

**OV602V**

**VDSL2**

**User Manual**

# Contents

<b>Contents</b> .....	<b>1</b>
<b>Chapter 1 Safety Guidance</b> .....	<b>1</b>
1.1 Safety Check.....	1
1.2 Safety Cautions.....	1
<b>Chapter 2 Overview</b> .....	<b>3</b>
2.1 Product Specifications .....	3
<b>Chapter 3 Installation Preparation</b> .....	<b>4</b>
3.1 Hardware Description .....	4
3.2 Hardware Connection .....	5
<b>Appendix A FAQs</b> .....	<b>9</b>

# Chapter 1 Safety Guidance

## 1.1 Safety Check

Before installing the VDSL2 equipment, you must check the following items.

### 1 Electric safety

- Ensure that there are no inflammable, conductive or moist objects around. Check whether the cables are aged and whether other electrical appliances are placed stably.

### 2 Equipment position

- Because the running electric devices easily generate heat, please ensure that these devices are positioned in a well ventilated environment.
- The devices should be placed on a stable and flat plane.
- Never expose the equipment to direct sunshine, and never place it on a PC case.
- Keep the equipment away from heat and water.
- Check whether power supply is available. The input voltage fluctuation range must be less than 10%. The power plug should not share one socket with a hair drier, iron or refrigerator.

## 1.2 Safety Cautions

- Read the user manual carefully before using the equipment.
- Note all Cautions in the user manual and product guide.
- Never use an accessory unbelonging to the equipment without prior consent of the manufacture, because it may cause fire or product damage.
- Use the power adapter accompanied in the package.

- Rather than directly connecting phones to the VDSL2 line, led them out from the phone interface of the splitter.
- Never place any objects on the equipment.
- Keep the equipment dry, ventilated and rainproof, and clean.
- Unplug the power and all connection cables in case of thunderstorms, to protect the equipment against lightning.
- Clean the equipment using a soft and dry cloth rather than liquid or atomizers. Power off the equipment before cleansing it.
- Power off the idle equipment.
- Keep the ventilation hole clean and prevent any objects from dropping into the equipment through it. Otherwise, it may cause short circuit and further cause equipment damage and fire. Do not spray liquid on the surface of the equipment.
- Do not open the case of the equipment, especially during equipment power-on.
- Before plugging/unplugging the power, make sure that the power is off, thus avoiding surge.
- Be careful when unplugging the power, because the transformer may be very hot.
- Keep the equipment and all its parts and accessories out of children's reach.



**Note:**

Please read the above safety guidance carefully before equipment use. Users should assume responsibilities for any accidents due to incompliance with the above instructions.

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## Chapter 2 Overview

The VDSL2 is an access device that allows multiple line transmission modes. At the user end, it provides the 10/100Base-T Ethernet interface and through the high-speed VDSL2 access service, it can provide the broadband Internet service or enterprise network access service for users.

### 2.1 Product Specifications

- VDSL2 standard

ANSI T1.424

ITU-T G.993.1 (VDSL)

ITU-T G.993.2 (VDSL2)

ETSI TS 101 270

China MII

- Support LAN protocol

Support IEEE802.3 and IEEE802.3u

Support MDI/MDIX auto-negotiation

Support speed auto-negotiation

Support Half duplex/Full duplex

- Environmental requirements

Environmental temperature: -10°C-45°C (14°F-113°F)

Humidity: 5% - 95%

- Power specification

Power adapter: Input: AC 180V-240V/50Hz

Output: AC 5V, 1.5A

Consumption: <4W

# Chapter 3 Installation Preparation

## 3.1 Hardware Description

### Front panel

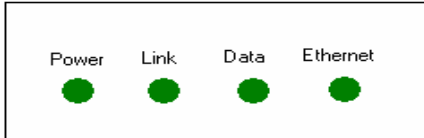


Figure 3.1-1 Front Panel of the VDSL2

Table 3.1-1 Descriptions of the LEDs on the Front Panel

Function	Color	Status	Definition
Power	Green	Off	Power off
		On	Power on
Link	Green	Slow Flash	The MODEM is in the non-communication status
		Fast Flash	The MODEM is trying to be in the activation status
		On	The WAN port is in the communication status
		Flash	There are some data packets passing the MODEM
Data	Green	Off	No signal is detected
		Flash	Data is received or sent on the Ethernet interface
Ethernet	Green	Off	The Ethernet port is in the non-communication
		On	The Ethernet port is in the communication status

## Rear panel

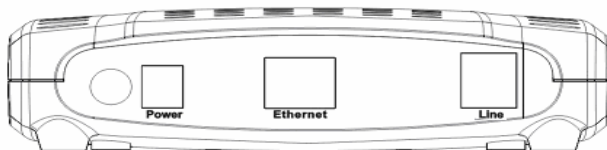


Figure 3.1-2 Rear Panel of the VDSL2

Table 3.1-2 Description of Interfaces on the Rear Panel

Interface	Function
Line	RJ-11port: Using the telephone line to connect the modem with the VDSL2 cable or splitter
Ethernet	RJ-45 port: used to connect the modem to a PC or other network device
Power	Power supply port, used to connect to the power adapter

## 3.2 Hardware Connection

### Connection 1

The following connection method is recommended.

Figure 3.2-1 shows the connection between a VDSL2, computer, splitter and telephones.

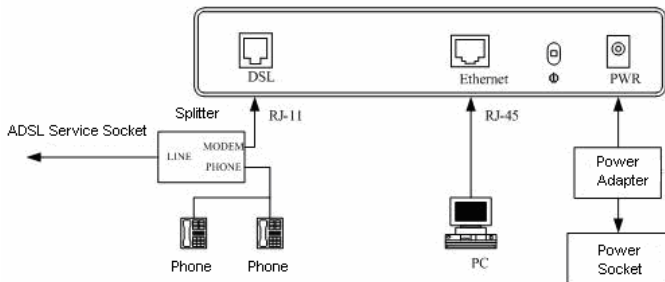


Figure 3.2-1 VDSL2 Connection Schematic Diagram (No Phone sets are Installed Before the Splitter)

## Connection 2

Figure 3.2-2 shows the connection when the splitter is installed near the VDSL2.

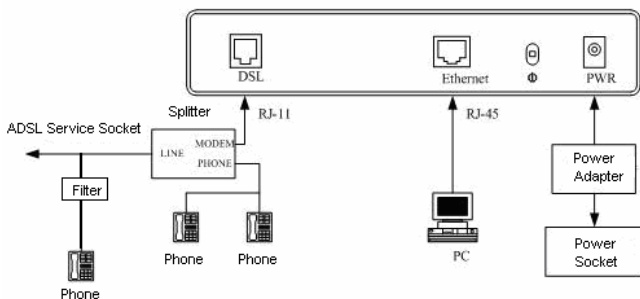


Figure 3.2-2 VDSL2 Connection Schematic Diagram (Phone sets are Installed Before the Splitter)

**Note:**

In the circumstance where the first connection example is not applicable and you choose to use the second example, you must install a MicroFilter on the telephone cable (as illustrated in Figure 3.3-2, do not use a splitter to replace the MicroFilter).

Installing a telephone directly before the splitter will lead to a failure of connection between the VDSL2 and the device at central office side, or a failure of access into the Internet, or a slow connection speed. If you really need to add a telephone set before the splitter, you have to add a MicroFilter before the telephone set. Do not connect several telephones before the splitter. Moreover, do not connect several telephones with MicroFilters.

The filter is not a standard-configuration device and you should separately purchase it from the operator.

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**Connection procedures**

- 1 Power off the equipment before all the other devices is connected.
- 2 Connect the network cables: Insert the RJ-45 Ethernet cable connector into the Ethernet interface of the VDSL2, and connect its other terminal to the Ethernet adapter of the customer computers or ports of other network devices.
- 3 Connect the splitter

The splitter has three interfaces, which are described as follows:

- **LINE:** Connect the user telephone cable (RJ11 interface).
- **MODEM (or VDSL):** Connect the DSL interface of the VDSL2.
- **PHONE (or TEL):** Connect the phone sets.

The installation process is as follows: Connect the DSL interface of the VDSL2 to the MODEM interface of the splitter using the RJ-11 telephone cable, connect the phone set lines to the PHONE interface of the splitter, and then connect the user telephone cable port to the LINE interface of the splitter.

- 5 Connect the power

Connect one terminal of the power adapter to the PWR interface of the VDSL2, and the other terminal to the socket on the wall, and then switch on the power of the VDSL2 equipment.

### **Checking all connection cables**

Check all connection cables following the below procedure.

#### 1 Check the VDSL2 cable connection

If the DSL LED is on upon power-on of the VDSL2, it indicates that the VDSL2 line is correctly connected (Generally it takes one to two minutes to perform the VDSL2 connection).

#### 2 Check the computer connection

If both the LINK LED on the computer adapter and the Ethernet LED of the VDSL2 turn green, it indicates that the computer and the VDSL2 equipment are correctly connected.

#### 3 Check the telephone cable connection

The telephone cable is correctly connected if the received telephone signals are normal and free of noise. And the telephone will not be affected no matter whether the VDSL2 is powered on or off.

## Appendix A FAQs

<b>1</b>	<b>All indicators are off after the VDSL2 equipment is powered on</b>
	<p>First make sure that you have inserted the power adapter of the VDSL2 into a working power socket and that the VDSL2 has been powered on (the switch button is pressed down). If the indicators are still off after confirmation of the above items, the hardware is damaged probably. You may contact local operators for maintenance. Never dismantle the equipment by yourself.</p>
<b>2</b>	<b>Will VDSL2 affect the telephone conversation quality? Will making phone calls cause a slow online rate?</b>
	<p>VDSL2 separates voices from data through the frequency division multiplexing technology. Therefore, voices and data run in different paths without mutual interference. Neither the access rate nor conversation quality will fall even if you are in a call and on line simultaneously.</p>
<b>3</b>	<b>How to properly install telephone extensions or other devices on the VDSL2 line?</b>
	<p>It is recommended to first connect the VDSL2 splitter to the incoming customer end of the telephone cable, and then connect the phone sets to the splitter interfaces. Installing a telephone directly before the splitter will lead to a failure of connection between the VDSL2 and the device at central office side, or a failure of access into the Internet, or a slow connection speed. Connecting some other electronic devices between the incoming customer end and splitter may affect the VDSL2 communications (since VDSL2 has a higher requirement for the line quality) and furthermore affect the normal operation of VDSL2. If the phone sets are required to be connected before the splitter, you should serially connect the filter MicroFilter before the phone sets (Generally, to minimize interference, only one filter MicroFilter can be hang before the splitter).</p>
<b>4</b>	<b>Sometimes, the VDSL2 users cannot gain access to the Internet normally</b>
	<p>First check whether the VDSL2 is in the normal state (Check the indicators with this user manual). If yes, the computer or application network may be faulty, which is unrelated with VDSL2. If the VDSL2 MODEM is abnormal, check the status of indicators one by one to remove the fault.</p> <p>You are suggested to first make sure the following items before seeking help from operators: 1. The VDSL2 telephone cable connectors are proper; 2. The VDSL2 is away from the power cable and large-power electronic devices; 3. No telephone extensions and fax machines are installed between the VDSL2 incoming line and splitter; 4. The splitter has been correctly installed; 5. The VDSL2 MODEM is of good heat dissipation.</p>

6	<p><b>What are reasons for VDSL2 synchronization failure (also referred to link down or link establishment failure)?</b></p>
	<p>If the VDSL2 suddenly fails to be synchronized (link down) during application, usually the DSL indicator of the MODEM will not be solid on. You are suggested for checkup in the following sequence:</p> <ol style="list-style-type: none"> <li>1. First check the quality of incoming cables and incoming cable connectors.</li> <li>2. Install the VDSL2 Modem correctly based on the user guide, to minimize the number of taps.</li> <li>3. Check whether the telephone cables and VDSL2 are in good contact or whether the telephone cables are normal.</li> <li>4. Try to disconnect the splitter and directly connect the VDSL2 Modem to the incoming customer cable end to ensure that the problem is not due to improper installation or incoming customer line quality. If the VDSL2 can be synchronized again, it means that installation of the incoming customer part is improper. Please reinstall it according to the user guide.</li> <li>5. If the VDSL2 still fails to be synchronized after the VDSL2 Modem has been connected to the incoming customer cable end, contact the operators to check whether it is due to external line failure or Modem failure.</li> <li>6. If the splitter problem is determined, call the operators for maintenance or replacement.</li> <li>7. The problem may be also due to the end office equipment fault of the operator. Call the operator to confirm it.</li> <li>8. Too long connection cable between the splitter and VDSL2 Modem may cause poor anti-interference performance and synchronization difficulty. Therefore, the connection cable should not be too long.</li> </ol>