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ZTE中兴

ZXHN H168NW
User Manual

ZXHN H168NW
User Manual

Document Version: 20130327-R1.2

Limited warranty

ZTE warrants that, for one year from the date of delivery by ZTE to purchaser's designated carrier, the Equipment will remain free from defects in design, material and workmanship under normal use and service and will conform in all material respects to the applicable specifications set forth in purchase order or agreement; ZTE does not warrant that operation of the Equipment will be error-free or uninterrupted.

In accordance with ZTE's standard, warranty terms, ZTE shall, at its option, repair or replace any defective or nonconforming item, provided that (a) purchaser/End User gives ZTE written notice of the defect or nonconformity within the warranty period specified above promptly after Reseller is notified by the End User of the same; and (b) End User returns the defective item at its expense to ZTE's nominated Customer Service Department in accordance with ZTE's standard parts exchange procedures.

This warranty does not apply to defects or errors in the Equipment caused by:(a) reasonable abrasion of equipments; (b)End User's failure to follow ZTE's installation, operation or maintenance instructions or procedures; (c) End User's mishandling, misuse, negligence, or improper installation, deinstallation, storage, servicing or operation of the Equipment; (d) modifications or repairs not made by ZTE or a ZTE-certified individual;(e) power failures, surges, fire, flood, accident, actions of third parties or other events outside ZTE's reasonable control. (f) usage of products of third Parties, or usage conjunction with

third parties provided that such defects is due to the conjunction;(g) any other cause beyond the range of normal usage for equipments. End User shall assure that Equipment is installed and maintained by ZTE or ZTE-certified individuals in accordance with ZTE's certification procedures; provided that if End User causes or permits services to be provided by individuals who are not ZTE-certified, the Warranty shall be void as to all Equipment serviced in breach of this sentence. End User shall have no right to reject, return, or receive a refund for any Equipment from ZTE. Any item repaired or replaced by ZTE shall continue to be warranted for the longer of the remainder of the original warranty period or 90 days from the date the repaired or replaced part is delivered to the carrier.

THIS WARRANTY (1) IS END USER'S SOLE REMEDY AND ZTE'S SOLE LIABILITY FOR DEFECTIVE OR NONCONFORMING ITEMS , AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, UNLESS OTHERWISE REQUIRED UNDER THE MANDATORY PROVISIONS OF THE CHINESE LAW, AND (2) IS BETWEEN ZTE AND END USER (AS THE ORIGINAL PURCHASER FOR END USE) AND MAY NOT BE TRANSFERRED OR ASSIGNED, BY OPERATION OF LAW OR OTHERWISE, WITHOUT ZTE'S PRIOR WRITTEN CONSENT.

Limitation of Liability

Confidentiality

End User agrees that End User will receive confidential or proprietary information ("Confidential Information") in connection with the purchase and deployment of ZTE Equipment. End User will not disclose ZTE's Confidential Information, will use it only for purposes for which it was disclosed, and must treat it with the same degree of care as it does its own similar information, but with no less than reasonable care. End User agrees that the

terms herein, the Equipment and all ZTE documentation is ZTE Confidential Information.

Contents

Chapter 1 Safety Instructions

1.1 Safety Checklist

Check the following items before installing the ZXHN H168NW VDSL2 equipment.

1. Electrical Safety
- Do not place inflammable, conductive or /wet objects around the equipment. Cables should be in good condition. All electrical appliances should be placed stably.

2. Equipment Placement
- Devices should be placed in a well-ventilated environment.
- Devices should be placed on a stable and flat surface.
- Do not expose the equipment to direct sunlight; do not place the equipment on a computer.
- Keep the equipment away from heat and water.
- Make sure power supply is available. The input voltage fluctuation range must be smaller than 10%. The power plug must not share the same socket with that of any hair drier, iron or refrigerator.

1.2 Safety Instructions

- Read the User Manual carefully before operating the equipment.
- Attention is required for all the safety cautions in this manual and the ZXHN H168NW V1.0 Maintenance Management Manual.
- Do not use any accessory that does not belong to the equipment without prior permission of the manufacturer because it may lead to equipment damage or even fire.
- Use the power adapter in the equipment package.
- Do not connect phones to the VDSL2 line directly but connect them to the splitter.
- Do not place any objects on the equipment.
- Install the equipment in a dry, well-ventilated, rainproof, and clean place.

- Unplug the power cables during thunderstorms to protect the equipment from lightning strikes.
- Clean the equipment by using a soft and dry cloth. Power off the equipment before cleaning it.
- Power off the idle equipment.
- Keep the ventilation hole clean and prevent any objects from dropping into the equipment through the hole; otherwise, a short circuit may occur, which leads to equipment failure or fire.
- Do not spray liquid on the surface of the equipment.
- Do not open the chassis by yourself, especially when the equipment is power on.
- Make sure the power is off before plugging/unplugging the switch.
- Be careful when unplugging the switch as the transformer may be very hot.
- Keep the equipment and all its parts/accessories out of children's reach.
- RF exposure information: The Maximum Permissible Exposure (MPE) level has been calculated based on a distance of d = 20 cm between the device and the human body. To fulfill the RF exposure requirement, a separation distance of 20 cm between the device and human must be maintained.

⚠ **Note:**

Please read the above safety instructions carefully before operating the equipment. Users should assume responsibilities for any accidents occurred due to misconducts against the above instructions.

Chapter 2 Overview

The ZXHN H168NW is a VDSL2 and GE access device that supports multiple line transmission modes. At the user end, it provides four 10/100/1000Base-T Ethernet interfaces, one USB 2.0 Host port, and the wireless high 400mW power. With the high-power VDSL2 and GE access functions, the ZXHN H168NW can provide the broadband Internet service or enterprise network access service for users.

2.1 Features

As a VDSL2 Modem with the routing function, the ZXHN H168NW Modem has the following features:

- Supports VDSL2 with GE uplink.
- Supports G.992.1 (G.DMT), G.992.3 (ADSL2), G.992.5 (ADSL2+).
- Supports G.993.2 (VDSL2), up to 17a profile.
- Supports 802.11b, 802.11g, 802.11n.
- Supports 802.11n Wi-Fi up to 300 Mbps.
- Supports high power Wi-Fi with 400mW EIRP.
- Supports 4 GE ports.
- Supports USB 2.0 for shared storage or 3G Dongle.
- Supports Web-based configuration and monitoring.
- Supports bridging/routing mode.
- Supports NAT.
- Supports DHCP Client/DHCP Server.
- Supports Built-in DLNA Digital Media Server (DMS).
- Supports Robust remote management - TR069
- Supports IPv4/IPv6 dual stacks

2.2 Product Specifications

- Environmental requirements
  Environment temperature: 0°C - 40°C (32°F-104°F)

Humidity: 5% - 95% (non-condensing)
- Power adapter specifications
Input: 100 – 240 V AC, 50/60 Hz
Output: 12 V DC, 2 A
- Certification
FCC, UL, Wi-Fi
- This product is designed to provide 24-hour continuous triple-play services.

2.3 Packing List
- ZXHN H168NW   ×1
- Splitter   ×1
- Power adapter   ×1
- RJ-11 telephone cable   ×2
- RJ-45 Ethernet cable   ×1
- User Manual (Including Quality Warranty Card and Certificate of Quality)   ×1
- CD (Optional)   ×1

Note: Information provided above is for reference only; actual external view of the product may vary.

⚠ Note:

The power adapter used for the ZXHN H168NW must match.

2.4 System Requirements
Please check the following items before installing the ZXHN H168NW.

1. VDSL2 Service Subscription

If you have subscribed to the VDSL2 service, your VDSL2 operator will provide you at least one valid IP address through static allocation or dialup dynamic allocation.

2. Computer Configuration

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

It is recommended to use a computer with the below configurations: Pentium III or a later version, a minimum of 64M memory, a minimum of 10G hard disk, a graphic accelerating adapter with above 2M display memory, an audio adapter, and a sound box.

3. Operating System

The operating system can be one of the following: Windows 98SE, Windows Me, Windows 2000, Windows XP, Windows Vista, Windows 7, or Windows 8.   The Internet Explorer 6.0 or a later version can be used to configure the device.

Chapter 3 Installation Preparations

3.1 Hardware Description

Front Panel

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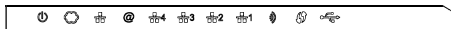
Figure 3.1-1 Front Panel of the ZXHN H168NW

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

Identification	Color	Status	Description
⏻ Power	Green /Red	Off	Power off.
		Red On	POST: Power on and self-testing
		Red Flash	Firmware upgrading.
		Green On	The power is on and the self-test is complete.
◯ DSL	Green	Off	No signal is detected.
		Slow Flash	DSL line handshaking is in progress.
		Flash	DSL line training is in progress.
		On	The Modem is activated.
品 GE WAN	Green	Off	Ethernet link is off or the link is disconnected.
		On	The Ethernet port is in communication status.

Identification	Color	Status	Description
@ Internet	Green /Red	Off	The system is in Bridge mode or the WAN (DSL/GE) has not been connected.
		Green Flash	The data packets are passing through the router interface on the WAN side.
		Green On	The system is in the Route mode and the WAN has been connected. The Modem IP data packets can be transmitted normally.
		Red On	Data packets cannot be sent or received through the route interface. (No DHCP response, no PPPoE response, PPPoE authentication failure, or no IP address from IPCP.
LAN1~ LAN4	Green	On	The LAN interface is connected but no data is transmitted.
		Flash	A data packet is passing through the LAN Interface.
		Off	The device is not powered on or the LAN interface is not connected.

Identification	Color	Status	Description
))) WLAN	Green	On	The wireless port is enabled.
		Flash	Data is being transmitted. The flashing frequency indicates the WLAN traffic speed.
		Off	The equipment is powered off or the wireless port is disabled.
WPS	Green	Off	The WPS function is off.
		Flash	The WPS function is in negotiation status.
		On	A terminal is being connected to the gateway through the WPS and the connection does not exceed 2 minutes.
USB	Green	On	A USB (such as a hard disk) is plugged in.
		Flash	Data are being transmitted.
		Off	The equipment is power off or no USB is plugged in.

Rear Panel
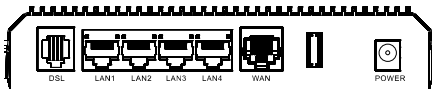
Figure 3.1-2 Rear Panel of the ZXHN H168NW

Left Panel
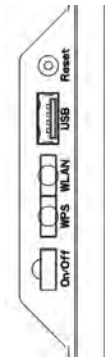
Figure 3.1-3 Left Panel of the ZXHN H168NW

Table 3.1-2 Description of Interfaces on the Rear Panel and Left Panel

Item	Specifications
DSL	RJ-11 interface: The equipment is connected to the VDSL2 by a network line or a splitter through a telephone line.
LAN1-LAN4	RJ-45 interface: It is connected to a PC or other network devices by a network cable. LED: The equipment negotiates and changes over to the gigabit mode when LED is on. The equipment negotiates to the 10/100M mode when LED is off.
WAN	RJ-45 port: It is connected to the modem or other network devices.
POWER	Power interface. It is connected to the power adapter.
Reset	At the power-on state, the system will be restored to the default configurations if the button is pressed over 5 seconds.
USB	USB port
WLAN	Wireless switch: The wireless LAN will be switched on if the button is pressed over 3 seconds.
WPS	WPS switch: The WPS will be enabled if the button is pressed over 3 seconds.
On/Off	Power switch

3.2 Hardware Connections
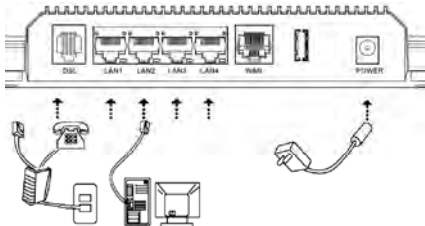
Introduction:

1. Use a RJ-11 cable to connect the line port of the splitter to the RJ-11 port (the phone jack) on the wall.
2. Use another RJ-11 cable to connect the modem (or VDSL2) port of the splitter with the line port of the gateway.
3. Use the third RJ-11 cable (when the customer requires to use telephone at the same time) to connect the telephone set with the phone (or TEL) port of the splitter.
4. Connect the Ethernet port of the device with 10/100BASE-T port of the computer by using a network cable.
5. Plug in the power cord, and turn on the power.

If you do not want the Internet service or telephone voice services to be provided at the same time, connect only the line port of the gateway with the RJ-11 port (the phone jack) on the

wall by using a telephone cord. In this case, the splitter is not
necessary.

Connection Procedures

1. Power off the equipment before connecting all the other
devices.
2. Connect the network cables: Plug the RJ-45 Ethernet cable
connector into the Ethernet interface of the ZXHN H168NW, and
connect the 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 as described below:

- LINE: Connects the user telephone cable (RJ11 interface).
- MODEM (or VDSL2): Connects the DSL interface of the
  ZXHN H168NW.
- PHONE (or TEL): Connects the phone sets.

The installation process is as follows:

  1). Connects the line interface of the ZXHN H168NW to the
  Modem (or VDSL2) interface of the splitter by using one
  RJ-11 telephone cable.

  2). Connects the phone set lines to the Phone (or TEL)
  interface of the splitter.

  3). Connects the user telephone cable port to the LINE
  interface of the splitter.

4. Connect the power supply device.
  1). Connect one terminal of the power adapter to the power
  port of the ZXHN H168NW.
  2). Connect the other terminal to the socket on the wall.
  3). Switch on the power of the ZXHN H168NW.

Cable Connection Checks

Check cable connections as described below:

1. Check the VDSL2 cable connection

If the DSL LED is on when the ZXHN H168NW is power on, it indicates that the VDSL2 line is properly connected. (Generally it takes one to two minutes to complete the VDSL2 connection).

2. Check the computer connection

When both the Link LED on the computer adapter and the Ethernet LED of the ZXHN H168NW turn green, it indicates that the computer and the ZXHN H168NW equipment are properly connected.

3. Check the telephone cable connection

The telephone cable is properly connected when the telephone signal reception is normal and free of noise. The telephone service is not affected no matter the ZXHN H168NW is powered on or off.

Appendix A FAQs

NO.	Problem and Troubleshooting
1	**All indicators are off after the ZXHN H168NW equipment is powered on.**
	First, make sure that you have plugged the power adapter of the ZXHN H168NW into a working power socket and that the ZXHN H168NW has been powered on (the switch button is pressed down). When the indicators are still off after the above procedures, it indicates it may be caused by hardware damage. In such a case, contact the local operator for help. Do not repair by yourself.
2	**Will VDSL2 affect the telephone conversation quality? Will the Internet access rate become slow if one is making a phone call and accessing the Internet at the same time?**
	VDSL2 separates voices from data through the frequency division multiplexing technology. Therefore, voices and data run in different paths out of interference. Neither one will deteriorate when you are in a call and on line at the same time.
3	**Issue description: Sometimes, the VDSL2 users cannot access the Internet.**

NO.	**Problem and Troubleshooting**
	Solution:
	First, check whether the ZXHN H168NW is at normal state (check the indicators against this User Manual). If yes, check the computer or application network, not the VDSL2. If the VDSL2 Modem has problems, then check the status of indicators one by one to debug the fault.
	It is recommended that you check the following points before you seek help from operators:
	1. The VDSL2 telephone cable connectors are in good condition.
	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 the splitter.
	4. The splitter is correctly installed.
	5. The VDSL2 Modem is not over-heated.
4	**Password verification failure.**
	Issue description: Modem synchronization and connection are normal. However, sometimes the password fails to be verified.
	Solution:
	1. The account and password are case sensitive and some accounts contain a domain name.
	2. Virtual dialup software: It is possible that sometimes the virtual dialup software is faulty, or conflicts with other software in the operation system. In such cases, it is suggested to re-install the dialup software or replace it with valid software.
	3. Network adapter drive program may be faulty.
	4. Not pay on time. Pay on time in such cases.

NO.	Problem and Troubleshooting
5	**What are the reasons for VDSL2 synchronization failure (also referred to link down or link establishment failure)?**
	When the VDSL2 suddenly fails to be synchronized (link down) during application, it might be caused by the DSL indicator of the Modem, which is not constantly On. Perform the following steps to check: 1. Check the quality of the incoming cables and the incoming cable connectors. 2. Install the VDSL2 Modem correctly by following the user guide. 3. Ensure the telephone cables are normal and are properly connected with VDSL2. 4. Disconnect the splitter and directly connect the VDSL2 Modem to the incoming customer cable end to ensure that the problem is not caused by improper installation or poor quality of the incoming customer cable. If the VDSL2 is synchronized again after that, it means that the incoming customer part is not installed properly. Re-install it according to the User Guide.

NO.	**Problem and Troubleshooting**
	5. When the VDSL2 still fails to be synchronized after the VDSL2 Modem has been connected to the incoming customer cable end, contact the operator to check whether there are external line failures/modem failures. 6. If the problem is caused by the splitter, call the operator to maintain. 7. The problem may be caused by the equipment provided by the operator. Call the operator to replace. 8. A long cable connecting the splitter and the VDSL2 Modem may cause poor anti-interference performance and poor synchronization. Therefore, try to keep the cable short.
6	**Why authenticated user names and passwords cannot be re-authenticated?**

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NO.	Problem and Troubleshooting
	This problem may be caused by the following reasons: 1. The account has expired or it is a default account. In such cases, pay the charge. 2. In case a subscriber changes his or her residence. As the account and the path PVC might be bundled by operators, the previous account and password cannot be authenticated again. 3. The subscriber has logged in by one of his or her accounts and can not be re-authenticated because the operator recognizes the uniqueness of this account. 4. The problem may be caused by deregistration failure on the Broadband Access Server (BAS) when one is off line abnormally. The BAS or the billing system still keeps the account logged in. Therefore, the re-login fails. In such cases, re-login after logging out. In case the problem still exists, contact the operator for help.

This device complies with part 15 of the 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.

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

This equipment complies with FCC radiation exposure limits set forth for uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: 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 residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or 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:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

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

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

Customer Information

1.   This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On bottom of this equipment is a label that contains, among other information, a product identifier of US: ZTEDL01BHNH168NW. If requested, this number must be provided to the telephone company.

2.   If this equipment VDSL CPE causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

3.   The telephone company may make changes in this facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modification to maintain uninterrupted service.

4.   If you experience trouble with this equipment, you disconnect it from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

5.   Please follow instructions for repairing if any (e.g. battery replacement section); otherwise do not alternate or repair any parts of device except specified.

6.   Connection to party line service is subject to state tariffs. Contact the state public utility commission public service commission or corporation commission for information.

7.   If the telephone company requests information on what equipment is connected to their lines, inform them of:

a)   The telephone number that this unit is connected to,
b)   The ringer equivalence number [0.1B]
c)   The USOC jack required [RJ11C], and
d)   The FCC Registration Number US: ZTEDL01BHNH168NW

Items (b) and (d) are indicated on the label. The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

<div align="center">Service Requirements</div>

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. Service can be facilitated through our office at:

Acadia Solutions, Inc.130 E. Wilson Bridge Road Suite 320 Worthington, OH 43085. Phone：614-505-613

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 one year 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

ZTE Corporation