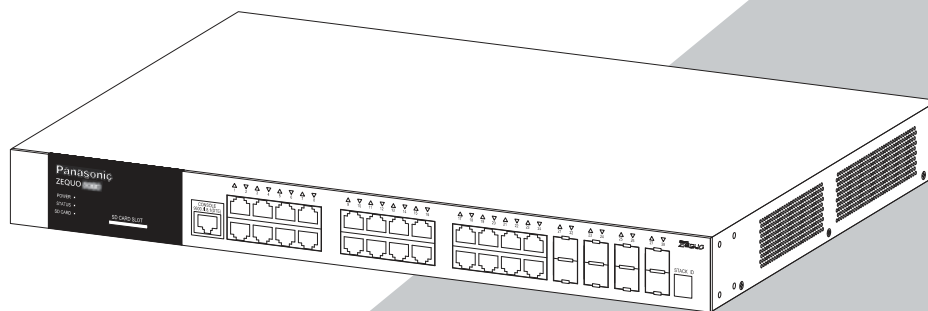


Installation Guide

ZEQUO 6400

Model No. PN36240E-TH
PN36240E-MY
PN36240E-ID
PN36240E-SG

- Thank you for purchasing our product.
- This manual provides important information about safe and proper operations of this Switching Hub.
- Please read the **"Important Safety Instructions"** on pages 3 to 5.
- Any problems or damage resulting from disassembly of this Switching Hub by customers are not covered by the warranty.



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Important Safety Instructions

This chapter contains important safety instructions for preventing bodily injury and/or property damage. You are required to follow them.

- Severity of bodily injury and/or property damage, which could result from incorrect use of the Switching Hub, are explained below.



WARNING

This symbol indicates a potential hazard that could result in serious injury or death.



CAUTION

This symbol indicates safety instructions. Deviation from these instructions could lead to bodily injury and/or property damage.

- The following symbols are used to classify and describe the type of instructions to be observed.



This symbol is used to alert users to what they must not do.



This symbol is used to alert users to what they must do.



WARNING



- Do not use power supply other than AC 100 - 240 V.
Deviation could lead to fire, electric shock, and/or equipment failure.
- Do not handle the power cord with wet hand.
Deviation could lead to electric shock, and/or equipment failure.
- Do not handle this Switching Hub and connection cables during a thunderstorm.
Deviation could lead to electric shock.
- Do not disassemble and/or modify this Switching Hub.
Deviation could lead to fire, electric shock, and/or equipment failure.
- Do not damage the power cord. Do not bend too tightly, stretch, twist, bundle with other cord, pinch, put under a heavy object and/or heat it.
Damaged power cord could lead to fire, short, and/or electric shock.
- Do not unplug nor plug in the power plug with wet hands.
Deviation could lead to electrical shock, and/or equipment failure.
- Do not insert nor drop any foreign objects such as metal or readily combustible things into the inside through the openings.
Deviation could lead to fire, electrical shock, and/or equipment failure.
- Do not store or use the Switching Hub in places where it might get splashed with liquids such as water, in places with a lot of humidity, in places with conductive dust, or in places where there are corrosive and combustible gases.
Deviation could lead to fire, electrical shock, and/or equipment failure.
- Do not store or use the Switching Hub in places where it will be exposed to direct sunlight or high temperatures.
The temperature inside will rise, which may cause fire.
- Do not store or use the Switching Hub in places where there are lots of vibrations and impacts, or in unstable areas.
It might fall, which may cause injuries and/or equipment failure.

WARNING



- **Do not put the Switching Hub into fire.**
Deviation could lead to explosion and/or fire.
- **Do not insert nor drop any foreign objects such as metal or readily combustible things into the inside through the openings, twisted pair ports, console ports, SFP extension slots, SFP+ extension slots, or SD card slots.**
Deviation could lead to fire, electrical shock, and/or equipment failure.

CAUTION



- **Handle the Switching Hub carefully so that fingers or hands may not be damaged by twisted pair port, SFP extension slot, console port, or power cord hook block.**
- **Do not connect any other devices except for 10BASE-T/100BASE-TX/1000BASE-T devices to the twisted pair ports.**
Deviation could lead to equipment failure.
- **Do not mount any other modules except for the separately sold SFP module (PN54021K/PN54023K) to the SFP extension slots.**
- **Do not mount any other modules except for the separately sold SFP module (PN54021K/PN54023K) and the SFP+ module (PN59021/PN59023) to the SFP+ extension slots.**
- **Do not mount any other modules except for the separately sold SFP module (PN54021K/PN54023K), SFP+ module (PN59021/PN59023), or SFP+ direct-attach cable (OPSFPP-T01/OPSFPP-T05) to the stacking ports.**
Check out our website for the latest information on supported SFP modules.
- **Unplug the power plug when there is a malfunction.**
Deviation could lead to fire if the power is allowed to be supplied for extended periods of time.
- **Be sure to connect the ground cable.**
Otherwise this might cause electrical shocks, misoperations and malfunctions. Connect the Switching Hub via the supplied power cord to the outlet which is connected to the ground.
If the outlet is not connected to a ground, connect the ground cable to the ground terminal screw.
- **Use the bundled power cord (AC 100 – 240 V specifications).**
Deviation could lead to electric shock, malfunction, and/or equipment failure.
- **Unplug the power cord in case of equipment failure.**
Deviation, such as keeping connected for a long time, could lead to fire.
- **Connect this Switching Hub to ground.**
Deviation could lead to electric shock, malfunction, and/or equipment failure.
- **Connect the power cord firmly to the power port.**
Deviation could lead to electric fire, shock, and/or malfunction.
- **Unplug the power cord if the STATUS LED blinks in orange (system fault).**
Deviation, such as keeping connected for a long time, could lead to fire.

CAUTION



- **This Switching Hub is to be periodically serviced in order to maintain its performance.**

Please choose a product administrator, and have them be sure to implement periodic maintenance. When doing maintenance, check the inspection chart that is posted on our website which has the requisite items listed on it.

- **When using this Switching Hub to design systems, use it after applying appropriate measures such as setting up redundant configurations.**

Communications failures might be generated due to causes such as malfunctions or misoperations while the Switching Hub is being used.

- **When using this Switching Hub for applications which require extremely high reliability, be careful to expend all possible means to ensure safety and reliability.**

This Switching Hub was not designed nor manufactured with the intention that it be used for applications (in use with railways, aviation, and medical care, etc. whereas the influence rate due to communications failures is extremely high in regard to systems that directly affect systems and human lives) which require extremely high reliability.

- **It is strongly recommended that a lightning arrester (SPD) be installed on the twisted pair port side and the power supply side of this Switching Hub.**

Malfunctions might be caused due to overcurrent and overvoltage due to the effects of lightning strikes.

- **It is recommended that this Switching Hub be replaced about five years after it has been installed.**

This may vary depending upon conditions such as utilisation rates and usage environments, but performance might decrease due to the age-related degradation, etc. of components.

- **Be careful in regards to environmental restrictions whereby the Switching Hub can be used.**

Please isolate the business power lines and communications lines. Isolate distribution lines and other distribution lines, and low current power lines, optical fiber cables, metallic water conduits, and gas conduits, etc. Noise may be generated in the communications lines which might cause communications glitches.

Basic Instructions for the Use of This Product

- For inspection and/or repair, consult the shop.
- Use commercial power supply from a wall socket, which is close and easily accessible to this Switching Hub.
- Unplug the power cord when installing or moving this Switching Hub.
- Unplug the power cord when cleaning this Switching Hub.
- Use this Switching Hub within the specifications. Deviation could lead to malfunction.
- Do not touch the metal terminal of the RJ45 connector, the modular plug of connected twisted pair cable, or the metal terminal of the SFP extension slot. Do not place charged objects in the proximity of them. Static electricity could lead to equipment failure.
- Do not put the modular plug of the connected twisted pair cable on objects that can carry static charge, such as carpet. Do not place it in the proximity. Static electricity could lead to equipment failure.
- Do not put a strong shock, including dropping, to this Switching Hub. Deviation could lead to equipment failure.
- Before connecting a console cable to the console port, discharge static electricity, for example by touching metal appliance (do not discharge by touching this Switching Hub).
- Do not store and/or use this Switching Hub in the environment with the characteristics listed below.

(Store and/or use this Switching Hub in the environment in accordance with the specification.)

- High humidity. Possible spilled liquid (water).
 - Dusty. Possible static charge (such as carpet).
 - Under direct sunlight.
 - Possible condensation. High/low temperature exceeding the specifications environment.
 - Strong vibration and/or strong shock.
- Please use this Switching Hub in place where ambient temperature is from 0 to 40°C. Failure to meet the above conditions may result in fire, electric shock, breakdown, and/or malfunction. Please take notice because such cases are out of guarantee. Additionally, do not cover the bent hole of this Switching Hub. Deviation could lead to high internal temperature, equipment failure and/or malfunction.
 - When stacking Switching Hubs, leave a minimum of 20 mm space between them.
 - When connecting the stacks, be sure to use firmware versions that are identical for all of the devices.
Please note that operations are not guaranteed if the firmware versions are different.

1. Please note that Panasonic shall not bear any liability whatsoever for any damages (this shall include lost earnings, lost opportunities, etc. but this is not restricted to these things) which were generated in relation to damages caused by operations and usage, or the inability to use this Switching Hub, whereby the customer does not follow this Installation Guide.
2. The contents described in this document may be changed without prior notice.
3. For any question, please contact the shop where you purchased the product.

1 Product Outline

ZEQUO 6400 is a Layer 3 Switching Hub with management function having 10BASE-T/100BASE-TX/1000BASE-T ports, SFP extension slots, and SFP+ extension slots.

1.1 Features

- Has wire-speed Layer 3 switching function.
- Ports 1 to 24 are 10/100/1000BASE-T ports corresponding to autonegotiation. Also their speed and communication mode can be switched by configuration.
- Ports 21 to 24 are SFP extension slots.
These ports and the 1000BASE-T twisted pair cable ports cannot be used simultaneously.
- Ports 25 to 28 are SFP+ extension slots. They are capable of 10-Gbps communications. They can be used as SFP or SFP+ ports.
- If the stacking functions have been activated, ports 27 to 28 will be stacking ports. By using the SFP+ modules and the optical fiber cables, or the SFP+ direct attach cables, stacking connections are feasible for up to a maximum of four units whereas the ZEQUO 6500, or the ZEQUO 6400 are mixed.
- Settings and firmware can be changed and saved by using an SD card.
- All twisted pair ports support straight/cross cable auto sensing function. Simply connect devices with straight cables, whether it is a terminal or a network device. (This function does not work if the port communication configuration is set at Fixed or Link Aggregation.)
- Embedded power saving mode detects the connection status automatically and saves power consumption to minimum.
- The Ring Redundant Protocol (RRP) is supported, allowing to make a redundant network via ring topology.

1 Product Outline

1.2 Specifications

Interface	Twisted pair port 1–24: RJ45 connector IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BASE-T SFP extension slot 21-24 IEEE802.3z 1000BASE-SX/1000BASE-LX * Select ether of RJ45 or SFP for use. SFP+ extension slot 25-28 IEEE802.3z 1000BASE-SX/1000BASE-LX IEEE802.3ae 10GBASE-SR/10GASE-LR * Ports 27 and 28 can be used as stacking ports. SD card slot: SD/SDHC, 128MB-32GB Console port: RJ45 connector
Switching mode	Store and Forward method: Forwarding rate 10BASE-T: Max. 14,880 pps/port 100BASE-TX: Max. 148,800 pps/port 1000BASE-T/SX/LX: Max. 1,488,000 pps/port 10GBASE-SR/LR: Max. 14,880,000 pps/port MAC Address table: Max. 32K entry/unit Buffer: 2M byte/unit Switching capability: 128Gbps
Layer 2 Features	STP/RSTP/MSTP VLAN, Link Aggregation, Port monitoring, Multicast (IGMP Snooping, MLD Snooping) QoS (PQ, WRR), Authentication (IEEE802.1X, Web-based Access control, MAC-based Access control), Storm control, RRP
Layer 3 Features	IPv4/v6 routing, IP forwarding, Routing table size: IPv4:12K, IPv6:6K VRRP, OSPFv2/v3, RIPv1/v2 Multicast (IGMPv1/v2/v3, MLDv1/v2, DVMRP (IPv4), PIM Dense mode (IPv4), PIM Sparse mode (IPv4/v6), PIM-SSM (IPv4), L2/L3 Access control
Management	DHCP relay agent, DHCP server, Console, TELNET, SSH SNMPv1/v2c/v3, ZEUQUO assist Plus
Power supply	AC 100-240 V, 50/60 Hz, 2.0 A
Power consumption	Normally, Max. 45.2 W, Min. 30.6 W
Operating environment	Temperature: 0–40°C, Humidity: 20–80% RH (no condensation)
Storage environment	Temperature: -20–70°C, Humidity: 10–90% RH (no condensation)
External dimensions	44 mm (Height) × 440 mm (Width) × 312 mm (Depth) (Excluding protruding sections)
Mass (Weight)	4,200 g

1.3 Accessories

Please be sure to confirm the content.

Please contact our distributor if any of the contents are insufficient.

	Quantity
● Installation Guide (this document)	1 (*)
● CD-ROM (PDF version of Operating Instructions)	1
● Mounting bracket (for 19-inch rack)	2
● Screw (for 19-inch rack)	4
● Screw (for fixing the main unit and the mounting bracket)	8
● SFP+ Direct attach cable (OPSFPP-T01:1m)	1
● Rubber foot	4
● Dummy SD card	1
● Power cord	1

* Just the PN36240E-TH has 1 Installation Guide in Thai (a total of 2 guides).

[Power Cord]

The following power cords are supplied as per the intended nation of delivery.

Product Number	Locale	Power Cord Rating	FUSE Rated Current	Plug Type
PN36240E-TH	Thailand	250 VAC 6 A	-	TIS166-2549
PN36240E-MY	Malaysia	250 VAC 10 A	13 A	BS1363
PN36240E-ID	Indonesia	250 VAC 10 A	-	CEE7/7
PN36240E-SG	Singapore	250 VAC 5 A	5 A	BS1363

[Optional accessories]

- PN54021K-XX 1000BASE-SX SFP Module
- PN54023K-XX 1000BASE-LX SFP Module
- PN59021-XX 10GBASE-SR SFP+ Module
- PN59023-XX 10GBASE-LR SFP+ Module

The XXs are identical to the intended nation of delivery codes.

1.4 Basic operation

This Product does not have a power ON/OFF switch. Connect the supplied power cord to this Switching Hub and connect the other end into an electric outlet.

This Switching Hub operates at AC 100 - 240 V (50/60 Hz).

When power is supplied, all the LEDs are turned ON.

Then, POWER LED lights in green, STATUS LED lights in orange, and self-diagnosis of hardware is executed.

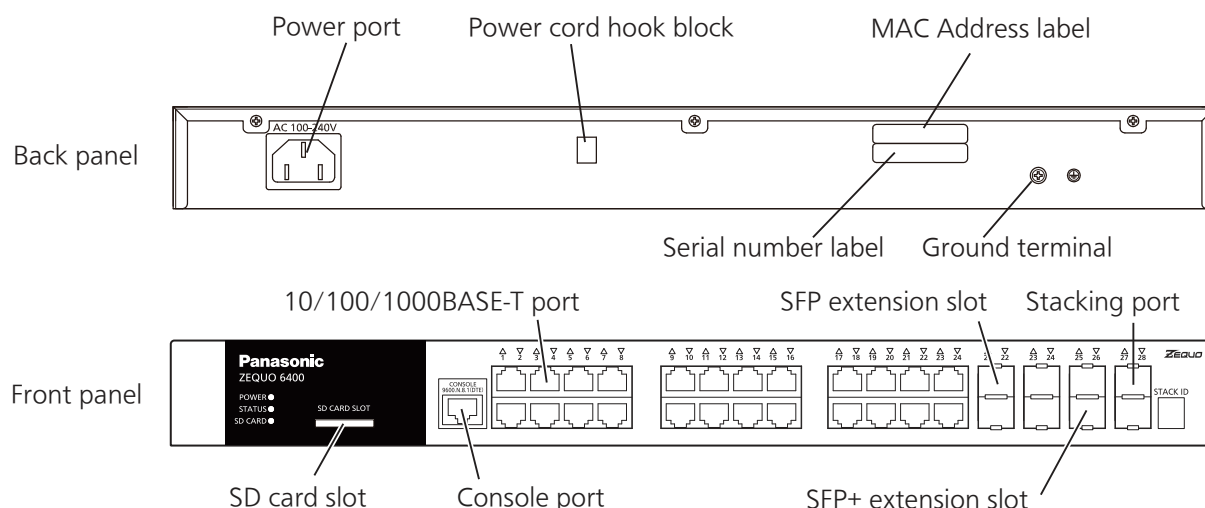
On completion of self-diagnosis, POWER LED and STATUS LED light in green, and the Switching Hub starts operation as a Switching Hub.

When this Switching Hub successfully communicates with a terminal connected to a port, the Port LED lights up.

When the terminal is not operating normally, for example when power is not supplied to the terminal, the Port LED does not light up.

For configuration and management method, please see the PDF version Operating Instructions in CD-ROM.

2 Part Names and Functions



- **Power port**

Connect the supplied power cord to this port and connect the other end into an electric outlet.

- **Power cord hook block**

If the supplied power cord is hanged to this block, the cord becomes hard to pull out from the power port.

- **Ground terminal**

Only qualified personnel should install minimum 18AWG green-and-yellow stranded copper wire to Ground terminal screw.

- **SD card slot**

Insert an SD card into this slot to change/save settings and firmware.

- **10/100/1000BASE-T port (ports 1-24)**

Devices such as 10/100/1000BASE-T terminal, hub, repeater, bridge, and Switching Hub can be connected to this port. Install the device so that the length of twisted pair cable (CAT5e or above) becomes 100 m or less.

- **SFP extension slot (ports 21-24)**

Install SFP module. (It becomes exclusive usage with twisted pair port.)

When SFP extension slot is linked, the port is automatically switched to SFP extension mode.

SFP port supports only the full duplex communication.

- **SFP+ extension slot (ports 25-28)**

An SFP or SFP+ module can be connected.

- **Stacking port (ports 27,28)**

Up to four units can be stacked by connecting optical fiber cables or SFP+ direct attach cables.

- **Console port**

Connect a VT100 compatible terminal, etc. with this port to configure or manage this Switching Hub.

Transmission mode : RS-232C

Transmission speed : 9,600 bps

Stop bit : 1 bit

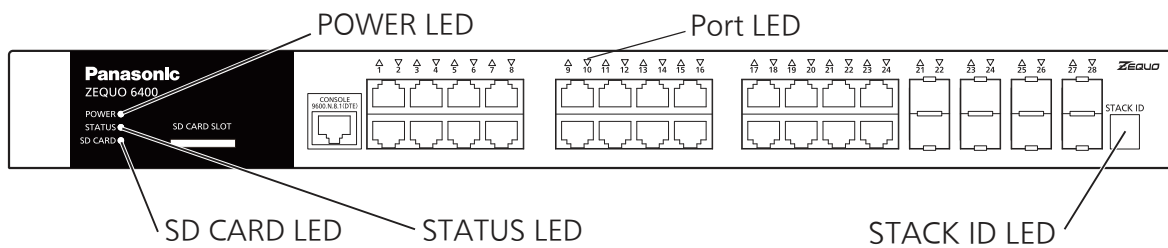
Flow control : None

Emulation mode : VT100

Data length : 8 bits

Parity control : None

Transmission connector : RJ45



- **POWER LED**

Green Light : Power is ON.
Off : Power is OFF.

- **STATUS LED**

Green Light : The system is normally operating.
Orange Light : Starting
Orange Blink : Malfunction (Contact the seller.)
Off : Power is OFF.

- **SD CARD LED**

Green Light : SD card inserted
Green Blink : Reading/writing data
Orange Blink : SD card error
Off : No SD card

- **STACK ID LED**

Indicating "H" and the STACK ID alternately : Master switch
Indicating "h" and the STACK ID alternately : Backup master switch
Indicating the STACK ID : Slave switch

- **Port LED**

LINK/ACT. (Port 1-24)

Green Light : Link is established at 1000 Mbps duplex mode.
Green Blink : Transmitting and receiving data at 1000 Mbps duplex mode.
Orange Light : Link is established at 100 Mbps or 10 Mbps.
Orange Blink : Transmitting and receiving data at 100 Mbps or 10 Mbps.
Off : No devices is connected.

LINK/ACT. (Port 21-24)

Green Light : Link is established at 1000 Mbps duplex mode.
Green Blink : Transmitting and receiving data at 1000 Mbps duplex mode.
Off : No devices is connected.

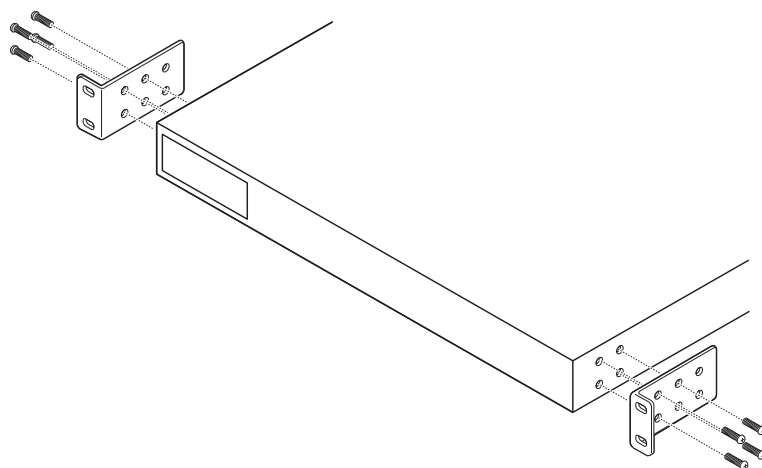
LINK/ACT. (Port 25-28)

Green Light : Link is established at 10 Gbps duplex mode.
Green Blink : Transmitting and receiving data at 10 Gbps duplex mode.
Orange Light : Link is established at 1000 Mbps duplex mode.
Orange Blink : Transmitting and receiving data at 1000 Mbps duplex mode.
Off : No devices is connected.

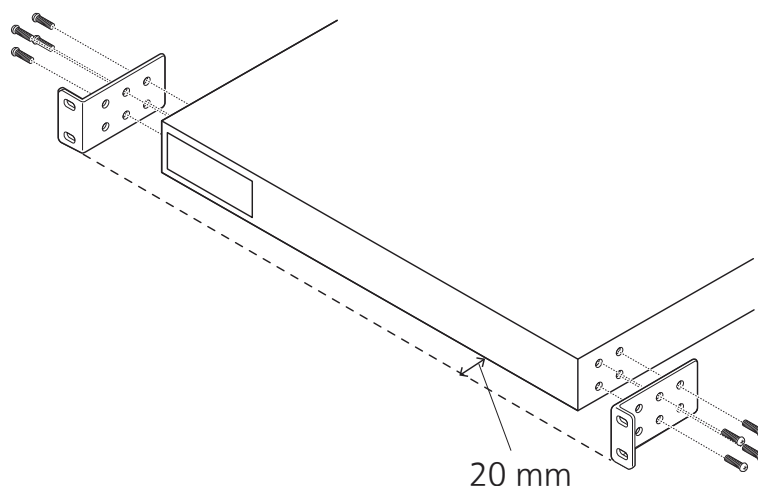
3 Installation and Configuration

3.1 Mounting to rack

Take out the supplied 2 mounting brackets (for 19-inch rack) and 8 screws (for fixing the main unit and the mounting bracket), and fix the brackets to the main unit by tightening screws into 4 holes located at the sides. Then, mount this Switching Hub firmly to the rack using the supplied 4 screws (for 19-inch rack) or screws furnished at the rack.



The main unit can be placed 20 mm back on the rack by changing the bracket fixing position.



3.2 Configuration of IP address (Basic)

- (1) Connect this Switching Hub and PC with a RJ45–DSub 9-pin console cable and start up the terminal emulator (Z EQUO assist Plus, etc.).
- (2) Pressing Enter key 1 times opens Login screen. Enter UserName and Password (the default is "manager" for both). **(Screen 1)**
- (3) The command input screen is displayed. **(Screen 2)**
- (4) Enter the IP address and subnet mask using the following command. **(Screen 3)**
Z6400:admin#config ipif System ipaddress 192.168.1.254/24
- (5) Enter the following command to save the setting. **(Screen 4)**
Z6400:admin#save
- (6) From terminals connected to network, confirm that the settings are reflected correctly by executing PING test for entered address.

3 Installation and Configuration

```
ZEQUO 8400
Command Line Interface
Firmware: Build V1.0.0.21
UserName:█
```

Screen 1

```
ZEQUO 8400
Command Line Interface
Firmware: Build V1.0.0.21
UserName:manager
Password:*****
Z8400:admin#█
```

Screen 2

```
ZEQUO 8400
Command Line Interface
Firmware: Build V1.0.0.21
UserName:manager
Password:*****
Z8400:admin#config ipif System ipaddress 192.168.1.254/24 vlan default state enable
Command: config ipif System ipaddress 192.168.1.254/24 vlan default state enable
Success.
Z8400:admin#
```

Screen 3

```
ZEQUO 8400
Command Line Interface
Firmware: Build V1.0.0.21
UserName:manager
Password:*****
Z8400:admin#config ipif System ipaddress 192.168.1.254/24 vlan default state enable
Command: config ipif System ipaddress 192.168.1.254/24 vlan default state enable
Success.
Z8400:admin#save
Command: save
Saving all configurations to NV-RAM..... Done.
Z8400:admin#█
```

Screen 4

*** For the following, please see the PDF version Operating Instructions in CD-ROM.**

- Detailed configuration and management methods using the CLI.
- Configuration and management method from ZEQUO assist Plus.

Troubleshooting

If you find any problem, please take the following steps to check.

◆ LED

The **POWER LED** is not lit.

- Is the power plug connected?
Check that the power plug is firmly connected, so the connection is not loose at the power port.
- Is the Switching Hub used in a place where operating temperature is between 0 and 40°C?
Use the Switching Hub within the range of operating temperature.

The **SD CARD LED** is not lit.

- Is the SD card installed?
Check that the SD card is firmly inserted.

◆ Communication Failure

- Is the UTP/fiber cable connected to the correct port?
- Are the SFP modules complied with the same standard each other?
- Is the fiber cable correct the fiber mode (single or multi)?
- Attempt to disable "Power Saving" function at target port.
- Are the communication speed and mode settings correct?
If the communication mode signal cannot be properly obtained, the Switching Hub operates in half-duplex mode. Check the auto negotiation setting again.
Do not fix the speed/duplex mode of the connected terminal to full-duplex mode.
- Is the usage rate of the network to which this Switching Hub is connected excessively high?
Try separating this Switching Hub from the network.

◆ Stacking Failure

- Is the stacking function enabled?
- Is the SFP+ direct attached cable connected to stacking port (port 27 or 28) correctly?
- Is the STACK ID LED displayed the correct ID?
- Are all of the firmware versions for the devices that are connected to the stacks identical?

*** For detailed configuration and management method, please see the PDF version Operating Instructions in CD-ROM.
You can also download the latest Operating Instructions from our website.**