AT-FH708E

Dual Speed Mini Hub

Installation Guide

PN 613-10758-00 Rev B

FCC Compliance Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in residential installation. This equipment generated, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. However, this 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.

Notice

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user? authority to operate the equipment.
2. Shielded interface cables and AC power cord, must be used in order to comply with emission limits.

CE Mark Declaration of Conformance

This is to certify that this product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EMC	EN55022 (1988)/CISPR 22(1985)	Class A
	EN60555-2 (1987)	Class A
	prEN55024-2 (1990)/IE801-2(1991)	4KV CD, 8KV AD
	prEN55024-3 (1991)/IE801-3(1984)	3V V/m
	prEN55024-4 (1992)/IE801-4(1988)	1KV - (power line) 0.5KV - (signal line)

Table of Contents

Chapter 1

Product Description

The AT-FH708E Mini Hub is an 8-port 10/100Mbps dual speed hub that offers a cost-effective solution to today's growing need of network speed integration. With eight 10/100Mbps plug-and-play dual speed ports equipped in its compact body, it is possible to achieve the coexistence of 10Mbps and 100Mbps devices in a single network now and step to 100Mbps network in the future. The internal switching function provides network segmentation, thereby offering a high level of network flexibility and efficiency. Other key features include:

- Compliant with IEEE802.3 & 802.3u Class I and II repeater specifications
- 10Base-T/100Base auto-negotiate for speed detection

Note

All hubs operate in half-duplex only.

- Mini compact size with external power adapter
- One Uplink switch to support uplink function
- Two-port (port 8 and port 7) manual speed setting by DIP switches

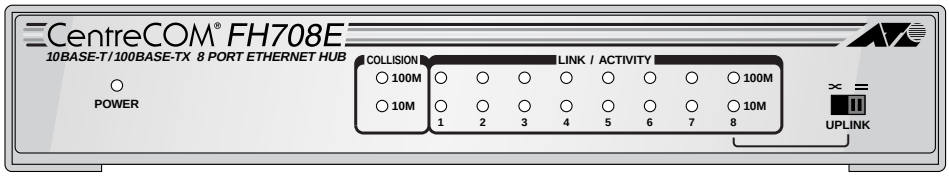


Figure 1 AT-FH708E Mini Hub

Package Contents

The package should include the following items:

- One 8-port Dual Speed Mini Hub
- One power adapter
- This Installation Guide

If any item is missing, please contact your dealer immediately.

Front Panel

The front panel consists of the following:

- LEDs
- Uplink Switch (port 8)

The LEDs help monitor the hub's operating status and overall network performance. See Table 1 for further information concerning the LEDs. The Uplink port (port 8) has an associated uplink switch which can detect the speed of a connected device automatically and configure it properly.

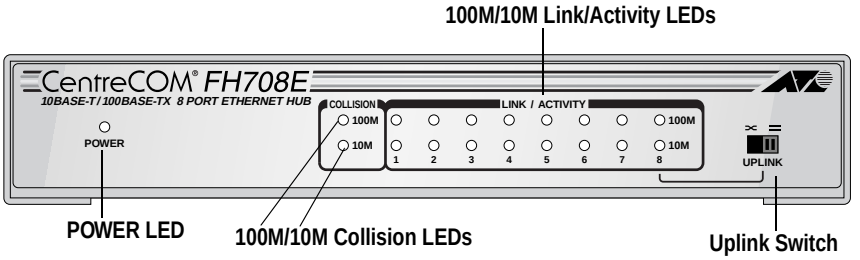


Figure 2 AT-FH708E Mini Hub Front Panel

LEDs

Table 1 lists and describes the LEDs.

Table 1 LEDs

LED	Color	Description
Power	Green	**ON** indicates that the unit is receiving power
Collision for 10/100M	Yellow	**ON** indicates data collisions
Link/Activity for 10/100M	Green Flashing Green	**ON** indicates that a link is established **FLASHING** indicates that the unit is receiving data

Rear Panel

The rear panel has one power connector, which accepts 5V 2.5A power input, and DIP switches for manual speed setting and eight RJ45 ports.

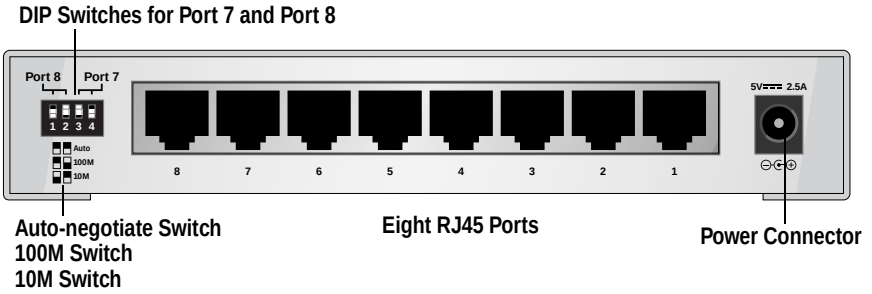


Figure 3 AT-FH803E Rear Panel

DIP Switches

Table 2 and Table 3 list the DIP switch settings for Port 8 and Port 7. To manually set the DIP switches, for example to set Port 8 for 100 Mbps (auto-negotiate OFF), push switch 1 to the **UP** position and Switch 2, to the **DOWN** position.

Table 2 DIP Switch Settings for Port 8

Switch 1	Switch 2	Description
UP	UP	Auto-negotiate ON
UP	DOWN	100 Mbps - Auto-negotiate OFF
DOWN	UP	10 Mbps - Auto-negotiate OFF

Table 3 DIP Switch Settings for Port 7

Switch 3	Switch 4	Description
UP	UP	Auto-negotiate ON
UP	DOWN	100 Mbps - Auto-negotiate OFF
DOWN	UP	10 Mbps - Auto-negotiate OFF

Chapter 2

Installation

Installing the Mini Hub

1. Place the Hub on a smooth and horizontal surface.
2. Establish network connection by plugging one end of the Category 5 UTP/STP cable RJ45 connector into the hub port, the other end to the Ethernet/Fast Ethernet adapter installed in the workstation computers.
3. If necessary, adjust port speed by setting the DIP switches before connecting network devices.
4. Connect each device by repeating Step 2 and 3.
5. Make sure that each device is connected properly. Turn on the power by attaching the power cable to the hub and plug in the power outlet.

Caution

Be sure to use Category 5 UTP cable in connecting 100Mbps network devices. The cable length should not exceed 100 meters.

Uplink Connection

1. Set the Uplink switch to the **Uplink** position.
2. Attach one end of the RJ45 cable connector to the Uplink port (port 8) of the first Hub. Use Category 5 for 100 Mbps; can use Category 3, 4, or 5 of 10 Mbps.
3. Plug the other end into any RJ45 port of the second Hub.

Caution

Crossover cable is not necessary in establishing uplink connection through the uplink port.

Caution

The Uplink cable length cannot exceed 5 meters.

Application

The hub can be deployed where 10Mbps and 100Mbps network devices coexist and need to be integrated. Figure 4 illustrates a sample application.

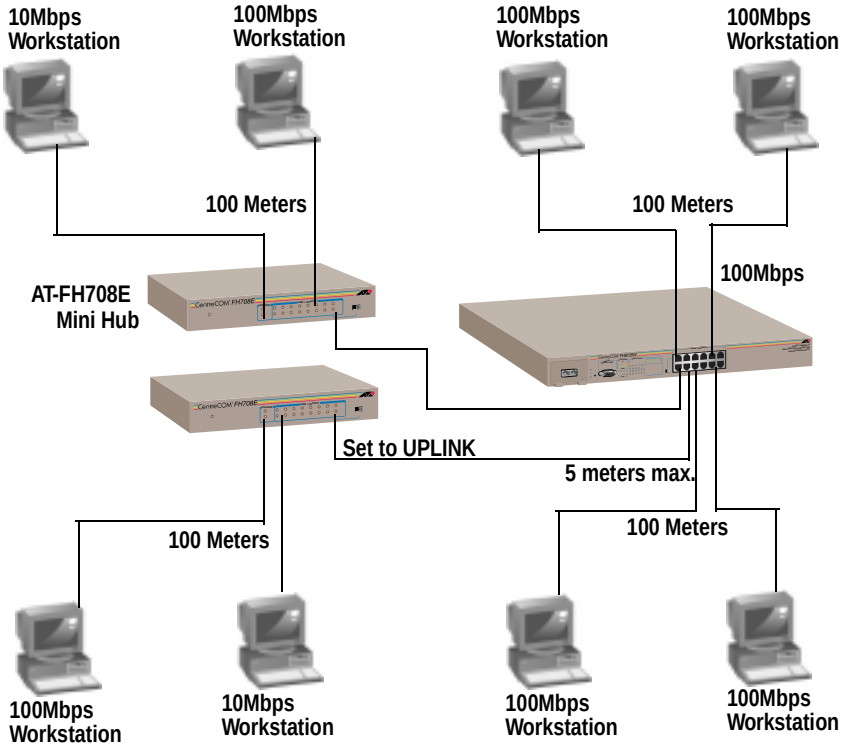


Figure 4 AT-FH708E Mini Hubs Connected to Workstations

Technical Specifications

Standard	IEEE802.3 (10Base-T) & IEEE802.3u (100Base-TX) Class I and II Repeater
10/100BaseTX Port	8 Auto-negotiate ports
Manual Speed Selectable Port (two ports are user-configurable)	Port #8 and Port #7
Uplink port	Port #8
Cabling	Category 5 UTP/STP for 100 Mbps; Category 3, 4, or 5 UTP for 10 Mbps
Operating Temperature	0~50^{o} (32~119^{o})
Operating Humidity	5~95%
Storage Temperature	0~70^{o} (32~158^{o})
Storage Humidity	5~95%

Chapter 3

Troubleshooting

This chapter describes the procedures to test and troubleshoot the hub.

Connectivity Testing

In the following procedure, you will test each port for a valid connection and to confirm the correct operation of the network.

1. Start with Ports 1 and 2. Connect these two ports of a single hub to two nodes or workstations and turn on the hub's power supply.
2. Make sure the **Link/Activity** and other LEDs of both hub ports are lit.
3. After confirming that Port 1 and Port 2 are operational, reconnect one of the nodes/workstations to another port, then repeat this communications test with the hub's remaining ports. Continue to verify the connection in each port by checking the **Link/Activity** and other activity LEDs.

Note

When testing the 100 Mbps ports with the MDI buttons connected to a workstation, set the button to the **To PC** position.

If the port is auto-negotiable, wait approximately 1-3 seconds for the process to complete after power-on or after the cables are reconnected.

If the port has a manual configuration switch, use the DIP switch to select the duplex mode. Reset the unit by unplugging the power and then apply power to the hub again.

4. When cascading hubs, set the MDI button to the **To HUB** position.

Problem Solving

Is the unit receiving power?

Check the POWER LED on the front of the hub. This green LED should be lit.

If the power LED is not on:

1. Check the back of the unit. Make sure the power cord is attached securely.
2. Check the AC power adapter. Make sure the power adapter is plugged into a functioning wall outlet and that it is properly inserted into the hub's power connector on the back of the unit.

Is the Link/Activity LED lit?

The Link LED on the front of the hub lights when a proper connection between the corresponding 10/100Base-TX port and the equipment connected to it is established. If this LED is not lit, check for the problems listed below and make corrections as necessary.

1. Problem 1:

   The cable has been cut, damaged, or it is the wrong type of cable.

   - ❑ Solution 1:
     - — Try making the connection with a different cable. Be sure you are using an undamaged cable of the correct type.

2. Problem 2:

   Connected equipment is not turned on or not operating properly.

   - ❑ Solution 2:
     - — Check the connected equipment (computer, another hub, etc.) and turn on the power.

3. Problem 3:

   The MDI button is in the wrong setting.

   - ❑ Solution 3:
     - — When using the cascade port of the hub, you should set the button to the **To HUB** position; otherwise, the button should be in the **To PC** position.
     - — When cascading two hubs, the unit using the cascade port should have the button set to the **To HUB** position, while the other unit should have its switch set to **To PC**.
     - — When ports with associated MDI buttons are not connected to other hubs but are used to connect to workstations or other equipment, you should set the MDI button to the **To PC** position.

4. Problem 4:

   There is data loss between the hub and one of the attached network nodes.

   - Solution 4:
     - Make sure that the cable length between the hub and the connected network device is no greater than 100 meters.
     - Make sure you are using Category 5 cable.

Appendix A

Hub Specifications

Physical Characteristics

Chassis Dimensions:	6.0 in. (153 mm) (L) x 6.6 in. (169 mm) (W) x 1.8 in. (3 mm) (H)
Weight:	2 lbs. 12 oz (1.25 kg.)
Operating temperatures:	0° to 40° C (32^{o} F to 104^{o} F)
Storage temperatures:	-20° to 70° C (-4° F to 158° F)
Relative humidity:	10% to 90% (operating) 5% to 90% (storage)
Operating altitude:	Up to 10,000 ft (3,048 m)

Safety Agency

Standard:	IEEE 802.3 10Base-T Ethernet IEEE 802.3u, 100Base-TX Fast Ethernet
EMI/RFI:	Meets FCC Class A, EN55022 Class A
Safety:	Conforms to all standards normally supported by Allied Telesyn products, including safety standards UL 1950, CSA 22.2 No. 950, TUV and EN60950
Immunity:	Conforms to EN50082-1 Immunity Standard. CE compliant

Cabling Specifications

Category 5 UTP/STP for 100 Mbps; Category 3, 4, or 5 UTP for 10 Mbps

Maximum of 100 meters between hub and network node

Electrical Specifications

Power:	External power supply with 100 to 120 VAC or 200 to 240 VAC, 50/60 Hz input.

UTP (RJ45) Connector

Figure 5 shows an RJ45 connector. For a 100Base-TX link between switches, —any two Medium Attachment Units (MAUs)—you need a crossover cable. For a connection to a Network Interface Controller (NIC), the cable is wired straight through.

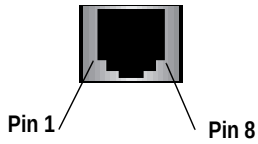


Figure 5 RJ45 Connector

Network Specifications

Table 4 provides an overview of IEEE 802.3 and 802.3u specifications for 10Base-T and 100Base-TX network configurations using twisted-pair wiring.

Table 4 IEEE 802.3 and 802.3u Network Specifications

	10Base-T	**100Base-TX**
Media	UTP Category 3, 4 or 5	UTP/STP Category 5 only
Topology	Star, Tree	Star, Tree
External Devices	Network Adapter Card, Repeater	Network Adapter Card, Repeater
Maximum Segment Length	100 meters (328 feet)	100 meters (328 feet)

100Base-TX Cable

There are various grades of voice-quality and data-quality cables available. These can appear to be similar externally, although their high-speed data transmission characteristics are radically different.

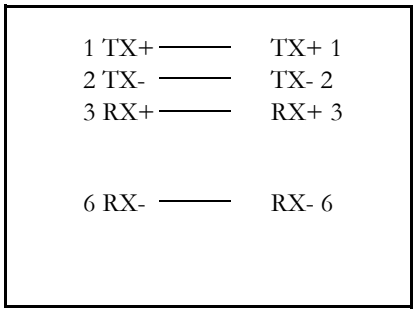
The identification problem is made worse by some suppliers selling voice-quality cables as data-quality cables.

If voice-quality cables are used in a 100Base-TX network system, data movement may be slow, collision-prone or non-existent. In addition, interface LEDs will usually indicate a valid link in such cases.

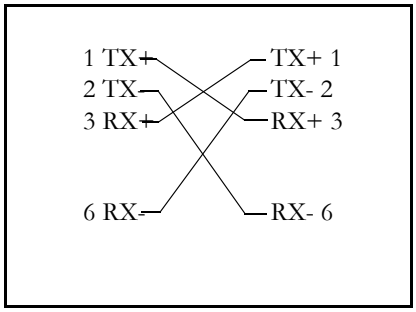
Category 5 is required cabling for use with 100Base-TX connections. Using any other category for a 100Base-TX connection may have high error rates and may not have the capacity to transmit data.

100Base-TX Connector Pinouts

Straight-through Cable



Crossover Cable



Appendix B

Technical Support Fax Order

Name _____

Company _____

Address _____

City _____ **State/Province** _____

Zip/Postal Code _____ **Country** _____

Phone _____ **Fax** _____

Incident Summary

Model number of Allied Telesyn product I am using _____

Network software products I am using _____

_____

Brief summary of problem _____

_____

_____

Conditions (List the steps that led up to the problem.) _____

_____

_____

_____

Detailed description (Use separate sheet, if necessary)

_____

_____

_____

_____

When completed, fax this sheet to the appropriate Allied Telesyn office. Fax numbers can be found on page 21.

Appendix C

AT-FH708E Hub Installation Guide Feedback

Please tell us what additional information you would like to see discussed in the guide. If there are topics you would like information on that were not covered in the guide, please photocopy this page, answer the questions and fax or mail this form back to Allied Telesyn International, Corp. The mailing address and fax number are at the bottom of the page. Your comments are valuable when we plan future revisions of the guide.

I found the following the most valuable _____

_____

_____

_____

I would like the following more developed _____

_____

_____

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_____

I would find the guide more useful if _____

_____

_____

_____

Please fax or mail your feedback. Fax to 1-408-736-0161. Or mail to:
Allied Telesyn International, Corp.
c/o Technical Communications Department
950 Kifer Road
Sunnyvale, CA 94086 USA

Appendix D

Where To Find Us

For Technical Support or Service		
Location	Phone	Fax
Americas United States, Canada, Mexico, Central America, South America	1 (800) 428-4835	1 (918) 628-3222
Asia Singapore, Taiwan, Thailand, Malaysia, Indonesia, Korea, Philippines, China, India	(+65) 3815-613	(+65) 3833-830
Australia Australia, New Zealand	(+61) 2-9438-5111	(+61) 2-9438-4966
France France, Belgium, Luxembourg, The Netherlands, Middle East, Africa	(+33) 1-60-92-15-32	(+33) 1-69-28-37-49
Germany Germany, Switzerland, Austria, Eastern Europe	(+49) 30-435-900-126	(+49) 30-435-70-650
Hong Kong	(+852) 2-529-4111	(+852) 2 529-7661
Italy Italy, Spain, Portugal, Greece, Turkey, Israel	(+39) 2-416047	(+39) 2-419282
Japan	(+81) 3-3443-5640	(+81) 3-3443-2443
United Kingdom United Kingdom, Denmark, Norway, Sweden, Finland, Iceland	(+44) 1-235-442560	(+44) 1-235-442490
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