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ZTE中兴

ZXHN H168N
User's Manual

ZXHN H168N
User's Manual

CE0197

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Chapter 1 Safety Guidance

1.1 Safety Check

Before installing the VDSL2 equipment, check all the below listed items:

1 Electric safety

- Ensure no inflammable, conductive or moist objects and no ageing-cables around the equipment. Place all electrical appliances safely.

2 Equipment position

- Install the equipment in a ventilated environment avoid of any electric devices nearby.
- Place the equipment on a stable and flat surface.
- The equipment must be protected from sunshine. It must be kept away from electro-magnet interference.
- The equipment must be protected from heat and water sources.

- Ensure the power supply is available. The fluctuation range of input voltage should be in the range of $\pm 10\%$. Do not share the power socket with other electrical devices.

1.2 Safety Cautions

Please pay attention to the following cautions:

- Read the user manual carefully before using the equipment.
- Note all Cautions in the user manual and product guide.
- Do not use any accessory or components that are not belonging to the equipment.
- Use the power adapter, which is provided in the package.
- Connect the phone with the VDSL2 line directly, and lead the line out from the phone interface of the splitter.

- Do not place any object on the equipment.
- The equipment must be kept dry and clean. Ensure the equipment environment has ventilation and rainproof capability.
- To protect the equipment against lightning and thunderstorm, please remove the power plug and all connection cables.
- Use a soft and dry cloth to clean the equipment. Ensure the equipment is power OFF before cleaning.
- Power OFF the idle equipment.
- Keep the ventilation-hole clean and unblocked. Otherwise, it may cause short circuit, fire or damage the equipment. Do not spray liquid on the equipment surface.
- Do not open the equipment especially in power ON state.
- Confirm the power is OFF before plugging/unplugging the power.

-
- Keep all components and accessories of the equipment away from the children.



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.

Chapter 2 Overview

The ZXHN H168N is a VDSL2 access device, which supports multiple line transmission modes. In user side, it provides four 10/100Base-T Ethernet interfaces, one USB 2.0 Host port, and the wireless user access in compliance with the IEEE802.11b/g/n standard. It can provide the transmission of broadband data service, which is suitable for using in a wide range of both residential (in-home) and commercial (offices, apartments, hotels, warehouses) network applications.

2.1 Features

The ZXHN H168N is a VDSL2 MODEM. It provides the pure bridge function and supports the following features:

- ITU-T G.993.2 VDSL2 standard and ITU-T G.992.5 DSL2+ standard.
- It supports LAN protocol.

- It supports WLAN with high-speed data transfer rates up to 300 Mbps, compatible with IEEE 802.11b/g/n, 2.4 GHz compliant equipment
- It supports IEEE802.3 and IEEE802.3u.
- It supports speed auto-negotiation.
- It supports Half duplex/Full duplex.
- It supports user-friendly GUI for web configuration.
- It supports IPsec for virtual private network (VPN).
- It supports parental control function to restrict children usage.
- It supports self-learning bridge (IEEE 802.1D Transparent Bridging).
- It supports virtual server, IP filter, and demilitarized military zone (DMZ) host.

2.2 Product Specifications

- Environmental requirements

Environmental temperature: -5°C - 45°C
(23°F - 113°F)

Humidity: 5% - 95% (non-condensing)

- Power specification

Power adapter: Input: AC 100-240V, 50/60 Hz

Output: DC 12V, 1.5A

- Certification

CE

2.3 Package Check

- ZXHN H168N ×1
- Splitter ×1
- Power Adapter ×1
- RJ-11 telephone cable ×2
- RJ-45 Ethernet cable ×1

- User's Manual (Includes Quality Warranty Card and Certificate of Quality) ×1
- CD (Optional)

Note: for your information only, please refer to the actual product.

**Note:**

Please use a power adapter that matches the ZXHN H168N package.

2.4 System Requirement

Before installing the ZXHN H168N, please check the following items.

1 VDSL Services Subscription

If you have subscribed for the VDSL service, your VDSL operator must provide at least one valid IP address for you (static allocation or dialup dynamic allocation).

2 Computer configuration

Please make sure that the system has been equipped with the 10M/100M Ethernet adapter and supports the TCP/IP protocol.

Because VDSL can be used for broadband access and involves a wide range of multimedia services, you are recommended use a computer with such configurations as: above Pentium III, 64M memory, 10G hard disk, graphic accelerating adapter with above 2M display memory, audio adapter and sound box.

3 Operating system

Operating systems can be Windows 98SE, Windows Me, Windows 2000, Windows XP, Windows Vista or Windows 7. For system configuration in the WEB interface, the browser of Internet Explorer V 6.0 or later.

Chapter 3 Installation Preparation

3.1 Hardware Description

Front panel

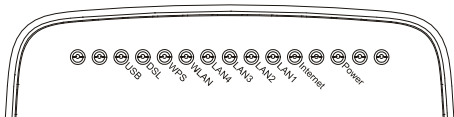


Figure 3.1-1 Front Panel of the ZXHN H168N

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

| Function | Color | Status | Definition |
|----------|-------|--------|--------------------------------------|
| USB | Green | OFF | No device connected to the USB port. |
| | | ON | A USB device is connected. |
| | | Flash | Data Transmission. |

| Function | Color | Status | Definition |
|-----------|-------|--------|--|
| DSL | Green | OFF | The MODEM is in the non-communication state. |
| | | Flash | The MODEM is in training state. |
| | | ON | The MODEM is in the communication state. |
| WPS | Green | OFF | WPS function is OFF. |
| | | Flash | WPS function is in negotiation status. |
| | | ON | WPS function is ON. |
| WLAN | Green | OFF | No detected radio signal. |
| | | Flash | WLAN port is receiving or sending data. |
| | | ON | WLAN interface is ready to work. |
| LAN4-LAN1 | Green | OFF | The Ethernet port is in the non-communication state. |
| | | ON | The Ethernet port is in the communication state. |
| | | Flash | Ethernet interface is receiving or sending data. |
| Internet | Green | OFF | No detected data. |
| | | Flash | WAN port is receiving or sending data. |

| Function | Color | Status | Definition |
|----------|-----------|--------|---|
| | | ON | WAN port is in communication status. |
| Power | Green/Red | OFF | Power OFF. |
| | | Red | Power ON, HW Testing, Firmware upgrading. |
| | | Green | Power ON, HW Test ok. |

Rear panel

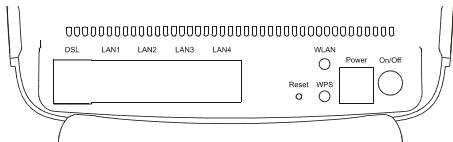


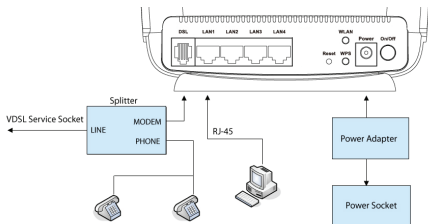
Figure 3.1-2 Rear Panel of the ZXHN H168N

Table 3.1-2 Description of Interfaces on the Rear Panel

| Interface | Function |
|-----------|---|
| DSL | RJ-11 port: Using the telephone line to connect the modem with the VDSL2 cable or splitter. |

| Interface | Function |
|-----------|---|
| LAN1-LAN4 | RJ-45 port: It is used to connect the modem to other network devices. |
| Reset | During power ON period, hold on this button for more than 5 seconds to reset the current settings to the factory default setting, and then the system restarts automatically. |
| WLAN | WLAN switch, to turn on / off the WLAN. |
| WPS | WLAN Protected Setup. |
| Power | Power supply port: It is connected to the power adapter |
| On/Off | Power switch, to power on or power off the device. |

3.2 Hardware Connection



Connection procedures

- 1 Power off the equipment before all the other devices are connected.
- 2 Connect the network cables: Insert the RJ-45 Ethernet cable connector into the Ethernet interface of the ZXHN H168N, 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 DSL):** Connect the DSL interface of the ZXHN H168N.
- **PHONE (or TEL):** Connect the phone sets.

The installation process is as follows: Connect the LINE interface of the ZXHN H168N to the MODEM(or DSL) interface of the splitter using the RJ-11 telephone cable,

connect the phone set lines to the PHONE(or TEL) interface of the splitter, and then connect the user telephone cable port to the LINE interface of the splitter.

4 Connect the power

Connect one terminal of the power adapter to the POWER interface of the ZXHN H168N, and the other terminal to the socket on the wall, and then switch on the power of the ZXHN H168N equipment.

Checking all connection cables

Check all connection cables following the below procedure.

1 Check the DSL cable connection

If the DSL LED is on upon power-on of the ZXHN H168N, it indicates that the DSL line is correctly connected (Generally it takes one to two minutes to perform the DSL connection).

2 Check the computer connection

If both the LINK LED on the computer adapter and the Ethernet LED of the ZXHN H168N turn green, it

indicates that the computer and the ZXHN H168N equipment are correctly connected.

- 3 Check the telephone cable connection

Appendix A FAQs

| No. | Problem and Troubleshooting |
|-----|--|
| 1 | All indicators are OFF when the ZXHN H168N equipment is powered ON. |
| | First make sure that you have inserted the power adapter of the ZXHN H168N into a working power socket and that the ZXHN H168N has been powered ON (the switch button is pressed down). If the indicators are still OFF after confirmation of the above items, may be the hardware is damaged. You may contact local operators for maintenance. Never dismantle the equipment by yourself. |
| 2 | Will VDSL2 affect the telephone conversation quality? Will making phone calls cause a slow online rate? |
| | 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 online simultaneously. |

| No. | Problem and Troubleshooting |
|-----|--|
| 3 | How to properly install telephone extensions or other devices on the VDSL2 line? |
| | <p>It is recommended to connect the VDSL2 splitter to the telephone cable first and then connect the phone sets to the splitter interfaces. Installing a telephone directly before the splitter will lead to connection failure between the ZXHN H168N and the device at central office side, or an Internet access failure, or a slow connection speed. Connecting other electronic devices between the user 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 MicroFilter before the phone sets (Generally, to minimize interference, only one MicroFilter can be connected before the splitter).</p> |
| 4 | Sometimes, the VDSL2 users cannot access to the Internet normally |

| No. | Problem and Troubleshooting |
|-----|--|
| | <p>First check whether the ZXHN H168N is in the normal state (Check the indicators according to this user manual). If yes, the computer or application network may be faulty. This is unrelated with VDSL2. If the VDSL2 MODEM is abnormal, check the status of indicators one by one to remove the fault.</p> <p>It is suggested to check the following items before seeking help from operators:</p> <ol style="list-style-type: none">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 connected between the VDSL2 incoming line and splitter.4. The splitter has been installed correctly.5. The VDSL2 MODEM has good heat dissipation ratio. |
| 5 | What are reasons for VDSL2 synchronization failure (also referred as link down or link establishment failure)? |

| No. | Problem and Troubleshooting |
|-----|---|
| | <p>If the VDSL2 suddenly fails to be synchronized (link down) during application, usually the Link indicator on the MODEM will not be ON. It is suggested to check the following steps one by one:</p> <ol style="list-style-type: none">1. First check the quality of incoming cables and incoming cable connectors.2. Install the VDSL2 MODEM correctly based on the user guidance. Minimize the number of taps.3. Check whether the telephone cables and VDSL2 are in good connection or whether the telephone cables are normal.4. Try to disconnect the splitter and directly connect the VDSL2 MODEM to the incoming user cable end. Ensure the problem is not due to improper installation or incoming user line quality. If the VDSL2 can be synchronized again, it means that installation of the incoming user side is improper. Please reinstall it according to the user guide.5. If the VDSL2 still fails to be synchronized when the VDSL2 MODEM is connected to the incoming user cable end, contact the operators to check whether it is due to external line failure or MODEM failure.6. If the splitter problem is determined, call the operator for maintenance or replacement. |

| No. | Problem and Troubleshooting |
|-----|---|
| | <p>7. If the problem is due to the end office equipment failure, call the operator to confirm it.</p> <p>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.</p> |

ZTE Corporation Warranty Card

Dear customer,

Thank you for choosing the ZTE communication product. To obtain our best service, please read the information in this warranty card carefully and keep this card properly. ZTE Corporation warrants that the product will be free of manufacturing defects for a period of two years from the date of purchase. Should there be a manufacturing defect in the product during the limited warranty period, ZTE Corporation shall provide free service and maintenance for the defective product.

Notice for Customers

ZTE Corporation will charge for parts, components, or services under either of the following circumstances:

- After the warranty of the parts and/or the components has expired.
- Damage caused by purchaser in transportation or shipping.
- Damage caused by disassembly, repair or modification of the product by anyone other than warrantor authorized dealers and service providers.
- Damage caused by operation outside the instructions and notices stated in the operation manual (such as damage caused by hot plug of the product).
- Damage caused by irresistible natural disasters.
- Purchaser fails to present the warrant card, or the warranty card does not conform to the product, or the records in the warranty card are incorrect.

Customer Information

| | | | |
|----------------|--|----------------|--|
| Customer Name | | Purchase Date | |
| Contact Person | | Customer Phone | |
| Address | | | |
| Dealer | | Dealer Phone | |
| Model Number | | Serial Number | |

Service and Maintenance Record

| Date | Maintenance/service Item | Signature of Maintenance Engineer | Signature of Customer |
|------|--------------------------|--------------------------------------|--------------------------|
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