



# USER MANUAL

## 16 Port 10/100/1000 Mbps Gigabit Ethernet Switch



**ENHGS-1600X2**

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## FCC Certifications

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 a commercial environment. This equipment generates, 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.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.



## CE Mark Warning

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

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## Introduction

Easily boost your networking throughput, the ENHGS-1600X2 is a 8.5" switch provides you 16 10/100/1000 Mbps gigabit ports that lead you to a real gigabit connection. Users are now able to transfer large and high bandwidth-needed files faster and hence get a real efficiency improvement.

The store-and-forward architecture filters errors and forwards packets in a non-blocking environment. Flow control ensures the correctness of data transmitting. The 802.3x and backpressure flow control mechanisms work respectively for full and half duplex modes.

The switch features with easy installation and maintenance. It supports NWay auto-negotiation protocol, which detects the networking speed and the duplex modes automatically. Auto-MDI/MDI-X function alleviates the effort to use crossover cables. Users need not to prepare crossover cables for equipment connectivity. It also supports IEEE 802.3az Energy Efficient Ethernet to promise the operation in Low Power Idle Mode and save power consumption.

## Unpacking Information

Thank you for purchasing this product. Before installation, please verify that your package contains the following items.

1. One 8.5" 16 Port Gigabit Ethernet Switch
2. One AC power cord
3. One user manual

## Key Features

- Complies with 10 BASE-T specifications of the IEEE802.3 standard
- Complies with 100BASE-TX specifications of the IEEE802.3u standard
- Complies with 1000BASE-T specifications of the IEEE802.3ab standard
- Supports back-pressure (half duplex) and flow control (IEEE 802.3x)
- Supports NWay protocol for speed(10/100/1000Mbps) and duplex mode(Half/Full) auto-detection
- Supports MDI/MDI-X auto crossover and polarity correction
- Store-and-forward architecture filters fragment & CRC error packets
- Supports 8K bytes MAC address
- Supports 256K bytes buffer memory
- Supports 9K bytes jumbo frame



- Supports IEEE 802.3az Energy Efficient Ethernet
- Supports extensive LED indicators for network diagnostics

## Front Panel

The front panel consists of LED indicators and the ports.



## Gigabit Ethernet Ports

The switch includes 16 gigabit twisted pair ports, each supporting auto negotiable 10/100/1000 Mbps and auto MDI/MDIX cross over detection functions. This function provides true “plug and play” capability. These ports can operate in half-duplex mode for 10/100 Mbps.

## LEDs Definition

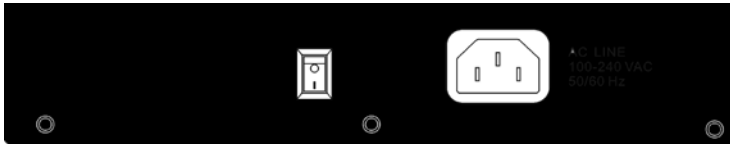
The switch contains one power LED for the device, Link/Act LEDs for each port that shows the activities and information of the ports.

LED	Status	Operation
Power	Steady Green	The switch is powered on
	Off	The switch is powered off
Link/ ACT	Steady Green	Valid port connection
	Blinking Green	Valid port connection and there is data transmitting/receiving
	Off	Port disconnected



## Rear Panel

The back panel is shown as below; it contains a three pronged receptacle and a push button to turn on and off.



## Power Receptacle

To be compatible with the electric service standards around the world, the switch is designed to afford the power supply in the range from 100 to 240VAC, 50/60Hz. Please make sure that your outlet standard to be within this range.

To power on the switch, plug the female end of the power cord firmly into the receptacle of the switch and the other end into an electric service outlet. After the power cord installation, please check if the power LED is illuminated for a normal power status.

## Installation

This switch can be placed on your desktop or mount it on the wall.

Before installing the switch, we strongly recommend:

1. The switch is placed with appropriate ventilation environment. A minimum 25mm space around the unit is recommended.
2. The switch and the relevant components are away from sources of electrical noise such as radios, transmitters and broadband amplifiers.
3. The switch is away from environments beyond recommend moisture.

### ***Desktop Installation***

1. Attach the provided rubber feet to the bottom of the switch to keep the switch from slipping. The recommend position has been square-marked.
2. Install the switch on a level surface that can support the weight of the unit and the relevant components.
3. Plug the switch with the female end of the provided power cord and plug the male end to the power outlet.

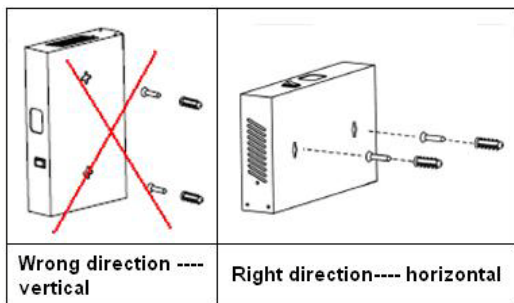


### **Wall mount Installation**

1. Screw the two screws into the wall 150 mm apart horizontally. Leave a small gap between the head of the screw and the wall. The gap should be big enough for the screw heads to slide into the screw slots and the connection cables to run down the back of the switch.
2. Align the holes on the back of the switch with the screws on the wall. Hang the switch on the screws.

### **Warning!**

Do not wall mount the product vertically or it will be dangerous. Please attach the product on the wall horizontally! See the image below for reference:



### **Rack-mount Installation**

Procedures to rack-mount the switch in the rack:

1. First disconnect all the cables from the switch.
2. Place the unit the right way up on a hard, flat surface with the front facing you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.
5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the rack with suitable screws
7. Reconnect all the cables.

\* Rack-mount brackets and Screws are not provided



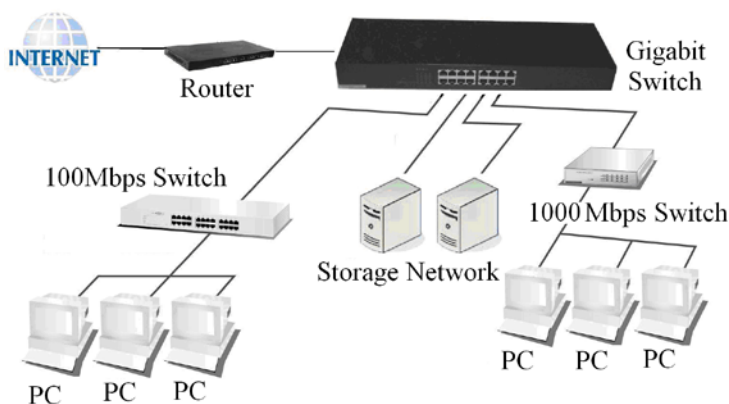
## Network Cables

In making a switch interconnection, you could use any port to connect another switch with straight or crossover cable. As all the ports support auto MDI / MDI-X function, using a straight cable to make a switch-to-switch connection is allowed.

1. **Crossover or straight-through cable:** All the ports on the switch support Auto-MDI/MDI-X functionality. Both straight-through or crossover cables can be used to connect the switch with PCs as well as other devices like switches, hubs or router.
2. **Category 3, 4, 5, 5e or 6 UTP/STP cable:** To make a valid connection and obtain the optimal performance, appropriate cables corresponding to different transmitting/receiving speed is required. To choose a suitable cable, please refer to the following table.

Media	Speed	Wiring
10/100/1000 Mbps copper	10Mbps	Category 3, 4, 5 UTP/STP
	100Mbps	Category 5 UTP/STP
	1000Mbps	Category 5e, 6 UTP/STP

## Network Application





## Product Specifications

<b>Standard</b>	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3ab 1000BASE-T IEEE802.3x full-duplex flow control IEEE802.3az (EEE)
<b>Interface</b>	16 10/100/1000 Mbps RJ-45 ports
<b>Cable Connections</b>	RJ-45 (10BASE-T): Category 3,4,5 UTP/STP RJ-45 (100BASE-TX): Category 5 UTP/STP RJ-45 (1000BASE-T): Category 5e, 6 or enhanced UTP/STP
<b>Network Data Rate</b>	10/100/1000 Mbps Auto-negotiation
<b>Transmission Mode</b>	10/100Mbps: Full-duplex, Half-duplex 1000Mbps: Full-duplex
<b>LED Indications</b>	System: Power Ports: Link/ACT
<b>MAC Address Table</b>	8K
<b>Buffer Memory</b>	256K bytes
<b>Jumbo Frame</b>	9K bytes
<b>Operating Temperature</b>	Operating Temperature: 0~40°C (32°~104°F) Storage Temperature: -40 ~ 70°C (-40°~158°F)
<b>Operating Humidity</b>	Operating: 10%~90%, non-condensing Storage: 5% ~ 90%, non-condensing
<b>Power Supply</b>	Internal power supply 5V/2A 100-240V/50-60 Hz 0.5A, MAX universal input
<b>Emission</b>	FCC, CE, VCCI Class A





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