ZYXEL
COMMUNICATIONS

User's Guide

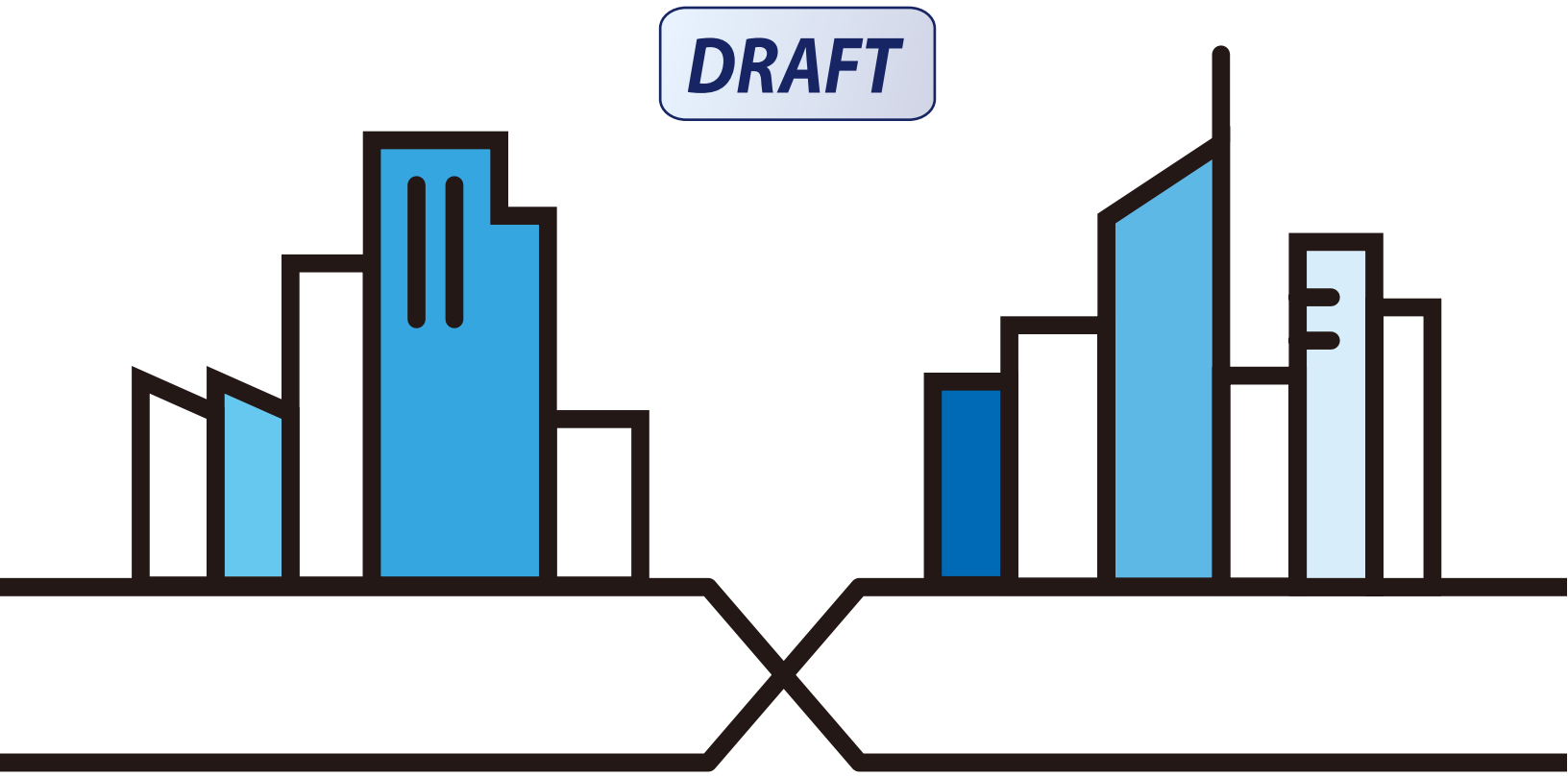
PM7516-R0 / PM7116-R0

XGS-PON VoIP Bridge ONT with 10G LAN

XGS-PON VoIP Bridge ONT

Default Login Details	
IP Address	https:\\192.168.0.1
User Name	admin
Password	See the device label

Version 1.00 Edition 1, 10/2020



IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

Screenshots and graphics in this book may differ slightly from your product due to differences in your product firmware or your computer operating system. Every effort has been made to ensure that the information in this manual is accurate.

- Quick Start Guide

  The Quick Start Guide shows how to connect the Zyxel Device and get up and running right away.
- More Information

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

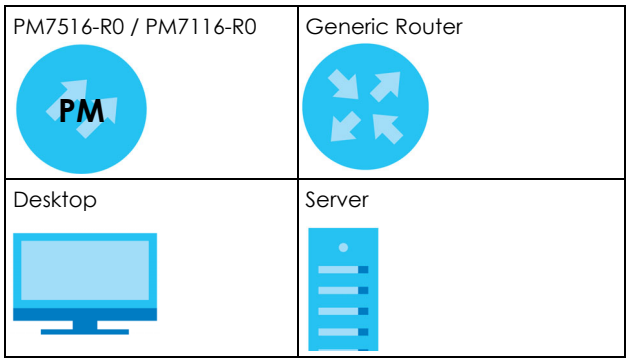
Note: Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

Syntax Conventions

- PM7516-R0 / PM7116-R0 may be referred to as "PM" 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, **Network Setting > LAN** means you first click **Network Setting** in the navigation panel, then the **LAN** sub menu to get to that screen.

Icons Used in Figures

Figures in this user guide may use the following generic icons. The PM icon is not an exact representation of your device.



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PART I
User's Guide

CHAPTER 1
Introduction

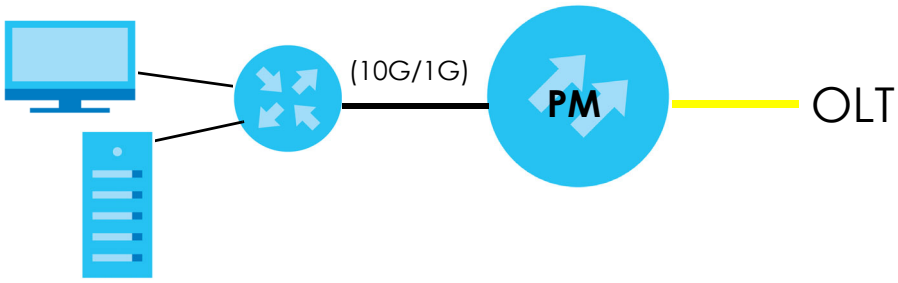
1.1 Overview

PM7516-R0 and PM7116-R0 are Symmetric Passive Optical Network (XGSPON) VoIP Bridge Optical Network Terminals (ONT). The PM7516-R0 has one 10G Ethernet port and the PM7116-R0 has one 1G Ethernet port.

1.1.1 Network Bridge

The Ethernet port on the Zyxel Device acts as a bridge. You can connect a switch or router to it. In the example figure below, the service provider (OLT) uses one physical fiber line to provide service for the Ethernet port on the Zyxel Device. The PM7516-R0/PM7116-R0's Ethernet port provides a 10G/1G service to the devices behind a switch or router.

Figure 1 PM7516-R0/PM7116-R0 as a Network Bridge



1.1.2 Internet Access

Your Zyxel Device provides Internet access by connecting a fiber optic line provided by the Internet Service Provider (ISP) to the PON port. It supports OMCI (ONU Management and Control Interface) for provisioning and management by the ISP's OLT (Optical Line Terminal).

1.1.3 Multi-Gigabit

A 10 Gigabit Ethernet port supports speeds of 10 Gbps if the connected device supports 10 Gbps and a Cat 6a (up to 100 m) or Cat 6 cable (up to 50 m) is used.

Some network devices such as gaming computers, servers, network attached storage (NAS) devices, or access points may have network cards that are only capable of 2.5 Gbps or 5 Gbps connectivity.

If these devices are connected to a 1 Gbps or 10 Gbps Ethernet port, they can only transmit or receive at up to 1 Gbps as speeds of 10 Gbps cannot be attained. Moreover, if network devices with 10 Gbps

network cards are connected to a 10 Gbps Ethernet port, you must use Cat 6 or better Ethernet cables to achieve 10 Gbps speeds.

1.2 Managing the Zyxel Device

Use the Zyxel Device's built-in Web Configurator to manage it. You can connect to it using a web browser. For details on connecting to it, see the Section 2.1.1 on page 13.

1.3 Good Habits for Managing the Zyxel Device

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

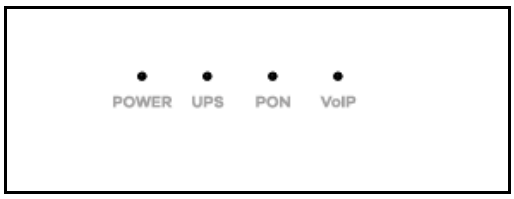
- Change the password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.
- Write down the password and put it in a safe place.

1.4 Hardware

1.4.1 Front Panel LEDs

The following figure shows the front panel LEDs.

Figure 2 Front Panel LEDs



The following table describes the labels and behavior of the LEDs (lights) on the Zyxel Device.

All the LEDs are off if the Zyxel Device is not powered.

Table 1 Front Panel LEDs

LED	COLOR	STATUS	DESCRIPTION
POWER	Green	On	The Zyxel Device is receiving power and finished booting.
		Blinking	The Zyxel Device is under the process of power-on self-test (POST) and booting.
	Red	On	System failure.
		Blinking	Firmware upgrading.
	Off		Not receiving power.

Table 1 Front Panel LEDs (continued)

LED	COLOR	STATUS	DESCRIPTION
UPS	Green	On	The AC power is off and the UPS (battery backup) is providing power normally.
		Blinking	The battery is working abnormally, such as the voltage going outside the expected range.
	Off		The battery is not in use or cannot be recharged.
PON	Green	On	PON link to the OLT is up. Receiving an optical signal of normal strength.
		Blinking	Attempting to link with OLT.
	Red	On	The link is down.
		Blinking	The received optical signal is too weak.
VoIP	Green	On	A SIP account for outgoing calls is enabled and registered. The phone is on-hook and idle.
		Blinking	The phone is off-hook or ringing for an incoming call.
	Amber	On	The phone is on-hook and idle and there is a voice message. A SIP account for outgoing calls is enabled and registered.
		Blinking	The phone is off-hook or ringing for an incoming call and there is a voice message.
	Off		The Zyxel Device is powered off, the VoIP function is turned off, or the phone port does not have a SIP account registered.

1.4.2 Rear Panel

The following figure shows the rear panel where the connection ports are located.

Figure 3 PM7516-R0 Rear Panel

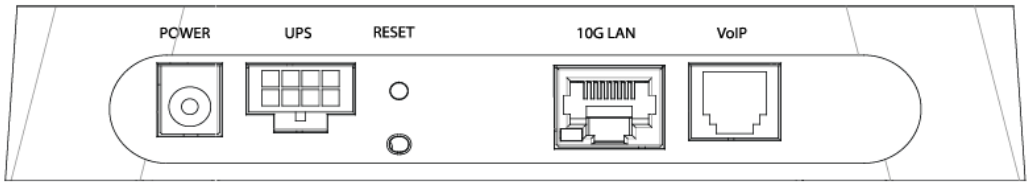
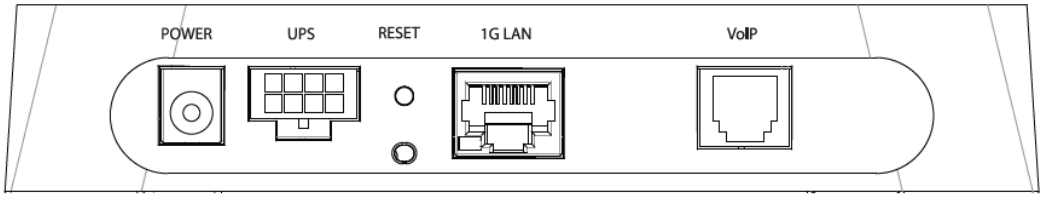


Figure 4 PM7116-R0 Rear Panel



The following table describes the items on the Zyxel Device's rear panel.

Table 2 Rear Panel

LABEL	DESCRIPTION
POWER	Connect the power cable to start the Zyxel Device.
UPS	Connect a UPS (Uninterruptible Power Supply) to the **UPS** port to have a backup power source when the main power fails.
RESET	Press the recessed button for more than 5 seconds (or until the **POWER** LED starts to blink), then release it to return the Zyxel Device to the factory defaults (the randomly assigned default password, LAN IP address 192.168.0.1 etc.)
10G LAN (for PM7516-R0)	Connect computers, IPTVs, gaming consoles, and other Ethernet devices to this port for up to 10 Gbps Internet access.
1G LAN (for PM7116-R0)	Connect computers, IPTVs, gaming consoles, and other Ethernet devices to this port for up to 1 Gbps Internet access.
VoIP	Connect an analog phone to the **VoIP** port to make phone calls.

The following table describes the LED of the LAN port on the rear panel.

Table 3 Rear Panel LED

LED	COLOR	STATUS	DESCRIPTION
10G LAN (for P7516-R0)	Green	On	The Zyxel Device's 10 Gbps LAN connection is ready.
		Blinking	Data is being transmitted/received at 10 Gbps.
		Off	No Ethernet device connected.
1G LAN (for P7116-R0)	Green	On	The Zyxel Device's 1 Gbps LAN connection is ready.
		Blinking	Data is being transmitted/received at 1 Gbps.
		Off	No Ethernet device connected.

1.4.3 UPS Port

You can connect a UPS to the **UPS** port to keep the Zyxel Device running in case the main power fails. The following diagram and chart show the pin assignments of the **UPS** port on the Zyxel Device.

Note: The main power and UPS cannot be used at the same time.

Figure 5 UPS Port Pin Layout

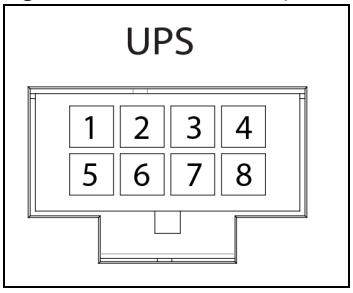


Table 4 UPS Port Pin Assignment

PIN	UPS PORT
1	VCC_12VDC
2	UPS status: On battery
3	UPS status: Battery missing

Table 4 UPS Port Pin Assignment (continued)

PIN	UPS PORT
4	GND
5	GND
6	UPS status: Replace battery
7	UPS status: Low battery
8	NA

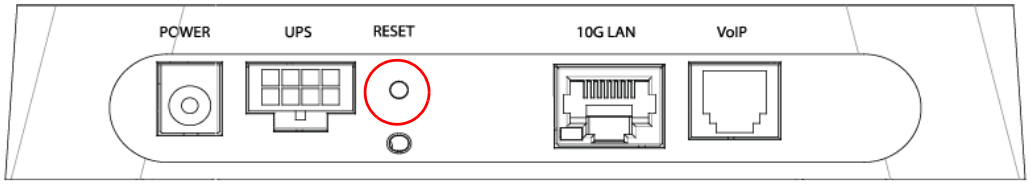
1.4.4 Reset Button

If you forget your password or cannot access the Web Configurator, you will need to use the **RESET** button on the rear panel of the device to reload the factory system configuration. This means that you will lose all configurations that you had previously and the password will be reset to the default.

1 Make sure the **POWER** LED is on (not blinking).

2 Press the **RESET** button for more than 5 seconds or until the **POWER** LED begins to blink. Wait for the **POWER** LED to turn solid green. At this point, the device is reset to factory default settings.

Figure 6 Reset Button (PM7516-R0)



CHAPTER 2
The Web Configurator

2.1 Overview

The Web Configurator HTML-based management interface allows easy system setup and management through an Internet browser such as Internet Explorer 11, Mozilla Firefox, or Google Chrome. In order to use the Web Configurator you need to allow:

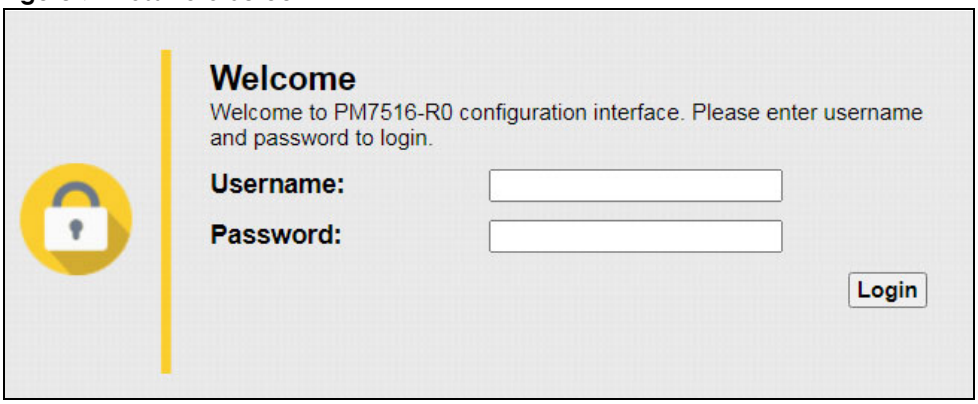
- Web browser pop-up windows from your Zyxel Device. Web pop-up blocking is enabled by default in Windows 10.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

2.1.1 Accessing the Web Configurator

The following uses PM7516-R0 screens as examples.

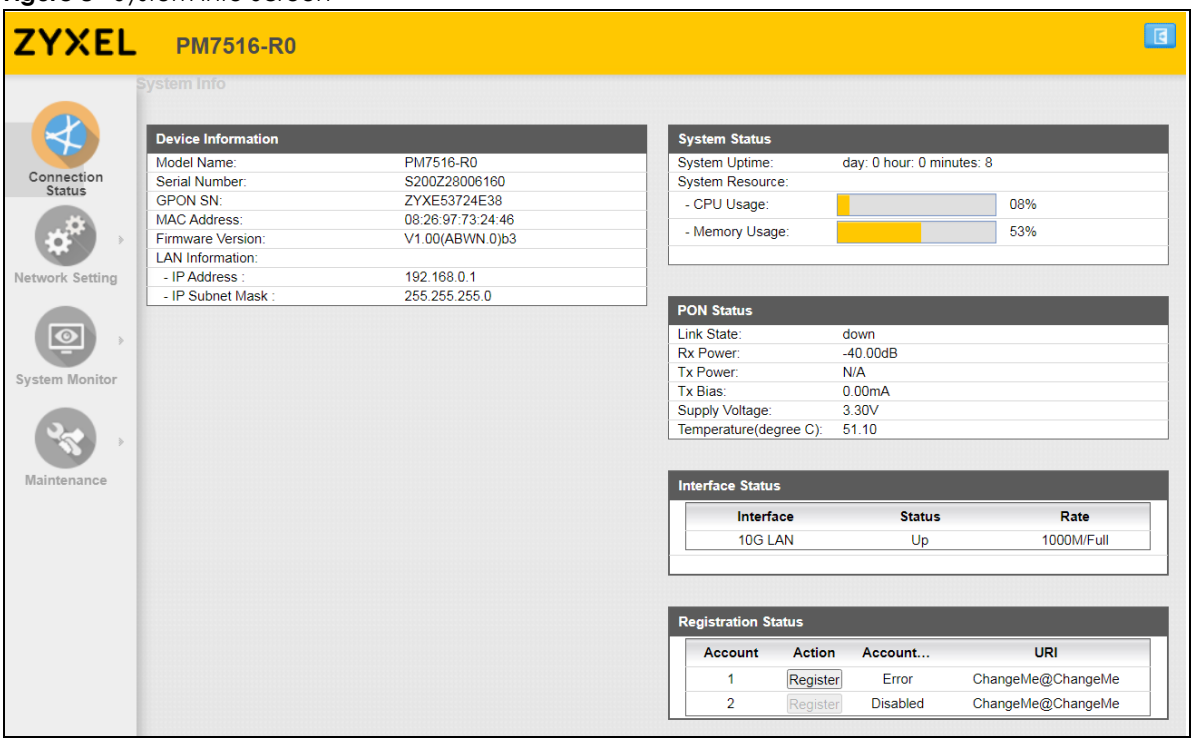
1. Make sure your Zyxel Device hardware is properly connected (refer to the Quick Start Guide).
2. Manually configure your computer's IP address to 192.168.0.X (X represents any number from 2 to 254. For example, 192.168.0.25. Then set the subnet mask as 255.255.255.0.
3. Launch your web browser. If the Zyxel Device does not automatically redirect you to the login screen, go to https://192.168.0.1.
4. A login screen displays.
5. Type the default username **admin** and the default password from the device label and click **Login**. If you have changed the password, enter your password and click **Login**.

Figure 7 Password Screen



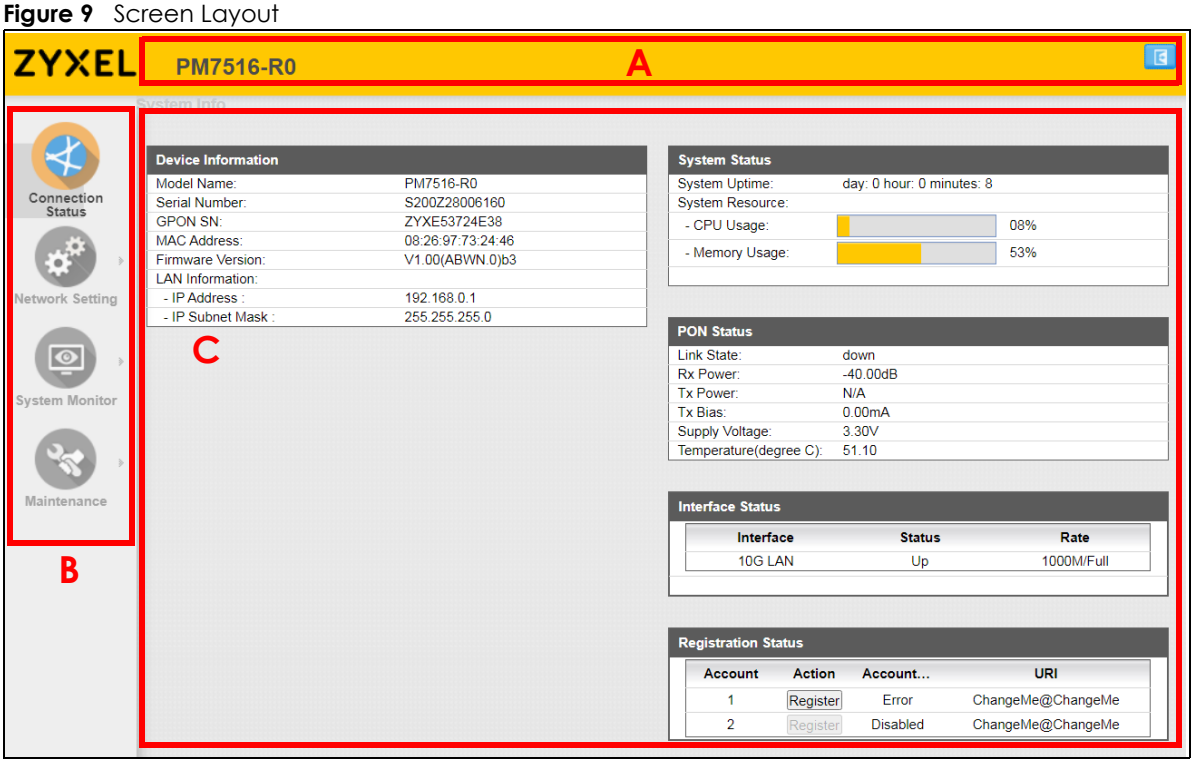
6. After you log in, the **System Info** page appears, where you can view the Zyxel Device's interface and system information.

Figure 8 System Info Screen



2.2 Web Configurator Layout

Figure 9 Screen Layout



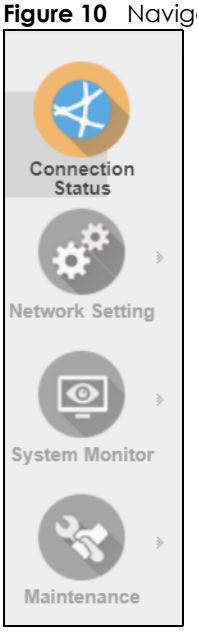
As illustrated above, the main screen is divided into these parts:

- **A** - Title bar: this shows the Zyxel logo and device model name. Click the logout icon to log out of the web configurator.
- **B** - Navigation Panel: see Section 2.2.1 on page 15 for more information.
- **C** - Main window: this displays information and configuration fields.

2.2.1 Navigation Panel

Use the menu items on the navigation panel to open the following status and configuration screens.

Figure 10 Navigation Panel



2.2.1.1 Screens

Use the menu items on the navigation panel to open status and configuration screens. The following table describes the menu items.

Table 5 Screens Summary

LINK	TAB	FUNCTION
Connection Status		Displays the **System Info** screen which shows the Zyxel Device's general device and network status information.
Network Setting		
LAN		Use this screen to set the Local Area Network IP address and subnet mask of your ZyXEL Device.
System Monitor		
Log	System Log	Use this screen to view the status of events that occurred to the Zyxel Device. You can export the logs to your computer.
	Traffic Status	Use the **Traffic Status** screens to look at network traffic status and statistics of the WAN and LAN interfaces.
Maintenance		
User Account	User Account	Use this screen to change the user password on the Zyxel Device.
Time Setting	Time	Use this screen to change your Zyxel Device's time and date.

Table 5 Screens Summary (continued)

LINK	TAB	FUNCTION
Log Settings	Log Setting	Use this screen to change your Zyxel Device's log settings.
Firmware Upgrade	Firmware Upgrade	Use this screen to upload firmware to your Zyxel Device.
Restore to default	Restore to default	Use this screen to restore your Zyxel Device's configuration (settings) or reset the factory default settings.
Reboot	Reboot	Use this screen to reboot the Zyxel Device without turning the power off.

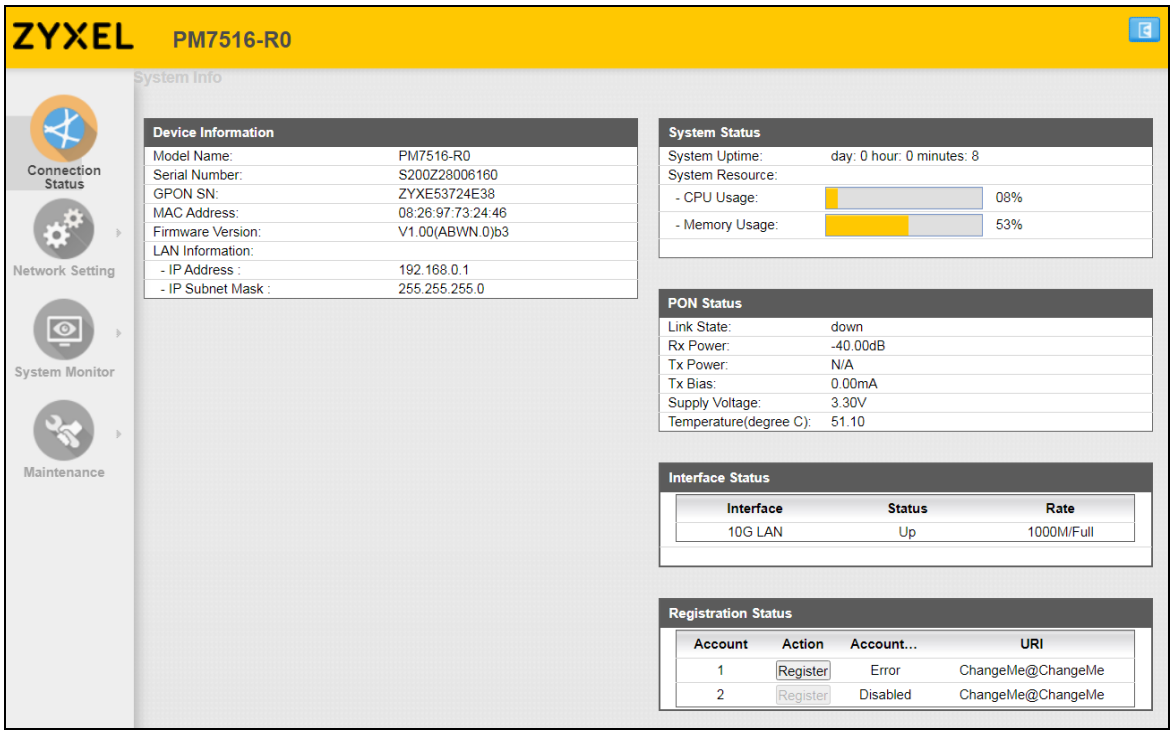
PART II
Technical Reference

CHAPTER 3
System Information

3.1 System Info

The **Connection Status** screen appears when you log into the Web Configurator or click **Connection Status** in the navigation panel. The **System Info** screen shows the current status of the Zyxel Device, its system status, and interfaces.

Figure 11 Connection Status > System Info



Each field is described in the following table.

Table 6 Connection Status > System Info

LABEL	DESCRIPTION
Device Information	
Model Name	This shows the model number of your Zyxel Device.
Serial Number	This field displays the serial number of the Zyxel Device.
GPON SN	This field displays the serial number the Zyxel Device uses for its GPON connection.
MAC Address	This is the MAC (Media Access Control) address unique to your Zyxel Device. The MAC address uses six pairs of hexadecimal notation and follows an industry standard that ensures no other adapter has the same address.

Table 6 Connection Status > System Info (continued)

LABEL	DESCRIPTION
Firmware Version	This is the current version of the firmware inside the Zyxel Device.
LAN Information	
IP Address	This is the current IP address of the Zyxel Device in the LAN.
IP Subnet Mask	This is the current subnet mask in the LAN.
System Status	
System Uptime	This field displays how long the Zyxel Device has been running since it last started up. The Zyxel Device starts up when you plug it in and turn it ON, when you restart it (**Maintenance > Reboot**), or when you reset it.
System Resource:	
CPU Usage	This field displays what percentage of theZyxel Device's processing ability is currently used. When this percentage is close to 100%, the Zyxel Device is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications.
Memory Usage	This field displays what percentage of the Zyxel Device's memory is currently used. Usually, this percentage should not increase much. If memory usage does get close to 100%, the Zyxel Device is probably becoming unstable, and you should restart the device or turn off the device (unplug the power) for a few seconds.
PON Status	
Link State	This field displays **Up** when the interface has a connection with OLT (fiber terminal) and **Down** when it does not.
Rx Power	This displays the optical transceiver's optical receiving power in dBm.
Tx Power	This displays the optical transceiver's optical transmitting power in dBm.
Tx Bias	This field displays the transceiver's bias current in mA.
Supply Voltage	This field displays the transceiver's voltage in Volts.
Temperature (degree C)	This field displays the transceiver's temperature in Celsius.
Interface Status	
Interface	This field displays the port type.
Status	This field displays **Up** when the GPON connection is up or connected and displays **Down** when the connection is down.
Rate	This field displays the port speed and duplex setting.
Registration Status	
Account	This column displays each SIP account in the Zyxel Device.
Action	If the SIP account is already registered with the SIP server, the **Account Status** field displays **Registered**. Click **Unregister** to delete the SIP account's registration in the SIP server. This does not cancel your SIP account, but it deletes the mapping between your SIP identity and your IP address or domain name. If the SIP account is not registered with the SIP server, the **Account Status** field displays **Not Registered**. Click **Register** to have the Zyxel Device attempt to register the SIP account with the SIP server. The button is grayed out if the SIP account is disabled.
Account Status	This field displays the current registration status of the SIP account. You have to register SIP accounts with a SIP server to use VoIP.
URI	This field displays the account number and service domain of the SIP account.

CHAPTER 4
LAN

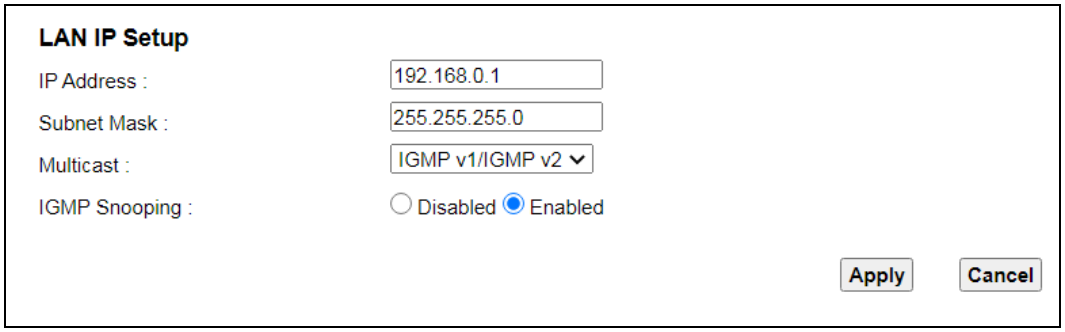
4.1 Overview

A Local Area Network (LAN) is a shared communication system to which many networking devices are connected. It is usually located in one immediate area such as a building or floor of a building.

4.2 LAN Setup

A LAN IP address is the IP address of a networking device in the LAN. You can use the Zyxel Device's LAN IP address to access its Web Configurator from the LAN. Click **Network Setting** to open the **LAN** screen. Use this screen to set the Local Area Network IP address, subnet mask, multicast, and IGMP snooping of your Zyxel Device.

Figure 12 Network Setting > LAN



The following table describes the fields on this screen.

Table 7 Network Setting > LAN

LABEL	DESCRIPTION
LAN IP Setup	
IP Address	Enter the LAN IPv4 address you want to assign to your Zyxel Device in dotted decimal notation, for example, 192.168.0.1 (factory default).
Subnet Mask	Type the subnet mask of your network in dotted decimal notation, for example 255.255.255.0 (factory default). Your Zyxel 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.
Multicast	Multicast packets are sent to a group of computers on the LAN and are an alternative to unicast packets (packets sent to one computer) and broadcast packets (packets sent to every computer). Devices use the IGMP (Internet Group Management Protocol) network-layer protocol to establish membership in a multicast group. The Zyxel Device supports **IGMP v1/IGMP v2**. Select **None** to disable it.

Table 7 Network Setting > LAN (continued)

LABEL	DESCRIPTION
IGMP Snooping	Select **Enabled** to enable IGMP snooping to forward group multicast traffic only to ports that are members of that group. Otherwise, select **Disabled**.
Apply	Click **Apply** to save your changes.
Cancel	Click **Cancel** to restore your previously saved settings.

CHAPTER 5
Log

5.1 Overview

The Web Configurator allows you to choose which categories of events and/or alerts to have the Zyxel Device log and then display the logs or have the Zyxel Device send them to an administrator (as e-mail) or to a syslog server.

5.1.1 What You Need To Know

The following terms and concepts may help as you read this chapter.

Alerts and Logs

An alert is a type of log that warrants more serious attention. They include system errors, attacks (access control) and attempted access to blocked web sites.

Syslog Overview

The syslog protocol allows devices to send event notification messages across an IP network to syslog servers that collect the event messages. A syslog-enabled device can generate a syslog message and send it to a syslog server.

Syslog is defined in RFC 3164. The RFC defines the packet format, content and system log related information of syslog messages. Each syslog message has a facility and severity level. The syslog facility identifies a file in the syslog server. Refer to the documentation of your syslog program for details. The following table describes the syslog severity levels.

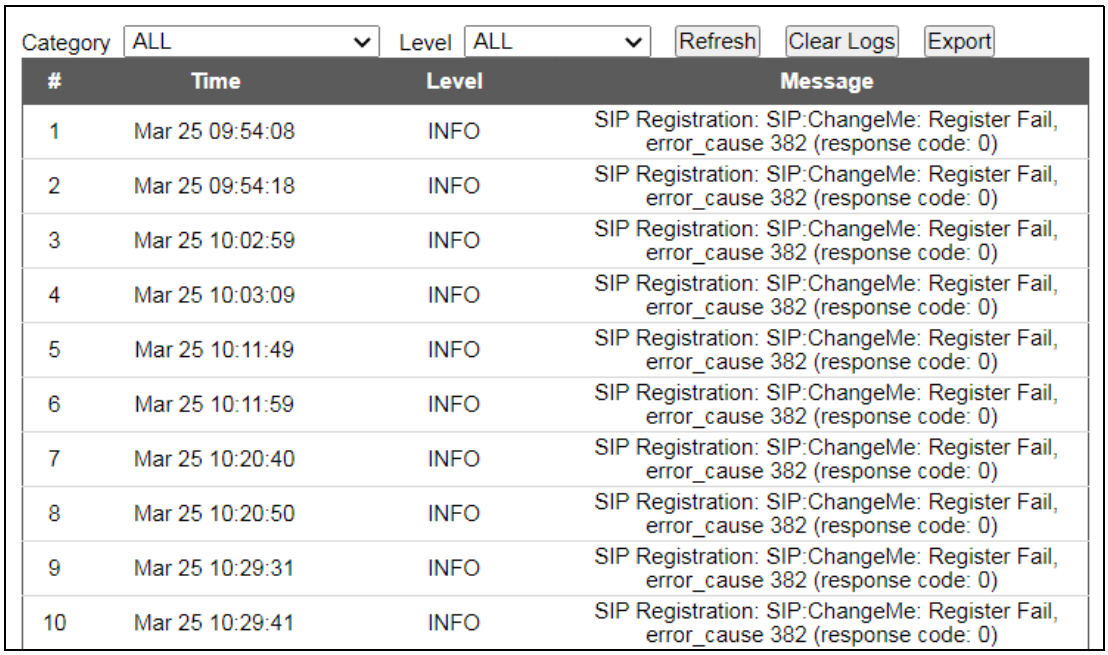
Table 8 Syslog Severity Levels

CODE	SEVERITY
0	Emergency: The system is unusable.
1	Alert: Action must be taken immediately.
2	Critical: The system condition is critical.
3	Error: There is an error condition on the system.
4	Warning: There is a warning condition on the system.
5	Notice: There is a normal but significant condition on the system.
6	Informational: The syslog contains an informational message.
7	Debug: The message is intended for debug-level purposes.

5.2 Log

Use the **System Log** screen to see the system logs. You can filter the entries by selecting a severity level and/or category. Click **System Monitor** > **Log** to open the **System Log** screen.

Figure 13 System Monitor > Log



The following table describes the fields on this screen.

Table 9 System Monitor > Log

LABEL	DESCRIPTION
Category	Select the type of logs to display.
Level	Select a severity level from the drop-down list box. This filters search results according to the severity level you have selected. When you select a severity, the Zyxel Device searches through all logs of that severity or higher.
Refresh	Click this to renew the log screen.
Clear Logs	Click this to delete all the logs.
Export	Click this to export the selected log(s).
#	This field is a sequential value and is not associated with a specific entry.
Time	This field displays the time the log was recorded.
Level	This field displays the severity level of the log.
Message	This field states the reason for the log.

CHAPTER 6
Traffic Status

6.1 Overview

Use the **Traffic Status** screens to look at network traffic statistics of the WAN and LAN interfaces.

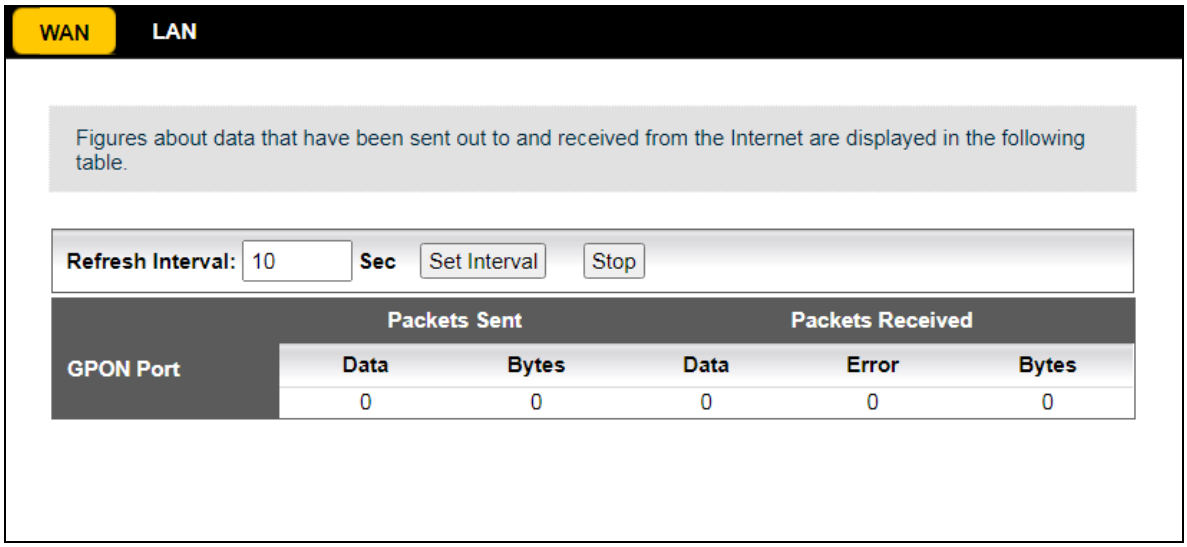
6.1.1 What You Can Do in this Chapter

- Use the **WAN** screen to view the WAN traffic statistics (Section 6.2 on page 24).
- Use the **LAN** screen to view the LAN traffic statistics (Section 6.3 on page 25).

6.2 WAN Status

Click **System Monitor > Traffic Status** to open the **WAN** screen.

Figure 14 System Monitor > Traffic Status > WAN



The following table describes the fields on this screen.

Table 10 System Monitor > Traffic Status > WAN

LABEL	DESCRIPTION
Refresh Interval	Select how often you want the Zyxel Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
Stop	Click **Stop** to stop refreshing statistics.
Packets Sent	

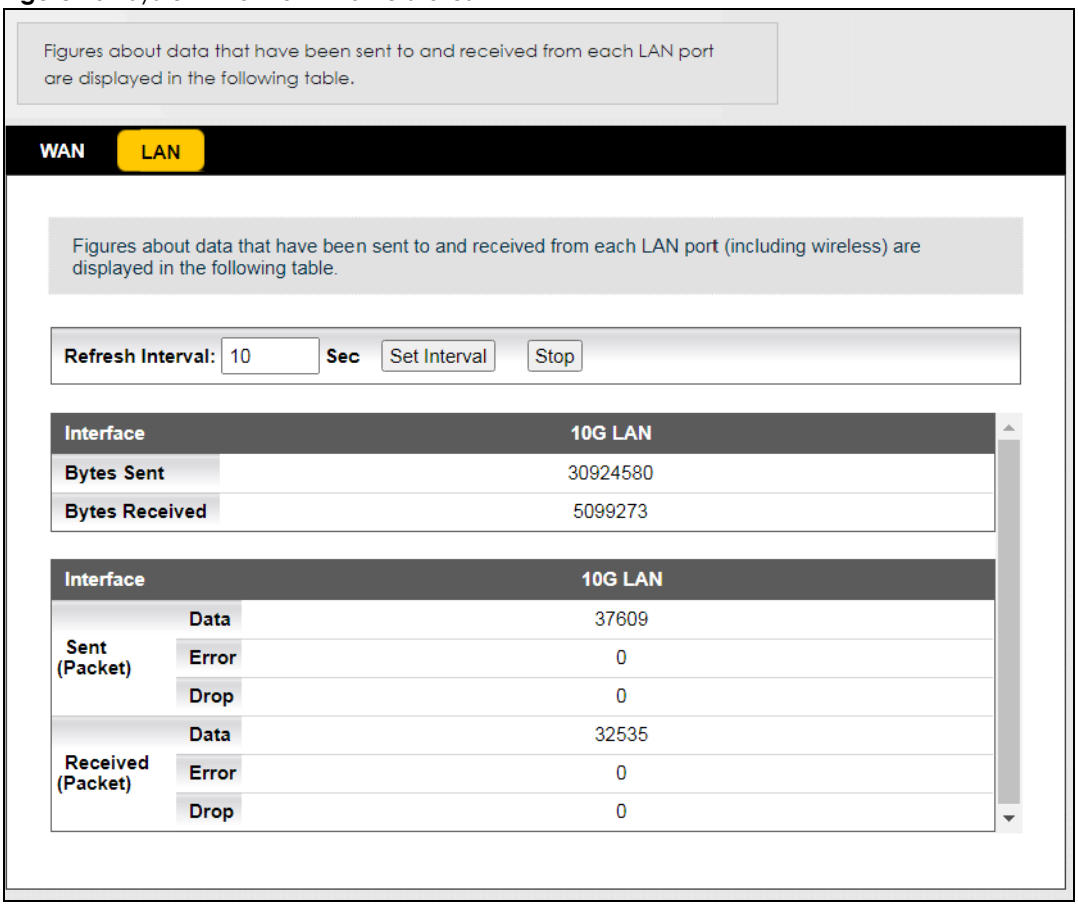
Table 10 System Monitor > Traffic Status > WAN (continued)

LABEL	DESCRIPTION
Data	This indicates the number of transmitted packets on this interface.
Bytes	This indicates the number of bytes transmitted on this interface.
Packets Received	
Data	This indicates the number of received packets on this interface.
Error	This indicates the number of frames with errors received on this interface.
Bytes	This indicates the number of bytes received on this interface.

6.3 LAN Status

Click **System Monitor > Traffic Status > LAN** to open the following screen. This screen displays LAN interface statistics.

Figure 15 System Monitor > Traffic Status > LAN



The following table describes the fields on this screen.

Table 11 System Monitor > Traffic Status > LAN

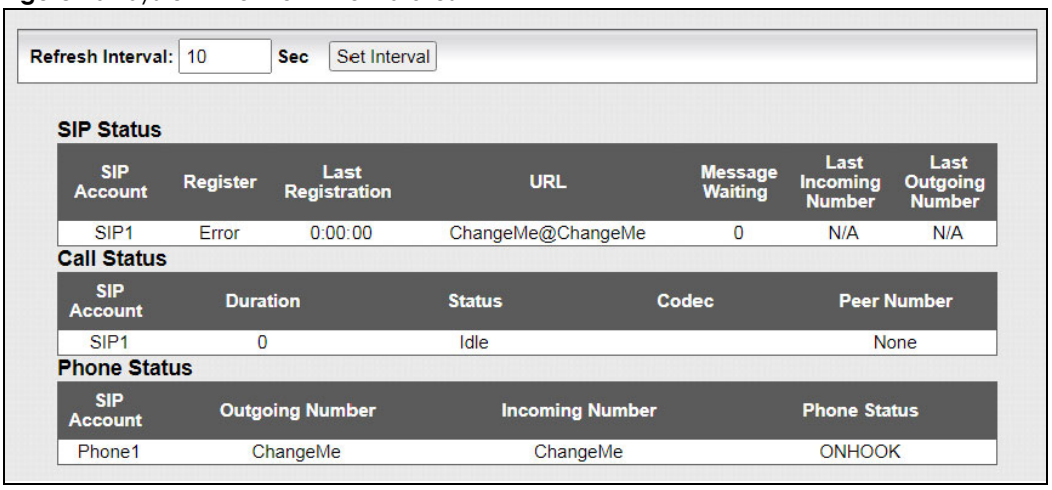
LABEL	DESCRIPTION
Refresh Interval	Select how often you want the Zyxel Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
Stop	Click **Stop** to stop refreshing statistics.
Interface	This shows the LAN interface.
Bytes Sent	This indicates the number of bytes transmitted on this interface.
Bytes Received	This indicates the number of bytes received on this interface.
Interface	This shows the LAN interface.
Sent (Packet)	
Data	This indicates the number of transmitted packets on this interface.
Error	This indicates the number of frames with errors transmitted on this interface.
Drop	This indicates the number of outgoing packets dropped on this interface.
Received (Packet)	
Data	This indicates the number of received packets on this interface.
Error	This indicates the number of frames with errors received on this interface.
Drop	This indicates the number of received packets dropped on this interface.

CHAPTER 7
VoIP Status

7.1 VoIP Status

Click **System Monitor** > **VoIP Status** to open the following screen. You can view the VoIP registration, current call status, and phone numbers on this screen.

Figure 16 System Monitor > VoIP Status



The following table describes the fields on this screen.

Table 12 System Monitor > VoIP Status

LABEL	DESCRIPTION
Refresh Interval	Select how often you want the Zyxel Device to update this screen.
Set Interval	Click this button to apply the new interval you entered in the **Refresh Interval** field.
SIP Status	
SIP Account	This column displays each SIP account in the Zyxel Device.
Register	This field displays the current registration status of the SIP account.
Last Registration	This field displays the last time the Zyxel Device successfully registered the SIP account on the SIP server.
URL	This field displays the account number and service domain of the SIP account, which is used to identify the SIP account on the SIP server.
Message Waiting	This field indicates the number of new voice messages on the SIP server waiting for the SIP account.
Last Incoming Number	This field displays **N/A** if no number has ever dialed the SIP account.
Last Outgoing Number	This field displays **N/A** if the SIP account has never dialed a number.
Call Status	
SIP Account	This column displays each SIP account in the Zyxel Device.

Table 12 System Monitor > VoIP Status (continued)

LABEL	DESCRIPTION
Duration	This field displays how long the current VoIP call has lasted.
Status	This field displays the current state of the VoIP phone call. Idle - There are no current VoIP calls, incoming calls or outgoing calls being made. Calling - You made an outgoing VoIP call and the callee's phone is ringing. Ringing - The phone is ringing for an incoming VoIP call. InCall - There is a VoIP call in progress. Hold - The VoIP call is on hold and you can make another VoIP call.
Codec	This field displays what voice codec is being used for a current VoIP call through a phone port.
Peer Number	This field displays the SIP number of the party that is currently engaged in a VoIP call through a phone port.
Phone Status	
SIP Account	This field displays the phone accounts of the Zyxel Device.
Outgoing Number	This field displays the SIP number that you use to make calls on this phone port.
Incoming Number	This field displays the SIP number that you use to receive calls on this phone port.
Phone Status	This field shows whether or the phone connected to the subscriber port is on-hook (**ONHOOK**) or off-hook (**OFFHOOK**).

CHAPTER 8
User Account

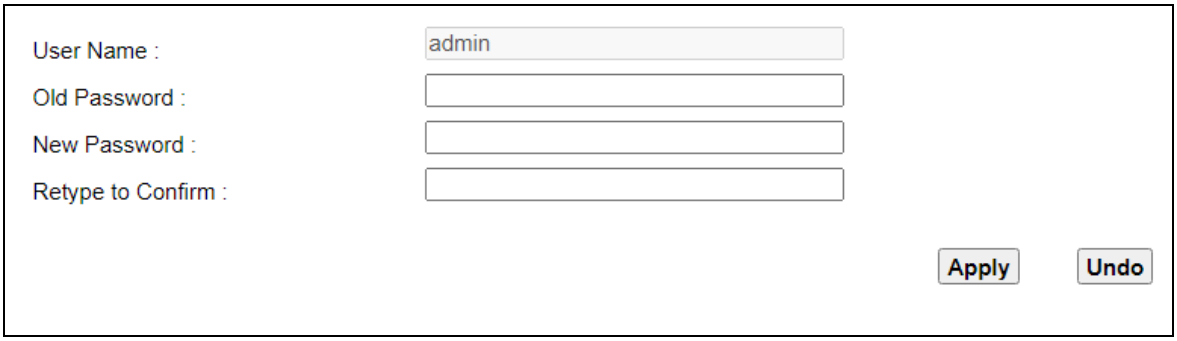
8.1 Overview

In the **User Account** screen, you can view the settings of the admin user account that you use to log in the Zyxel Device.

8.2 User Account

Click **Maintenance > User Account** to open the following screen.

Figure 17 Maintenance > User Account



The following table describes the labels on this screen.

Table 13 Maintenance > User Account

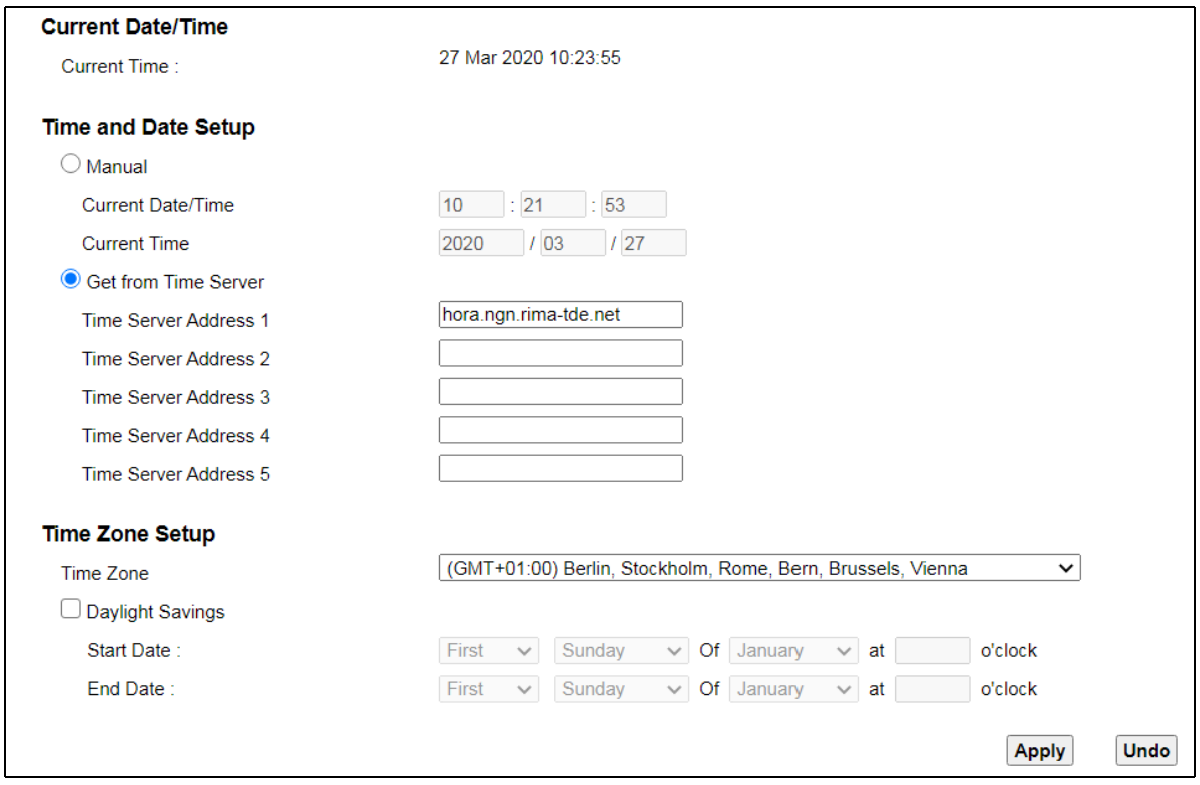
LABEL	DESCRIPTION
User Name	This field displays the name of the account used to log into the Zyxel Device Web Configurator.
Old Password	Type the default password or the existing password used to access the Zyxel Device Web Configurator.
New Password	Type your new system password (up to 256 characters). 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 Zyxel Device.
Retype to Confirm	Type the new password again for confirmation.
Apply	Click this to save your changes and to apply them to the Zyxel Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 9
Time Setting

9.1 Time Setting

To change your Zyxel Device's time and date, click **Maintenance > Time Setting**. The screen appears as shown. Use this screen to configure the Zyxel Device's time based on your local time zone.

Figure 18 Maintenance > Time Setting



The following table describes the fields on this screen.

Table 14 Maintenance > Time Setting

LABEL	DESCRIPTION
Current Date/Time	
Current Time	This field displays the date and time of your Zyxel Device. Each time you reload this page, the Zyxel Device synchronizes the date and time with the time server.
Time and Date Setup	

Table 14 Maintenance > Time Setting (continued)

LABEL	DESCRIPTION
Manual	Select this radio button to enter the time and date manually. If you configure a new time and date, Time Zone and Daylight Saving at the same time, the new time and date you entered has priority and the Time Zone and Daylight Saving settings do not affect it.
Current Date/Time Current Time	This field displays the last updated time from the time server or the last time configured manually. When you set **Time and Date Setup** to **Manual**, enter the new time in this field and then click **Apply**.
Get from Time Server	Select this radio button to have the Zyxel Device get the time and date from the time server you specified below.
Time Server Address 1~5	Enter the IP address or URL of your time server. Check with your ISP/network administrator if you are unsure of this information.
Time Zone Setup	
Time Zone	Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).
Daylight Savings	Daylight Saving Time is a period from late spring to early fall when many countries set their clocks ahead of normal local time by one hour to give more daytime light in the evening.
Start Date	Configure the day and time when Daylight Saving Time starts if you enabled Daylight Saving. You can select a specific date in a particular month or a specific day of a specific week in a particular month. The **Hour** field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time starts in most parts of the United States on the second Sunday of March. Each time zone in the United States starts using Daylight Saving Time at 2 A.M. local time. So in the United States, set the day to **Second**, **Sunday**, the month to **March** and the time to **2** in the **Hour** field. Daylight Saving Time starts in the European Union on the last Sunday of March. All of the time zones in the European Union start using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would set the day to **Last**, **Sunday** and the month to **March**. The time you select depends on your time zone. In Germany for instance, you would select **2** in the **Hour** field because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
End Date	Configure the day and time when Daylight Saving Time ends if you enabled Daylight Saving. You can select a specific date in a particular month or a specific day of a specific week in a particular month. The **Time** field uses the 24 hour format. Here are a couple of examples: Daylight Saving Time ends in the United States on the first Sunday of November. Each time zone in the United States stops using Daylight Saving Time at 2 A.M. local time. So in the United States you would set the day to **First**, **Sunday**, the month to **November** and the time to **2** in the **Time** field. Daylight Saving Time ends in the European Union on the last Sunday of October. All of the time zones in the European Union stop using Daylight Saving Time at the same moment (1 A.M. GMT or UTC). So in the European Union you would set the day to **Last**, **Sunday**, and the month to **October**. The time you select depends on your time zone. In Germany for instance, you would select **2** in the **Time** field because Germany's time zone is one hour ahead of GMT or UTC (GMT+1).
Apply	Click this to save your changes and to apply them to the Zyxel Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 10
Log Setting

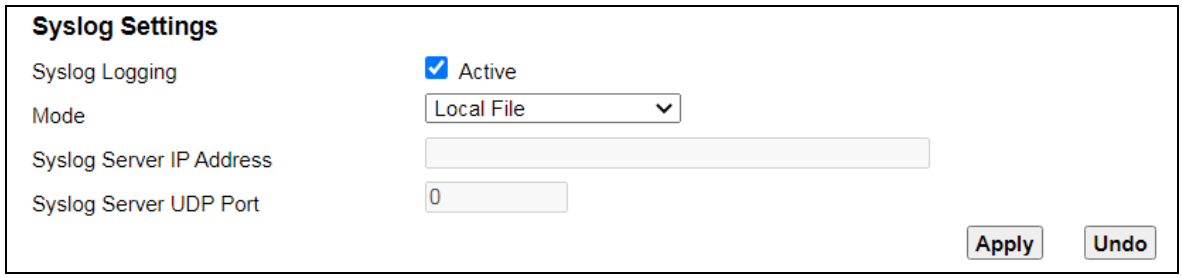
10.1 Overview

You can configure where the Zyxel Device sends logs and which logs and/or immediate alerts the Zyxel Device records in the **Logs Setting** screen.

10.2 Log Setting

To change your Zyxel Device's log settings, click **Maintenance > Log Setting**. The screen appears as shown.

Figure 19 Maintenance > Log Setting



The following table describes the fields on this screen.

Table 15 Maintenance > Log Setting

LABEL	DESCRIPTION
Syslog Settings	
Syslog Logging	Select **Active** to enable syslog logging.
Mode	Select the syslog destination from the drop-down list box. If you select **Local File**, the log(s) will be saved in a local file. If you want to send the log(s) to a remote syslog server and save it in a local file, select **Local File and Remote**.
Syslog Server IP Address	Enter the server name or IP address of the syslog server that will log the selected categories of logs.
Syslog Server UDP Port	Enter the port number used by the syslog server.
Apply	Click this to save your changes and to apply them to the Zyxel Device.
Undo	Click **Undo** to exit this screen without saving.

CHAPTER 11
Firmware Upgrade

11.1 Overview

This chapter explains how to upload new firmware to your Zyxel Device. You can download new firmware releases from your nearest Zyxel FTP site (or www.zyxel.com) to use to upgrade your device's performance.

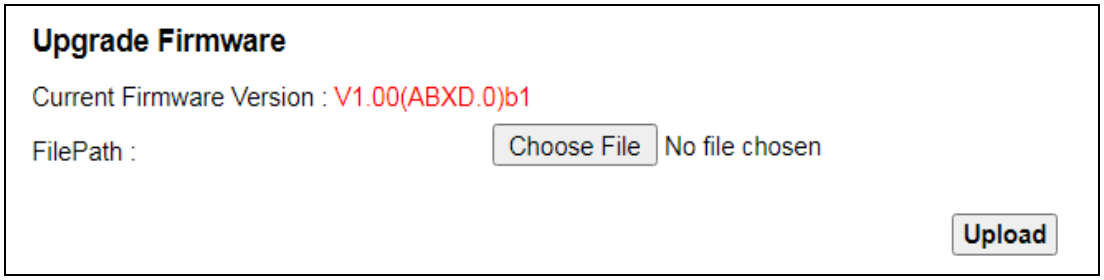
Only use firmware for your device's specific model. Refer to the label on the bottom of your Zyxel Device.

11.2 Firmware

Click **Maintenance > Firmware Upgrade** to open the following screen. The upload process uses HTTP (Hypertext Transfer Protocol) and may take up to two minutes. After a successful upload, the system will reboot.

Do NOT turn off the Zyxel Device while firmware upload is in progress.

Figure 20 Maintenance > Firmware Upgrade



The following table describes the labels on this screen. After you see the firmware updating screen, wait two minutes before logging into the Zyxel Device again.

Table 16 Maintenance > Firmware Upgrade

LABEL	DESCRIPTION
Upgrade Firmware	
Current Firmware Version	This is the present firmware version.

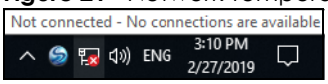
Table 16 Maintenance > Firmware Upgrade

LABEL	DESCRIPTION
File Path	Click **Choose File** and navigate to the location of the .bin file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
Upload	Click this to begin the upload process. This process may take up to two minutes.

After you see the firmware updating screen, wait a few minutes before logging into the Zyxel Device again.

The Zyxel Device automatically restarts in this time causing a temporary network disconnect. In some operating systems, you may see the following icon on your desktop.

Figure 21 Network Temporarily Disconnected



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

CHAPTER 12
Restore/Reboot

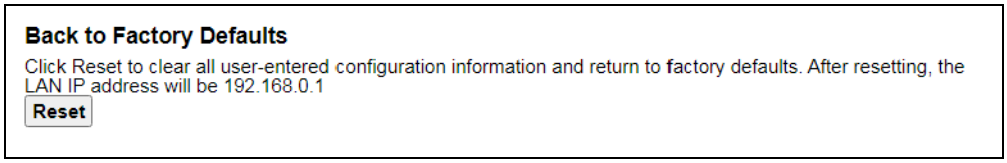
12.1 Overview

The **Restore to default** screen allows you to reset your device settings back to the factory default.

12.2 Restore

Click **Maintenance > Restore to default**. Information related to restoring configuration appears on this screen, as shown below.

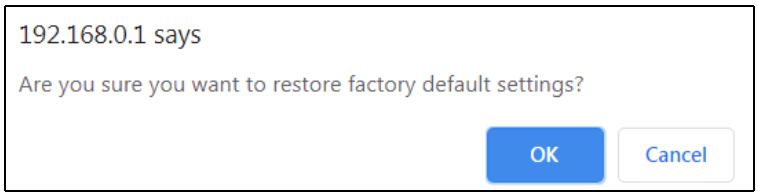
Figure 22 Maintenance > Restore to default



Back to Factory Default Settings

Click the **Reset** button to clear all user-entered configuration information and return the Zyxel Device to its factory defaults. The following warning screen appears.

Figure 23 Reset Warning Message



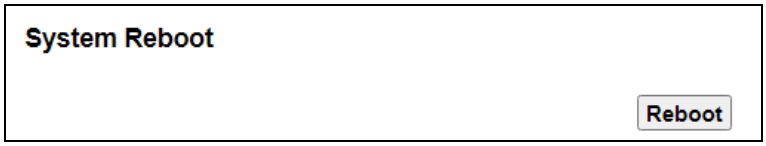
You can also press the **RESET** button on the rear panel to reset the factory defaults of your Zyxel Device. Refer to Section 1.4.4 on page 12 for more information on the **RESET** button.

12.3 Reboot

System restart allows you to reboot the Zyxel Device remotely without turning the power off. You may need to do this if the Zyxel Device hangs, for example.

Click **Maintenance > Reboot**. Click **Reboot** to have the Zyxel Device reboot. This does not affect the Zyxel Device's configuration.

Figure 24 Maintenance > Reboot



CHAPTER 13
Troubleshooting

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
- Zyxel Device Access and Login
- Internet Access

13.1 Power, Hardware Connections, and LEDs

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

1. Make sure the Zyxel Device is turned on.
2. Make sure you are using the power adaptor or cord included with the Zyxel Device.
3. Make sure the power adaptor or cord is connected to the Zyxel Device and plugged in to an appropriate power source. Make sure the power source is turned on.
4. Turn the Zyxel 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. See Section 1.4.1 on page 9.
2. Check the hardware connections.
3. Inspect your cables for damage. Contact the vendor to replace any damaged cables.
4. Turn the Zyxel Device off and on.
5. If the problem continues, contact the vendor.

13.2 Zyxel Device Access and Login

I forgot the IP address for the Zyxel Device.

1 The default LAN IP address is https://192.168.0.1.

I forgot the password.

1 See the cover page and device label for the default login name and associated password.

2 If those do not work, you have to reset the device to its factory defaults. See Section 1.4.4 on page 12.

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 https://192.168.0.1.
- Manually configure your computer's IP address to 192.168.0.X (X represents any number from 2 to 254. For example, 192.168.0.25. Then set the subnet mask as 255.255.255.0.
- If you changed the IP address (Section 4.2 on page 20), use the new IP address.
- If you changed the IP address and have forgotten it, see the troubleshooting suggestions for I forgot the IP address for the Zyxel Device.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See Section 1.4.1 on page 9.

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

4 Reset the device to its factory defaults and try to access the Zyxel Device with the default IP address. See Section 1.4.4 on page 12.

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

I can see the **Login** screen, but I cannot log into the Zyxel Device.

1 Make sure you have entered the password correctly. See the cover page and device label for the default login name and associated password. The field is case-sensitive, so make sure [Caps Lock] is not on.

2 Turn the Zyxel Device off and on.

3 If this does not work, you have to reset the device to its factory defaults. See Section 13.1 on page 37.

I cannot use FTP to upload / download the configuration file. / I cannot use FTP to upload new firmware.

See the troubleshooting suggestions for I cannot see or access the Login screen in the Web Configurator. Ignore the suggestions about your browser.

13.3 Internet Access

I cannot access the Internet.

1 Check the hardware connections, and make sure the LEDs are behaving as expected. See the **Quick Start Guide** and Section 1.4.1 on page 9.

The **PON** LED is 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 1.4.1 on page 9 for details about the other LEDs.

2 Disconnect the power, LAN, and phone cables from your device and reconnect them.

3 If the problem continues, contact your ISP.

I cannot access the Zyxel Device anymore. I had access to the Zyxel Device, but my connection is not available anymore.

1 Your session with the Zyxel Device may have expired. Try logging into the Zyxel Device again.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See the **Quick Start Guide** and Section 1.4.1 on page 9.

3 Turn the Zyxel Device off and on.

4 If the problem continues, contact your vendor.

PART III
Appendices

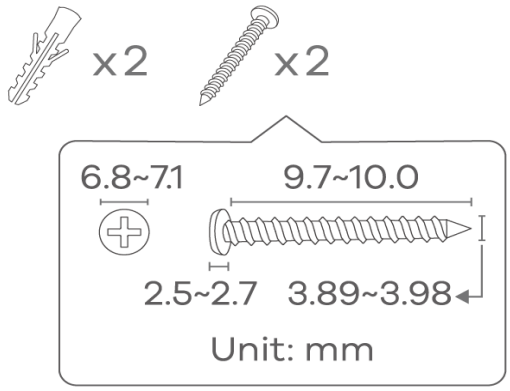
Appendices contain general information. Some information may not apply to your device.

APPENDIX A
Wall Mounting

Follow the steps below to mount your Zyxel Device on a wall.

1 Use screws and anchors of the size as shown below.

Figure 25 Screws and Anchors Size



2 Drill two holes in the wall with their centers either 85.5 mm or 60.0 mm apart.

Figure 26 Drill Holes (85.5 mm Apart)

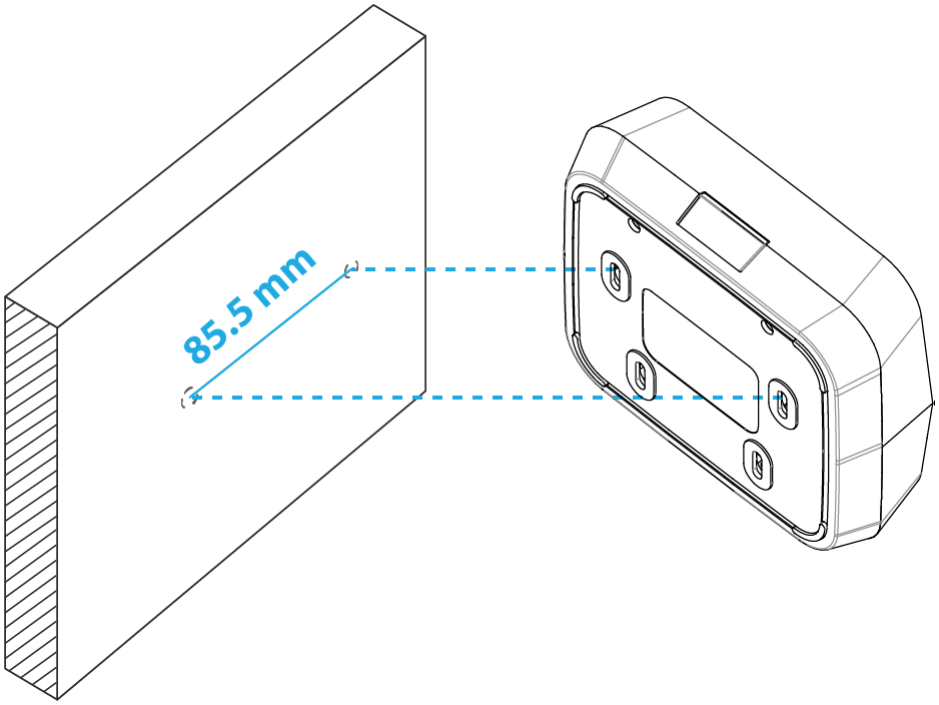
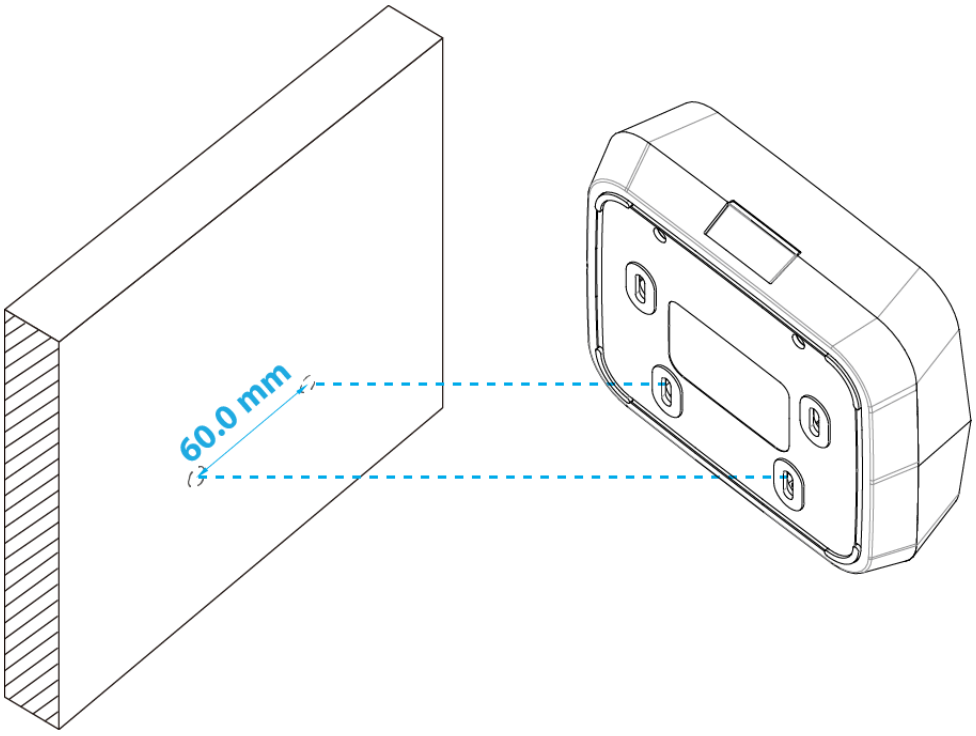
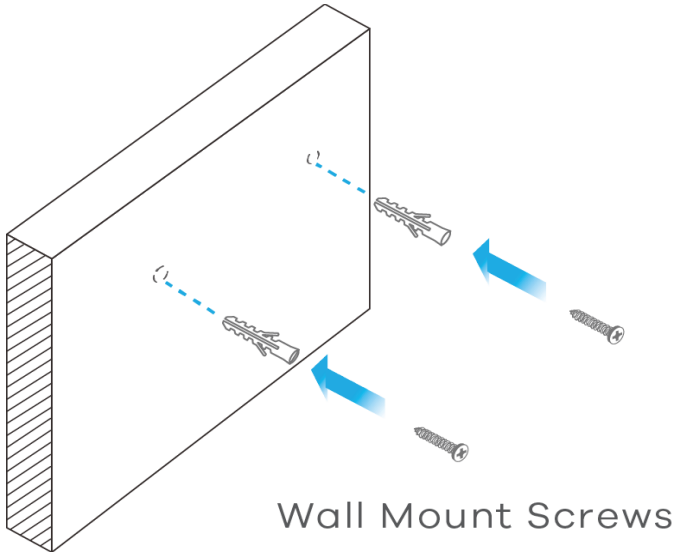


Figure 27 Drill Holes (60.0 mm Apart)



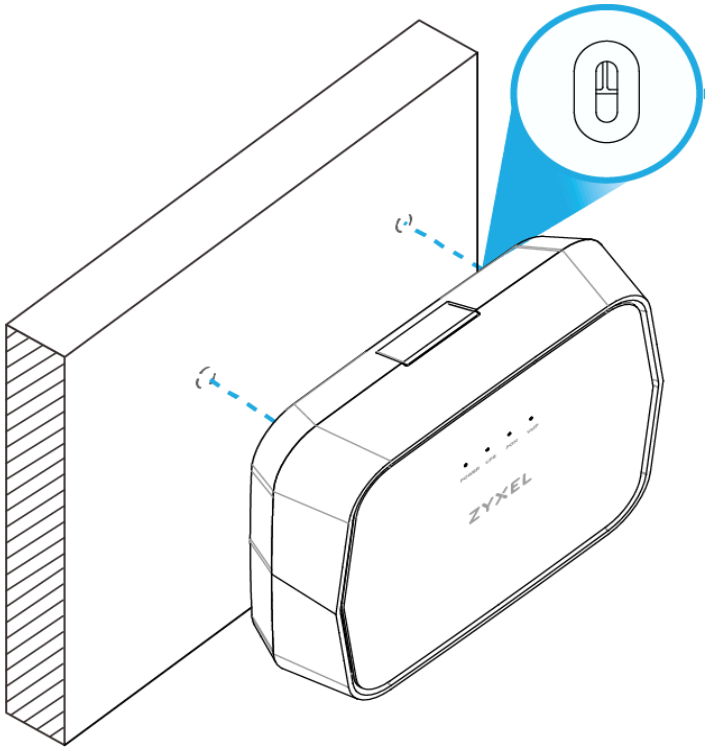
3 Insert screw anchors and screws (not provided) into the holes.

Figure 28 Insert Screw Anchors and Screws



4 Place the Zyxel Device so the wall mount holes line up with the screws. Slide the Zyxel Device down gently to fix it into place.

Figure 29 Placing the Zyxel Device



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.
- 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

Caution

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

CANADA

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

Innovation, Science and Economic Development Canada ICES Statement

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

APPENDIX C
Safety Warnings

- Do not obstruct the device ventilation slots as insufficient airflow may harm your device.
- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Avoid using these products (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- To reduce the risk of fire, use only No. 26 AWG or larger (e.g.,24 AWG) UL Listed or CSA Certified Telecommunication Line Cord.
- Do not use the device outside, and make sure all the connections are indoors. There may be a remote risk of electric shock from lightning.
- The RJ-45 jacks are not used for telephone line connection.
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- This product is intended to be supplied by a UL Listed Power Adapter or DC power source marked "L.P.S." or "Limited Power Source", rated 12Vdc, 1.0 A and Tma 40°C (min.).
- Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.
- CLASS 1 LASER PRODUCT & COMPLIES WITH IEC 60825-1:2014.
- To reduce potential safety issues, only the power adapter or battery backup provided with the product, a replacement power adapter or battery backup provided by Zyxel or agency, or a power adapter or battery backup purchased as an accessory from Zyxel or agency should be used with the product.
- Manufacturer's name and address: Mitrastar No. 6 Innovation Road 2, Science Park, Hsinchu 30076, Taiwan.
- 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: Pour réduire les risques d'incendie n'utiliser que des câbles de type 26 AWG ou des câbles de connexion plus épais.
- Attention: Les câbles RJ-45 ne doivent pas être utilisés pour les connections téléphoniques.
- Attention: L'utilisation des commandes ou reglages ou l'execution des procedures autres que celles specifiees dans les presents exigences peuvent etre la cause d'une exposition a un rayonnement dangereux.
- Ce produit est destiné à être alimenté par un adaptateur secteur répertorié UL ou une source d'alimentation CC marquée "L.P.S" ou "Limited Power Source", de 12 Vcc,1,0 A et Tma 40°C (min.)
- Conforme au 21 CFR 1040.10 et au 1040.11, à l'exception de la conformité au IEC60825 3e éd., comme décrit dans « Laser Notice No. 56 » du 8 mai 2019.
- APPAREIL À LASER DE CLASSE 1 & CONFORME SELON IEC 60825-1:2014.