



HUAWEI HG523 Home Gateway

User Guide



HUAWEI HG523 Home Gateway
V100R001

User Guide

Issue 01
Date 2010-09-13
Part Number 202134

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1 Warnings and Precautions

To use the device properly and safely, read these warnings and precautions carefully and strictly observe them during operation. Unless otherwise specified, the term "device" refers to the device and its accessories.

Basic Requirements

- During storage, transportation, and operation of the device, keep it dry and prevent it from colliding with other objects.
- Do not dismantle the device. In case of any fault, contact an authorized service center for assistance or repair.
- Without authorization, no organization or individual can change the mechanical, safety, or performance design of the device.
- When using the device, observe all applicable laws and regulations and respect the legal rights of other people.

Environmental Requirements for Using the Device

- Before connecting and disconnecting cables, stop using the device, and then disconnect it from the power supply. Ensure that your hands are dry during operation.
- Keep the device far from sources of heat and fire, such as a heater or a candle.
- Keep the device far from electronic appliances that generate strong magnetic or electric fields, such as a microwave oven or a refrigerator.
- Place the device on a stable surface.
- Place the device in a cool and well-ventilated indoor area. Do not expose the device to direct sunlight.
- Use the device in an area with a temperature ranging from 0°C to 40°C.
- Do not block the openings on the device with any object. Reserve a minimum space of 10 cm around the device for heat dissipation.
- Do not place any object (such as a candle or a water container) on the device. If any foreign object or liquid enters the device, stop using the device immediately, power it off, remove all the cables connected to it, and then contact an authorized service center.

- During thunderstorms, power off the device, and then remove all the cables connected to it to prevent it from getting damaged due to lightning strikes.

Precautions for Using Wireless Devices

- When using the device, ensure that the antenna of the device is at least 20 cm away from all persons.
- Do not use the device where using wireless devices is prohibited or may cause interference or danger.
- The radio waves generated by the device may interfere with the operation of electronic medical devices. If you are using any electrical medical device, contact its manufacturer for the restrictions on the use of the device.
- Do not take the device into operating rooms, intensive care units (ICUs), or coronary care units (CCUs).

Areas with Inflammables and Explosives

- Do not use the device where inflammables or explosives are stored, for example, in a gas station, oil depot, or chemical plant. Otherwise, explosions or fires may occur. In addition, follow the instructions indicated in text or symbols.
- Do not store or transport the device in the same box as inflammable liquids, gases, or explosives.

Accessory Requirements

- Use only the accessories supplied or authorized by the device manufacturer. Otherwise, the performance of the device may get affected, the warranty for the device or the laws and regulations related to telecommunications terminals may become null and void, or an injury may occur.
- Do not use the power adapter if its cable is damaged. Otherwise, electric shocks or fires may occur.
- Ensure that the power adapter meets the specifications indicated on the device nameplate.
- Ensure that the power adapter meets the requirements of Clause 2.5 in IEC60950-1/EN60950-1 and it is tested and approved according to national or local standards.

Safety of Children

Keep the device and its accessories out of the reach of children. Otherwise, they may damage the device and its accessories by mistake, or they may swallow the small components of the device, causing suffocation or other dangerous situations.

Maintenance

- If the device is not used for a long time, power it off, and then remove all the cables connected to it.
- If any exception occurs, for example, if the device emits any smoke or unusual sound or smell, stop using the device immediately, power it off, remove all the cables connected to it, and then contact an authorized service center.
- Do not trample, pull, or overbend any cable. Otherwise, the cable may get damaged, causing malfunction of the device.
- Before cleaning the device, stop using it, power it off, and then remove all the cables connected to it.
- Use a clean, soft, and dry cloth to clean the device shell. Do not use any cleaning agent or spray to clean the device shell.

Environmental Protection

- Do not dispose of the device and the accessories in a garbage can.
- Dispose of the device according to the local regulations on disposing of packing materials, exhausted batteries and abandoned devices, and support the recycling activity.

Disposal and Recycling Information



■ This symbol on the device (and any included batteries) indicates that the device (and any included batteries) should not be disposed of as normal household garbage. Do not dispose of your device or batteries as unsorted municipal waste. The device (and any batteries) should be handed over to a certified collection point for recycling or proper disposal at the end of its life.

For more detailed information about the recycling of the device or batteries, contact your local city office, the household waste disposal service, or the retail store where you purchased this device.

The disposal of this device is subject to the Waste from Electrical and Electronic Equipment (WEEE) Directive of the European Union. The purpose for separating WEEE and batteries from other waste is to minimize any environmental impact and health hazard due to the presence of hazardous substances.

Reduction of Hazardous Substances

This device is compliant with the EU Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (Regulation No 1907/2006/EC of the European Parliament and of the Council) and the EU Restriction of Hazardous Substances (RoHS) Directive (Directive 2002/95/EC of the European Parliament and of the Council). For more information about the REACH compliance of the device, visit the Web site www.huaweidevice.com/certification. You are recommended to visit the Web site regularly for up-to-date information.

EU Regulatory Conformance

This device should be installed and operated with a minimum distance of 20 cm between the antenna and all persons.

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For the declaration of conformity, visit the Web site
www.huaweidevice.com/certification.

CE 0678 

Notice: Observe the national local regulations in the location where the device is to be used. This device may be restricted for use in some or all member states of the European Union (EU).

Notice: This device may be operated in all member states of the EU.

France: Outdoor use limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz.

Italy: For private use, a general authorisation is required if WAS/RLAN's are used outside own premises. For public use, a general authorisation is required.

Luxembourg: General authorisation required for network and service supply.

Norway: This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund.

Federal Communications Commission (FCC) Statement

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.

This device complies with part 68 of the FCC Rules.

This device should be installed and operated with a minimum distance of 20 cm between the antenna and all persons.

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.

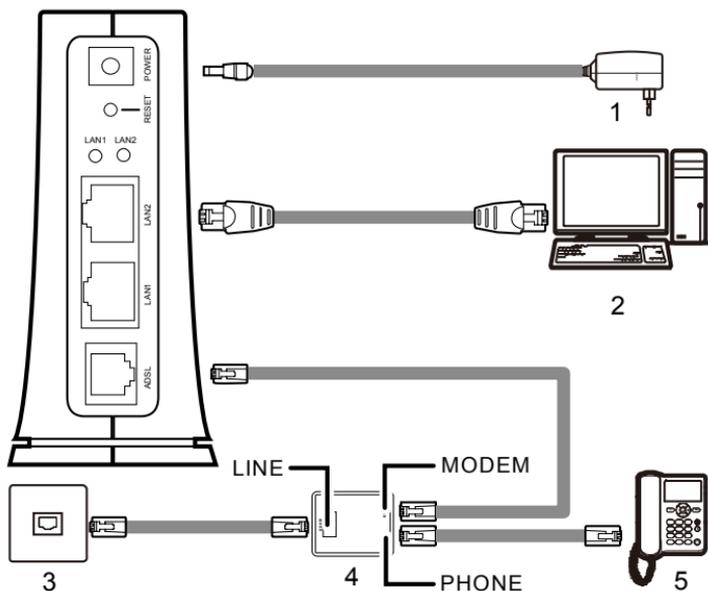
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications made to this device not expressly approved by Huawei Technologies Co., Ltd. may void the FCC authorization to operate this device.

2 Connecting the Cables and Getting Started

2.1 Connecting the Cables

The following figure shows how to connect the cables of the HG523.



1. Power adapter 2. Computer 3. Telephone jack on the wall



If the wireless network function is used on the HG523 for the network access, you do not need to connect the cables.

2.2 Getting Started

To power on the HG523, press the power button on the top of the HG523.

After you power on the HG523, the ADSL indicator blinks (for less than three minutes), which indicates that the HG523 is being activated. Later, the ADSL indicator turns solid on. The POWER indicator is also solid on, which indicates that the HG523 is working properly.

3 Setting the Network-Access Parameters

By configuring the HG523 and your computer, you can choose any of the following methods to surf the Internet:

- Accessing the Network Through the Embedded PPP Dial-Up Software on the HG523
- Accessing the Network Through the PPP Dial-Up Software on Your Computer

3.1 Accessing the Network Through the Embedded PPP Dial-Up Software on the HG523

If you select this method for accessing the network, the HG523 starts to set up a dial-up connection automatically after the startup. You can access the network after you power on your computer. You do not need to install any special dial-up software on your computer or perform dial-up operations on your computer. To configure the HG523 and your computer for the network access, do as follows:

Step 1 Log in to the Web-based configuration utility of the HG523.

1. Launch the Internet Explorer on your computer. Enter **http://192.168.1.1** in the address bar, and then press **Enter**.
2. In the displayed dialog box, enter the user name and the password, and then click **OK**.

By default, both the user name and the password are **admin**. After the user name and the password are verified, you can access the Web-based configuration utility.

Step 2 Enable the embedded dial-up function.

1. In the navigation tree on the left of the Web-based configuration utility, choose **Basic > WAN**.
2. Click **New**.
3. Select **Enable** check box for **WAN connection**.
4. Enter the VPI and VCI that are provided by the network operator in the **VPI/VCI** text boxes.
5. Select **INTERNET** from the **Service list** drop-down combo box.

6. Select **Route** from the **Connection mode** drop-down combo box.
7. Select **PPPoE** option button for **Connection type**.
8. Select **Enable** check box for **NAT**.
9. Enter the user name and password that are provided by the network operator in the **User name** and **Password** text boxes, and keep the default settings of other parameters.
10. Click **Submit** to save the settings.

After you complete the preceding settings, you can surf the Internet.

You need to perform the preceding operations on a computer once only. The next time when you power on your computer, you can surf the Internet without any configuration.

3.2 Accessing the Network Through the PPP Dial-Up Software on Your Computer

If you select this method for accessing the network, you need to install and configure the dial-up software on your computer. In addition, you need to perform dial-up operations on your computer upon each startup. To configure the HG523 and your computer for the network access, do as follows:

Step 1 Set the working mode of the HG523 to **Bridge**.

For details, refer to the procedure for enabling the embedded dial-up function described in Step 2 in section 3.1 "Accessing the Network Through the Embedded PPP Dial-Up Software on the HG523." Note that **Bridge** is selected from the **Mode** drop-down combo box.

Step 2 Install and configure the PPP dial-up software on your computer.

The PPP dial-up software is pre-installed on certain computer operating systems. To create a dial-up connection, do as follows (taking the Windows XP operating system as an example):

1. Choose **Start > All Programs > Accessories > Communications > Network Connections**.
2. Click **Create a new connection** in **Network Tasks** to display the **New Connection Wizard** window, and then click **Next**.
3. Select **Connect to the Internet**, and then click **Next**.
4. Select **Set up my connection manually**, and then click **Next**.
5. Select **Connect using a broadband connection that requires a user name and password**, and then click **Next**.
6. Enter the name (as desired) of the dial-up connection in **ISP Name**, and then click **Next**.
7. Select **Anyone's use** or **My use only**, and then click **Next**.
8. Enter the user name and password provided by the network operator and used for the dial-up connection, and then click **Next**.

9. Select **Add a shortcut to this connection to my desktop**, and then click **Finish**.

An icon for the dial-up connection is displayed on the desktop of your computer.

You need to perform the preceding operations only once for creating a network connection. After the network connection is created, to access the network, double-click the icon for the dial-up connection, and then click **Connect** in the displayed dialog box.

4 Configuring the Wireless Network Connection

If a wireless network adapter is installed on your computer, you can connect you computer to the HG523 through a wireless connection.



The hardware installation methods and driver installation methods of wireless network adapters provided by different companies vary from each other. For details, see the installation guide provided by the wireless network adapter provider.

After the installation of a wireless network adapter, you need to configure the wireless network connection on your computer. You can configure the wireless network connection through the software provided with the wireless network adapter. If the Windows XP operating system is used, you can also configure the wireless network connection through the wireless configuration software provided by Windows XP.

To configure the wireless network connection, do as follows (taking the Windows XP operating system as an example):

Step 1 Log in to the Web-based configuration utility.

1. Launch the Internet Explorer on your computer. Enter **http://192.168.1.1** in the address bar, and then press **Enter**.
2. In the displayed dialog box, enter the user name and the password, and then click **OK**.

By default, both the user name and the password are **admin**.

Step 2 Set the wireless network name and access password of the HG523.

To set the wireless network name and the access password, do as follows (taking the authentication type WPA-PSK as an example):

1. In the navigation tree on the left of the Web-based configuration utility, choose **Basic > LAN > WLAN**.
2. Select the **Enable WLAN** check box.
3. Select the **SSID1** from the **SSID index** drop-down combo box.

4. Enter a wireless network name in the **SSID** text box.
5. Select the **Enable** option box of **SSID**.
6. Select **WPA-PSK** from the **Security** drop-down combo box.
7. Enter an access password in the **WPA pre-shared key** text box.
8. Select **AES** from the **WPA encryption** drop-down combo box.
9. Click **Submit** to save the settings.

Step 3 Enable the wireless configuration service provided by Windows XP.

1. Right-click **My Computer**, and then choose **Manage** from the shortcut menu.
2. In the **Computer Management** window, choose **Computer Management (Local) > Services and Applications > Services**.
3. From the services listed in the right pane of the **Computer Management** window, right-click **Wireless Zero Configuration**, and then choose **Properties** from the shortcut menu.
4. In the **Wireless Zero Configuration Properties (Local Computer)** dialog box, check whether **Service status** is **Started**. If not, click the **Start** button.
5. Click **OK** to close the dialog box. Then, close the **Computer Management** window.

Step 4 Configure the wireless network connection on your computer.

1. Choose **Start > All Programs > Accessories > Communications > Network Connections**.
2. In the **Network Connections** window, right-click **Wireless Network Connection** to display a shortcut menu, and then choose **Properties** from the shortcut menu.
3. In the **Wireless Network Connection Properties** dialog box, select **Wireless Networks**.
4. Select **Use Windows to configure my wireless network settings**.
5. Click **View Wireless Networks**.
6. Select the wireless network that is configured in Step 2, and then click **Connect** in the lower right corner of the window.
7. In the displayed dialog box, enter the access password that is preset in Step 2, and then click **Connect**.

After the password is verified, **Connected** appears on the icon of the wireless network in the wireless network list, which indicates that the computer is connected to the HG523 through a wireless connection.

8. Close the **Wireless Network Connection** dialog box.
9. In the **Wireless Network Connection Properties** dialog box, click **OK**.

5 Configuring the HG523

5.1 Changing the Administrator Password Used for Logging In to the Web-Based Configuration Utility

For safety reasons or to make the password easy to remember, you can change the administrator password for login after logging in to the Web-based configuration utility.

To change the password, do as follows:

- Step 1** Log in to the Web-based configuration utility.
- Step 2** Choose **Maintenance** > **Account** in the navigation tree to display the system management page.
- Step 3** Select the **admin** from the **User name** drop-down combo box.
- Step 4** Enter the Current password in the **Current Password** text box. Enter the new password in the **New Password** text box. Then enter the new password again in the **Confirm password** text box for confirmation.
- Step 5** Click **Submit** to save the settings.

After you change the password successfully, the current page jumps to the page for logging in to the Web-based configuration utility. To log in to the Web-based configuration utility, enter the new password, and then click **OK**.



If you forget the user name or password that has been changed, you can restore the default settings of the HG523 by pressing and holding the RESET button for over six seconds. Then, the user name and password that are used for logging in to the Web-based configuration utility are restored to default values. After you restore the default settings, however, your customized data is lost. Therefore, use this function with caution.

5.2 Enabling or Disabling the Wireless Network Function

The WLAN indicator shows whether the wireless network function is enabled. you can enable or disable the wireless network function through the Web-based configuration utility, do as follows:

- Step 1** Log in to the Web-based configuration utility.
- Step 2** In the navigation tree on the left, choose **Basic** > **LAN** > **WLAN**.

Step 3 Select the **Enable WLAN** combo box or not.

Step 4 Click **Submit** to save the settings.

5.3 Changing the Wireless Network Name and the Access Password

To change the name and access password for the wireless network, do as follows (taking the authentication type WPA-PSK as an example):

Step 1 Log in to the Web-based configuration utility.

Step 2 In the navigation tree on the left, choose **Basic > LAN > WLAN**.

Step 3 Enter a wireless network name in the **SSID** text box.

Step 4 Select **WPA-PSK** from the **Security** drop-down combo box.

Step 5 Enter an access password in the **WPA Pre-Shared Key** text box.

Step 6 Select **AES** from the **WPA encryption** drop-down combo box.

Step 7 Click **Submit** to save the settings.

5.4 Changing the IP Address Used for Logging In to the Web-Based Configuration Utility

To make the login IP address easy to remember, you can change the IP address after logging in to the Web-based configuration utility.

To change the IP address, do as follows:

Step 1 Choose **Basic > LAN > DHCP** in the navigation tree to display the LAN settings page.

Step 2 Enter a new IP address as desired in the **IP Address** text box. Then, enter a subnet mask in **Subnet Mask**.

Step 3 Click **Submit** to save the settings.



To log in to the Web-based configuration utility after you change the IP address successfully, you need to launch the Internet Explorer, and then enter the new IP address in the address bar. Ensure that the IP address of the computer is in the same network segment as that of the HG523 so that the computer can access the Web-based configuration utility.

5.5 Restoring Default Settings

You can quickly restore the default settings of the HG523 by pressing the RESET button on the rear panel. To restore the default settings, press and hold the RESET

button for over six seconds after the HG523 is powered on, and then release the button. In addition, you can restore the default settings of the HG523 through the Web-based configuration utility. To restore the default settings through the Web-based configuration utility, do as follows:

Step 1 Log in to the Web-based configuration utility, and then choose **Maintenance** > **Device** in the navigation tree to display the reboot page.

Step 2 Select **Reset**.

Step 3 Click **Restore Default Settings**.

After the preceding operations, the page jumps to the login page. You can log in to the Web-based configuration utility by entering the default user name and password that are **admin**.

6 FAQs

How can I quickly restore the default settings of the terminal?

To restore the default settings, press and hold the RESET button on the rear panel for over six seconds after the HG523 is powered on, and then release the button.

What can I do if I cannot access the Internet through the terminal?

Step 1 Check whether the POWER indicator on the terminal is solid on.

If the POWER indicator is off, perform further checks as follows:

1. Ensure that the terminal is turned on.
2. Ensure that electricity comes from the socket and that the power input from the socket meets the requirements described on the label of the terminal power adapter. If the voltage is unsteady, for example, if the voltage is too high or too low, do not use the terminal. Wait until the voltage restores to its normal level, and then use the terminal.
3. Ensure that the terminal is properly connected to the socket through the power adapter.

If the POWER indicator is still off, contact an authorized maintenance center.

Step 2 After powering on the terminal, wait for about three minutes. Then, check whether the ADSL indicator on the terminal is solid on.

If the ADSL indicator blinks for a long time, perform further checks as follows:

1. Ensure that telephone lines are properly connected. Pay special attention to the connections between the telephone lines and the splitter.

2. Ensure that the terminal or telephone lines are far from the electric appliances that generate strong magnetic or electric fields. Replace telephone lines when necessary.

If the ADSL indicator still blinks and does not turn solid on, contact your network operator.

Step 3 Check whether the LAN indicator of the terminal is on.

If the LAN indicator is off, perform further checks as follows:

1. Ensure that the network adapter of the computer is enabled.
2. Ensure that the network cable between the terminal and the computer is properly connected. Remove and then insert the network cable or replace the network cable when necessary.

If the LAN indicator is still off, contact an authorized maintenance center.

Step 4 Check whether the driver for the network adapter is properly installed. Take a computer that runs Windows XP as an example. To check whether the driver for the network adapter is installed, do as follows:

1. On the desktop, right-click **My Computer**, and then choose **Manage**.
2. In the navigation tree of the **Computer Management** window, choose **Device Manager**.
3. In the right pane of the **Computer Management** window, click **Network adapters** to view the information about the network adapter of the computer.

If no network adapter is found or if a question mark (?) or an exclamation mark (!) is displayed next to the icon of the network adapter, you can infer that the driver for the network adapter is not properly installed. In this case, re-install the driver for the network adapter of the computer.

Step 5 Ensure that you have entered the correct user name and user password that are required by the PPP dial-up software.

The user name and the user password are provided by your network operator.

Step 6 Check whether you can use the PPP dial-up software to dial successfully.

If you cannot use the PPP dial-up software to dial successfully, perform further checks as follows:

1. Stop the PPP dial-up software and then power off the terminal. After five minutes, power on the terminal, and then use the PPP dial-up software to dial again.
2. Restore the default settings of the terminal.

If the problem persists, contact your network operator.

Step 7 Check whether the proxy server of the Web browser is correctly configured. Take the Internet Explorer installed on a computer that runs

Windows XP as an example. To check whether the proxy server of the Web browser is correctly configured, do as follows:

1. Launch the Internet Explorer.
2. Choose **Tools > Internet Options**.
3. In the **Internet Options** dialog box, click the **Connections** tab.
4. In the **Local Area Network (LAN) settings** group box, click **LAN Settings**.
5. In the **Proxy server** group box of the **Local Area Network (LAN) Settings** dialog box, ensure that the **Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections)**, check box is cleared.

Step 8 Try to access multiple Web sites to check whether the terminal can access these Web sites.

If the terminal still cannot access Web sites, contact your network service provider.

What can I do if Web pages often cannot be displayed during Web page browsing and can be displayed after the terminal is restarted?

Step 1 Ensure that the terminal and other devices, such as telephones or fax machines, are connected to telephone lines through a splitter.

For details about how to install a splitter, see the related description in the manual.

Step 2 Ensure that telephone lines are properly connected.

If the telephone lines are improperly connected, the stability of the network connection is affected.

Step 3 Check the positions of your terminal and your computer. Ensure that they are far from electric appliances, such as microwave ovens, refrigerators, or cordless telephones, that generate strong magnetic or electric fields.

If the problem persists, contact your service provider.

What can I do if sometimes the terminal cannot access the Internet through a WLAN connection or if the WLAN connection is unsteady?

Step 1 Check the positions of your terminal and your computer. Ensure that they are far from the electric appliances, such as microwave ovens, refrigerators, or cordless telephones, that generate strong magnetic or electric fields.

Step 2 Place your terminal in an open area.

Although radio signals can pass through obstacles, the transmission effects of WLAN radio signals are affected if radio signals pass through too many obstacles, such as cement or wooden walls.

Step 3 Place your computer close to your terminal.

If your computer is far from your terminal, the effects of the WLAN are affected.

Step 4 Place your terminal and computer in another direction.

Step 5 Do not use your terminal to access the WLAN during thunderstorms.

After a broadband terminal is installed, does Internet access degrade call quality or do telephone calls lower the Internet access rate?

No. The terminal uses the frequency division multiplexing (FDM) and splitter technologies to separate voice signals from data signals. Although the two types of signals are transmitted through one telephone line, they are carried by different frequency bands. Therefore, they do not interfere with each other. In this case, you can make a telephone call and access the Internet simultaneously, without degrading call quality or lowering the Internet access rate.

7 Appendix

7.1 Indicators

Indicator	Status	Description
POWER	Solid on	The HG523 is powered on.
	Off	The HG523 is powered off.
ADSL	Blinking	The HG523 is being activated.
	Solid on	The HG523 is activated.
	Off	The HG523 is powered off.
INTERNET	Blinking	<ul style="list-style-type: none">• The HG523 works in routing mode.• The WAN connection is set up.• Data is being transmitted.
	Solid on	<ul style="list-style-type: none">• The HG523 works in routing mode.• The WAN connection is set up.• No data is being transmitted.
	Off	<ul style="list-style-type: none">• The HG523 works in bridge mode or in routing mode.• No WAN connection is set up.

Indicator	Status	Description
LAN	Blinking	Data is being transmitted through the Ethernet interface.
	Solid on	The Ethernet connection is set up.
	Off	The Ethernet connection is not set up.
WLAN	Blinking	<ul style="list-style-type: none"> The wireless network function is enabled. Data is being transmitted through the WLAN.
	Solid on	<ul style="list-style-type: none"> The wireless network function is enabled. No data is being transmitted through the WLAN.
	Off	The wireless network function is disabled.

7.2 Interfaces and Buttons

Interface or Button	Description
POWER	It is used to connect the power adapter.
LAN	It is used to connect to the Ethernet interface on the computer.
RESET	<p>You can press and hold the RESET button for over six seconds to restore the default settings of the HG523.</p> <p>Note: After you restore the default settings, your customized data is lost. Therefore, use this function with caution.</p>
ADSL	It is used to connect to the MODEM interface on the splitter.
	It is the power switch and is used to power on or power off the HG523.

7.3 Default Settings

Parameter	Setting
IP address of the LAN interface	192.168.1.1
Subnet mask of the LAN interface	255.255.255.0
User name used for logging in to the Web-based configuration utility	admin

Parameter	Setting
Password used for logging in to the Web-based configuration utility	admin
DHCP server function	Enable
Wireless network function	Enable

7.4 Technical Specifications

Item		Specification
Entire-device power supply		12 V DC, 0.5 A
Entire-device power consumption		< 6 W
Ambient temperature for operation		0°C to 40°C (32°F to 104°F)
Relative humidity for operation		5% to 95%, non-condensing
Dimensions (L × W × H)		118.4mm × 40.4mm × 90.3mm
Weight		About 117 g
Standards	ADSL standards	<ul style="list-style-type: none"> • ITU G.992.1 (G.dmt) Annex A • ITU G.994.1 (G.hs) • ANSI T1.413 Issue 2
	ADSL2 standard	ITU G.992.3 (G.dmt.bis) Annex A
	ADSL2+ standard	ITU G.992.5 Annex A
	WLAN standard	802.11b , 802.11g and 802.11n (2.4GHz)
DSL transmission rates	G.dmt T1.413	<ul style="list-style-type: none"> • Maximum downlink rate: 8 Mbit/s • Maximum uplink rate: 896 kbit/s
	G.992.5 (ADSL2+)	<ul style="list-style-type: none"> • Maximum downlink rate: 24 Mbit/s • Maximum uplink rate: 1024 kbit/s

Item		Specification
Wireless transmission rates	802.11b	1 Mbit/s, 2 Mbit/s, 5.5 Mbit/s, and 11 Mbit/s
	802.11g	6 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, and 54 Mbit/s
	802.11n (with a 1T1R antenna used)	6 Mbit/s, 6.5 Mbit/s, 13.0 Mbit/s, 13.5 Mbit/s, 19.5 Mbit/s, 26.0 Mbit/s, 27.0 Mbit/s, 39.0 Mbit/s, 40.5 Mbit/s, 52.0 Mbit/s, 54.0 Mbit/s, 58.5 Mbit/s, 65.0 Mbit/s, 81.0 Mbit/s, 121.5 Mbit/s, and 135.0 Mbit/s

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