



HUAWEI HG523a Home Gateway

## **User Guide**



HUAWEI HG523a Home Gateway  
V100R001

## User Guide

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### Huawei Technologies Co., Ltd.

**Address:**            Huawei Industrial Base  
                          Bantian, Longgang  
                          Shenzhen 518129  
                          People's Republic of China

**Website:**            <http://www.huawei.com>

**Email:**                [terminal@huawei.com](mailto:terminal@huawei.com)

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# Contents

<b>1 Warnings and Precautions .....</b>	<b>1</b>
<b>2 Connecting the Cables and Getting Started.....</b>	<b>4</b>
2.1 Connecting One Telephone .....	4
2.2 Getting Started .....	5
<b>3 Setting the Network-Access Parameters .....</b>	<b>5</b>
3.1 Accessing the Network through the Embedded PPP Dial-Up Software on the HG523a .....	5
3.2 Accessing the Network through the PPP Dial-Up Software on Your Computer .....	6
<b>4 Configuring the Wireless Network Connection.....</b>	<b>7</b>
4.1 Setting Up a Wireless Connection Through the WPS Button .....	7
4.2 Setting Up a Wireless Connection Manually.....	8
<b>5 Configuring the HG523a .....</b>	<b>10</b>
5.1 Changing the Administrator Password Used for Logging In to the Web-Based Configuration Utility .....	10
5.2 Enabling or Disabling the Wireless Network Function .....	10
5.3 Changing the Wireless Network Name and the Access Password .....	11
5.4 Changing the IP Address Used for Logging In to the Web-Based Configuration Utility .....	11
5.5 Restoring Default Settings.....	12

<b>6 FAQs</b> .....	<b>12</b>
<b>7 Appendix</b> .....	<b>15</b>
7.1 Indicators.....	15
7.2 Interfaces and Buttons.....	17
7.3 Default Settings.....	17
7.4 Technical Specifications.....	17

# 1 Warnings and Precautions

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Thank you for purchasing the HG523a Home Gateway (hereinafter referred to as the HG523a).

To use the device properly and safely, read these warnings and precautions carefully and strictly observe them during operation.



Unless specified, the device described in this section includes 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**

- The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm 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.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

## **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**

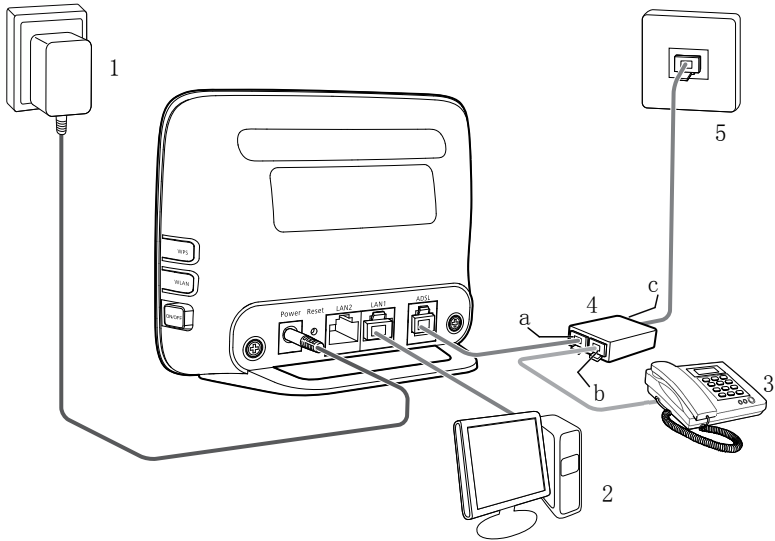
- If the device is not used for a long time, power it off, and then remove all the cables connected to it.
- If any exception occurs, for example, if the device emits any smoke or unusual sound or smell, stop using the device immediately, power it off, remove all the cables connected to it, and then 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.



# 2 Connecting the Cables and Getting Started

## 2.1 Connecting One Telephone

If your telephone line is used for both the broadband network access and a telephone connection, take the following figure as a reference for connecting the cables.



- 1. Power adapter
- 2. Computer
- 3. Telephone
- 4. Splitter
- 5. Telephone jack on the wall
- a. Modem interface
- b. Phone interface
- c. Line interface



If the wireless network function is used on the HG523a for the network access, you do not need to connect the network cable.

## 2.2 Getting Started

To power on the HG523a, press the **ON/OFF** button on the side of the HG523a.

After you power on the HG523a, the **ADSL** indicator blinks (for less than three minutes), which indicates that the HG523a is being activated. Later, the **ADSL** indicator turns solid on. The **Power** indicator is also solid on, which indicates that the HG523a is working properly.

## 3 Setting the Network-Access Parameters

By configuring the HG523a 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 HG523a
- 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 HG523a

If you select this method for accessing the network, the HG523a 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 HG523a and your computer for the network access, do as follows:

**Step 1** Log in to the Web-based configuration utility of the HG523a.

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 **Login**.

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 **Advanced > 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**.
6. Select **PPPoE** option button for **Connection type**.
7. Select **Enable** check box for **NAT**.
8. 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.
9. 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 HG523a and your computer for the network access, do as follows:

**Step 1** Set the working mode of the HG523a 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 HG523a." Note that **Bridge** is selected from the **Connection type** 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

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The HG523a provides the WLAN function on a Local Area Network (LAN). If a wireless network adapter is installed on your computer, you can connect your computer to the HG523a 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.

To set up a wireless connection, use either of the following methods:

- Setting Up a Wireless Connection Through the WPS Button
- Setting Up a Wireless Connection Manually

### 4.1 Setting Up a Wireless Connection Through the WPS Button

The HG523a supports the Wi-Fi Protected Setup (WPS) function. If your network adapter also supports the WPS function, you can use the WPS function to set up a wireless connection between your PC and the HG523a quickly.

To configure the wireless network connection, do as follows:

- Step 1** Check whether the WLAN indicator of the HG523a is on. If the WLAN indicator is off, Press the **WLAN** button on the side panel of the HG523a to enable the WLAN function.
- Step 2** Press the WPS button on the side panel of the HG523a to enable the HG523a to enter the WPS negotiation state.

**Step 3** Enable the WPS negotiation function of the wireless network adapter on your PC within two minutes, and then wait for a moment (typically 10s and at most 120s).

The WPS indicator of the HG523a becomes on from the blinking state, indicating that the HG523a is connected to your PC through the WLAN. This state lasts 300s. Then the WPS indicator turns off.



The WPS applications may vary with different types of wireless network adapters. For details about the configuration and operations of the WPS application, refer to the operation guide provided by the application provider.

## 4.2 Setting Up a Wireless Connection Manually

If your network adapter does not support the WPS function, you can set up a wireless connection between your PC and the HG523a manually. To manually set up a wireless connection, use two of the following methods:

- Use the tool provided by your network adapter. For details, see the user guide of your network adapter.
- Use the wireless configuration software provided by the operating system of your PC. If your PC runs on Windows XP, you can use the wireless configuration software that is provided by Windows XP to set up a wireless connection between your PC and the router.

This section takes Windows XP as an example and describes how to set up a wireless connection between your PC and the HG523a manually, do as follows:

**Step 1** Set the wireless network name and access password of the HG523a.

To set the wireless network name and the access password, do as follows (taking the authentication type WPA-PSK/WPA2-PSK as an example):

1. Log in to the Web-based configuration utility.
2. In the navigation tree on the left of the Web-based configuration utility, choose **Advanced** > **Basic** > **WLAN** > **WLAN**.
3. Select the **Enable WLAN** check box.
4. Select the **SSID1** from the **SSID index** drop-down combo box.
5. Enter a wireless network name in the **SSID** text box.
6. Select **WPA-PSK/WPA2-PSK** from the **Security** drop-down combo box.
7. Enter an access password in the **WPA pre-shared key** text box.
8. Select **TKIP+AES** from the **WPA encryption** drop-down combo box.
9. Click **Submit** to save the settings.

**Step 2** 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 3** 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 HG523a 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 HG523a

## 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 **Advanced > 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 HG523a 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

You can quickly enable or disable the wireless network function by pressing the WLAN button on the HG523a. To enable the wireless network function, press and hold the WLAN button for over one second, and then release the button. You can disable the wireless network function in the same way. The WLAN indicator shows whether the wireless network function is enabled.

In addition, 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 **Advanced > Basic > WLAN > WLAN**.
- Step 3** Select the **Enable WLAN** combo box or not.

## 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/WPA2-PSK as an example):

- Step 1** Log in to the Web-based configuration utility.
- Step 2** In the navigation tree on the left, choose **Advanced > Basic > WLAN > WLAN**.
- Step 3** Enter a wireless network name in the **SSID** text box.
- Step 4** Enter an access password in the **WPA Pre-Shared Key** text box.
- Step 5** 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 **Advanced > Basic > LAN > DHCP** in the navigation tree to display the **LAN Host 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** text box.
- 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 HG523a so that the computer can access the Web-based configuration utility.

## 5.5 Restoring Default Settings



After you restore the default settings, your customized data is lost. Therefore, use this function with caution.

You can quickly restore the default settings of the HG523a 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 HG523a is powered on, and then release the button. In addition, you can restore the default settings of the HG523a 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 **Advanced > Maintenance > Device > Reset** in the navigation tree to display the reboot page.

**Step 2** 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 HG523a 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 HG523a is powered on.
	Off	The HG523a is powered off.

Indicator	Status	Description
ADSL	Blinking	The HG523a is being activated.
	Solid on	The HG523a is activated.
	Off	The HG523a is powered off.
Internet	Blinking	Data is being transmitted.
	Solid on	<ul style="list-style-type: none"> <li>• The HG523a works in routing mode.</li> <li>• No Data is being transmitted.</li> <li>• The WAN connection is set up.</li> </ul>
	Off	<ul style="list-style-type: none"> <li>• The HG523a works in bridge mode or in routing mode.</li> <li>• No WAN connection is set up.</li> </ul>
WLAN	Blinking	<ul style="list-style-type: none"> <li>• The wireless network function is enabled.</li> <li>• Data is being transmitted through the WLAN.</li> </ul>
	Solid on	<ul style="list-style-type: none"> <li>• The wireless network function is enabled.</li> <li>• No data is being transmitted through the WLAN.</li> </ul>
	Off	The wireless network function is disabled.
WPS	Blinking	<ul style="list-style-type: none"> <li>• The HG523a is attempting to set up a wireless connection with a wireless client through the WPS function.</li> <li>• This state lasts no more than 120s.</li> </ul>
	On	<ul style="list-style-type: none"> <li>• A wireless connection is set up between the HG523a and a wireless client through the WPS function.</li> <li>• This state lasts 300s.</li> </ul>
	Off	The WPS function is disabled.
LAN1,LAN2	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.

## 7.2 Interfaces and Buttons

Interface or Button	Description
Power	It is used to connect the power adapter.
LAN1, LAN2	It is used to connect to the Ethernet interface on the computer.
ADSL	It is used to connect to the MODEM interface on the splitter.
ON/OFF	It is the power switch and is used to power on or power off the HG523a.
RESET	You can press and hold the RESET button for over six seconds to restore the default settings of the HG523a. Note: After you restore the default settings, your customized data is lost. Therefore, use this function with caution.
WLAN	You can press the WLAN button to enable the WLAN function.
WPS	You can press the WLAN button (less than two seconds) to enable the WPS function.

## 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
Password used for logging in to the Web-based configuration utility	admin
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)

Item		Specification
Relative humidity for operation		5% to 95%, non-condensing
Dimensions (L × W × H)		134 mm × 100 mm × 31 mm
Weight		< 250 g
Standards	ADSL standards	<ul style="list-style-type: none"> <li>• ITU G.992.1 (G.dmt) Annex A</li> <li>• ITU G.994.1 (G.hs)</li> <li>• ANSI T1.413 Issue 2</li> </ul>
	ADSL2 standard	<ul style="list-style-type: none"> <li>• ITU G.992.3 (G.dmt.bis) Annex A</li> <li>• ITU G.992.3 (G.dmt.bis) Annex L</li> </ul>
	ADSL2+ standard	ITU G.992.5 Annex A
	WLAN standard	802.11b , 802.11g , 802.11n and Mixed working mode
DSL transmission rates	G.dmt T1.413	<ul style="list-style-type: none"> <li>• Maximum downlink rate: 8 Mbit/s</li> <li>• Maximum uplink rate: 896 kbit/s</li> </ul>
	G.992.5 (ADSL2+)	<ul style="list-style-type: none"> <li>• Maximum downlink rate: 24 Mbit/s</li> <li>• Maximum uplink rate: 1024 kbit/s</li> </ul>
Wireless transmission rates	802.11b	1 Mbit/s, 2 Mbit/s, 5.5 Mbit/s, and 11 Mbit/s
	802.11g	6 Mbit/s, 9 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, and 54 Mbit/s
	802.11n	6.5 Mbit/s, 13 Mbit/s, 13.5 Mbit/s, 19.5 Mbit/s, 26 Mbit/s, 27 Mbit/s, 39 Mbit/s, 40.5 Mbit/s, 52 Mbit/s, 54 Mbit/s, 58.5 Mbit/s, 65 Mbit/s, 81 Mbit/s, 108 Mbit/s, 121.5 Mbit/s, 135 Mbit/s

**HUAWEI TECHNOLOGIES CO., LTD.**

Huawei Industrial Base

Bantian, Longgang

Shenzhen 518129

People's Republic of China

[www.huawei.com](http://www.huawei.com)