Prestige 312

Internet Security Gateway

User's Guide

Version 0.5

Feb 2000

ZyXEL

TOTAL INTERNET ACCESS SOLUTION

Prestige 312

Internet Security Gateway

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Federal Communications Commission (FCC) Interference Statement

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.

- This device must accept any interference received, including interference that may cause undesired operations.

This equipment has been tested and found to comply with the limits 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 commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

If this equipment does cause harmful interference to radio/television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and the receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/TV technician for help.

Notice 1

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

Notice 2

Shielded RS-232 cables are required to be used to ensure compliance with FCC Part 15, and it is the responsibility of the user to provide and use shielded RS-232 cables.

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Declaration of Conformity

We, the Manufacturer/Importer,

ZyXEL Communications Corp.
No. 6, Innovation Rd. II,
Science-Based Industrial Park,
Hsinchu, Taiwan, 300 R.O.C

declare that the product

Prestige 312

is in conformity with

(reference to the specification under which conformity is declared)

Standard	Standard Item	Version
• EN 55022	Radio disturbance characteristics – Limits and method of measurement.	1994
• EN 61000-3-2	Disturbance in supply system caused by household appliances and similar electrical equipment "Harmonics".	1995
• EN 61000-3-3	Disturbance in supply system caused by household appliances and similar electrical equipment "Voltage fluctuations".	1995
• EN 61000-4-2	Electrostatic discharge immunity test – Basic EMC Publication	1995
• EN 61000-4-3	Radiated, radio-frequency, electromagnetic field immunity test	1996
• EN 61000-4-4	Electrical fast transient / burst immunity test - Basic EMC Publication	1995
• EN 61000-4-5	Surge immunity test	1995
• EN 61000-4-6	Immunity to conducted disturbances, induced by radio-frequency fields	1996
• EN 61000-4-8		1993
• EN61000-4-11	Voltage dips, short interruptions and voltage variations immunity tests	1994

Part I:

Getting Started

Chapters 1-3 are structured as a step-by-step guide to help you connect, install and setup your Prestige to operate on your network and access the Internet.

Chapter 1:
Getting to Know Your Prestige

This chapter introduces the main features and applications of the Prestige.

1.1　The Prestige 312 Internet Security Gateway

The Prestige 312 is a dual Ethernet Internet Security Gateway integrated with a robust firewall and network management features designed for home offices and small businesses to access the Internet via Cable/ADSL modem or broadband router. By integrating NAT and firewall capability, ZyXEL's Prestige 312 provides not only ease of installation and Internet access, but also a complete security solution to protect your Intranet and efficiently manage data traffic on your network.

1.2　Features of The Prestige 312

The following are the essential features of the Prestige 312.

Firewall

Firewall with Stateful Inspection and DoS (Denial of Service) protection. By default, when the firewall is activated all incoming traffic from the WAN to the LAN is blocked. The Prestige firewall supports TCP/UDP inspection, DoS (Denial of Services) detection and prevention, real time alerts, reports and logs.

Note: You may activate the firewall via SMT menu 21.2 or the PNC, but you can only configure the firewall using the PNC.

Packet Filtering

The Packet Filtering mechanism blocks unwanted traffic from entering/leaving your network.

PPPoE

PPPoE facilitates the interaction of a host with a broadband modem to achieve access to high-speed data networks via a familiar "dial-up networking" user interface.

Auto-negotiating 10/100Mbps Ethernet

The LAN interface automatically detects if it's on a 10 or a 100 Mbps Ethernet.

Network Address Translation (NAT)

NAT (Network Address Translation - NAT, RFC 1631) allows the translation of an Internet Protocol address used within one network to a different IP address known within another network.

DHCP (Dynamic Host Configuration Protocol)

The Prestige supports DHCP Server and Client. The Prestige's DHCP server capability allows you to automatically assign TCP/IP settings to a workstation on your LAN. The Prestige's DHCP client capability allows it to get automatically its IP address from the ISP on the WAN.

Full Network Management

This feature allows you to access SMT (System Management Terminal) through the console port or telnet connection.

RoadRunner Support

In addition to standard cable modem services, the Prestige supports Time Warner's RoadRunner Service.

Time and Date Setting

This new feature (**Menu 24.10**) allows you to get the current time and date from an external server when you power up your Prestige. The real time is then displayed in the Prestige error logs and firewall logs. If you do not choose a time service protocol that your timeserver will send when the Prestige powers up you can enter the time manually but each time the system is booted, the time & date will be reset to **1/1/1970 0:0:0**.

Logging and Tracing

The Prestige has the following features:
- Built-in message logging and packet tracing.
- Unix syslog facility support.

Upgrade Prestige Firmware via LAN

The firmware of the Prestige 312 can be upgraded via the LAN.

Embedded FTP Server

The Prestige's embedded FTP Server enables faster firmware upgrade as well as configuration file backup and restoration.

1.3 Applications for Prestige 312

1.3.1 Broadband Internet Access via Cable or xDSL Modem

A cable modem or xDSL modem can connect to the Prestige 312 for broadband Internet access via Ethernet port on the modem. It provides not only the high speed Internet access but secured internal network protection and management as well.
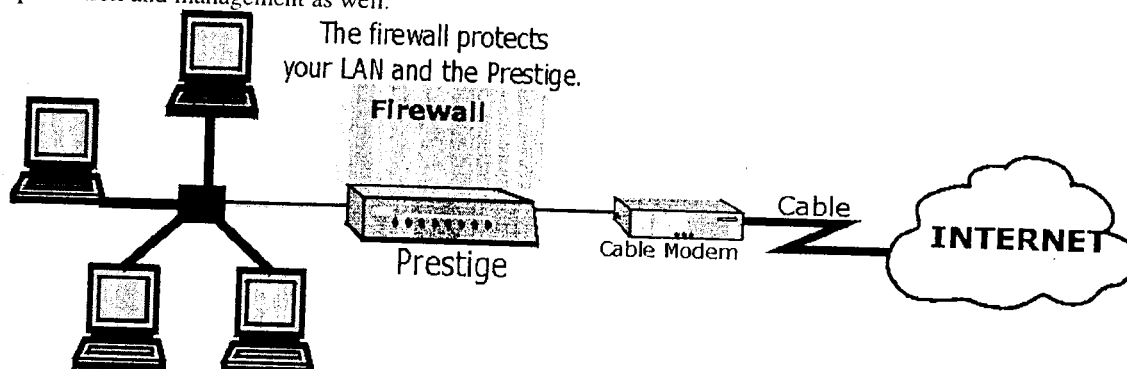
The firewall protects
your LAN and the Prestige.

Figure 1-1   Secure Internet Access via Cable

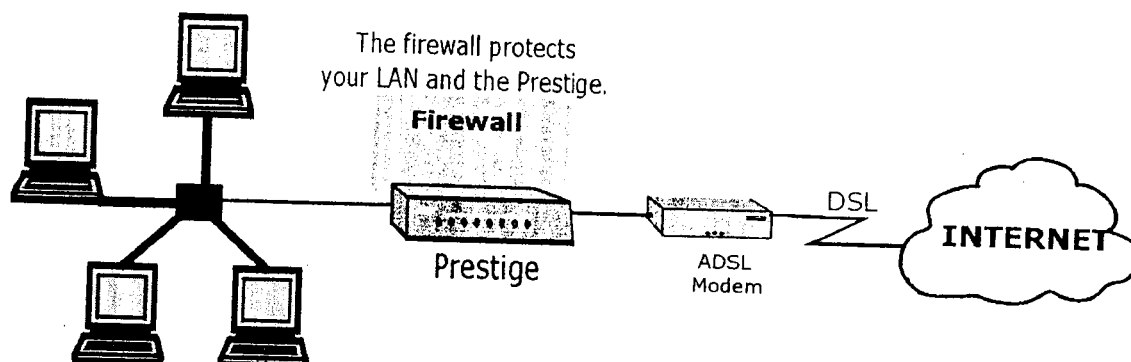The firewall protects
your LAN and the Prestige.

Figure 1-2   Secure Internet Access via DSL

You can also use your xDSL modem in the bridge mode for always-on Internet access and high speed data transfer.

Appendix A
PPPoE

PPPoE in Action

An ADSL modem bridges a PPP session over Ethernet (PPP over Ethernet, RFC 2516) from your PC to an ATM PVC (Permanent Virtual Circuit) which connects to a xDSL Access Concentrator where the PPP session terminates (see the next figure). One PVC can support any number of PPP sessions from your LAN. PPPoE provides access control and billing functionality in a manner similar to dial-up services using PPP.

Benefits of PPPoE

PPPoE offers the following benefits:

1. It provides you with a familiar dial-up networking (DUN) user interface.

2. It lessens the burden on the carriers of provisioning virtual circuits all the way to the ISP on multiple switches for thousands of users. For GSTN (PSTN & ISDN), the switching fabric is already in place.

3. It allows the ISP to use the existing dial-up model to authenticate and (optionally) to provide differentiated services.

Traditional Dial-up Scenario

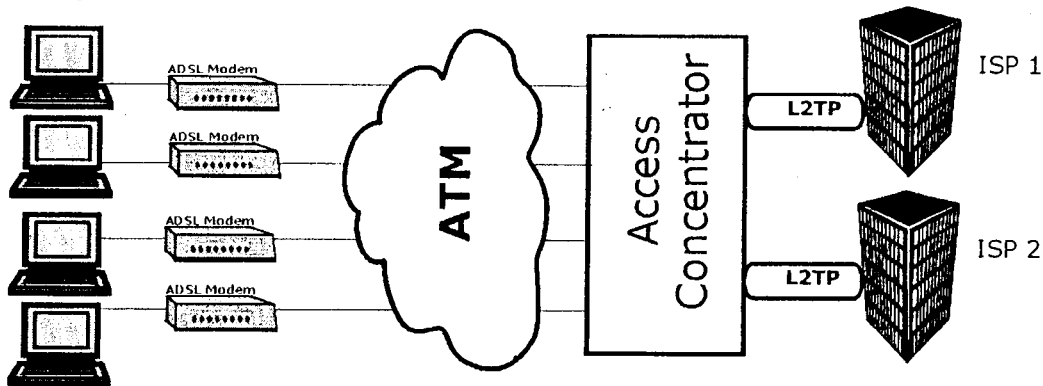The following diagram depicts a typical hardware configuration where the PCs use traditional dial-up networking.

Diagram 1   Single-PC per Modem Hardware Configuration

How PPPoE Works

The PPPoE driver makes the Ethernet appear as a serial link to the PC and the PC runs PPP over it, while the modem bridges the Ethernet frames to the Access Concentrator (AC). Between the AC and an ISP, the AC is acting as a L2TP (Layer 2 Tunneling Protocol) LAC (L2TP Access Concentrator) and tunnels the PPP frames to the ISP. The L2TP tunnel is capable of carrying multiple PPP sessions.
With PPPoE, the VC (Virtual Circuit) is equivalent to the dial-up connection and is between the modem and the AC, as opposed to all the way to the ISP. However, the PPP negotiation is between the PC and the ISP.

Prestige as a PPPoE Client

When using the Prestige as a PPPoE client, the PCs on the LAN see only Ethernet and are not aware of PPPoE. This alleviates the administrator from having to manage the PPPoE clients on the individual PCs.
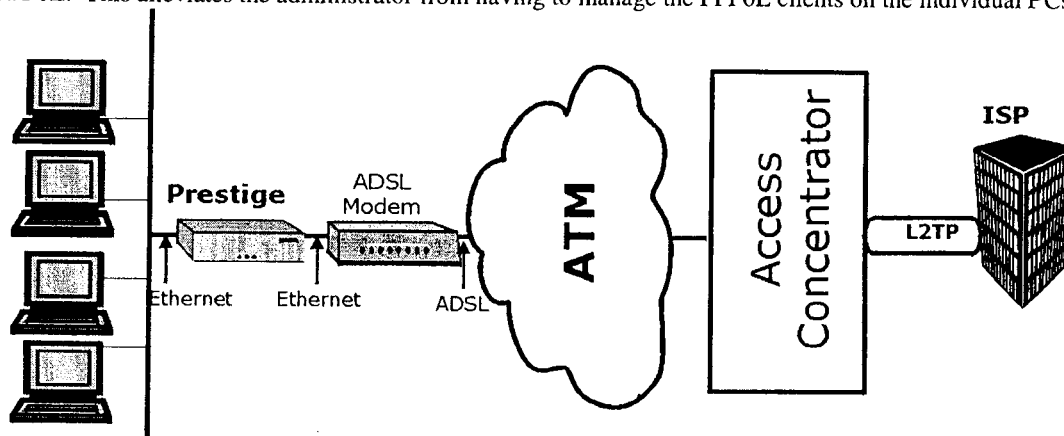

Diagram 2   Prestige as a PPPoE Client

Appendix B
Hardware Specifications

Power Specification	I/P AC 120V / 60Hz ; O/P DC 12V 1200 mA
MTBF	100000 hrs
Operation Temperature	0º C ~ 40º C
Ethernet Specification for WAN	10Mbit Half / Full Manual Setting
Ethernet Specification for LAN	10/100 Mbit Half / Full Auto-negotiation
Console Port RS – 232	Pin 1 = NON ; Pin 2 = DTE-RXD; Pin 3 = DTE-TXD; Pin 4 = DTE-DTR; Pin 5 = GND; Pin 6 = DTE-DSR; Pin 7 = DTE-RTS; Pin 8 = DTE-CTS; PIN 9 = NON. See Figure below

Pin1

Pin 9

Pin 6
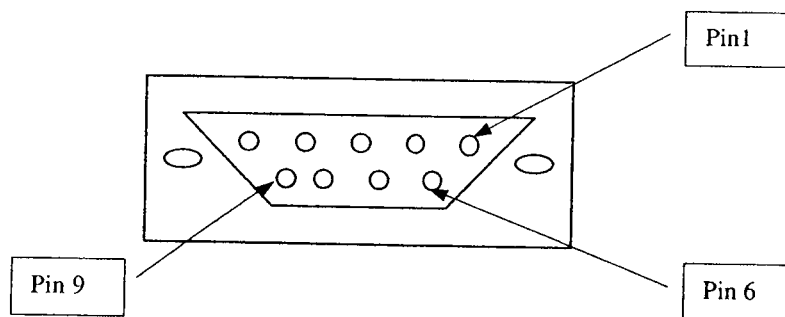
WAN/LAN Cable Pin Layout: Straight-Through		Crossover	
(Switch)	(Adapter)	(Switch)	(Switch)
1 IRD +	1 OTD +	1 IRD +	1 IRD +
2 IRD -	2 OTD -	2 IRD -	2 IRD -
3 OTD +	3 IRD +	3 OTD +	3 OTD +
6 OTD -	6 IRD -	6 OTD -	6 OTD -

Appendix C
Important Safety Instructions

The following safety instructions apply to the Prestige:

1. Be sure to read and follow all warning notices and instructions.
2. The maximum recommended ambient temperature for the Prestige is 40°(104°). Care must be taken to allow sufficient air circulation or space between units when the Prestige is installed inside a closed rack assembly. The operating ambient temperature of the rack environment might be greater than room temperature.
3. Installation in a rack without sufficient airflow can be unsafe.
4. Racks should safely support the combined weight of all equipment.
5. The connections and equipment that supply power to the Prestige should be capable of operating safely with the maximum power requirements of the Prestige. In case of a power overload, the supply circuits and supply wiring should not become hazardous. The input rating of the Prestige is printed on the nameplate.
6. The AC adapter must plug in to the right supply voltage, i.e. 120VAC adapter for North America and 230VAC adapter for Europe. Make sure that the supplied AC voltage is correct and stable. If the input AC voltage is over 10% lower than the standard may cause the Prestige to malfunction.
7. Installation in restricted access areas must comply with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.
8. Do not allow anything to rest on the power cord of the AC adapter, and do not locate the product where anyone can walk on the power cord.
9. Do not service the product by yourself. Opening or removing covers can expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
10. Generally, when installed after the final configuration, the product must comply with the applicable safety standards and regulatory requirements of the country in which it is installed. If necessary, consult the appropriate regulatory agencies and inspection authorities to ensure compliance.
11. A rare condition can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate building are interconnected, the voltage potential can cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action before interconnecting the products. If the equipment is to be used with telecommunications circuit, take the following precautions:
    - Never install telephone wiring during a lightning storm.
    - Never install telephone jacks in wet location unless the jack is specially designed for wet location.
    - Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
    - Use caution when installing or modifying telephone lines (other than a cordless telephone) during an electrical storm. There is a remote risk of electric shock from lightning.
    - Do not use a telephone or other equipment connected to telephone lines to report a gas leak near the leak.