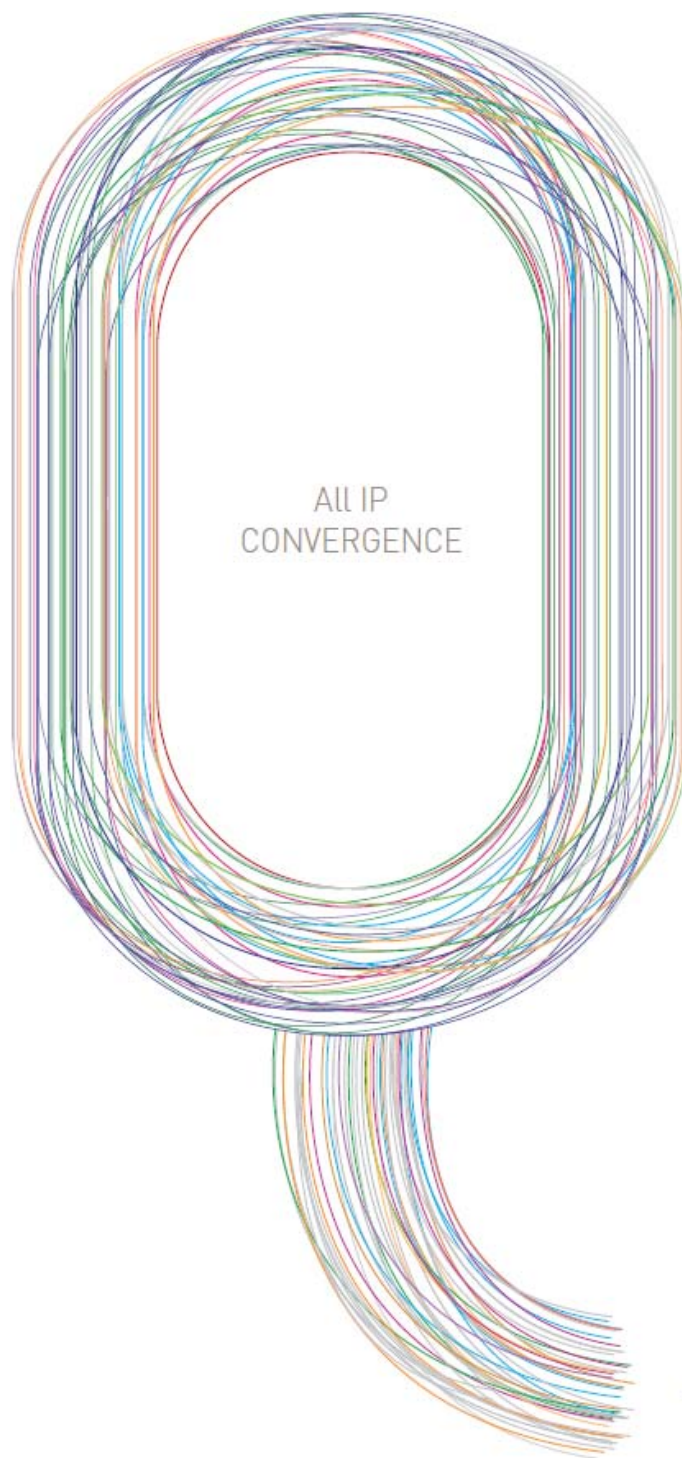


E3208E

■ Installation Guide



ubiQuoss

E3208E

■ Installation Guide



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Preface

This preface provides the overview of E3208E installation guide, which describes guide conventions, and lists other publications that may be useful.

Introduction

This manual is to describe how to install ubiQuoss E3208E Switch.

- This manual is the hardware installation guide for installing and connecting E3208E Switch.
- Chapter 1 describes the name and function of each part of the product, and chapter 2 describes the requirements for installation of the product and the cautions. Please read chapter 1 and chapter 2 before starting installation of the product to install and use the product safely.
- The user manual, command manual, and configuration manual that come with this installation guide covers the functions, usage, and settings more in detail.
- The audience of this installation guide is technicians who have experiences in installing and managing network equipments. Therefore for the technical terms not mentioned in this installation guide, please refer to other network related materials.

Related Documents

For additional information on this equipment, refer to the following manuals.

Manual	Contents
<i>User Guide</i>	Operating configuration for services System operation, administration and maintenance Trouble Shooting

Product Name

The ONU described in this manual use the following product name.

- E3208E ONU

History of Document

Date	Version
2012. 06	First Edition

Symbols in this Guide

The symbols below are used to indicate the product names and notes in the user guide.

Description of Symbols

The installation guide uses the following icons and fonts to indicate special messages for the reader.



Note

Presents the useful contents related to the user guide, the references and data related to the product use, etc.



Caution

Describes the situation that data loss and incorrect product operation can occur, and provides the proper actions to take in the situation.



Warning

Describes the situation that product damage and the user's injury can occur, and provides the proper actions to take in the situation.



Warning

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.



Warning

Do not disassemble or assemble the product.
The user must not remove/attach the product cover or disassemble/assemble the product when the power is on. Otherwise, it can cause personal injury or property loss.

Organization

The installation guide consists of four chapters and two appendices. The summary of each part is described below.

Chapter 1. Introduction

This chapter describes the types and features of E3208E and explains the name and function of each part.

Chapter 2. Installation Preparation

This chapter describes the necessary items to install E3208E Switch and the notes to take about installing and using the product. The user should fully understand the notes in this chapter before installing the product to prevent any problem from occurring during the product installation.

Chapter 3. Installation

This chapter describes how to install E3208E Switch on a rack and connect each port of the switch.

Chapter 4. Troubleshooting

This chapter describes the troubles that may occur during installation or use of E3208E, and explains how to solve the problems.

Appendix A. Product Specification

Appendix A describes the product specifications of E3208E.

Appendix B. Cable Spec

Appendix B describes the specification of cables used to connect the ports of E3208E in detail.

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Chapter 1. Introduction

This chapter describes the types and features of E3208E and explains the name and function of each part.

This chapter consists of the following sections.

- Features of Product
- Appearance of Product

Overview

This section describes the function and characteristics of an ONU device, E3208E.

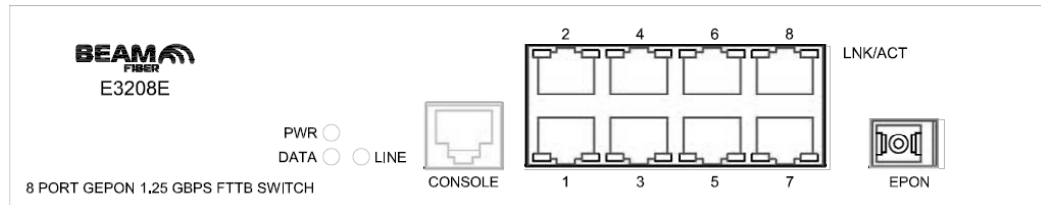
E3208E is a Fast Ethernet L2 switch used in access network segments to provide broadband multimedia service. It can provide high performance switching service to subscribers. It can be also deployed economically because it is based on 100Mbps downlink speed as FE and an uplink port as GE-PON.

E3208E is the best solution for medium size networks with high traffic volumes. E3208E also provides advanced network management and switching functions that follow the global standard. E3208E consists of eight FE ports and one Uplink module as GE-PON port.

Features

Front View

This section describes the name and function of each part on the front panel of E3208E.



<Figure 1> E3208E ONU Front View

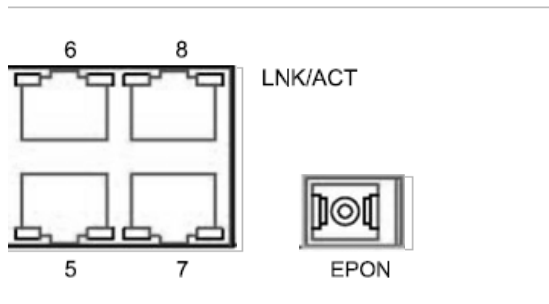
The front panel has console port (RJ-45 Type), Fast Ethernet 10/100B-T 8 ports, E-PON Up-link, and LEDs for system status.

Up-Link Slot port



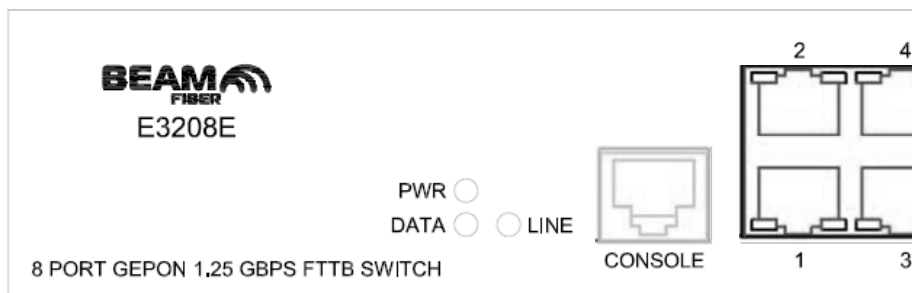
Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

E3208E ONU provides E-PON UP-Link port.

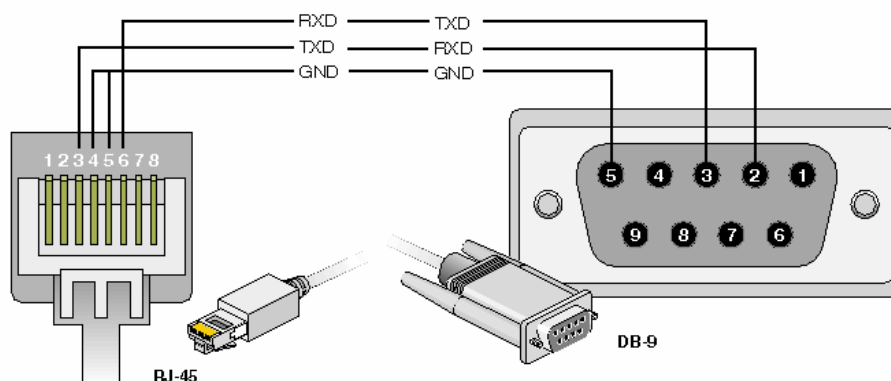


<Figure 2> E3208E ONU Up-Link Port Front Feature

Console port



<Figure 3> LEDs and Console Port



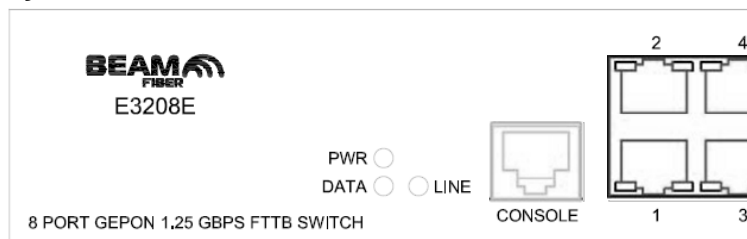
<Figure 4> Console Port Pin numbers

The console port is used to connect a console terminal to manage E3208E. The console cable (Serial Cable) that is used to connect between the console port and a console terminal comes with the product. A PC, workstation, or VT-100 with terminal emulator program installed can be used as a console terminal. The following table show the console port specification..

Table 1 Console port Specification

Item		Setting
Standard		UART
Baud Rate		9600 bps
Connector Type		RJ-45
Terminal Environment	Data Bits	8 bit
	Stop Bits	1 bits
	Parity Bit	None
	Flow Control	None

System status LED



<Figure 5> System Status LED

E3208E provides various system status LEDs that shows the power supply status and so on. System status LED works as follows based on the system status.

Table 2 System status LED

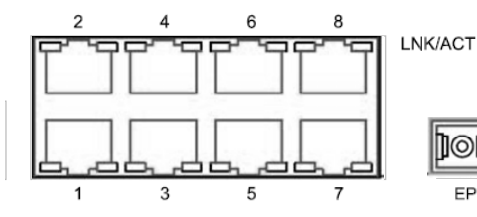
System status LED		
LEDs	Color	Status
LINE	Green	EPON Link-up
	Red	EPON Link-down
	Orange	EPON Link-up (Rx sensitivity -26dBm ~ -24dBm)
PWR	Green	Power Normal
	Off	Power Off
DATA	Green Blink	EPON Data Tx/Rx
	Off	EPON no Data

Fast Ethernet 8 Port

E3208E has port status LEDs that indicates the operating status of ports. System status LED works as follows based on the system status.

Table 3 Port status LED

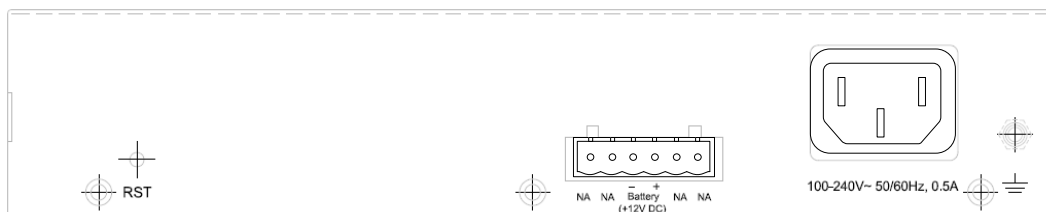
System status LED		
LEDs	Color	Status
Port 1~8	Green On	100B-T Link On
	Green Blink	100B-T Traffic Tx/Rx
	Orange On	Threshold
	Off	Link Off



<Figure 6> Fast Ethernet 8 Ports

Rear View

E3208E has an AC INLET, battery socket and reset button on the rear side.



<Figure 7> E3208E ONU Real Panel

RST Button



<Figure 8> RST button

E3208E has a reset button on the side of the system so that the user can manually reboot the system by pressing the RESET button.



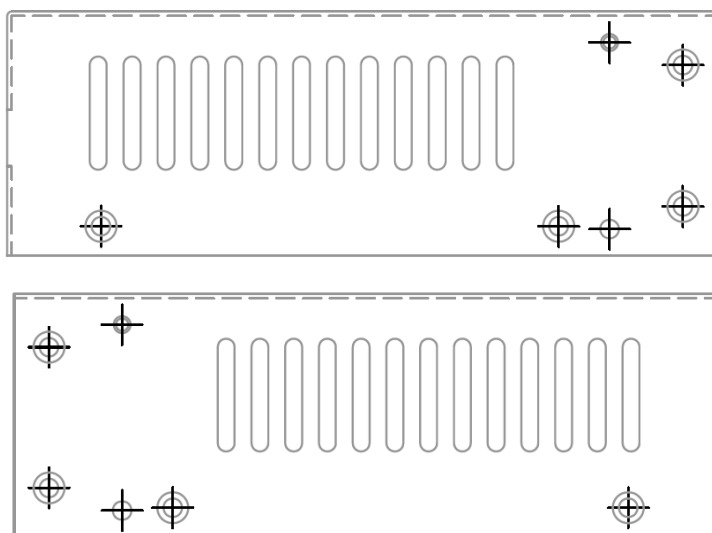
Note

Please use a pen or thin material, and press the reset button gently.

Side View

Air Flow

The vent hole is the part required for air intake or outtake to prevent the Switch from getting overheated.



<Figure 9> E3208E ONU Right / Left Side

Chapter 2. Installation Preparation

This chapter describes the necessary items to install E3208E Switch and the notes to take about installing and using the product. The user should fully understand the notes in this chapter before installing the product to prevent any problem from occurring during the product installation.

This chapter consists of the following sections.

- Pre-installation Checklist
- Necessary items for installation
- Checking the package items

Pre-installation Checklist

Before installing and using E3208E Switch, please read this section carefully and follow the instructions.

Do not disassemble the product

The user should not disassemble the product. If the user thinks that a repair is necessary, contact the Ubiquiti Technical Support Team.

Place Requirements for Installation

The product should be installed in the site satisfying the following conditions to use the product safely and stably:

- Avoid the location whose temperature is too high or too low.
- Avoid the top of a shaky shelf, a tilted location, or the place with big vibrations.
- Avoid the location that is not ventilated or airtight.
- Avoid the location with water or moisture and direct sunrays. Choose the cool and dry location. If water gets into the product, it can cause an electric shock or the product failure.
- Keep the surroundings of the product clean and dust-free during or after the product installation.
- An electro-magnetic wave can cause a problem to the product operation, so avoid the location where an electro-magnetic wave is generated.
- Install the product in the location that the user can easily access and connect a cable to the product easily.

Complying with operation environment condition

E3208E Switch normally operates in the environment with the following conditions:

- Operating Temperature: 0 ~ 50°C
- Relative Humidity: 5 ~ 95%(non-condensing)

Even in the environment that satisfies the above conditions, if the product operates in the excessively low or high temperature for long time, the product life becomes shorter or the product is vulnerable to damage.

Preventing Static Electricity

The static electricity can cause serious damage to the device or a circuit, so please take the following actions when using the product:

- Always discharge the static electricity on the body before touching the product. (Use the static electricity-preventing strap.)
- Do not touch the internal components or connector pins with hands.
- It is recommended to put the product into a static electricity-preventing envelop when storing or moving the product.

Requirements for handling Power

- Ground all the cables connected to the product and connect them to the grounded outlets to prevent and minimize the problem related to an electro-magnetic wave and a surge.
- The power supplied to the product should comply with the power requirements specified in the user guide.
- The product supervisor and user should check the grounding status and take proper actions for the electric safety before the power is supplied to the product.
- Do not touch the power plug with wet hands because it can cause an electric shock.
- Do not pull the power cable out because it can cause a fire.
- Do not use the power cable that is peeled or the one whose plug connection is not tight because it can cause an electric shock and a fire.
- Always check the working place for the possibility of any danger, the wet floor, non-grounded power extension cable, the floor with no grounding facility, etc.
- When connecting the AC power of E3208E, use the grounding-type plug and the properly-grounded power.
- The provided power cable includes a grounding line, so ground the outlet that the power cable is connected to.
- Connect the power cable in the safe place so that unknown people cannot be exposed to it.
- If the user uses other power cables than those provided with the product together, use the ones that satisfy the specifications.
- In case of product installation, installation site change, product transportation, and product disassembling (only relevant engineers are allowed to do this), turn off the power, remove the communication cables from all ports, and remove the power cables.

Grounding

For the electric safety, the product supervisor and user should check the grounding status before supplying power to the product, and ground the product using the ground hole on the rear panel of the product if the product is not grounded. The product grounding is the first thing to do before using the product and the last thing to remove in case of product transportation.

Lightening

Because lightening can cause a serious fault to the product, pay extra attention to prevent the product, the cables connected to the product, and the installation site from being exposed to lightening.

Preventing Overheating

Because the product overheating can cause a failure or an incorrect operation, pay attention to the followings to ensure the smooth air circulation in the product:

- During the production installation, secure a sufficient space (more than 10cm from each side) to prevent the product from being affected the temperature of other products or unsmooth air circulation.
- Do not block the cooling fan and vents on the top/bottom of the product because they play an important role of cooling down the system temperature.

Notes for Cleaning

- Do not wipe the inside of the device with wet cloth.
- Do not use tough tools or chemical components, such as benzene, to wipe the product because it can deform the product appearance.

Other Notes

- Do not put heavy items on the product.
- Do not make any action that can cause damage to the personnel or the equipment.

Working with Lasers

If your system includes a fiber-optic port, note the following guidelines.

- To avoid exposure to radiation, do not stare into the aperture of a fiber-optic port. Invisible radiation might be emitted from the aperture of the port when no fiber cable is connected.
- Always keep unused fiber-optic ports capped with a clean dust cap.
- When you see the following symbol label in the system module, you must take care to ensure that any laser light escaping is not directed towards the eyes.



Figure 1. Warning Label According to IEC 60825/EN 60825

Items Required for Installation

To install the E3208E Switch, the following items are required. The items marked with * are not supplied together with the product. The user needs to prepare those items.

- E3208E ONU Main Body
- E3208E ONU: a book or a manual CD
- Power cable
- Battery*
- Battery Cable*
- Console cable*
- Console terminal*
- Management Ethernet port connection cable
- Bracket
- Bracket fixing screws
- Phillips head screwdriver *

Contents of Package

E3208E Switch package contains the following components.

Table 4 List of Package Items

Components	Qty	Use
Main Body	1 set	E3208E ONU Main Body
Manual CD	1 ea	A manual CD that contains installation guide and user guide for the system.
Power cable	1 ea	Cable for providing AC Power
Bracket	2 ea	Bracket for installing equipment
Bracket fixing screws	8 ea	Screws used to mount the rack brackets on the equipment

The user should thoroughly check the items in the product package for any missing item that is in the list and any damaged item. For any missing or damaged item, contact the product purchase place for new items.

Chapter 3. Installation

This chapter describes how to install E3208E Switch on a rack and connect each port of the switch.

This chapter consists of the following sections.

- Selecting Installation Place
- Connecting Power
- Connecting Console Terminal
- Connecting EPON Up-Link port
- Checking Operation

Installation Procedure

Selecting Installation Place

The E3208E should be installed on a place that meets the following conditions to use the product safely and stably:

- Avoid the location where temperature is too high or too low. Especially avoid the place exposed to direct ray of light or near heater)
 - Avoid the location that is not ventilated or airtight. Avoid the location with water or moisture and direct sunrays. Choose the cool and dry location.
 - Please keep at least 10 cm's space around the equipments for ventilation.
 - Avoid the top of a shaky shelf, a tilted location, or the place with high vibrations.
 - Avoid the place where electromagnetic exists.
 - Keep the surroundings of the product clean and dust-free during or after the product installation.
 - To prevent people from being exposed to any injury, put the device and tools away from the location that people often visit.
 - Install the product in the location that the user can easily access and connect a cable to the product easily.
 - E3208E operates normally in the temperature and humidity below. If the temperature and the humidity are out of these ranges, the product can operate abnormally. Consequently, install the product in the location that can satisfy the following conditions:
- Operating Temperature: 0 ~ 50 °C
 - Relative Humidity : 5 ~ 95%(non-condensing)

Connecting Power

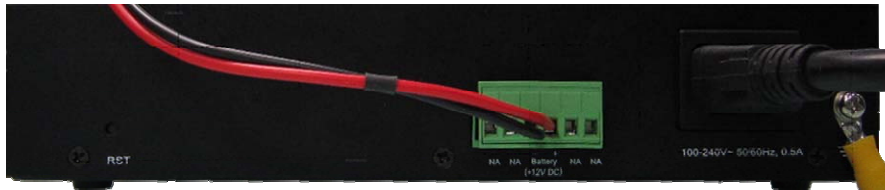
Connecting an AC Power and a Battery

Before supplying power to E3208E, please check the grounding on the rear panel of the product. If grounding is missed, please connect the ground.

- AC Power : Connect the power cable that came with the product to the power inlet, and plug the power cable to the AC power outlet.
- Battery: Connect an anode (+) and GND terminal on the battery with battery cables. Then connect E3208E DC power input terminals with the other end side battery cables.

Battery Operating

- **Charging:** When you connect AC power and Battery at the same time, it is charged automatically. In case of a new battery, you cannot make sure that the voltage value is going up with your eyes because it is charged slowly.
- **Discharging:** When AC power stops, it is discharged automatically and the battery replaces AC power.
- **Operating:** The battery normally operates for 6 hours in case of using every port. When the battery starts charging via AC power again, it will be fully charged after 5 hours.



<Figure 10> Connecting AC power cable, DC power lines, and Grounding Cable.



Note The specification of power to be supplied to AC power supply of E3208E is as follows.

- Voltage : AC 100V ~ AC 240V
- Power Consumption : max 16.9 Watt
- Input Frequency : 50/60Hz



Warning Because the battery using to E3208E ONU is 12V (4.5AH) VRLA battery, it may have the danger of gas-leak and of explosion on the overcharge or the over-discharge.

E3208E cut off the current at less than 10.5V battery voltage and also cut off the current at more than 13.5V battery voltage to charge. (Charging current max 800mA)

The power supply that does not meet the above specifications can cause damage to the product or a fire.

Connecting Console Terminal

E3208E can be configured or monitored by connecting a console port to the product directly. The user can use the console cable that came with the product to connect the product and the console terminal. Connect the RJ-45 connector of the console cable to the console port of the product and the DB-9 connector (the other side of the cable) to the console terminal.

The terminal device used as the console terminal of E3208E should be set according to the following communication configuration in order to communicate with E3208E normally.

- Baud Rate: 9600 bps
- Data Bit: 8 bit
- Stop Bit: 1 bit
- Parity Bit: None
- Flow Control: None



Note Most of the cases that the screen display of the console terminal fails, it is due to the wrong setting of the number of bits per sec in the console terminal. In case that the characters on the console terminal screen are broken or that no character is displayed, check the number of bits per sec set in the terminal.



Note For specification of console cable and PIN assignments of each side of connector, please refer to “Appendix B Cable Specification”.

Connecting EPON Up-Link port

E3208E ONU provides Gigabit EPON Up-Link that supports 1.25Gbps speed. EPON –Up-Link port supports 1000 Base-PX10-ONU and it uses optical cable that has SC connector. The instruction on connecting the cable to the port is given below.

Connecting EPON Up-Link port



Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

Remove the rubber cap that protects EPON module. Use single mode SC-Type optic cable for EPON SFP module type. Connect SC connector to EPON Up-Link port. Connect the other side SC connector to the EPON splitter.



Note If any foreign material comes into the SFP port, the port may not work properly or the transmission rate may be decreased, therefore please keep the dust prevention cap to the SFP port when the SFP port is not used, and remove the cap immediately before connecting the cable to the SFP port.

Checking Operation

Once the installation of the equipment is completed and all the cables are connected, please check if the equipment works well through the following procedures.

Checking LED

Turn the power switch connected to the power supply to ON direction to turn on the power of the equipment. Then check if the LEDs on the front panel of the equipment work as follows.

- Press the power switch to ON direction, and check if PWR LED of front panel is turned GREEN.
- If power is normally supplied, the equipment starts initialization. The initialization can be checked through the console port.
- Once the system initialization is completed about 30 seconds later, a prompt appears on the console terminal for administrator input. If the prompt does not appear or it does not appear even after 30 seconds, it means the equipment does not work normally. The system booting time may be different according to the system configuration file setting.
- Once the initialization is completed, the LED of the ports to which cables are connected are turned ON. The LNK LED of ports that are connected to PC or network equipments successfully are turned GREEN.

Checking Console

When it is difficult to determine the status of the equipment only with LED, please use console terminal. As discussed above, connect the console port to the console terminal using console cable, and configure the communication environment of the console terminal. When the power enables, the user can see in the console terminal the messages displayed in the initialization procedure.

Once the initialization is successfully completed, a login: message appears. In this status, the user can log in to the CLI of the equipment to configure the equipment.

After system boots, in case that console terminal connects the system, click [Enter] key. Then you can see login: message.



Note For configuration of equipment after logging in to the CLI, please refer to the user manual of E5000 series that came with this installation guide.



Note The messages displayed on the console terminal may differ depending on the type of equipment, and the version of firmware installed on the equipment.

Chapter 4. Troubleshooting

This chapter describes the troubles that may occur during installation or use of E3208E, and explains how to solve the problems.

Many of the problems occurred to the equipment can be easily checked and solved by the user. If the equipment does not work properly, please check if the problem can be solved, referring to the description given in this chapter.

If the problem cannot be solved by the user, please contact ubiQuoss technical support team for appropriate assistance.

Troubleshooting Case

[Problem 1] POWER LED is not turned ON.

The power is not supplied normally..

Solution

1. Check if the power cable is properly connected to the power input terminal of the equipment.
2. Check the power supply status of the power outlet that the power cable is connected to.
3. Check battery voltage more than 11.8 V
4. When the plug of the power cable is connected to an extension cord, please check if the power switch of the extension cord is turned on.

[Problem 2] The characters on the console terminal are not crashed, but login: does not appear.

The initialization of the system is not successful.

Solution

1. Turn off the power switch and turn on it again to restart the equipment.
2. Reset the system by pushing RST button on the rear panel.

[Problem 3] Nothing appears on the console terminal display or the characters are crashed.

The console cable is wrong or the communication configuration of the console terminal is wrong.

Solution

1. Check if the console cable is connected between the console port of the equipment and the console terminal.
2. Check if the console cable is the one that came with the product upon purchase of the product. If the console cable is not the one that came with the product, please check if the console cable is manufactured to meet the specification of the console cable given in Appendix B.
3. Check if the communication configuration of the console terminal is as follows.
 - Baud Rate: 9600 bps
 - Data Bit: 8 bit
 - Stop Bit: 1 bit
 - Parity Bit: None
 - Flow Control: None

[Problem 4] After connecting cables, the ports are not recognized or the LEDs of the ports are not turned on.

The cable is not connected properly or wrong cable is used or other equipment does not work properly.

Solution

1. Check if the connector of the cable is inserted to the port properly.
2. Check if the connected equipments are working properly.
3. Check if the cable connected to the port is made as specified in Appendix B.

[Problem 5] EPON Up-Link port is not recognized or the LINE LED color of port keeps red.

The cables are not connected properly or wrong cables are used or the other equipment is not working properly.

Solution

1. Check if the cable connector is properly connected to the SFP port.
2. The connector of optic cable can be easily contaminated by foreign materials, so please use soft cloth to polish the connector with small amount of benzene and try to connect it to the SFP port again.
3. Check if the optic cable used in the SFP port is made as specified in Appendix B.
4. Check if the connected equipments are working properly.

Appendix A. Product Specification

Appendix A describes the product specifications of E3208E.

Specification

Table 5 Specification

Item	Specification
Physical Dimension	
Dimension (W x D x H)	220.2mm x 126.2mm x 43.2mm
	Standard 19 inch Rack mountable or Wall mountable
Weight	Max. 0.8kg
Power	
Power Input	Input Voltage : AC 100V ~ 240V Input Frequency : 50/60Hz
Power Consumption	Max. 16.9 Watt
LEDs	
System status LED	PWR : System power status LINE : EPON Link-up(Green)/ EPON Link-down(Red)/ EPON Link-up Low signal(Rx sensitivity : -26dBm ~ -24dBm(Orange)
Port status LED	DATA : EPON Data Transmission Status (Green BLINK) LNK/ACT : Link Status LED(Green)/Transmission Status(Green BLINK)
Ports	
Ethernet Port + EPON Up-Link Port	Fast Ethernet 8 Port : 10/100base-TX EPON Up-link 1 Port : 1000BASE-PX-ONU
Operating Condition	
Operating Temperature	0 ~ 50℃
Storage Temperature	-20 ~ 60℃
Operating Humidity	5 ~ 95 %(Relative Humidity)
Hardware Specification	
Processor	MIPS Processor (L2 SWITCH One-chip type) + EPON ONU processor
Boot/Application Flash	16 Mbytes
System Memory	128 Mbytes
LAN Switching Capacity	12.8 Gbps

Appendix B. Cable Spec

Appendix B describes the specification of cables used to connect the ports of E3208E in detail.

This Appendix B consists of the following sections.

- Ethernet cable
- Optic cable
- Console cable



Note The standards of various Ethernet ports on the front panel of E3208E are as follows.

Interface Standard	Cable Type	Max. Distance	IEEE Specification	Port
10BASE-T	UTP Cat.3	100m	IEEE 802.3	10M Eth.
100BASE-TX	UTP Cat.5	100m	IEEE 802.3u	100M Fast Eth.
1000BASE-PX10-ONU (1310nm optical)	Single-Mode Fiber 9/125 μm	10Km	IEEE 802.3ah	EPON-SC

Ethernet cable

E3208E ONU use the UTP Cable having RJ-45 connectors at both ends.

Use the following category cables for Twisted-pair cable depending on the speed of the equipments to be connected.

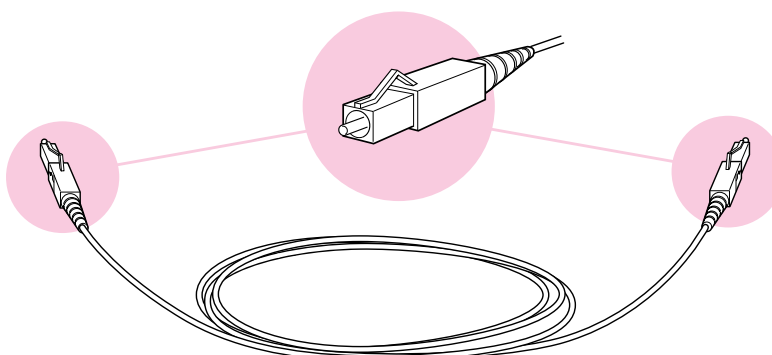
- 10B-T : Category 3 , 5 , 5E , 6
- 100B-TX : Category 5 , 5E , 6



Optical cable

EPON Up-Link port uses simplex SC fiber optic cable.

When the cable other than above mentioned cables is used, the communication will fail or the data transmission distance cannot be guaranteed.



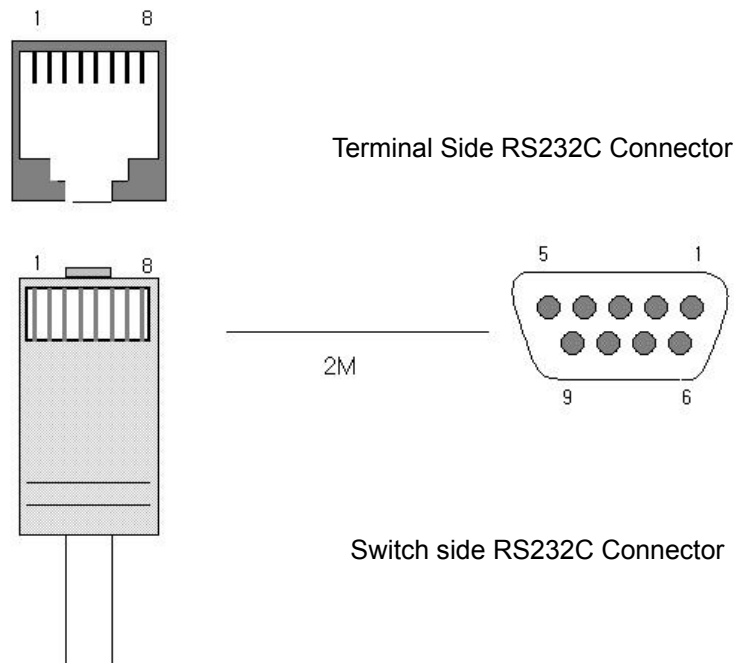
Console cable

The console port is connected to the console terminal using a serial cable consisted of RS-232 DB-9 connector and RJ-45 connector at each end.

The table below describes the types of the signals transmitted from each pin of the connectors on both sides of a console cable.

Table 6 Configuration of terminal mode

Pin Number (Console port)	Pin Number (Console terminal)	Signal	Definition of Pin
3	3	TXD	Transmit Data
5	2	RXD	Receive Data
6	5	GND	Signal Ground



<Figure 11> Diagram of Console Cable