ZYXEL
Your Networking Ally

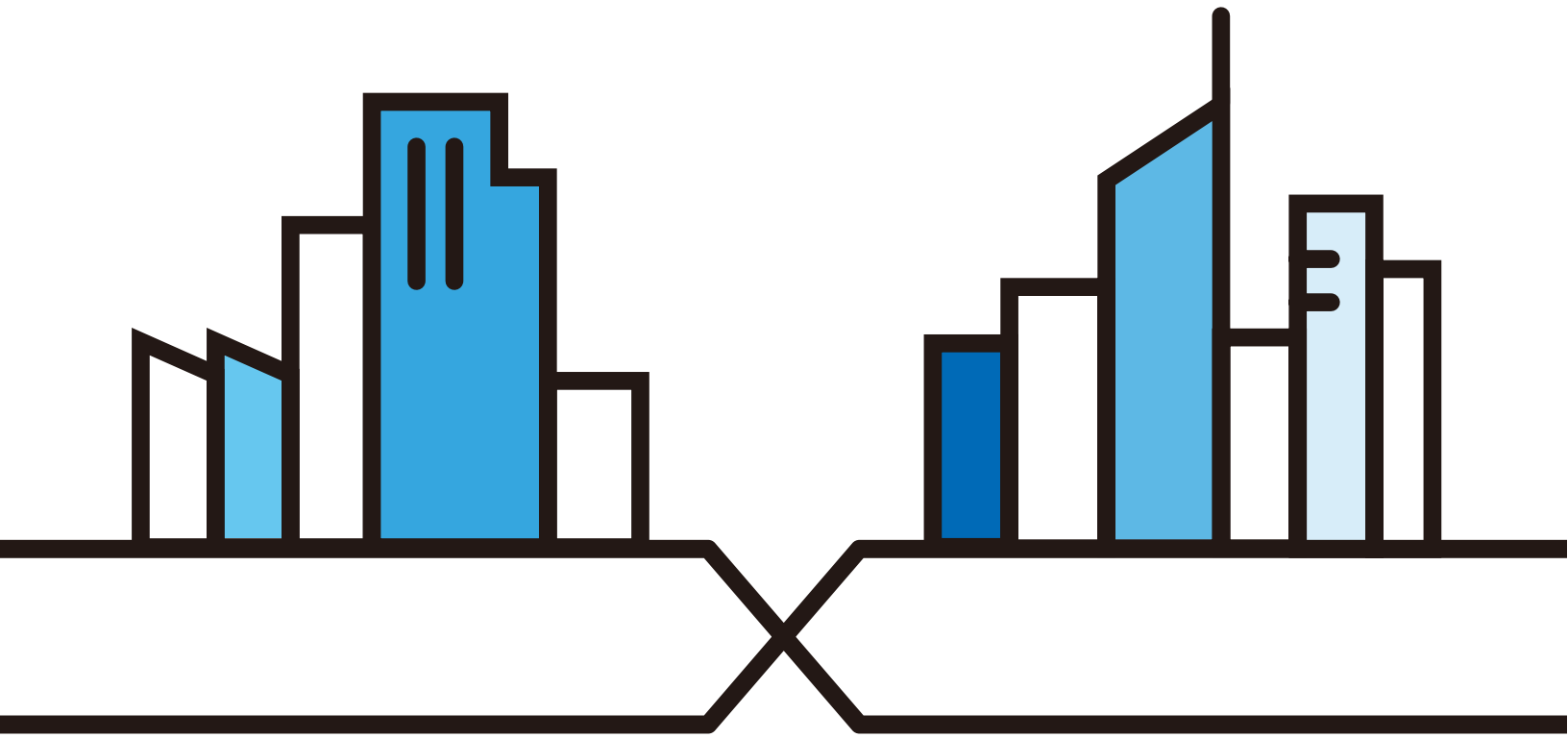
User's Guide

PMG1005-T20B

GPON Optical Network Unit with 1-port GE LAN

Default Login Details	
LAN IP Address	http://192.168.1.1
User Name	admin
Password	1234

Version 1.00 Edition 1, 09/2017



IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

This is a User's Guide for a system managing a series of products. Not all products support all features. Menushots and graphics in this book may differ slightly from what you see due to differences in release versions or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

Related Documentation

- Quick Start Guide

  The Quick Start Guide shows how to connect the managed device.

- More Information

  Go to **support.zyxel.com** to find other information on the GPON Device.

Document Conventions

Warnings and Notes

These are how warnings and notes are shown in this guide.

Warnings tell you about things that could harm you or your device.

Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

Syntax Conventions

- The PMG1005-T20B may be referred to as the "GPON Device" in this guide.
- Product labels, screen names, field labels and field choices are all in **bold** font.
- A right angle bracket (>) within a screen name denotes a mouse click. For example, **Interface Setup > LAN** means you first click **Interface Setup** in the navigation panel, then **LAN** to get to that screen.

Icons Used in Figures

Figures in this user guide may use the following generic icons. The GPON Device may not be an exact representation of your device.

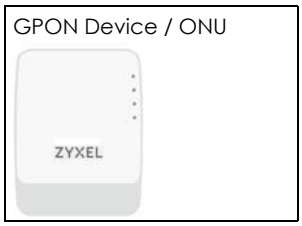


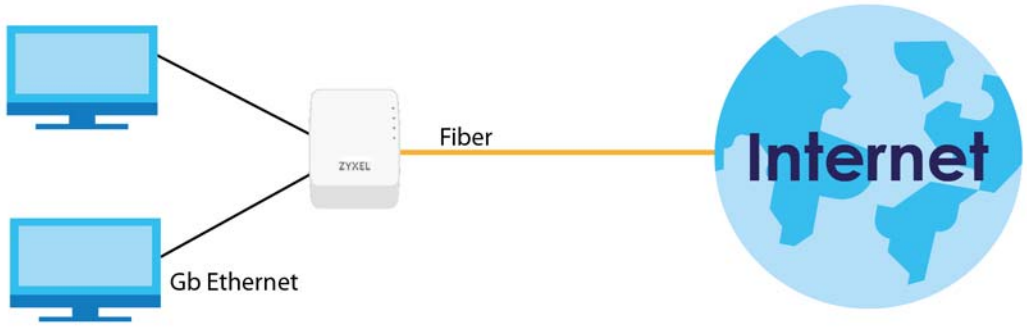
Table of Contents

CHAPTER 1
Introduction

1.1 Overview

The PMG1005-T20B SFU (Single Family Unit) combines a fiber optic GPON (Gigabit Passive Optical Network) ONT (Optical Network Terminal) with a built-in 1-port Gigabit Ethernet switch. Your GPON Device provides shared Internet access through a fiber optic line connected to the PON port's built-in optical transceiver.

Figure 1 GPON Device Providing Internet Access



1.2 Managing the GPON Device

Use the GPON Device's built-in Web Configurator to manage it. You can connect to it using a web browser such as Firefox or Internet Explorer. The Web Configurator gives you access to all the available settings for this product. For details on connecting to it, see the Section 2.1.1 on page 11.

1.3 Good Habits for Managing the GPON Device

Do the following things regularly to make the GPON Device more secure and to manage the GPON Device more effectively.

- Change the web configurator login password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.
- Write down the password and put it in a safe place.
- Back up the configuration (and make sure you know how to restore it). Restoring an earlier working configuration may be useful if the GPON Device becomes unstable or even crashes. If you forget your password, you will have to reset the GPON Device to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the GPON Device. You could simply restore your last configuration.

1.4 Hardware

1.4.1 Front Panel

The following graphic displays the front panel of the GPON Device.

Figure 2 Front Panel

1.4.2 LEDs (Lights)

The following graphic displays the labels of the LEDs.

None of the LEDs are on if the GPON Device is not receiving power.

Table 1 LED Descriptions

LED	COLOR	STATUS	DESCRIPTION
POWER	Green	On	The GPON Device is receiving power and is ready for use.
		Off	The GPON Device is not receiving power.
PON	Green	On	The GPON Device has successful fiber link.
		Blinking	The GPON Device's PON port is syncing with OLT (fiber terminal).
		Off	The GPON Device's PON port is not connected.
LOS	Red	On	The GPON Device is not receiving an optical signal.
		Blinking	The GPON Device is receiving a weak optical signal.
		Off	The GPON Device is receiving a normal optical signal.
LAN	Green	On	The GPON Device has an Ethernet connection on the Local Area Network (LAN).
		Blinking	The GPON Device is transmitting/receiving data on the Ethernet .
		Off	The GPON Device does not have an Ethernet connection on the LAN.

1.4.3 Bottom Panel

The following graphic displays the rear panel of the GPON Device.

Figure 3 Bottom Panel

The following table describes the items on the bottom panel.

Table 2 Rear Panel Ports

LABEL	DESCRIPTION
PON	Connect a fiber optic cable to the PON port for Internet Access.
LAN	Connect a computer or another Ethernet device to the LAN port for Internet access.
RESET	Press the button to return the GPON Device to the factory defaults.
POWER	Connect the power cable (12V 0.5A) can press the **ON/OFF** button to start the device.

1.5 The Reset Button

If you forget your password or cannot access the Web Configurator, you will need to use the **RESET** button at the back of the GPON Device to reload the factory-default configuration file. This means that you will lose all custom configuration and the password will be reset to the default.

1.5.1 Using the Reset Button

1. Make sure the **POWER** LED is on (not blinking).
2. To set the GPON Device back to the factory default settings (LAN IP address 192.168.1.1, user name admin and password 1234), press the **RESET** button for more than three seconds and then release it. The LEDs flash and the GPON Device restores the defaults and restarts.

Note: Press the **RESET** button for less than one second to restart the GPON Device without changing it back to the factory default settings.

1.6 Wall Mounting

You may need screw anchors if mounting on a concrete or brick wall.

Note: The screws and screw anchors are not included.

Table 3 Wall Mounting Information

Distance between holes	54 mm
M4.2 Screws	Two
Screw anchors (optional)	Two

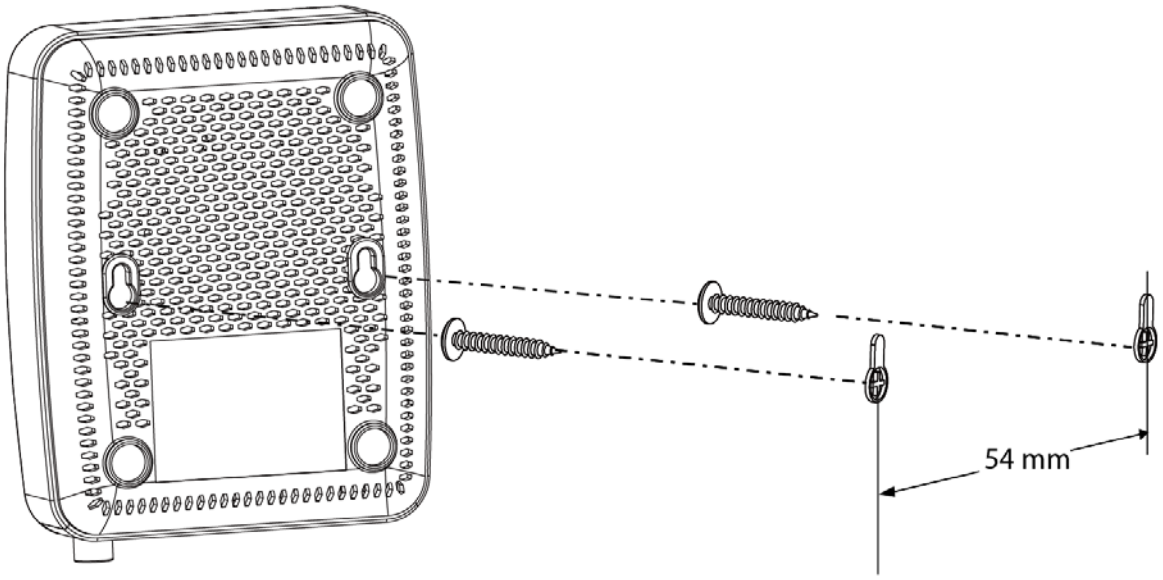
1. Select a position free of obstructions on a wall strong enough to hold the weight of the device.
2. Mark two holes on the wall at the appropriate distance apart for the screws.

   Be careful to avoid damaging pipes or cables located inside the wall when drilling holes for the screws.

3. If using screw anchors, drill two holes for the screw anchors into the wall. Push the anchors into the full depth of the holes, then insert the screws into the anchors. Do not insert the screws all the way in - leave a small gap of about 0.5 cm.

   If not using screw anchors, use a screwdriver to insert the screws into the wall. Do not insert the screws all the way in - leave a gap of about 0.5 cm
4. Make sure the screws are fastened well enough to hold the weight of the GPON Device with the connection cables.
5. Align the holes on the back of the GPON Device with the screws on the wall. Hang the GPON Device on the screws.

Figure 4 Wall Mounting Example



CHAPTER 2
The Web Configurator

2.1 Overview

The Web Configurator is an HTML-based management interface that allows easy GPON Device setup and management via Internet browser. You can use the following browsers:

- Internet Explorer 11.0 and later and later versions.
- Google Chrome 60.0.3112.113 and later versions.
- Mozilla Firefox 55.0.3 and later versions.

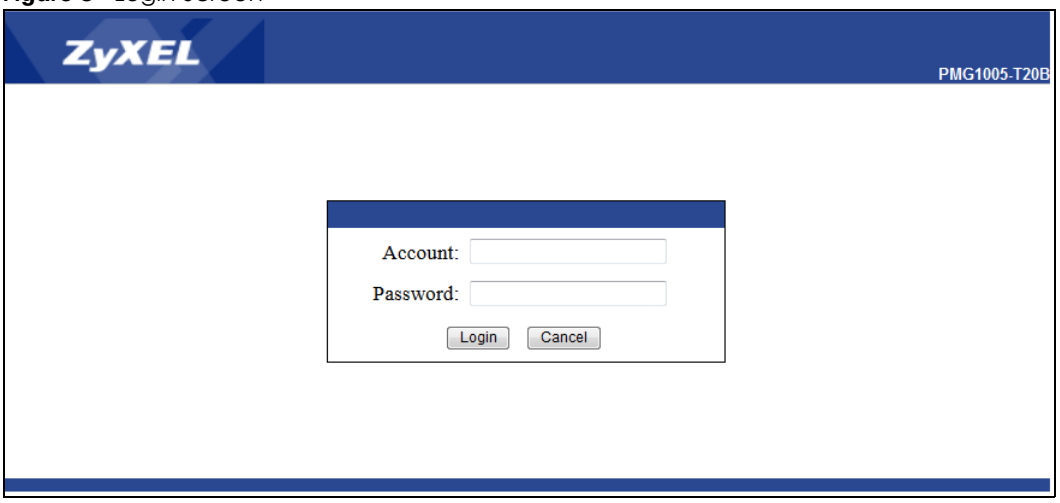
In order to use the Web Configurator you need to allow:

- Web browser pop-up windows from your GPON Device. Web pop-up blocking is enabled by default in Windows XP SP (Service Pack) 2.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

2.1.1 Accessing the Web Configurator

1. Make sure your GPON Device hardware is properly connected (see the Quick Start Guide for details).
2. Make sure your computer's IP address is in the same subnet as the GPON Device. Check your computer's help to see how to change your IP address.
3. Launch your web browser.
4. Type the default GPON Device address shown on the cover page of this User's Guide as the URL.
5. A login screen displays. Enter the user name and password shown on the cover page of this User's Guide and click **Login**.

Figure 5 Login Screen

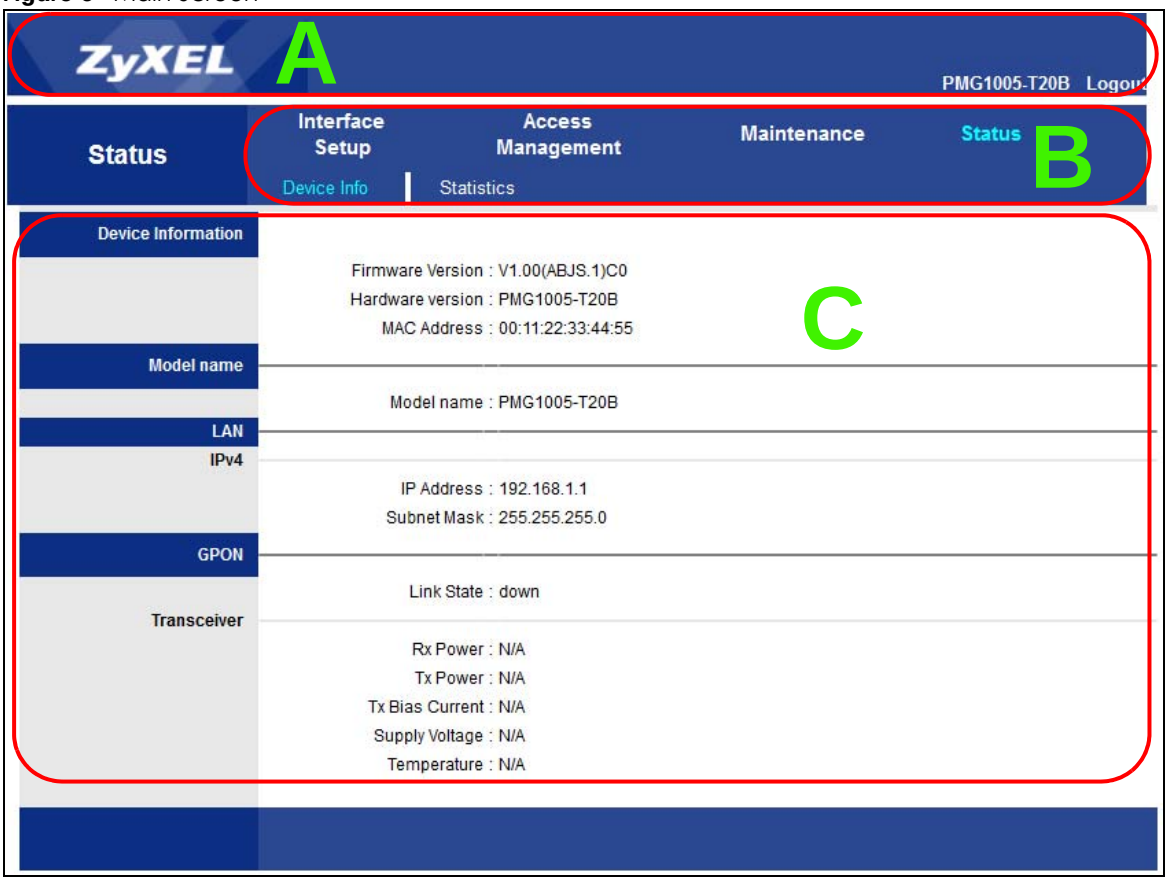


Note: For security reasons, the GPON Device automatically logs you out if you do not use the Web Configurator for an extended period of time. If this happens, log in again.

2.2 Web Configurator Main Screen

The main screen is divided into these parts:

Figure 6 Main Screen



- **A** - title bar
- **B** - navigation panel
- **C** - main window

2.2.1 Title Bar

Click **Logout** to log out of the Web Configurator.

2.2.2 Navigation Panel

The following table describes the menu items on the navigation panel.

Table 4 Navigation Panel Summary

LINK	TAB	FUNCTION
Interface Setup	LAN	Use this screen to configure your GPON Device's LAN IP address and subnet mask.
Access Management	Auth	Use this screen to change your GPON Device's Subscriber Location ID (SLID) setting. The SLID identifies your device to the GPON service provider.
Maintenance	Administration	Use this screen to change your GPON Device's password.
	Firmware	Use this screen to upload firmware to your GPON Device.
	SysRestart	Use this screen to keep your GPON Device's configuration (settings) after reboot or reset the factory default settings.

Table 4 Navigation Panel Summary

LINK	TAB	FUNCTION
Status	Device Info	This screen shows the GPON Device's general device and network status information.
	Statistics	Use this screen to view the GPON Device's traffic statistics through the Ethernet or the PON interface.

2.2.3 Main Window

The main window displays information and configuration fields. It is discussed in the rest of this document. The **Device Info** screen displays after you log in. See Chapter 3 on page 15 for details about the **Device Info** screen.

CHAPTER 3
Status

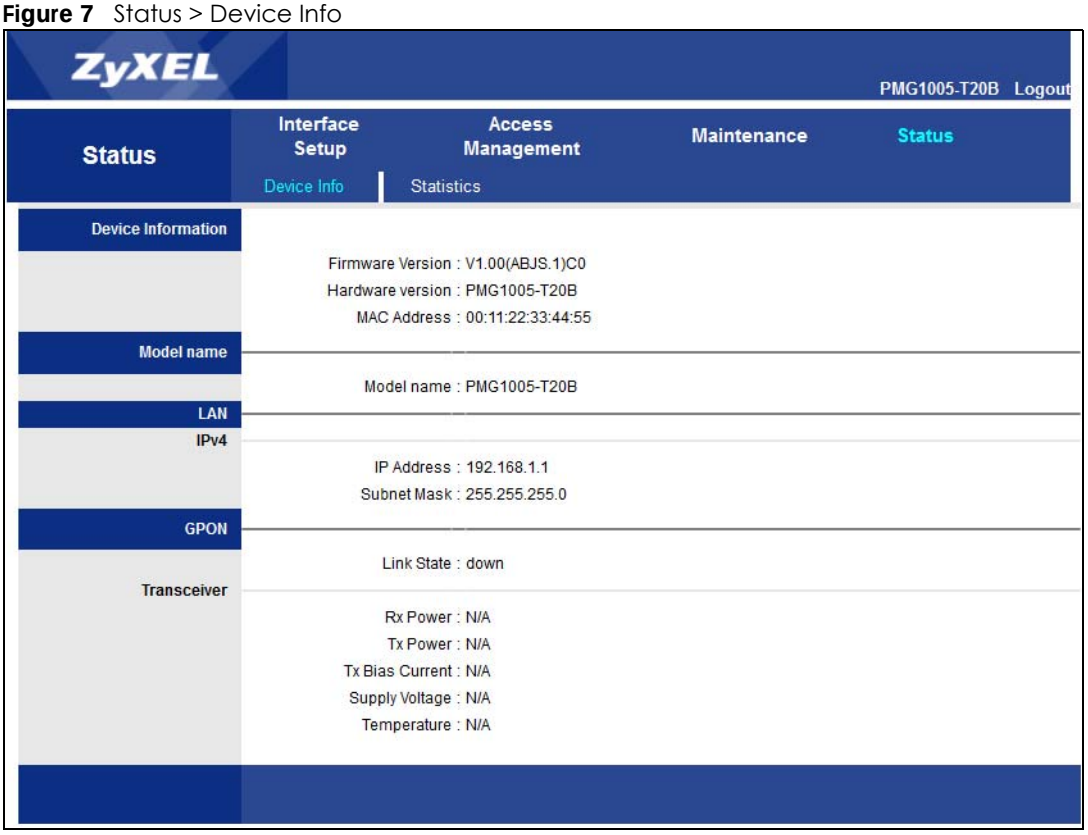
3.1 Overview

- Use the **Device Info** screen to see the GPON Device's general device and network status information (Section 3.2 on page 15).
- Use the **Statistics** screen to view the GPON Device's traffic statistics through the Ethernet or the PON interface(Section 3.3 on page 16).

3.2 Device Info Screen

Click **Status > Device Info** to see the current status of the GPON Device, its system resources, and interfaces.

Figure 7 Status > Device Info



Each field is described in the following table.

Table 5 Status > Device Info

LABEL	DESCRIPTION
Device Information	
Firmware Version	This field displays the current version of the firmware the GPON Device uses.
Hardware version	This field displays the current version of the hardware of the GPON Device.
MAC Address	This is the MAC (Media Access Control) address unique to your GPON Device. The MAC address uses six pairs of hexadecimal notation and follows an industry standard that ensures no other adapter has the same address.
Model Name	
Model Name	This field displays the model name of the GPON Device.
LAN	
IPv4	
IP Address	This field displays the current IP address of the GPON Device in the LAN. Click this to go to the screen where you can change it.
Subnet Mask	This field displays the GPON Device's LAN subnet mask.
GPON	
Link State	This field displays **Up** when the interface has a connection with OLT (fiber terminal) and **Down** when it does not.
Transceiver	
Rx Power	This field displays the transceiver's optical receiving power in dBm. The normal range is -6 to -28 dBm.
Tx Power	This field displays the transceiver's optical transmitting power in dBm. The normal range is .5 to 5 dBm.
Tx Bias Current	This field displays the transceiver's bias current in mA. The normal range is 4-50 mA.
Supply Voltage	This field displays the transceiver's voltage in Volts. The normal range is 3.13-3.47 Volts.
Temperature	This field displays the transceiver's temperature in Celsius. The normal range is 0-70 degrees.

3.3 Statistics Screen

Use this screen to look at the current number of the GPON Device packets received through the Ethernet or the PON interface. Click **Status > Statistics** to open the following screen.

Figure 8 Status > Statistics: Ethernet Interface

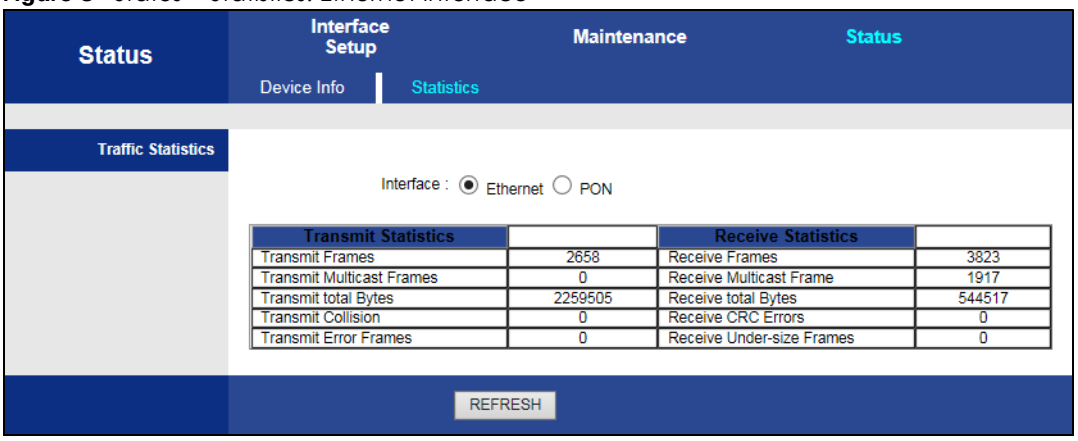
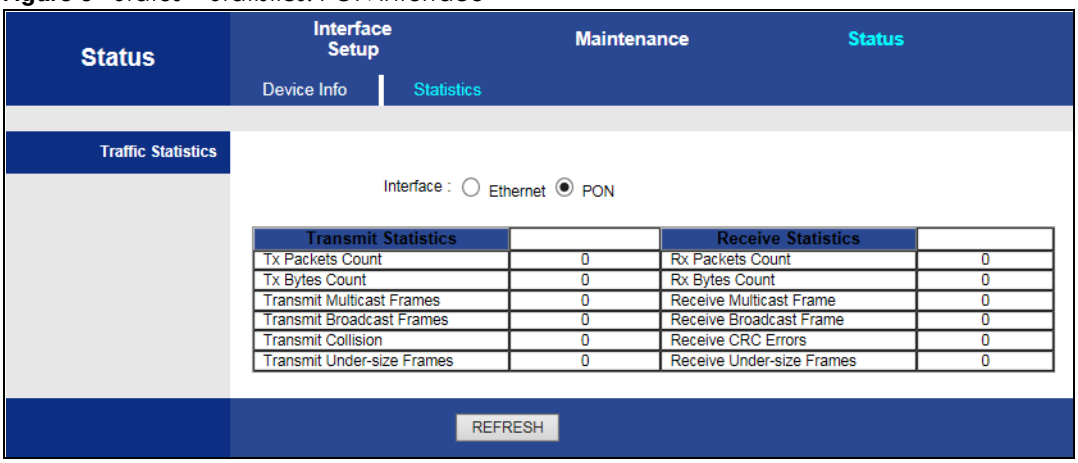


Figure 9 Status > Statistics: PON Interface



Each field is described in the following table.

Table 6 Status > Statistics

LABEL	DESCRIPTION
Interface	Select **Ethernet** or **PON** to show the GPON Device's traffic statistics.
The following fields show detailed information about the Ethernet packets transmitted and received.	
Transmit Statistics	
Transmit Frames	This field shows the number of transmitted frames on this port
Transmit Multicast Frames	This field shows the number of good multicast frames transmitted.
Transmit total Bytes	This field shows the number of total bytes transmitted on this port.
Transmit Collision	This field shows information on collisions while transmitting.
Transmit Error Frames	This field shows the number of transmitted errors frames on this port.
Receive Statistics	
Receive Frames	This field shows the number of received frames on this port.
Receive Multicast Frames	This field shows the number of good multicast frames received.
Receive total Bytes	This field shows the number of total bytes received on this port.

Table 6 Status > Statistics

LABEL	DESCRIPTION
Receive CRC Errors	This field shows the number of packets received with CRC (Cyclic Redundant Check) error(s).
Receive Under-size Frames	This field shows the number of frames received that were shorter than 64 octets in length.
The following fields show detailed information about the **PON** packets transmitted and received.	
Transmit Statistics	
Tx Packets Count	This field shows a count of successfully transmitted packets on this port.
Tx Bytes Count	This field shows a count of successfully transmitted bytes on this port.
Transmit Multicast Frames	This field shows the number of good multicast frames transmitted.
Transmit Broadcast Frames	This field shows the number of good broadcast frames transmitted.
Transmit Collision	This field shows information on collisions while transmitting.
Transmit Under-size Frames	This field shows the number of frames transmitted that were shorter than 64 octets in length.
Receive Statistics	
Rx Packets Count	This field shows a count of successfully received packets on this port.
Rx Bytes Count	This field shows a count of successfully received bytes on this port.
Receive Multicast Frames	This field shows the number of good multicast frames received.
Receive Broadcast Frames	This field shows the number of good broadcast frames received.
Receive CRC Errors	This field shows the number of packets received with CRC (Cyclic Redundant Check) error(s).
Receive Under-size Frames	This field shows the number of frames received that were shorter than 64 octets in length.
REFRESH	Click **Refresh** to renew the screen.

CHAPTER 4
LAN

4.1 Overview

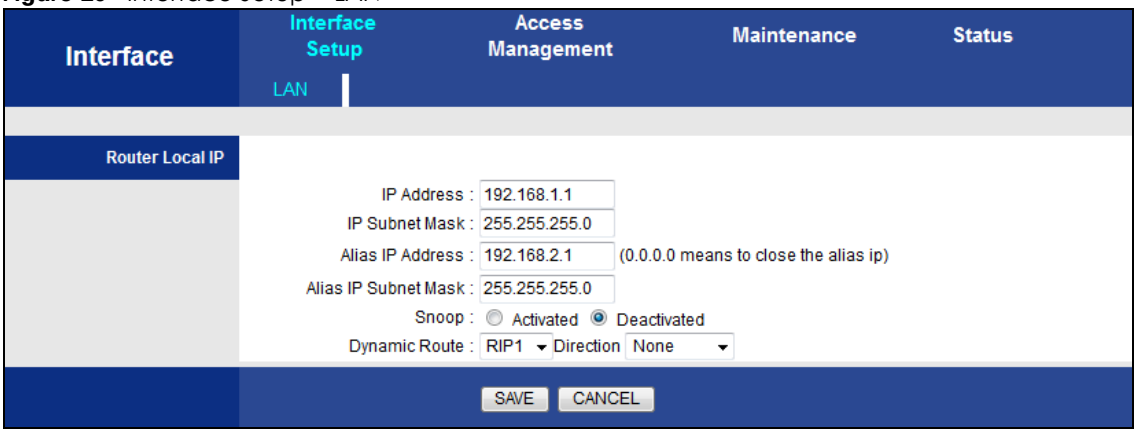
This chapter describes how to configure LAN settings.

A Local Area Network (LAN) is a shared communication system to which many computers are attached. A LAN is a computer network limited to the immediate area, usually the same building or floor of a building.

4.2 LAN Screen

Click **Interface Setup > LAN** to open the **LAN** screen. Use this screen to set the Local Area Network IP address and subnet mask of your GPON Device.

Figure 10 Interface Setup > LAN



The following table describes the fields in this screen.

Table 7 Interface Setup > LAN

LABEL	DESCRIPTION
Router Local IP	
IP Address	Enter the LAN IP address you want to assign to your GPON Device in dotted decimal notation, for example, 192.168.1.1 (factory default).
IP Subnet Mask	Type the subnet mask of your network in dotted decimal notation, for example 255.255.255.0 (factory default). Your GPON Device automatically computes the subnet mask based on the IP address you enter, so do not change this field unless you are instructed to do so.
Alias IP Address	Enter the IP address of your GPON Device in dotted decimal notation.

Table 7 Interface Setup > LAN

LABEL	DESCRIPTION
Alias IP Subnet Mask	Your GPON Device will automatically calculate the subnet mask based on the IP address that you assign. Unless you are implementing subnetting, use the subnet mask computed by the GPON Device.
Snoop	Select **Activated** to enable IGMP Snooping to forward group multicast traffic only to ports that are members of that group. Otherwise, select **Deactivated**.
Dynamic Route	RIP (Routing Information Protocol) allows a router to exchange routing information with other routers. Select the RIP version from **RIP1** or **RIP2**.
Direction	Use this field to control how much routing information the GPON Device sends and receives on the subnet. Select the RIP direction from **None**, **Both**, **IN Only** and **OUT Only**.
SAVE	Click **SAVE** to save your changes back to the GPON Device.
CANCEL	Click **CANCEL** to begin configuring this screen afresh.

CHAPTER 5
Access Management

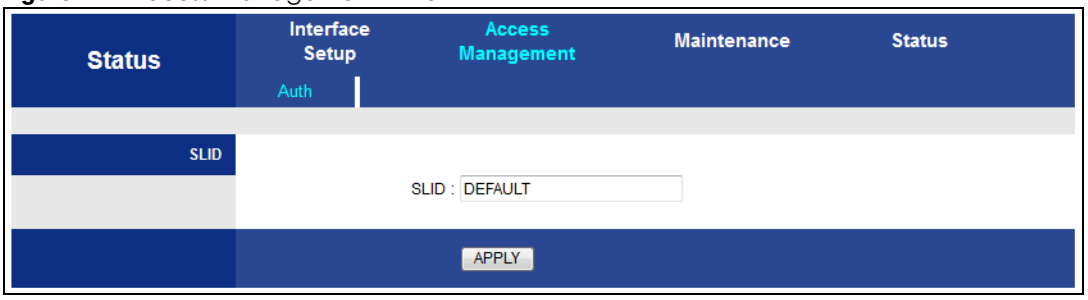
5.1 Overview

- Use the **SLID** screen to change your GPON Device's Subscriber Location ID (SLID) setting (Section 5.2 on page 21).

5.2 SLID Screen

To change your GPON Device's Subscriber Location ID (SLID) setting, click **Access Management > Auth**. The screen appears as shown. The SLID identifies your device to the GPON service provider's Optical Line Terminal (OLT). If your GPON service provider gave you an SLID to use, enter it in this screen.

Figure 11 Access Management > Auth



The following table describes the fields in this screen.

Table 8 Access Management > Auth

LABEL	DESCRIPTION
SLID	Enter the SLID used for gaining access to the service provider's network. It is case-sensitive, so make sure [Caps Lock] is not on.
APPLY	Click **APPLY** to save your changes back to the GPON Device.

CHAPTER 6
Maintenance

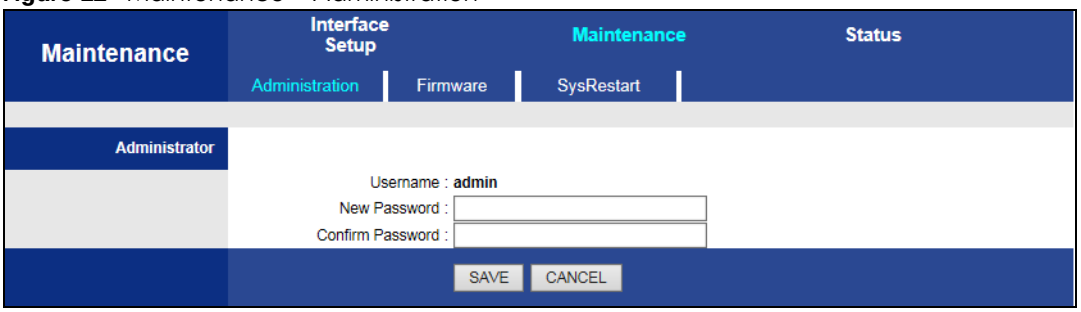
6.1 Overview

- Use the **Administration** screen to change your GPON Device's password (Section 6.2 on page 22).
- Use the **Firmware** screen to upload firmware to your GPON Device (Section 6.3 on page 22).
- Use the **SysRestart** screen to backup/restore or reboot the GPON Device without turning the power off (Section 6.4 on page 24).

6.2 Administration Screen

Use this screen to configure the GPON Device's password. Click **Maintenance > Administration** to open the **Administration** screen.

Figure 12 Maintenance > Administration



The following table describes the labels in this screen.

Table 9 Maintenance > Administration

LABEL	DESCRIPTION
New Password	Type your new system password (up to 30 characters). Note that as you type a password, the screen displays a (*) for each character you type. After you change the password, use the new password to access the GPON Device.
Confirm Password	Type the new password again for confirmation.
SAVE	Click **SAVE** to save your changes back to the GPON Device.
CANCEL	Click **CANCEL** to begin configuring this screen afresh.

6.3 Firmware Screen

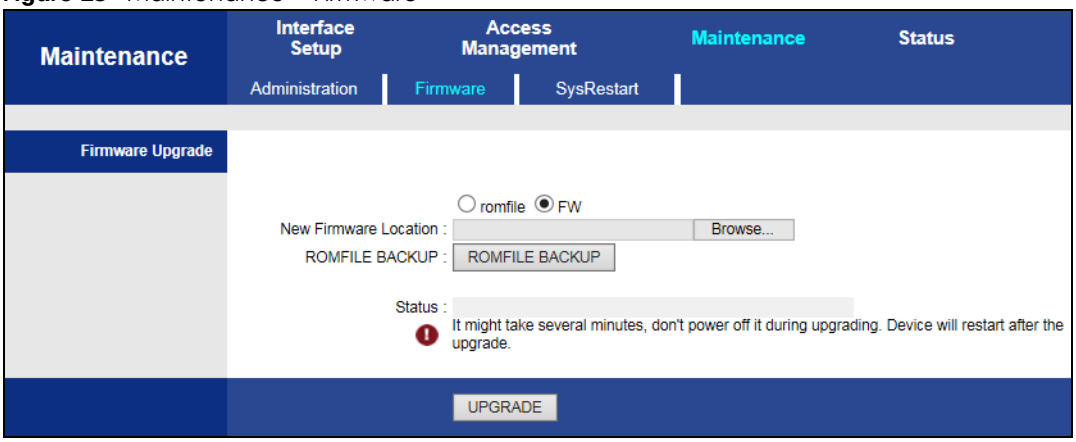
Use the instructions in this screen to back up (save) the GPON Device's configuration file or upgrade its firmware. After you configure your GPON Device, you can backup the configuration file to a computer.

That way if you later misconfigure the GPON Device, you can upload the backed up configuration file to return to your previous settings. You can alternately upload the factory default configuration file if you want to return the GPON Device to the original default settings. The firmware determines the GPON Device's available features and functionality.

Follow the instructions in this screen to upload firmware to your GPON Device. The upload process uses HTTP (Hypertext Transfer Protocol) and may take up to two minutes. After a successful upload, the system will reboot automatically.

Click **Maintenance > Firmware** to open the following screen.

Figure 13 Maintenance > Firmware



The following table describes the labels in this screen.

Table 10 Maintenance > Firmware

LABEL	DESCRIPTION
Firmware Upgrade	Select the **romfile** radio button to restore a backed-up configuration file to return to the GPON Device. Select the **FW** radio button to load a previously downloaded firmware to the GPON Device.
New Firmware Location	Type in the location of the file you want to upload in this field or click **Browse...** to find it.
Browse...	Click **Browse...** to find the .bin or .rom configuration file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
ROMFILE BACKUP	Click **ROMFILE BACKUP** to save the GPON Device's current configuration to your computer.
UPGRADE	Click **UPGRADE** to begin the upload a new firmware (**FW**) or configuration file (**romfile**). This process may take up to two minutes.

Do NOT turn off the GPON Device while a firmware upload is in progress!

After you see **File upload succeeded, starting flash erasing and programming!!** in the screen, wait three minutes before logging into the GPON Device again.

The GPON Device automatically restarts in this time causing a temporary network disconnect.

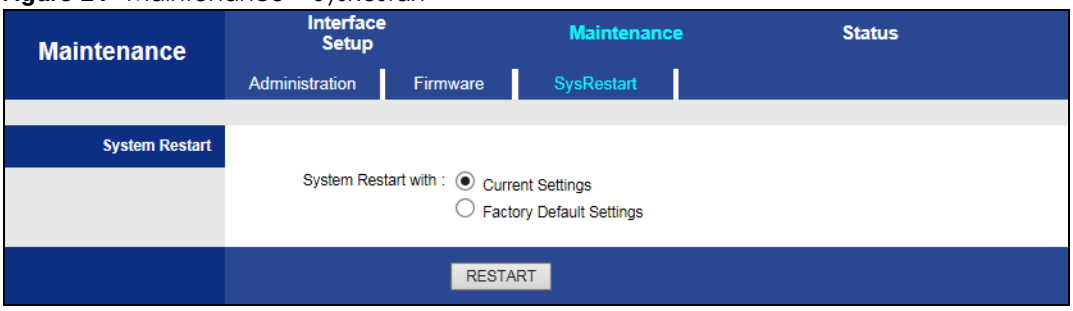
After two minutes, log in again and check your new firmware version in the **Device Info** screen.

If the upload was not successful, an error message appears.

6.4 SysRestart Screen

System restart allows you to reboot the GPON Device using the current settings or factory default settings without turning the power off. Click **Maintenance > SysRestart**. Click **RESTART** to have the GPON Device reboot. This does not affect the GPON Device's configuration.

Figure 14 Maintenance > SysRestart



The following table describes the labels in this screen.

Table 11 Maintenance > SysRestart

LABEL	DESCRIPTION
System Restart with	Select **Current Settings** to keep your configuration settings after the GPON Device reboots. This does not affect the GPON Device's configuration. Select **Factory Default Settings** to clear all user-defined configuration information and return the GPON Device to its factory defaults (LAN IP address 192.168.1.1, user name admin and password 1234). To log in again you may have to change your computer's IP address, so that it's in the same subnet as the GPON Device.
RESTART	Click this to reboot the GPON Device.

CHAPTER 7
Troubleshooting

7.1 Overview

This chapter offers some suggestions to solve problems you might encounter. The potential problems are divided into the following categories.

- Power, Hardware Connections, and LEDs
- GPON Device Access and Login
- Internet Access

7.2 Power, Hardware Connections, and LEDs

The GPON Device does not turn on. None of the LEDs turn on.

1. Make sure the GPON Device is turned on.
2. Make sure you are using the power adapter or cord included with the GPON Device.
3. Make sure the power adapter or cord is connected to the GPON Device and plugged in to an appropriate power source. Make sure the power source is turned on.
4. Turn the GPON Device off and on.
5. If the problem continues, contact the vendor.

One of the LEDs does not behave as expected.

1. Make sure you understand the normal behavior of the LED. The **PON** LED turns off if the optical transceiver has malfunctioned or the fiber cable is not connected or is broken or damaged enough to break the PON connection. See Section 1.4 on page 7 for details about the other LEDs.
2. Check the hardware connections. See the Quick Start Guide for details.
3. Inspect your cables for damage. Contact the vendor to replace any damaged cables.
4. Turn the GPON Device off and on.

5 If the problem continues, contact the vendor.

7.3 GPON Device Access and Login

I forgot the IP address for the GPON Device.

1 The default IP address is 192.168.1.1.

2 If you changed the IP address and have forgotten it, reset the GPON Device to its factory defaults. See Section 1.5 on page 8.

I cannot see or access the **Login** screen in the Web Configurator.

1 Make sure you are using the correct IP address.
- The default IP address is 192.168.1.1.
- If you changed the IP address, use the new IP address.
- If you changed the IP address and have forgotten it, reset the GPON Device to its factory defaults. See Section 1.5 on page 8.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See Section 1.4 on page 7.

3 Make sure your computer's IP address is in the same subnet as the GPON Device.

4 Make sure your Internet browser does not block pop-up windows and has Javascript and Java enabled.

5 Reset the GPON Device to its factory defaults, and try to access the GPON Device with the default IP address. See Section 1.5 on page 8.

6 If the problem continues, contact the network administrator or vendor.

I can see the **Login** screen, but I cannot log in to the GPON Device.

1 Make sure you have entered the user name and password correctly. The default user name is shown on the cover page of this User's Guide. These fields are case-sensitive, so make sure [Caps Lock] is not on.

2 You cannot log in to the Web Configurator while someone is using Telnet to access the GPON Device. Log out of the GPON Device in the other session, or ask the person who is logged in to log out.

3 Turn the GPON Device off for ten seconds and then back on.

4 If this does not work, you have to reset the GPON Device to its factory defaults. See Section 1.5 on page 8.

7.4 Internet Access

I cannot access the Internet.

1 Check the hardware connections, and make sure the LEDs are behaving as expected.

The **PON** LED turns off if the optical transceiver has malfunctioned or the fiber cable is not connected or is broken or damaged enough to break the PON connection.

The **LOS** LED turns red if the GPON Device is not receiving an optical signal.

The **LOS** LED turns blinking red if the GPON Device is receiving a weak optical signal.

See Section 1.4 on page 7 for details about the other LEDs.

2 Make sure you entered the ISP account information correctly in your computer. These fields are case-sensitive, so make sure [Caps Lock] is not on.

3 Disconnect all the cables from your GPON Device (refer to the Quick Start Guide).

4 Turn the GPON Device off and on.

5 If the problem continues, contact the ISP.

I cannot access the Internet anymore. I had access to the Internet (with the GPON Device), but my Internet connection is not available anymore.

1 Check the hardware connections, and make sure the LEDs are behaving as expected. The **PON** LED turns off if the optical transceiver has malfunctioned or the fiber cable is not connected or is broken or damaged enough to break the PON connection. See Section 1.4 on page 7 for details about the other LEDs.

2 Turn the GPON Device off and on.

3 If the problem appears to be the GPON Device, contact your vendor.

The Internet connection is slow or intermittent.

1 Make sure the LEDs are behaving as expected.

The **LOS** LED turns blinking red if the GPON Device is receiving a weak optical signal.

2 There might be a lot of traffic on the network. Look at the LEDs (see Section 1.4 on page 7). If the GPON Device is sending or receiving a lot of information, try closing some programs that use the Internet, especially peer-to-peer applications.

3 Turn the GPON Device off and on.

4 If the problem continues, contact the network administrator or vendor.

APPENDIX A
Customer Support

In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a Zyxel office for the region in which you bought the device.

See *http://www.zyxel.com/homepage.shtml* and also *http://www.zyxel.com/about_zyxel/zyxel_worldwide.shtml* for the latest information.

Please have the following information ready when you contact an office.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

Corporate Headquarters (Worldwide)

Taiwan

- Zyxel Communications Corporation
- http://www.zyxel.com

Asia

China

- Zyxel Communications (Shanghai) Corp.
  Zyxel Communications (Beijing) Corp.
  Zyxel Communications (Tianjin) Corp.
- http://www.zyxel.cn

India

- Zyxel Technology India Pvt Ltd
- http://www.zyxel.in

Kazakhstan

- Zyxel Kazakhstan
- http://www.zyxel.kz

Korea

- Zyxel Korea Corp.
- http://www.zyxel.kr

Malaysia

- Zyxel Malaysia Sdn Bhd.
- http://www.zyxel.com.my

Pakistan

- Zyxel Pakistan (Pvt.) Ltd.
- http://www.zyxel.com.pk

Philippines

- Zyxel Philippines
- http://www.zyxel.com.ph

Singapore

- Zyxel Singapore Pte Ltd.
- http://www.zyxel.com.sg

Taiwan

- Zyxel Communications Corporation
- http://www.zyxel.com/tw/zh/

Thailand

- Zyxel Thailand Co., Ltd
- http://www.zyxel.co.th

Vietnam

- Zyxel Communications Corporation-Vietnam Office
- http://www.zyxel.com/vn/vi

Europe

Austria

- Zyxel Deutschland GmbH
- http://www.zyxel.de

Belarus

- Zyxel BY
- http://www.zyxel.by

Belgium

- Zyxel Communications B.V.
- http://www.zyxel.com/be/nl/
- http://www.zyxel.com/be/fr/

Bulgaria

- Zyxel България
- http://www.zyxel.com/bg/bg/

Czech Republic

- Zyxel Communications Czech s.r.o
- http://www.zyxel.cz

Denmark

- Zyxel Communications A/S
- http://www.zyxel.dk

Estonia

- Zyxel Estonia
- http://www.zyxel.com/ee/et/

Finland

- Zyxel Communications
- http://www.zyxel.fi

France

- Zyxel France
- http://www.zyxel.fr

Germany

- Zyxel Deutschland GmbH
- http://www.zyxel.de

Hungary

- Zyxel Hungary & SEE
- http://www.zyxel.hu

Italy

- Zyxel Communications Italy
- http://www.zyxel.it/

Latvia

- Zyxel Latvia
- http://www.zyxel.com/lv/lv/homepage.shtml

Lithuania

- Zyxel Lithuania
- http://www.zyxel.com/lt/lt/homepage.shtml

Netherlands

- Zyxel Benelux
- http://www.zyxel.nl

Norway

- Zyxel Communications
- http://www.zyxel.no

Poland

- Zyxel Communications Poland
- http://www.zyxel.pl

Romania

- Zyxel Romania
- http://www.zyxel.com/ro/ro

Russia

- Zyxel Russia
- http://www.zyxel.ru

Slovakia

- Zyxel Communications Czech s.r.o. organizacna zlozka
- http://www.zyxel.sk

Spain

- Zyxel Communications ES Ltd
- http://www.zyxel.es

Sweden

- Zyxel Communications
- http://www.zyxel.se

Switzerland

- Studerus AG

- http://www.zyxel.ch/

Turkey

- Zyxel Turkey A.S.
- http://www.zyxel.com.tr

UK

- Zyxel Communications UK Ltd.
- http://www.zyxel.co.uk

Ukraine

- Zyxel Ukraine
- http://www.ua.zyxel.com

Latin America

Argentina

- Zyxel Communication Corporation
- http://www.zyxel.com/ec/es/

Brazil

- Zyxel Communications Brasil Ltda.
- https://www.zyxel.com/br/pt/

Ecuador

- Zyxel Communication Corporation
- http://www.zyxel.com/ec/es/

Middle East

Israel

- Zyxel Communication Corporation
- http://il.zyxel.com/homepage.shtml

Middle East

- Zyxel Communication Corporation
- http://www.zyxel.com/me/en/

North America

USA

- Zyxel Communications, Inc. - North America Headquarters
- http://www.zyxel.com/us/en/

Oceania

Australia

- Zyxel Communications Corporation
- http://www.zyxel.com/au/en/

Africa

South Africa

- Nology (Pty) Ltd.
- http://www.zyxel.co.za

APPENDIX B
Legal Information

Copyright

Disclaimer

Zyxel does not assume any liability arising out of the application or use of any products, or software described herein. Neither does it convey any license under its patent rights nor the patent rights of others. Zyxel further reserves the right to make changes in any products described herein without notice. This publication is subject to change without notice.

Regulatory Notice and Statement

UNITED STATES of AMERICA

The following information applies if you use the product within USA area.

FCC EMC Statement

- The device complies with Part 15 of 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.

- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.
- This product 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 device 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 device does cause harmful interference to radio or television reception, which is found by turning the device 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 devices
  - Connect the equipment to an outlet other than the receiver's
  - Consult a dealer or an experienced radio/TV technician for assistance

CANADA

The following information applies if you use the product within Canada area

Industry Canada ICES statement

CAN ICES-3 (B)/NMB-3(B)

EUROPEAN UNION

The following information applies if you use the product within the European Union.

List of national codes

COUNTRY	ISO 3166 2 LETTER CODE	COUNTRY	ISO 3166 2 LETTER CODE
Austria	AT	Liechtenstein	LI
Belgium	BE	Lithuania	LT
Bulgaria	BG	Luxembourg	LU
Croatia	HR	Malta	MT
Cyprus	CY	Netherlands	NL
Czech Republic	CZ	Norway	NO
Denmark	DK	Poland	PL
Estonia	EE	Portugal	PT
Finland	FI	Romania	RO
France	FR	Serbia	RS
Germany	DE	Slovakia	SK
Greece	GR	Slovenia	SI
Hungary	HU	Spain	ES
Iceland	IS	Switzerland	CH
Ireland	IE	Sweden	SE
Italy	IT	Turkey	TR
Latvia	LV	United Kingdom	GB

Safety Warnings

- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Do not expose your device to dampness, dust or corrosive liquids.
- Do not store things on the device.
- Do not obstruct the device ventilation slots as insufficient airflow may harm your device. For example, do not place the device in an enclosed space such as a box or on a very soft surface such as a bed or sofa.
- Do not install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do not open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks.
- Only qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Do not remove the plug and connect it to a power outlet by itself; always attach the plug to the power adapter first before connecting it to a power outlet.
- Do not allow anything to rest on the power adapter or cord and do NOT place the product where anyone can walk on the power adapter or cord.
- Please use the provided or designated connection cables/power cables/ adapters. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe). If the power adapter or cord is damaged, it might cause electrocution. Remove it from the device and the power source, repairing the power adapter or cord is prohibited. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- CAUTION: Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instruction. Dispose them at the applicable collection point for the recycling of electrical and electronic devices. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- The following warning statements apply, where the disconnect device is not incorporated in the device or where the plug on the power supply cord is intended to serve as the disconnect device,

  - For permanently connected devices, a readily accessible disconnect device shall be incorporated external to the device;

  - For pluggable devices, the socket-outlet shall be installed near the device and shall be easily accessible.

Important Safety Instructions

- Caution! The RJ-45 jacks are not used for telephone line connection.
- Caution! To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.
- Caution! Do not use this product near water, for example a wet basement or near a swimming pool.
- Caution! Avoid using this product (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Caution! Always disconnect all telephone lines from the wall outlet before servicing or disassembling this product.
- Attention: Les prises RJ-45 ne sont pas utilisés pour la connexion de la ligne téléphonique.
- Attention: Pour réduire les risques d'incendie n'utiliser que des câbles de type 26 AWG ou des câbles de connexion plus épais
- Attention: Ne pas utiliser ce produit près de l'eau, par exemple un sous-sol humide ou près d'une piscine.
- Attention: Évitez d'utiliser ce produit (autre qu'un type sans fil) pendant un orage. Il peut y avoir un risque de choc électrique de la foudre.
- Attention: Toujours débrancher toutes les lignes téléphoniques de la prise murale avant de réparer ou de démonter ce produit.

Environment Statement

ErP (Energy-related Products)

Zyxel products put on the EU market in compliance with the requirement of the European Parliament and the Council published Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-related products (recast), so called as "ErP Directive (Energy-related Products directive) as well as ecodesign requirement laid down in applicable implementing measures, power consumption has satisfied regulation requirements which are:

- Network standby power consumption < 8W, and/or
- Off mode power consumption < 0.5W, and/or
- Standby mode power consumption < 0.5W.

(Wireless setting, please refer to "Wireless" chapter for more detail.)

European Union - Disposal and Recycling Information

The symbol below means that according to local regulations your product and/or its battery shall be disposed of separately from domestic waste. If this product is end of life, take it to a recycling station designated by local authorities. At the time of disposal, the separate collection of your product and/or its battery will help save natural resources and ensure that the environment is sustainable development.

Die folgende Symbol bedeutet, dass Ihr Produkt und/oder seine Batterie gemäß den örtlichen Bestimmungen getrennt vom Hausmüll entsorgt werden muss. Wenden Sie sich an eine Recyclingstation, wenn dieses Produkt das Ende seiner Lebensdauer erreicht hat. Zum Zeitpunkt der Entsorgung wird die getrennte Sammlung von Produkt und/oder seiner Batterie dazu beitragen, natürliche Ressourcen zu sparen und die Umwelt und die menschliche Gesundheit zu schützen.

El símbolo de abajo indica que según las regulaciones locales, su producto y/o su batería deberán depositarse como basura separada de la doméstica. Cuando este producto alcance el final de su vida útil, llévelo a un punto limpio. Cuando llegue el momento de desechar el producto, la recogida por separado éste y/o su batería ayudará a salvar los recursos naturales y a proteger la salud humana y medioambiental.

Le symbole ci-dessous signifie que selon les réglementations locales votre produit et/ou sa batterie doivent être éliminés séparément des ordures ménagères. Lorsque ce produit atteint sa fin de vie, amenez-le à un centre de recyclage. Au moment de la mise au rebut, la collecte séparée de votre produit et/ou de sa batterie aidera à économiser les ressources naturelles et protéger l'environnement et la santé humaine.

Il simbolo sotto significa che secondo i regolamenti locali il vostro prodotto e/o batteria deve essere smaltito separatamente dai rifiuti domestici. Quando questo prodotto raggiunge la fine della vita di servizio portarlo a una stazione di riciclaggio. Al momento dello smaltimento, la raccolta separata del vostro prodotto e/o della sua batteria aiuta a risparmiare risorse naturali e a proteggere l'ambiente e la salute umana.

Symbolen innebär att enligt lokal lagstiftning ska produkten och/eller dess batteri kastas separat från hushållsavfallet. När den här produkten når slutet av sin livslängd ska du ta den till en återvinningsstation. Vid tiden för kasseringen bidrar du till en bättre miljö och mänsklig hälsa genom att göra dig av med den på ett återvinningsställe.

台灣

安全警告 - 為了您的安全，請先閱讀以下警告及指示：

- 請勿將此產品接近水、火焰或放置在高溫的環境。
- 避免設備接觸
  - 任何液體 - 切勿讓設備接觸水、雨水、高濕度、污水腐蝕性的液體或其他水份。
  - 灰塵及污物 - 切勿接觸灰塵、污物、沙土、食物或其他不合適的材料。
- 雷雨天氣時，不要安裝，使用或維修此設備。有遭受電擊的風險。
- 切勿重摔或撞擊設備，並勿使用不正確的電源變壓器。
- 若接上不正確的電源變壓器會有爆炸的風險。
- 請勿隨意更換產品內的電池。
- 如果更換不正確之電池型式，會有爆炸的風險，請依製造商說明書處理使用過之電池。
- 請將廢電池丟棄在適當的電器或電子設備回收處。
- 請勿將設備解體。
- 請勿阻礙設備的散熱孔，空氣對流不足將會造成設備損害。
- 請插在正確的電壓供給插座 (如：北美 / 台灣電壓 110V AC，歐洲是 230V AC)。
- 假若電源變壓器或電源變壓器的纜線損壞，請從插座拔除，若您還繼續插電使用，會有觸電死亡的風險。
- 請勿試圖修理電源變壓器或電源變壓器的纜線，若有毀損，請直接聯絡您購買的店家，購買一個新的電源變壓器。
- 請勿將此設備安裝於室外，此設備僅適合放置於室內。
- 請勿隨一般垃圾丟棄。
- 請參閱產品背貼上的設備額定功率。
- 請參考產品型錄或是彩盒上的作業溫度。

- 產品沒有斷電裝置或者採用電源線的插頭視為斷電裝置的一部分，以下警語將適用：
  - 對永久連接之設備， 在設備外部須安裝可觸及之斷電裝置；
  - 對插接式之設備， 插座必須接近安裝之地點而且是易於觸及的。

About the Symbols

Various symbols are used in this product to ensure correct usage, to prevent danger to the user and others, and to prevent property damage. The meaning of these symbols are described below. It is important that you read these descriptions thoroughly and fully understand the contents.

Explanation of the Symbols

SYMBOL	EXPLANATION
	Alternating current (AC): AC is an electric current in which the flow of electric charge periodically reverses direction.
	Direct current (DC): DC if the unidirectional flow or movement of electric charge carriers.
	Earth; ground: A wiring terminal intended for connection of a Protective Earthing Conductor.
	Class II equipment: The method of protection against electric shock in the case of class II equipment is either double insulation or reinforced insulation.

Viewing Certifications

Go to http://www.zyxel.com to view this product's documentation and certifications.

Zyxel Limited Warranty

Zyxel warrants to the original end user (purchaser) that this product is free from any defects in material or workmanship for a specific period (the Warranty Period) from the date of purchase. The Warranty Period varies by region. Check with your vendor and/or the authorized Zyxel local distributor for details about the Warranty Period of this product. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, Zyxel will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of Zyxel. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. Zyxel shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

Trademarks

ZyNOS (Zyxel Network Operating System) and ZON (Zyxel One Network) are registered trademarks of Zyxel Communications, Inc. Other trademarks mentioned in this publication are used for identification purposes only and may be properties of their respective owners.

Open Source Licenses

This product contains in part some free software distributed under GPL license terms and/or GPL like licenses. Open source licenses are provided with the firmware package. You can download the latest firmware at www.zyxel.com. To obtain the source code covered under those Licenses, please contact support@zyxel.com.tw to get it.

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