Fast Ethernet Switch

USER'S GUIDE

Twenty-Four (24) ports 100/10Mbps Fast Ethernet Switch

LINDY Part No. 25021

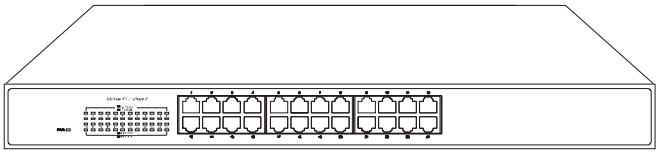
TABLE OF CONTENTS

1 UNPACKING INFORMATION

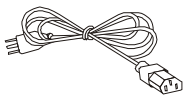
Thank you for purchasing the Switch. Before continuing, please check the contents of the product package. This product package should contain the following items:

- One (1) Switch
- One (1) Power Cord
- Four (4) Rubber Feet (for desktop placement)
- One (1) Rackmount Kit
- This User's Guide

If anything is missing, please contact your place of purchase.



For 19 inches case



Power Cord

Rubber Feet (for desktop placement)

Rackmount Kit

User's Guide

2 PRODUCT INTRODUCTION

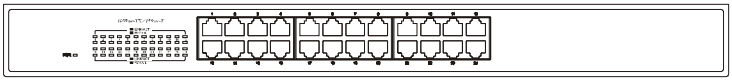
2.1 Models

The Switch is a multi-speed, versatile network device combining both standard and "Big-Pipe" ports under the same hood. The Switch is a twenty-four (24) 100/10Mbps RJ-45 UTP/STP ports switch.

2.2 Key Features

- Twenty-four (24) 100/10Mbps Switch ports.
- Store-and-Forward technology.
- Auto-Negotiation support for each TP port.
- IEEE 802.3x Flow-Control support for Full-Duplex operation.
- Back-Pressure support for Half-Duplex operation.
- Bridging capability for 100Mbps and 10Mbps segments.
- All ports support Auto-MDIX function.

2.3 Front Panel



For 19 inches case

2.3.1 100/10Mbps TP Ports

Each 100/10Mbps TP port provides an Auto-Negotiation function that senses for the attached device's maximum operating speed and automatically sets the Switch to operate at that speed. Users only need to connect a network device into any TP port.

2.3.2 Cabling

10Mbps - When transmitting at 10Mbps Category 3, 4 or 5 TP cabling with RJ-45 sockets can be used.

100Mbps -To transmit at 100Mbps requires Category 5 TP cabling.

Port Type	Cable Type	Connector
10BASE-T	Category 3, 4 or 5 TP	RJ-45
100BASE-TX	Cat.5 TP	RJ-45

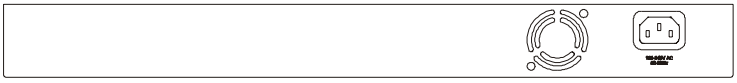
Note: Category 5 TP cable is recommended whenever installing new cabling.

2.3.3 Status LEDs

The Switches come with a complete range of LEDs. The table below lists each LEDs name, color and a brief description of its function.

Name	Color	Function
Pwr	Green	Lit: Power "On"
LINK/ACT	Green	Lit: When the port has a valid physical connection with another device. Blinks: When the port is sending or receiving data (Activity).
FD/COL	Amber	Lit: When port is set to Full-Duplex mode. Blinks: When a collision is detected, when the port is in Half-Duplex mode.

2.4 Rear Panel



For 19 inches case

2.4.1 Power Socket

The Power Socket is designed to be used with the power cord included in the product package.

- Attach the female end of the cord to the power connector on the back panel.
- Attach the male end of the cord to a grounded power outlet.

2.4.2 Fan

Note: Please keep the fan area clear, so that the cooling function is not impaired.

3 INSTALLATION

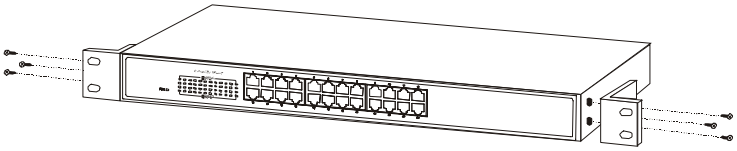
The Switch is "Plug & Play". It does NOT require software configuration. Users can immediately use any of the features of this product simply by attaching the cables and turning on the power.

3.1 To locate the switch on a desktop

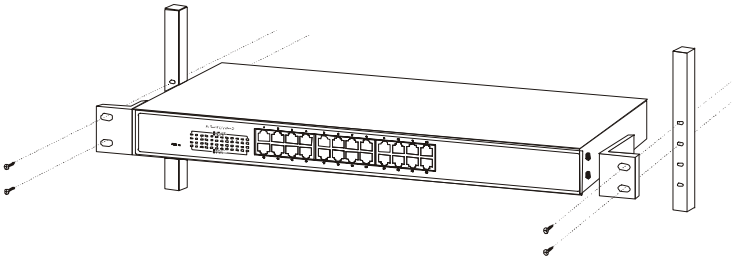
- Attach the four (4) rubber feet included in the product package to the bottom of the Switch, one in each corner.
- Place the Switch on a clean, flat desk or tabletop close to a power outlet.
- Plug in all network connections and the power cord.
- Turn the power switch to "On".

3.2 Rackmount placement

- Attach one (1) rackmounting bracket on each side of the Switch front panel and secure each bracket with the provided screws.
- Use the other provided screws to secure each Switch to the rack.



Use the other provided screws to secure each Hub to the rack.



4 HELPFUL SUGGESTIONS

4.1 Prior to Installation

Before installing the Switch and connecting network devices, it is important to plan the network's layout. Things you should consider include:

- **Dedicated Bandwidth:** File servers and other high-traffic hardware improve their performance if they have their own dedicated 10Mbps or 100Mbps bandwidth.
- **Full-Duplex:** Determine which devices support Full-Duplex connections.
- **Fast Ethernet:** Make sure rules for cable lengths and categories are followed.
- **Auto-Negotiation:** Devices with different speeds may be easily swapped when the other end of the cable is fixed to a port with Auto-Negotiation.

Note: If you are using the last port's Crossover TP connector, you cannot use the last port's regular connector. If you use both of the last port's TP connector's at the same time your Switch will not operate properly.

4.2 Half- and Full-Duplex

The Switch supports both Half- and Full-Duplex modes for 10BASE-T and 100BASE-TX.

- **In Half-Duplex mode:** Data cannot be transmitted and received at the same time. Attached devices must finish transmitting data before they can receive data.
- **In Full-Duplex mode:** Data can be transmitted and received at the same time.

However:

- Full-Duplex transmission is only possible between two devices with a dedicated link (e.g., Switch-Switch, Switch-PC)
- Both devices must have Full-Duplex capability
- Both devices must be set to Full-Duplex (e.g. Auto-Negotiation – Auto-Negotiation, Non-Auto-Negotiation to Non-Auto-Negotiation)

The 100BASE-TX/10BASE-T ports on the Switch detect and set the line's operating mode by using their Auto-Negotiation function.

4.3 Fast Ethernet

100BASE-TX is called "Fast Ethernet". In Fast Ethernet data travels ten times faster (100Mbps) than in traditional Ethernet (10Mbps).

Below is a list of the cable types and connectors supported by the Switch for 10BASE-T and 100BASE-TX networks.

Port Type	Cable Type	Connector
10BASE-T	Category 3, 4 or 5 TP	RJ-45
100BASE-TX	Cat. 5 TP	RJ-45

Note: If your 10BASE-T network currently uses Category 5 TP cabling, you can instantly upgrade the network to a 100BASE-TX network by changing network devices.

4.4 Auto-Negotiation

Every 100/10Mbps dual speed port on the Switch has a built-in "Auto-Negotiation" function. This technology automatically sets the best possible bandwidth as soon as a connection is established with another network device. (Usually at Power "On" or Reset.) This capability is achieved via the Switch's Auto-Negotiation function that automatically detects the modes and speeds the second (attached) device is capable of.

Evaluating Auto-Negotiation Capability:

If attached device is:	The Switch Will Automatically Set Its TP Ports to Operate At:
100Mbps no Auto-Negotiation	100Mbps (100BASE-TX, Half-Duplex)
100Mbps with Auto-Negotiation	200Mbps (100BASE-TX, Full-Duplex)
10Mbps no Auto-Negotiation	10Mbps (10BASE-T, Half-Duplex)
10Mbps with Auto-Negotiation	20Mbps (10BASE-T, Full-Duplex)

Note: If the attached device is set to a fixed mode (ex: Forced Full-Duplex) it will not operate as an Auto-Negotiation device.

4.5 MAC Address Table

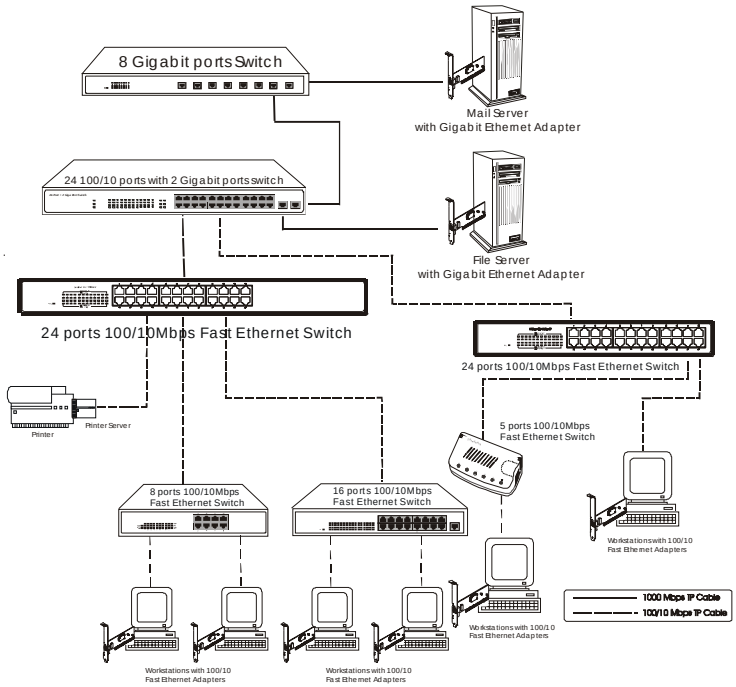
Every Ethernet data packet includes both source and destination addresses. This six (6) bytes ID is called the MAC (Media Access Control) Address.

The Switch can automatically learn and store MAC addresses. However, the MAC address table is volatile: it disappears when the Switch is powered "Off" or reset.

Note: When the network needs reconfiguration, we recommend turning off the power first. After all nodes have been moved, turn the Switch back "On" to rebuild the internal MAC address table.

5 Sample Application

The optimal application for the Switch is as a "big pipe" backbone interconnecting file servers with bandwidth-hungry workgroups, departments, and offices.



6 PRODUCT SPECIFICATIONS

Models	Twenty-Four (24) ports 100/10Mbps Fast Ethernet Switch (For 13 inches and 19 inches width)
Standards	10BASE-T IEEE 802.3 100BASE-TX IEEE 802.3u
Ports	Twenty-four (24) 100BASE-TX
Media Support	10BASE-T Category 3, 4 or 5 TP 100BASE-TX Category 5 TP
Bandwidth	100BASE-TX 200/100/20/10Mbps
Forwarding / Filtering Rate	148,810 packets/second per port @ 100Mbps, max. 14,881 packets/second per port @ 10Mbps, max.
Latency	9 μsec @100Mbps, minimum 70 μsec @ 10Mbps, minimum
MAC Addresses	8K six (6)-bytes entries maximum, self-learning
Buffer Memory	2.5Mb
Duplex Modes	Auto-Negotiation
Crossover	All the TP ports support Auto-MDIX function
LED Indicators	One (1) for Power One (1) per port for Link / ACT One (1) per port for Full-Duplex /Collision
Power Supply	Full range Auto-Switching Input voltage: 100 ~ 240 +/-10% VAC/ 50 ~ 60 Hz
Power Consumption	21.5 watt max
Environment	Operating Temp: 0° ~ 45°C (32° ~ 113°F) Storage Temp: -20° ~ 70°C (-4° ~ 158°F) Humidity: 10% ~ 90% non-condensing
Certifications	FCC Class A CE Mark
Dimensions	For 19 inches width: 442x184x44mm(17.40x7.24x1.73inches)

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against electromagnetic interference in a commercial environment.

Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE MARK WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.