Instant EtherFast® Series

EtherFast® 10/100 Workgroup Hubs

Use this guide to install :

EFAH05W v2
EFAH08W v2
EFAH16W v2

User Guide

LINKSYS®

COPYRIGHT & TRADEMARKS

LIMITED WARRANTY

Linksys guarantees that every EtherFast 10/100 Workgroup Hub is free from physical defects in material and workmanship under normal use for FIVE years from the date of purchase. If the product proves defective during this warranty period, call Linksys Customer Support in order to obtain a Return Authorization Number. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the Return Authorization Number clearly on the outside of the package and include your original proof of purchase. All customers outside of the United States of America and Canada shall be held responsible for shipping and handling charges.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS OFFERS NO REFUNDS FOR ITS PRODUCTS.

Linksys makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Linksys reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity. Please direct all inquiries to:

Linksys P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

This equipment has been tested and complies with the specifications 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 according to the instructions, 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 is found 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 or device
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

Table of Contents

Introduction

The EtherFast 10/100 Workgroup Hubs

The EtherFast 10/100 Workgroup Hubs from Linksys are the fastest, most economical way to build or expand your network! Ready to run right out of the box, the 10/100 hubs let you connect computers or other nodes together in seconds. The auto-sensing ports automatically adjust to either 10Mbps or 100Mbps speeds, allowing you to mix 10BaseT and 100BaseTX hardware together any way you like! Combine low-cost 10Mbps computers with high-speed Fast Ethernet workstations--save thousands of dollars by putting 100Mbps hardware only where you need it most!

Each hub includes a built-in shared uplink port that lets you plug into 10Mbps or 100Mbps hubs, switches, or backbones for easy expansion. Advanced error handling, auto-partitioning, data-collision control, and auto-polarity correction protect your data during transmissions. Compatible with virtually all major operating systems including, Windows 95, 98, 2000, NT, Millennium, and Novell NetWare, this professional-grade hub offers your growing network the freedom to use both 10Mbps and 100Mbps speeds.

With an amazing range of expansion possibilities and an impressive array of advanced features, each 10/100 Workgroup Hub is one powerful and compact device--all for an attractive price that’s hard to beat!

About Fast Ethernet

As the demand for desktop video, multimedia development, imaging, and other speed-intensive applications continues to rise, the need for high performance, fault tolerant LAN technology will become more critical.

Standard **Ethernet**, which has been the most popular networking technology to date with a maximum data throughput of **10 Megabits per second**, is becoming insufficient to handle the latest video, multimedia, and other speed-intensive client/server LAN applications.

Among the solutions to the problem of network speed, **Fast Ethernet** has emerged as the most viable and economical. Capable of sending and receiving data at **100 Megabits per second**, it is more than fast enough to handle even the most demanding video and other real-time applications.

Although there are a number of different competing Fast Ethernet implementations, **100BaseTX** is by far the most popular. Operating on two pairs of UTP Category 5 unshielded twisted-pair cabling, 100BaseTX supports high speed signaling and is relatively inexpensive. Because it uses four wires for data transmission and the same packet format, packet length, error control, and management information as 10BaseT.

This **backward compatibility** is one of 100BaseTX's major advantages over other forms of Fast Ethernet; it allows critical, speed-dependent network segments to be upgraded to 100BaseTX speeds as needed without re-wiring, refitting, and retraining an entire site. Networks can now mix both slow and fast network segments for different users or departments. Publishing, R&D, video, multimedia, or accounting departments can enjoy a 100Mbps pace, while other corporate segments can operate at slower and more affordable 10Mbps speeds.

Every port on your 10/100 Workgroup Hub is capable of running at either 10Mbps or 100Mbps, allowing you to mix and match economical 10BaseT hardware with high performance 100Mbps network cards, hubs, switches, and other equipment.

Getting to Know the 10/100 Workgroup Hubs

Package Contents

- One EtherFast 10/100 Workgroup Hub (EFAH16W v2 shown)
- One AC Adapter
- User Guide and Registration Card

LEDs

(EFAH05W v2 shown)

PWR	The Power LED will illuminate when the the hub is receiving power.
100 (per port)	The 100 LED will illuminate if the port is operating at 100Mbps. The LED will be off if the port is running at 10Mbps.
Link/Act (per port)	The Link/Act LED will illuminate if the port has an active network connection. The LED will flicker if the port is receiving or sending data.

Planning Your Network

Connecting Nodes to the Hub

Every 10/100 Workgroup Hub can be connected to either 10Mbps or 100Mbps PCs, workstations, file servers, print servers, or other hardware. When powered up, each of the hub's 10/100 ports will automatically adjust to the proper speed, as determined by the speed of the hardware or node connected to the port.

Connect each of your PCs, workstations, file servers, print servers, or other network nodes to the Auto-Sensing Hub one by one. Each node should be connected to the hub with a straight-through UTP Category 5 cable. Each cable should be less than 100 meters (328 feet), in length. Ready-to-use network cables of various lengths can be purchased at most computer stores. If you wish to crimp your own cabling for custom sites or lengths, please refer to the *Crimping Your Own Network Cable* section on page 7.

When connecting a PC to a hub, either the computer or the hub must be powered **OFF**. If both the computer and the hub are turned on while the connection is completed, the network will act erratically and you must reset the hub.

EFAH05W v2 & EFAH08W v2 only:

If the Uplink port is in use (connected to another hub, etc.), the 10/100 Workgroup Hub's port next to the Uplink port must remain empty and unused. As with most hubs, the 10/100 Workgroup Hub's uplink port and the port adjacent to it are joined together inside the hub, and one cannot be used while the other is in use.

EFAH16W v2 only:

The 10/100 16-Port Hub is equipped with a crossover button (labeled **MDI/MDIX**) that enables port 16 to be used as the hub's uplink port. To utilize the port's uplink capability, the **MDI/MDIX** button must be depressed. If the button is not depressed, port 16 will function as a normal 10/100 port.

Uplinking the Hub

The EtherFast 10/100 Workgroup Hub has a special switched uplink port with it's own distance extension capabilities. If you are mixing 10Mbps and 100Mbps hardware on your hub, it can be uplinked to other 100Mbps hubs at a distance of 5 meters (16.4 feet).

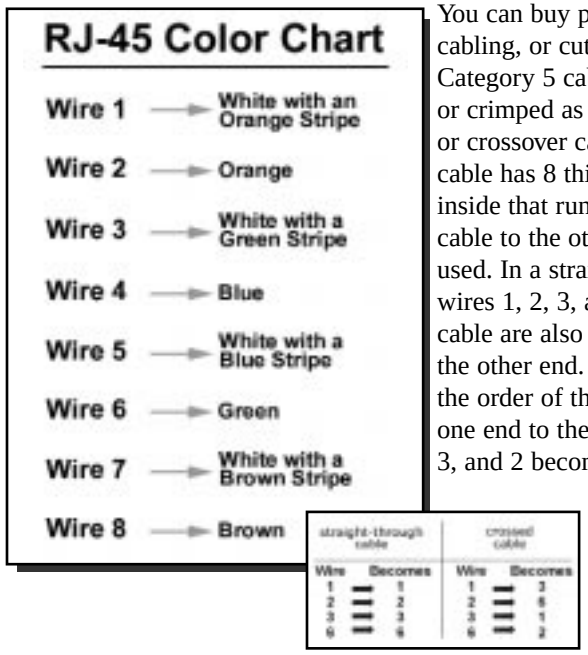
Powering On the Hub

The 10/100 Workgroup Hub comes with an AC power adapter. Plug the power adapter's plug into the hub's power jack, then plug the other end of the electrical cord into a standard AC electrical outlet. The hub will put itself through a series of diagnostic tests (lasting just a few seconds), then begin scanning the ports for live nodes. The installation is complete.

Appendix

Twisted-Pair Cabling

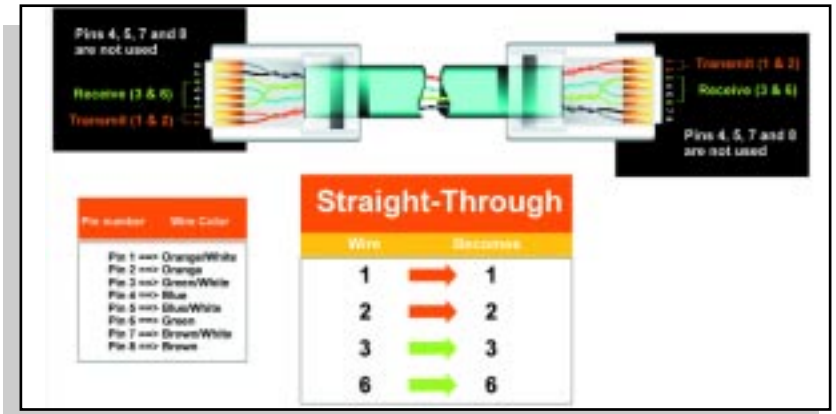
There are different grades, or categories, of twisted-pair cabling. Category 5 is the most reliable and is highly recommended. Category 3 is a good second choice. Straight-through cables are used for connecting computers to a hub. Crossover cables are used for connecting a hub to another hub (there is an exception: some hubs have a built-in uplink port that is crossed internally, which allows you to link or connect hubs together with a straight-through cable instead).

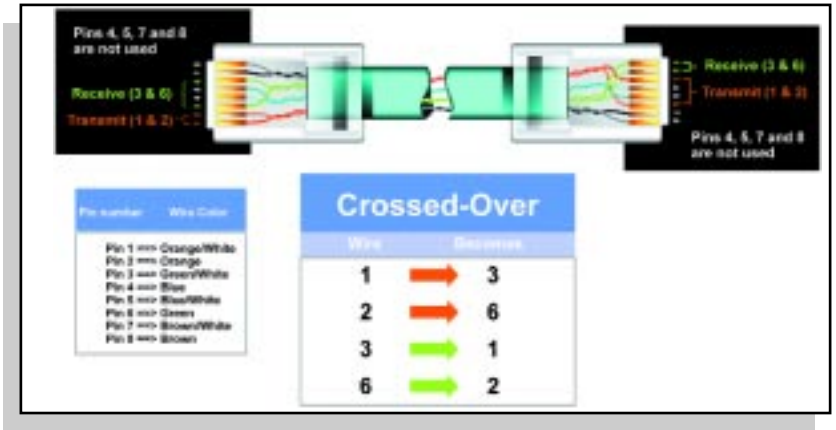


You can buy pre-made Category 5 cabling, or cut and crimp your own. Category 5 cables can be purchased or crimped as either straight-through or crossover cables. A Category 5 cable has 8 thin, color-coded wires inside that run from one end of the cable to the other. All 8 wires are used. In a straight-through cable, wires 1, 2, 3, and 6 at one end of the cable are also wires 1, 2, 3, and 6 at the other end. In a crossover cable, the order of the wires change from one end to the other: wire 1 becomes 3, and 2 becomes 6. See the diagrams on the next page for more detailed information on straight-through and crossover cabling.

To determine which wire is wire number 1, hold the cable so that the end of the plastic RJ-45 tip (the part that goes into a wall jack first) is facing away from you. Face the clip down so that the copper side faces up (the springy clip will now be parallel to the floor).When looking down on the copper side, wire 1 will be on the far left.

Crimping Your Own Network Cables





Specifications

Model Numbers	EFAH05W v2 (5-Port) EFAH08W v2 (8-Port) EFAH16W v2 (16-Port)
Standards	IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX)
Protocol	CSMA/CD
Ports	5, 8, or 16 10BaseT/100BaseTX RJ-45 Ports, One Shared RJ-45 Uplink Port (5 & 8-Port model)
Speed Per Port (Mbps)	10Mbps (10BaseT) 100Mbps (100BaseTX)
Cabling Type	
10BaseT	UTP Category 3 (or better)
100BaseTX	UTP Category 5 (or better)
Topology	Star
LEDs	Power, 100Mbps*, Link/Activity* (*per port)

Environmental

Dimensions	
EFAH05W v2	4.3” x 3.4” x 1.3” (110mm x 87mm x 32mm)
EFAH08W v2	6.3” x 4.3” x 1.4” (160mm x 110mm x 35mm)
EFAH16W v2	7.25” x 6” x 2.5” (184mm x 152mm x 64mm)
Unit Weight	
EFAH05W v2	6 oz. (0.17 Kg)
EFAH08W v2	9 oz. (0.25 Kg)
EFAH16W v2	16.9 oz. (0.48 Kg)
Power	
EFAH05W v2	7.5VDC, 700mA
EFAH08W v2	3.3VDC, 3A
EFAH16W v2	3.3VDC, 3A
Certifications	FCC Class B, CE Mark Commercial, UL and CSA Listed
Operating Temp	0ºC to 50ºC (32ºF to 122ºF)
Storage Temp	-20ºC to 70ºC (-4ºF to 158ºF)
Operating Humidity	10% to 85% Non-Condensing
Storage Humidity	5% to 90% Non-Condensing

Customer Support

For help with the installation or operation of your EtherFast 10/100 Workgroup Hub, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

Customer Support	(800) 326-7114 (949) 261-1288
Information	(800) 546-5797
Fax	(949) 261-8868
E-mail	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

Linksys Warranty Information

Note: *You must have your proof of purchase and a bar-code from the product's packaging on hand when calling. Return requests can not be processed without proof of purchase.*

Linksys guarantees that every EtherFast 10/100 Workgroup Hub is free from physical defects in material and workmanship under normal use for FIVE years from the date of purchase. If the product proves defective during this warranty period, contact Linksys Customer Support to obtain a Return Authorization Number. When returning a product, mark the Return Authorization Number clearly on the outside of the package and include your original proof of purchase. All customers outside of the United States of America and Canada shall be held responsible for shipping and handling charges or any applicable duty.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS OFFERS NO REFUNDS FOR ITS PRODUCTS.

Tampering with or disassembling this product voids its warranty.

Linksys makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose. Linksys reserves the right to revise or update its products, software, or documentation without obligation to notify any individual or entity.

http://www.linksys.com