



**VX-VER170S ADSL Router**  
**User Manual**

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## Content

<b>1 OVERVIEW</b> .....	<b>1</b>
1.1 FEATURES .....	1
1.2 PACKET CONTENTS.....	3
1.3 SYSTEM REQUIREMENTS .....	3
1.4 FACTORY DEFAULTS .....	3
1.5 WARNINGS AND CAUTIONS .....	3
<b>2 HARDWARE DESCRIPTION</b> .....	<b>5</b>
<b>3 HARDWARE INSTALLATION</b> .....	<b>6</b>
<b>4 PC CONFIGURATION GUIDE</b> .....	<b>7</b>
4.1 LOCAL PC CONFIGURATION .....	7
4.2 ACCESS THE PROGRAM.....	8
4.3 QUICK SETUP.....	8
<b>APPENDIX FREQUENTLY ASKED QUESTIONS</b> .....	<b>19</b>

# 1 Overview

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Thank you for using this Asymmetric Digital Subscriber Line (ADSL) router. With the asymmetric technology, this device runs over standard copper phone lines. In addition, ADSL allows you to have both voice and data services in use simultaneously over a single phone line. It is an ideal solution for the small and medium size business environment.

This ADSL router provides a 10/100BaseT interface for Ethernet connection. Computers can connect to the router through its Ethernet port to share high-speed Internet access. Connection to the port is simple, regardless of the operating system in use. This router receives adaptive rates up to 24Mbps and transmits 1Mbps upstream.

## 1.1 Features

### 1.1.1 ADSL Compliance

- ANSI T1.413 issue 2
- VLAN tagging
- Downstream: Up to 24Mbps.
- Max upstream speed: 1Mbps.
- Rate Adaptive at 32 Kbps steps
- Interoperable with all major DSLAM equipment
- TR-069 compliant with ACS

### 1.1.2 Standards & Protocols Conformance

- ITU G.994.1 G.992.1(G.DMT) G.992.2(G.LITE)
- ITU G.992.3(G.DMT.BIS)
- ITU G.992.5
- T1.413
- PPPoE
- PPPoA
- IPoA

**1.1.3 Operating System Support**

- WINDOWS 8
- WINDOWS 7
- WINDOWS 98
- WINDOWS 98 SE
- WINDOWS ME
- WINDOWS 2000
- WINDOWS XP
- Macintosh
- LINUX

**1.1.4 ATM Capabilities**

- ATM Connection
- VPI Range: 0-255
- VCI Range: 32-65535
- AESA (E.164, DCC, ICD)
- PVC Support
- UNI 3.0 & 3.1 Signaling
- Support AAL 5

**1.1.5 Management Support**

- Web Based GUI
- Upgrade or update via FTP/HTTP
- Command Line Interface via Telnet
- Diagnostic Test
- Firmware upgrade-able for future feature enhancement

**1.1.6 Environmental**

- Operating humidity: 10%-90% non-condensing
- Non-operating storage humidity: 5%-95% non-condensing

## 1.2 Packet Contents

The packet contents are as follows:

- ADSL Router x 1
- External Splitter x 1
- Power Adapter x 1
- Telephone Line x 1
- Ethernet Cable x 1

## 1.3 System Requirements

Before utilizing this ADSL router, verify that the following requirements are met:

- Subscription for ADSL service. Your ADSL service provider should provide you with at least one valid IP address (static assignment or dynamic assignment via dial-up connection).
- One or more computers, each containing an Ethernet 10/100M Base-T network interface card (NIC).
- A hub or switch, if you are connecting the device to more than four computers.
- For system configuration using the supplied web-based program: A web browser such as Internet Explorer v5.0 or later, or Netscape v4.7 or later.

## 1.4 Factory Defaults

The device is configured with the following factory defaults:

- IP Address: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Encapsulation: RFC 2516 LLC
- VPI/VCI: According to local information

## 1.5 Warnings and Cautions

- Never install telephone wiring during a storm. Avoid using a telephone during an electrical storm. There may be a risk of electric shock from lightning.
- Do not install telephone jacks in wet locations and never use the product near water.
- To prevent dangerous overloading of the power circuit, be careful about the designed maximum power load ratings. Not following the rating guideline could result in a dangerous situation.

- Please note that the telephone line on the ADSL router must adopt the primary line that directly outputs from the junction box. Do not connect the ADSL router to an extension phone. In addition, if your house developer divides a telephone line to multiple sockets inside the wall of your home, please only use the telephone that is connected with the splitter of the ADSL router when you access the Internet. Under the above condition, if you also install a telephone with an anti-cheat-dial device, please remove this type of telephone, otherwise the ADSL router may frequently go off-line.

## 2 Hardware Description

### Front Panel



LED	Color	Function
PWR	Green	On: Power Off: No power or system boot failed
DSL	Green	On: ADSL link established and active Blinking: ADSL is trying to establish a connection Off: No ADSL link
ACT	Green	Blinking: ADSL data activity occurs. Off: No ADSL data is being sent or received.
LAN	Green	On: LAN link established and active Blinking: ADSL data activity occurs. Off: No LAN link.

### Rear Panel



Port	Function
DSL	Connects the device to an ADSL telephone jack or splitter using a RJ-11 telephone cable
LAN	Connects the device to your PC's Ethernet port, or to the uplink port on your hub/switch, using a RJ-45 cable
Reset	System reset or reset to factory defaults.
POWER	Connects to the supplied power adapter
	Switches the unit on and off

### 3 Hardware Installation

This Hardware Installation portion describes how to connect the ADSL router to your computer, LAN and the Internet. This hardware installation portion assumes you have already subscribed to an ISP for ADSL service and only covers the basic configurations to be applied to residential or corporate networks.

#### Hardware Connection

1. Use telephone line to connect the **DSL** port of the ADSL router to the **MODEM** port of the splitter. Use a separate telephone line to connect your telephone to the **PHONE** port of the splitter and then connect the wall phone jack to the **LINE** port of the splitter.

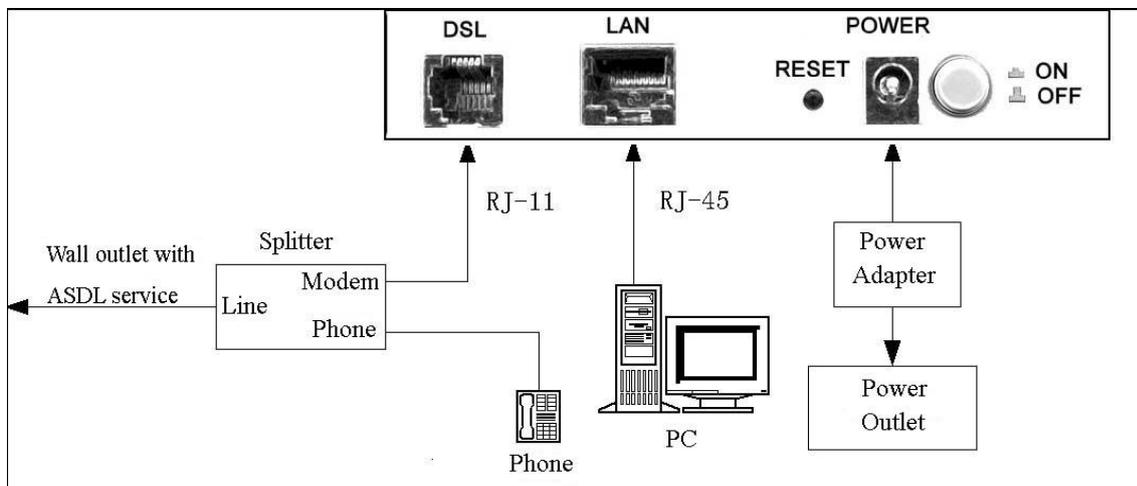
The splitter comes with three connectors as detailed below:

**LINE:** Connects to a wall phone jack (RJ-11 jack)

**MODEM:** Connects to the DSL jack of ADSL router

**PHONE:** Connects to a telephone set

2. Use an Ethernet Cable to connect the LAN port of the ADSL router to your LAN or PC with the network card installed.
3. Connect the power cable to the PWR connector on the ADSL router and then plug in the AC power adapter to the AC power outlet. Press the on-off button.



**Note:** Without the splitter, transient noise from the telephone can interfere with the operation of the ADSL router. As a result, the ADSL router may introduce noise to the telephone line. To prevent this from happening, a small external splitter must be connected to each telephone.

## 4 PC Configuration Guide

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### 4.1 Local PC Configuration

#### 4.1.1 Windows 95, 98, ME, XP

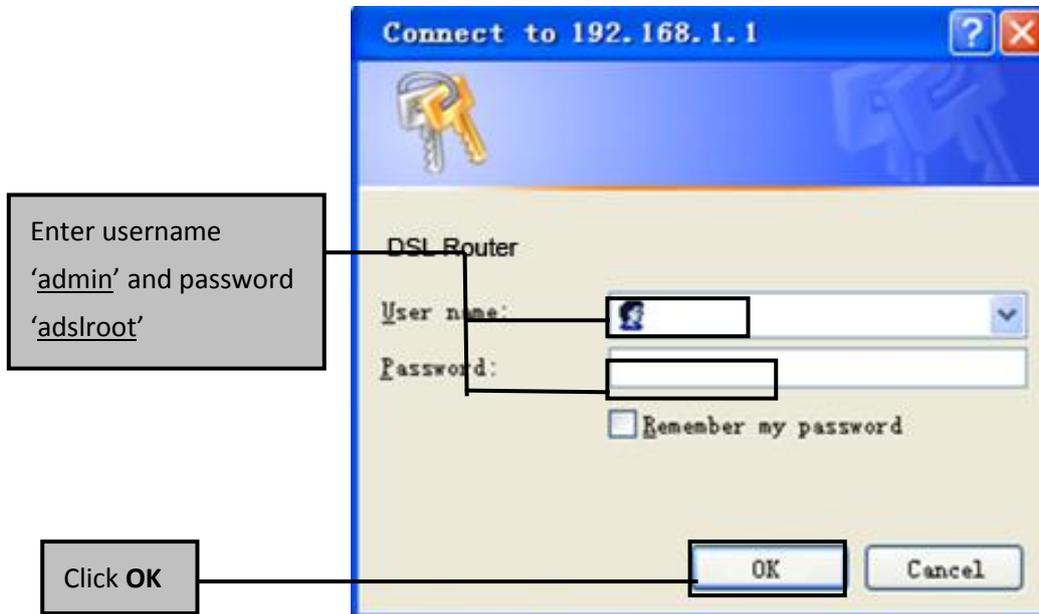
1. In the Windows task bar, click the “Start” button, point to “Settings”, and then click “Control Panel”.
2. Double-click the “Network” icon.
3. On the “Configuration” tab, select the TCP/IP network associated with your network card and then click “Properties”.
4. In the “TCP/IP Properties” dialog box, click the “IP Address” tab. Set the IP address as 192.168.1.x (x can be a decimal number from 2 to 254.) like 192.168.1.2, and the subnet mask as 255.255.255.0.
5. On the “Gateway” tab, set a new gateway as 192.168.1.1, and then click “Add”.
6. Configure the “DNS” tab if necessary. For information on the IP address of the DNS server, please consult with your ISP.
7. Click “OK” twice to confirm and save your changes.
8. You will be prompted to restart Windows. Click “Yes”.

#### 4.1.2 Windows 2000

1. In the Windows task bar, click the “Start” button, point to “Settings”, and then click “Control Panel”.
2. Double-click the “Network and Dial-up Connections” icon.
3. In the “Network and Dial-up Connections” window, right-click the “Local Area Connection” icon, and then select “Properties”.
4. Highlight “Internet Protocol (TCP/IP)”, and then click “Properties”.
5. In the “Internet Protocol (TCP/IP) Properties” dialog box, set the IP address as 192.168.1.x (x can be a decimal number from 2 to 254.), and the subnet mask as 255.255.255.0 and the default gateway as 192.168.1.1. Then click “OK”.
6. Configure the “DNS” tab if necessary. For information on the IP address of the DNS server, please consult with your ISP.
7. Click “OK” twice to confirm and save your changes.

## 4.2 Access the program

After configuring the IP Address of you computer, power on the ADSL Router, and launch a web browser, such as Internet Explorer. Use <http://192.168.1.1> to log on to the setting pages.



Attention: the username and password are both lowercase.

## 4.3 Quick setup

If there are no pre-configured PVCs in the router, you can find the **Quick Setup** option on the left of router configuration page. The user can also delete the PVCs pre-configured to find the option.

1. From home page, choose **Quick Setup**.

### Quick Setup

This Quick Setup will guide you through the steps necessary to configure your DSL Router.

### ATM PVC Configuration

Select the check box below to enable DSL Auto-connect process.

DSL Auto-connect

2. Deselect the check box to disable the DSL Auto-connect process. Set the VPI/VCI value provided by your ISP.

### Quick Setup

This Quick Setup will guide you through the steps necessary to configure your DSL Router.

### ATM PVC Configuration

Select the check box below to enable DSL Auto-connect process.

DSL Auto-connect

The Port Identifier (PORT) Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VPI and VCI numbers unless your ISP instructs you otherwise.

PORT: [0-3]

VPI: [0-255]

VCI: [32-65535]

### Enable Quality Of Service

Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs will be reduced consequently. Use **Advanced Setup/Quality of Service** to assign priorities for the applications.

Enable Quality Of Service

#### a. PPP over Ethernet (PPPoE)

1. Select **PPP over Ethernet (PPPoE)** as connection type, and select **LLC/SNAP-BRIDGING** as encapsulation mode.

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- MAC Encapsulation Routing (MER)
- IP over ATM (IPoA)
- Bridging

#### Encapsulation Mode

▼

2. Input the **PPP Username & PPP Password** and then click **Next**. The user interface allows a maximum of 256 characters in the user name and a maximum of 32 characters in the password. Just remember to enable **NAT** and **Firewall** as shown below.

PPP Username:

PPP Password:

PPPoE Service Name:

Authentication Method:

Enable Fullcone NAT

NAT

Firewall

Dial on demand (with idle timeout timer)

PPP IP extension

Use Static IP Address

Retry PPP password on authentication error

Enable PPP Debug Mode

Bridge PPPoE Frames Between WAN and Local Ports (Default Enabled)

**PPPoE service name** can be blank unless your Internet Service Provider gives you a value to enter.

**Authentication method** is default to **Automatic**. It is recommended that you leave the **Authentication method** in **Automatic**, however, you may select **PAP** or **CHAP** if necessary. The default value for MTU (Maximum Transmission Unit) is **1500** for PPPoA and **1492** for PPPoE. Do not change these values unless your ISP asks you to.

The gateway can be configured to disconnect if there is no activity for a specific period of time by selecting the **Dial on demand** check box and entering the **Inactivity timeout**. The entered value must be between 1 minute and 4320 minutes.

The **PPP IP Extension** is a special feature deployed by some service providers. Unless your service provider specifically requires this setup, do not select it. If you need to select it, the PPP IP Extension supports the following conditions:

- It allows only one computer on the LAN.
- The public IP address assigned by the remote using the PPP/IPCP protocol is actually not used on the WAN PPP interface. Instead, it is forwarded to the computer's LAN interface through DHCP. Only one system on the LAN can be

connected to the remote, since the DHCP server within the ADSL gateway only has a single IP address to assign to a LAN device.

- NAPT and firewall are disabled when this option is selected.
- The gateway becomes the default gateway and DNS server to the computer through DHCP using the LAN interface IP address.
- The gateway extends the IP subnet at the remote service provider to the LAN computer. That is, the PC becomes a host belonging to the same IP subnet.
- The ADSL gateway bridges the IP packets between WAN and LAN ports, unless the packet is addressed to the gateway's LAN IP address.

3. Deselect **Enable IGMP Multicast**, and select **Enable WAN Service** and then click **Next**.

#### Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service Name

4. Configure the DSL Router's IP Address and Subnet Mask for LAN interface. In this page, you can use DHCP (Dynamic Host Configuration Protocol) to control the assignment of IP addresses on your local network (LAN only).

### Device Setup

Configure the DSL Router IP Address and Subnet Mask for LAN interface.

IP Address:

Subnet Mask:

- Disable DHCP Server
- Enable DHCP Server

Start IP Address:

End IP Address:

Subnet Mask:

Leased Time (hour):

- Configure the second IP Address and Subnet Mask for LAN interface

IP Address:

Subnet Mask:

Item	Description
<b>IP address</b>	This is the IP address that other devices on your local network will use to connect to the modem.
<b>Subnet mask</b>	This defines the size of your network. The default is <b>255.255.255.0</b> .
<b>Disable / Enable DHCP server</b>	The DHCP server assigns an IP addresses from a pre-set pool of addresses upon request from DHCP client (e.g. your computer). Do not disable the DHCP server unless you wish to let another device handle IP address issuance on the local network.
<b>Start / end IP address</b>	This is the beginning and ending range for the DHCP server addresses.
<b>Lease time</b>	The amount of time before the IP address is refreshed by the DHCP server.

**Configure the second IP address and...**

Use this feature to create a public network on your local LAN, which is accessible from the Internet. By assigning an address to this interface and setting LAN clients to the same network, LAN clients are accessible from the public network (e.g. FTP or HTTP servers).

5. Make sure that the settings below match the settings provided by your ISP.

<b>PORT / VPI / VCI:</b>	0 / 0 / 35
<b>Connection Type:</b>	PPPoE
<b>Service Name:</b>	pppoe_0_0_35_1
<b>Service Category:</b>	UBR
<b>IP Address:</b>	Automatically Assigned
<b>Service State:</b>	Enabled
<b>NAT:</b>	Enabled
<b>Firewall:</b>	Enabled
<b>IGMP Multicast:</b>	Disabled
<b>Quality Of Service:</b>	Disabled

6. Click on the **Save/Reboot** button to save your configurations.

**b. PPP over ATM (PPPoA)**

1. Select **PPP over ATM (PPPoA)** as connection type, and select **VC/MUX** as encapsulation mode.

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- MAC Encapsulation Routing (MER)
- IP over ATM (IPoA)
- Bridging

2. Input **PPP Username & PPP Password** and then click **Next**. The user interface allows a maximum of 256 characters in the user name and a maximum of 32 characters in the password. Just remember to enable **NAT** and **Firewall** as below.

PPP Username:

PPP Password:

Authentication Method:  ▼

Enable Fullcone NAT

NAT

Firewall

Dial on demand (with idle timeout timer)

PPP IP extension

Use Static IP Address

Retry PPP password on authentication error

Enable PPP Debug Mode

**PPPoA service name** can be blank unless your Internet Service Provider gives you a value to enter.

The **Authentication method** is default to the **Automatic** setting. It is recommended that you leave the **Authentication method** in **Automatic**, however, you may select **PAP** or **CHAP** if necessary. The default value for MTU (Maximum Transmission Unit) is **1500** for PPPoA and **1492** for PPPoE. Do not change these values unless your ISP requests you to.

The gateway can be configured to disconnect if there is no activity for a specific period of time by selecting the **Dial on demand** check box and entering the **Inactivity timeout**. The entered value must be between 1 minute and 4320 minutes.

The **PPP IP Extension** is a special feature deployed by some service providers. Unless your service provider specifically requires this setup, do not select it. If you need to select it, the PPP IP Extension supports the following conditions:

- It allows only one computer on the LAN.
- The public IP address assigned by the remote using the PPP/IPCP protocol is actually not used on the WAN PPP interface. Instead, it is forwarded to the computer's LAN interface through DHCP. Only one system on the LAN can be connected to the remote, since the DHCP server within the ADSL gateway has only a single IP address to assign to a LAN device.

- NAPT and firewall are disabled when this option is selected.
- The gateway becomes the default gateway and DNS server to the computer through DHCP using the LAN interface IP address.
- The gateway extends the IP subnet at the remote service provider to the LAN computer. That is, the PC becomes a host belonging to the same IP subnet.
- The ADSL gateway bridges the IP packets between WAN and LAN ports, unless the packet is addressed to the gateway's LAN IP address.

3. Unselect **Enable IGMP Multicast**, and select **Enable WAN Service** and then click **Next**

#### Enable IGMP Multicast, and WAN Service

Enable IGMP Multicast

Enable WAN Service

Service Name

4. Configure the DSL Router's IP Address and Subnet Mask for LAN interface. On this page, you can use DHCP (Dynamic Host Configuration Protocol) to control the assignment of IP addresses on your local network (LAN only).

### Device Setup

Configure the DSL Router IP Address and Subnet Mask for LAN interface.

IP Address:

Subnet Mask:

Disable DHCP Server

Enable DHCP Server

Start IP Address:

End IP Address:

Subnet Mask:

Leased Time (hour):

Configure the second IP Address and Subnet Mask for LAN interface

IP Address:

Subnet Mask:

Item	Description
<b>IP address</b>	This is the IP address that other devices on your local network will use to connect to the modem.
<b>Subnet mask</b>	This defines the size of your network. The default is <b>255.255.255.0</b> .
<b>Disable / Enable DHCP server</b>	The DHCP server assigns an IP addresses from a pre-set pool of addresses upon request from DHCP client (e.g. your computer). Do not disable the DHCP server unless you wish to let another device handle IP address issuance on the local network.
<b>Start / end IP address</b>	This is the beginning and ending range for the DHCP server addresses.
<b>Lease time</b>	The amount of time before the IP address is refreshed by the DHCP server.

<b>Configure the second IP address and...</b>	Use this feature to create a public network on your local LAN, accessible from the Internet. By assigning an address to this interface and then statically setting your LAN clients to the same network, the LAN clients are accessible from the public network (e.g. FTP or HTTP servers).
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5. Make sure that the settings below match the settings provided by your ISP.

<b>PORT / VPI / VCI:</b>	0 / 0 / 35
<b>Connection Type:</b>	PPPoA
<b>Service Name:</b>	pppoa_0_0_35_1
<b>Service Category:</b>	UBR
<b>IP Address:</b>	Automatically Assigned
<b>Service State:</b>	Enabled
<b>NAT:</b>	Enabled
<b>Firewall:</b>	Enabled
<b>IGMP Multicast:</b>	Disabled
<b>Quality Of Service:</b>	Disabled

6. Click on the **Save/Reboot** button to save your configurations.

### c. Bridging (RFC 2684)

Select the bridge operation mode at the suggestion of your ADSL service provider. To configure the bridging option, instructions are as follows:

1. Select **Bridging (RFC 2684)** as the connection type.

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- MAC Encapsulation Routing (MER)
- IP over ATM (IPoA)
- Bridging

#### Encapsulation Mode

LLC/SNAP-BRIDGING ▼

2. Select the appropriate **Encapsulation mode** and click **Next**. The following screen appears:

**Unselect the check box below to disable this WAN service**

Enable Bridge Service:

Service Name:

3. Enable or disable bridge service and enter a bridge service name. Click **Next** and configure your LAN.

### Device Setup

Configure the DSL Router IP Address and Subnet Mask for your Local Area Network (LAN).

IP Address:

Subnet Mask:

4. The summary page presents the entire configuration summary. Click **Save** if the settings are correct or **Back** to change any of the settings.

<b>PORT / VPI / VCI:</b>	0 / 0 / 35
<b>Connection Type:</b>	Bridge
<b>Service Name:</b>	br_0_0_35
<b>Service Category:</b>	UBR
<b>IP Address:</b>	Not Applicable
<b>Service State:</b>	Enabled
<b>NAT:</b>	Disabled
<b>Firewall:</b>	Disabled
<b>IGMP Multicast:</b>	Not Applicable
<b>Quality Of Service:</b>	Disabled

**Note:** If you would like to cancel all modification that you make on the router, please select “Management⇒Setting⇒Restore Default Settings” to restore the router to its factory default settings.

## Appendix

### Frequently Asked Questions

**Q: Why are none of the LEDs on when I power on the ADSL router?**

A: Please make sure device in use is the power adaptor included with the ADSL router package. Check the connection between the AC power and ADSL router.

**Q: The DSL LED does not turn on after it is connected to the telephone line.**

A: Ensure that you are using a standard telephone line (included with the package), and make sure the line is connected correctly. Determine whether there is poor contact at each interface and wait for 30 seconds to allow the ADSL router to establish connection with your ADSL operator.

**Q: Why is the DSL LED flashing after it is connected to the telephone line?**

A: This means the ADSL router has failed to establish a connection with Central Office. Please check carefully and confirm whether the ADSL router has been installed correctly.

**Q: The LAN LED does not turn on after it is connected to the Ethernet cable.**

A: Check that the Ethernet cable is connected to the hub/PC and ADSL router correctly. Then ensure that the PC/hub has been powered on.

Make sure you use the parallel network cable to connect the UpLink port of the hub, or use the parallel network cable to connect to the PC. If you are connected through the standard port of the hub (not the UpLink port), you must use a cross-cable. Please make sure that your network cables meet the networking requirements above.

**Q: My PC cannot access the Internet.**

A: First determine whether the PC can ping the interface Ethernet IP address of this product successfully (default value is 192.168.1.1) by using the ping application. If the ping application fails, please check the connection of the Ethernet cable and check whether the status of LEDs are in gear. If the PC uses a private IP address that is set manually (non-registered legal IP address), please check:

1. Whether the IP address of the PC gateway is a legal IP address. Otherwise, please use the right gateway or set the PC to obtain an IP address automatically.
2. Please confirm the validity of the DNS server appointed to the PC with an ADSL operator. Otherwise please use the right DNS, or set the PC to obtain an IP address automatically.
3. Please make sure you have set the NAT rules and have converted private IP address to a legal IP address. The IP address range of the PC that you specify should comply with the setting range of NAT rules. There may be an issue with Central Office equipment.

**Q: Why is my PC unable to browse an Internet web page?**

A: Please make sure the DNS server appointed to the PC is correct. You can use the ping application program to test whether the PC can connect to the DNS server of the ADSL operator.

**Q: The initialization of the PVC connection has failed.**

A: Check that the cable is connected properly from the DSL port to the wall jack. The DSL LED on the front panel of the ADSL router should be on. Check that your VPI, VCI, encapsulation type and multiplexing setting matches what was collected from your service provider, Reconfigure the ADSL router and reboot it. If you still cannot determine the issue, you may need to verify these variables with your service provider.

***If an issue is not addressed above, please contact your local service provider for support.***