BASE-T hub, the port must be in the **Uplink** position (see section *Cascading Hubs Through UTP Cable* in this chapter for details).

The button to the right of the UTP port labeled “9” is used to switch between the **Normal** and the **Uplink** position.

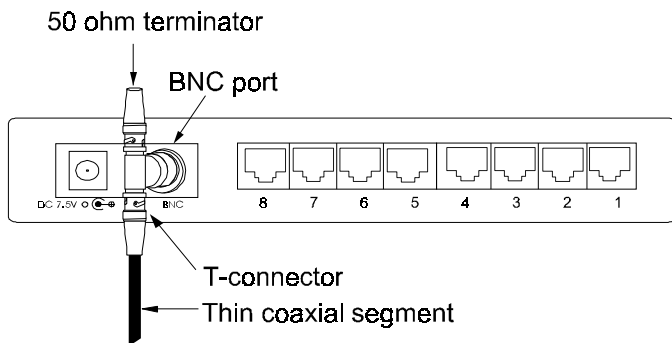


### Connecting station UTP port

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## Connecting Thin Coaxial Segment

The BNC port on Mini Hub model DE-809TC is used to connect to a thin coaxial segment. Connect a T-connector to the BNC connector, then connect both ends of the T-connector to the thin coaxial cable. If the thin coaxial segment terminates at the hub, attach a 50-ohm terminator to one end of the T-connector.



**Ethernet segments connected to Mini-Hub**

## Cascading Hubs Through Thin Coaxial Cable

The BNC port on the Mini Hub model DE-809TC can be used to cascade hubs together. You may cascade DE-809TC hubs together through the BNC ports. You may also cascade the DE-809TC with any other IEEE 802.3 Ethernet standard 10BASE-T hubs equipped with BNC ports.

You may attach up to thirty nodes to a thin coaxial segment. In this sense, it is possible to cascade a maximum of thirty hubs together through the thin coaxial cable.

Be sure to leave a minimum of 0.5 meter (2 feet) of cable between two BNC ports.

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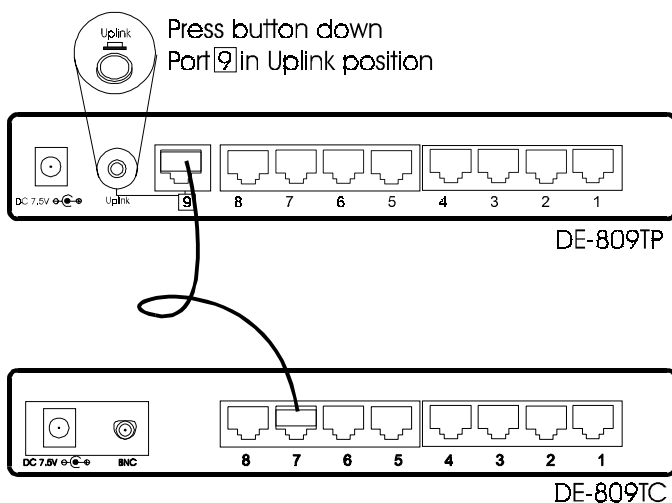
## Cascading Hubs Through UTP Cable

Any of the UTP ports can be used to cascade hubs together. Note that when two UTP ports of two hubs are connected together, the wires inside the UTP cable must be crossed over. See appendix A for the wire cross-over. Mark all crossed-over UTP cables clearly so they will not be used by mistake for normal connection.

If you use Mini Hub model DE-809TP, UTP port labeled “9” is especially designed for hub cascading. When this port is in the **Uplink** position, its signal reception and transmission are reversed. This allows you to dispense with the trouble of crossing the UTP cable’s wires. Putting this port in the **Uplink** position can be done by pressing down the button located next to the port.

**Note:** *Never cause a loop when you cascade hubs since this might cause unpredictable results.*





**Hub cascading:** If straight-through UTP cable is used, one UTP port must be in Uplink position.

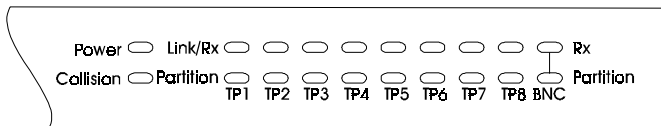
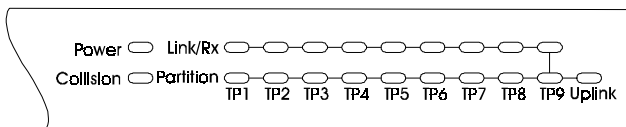
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## Diagnostic LEDs & Troubleshooting

### ◆ Power.

- ◇ **ON:** “power good”.
- ◇ **OFF:** “power bad.” Check to see if the AC power adapter is properly connected, or if the correct AC power adapter is being used.

#### DE-809TP



DE-809TC

### Diagnostic LEDs on front panel of Mini Hubs

◆ **Collision.**

◇ **Blinking:** Packet collision is occurring. Packet collisions are not an abnormal situation. Collisions occur when two or more computers transmit packets on the network simultaneously, and a contention takes place on the network line. The computers should then back off, then retry transmission. This trial-and-error process is repeated until no collision takes place. Note: Excessive collisions may result when multiple hubs are cascaded through a thin coaxial segment and many stations are connected on the network.

◇ **Off:** No packet collision.

◆ **Link/Rx** (*for each UTP port*).

◇ **ON:** Data link between (1) Mini Hub's UTP port and (2) node's or cascaded hub's UTP port is successful.

◇ **OFF:** (1) No data link or (2) cable disconnected. Check for bad cable or loose connectors. For cascaded hubs, check to see if UTP cable contains crossed-over wires. Also check for a "power good" condition at both ends of the connection. If you suspect that the hub port is damaged, contact your authorized dealer for service.

◇ **Blinking:** Packet reception is occurring.

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◆ **Rx** (for BNC port).

- ◇ **Blinking:** Packet reception is occurring.
- ◇ **OFF:** No packet reception.

◆ **Partition** (for each UTP port).

- ◇ **ON:** The UTP port is being partitioned off due to excessive packet collisions. Note that the UTP cable between a hub port and a non-repeater node must contain straight-through wires (no cross-over).
- ◇ **OFF:** Segment has no problem.

◆ **Partition** (for BNC port).

- ◇ **ON:** The BNC port is being partitioned off due to (1) no cable is connected, (2) faulty cable or connectors, (3) excessive packet collisions, (4) a disconnected point somewhere along the entire thin coaxial cable length, or (5) unterminated segment. Check all connectors along the cable length. If segment is not terminated, terminate both ends with 50-ohm terminators.
- ◇ **OFF:** (1) Cable is connected and (2) segment has no problem.

◆ **Uplink**

- ◇ **ON:** The “9” UTP port is in the **Uplink** position (cross-wired).
- ◇ **OFF:** The “9” UTP port is in the **Normal** position (straight-through wires).

# A

## ***Cables, Connectors & AC Power Adapters***

### **10BASE-T Unshielded Twisted-Pair (UTP) Cable**

- ◆ Cable characteristics: 0.4 - 0.6 mm (22 - 26 AWG) 8-wire (only 4 wires used for 10BASE-T)
- ◆ Maximum segment length: 100 meters
- ◆ Applicable connectors: RJ-45, Telco-50

### **10BASE2 Thin Coaxial Cable**

- ◆ Cable characteristics: 0.2 inch diameter RG-58A/U 50 ohm
- ◆ Maximum segment length: 185 meters
- ◆ Minimum distance between two nodes: 0.5 meter
- ◆ Maximum number of nodes per segment: 30

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## AC Power Adapters

The following lists the specifications of the AC power adapters supplied by D-Link for use with the Mini Hub. Your Mini Hub package may contain one of these AC power adapters. If you use an AC power adapter supplied by yourself, make sure that it complies with the output power listed below and the input power and plug (AC power specifications) of your area.

### **AC power adapter model AD-071A**

- ⇒ Input power: AC 120 volts, 50-60Hz
- ⇒ Output power: DC 7.5 volts unregulated, 1 A
- ⇒ Maximum power consumption: 7.5 watts
- ⇒ Plug: North American standards
- ⇒ Safety standards: UL/CSA

### **AC power adapter model AD-071AD**

- ⇒ Input power: AC 240 volts, 50-60Hz
- ⇒ Output power: DC 7.5 volts unregulated, 1 A
- ⇒ Maximum power consumption: 7.5 watts
- ⇒ Plug: U.K. standard
- ⇒ Safety standard: BSI

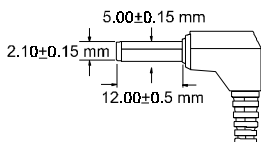
### **AC power adapter model AD-071AB**

- ⇒ Input power: AC 220 volts, 50-60Hz
- ⇒ Output power: DC 7.5 volts unregulated, 1 A
- ⇒ Maximum power consumption: 7.5 watts

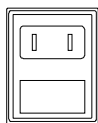
- ⇒ Plug: German standard
- ⇒ Safety standard: VDE

### AC Power adapter model AD-071AJ

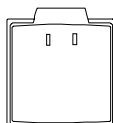
- ⇒ Input power: AC 100 volts, 50-60Hz
- ⇒ Output power: DC 7.5 volts unregulated, 1 A
- ⇒ Maximum power consumption: 7.5 watts
- ⇒ Safety standard: Japan T-mark



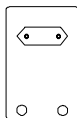
### AC Power Adapter's Plug



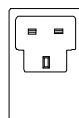
**AD-071AJ Plug**



**AD-071A Plug**



**AD-071AB Plug**



**AD-071AD Plug**

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# B

## *Technical Specifications*

### **DE-809TP**

- ◆ Standard: IEEE 802.3 10BASE-T.
- ◆ Medium support: UTP.
- ◆ Number of UTP ports: 9.
- ◆ Number of connectors: 9 RJ-45.
- ◆ Cascading: Switchable straight-through/cross-wired UTP port (“uplink”) button
- ◆ Number of diagnostic LEDs: 21
- ◆ Power requirement: DC 7.5 volts 1 Amp.
- ◆ Power feeding: through AC power adapter.
- ◆ Operating temperature: -10° to 55° Celsius.
- ◆ Humidity: 5% - 95% non-condensing.
- ◆ Dimensions: 197 x 115 x 28 mm (7.75 x 4.53 x 1.10 inches)
- ◆ Weight: 300 ±10 grams (AC power adapter excluded)
- ◆ Safety: UL/CSA.
- ◆ EMI: FCC-B, CE-B, VCCI-A, C-Tick, BCIQ



### DE-809TC

- ◆ Standard: IEEE 802.3 10BASE-T.
- ◆ Medium support: thin coaxial, UTP.
- ◆ Number of UTP ports: 8.
- ◆ Number of BNC ports: 1.
- ◆ Number of connectors: 8 RJ-45, 1 BNC.
- ◆ Number of diagnostic LEDs: 20
- ◆ Power requirement: DC 7.5 volts 1 Amp.
- ◆ Power feeding: through AC power adapter.
- ◆ Operating temperature: -10° to 55° Celsius.
- ◆ Humidity: 5% - 95% non-condensing.
- ◆ Dimensions: 197 x 115 x 28 mm (7.75 x 4.53 x 1.10 inches)
- ◆ Weight: 350 ±10 grams (AC power adapter excluded)
- ◆ Safety: UL/CSA.
- ◆ EMI: FCC-B, CE-B, VCCI-B, C-Tick, BCIQ



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