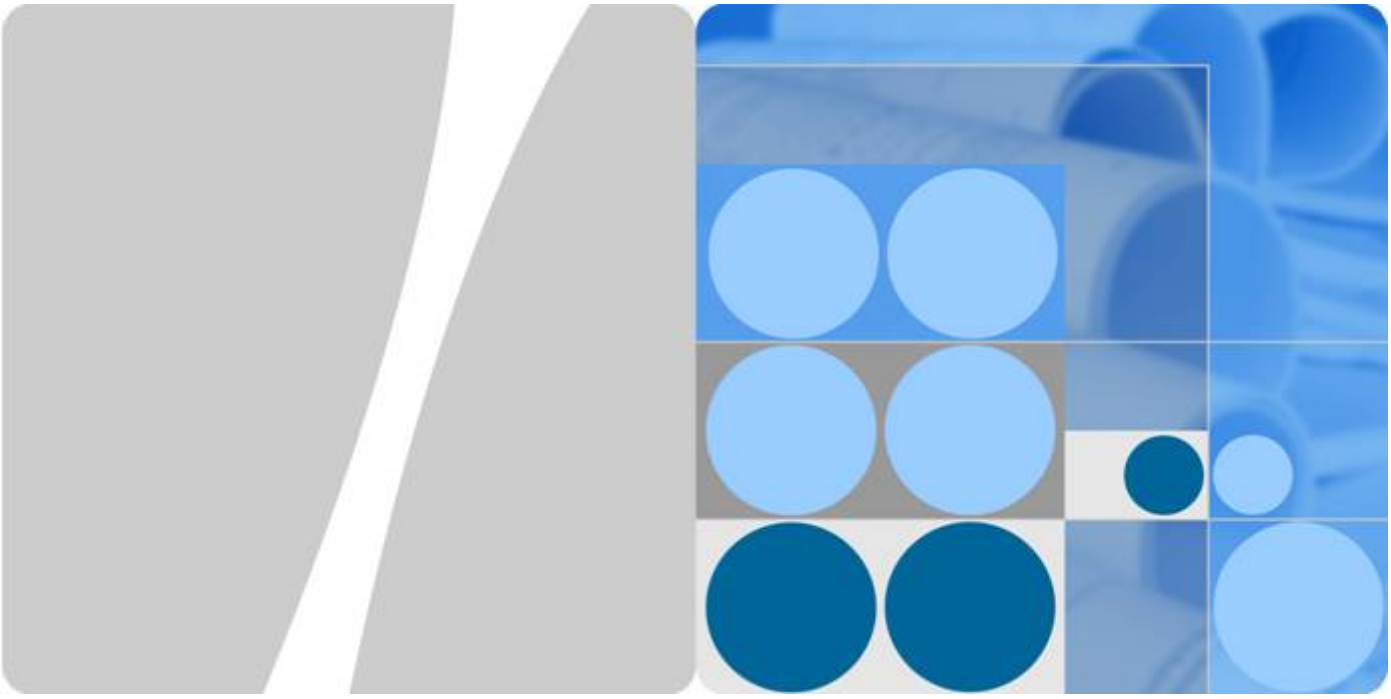


Huawei AR100-S&AR110-S&AR120-S&AR150-S&AR160-S&AR200-S&AR1200-S&AR2200-S&AR3200-S Series Enterprise Routers

V200R009

Product Description

Issue 05

Date 2018-11-30

HUAWEI TECHNOLOGIES CO., LTD.

About This Document

Intended Audience

This document helps you understand the characteristics and features of the AR.

This document is intended for:

- Network planning engineers
- Hardware installation engineers
- Commissioning engineer
- Data configuration engineers
- On-site maintenance engineers
- Network monitoring engineers
- System maintenance engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.

Symbol	Description
NOTE	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Security Conventions

- Password setting
  - When configuring a password, the cipher text is recommended. To ensure device security, change the password periodically.
  - When you configure a password in plain text that starts and ends with %@%@, @%@%, %#%#, or %^%# (the password can be decrypted by the device), the password is displayed in the same manner as the configured one in the configuration file. Do not use this setting.
  - When you configure a password in cipher text, different features cannot use the same cipher-text password. For example, the cipher-text password set for the AAA feature cannot be used for other features.
- Encryption algorithm

  Currently, the device uses the following encryption algorithms: 3DES, AES, RSA, SHA1, SHA2, and MD5. 3DES, RSA and AES are reversible, while SHA1, SHA2, and MD5 are irreversible. The encryption algorithms DES/3DES/RSA (RSA-1024 or lower)/MD5 (in digital signature scenarios and password encryption)/SHA1 (in digital signature scenarios) have a low security, which may bring security risks. If protocols allowed, using more secure encryption algorithms, such as AES/RSA (RSA-2048 or higher)/SHA2/HMAC-SHA2, is recommended. The encryption algorithm depends on actual networking. The irreversible encryption algorithm must be used for the administrator password, SHA2 is recommended.
- Personal data

  Some personal data may be obtained or used during operation or fault location of your purchased products, services, features, so you have an obligation to make privacy policies and take measures according to the applicable law of the country to protect personal data.
- The terms mirrored port, port mirroring, traffic mirroring, and mirroring in this manual are mentioned only to describe the product's function of communication error or failure detection, and do not involve collection or processing of any personal information or communication data of users.

Mappings Between Product Software Versions and NMS Versions

The mappings between product software versions and NMS versions are as follows.

AR100-S&AR110-S&AR120-S&AR150-S&AR160-S&AR200-S&AR1200-S&AR2200-S&AR3200-S Product Software Version	eSight	iManager U2000
V200R009C00	V300R008C00	V200R017C60

Change History

Changes between document issues are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Changes in Issue 05 (2018-11-30)

This version has the following updates:

The following information is deleted:

- Feature List

Changes in Issue 04 (2018-07-06)

This version has the following updates:

The following informations are added:

- **4.2.2 AR111EC-S**
- **4.7.2 AR1220C-S**
- **4.8.3 AR2204-27GE-S**

Changes in Issue 03 (2018-01-05)

This version has the following updates:

The following information is modified:

- Feature List

Changes in Issue 02 (2017-10-13)

This version has the following updates:

The following information is modified:

- Feature List

Changes in Issue 01 (2017-08-04)

Initial commercial release.

Contents

1 Product Positioning and Characteristics

About This Chapter

1.1 Product Positioning

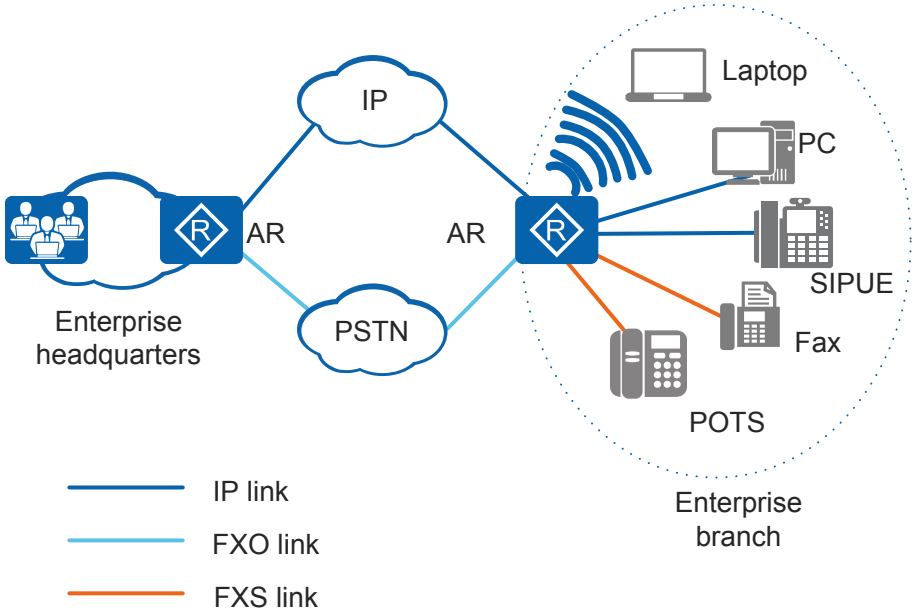
NOTICE

AR Series Enterprise Routers are class A products. Customers should take preventative measures as the operating devices may cause radio interference.

AR series enterprise routers (ARs) include AR100-S&AR110-S&AR120-S&AR150-S&AR160-S&AR200-S&AR1200-S&AR2200-S&AR3200-S. They are the next-generation routing and gateway devices, which provide the routing, switching, wireless, voice, and security functions.

As shown in **Figure 1-1**, the ARs are located between an enterprise network and a public network, functioning as the only ingress and egress for data transmitted between the two networks. The deployment of various network services over the ARs reduces operation & maintenance (O&M) costs as well as those associated with establishing an enterprise network. You can select ARs of different specifications as egress gateways based on the user quantity of an enterprise.

Figure 1-1 ARs on the network



1.2 Product Characteristics

The ARs use leading hardware platforms and software architectures. The ARs provide integrated network solutions to enterprise customers with minimum investment costs; therefore, they can meet the many facets of future business expansion and IT industry developments.

1.2.1 Carrier-Class Reliability

- The device provides hot swappable interface cards, standby SRU, power module, fan module, and optical module, ensuring carrier-class reliability.
- The ARs are designed to provide quality service and comply with telecommunication standards.
- The ARs protect networks against attacks.
- The ARs support in-service patching so that the system software can be upgraded during system operation.
- The AR2240-S and AR3260-S support redundant power supply units. If one power supply unit is faulty, the AR2240-S and AR3260-S will still be able to operate.
- The AR3260-S provides dual SRUs in redundancy mode. When a fault occurs on the control, forwarding, or switching plane, services can be smoothly switched to the standby SRU.

1.2.2 Service Integration Capability

The AR series routers integrate various services of routers, switches, and wireless devices, including voice, firewall, WLAN, 3G/LTE, and VPN.

1.2.3 Hardware Extensibility

The ARs provide the highest port density in the industry and flexible slot combination, allowing enterprise customers to connect to LAN, WAN, or wireless networks. The ARs provide the most economical enterprise network solutions.

The ARs support flexible slot combination. For example, two SIC slots can be combined into a wide SIC (WSIC) slot, two SIC slots and one WSIC slot below can be combined into one XSIC slot by removing guide rails, and two multiple-function slots (MFSs) can be combined into an SRU slots by removing the guide rail between them.

NOTE

- AR120-S&AR150-S&AR160-S&AR200-S series and AR2201-48FE-S do not support subcards.
- The WSIC card can be installed in the WSIC or XSIC slot.

1.2.4 Remote Maintenance Capability

In addition to one-stop deployment, plug and play capability, and remote commissioning functions, the ARs manage the customer premises equipment (CPE) remotely. The remote maintenance function improves efficiency and greatly reduces maintenance costs.

2 Network Applications

About This Chapter

2.1 WAN Access

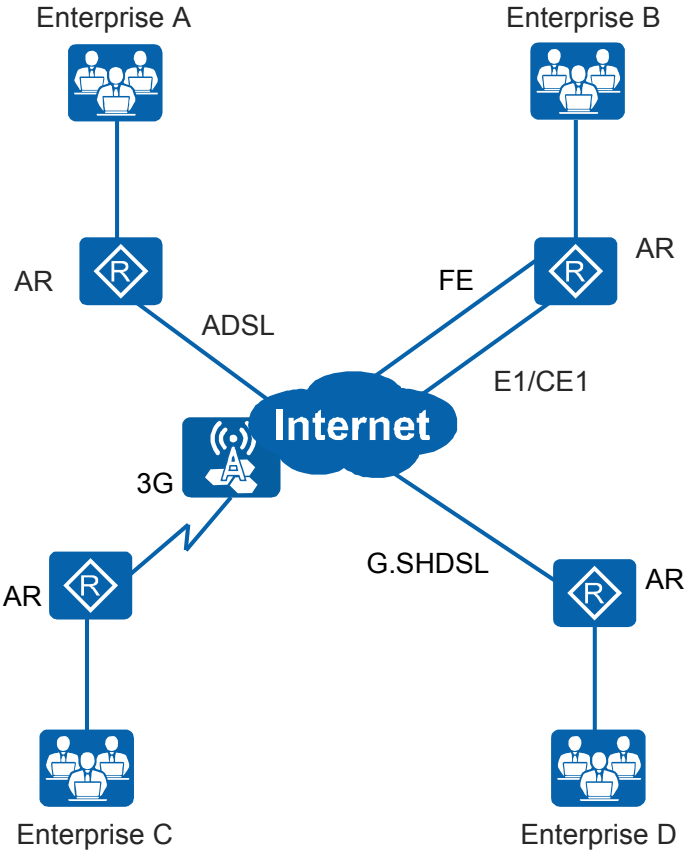
Depending on the network environment provided by carriers, users can access the network by using interfaces including FE/GE/10GE interfaces, synchronous/asynchronous serial interface, Async interface, CE1/CT1 PRI interfaces, E1-F interfaces, T1-F interfaces, 3G/LTE cellular interfaces, Integrated Services Digital Network BRI interfaces, PoS interfaces, CPoS interfaces, ADSL interfaces, VDSL interfaces, G.SHDSL interfaces, E1-IMA interfaces, CE3 interfaces, E&M interfaces, and xPON interfaces. The AR provides dual uplinks to implement interface backup and ensure service reliability.

NOTE

WAN interfaces depend on the device model and the boards installed.

As shown in **Figure 2-1**, enterprise A accesses the Internet using ADSL; enterprise B accesses the Internet using FE and E1/CE1 dual-uplink (E1/CE1 link functions as the backup link of the FE link); enterprise C accesses the Internet using G.SHDSL; enterprise D accesses the Internet using 3G. This setting achieves WAN interconnection.

Figure 2-1 WAN access

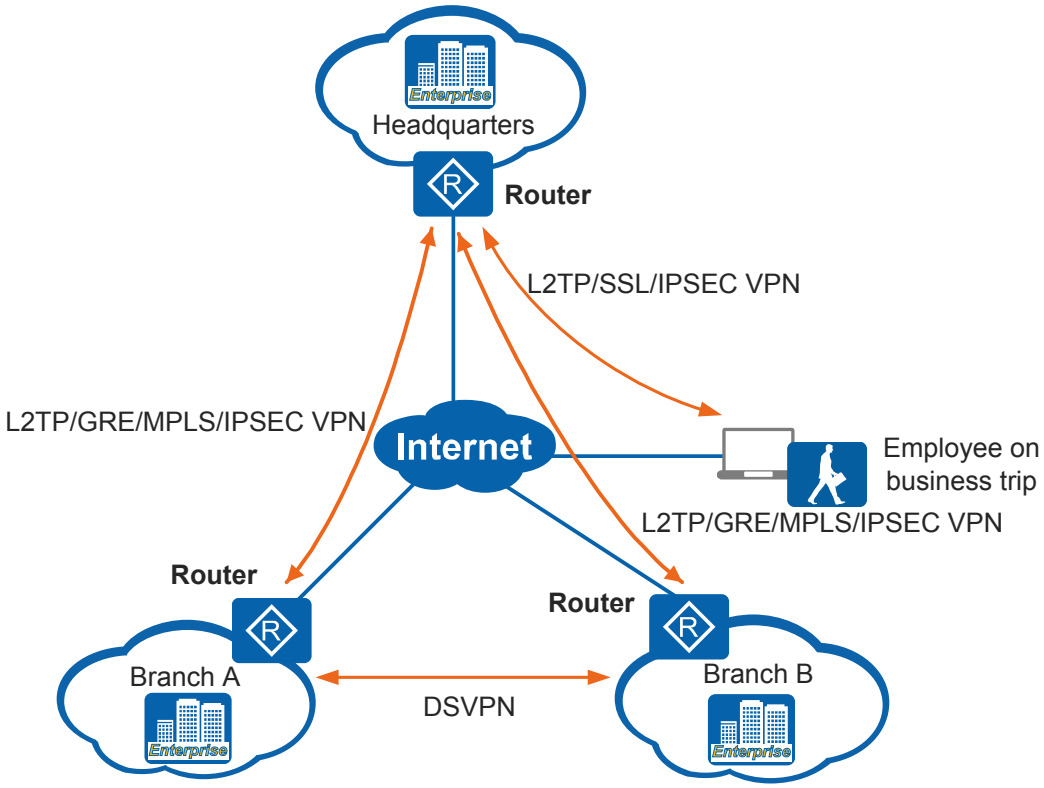


2.2 VPN Access

The headquarters and branches use the Router to connect to the Internet, establish a VPN, and use VPN tunnels to secure data.

As shown in **Figure 2-2**, the headquarters is connected to the Internet through the AR2200-S&AR3200-S. LANs of branches connect to the Internet through the AR150-S&160-S&200-S&1200-S. The headquarters and branches use L2TP/GRE/MPLS/IPSec VPN tunnels, and the headquarters and traveling employees use L2TP/SSL/IPSec VPN tunnels to secure data. After branches and headquarters establish VPN tunnels, branches can communicate with each other through the headquarters. You can also deploy DSVPN to dynamically establish tunnels between branches. This method improves forwarding performance and efficiency, and reduces resource usage of the headquarters.

Figure 2-2 VPN access



2.3 Application of Enterprise Intranet Security

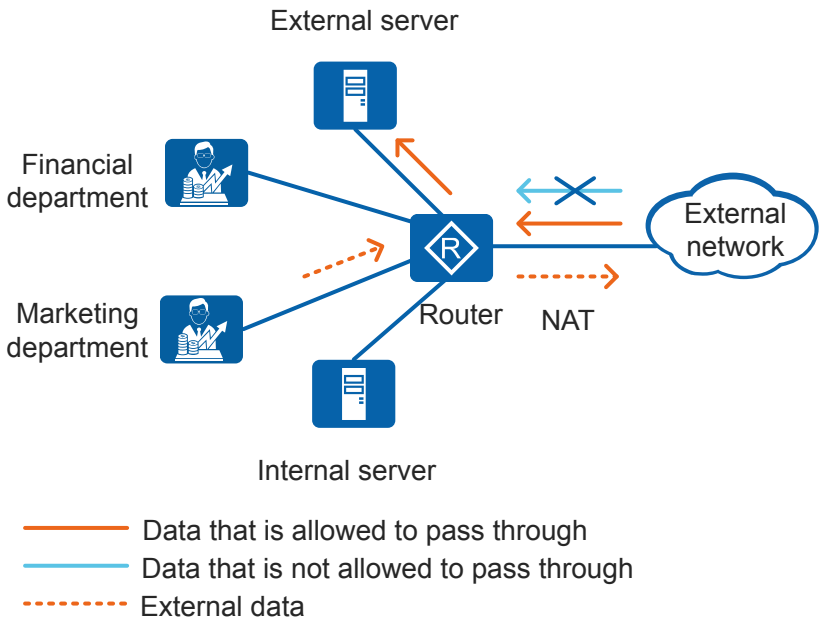
The router located between the enterprise intranet and external networks, ensures information security on the entire intranet and intranet LANs.

As shown in **Figure 2-3**, the enterprise intranet is connected to the external network through the Router. The router can prevent external users from accessing the enterprise intranet. For example, external users can access the enterprise external server but cannot access the enterprise internal server. The financial department and marketing department have individual LANs on the intranet. To allow the users on the intranet to access the external network, configure network address translation (NAT) on the intranet.

The router ensures information security on the enterprise intranet in the following modes:

- Enabling packet filtering or stateful firewall on the Router to isolate the enterprise intranet from external networks. This prevents unauthorized external users from accessing the intranet.
- The router provides network access control (NAC) to restrict the access permissions of internal users. This ensures that only authorized users can access the intranet.
- IPS defends against attacks, provides secure environments for enterprise networks, and accurately manages network resources.

Figure 2-3 Application of enterprise intranet security



2.4 Voice Application

An enterprise can build a voice communication system over the IP network, reducing operating expenses (OPEX).

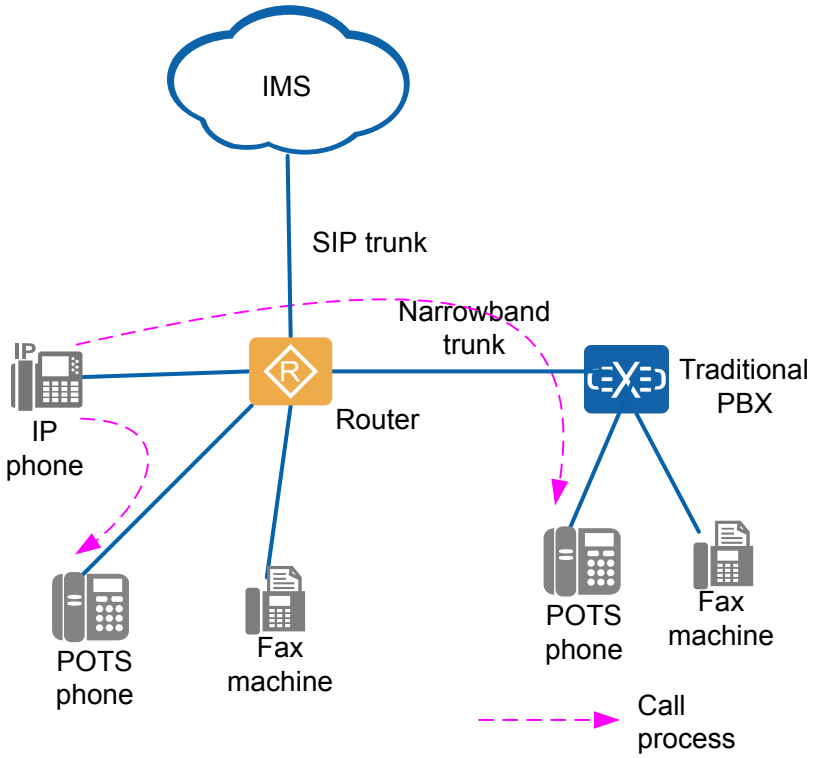
The AR can function as the private branch exchange (PBX) or access gateway (AG) to meet different service requirements.

AR Used as the PBX

A PBX can connect to the Public Switched Telephone Network (PSTN). A traditional PBX is a voice program control switch of an enterprise and provides exchange between phones inside an enterprise or between an enterprise and the PSTN. It implements unified management of incoming and outgoing calls, and integrates functions of phones, fax machines, and modems. As communication technologies develop, the traditional PBX lacks of support for integration with computer telecommunication and VoIP technologies, and openness and standardization. In addition, the communication cost is high. IP PBXs are used to prevent the preceding problems. They integrate voice communication into enterprise data networks so that an integrated voice and data network is established to connect offices and employees around the world.

The AR can function as an IP PBX or a traditional PBX. It can also function as the integrated voice platform to provide specialized voice services.

Figure 2-4 AR used as the PBX



The AR is the core switching gateway that integrates functions such as number management, service control, and media conversion. It provides open interfaces to connect to traditional PBXs and access gateways to allow flexible networking.

The device supports the following trunks:

- SIP (SIP IP, SIP PRA, SIP AT0)
- PRA
- QSIG
- R2
- AT0
- BRA
- H.323

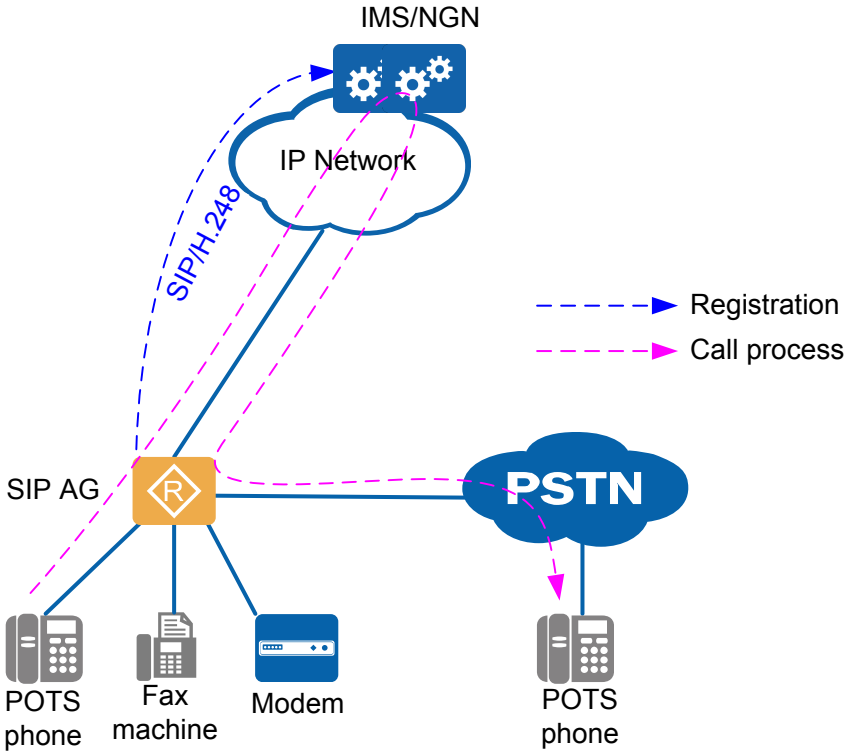
AR Used as the AG

An AG connects the PSTN to the IP multimedia system (IMS). It can implement conversion between analog and digital signals.

The traditional PSTN uses line switching technology and exclusive lines, and faces problems such as low resource use efficiency and high costs of inter-area communication. As VoIP develops, the IP bearer network solves the preceding problems. The traditional PSTN has been developing for many years and there are many existing devices on the traditional PSTN. Replacing the traditional PSTN with the IP network requires a high cost. Using IP-based AGs can implement integration of the traditional PSTN and data network and smooth evolution of network reconstruction.

The AR can function as the AG and use SIP to connect to the IMS or NGN through the IP bearer network or use H.248 to connect to the MGC. The AGs in the preceding two scenarios are called SIP AG and H.248 AG, respectively.

Figure 2-5 AR used as the AG

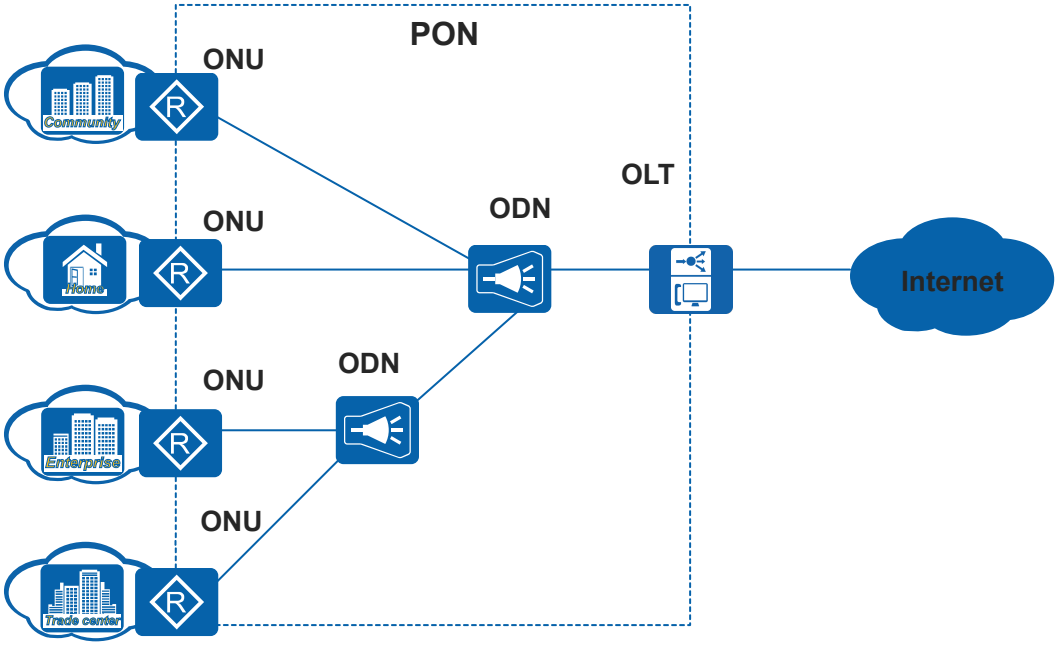


2.5 FTTx

By working with the optical line terminal (OLT), the ARs function as optical network unit (ONU) to provide fiber access to the enterprise. As shown in **Figure 2-6**, the ARs are connected to upstream devices through a passive optical network (PON), and provide fiber-to-the-home, fiber-to-the-building, and fiber-to-the-enterprise services.

The ARs provide the fiber-to-the-x (FTTx) service by connecting to upstream PON devices. This provides higher bandwidth than twisted-pair cable and guarantees the development of future high-speed services.

Figure 2-6 FTTx

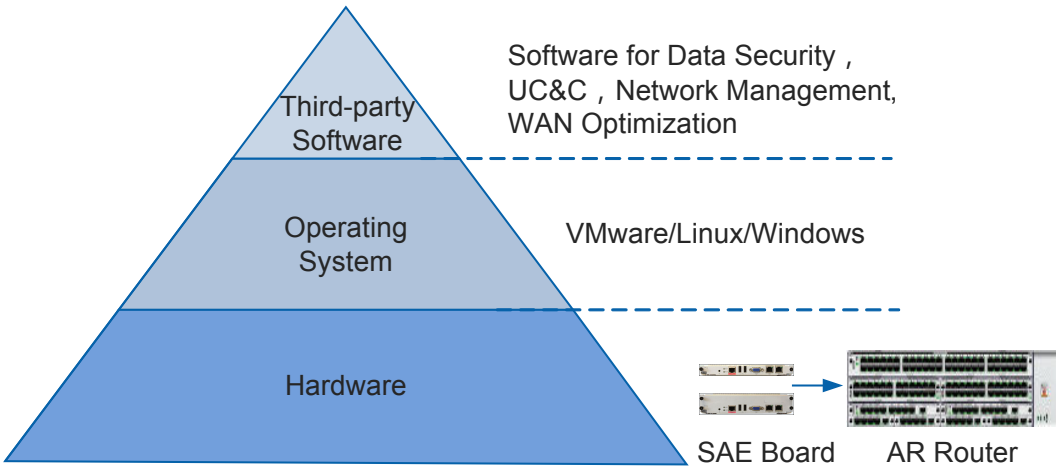


2.6 OSP Application

The AR router provides the open service platform (OSP) and unified hardware and software interfaces, which makes it easy for users to develop services. The OSP allows different vendors' software to be integrated. Customized services can be directly installed on the AR OSP, which saves fees for purchasing servers. In addition, service are uniformly managed by the OSP.

As shown in **Figure 2-7**, the OSP is installed on the SAE board. Similar to an x86 server, the SAE board has independent CPU, hard disk, and memory, and provides external USB interface, Ethernet interfaces, console interfaces, and VGA interfaces. After the SAE board is installed, the router provides power for the board, manages the board, and implements data communication. After installing Linux or Windows on the SAE board, you can develop or install third-party software applications.

Figure 2-7 OSP architecture



NOTE

SAE boards have two modules: SAE220 (WSIC) and SAE550 (XSIC). Different devices can be equipped with SAE boards of different quantities and models.

Table 2-1 Support for SAE boards

Model	SAE220	SAE550
AR120-S&AR150-S&160-S&200-S series	0	0
AR1200-S series	1	0
AR2201-48FE-S	0	0
AR2204-S	2	0
AR2220-S	4	2
AR2240-S	4	4
AR3260-S	4	6

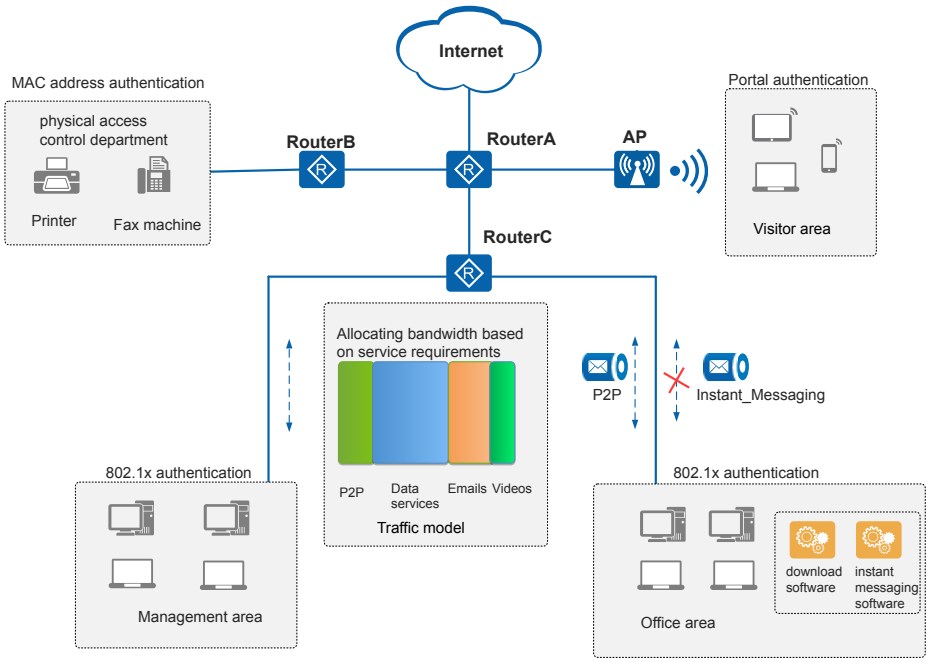
2.7 Online Behavior Management

With the emergence of new applications and behavior on networks, enterprise network administrators need to standardize online behavior of users in complex network environment. AR supports online behavior management, including various access authentication and application control methods, to prevent unauthorized users from accessing the network and prevent employees from performing non-work-related operations. This function improves bandwidth use efficiency.

In **Figure 2-8**, an enterprise network is connected to the Internet through Router A, which functions as the gateway. The physical access control department is connected to Router A through Router B, the office and management areas are connected to Router A through Router C, and the guest area is connected to Router A through APs. To ensure security of the

enterprise intranet, user access needs to be controlled. Only the users who are successfully authenticated can access authorized network resources. To standardize online behavior and improve work efficiency, the instant messaging software and download software such as BT and eDonkey_eMule must be forbidden in the office area. In addition, bandwidth needs to be properly allocated to different services to ensure the key services. When congestion occurs, the management area needs higher bandwidth.

Figure 2-8 Online behavior management



User Access and Authentication

To protect security of the entire enterprise network, AR integrates terminal security and access control and takes the check, isolation, security hardening, and audit measures. These measures improve the proactive protection capability of terminals.

The AR provides different authentication methods for different scenarios:

- 802.1x: based on port and MAC address. This method is applicable to new networks that have high-density users and information confidentiality requirement. For details, see 802.1X Authentication.
- MAC address: based on MAC address of users. This method is applicable to dumb terminals such as printers and fax machine. For details, see MAC Address Authentication.
- Portal: through portal authentication website. This method is applicable to networks with scattered, moving users. For details, see Portal Authentication.

AR provides authentication for the following users:

- Authenticates static users based on user IP address.
- Assigns priorities and VLAN IDs to user groups so that users in different groups have different priorities and network access rights.

For details about the preceding functions, see (Optional) Configuring NAC Extended Functions.

Application-based Management

To prevent employees from accessing non-work-related websites, the network administrator needs to control the applications used by online employees. The AR supports Smart Application Control (SAC), which intelligent classifies applications and enforces policies to different application categories. For example, SAC can prohibit the non-work-related applications such as QQ to standardize user online behavior and improve work efficiency. For details about SAC, see SAC Configuration.

Bandwidth Management

To improve network use efficiency, enterprise administrators need to allocate different bandwidth to different service flows, for example, sufficient bandwidth for key services and restricted bandwidth for common services.

AR supports multi-dimension bandwidth management:

- Based on interface: control inbound and outbound traffic rate on an interface.
- Based on service type: restrict bandwidth for a certain type of service.
- Based on IP address: restrict bandwidth for a certain IP address.
- Based on user group: restrict bandwidth for the user group matching certain conditions.
- Based on multi-level queue: restrict bandwidth for a certain type of service and user.

For details about bandwidth management, see Traffic Policing and Traffic Shaping Configuration, Bandwidth Management Configuration, and Configuring HQoS.

3 Product Characteristics

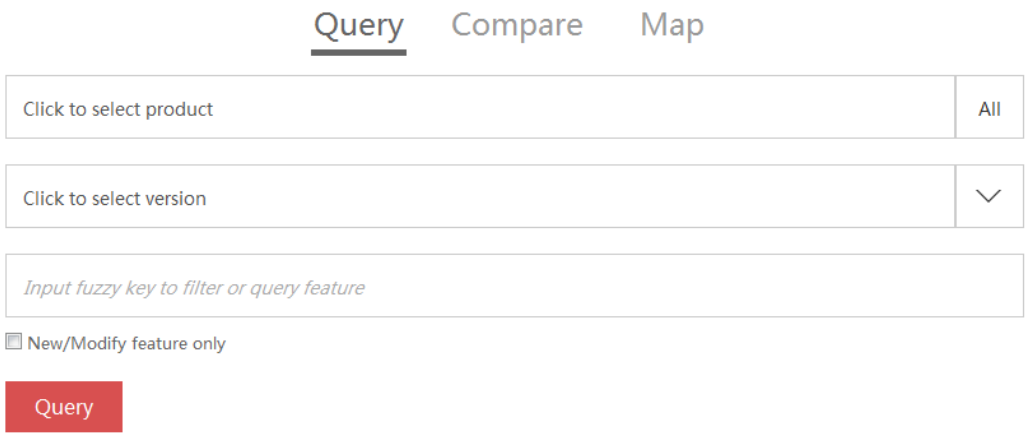
About This Chapter

3.1 Using the Feature Query Tool

This section describes how to use the feature query tool to obtain information about features supported by different product models.

Figure 3-1 shows the **Feature Query Tool** interface. You can use this tool to query features supported by different product models, including the feature overview, update description, license, and usage restrictions.

Figure 3-1 Interface of the feature query tool



3.2 Key Features

3.2.1 Voice

In addition to broadband services, such as video on demand (VOD) and live data and video, the AR provides high-quality voice service for terminal users.

PBX

A private branch exchange (PBX) manages incoming and outgoing calls of an enterprise.

An AR can be used as a PBX to provide functions of local voice exchange and terminal access through the broadband or narrowband, meeting requirements on computer telephony integration (CTI) and VoIP. Enterprises can construct a unified voice and data network across areas, reducing communication costs and improving the operation efficiency.

The AR provides the following services as a PBX.

- Voice communication

  The AR supports basic voice services, including communications between intra-office users and communications based on narrowband or broadband trunks.
- Playing tones

  The AR can play .ivr files to provide voice announcements for configuring and using the automated attendant service as well as other services. The voice announcements can be customized as required.
- Automated attendant

  If a number on the AR is set to the automated attendant number, incoming calls are automatically transferred to this number. The system automatically plays voice announcements, collects numbers, and forwards calls.
- Analyzing and processing numbers

  The AR connects or limits an incoming or outgoing call based on analysis of the prefix and length of the calling or called number. In this way, the AR controls the call-out and call-in rights. After analyzing a number, the AR can change the calling or called number before or after a route selection to meet requirements of call forwarding.
- Processing and encoding voices

  The AR supports various encoding formats for processing voices and meets multiple usage requirements.

  The following encoding formats are supported:

  - G.711 (A-Law/U-Law)
  - G.729 A/B
  - G.723
  - G.726

  The voice processing capabilities of the AR include:

  - Support noise suppression, voice energy enhancement, comfort noise generation, line echo cancellation (EC), gain adjustment, jitter buffer, silence compression, and packet loss compensation (PLC), ensuring high-quality voice services.

  - Use RTP Control Protocol (RTCP) to provide information about total number of received or sent packets and bytes, delay, jitter, and packet loss rate.

- Fax

  The AR supports group- or domain-based T.38 faxes and G.711 transparent faxes. A fax machine can directly connects to the FXS interface on the AR or connects to the AR through an integrated access device (IAD).

- Call restriction policy

  When a certain condition is met, the AR controls calls.

  The AR supports the following call restriction policies:

  - Call restriction on a trunk
  - 32-level right call restriction
  - Call restriction on CPU overload
  - Static bandwidth control
  - Call restriction on full call detail record (CDR) pool
  - Call restriction based on prefix re-analysis

- Smart routing

  A PBX device can smartly select a trunk link for voice transmission based on a user-defined route selection policy to minimize the cost and implement load balancing.

- Voicemail

  The AR provides the built-in Voicemail service (VMS) for enterprises to implement basic message leaving functions at low a cost. Users can receive and delete messages, and record their own greetings for their voice mailboxes.

  When a call is made, the calling party can leave a message as prompted based on the policy configured by the called party.

In addition, the AR also provides the following supplementary services as a PBX.

Table 3-1 Supplementary services

Service Type	Service Description
Calling line identification presentation	Calling number information is displayed or restricted being displayed on a called party's phone. The following services are included: ● Calling line identification presentation (CLIP) ● Calling line identification restriction (CLIR) ● CLIR override service ● Temporarily activating the CLIR service ● Temporarily deactivating the CLIR service

Service Type	Service Description
Call forwarding	When a certain condition is met, a call is forwarded to a preset third party. The following services are included: ● Call forwarding unconditional ● Call forwarding no reply ● Call forwarding busy ● Call forwarding offline ● Call forwarding conditional
Call transfer	A user can transfer a call to a third party and exit from the conversation. Call transfer includes consult transfer, semi-consult transfer, and blind transfer.
Call hold	A user can stop an ongoing call and resume the call later. The following services are included: ● Call park ● Call hold ● Dual talk ● Call waiting ● Called party control
Call waiting	When another call is made to a user during a conversation, the called party hears the call waiting announcement tone, saying that another user is waiting for a conversation with him or her.
Call barring	A user can define rules to control calls. The following services are included: ● Call barring ● Password-based call barring ● Password call ● Direct inward system access (DISA) ● Blacklist and whitelist ● Anonymous call rejection ● Do not disturb (DND) ● Selective call acceptance ● Selective call rejection

Service Type	Service Description
Callback	Callback services include the call completion to busy subscriber (CCBS) service and the call completion on no reply (CCNR) service. ● CCBS: When a called party is busy, the calling party can register the CCBS service and hang up the phone. When the called party is idle, the system automatically calls the calling party and the called party in sequence and connects the two parties. ● CCNR: After a calling party user A registers the CCNR service, the system continuously checks status of the called party's phone. When the system detects a call log of the called party's phone and the called party is idle, the system automatically calls user A. User A picks up the phone, and calls the called party.
Call pickup	Call pickup services include the co-group call pickup service and the designated call pickup service. ● Co-group call pickup: Members of a call pickup group can answer calls for each other on their own phones. ● Designated call pickup: A user can answer the phone call to another user in the same call pickup group after dialing the pickup access code and the called number.
Secretary services	Secretary services include the secretary service and the advanced secretary service. ● Secretary: A manager can designate a secretary's phone number. Then all incoming calls to the manager are transferred to the secretary. Only the designated secretary can answer calls to the manager. ● Advanced secretary: When an external user calls a manager, a secretary's phone rings. The secretary can determine whether to forward the call to the manage. Two secretaries can work for at most four managers at a time.
Hotline	Hotline services include the instant hotline service and the delay hotline service. ● Instant hotline: When a user picks up a phone, the phone automatically dials a preset hotline number. ● Delay hotline: After a user picks up a phone and does not perform any operation for 5s, the phone automatically dials a preset hotline number.

Service Type	Service Description
Ringing	Ringing services include simultaneous, sequential, and distinctive ringing services. ● Simultaneous ringing: When an incoming call is made to a phone, this phone and other phones configured with the simultaneous ringing service ring simultaneously. A user can answer the call by using any ringing phone. ● Sequential ringing: When an incoming call is made to a phone, this phone and other phones configured with the sequential ringing service ring in sequence. ● Distinctive ringing: After the distinctive ringing service is enabled, a user can determine whether the call from the calling party is a group, intra-office, local, national, or international call.
Enhanced services	The AR supports the following enhanced services: ● Number query: A user can dial a preset prefix to query the number of the phone. ● Abbreviated dialing: A user can initiate a call by dialing a 2-digit abbreviated code, without having to dial the original called number. ● Multi-number service: A phone of a user uses multiple numbers, including a main number and one or more additional numbers. The phone rings when a call is made to any of the numbers. When making a call, the user can select any of the numbers to be displayed on the called party's phone. ● One number link to you (ONLY): Multiple phones of a user share one number and use the same services. When a calling party dials the number, the system connects the call to one or more idle lines in a configured line selection mode. If multiple idle lines are connected, the phones ring in sequence, ensuring that the user can answer the call. ● Number portability: A user can use an intra-office phone to access the telephone network and bind the original used number to the phone when working in different places. Calls to the original used number are automatically forwarded to the phone. ● Absent subscriber: If a user goes out or is too busy to answer phone calls, the user can register the absent subscriber service. Before the service is canceled, all calling parties hear the automated absent subscriber announcement when calling the user, but the user can normally make calls. ● Reverse charging: When making a call, a user dials the reverse charging access code before dialing the called number. If the called party accepts answering the call based on the voice announcements, the call fee will be paid by the called party.

Service Type	Service Description
Group services	The AR support the following group services: ● PBX line selection: Multiple phones form a trunk group, and an intra-office number is used as the access code. When an external user dials the access code of the group, multiple phones in the group ring in sequence or only one phone rings based on a preset line selection policy. ● Hunt group: After a user dials the access code of a hunt group, the system calls users in the hunt group, and the phones in the hunt group ring in the specified ringing mode (simultaneous or sequential ringing).
Other services	The AR also provides the following services: ● Suspending and resuming: Users' services can be suspended and resumed. ● Three-party call: During a conversation between two parties, one party can call a third user into a three-party conversation or talk to the other parties separately. ● Multi-party conference: A user can schedule a conference. When the conference begins, the user can join the conference in one of the following modes: moderator invitation, system invitation, and active join. A user can also initiate an intermediate conference anytime. ● Enterprise ringback tone (RBT): An enterprise can customize an enterprise RBT (a piece of music or sound), which will be displayed to calling parties. ● Alarm: The phone of a user rings at the specified time. ● De-registration of all services: A user can de-register all supplementary services on a phone, without affecting user's service rights.

SIP AG

Access gateway (AG) devices provide various access modes and convert various services into a uniform format that can be transmitted. The AG communicates with the soft switch by using the SIP protocol. SIP-based AGs are called SIP AGs.

When an AR functions as the SIP AG, the upper-layer devices such as soft switch control and manage calls. The AR supports the following services.

Service Type	Introduction	Configured on the SIP AG or Not
Basic voice service	The basic voice service is the basic call connection function, including intra-office calls, local calls, national toll calls, international toll calls, and transit calls.	Yes
Three-party service	The third-party service allows a calling party or called party in a conversation to call a third party without ending the current conversation. Then the calling party or original called party can implement a three-party conversation or talk to the other two parties.	Yes
Call waiting service	When UserA is talking with UserB over the phone and at this moment UserC is calling UserA, UserA hears a call waiting tone, indicating that there is a call waiting for UserA.	Yes
MWI service	The message waiting indicator (MWI) service allows a user to read unread messages or leave messages. When the called user is busy, the MWI is on, indicating that there are leave messages.	Yes
Malicious call identification (MCID) service	The user that registers the MCID service with the carrier can query the phone number of the attacker that initiates malicious calls after performing relevant operations.	Yes
Call transfer service	The call transfer service allows the called party to transfer an incoming call to a third party by pressing the hookflash so that the calling party establishes a connection with a new called party.	Yes
Call conference service	The call conference service allows more than three parties to communicate together.	Yes
Calling line identification presentation (CLIP) service	The CLIP service displays the calling number in onhook state or offhook state (for call waiting). The displayed information includes the phone number, name, date, and time.	No
Calling line identification restriction (CLIR) service	The CLIR service displays the phone number of a calling party on the terminal of a called party.	No
Distinctive ringing service	The distinctive ringing service plays different ring tones for incoming calls.	No
Differentiated ringback tone service	The differentiated ringback tone service enables the SIP AG to play different ring tones for ringback tones.	No

Service Type	Introduction	Configured on the SIP AG or Not
Advice of charge (AoC) service	The AoC service enables the SIP AG to display the charge rate, fee notification during a call, and the total fee of the call.	No
Urgent call process	If the SIP AG finds an urgent call, the SIP AG inserts the urgent call flag into the SIP message.	No
Completion of Calls to Busy Subscriber (CCBS) service	When the called number is busy, the CCBS service enables the SIP AG to monitor the called party status. When the called party is idle, the SIP AG notifies the calling party and determines whether to make a call according to the status of the calling and called parties.	No
Multiple MSN numbers on a POTS interface	Multiple MSN numbers can be configured on a POTS interface.	No
Hotline service	● Instant hotline service: After a user picks up a phone, the SIP AG dials the hotline number for the user. ● No dialing within a long time after picking up the phone: If a user does not dial any number within the specified period of time after picking up the phone, the SIP AG dials the hotline number for the user.	Yes
Anonymous call service	The anonymous call service enables the called party not to view information about incoming calls.	No

H.248AG

H.248 is a media gateway control protocol through which the media gateway controller (MGC) controls the media gateway (MG) so that interoperability is implemented between different media.

The H.248 AG supports the basic voice service and developed services such as the three-party service and call waiting service. These services need to be configured on the softswitch.

Service Type	Introduction
Basic voice service	The basic voice service provides call connections, including intra-office calls, local calls, national long-distance calls, international long-distance calls, and transit calls.

Service Type	Introduction
Three-party service	The third-party service allows a calling party or called party in a conversation to call a third party without ending the current conversation. Then the calling party or original called party can make a three-party conversation or talk to the other two parties separately.
Call waiting	If user C calls user A when user A is talking with user B, user A hears a call waiting tone indicating that there is an incoming call.
MWI service	The message waiting indicator (MWI) service allows a user to read unread or leave messages. When the called user is busy, the MWI is on indicating that there are messages.
Malicious call identification (MCID) service	The MCID service allows users to perform certain operations to find the phone number of an attacker that initiates malicious calls.
Call transfer service	The call transfer service allows the called party to transfer an incoming call to a third party by pressing the hookflash so that the calling party establishes a connection with a new called party.
Call conference service	The call conference service allows more than three parties to talk to each other.
Calling line identification presentation (CLIP) service	The CLIP service displays the calling number in onhook state or offhook state (for call waiting). The displayed information includes the phone number, name, date, and time.
Calling line identification restriction (CLIR) service	The CLIR service shields the calling number on the terminal of a called party.
Distinctive ringing service	The distinctive ringing service plays different ring tones for incoming calls from different calling parties.
Differentiated ringback tone service	The differentiated ringback tone service plays different ringback tones for different users.
Advice of charge (AoC) service	The AoC service displays the charge rate, fee notification during a call, and total fee of the call.
Emergency call process	If the H.248 AG detects an emergency call, it inserts an emergency call flag into the H.248 message.
Completion of Calls to Busy Subscriber (CCBS) service	The CCBS service enables the H.248 AG to monitor the called party status when the called party is busy. When the called party is idle, the H.248 AG notifies the calling party so that the calling party can determine whether to make a call to the called party again.

Service Type	Introduction
Multiple MSN numbers on a POTS interface	Multiple MSN numbers can be configured on a POTS interface.
Hotline service	The hotline service is classified into: ● Instant hotline service: After a user picks up a phone, the H.248 AG dials the hotline number for the user. ● Delayed hotline service: If a user does not dial any number within the specified period of time after picking up a phone, the H.248 AG dials the hotline number for the user.
Anonymous call service	The anonymous call service prevents the called party from viewing information about incoming calls.

For details about voice features, see Voice Configuration Guide.

3.2.2 WAN

WAN uses the interfaces such as Ethernet, E1-F, T1-F, CE1/CT1, ADSL, VDSL, G.SHDSL, CPOS, POS, 3G, CE3, LTE, and synchronous/asynchronous serial interfaces. The following link layer protocols are supported: FR, PPP, PPPoE, ATM, HDLC, LAPB and X.25, and ISDN.

Frame Relay

Working at the data link layer of the Open System Interconnection (OSI) model, Frame Relay (FR) uses simple methods to transmit and exchange data. On a frame relay (FR) network, virtual circuits connect two FR devices. A physical line on the FR network provides multiple VCs. A VC defines an FR channel by using the data link connection identifier (DLCI), and detects and maintains the VC status by using the local management interface (LMI).

Multilink frame relay (MFR) is a cost-effective solution provided for FR users. MFR (FRF.16) implements the multilink frame relay function on the user-to-network interfaces (UNIs).

The FR compression technologies compress FR packets to save network bandwidth, reduce network load, and improve data forwarding on the FR network. The AR supports FRF.9 (FRF.9 stac) and FRF.20 (FRF.20 IPHC).

PPP

The point-to-point protocol (PPP) is used at the data link layer of the OSI model as well as at the link layer of TCP/IP. PPP transmits data from one point to another through synchronous links and asynchronous links that support full duplex.

PPP provides a complete authentication mechanism. To set up a PPP connection, users must pass authentication, ensuring a secured connection.

Multilink PPP (MP) is a technique that bundles multiple PPP links together to increase bandwidth. It can be applied to the interfaces that support PPP, such as serial interfaces and low-speed Packet over SDH (POS) interfaces.

PPP links support VJHC, IPHC, and STAC-LZS compression that compress the TCP/IP packet header, TCP/IP/RTP/UDP/IP packet header, and packet payload respectively, improving the transmission efficiency.

PPPoE

A Point-to-Point Protocol over Ethernet (PPPoE) network consists of an Ethernet containing many hosts. It accesses the Internet through a remote access device.

An AR can create a PPP session with the remote end by using PPPoE, and implement access control and accounting.

An AR can function as the PPPoE server to connect to different types of PPPoE clients on the Ethernet or function as a dial-up PPPoE client.

ATM

ATM is connection-oriented. Each VC is identified by a Virtual Path Identifier (VPI) and a Virtual Channel Identifier (VCI). One pair of VPI/VCI values is useful only on a link segment between ATM nodes. If a connection is broken, the relevant VPI/VCI values are released.

The Asymmetric Digital Subscriber Line (ADSL) , VDSL, E1-IMA and G.Single-pair High Speed Digital Subscriber Line (G.SHDSL) interfaces of the ARs support the Asynchronous Transfer Mode (ATM).

HDLC

The High-level Data Link Control (HDLC) is a typical bit-oriented synchronization data control protocol. It adopts the full-duplex mode and CRC check. Its transmission control function is independent of the processing function, and it features control capabilities and can be flexibly used.

In HDLC, Keepalive packets are used to detect the link status. On the AR, you can set the interval for sending Keepalive packets by setting the polling interval.

ISDN

The ISDN protocol references the Open Systems Interconnection (OSI) model and implements functions of the physical layer, data link layer, and network layer on UNI interfaces.

ISDN physical interfaces are classified into ISDN BRI and ISDN PRI interfaces.When the AR accesses an ISDN network by using an ISDN PRI interface, the AR is directly connected to an ISDN network-side device. When the AR accesses an ISDN network by using an ISDN BRI interface, the AR connects to an NT1 device, and the NT1 device connects to an ISDN network-side device.

LAPB and X.25

LAPB is a bit-oriented data link layer that defines the process of exchanging frames between the data terminal equipment (DTE) and data circuit-terminating equipment (DCE). It ensures that frames are transmitted in the right sequence without errors.

The X.25 protocol stack defines the interfaces between the DTE and DCE on public data networks (PDNs). The protocol stack has three layers, physical layer, data link layer, and packet layer. LAPB is used on the data link layer.

In addition to the second layer of X.25, LAPB can function as an independent data link layer protocol to transmit non-X.25 data of upper-layer protocols. LAPB can be configured on synchronous serial interfaces for simple local data transmission.

An X.25 network is deployed on a WAN that allows for low transmission costs and does not have high requirements for the remote transmission speed or delay. Currently, X.25 networks are still used as dedicated networks in some countries or regions. As IP networks are widely applied, X.25 data is transmitted on IP networks. X.25 over TCP (XOT) technology is introduced to connect X.25 networks over IP networks. This technology encapsulates X.25 packets in TCP packets to transmit X.25 packets across an IP network.

For details about WAN features, see WAN Configuration Guide.

3.2.3 VPN

The ARs support IP Security Virtual Private Network (IPSec VPN) and provide an IP security (IPSec) mechanism to ensure high quality, interoperable, and cryptology-based security for communication processes. The two parties in communication can encrypt data and authenticate the data source at the IP layer to ensure the confidentiality and integrity of the data and prevent replay on the network.

IPSec implements these functions by using two security protocols: Authentication Header (AH) protocol and Encapsulating Security Payload (ESP). Internet Key Exchange (IKE) provides the automatic key negotiation, SA establishment, and SA maintenance functions to simplify IPSec use and management.

In addition, the ARs use Generic Routing Encapsulation (GRE) and Layer 2 Tunneling Protocol (L2TP) to support VPN services except IPSec VPN.

The VPN services supported by the ARs are listed as follows:

- GRE VPN
- IPSec VPN
- BGP/MPLS IP VPN
- VLL
- SSL VPN
- L2TP VPN
- DSVPN
- GRE over IPSec VPN
- L2TP over IPSec VPN
- IPSec over L2TP VPN
- SVPN
- A2A VPN
- IPSec over GRE
- PWE3

For details about VPN features, see VPN Configuration Guide.

3.2.4 Security

ACL

An access control list (ACL) defines a series of filtering rules based on certain policy, the ACL permits or forbids the passage of data packets.

The device can use ACL rules to filter packets.

Firewall

- ACL-based packet filtering

  ACL-based packet filtering is used to analyze the information of the packets to be forwarded, including source/destination IP addresses, source/destination port numbers, and IP protocol numbers. The device compare the packet information with the ACL rules and determine whether to forward or discard the packets.

  In addition, the device can filter the fragmented IP packets to prevent the non-initial fragment attack.

- ASPF

  Application Specific Packet Filter (ASPF) filters packets of the application layer based on packet status. ASPF, used for security policies, detects the session information of the application layer protocol packets, which attempt to pass the device and prevent the unsatisfied packets.

- Attack defense

  With the attack defense feature, the device can detect various network attacks and protect the internal network against attacks.

  Network attacks are classified into three types: DoS attacks, scanning and snooping attacks, and malformed packet attacks.

  - DoS attack

    The DoS attack is an attack to a system by using a large number of data packets. This prevents the system from receiving requests from authorized users or suspends the host. DoS attacks include SYN Flood attacks and Fraggle attacks. DoS attacks are different from other attacks because DoS attackers do not search for the ingress of a network, but prevent authorized users from accessing resources or routers.

  - Scanning and snooping attack

    The scanning and snooping attack is to identify the existing systems on a network by using ping scanning (including ICMP and TCP scanning), and then find out potential targets. By using TCP scanning, attackers can identify the operating system and the potential services. By scanning and snooping, an attacker can know the service type and security vulnerability of the system and prepare for further intrusion to the system.

  - Malformed packet attack

    The malformed packet attack is to send malformed packets to the system. If such an attack occurs, the system breaks down when processing the malformed IP packets. Malformed packet attacks include Ping of Death and Teardrop.

ARP Security

There are various ARP attacks on networks, including attacks targeting hosts and gateways, address spoofing attacks and violent attacks, virus attacks, and malicious software attacks.

The ARs ensure ARP security by discarding untrusted ARP packets, suppressing ARP packets by using timestamps, discarding invalid ARP packets, and performing dynamic CAR on the packets sent to the CPU. In addition to preventing ARP protocol attacks, the ARs also prevent ARP-based network scanning attacks.

IP Source Guard

Some attacks on networks aim at source IP addresses by accessing and using network resources through spoofing IP addresses, stealing users' information or blocking authorized users from accessing networks.

The ARs support IP Source Guard (IPSG) and Unicast Reverse Path Forwarding (URPF).

- IPSG prevents source address spoof attacks, so attackers cannot access network resources and authorized users' rights are protected.
- URPF blocks packets sent from bogus source addresses.

Local Attack Defense

The Internet technology and size develop quickly and various network applications emerge. Many enterprises try to boost their own development by using their networks. They are concerned about how to protect confidential data and resources in an open network environment. Some unconscious operations may attack network devices and degrade device performance or even cause device failure.

A large number of packets including valid packets and malicious attack packets on a network must be processed by devices' CPUs. The malicious attack packets affect services and may even cause a system breakdown. In addition, excessive normal packets can also lead to high CPU usage, which degrades the CPUs' performance and interrupts services. Therefore, protecting the CPU is a necessary and important factor for processing services and system response.

The local attack defense and source tracing functions protect the ARs against attacks. When an attack occurs, these functions ensure non-stop service transmission and minimize the impact of the attack on network services.

PKI

The public key infrastructure (PKI) is a system that generates public keys and digital certificates, and verifies identities of certificate subjects to ensure information security. PKI issues digital certificates that bind public keys to respective user identities by means of a certificate authority (CA).

AAA

The ARs support Authentication, Authorization, and Accounting (AAA).

- Authentication

  Verifies users' identities.
- Authorization

  Grants different rights for different users to authorize the services that can be used by users.
- Accounting

Records information about network service usage of users, including service type, start time, and traffic volume.

3.2.5 QoS

Traffic Policing

Traffic policing discards excess traffic to limit the traffic within a specified range and to protect network resources as well as the carriers' interests.

The device uses committed access rate (CAR) to perform traffic policing. They support single-rate-three-color and dual-rate-three-color markers and precise bandwidth management.

Traffic Shaping

When the rate of an interface on a downstream device is slower than that of an interface on an upstream device or burst traffic occurs, traffic congestion may occur on the downstream device interface. Traffic shaping can be configured on the interface of an upstream device so that outgoing traffic is sent at even rates and congestion is avoided.

The device supports traffic shaping adaptation and level-3 traffic shaping. Three-level shapers include the flow queue shaper and port queue shaper.

Congestion Management

If a network transmitting both delay-sensitive and delay-insensitive services is congested intermittently, congestion management is required. However, if a network is always congested, bandwidth needs to be increased. Congestion management sends packet flows by using queuing and scheduling.

An interface on AR has four or eight default queues for outgoing packets. LAN-side interfaces support the scheduling modes of priority queuing (PQ), Deficit Round Robin (DRR), weighted round robin (WRR), and PQ+WRR. The fixed LAN-side interfaces of AR150-S&160-S&200-S&1200-S series routers do not support the DRR mode. WAN-side interfaces support the scheduling modes of PQ, WFQ, PQ+WFQ, and class-based WFQ (CBQ). Each scheduling algorithm schedules specific types of traffic, and affects bandwidth allocation, delay, and jitter.

Congestion Avoidance

Congestion avoidance is a flow control mechanism. A system configured with congestion avoidance monitors network resource usage such as queues and memory buffers. When congestion occurs or aggravates, the system discards packets.

The device supports tail drop and WRED.

- Tail drop

  When the queue length reaches the upper limit, the excess packets (buffered at the queue tail) are discarded.

- WRED

  WRED sets the upper and lower drop thresholds and the maximum drop probability for each queue. When the queue length is smaller than the lower threshold, no packets are discarded. When the length of the queue exceeds the upper threshold, all packets are discarded. When the queue length is between the lower threshold and the upper

threshold, incoming packets are discarded randomly. The drop probability cannot be greater than the maximum drop probability.

The device uses the WRED based on queue profiles or traffic policies.

NOTE

LAN-side subcards do not suuport WRED.

For details about QoS features, see QoS Configuration Guide.

3.2.6 WLAN

A wireless local area network (WLAN) connects two or more computers or devices and enables the devices to communicate by using the wireless telecommunication technology. WLAN uses the wireless technology to implement fast Ethernet access. The primary advantage of WLAN is that terminals, such as computers, can access a network through a wireless medium rather than a physical cable. This facilitates network construction and allows users to move around without interrupting communication. WLAN is more flexible than traditional wired access.

WLAN is widely used in public areas such as on campuses, business centers, and airports. The WLAN uses cables at the backbone layer, and users access the WLAN through one or more access points (APs) using radio waves. The transmission distance of an AP is tens of meters.

IEEE 802.11 is widely used by WLANs. The device can function as an access controller (AC) or a Fat access point (FAT AP). The device as the AC or Fat AP supports 802.11a, 802.11b, 802.11g, 802.11an, and 802.11n.

NOTE

Only AR121W-S, AR101W-S, AR101GW-Lc-S, AR151W-P-S, AR161W-S, and AR1220W-S support WLAN-FAT AP.

The device supports the following WLAN features:

- WLAN user management
  - Dot1X access authentication
  - MAC address authentication
  - Pre-share-key (PSK) authentication
  - EAPOL-Key negotiation
  - User access control
  - AAA for WLAN users
- Radio frequency (RF) management
  - Country code
  - RF type
  - Setting radio transmission rate
  - Setting radio transmission power
  - Setting radio working channels
  - Monitoring and eliminating radio interference
  - Configurable wireless MAC layer parameters
  - Configuring and querying radio attributes

  - Collecting and querying performance statistics of radio frequency interfaces
- WLAN security
  - WEP Open-System link authentication and encryption
  - WEP Share-Key link authentication and encryption
  - WPA PSK authentication and encryption
  - WPA Dot1X authentication and encryption
  - WPA2 PSK authentication and encryption
  - WPA2 Dot1X authentication and encryption
  - WAPI authentication and encryption
  - TKIP/CCMP encryption
  - HMAC-MD5 algorithm
  - User blacklist and whitelist
- WLAN QoS
  - WMM (802.11e)
  - Mapping wireless-side priority to the wired-side priority
  - Bandwidth limit based on users
  - Bandwidth limit based on SSIDs

For details about WLAN features, see WLAN-AC Configuration Guide and WLAN-FAT AP Configuration Guide.

3.2.7 IPv6

The device provides the IPv6 host function, which maximizes customers' return on investment (ROI) and prevents repeated investment during network upgrade.

The device supports the following IPv6 functions:

- IPv6 ND
- IPv6 PMTU
- TCP6, UDP6, RawIP6, Ping IPv6, and Tracert IPv6
- ICMP6 and Socket6
- IPv6 unicast routing protocols: RIPng, OSPFv3, IS-IS and IPv6 static route
- TFTP IPv6 client, FTP IPv6 client, FTP IPv6 server, Telnet IPv6 client, and Telnet IPv6 server
- IPv6 over IPv4 manual tunnel, IPv6 over IPv4 GRE tunnel, IPv6 over IPv4 automatic tunnel, 6to4 tunnel, ISATAP tunnel, and IPv4 over IPv6 tunnel
- DHCPv6 client, DHCPv6 server, DHCPv6 relay, DHCPv6 snooping, and DHCPv6 PD

For details about IPv6 functions, see IP Service Configuration Guide and IP Unicast Routing Configuration Guide.

4 Appearance

About This Chapter

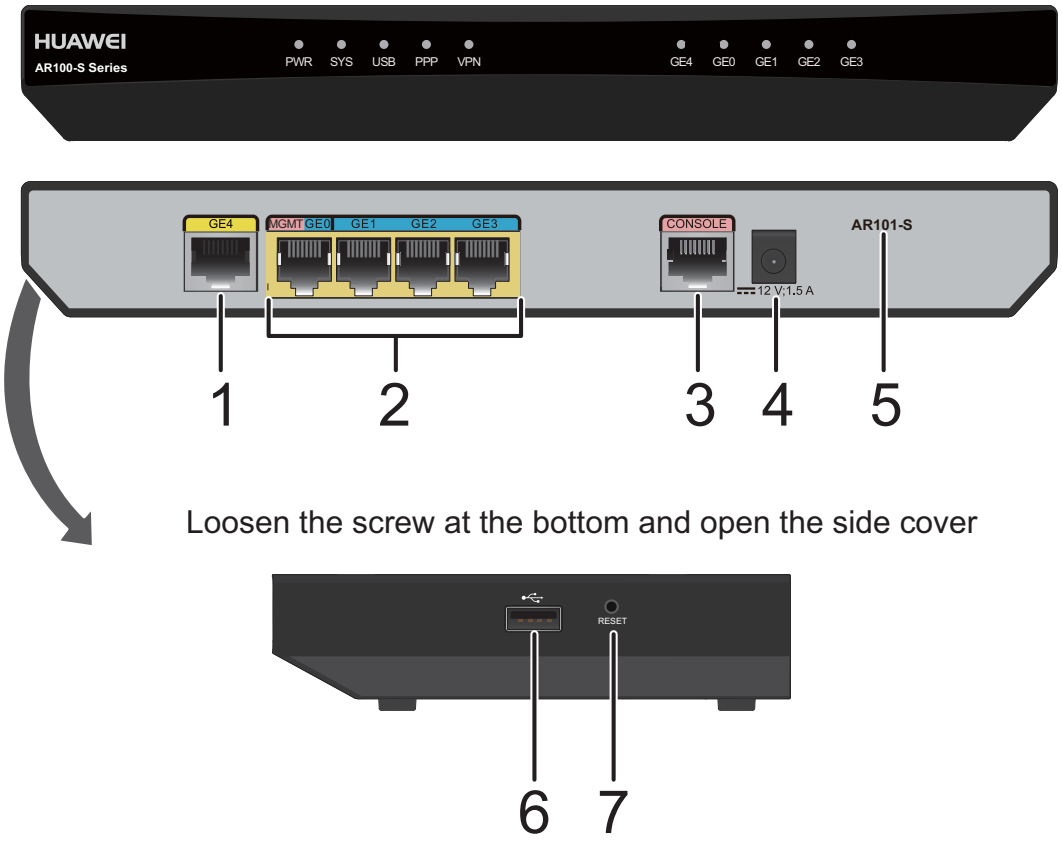
4.1 AR100-S Series

4.1.1 AR101-S

Appearance and Structure

Figure 4-1 shows the appearance of the AR101-S router.

Figure 4-1 AR101-S appearance



1	WAN interface: one GE electrical interface	2	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.
3	CONSOLE interface	4	Power jack **NOTE** The router uses a 24 W separate power adapter.
5	Product model silkscreen	6	USB interface (host)

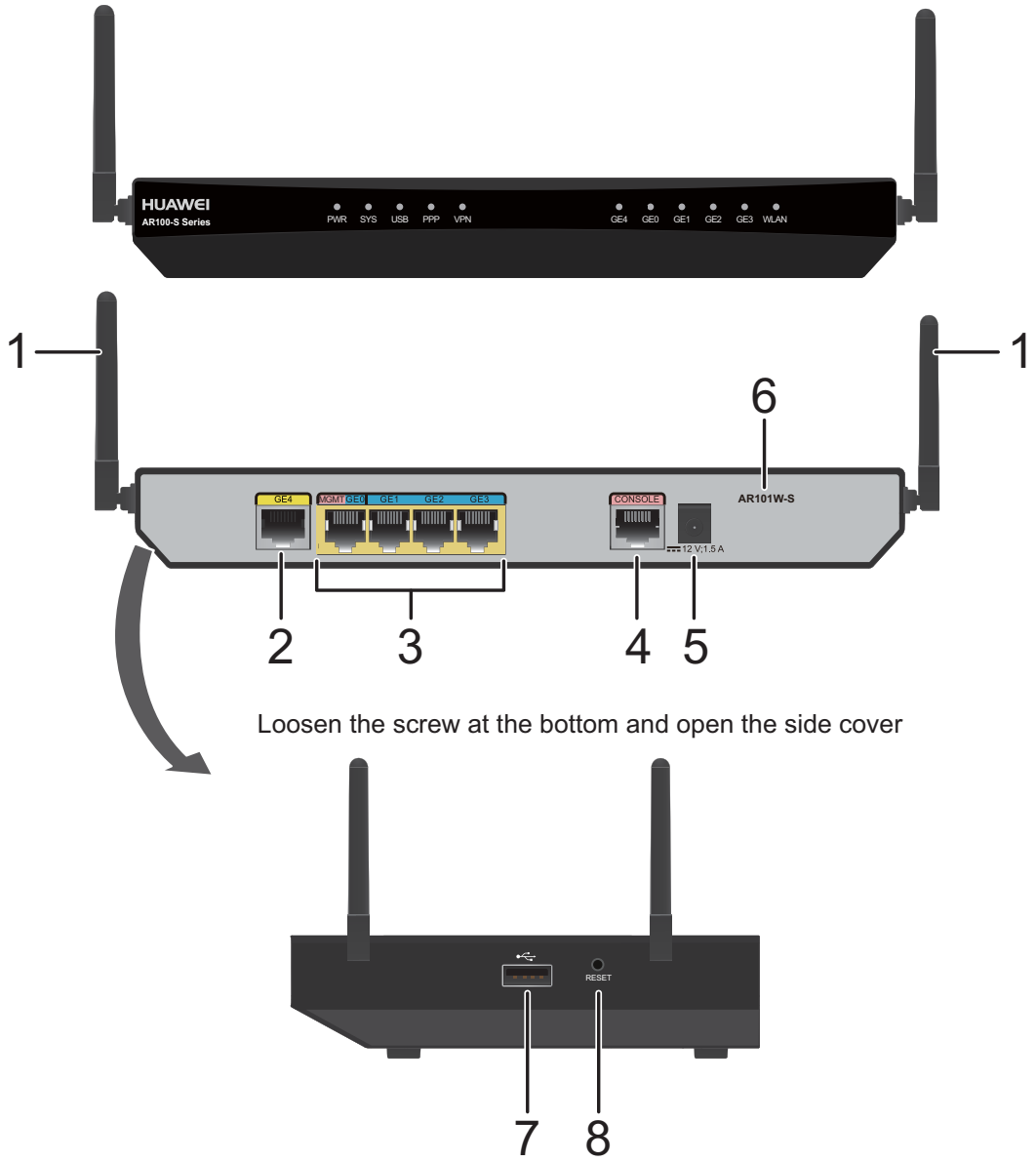
7	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	-	-

4.1.2 AR101W-S

Appearance and Structure

Figure 4-2 shows the appearance of the AR101W-S router.

Figure 4-2 AR101W-S appearance



1	Four Wi-Fi antennas	2	WAN interface: one GE electrical interface
3	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.	4	CONSOLE interface

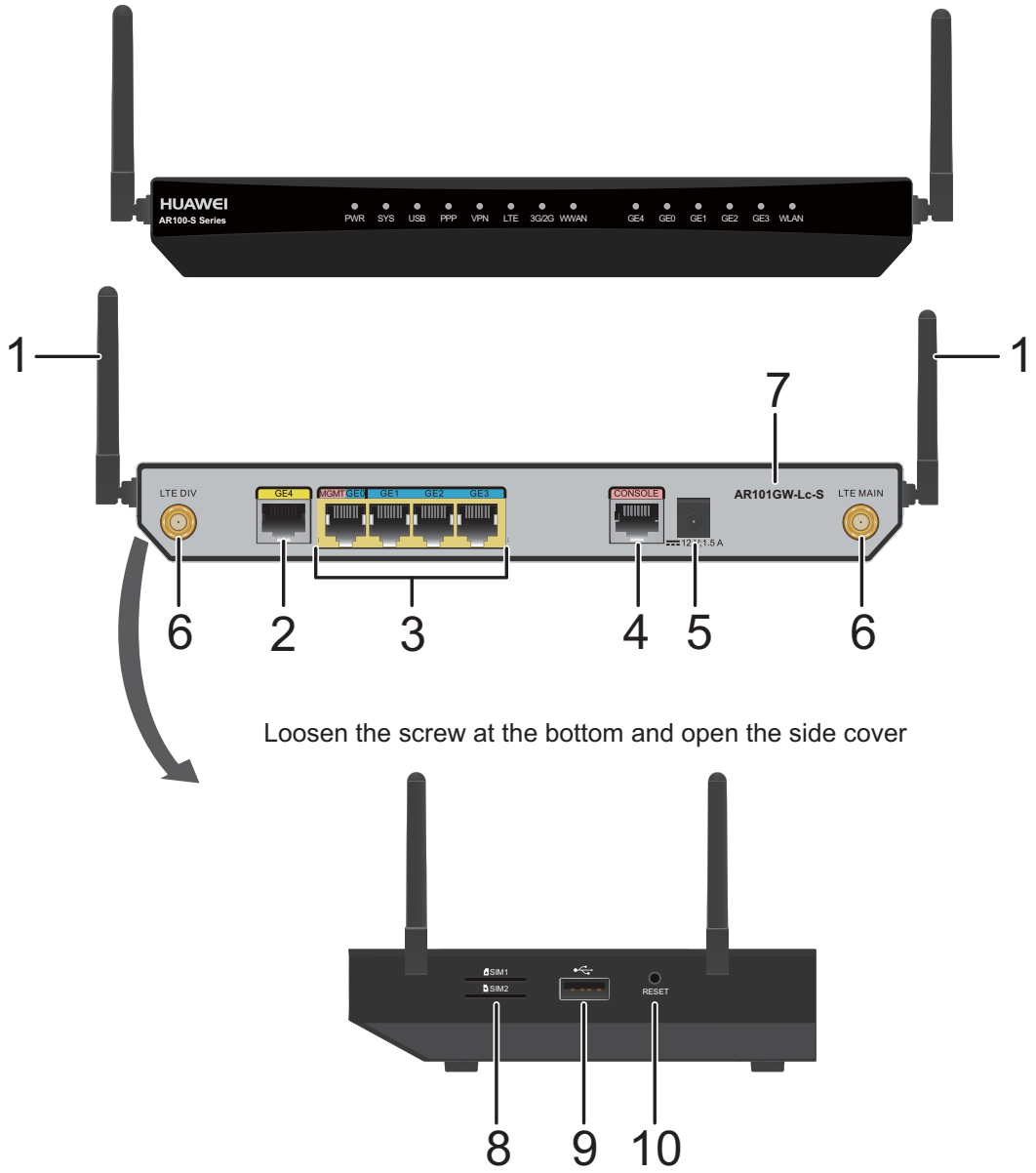
5	Power jack **NOTE** The router uses a 24 W separate power adapter.	6	Product model silkscreen
7	USB interface (host)	8	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.

4.1.3 AR101GW-Lc-S

Appearance and Structure

Figure 4-3 shows the appearance of the AR101GW-Lc-S router.

Figure 4-3 AR101GW-Lc-S appearance



1	Four Wi-Fi antennas	2	WAN interface: one GE electrical interface
3	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.	4	CONSOLE interface

5	Power jack **NOTE** The router uses a 24 W separate power adapter.	6	LTE antenna interface **NOTE** An LTE indoor remote antenna needs to be connected to the primary LTE antenna interface (LTE MAIN), and an LTE whip antenna needs to be connected to the secondary LTE antenna interface (LTE DIV).
7	Product model silkscreen	8	Two SIM card slots **NOTE** The router supports double-card single-standby.
9	USB interface (host)	10	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.

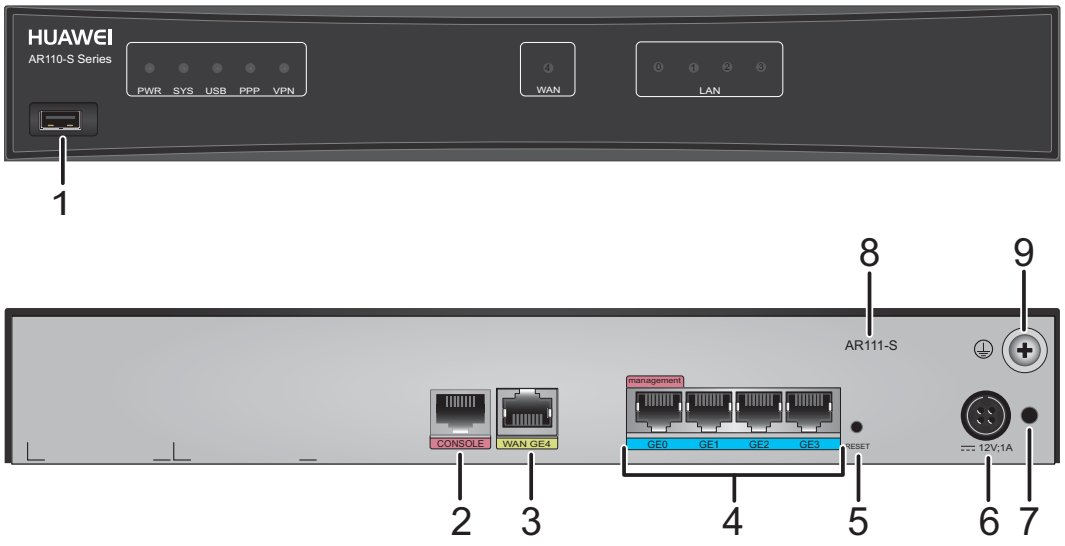
4.2 AR110-S Series

4.2.1 AR111-S

Appearance and Structure

Figure 4-4 shows the appearance of the AR111-S router.

Figure 4-4 AR111-S appearance



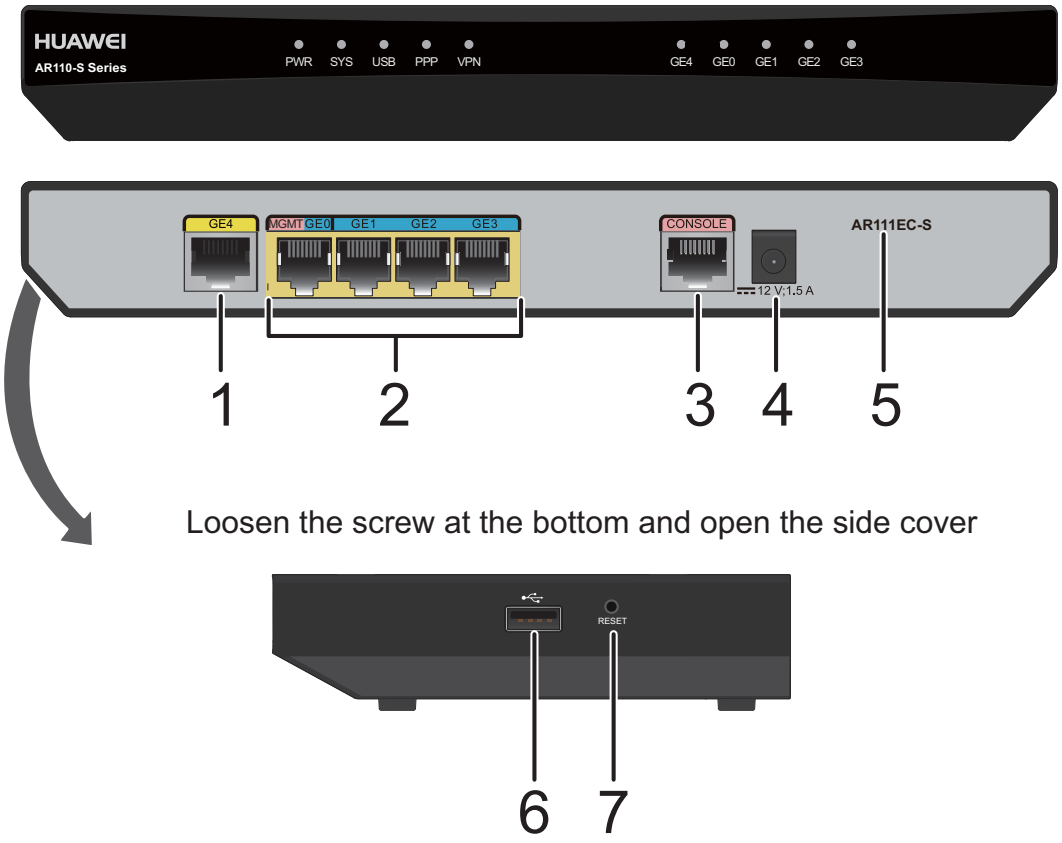
1	USB interface (host)	2	CONSOLE interface
3	WAN interface: GE electrical interface	4	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 24 W integrated power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

4.2.2 AR111EC-S

Appearance and Structure

Figure 4-5 shows the appearance of the AR111EC-S router.

Figure 4-5 AR111EC-S appearance



1	WAN interface: one GE electrical interface	2	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.
3	CONSOLE interface	4	Power jack **NOTE** The router uses a 24 W separate power adapter.
5	Product model silkscreen	6	USB interface (host)

7	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	-	-

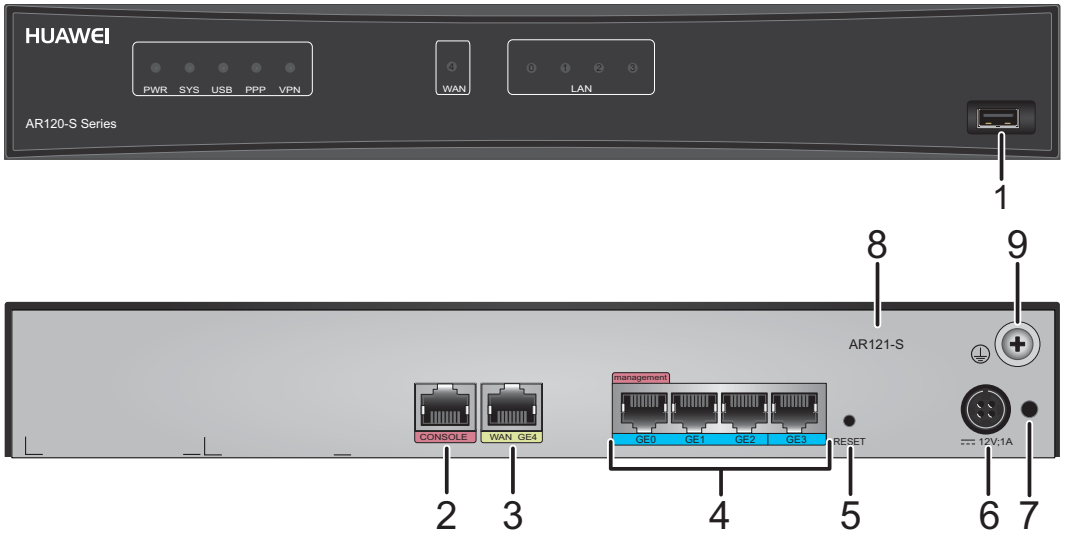
4.3 AR120-S Series

4.3.1 AR121-S

Appearance and Structure

Figure 4-6 shows the appearance of the AR121-S router.

Figure 4-6 AR121-S appearance



1	USB interface (host)	2	CONSOLE interface

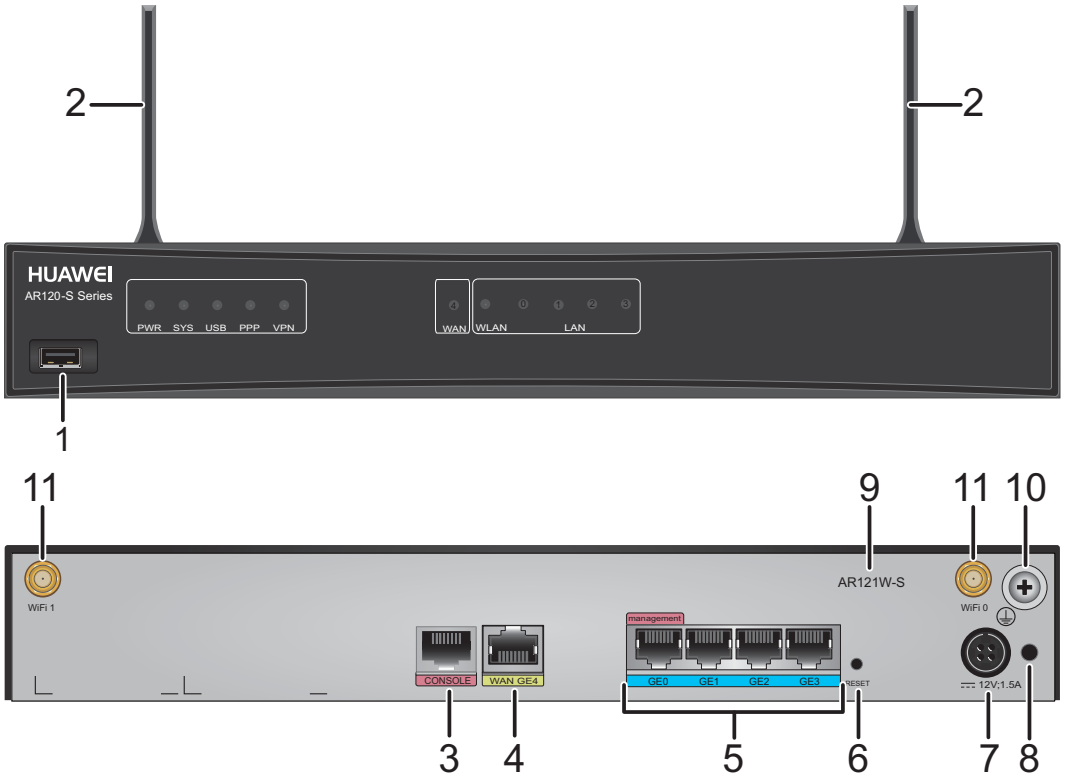
3	WAN interface: GE electrical interface **NOTE** ● V200R007C00 earlier versions: WAN interfaces are FE electrical interfaces. ● V200R007C00 and later versions: WAN interfaces are GE electrical interfaces.	4	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● V200R007C00 earlier versions: LAN interfaces are FE electrical interfaces. ● V200R007C00 and later versions: LAN interfaces are GE electrical interfaces.
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 24 W integrated power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

4.3.2 AR121W-S

Appearance and Structure

Figure 4-7 shows the appearance of the AR121W-S router.

Figure 4-7 AR121W-S appearance



1	USB interface (host)	2	Two Wi-Fi antennas
3	CONSOLE interface	4	WAN interface: GE electrical interface **NOTE** ● V200R006C10: WAN interfaces are FE electrical interfaces. ● V200R007C00 and later versions: WAN interfaces are GE electrical interfaces.
5	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● V200R006C10: LAN interfaces are FE electrical interfaces. ● V200R007C00 and later versions: LAN interfaces are GE electrical interfaces.	6	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack **NOTE** The router uses a 24 W integrated power adapter.	8	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.

9	Product model silkscreen	10	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
11	Two Wi-Fi antenna interfaces	-	-

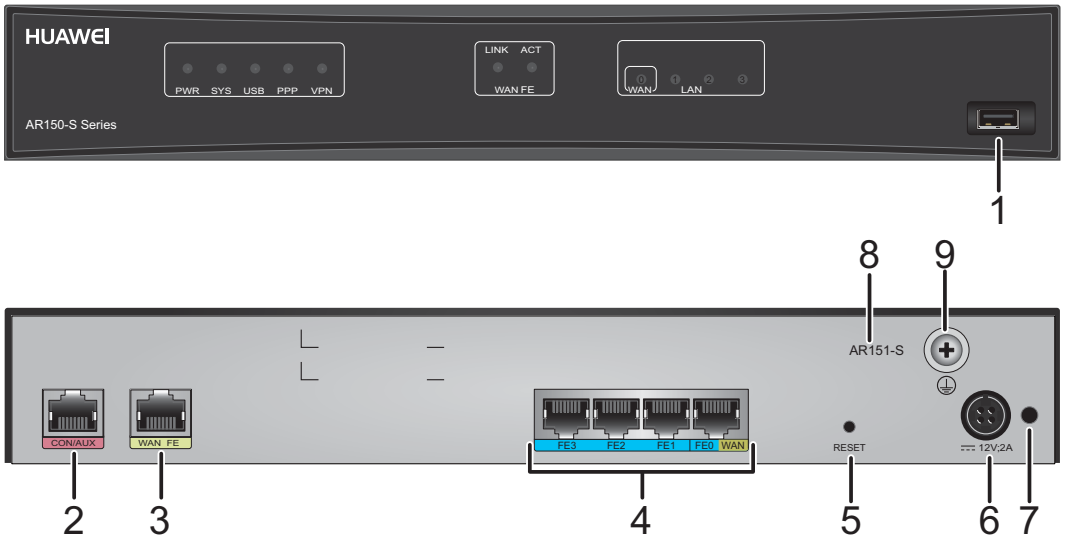
4.4 AR150-S Series

4.4.1 AR151-S

Appearance and Structure

Figure 4-8 shows the appearance of the AR151-S router.

Figure 4-8 AR151-S appearance



1	USB interface (host)	2	CON/AUX interface **NOTE** The AR151-S does not support AUX login.

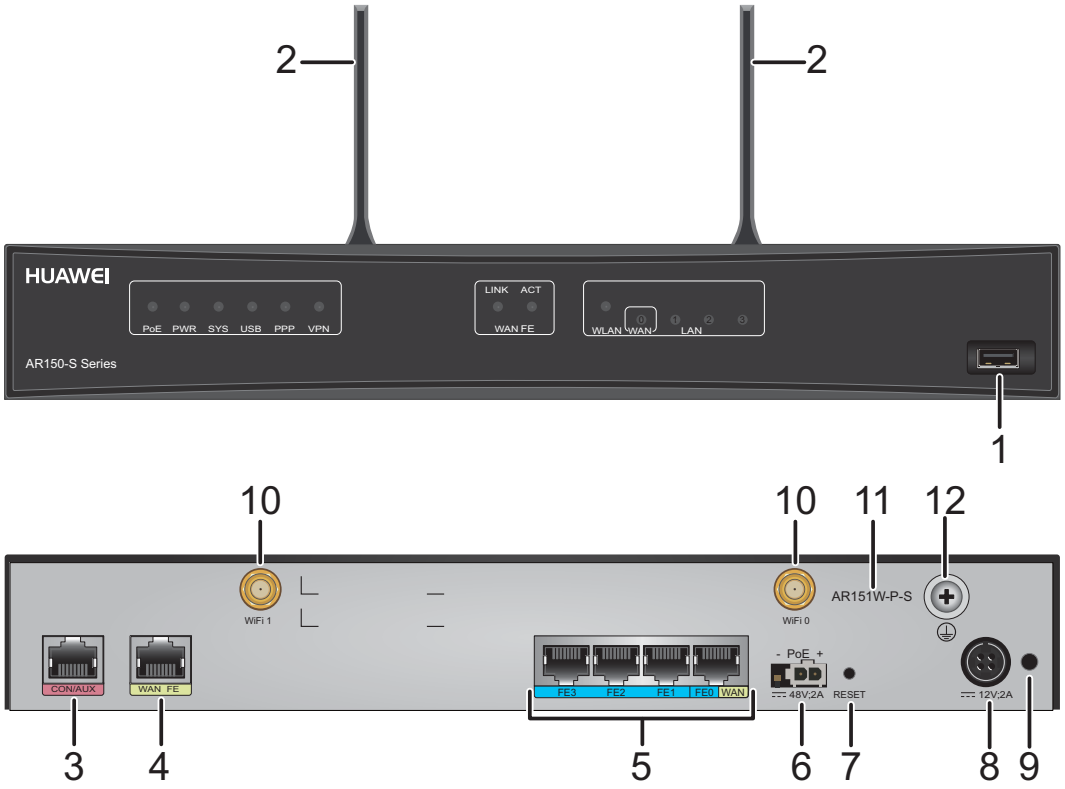
3	WAN interface: FE electrical interface	4	LAN interfaces: four FE electrical interfaces **NOTE** ● FE3 is a management interface and is used to upgrade the router. ● LAN interface FE0 can be configured as a WAN interface. ● V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 24 W integrated power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

4.4.2 AR151W-P-S

Appearance and Structure

Figure 4-9 shows the appearance of the AR151W-P-S router.

Figure 4-9 AR151W-P-S appearance



1	USB interface (host)	2	Two Wi-Fi antennas
3	CON/AUX interface **NOTE** The AR151W-P-S does not support AUX login.	4	WAN interface: FE electrical interface
5	LAN interfaces: four FE electrical interfaces **NOTE** ● FE3 is a management interface and is used to upgrade the router. ● LAN interface FE0 can be configured as a WAN interface. ● V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.	6	PoE power jack **NOTE** The PoE power jack connects to a 100 W PoE power adapter to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to FE interfaces of the router.

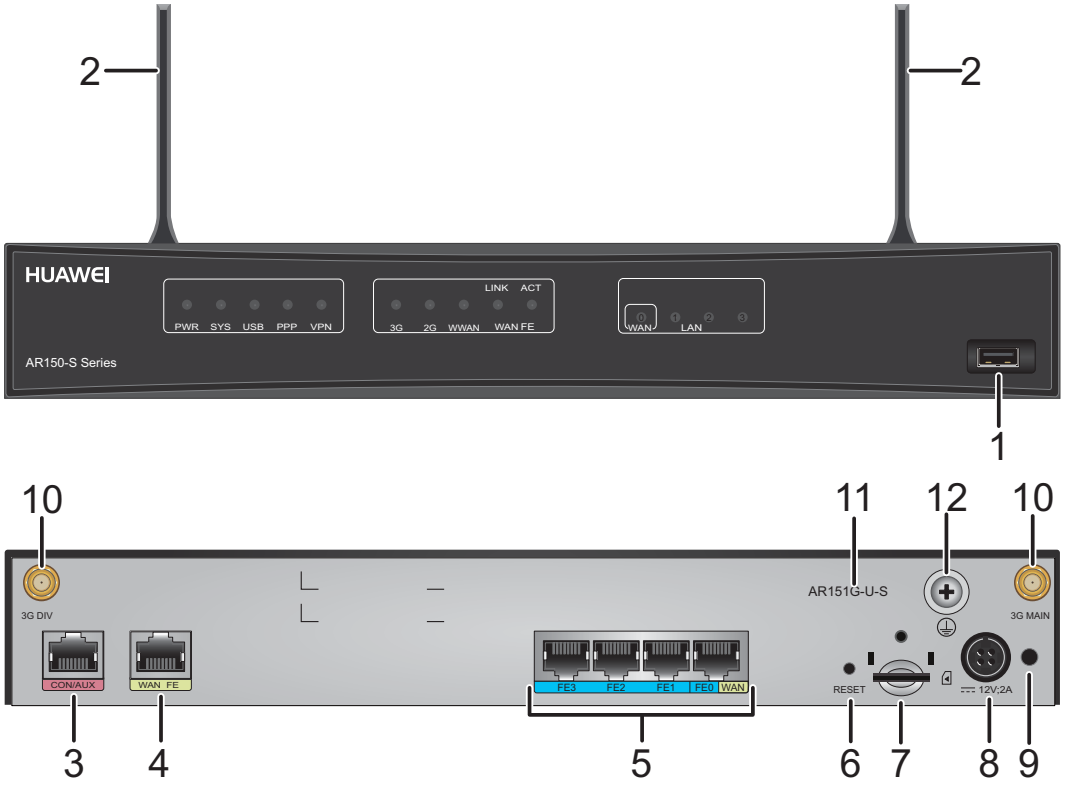
7	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	8	Power jack **NOTE** The router uses a 24 W integrated power adapter.
9	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	10	Two Wi-Fi antenna interfaces
11	Product model silkscreen	12	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.

4.4.3 AR151G-U-S

Appearance and Structure

Figure 4-10 shows the appearance of the AR151G-U-S router.

Figure 4-10 AR151G-U-S appearance



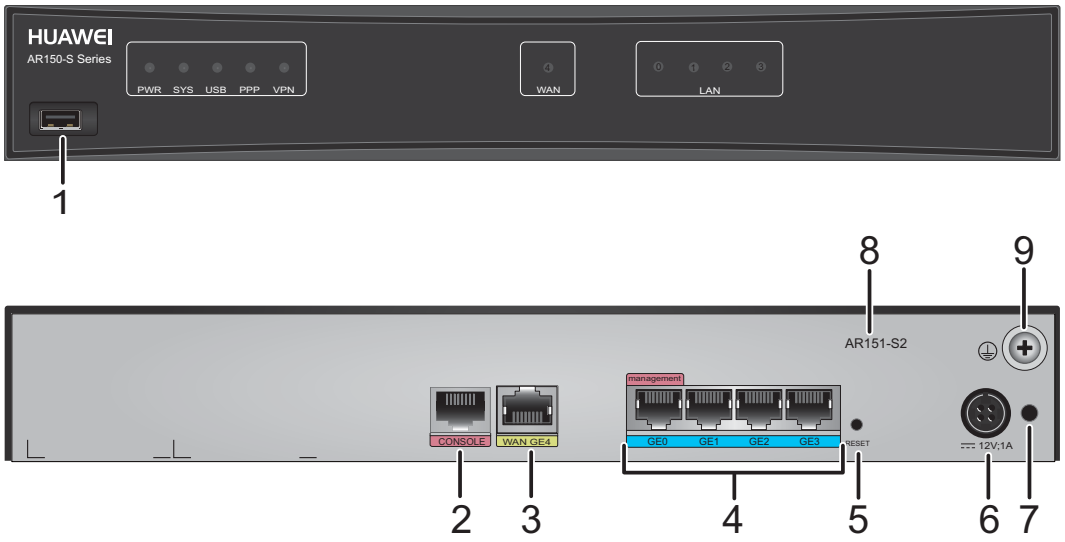
1	USB interface (host)	2	Two 3G antennas
3	CON/AUX interface **NOTE** The AR151G-U-S does not support AUX login.	4	WAN interface: FE electrical interface
5	LAN interfaces: four FE electrical interfaces **NOTE** ● FE3 is a management interface and is used to upgrade the router. ● LAN interface FE0 can be configured as a WAN interface. ● V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.	6	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	SIM card slot **NOTE** The mounting hole above the SIM card slots is used to fix the SIM card cover with a screw.	8	Power jack **NOTE** The router uses a 24 W integrated power adapter.
9	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	10	3G-U antenna interface
11	Product model silkscreen	12	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.

4.4.4 AR151-S2

Appearance and Structure

Figure 4-11 shows the appearance of the AR151-S2 router.

Figure 4-11 AR151-S2 appearance



1	USB interface (host)	2	CONSOLE interface
3	WAN interface: GE electrical interface	4	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 24 W integrated power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

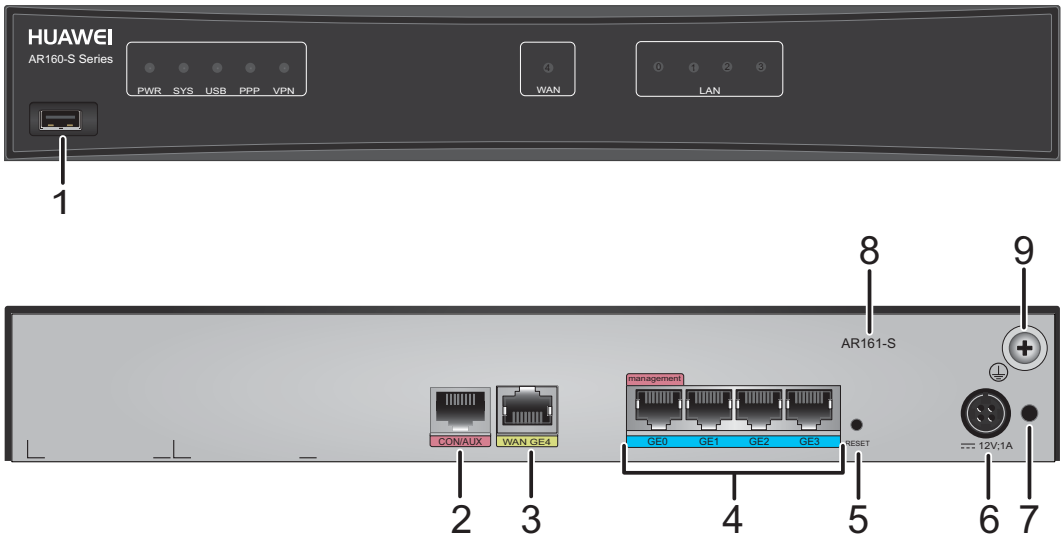
4.5 AR160-S Series

4.5.1 AR161-S

Appearance and Structure

Figure 4-12 shows the appearance of the AR161-S router.

Figure 4-12 AR161-S appearance



1	USB interface (host)	2	CON/AUX interface **NOTE** The AR161-S does not support AUX login.
3	WAN interface: GE electrical interface	4	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.

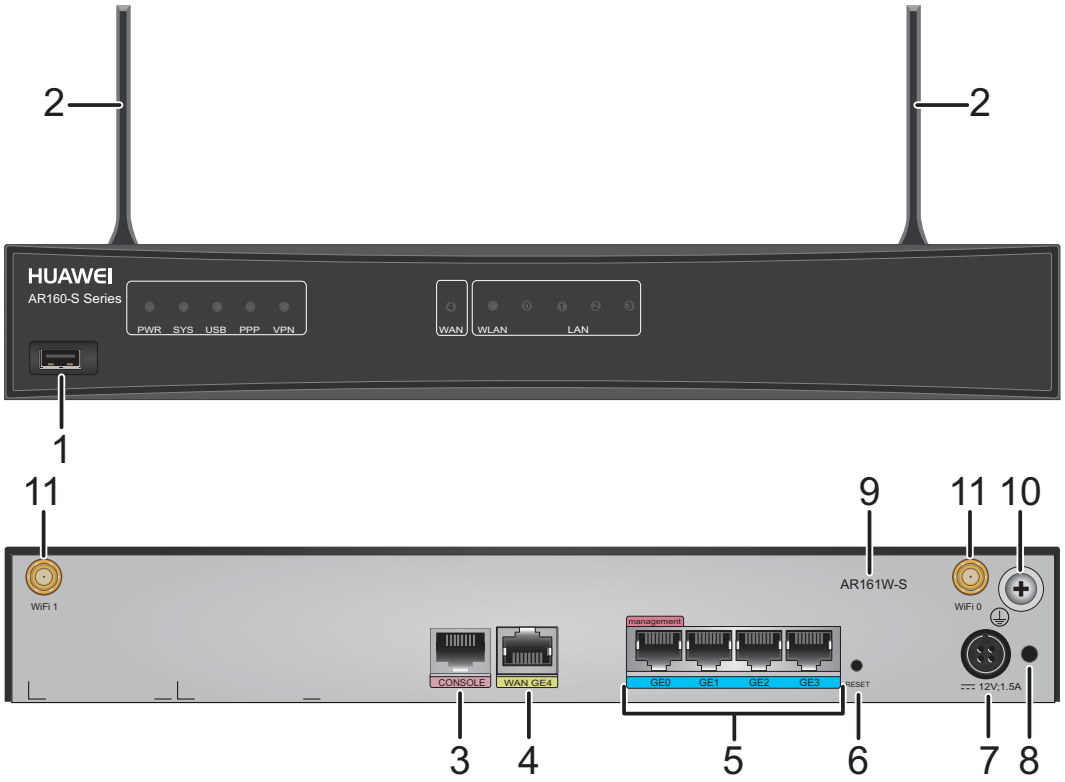
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 24 W integrated power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

4.5.2 AR161W-S

Appearance and Structure

Figure 4-13 shows the appearance of the AR161W-S router.

Figure 4-13 AR161W-S appearance



1	USB interface (host)	2	Two Wi-Fi antennas
3	CONSOLE interface	4	WAN interface: GE electrical interface
5	LAN interfaces: four GE electrical interfaces **NOTE** ● GE0 is a management interface and is used to upgrade the router. ● All GE LAN interfaces can be configured as WAN interfaces.	6	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.
7	Power jack **NOTE** The router uses a 24 W integrated power adapter.	8	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.
9	Product model silkscreen	10	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
11	Two Wi-Fi antenna interfaces	-	-

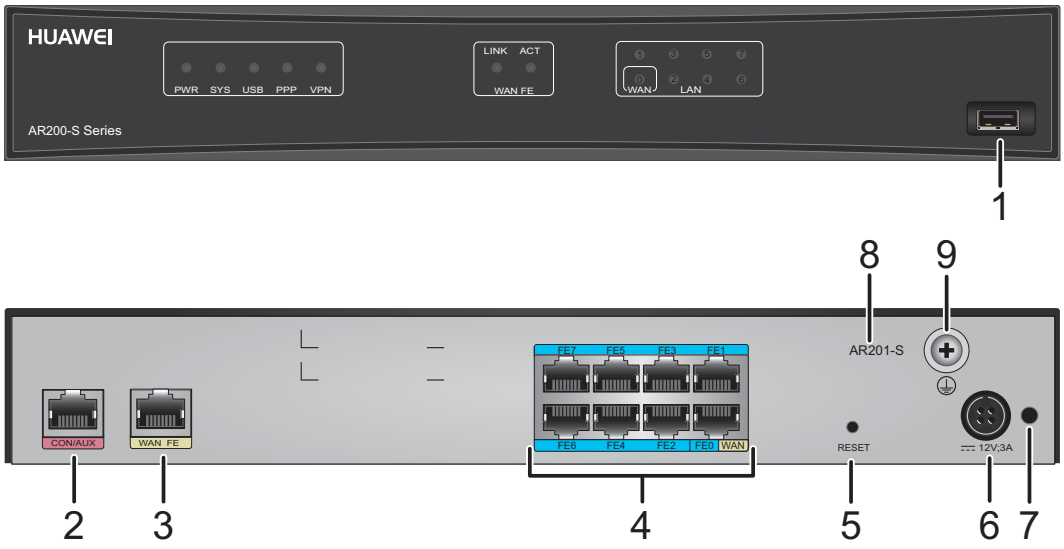
4.6 AR200-S Series

4.6.1 AR201-S

Appearance and Structure

Figure 4-14 shows the appearance of the AR201-S router.

Figure 4-14 AR201-S appearance



1	USB interface (host)	2	CON/AUX interface **NOTE** The AR201-S does not support AUX login.
3	WAN interface: FE electrical interface	4	LAN interfaces: eight FE electrical interfaces **NOTE** ● LAN interface FE0 can be configured as a WAN interface. ● FE6 is a management interface and is used to upgrade the router. ● V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.
5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 4-pin 36 W power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen

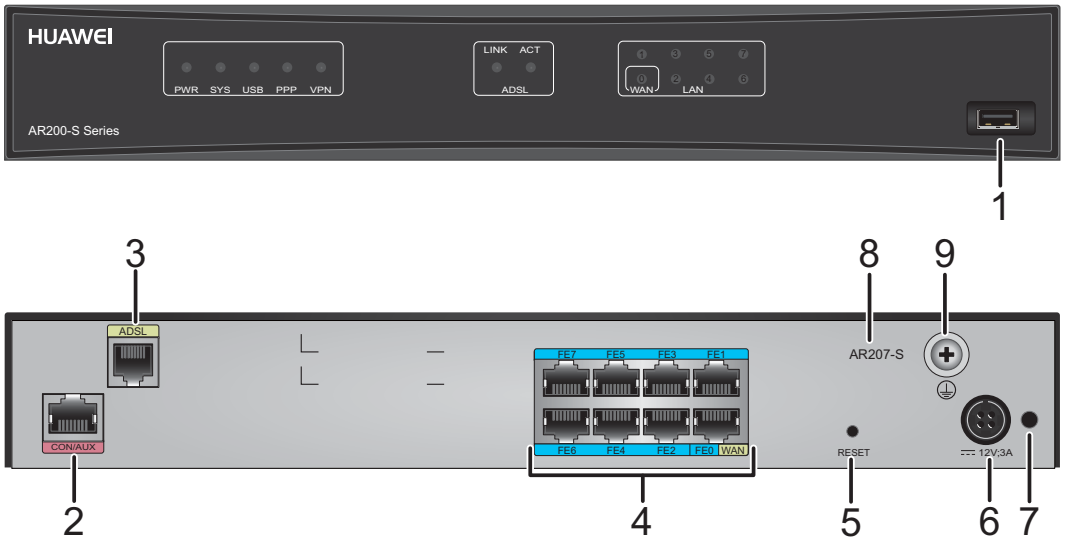
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

4.6.2 AR207-S

Appearance and Structure

Figure 4-15 shows the appearance of the AR207-S router.

Figure 4-15 AR207-S appearance



1	USB interface (host)	2	CON/AUX interface **NOTE** The AR207-S does not support AUX login.
3	WAN interface: ADSL-A/M interface **NOTE** This interface supports the dying gasp function.	4	LAN interfaces: eight FE electrical interfaces **NOTE** ● LAN interface FE0 can be configured as a WAN interface. ● FE6 is a management interface and is used to upgrade the router. ● V200R007C00 and later versions: all FE LAN interfaces can be configured as WAN interfaces.

5	RST button **NOTE** This button is used to reset the router. ● To restore the factory settings, hold down the button for at least 5 seconds. ● To reset the system, press the button. Resetting the router will interrupt services. Exercise caution when deciding to press this button.	6	Power jack **NOTE** The router uses a 4-pin 36 W power adapter.
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	-	-

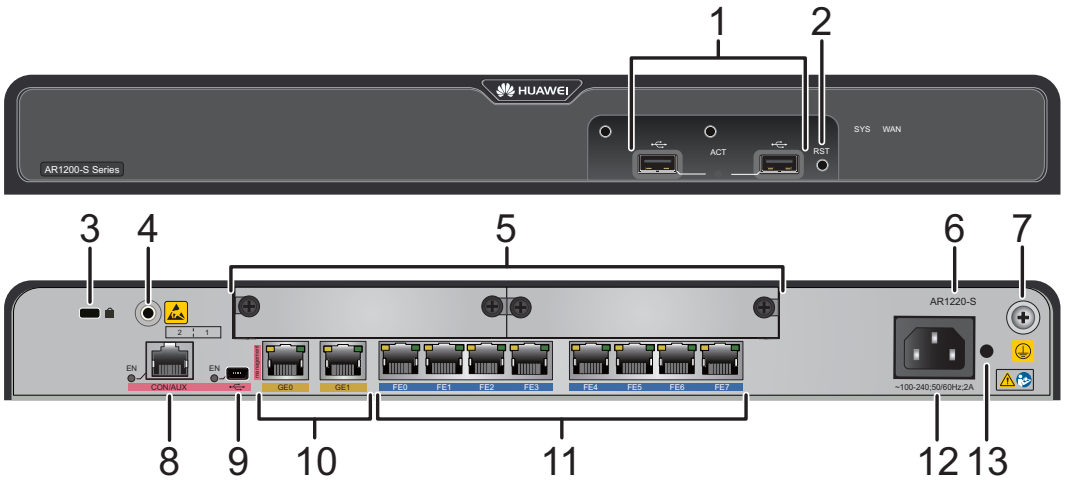
4.7 AR1200-S Series

4.7.1 AR1220-S

Appearance and Structure

Figure 4-16 shows the appearance of the AR1220-S router.

Figure 4-16 AR1220-S appearance



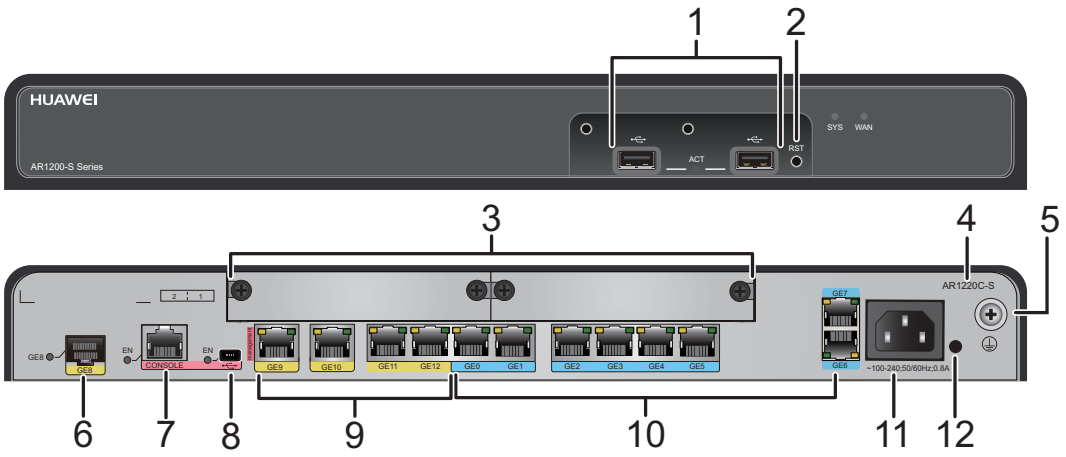
1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	Security lock	4	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	8	CON/AUX interface **NOTE** The AR1220-S does not support AUX login.
9	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces **NOTE** GE0 is a management interface and is used to upgrade the router.
11	LAN interfaces: eight FE electrical interfaces	12	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
13	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	-	-

4.7.2 AR1220C-S

Appearance and Structure

Figure 4-17 shows the appearance of the AR1220C-S router.

Figure 4-17 AR1220C-S appearance



1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	Two SIC slots	4	Product model silkscreen
5	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	6	WAN interface: GE optical interface
7	CONSOLE interface	8	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.
9	WAN interface: GE electrical interface	10	LAN interfaces: eight GE electrical interfaces **NOTE** All GE LAN interfaces can be configured as WAN interfaces.

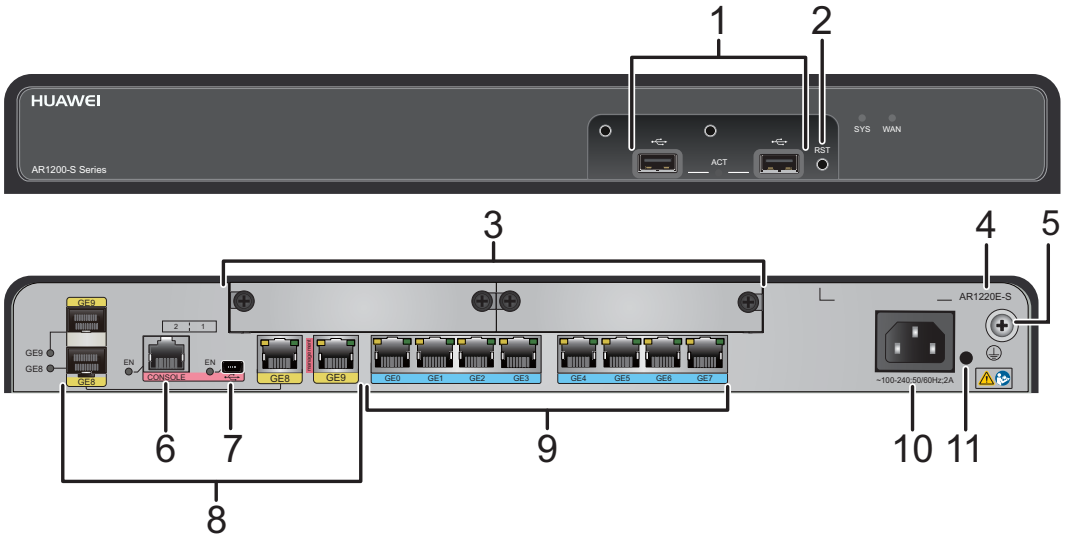
11	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.	12	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.

4.7.3 AR1220E-S

Appearance and Structure

Figure 4-18 shows the appearance of the AR1220E-S router.

Figure 4-18 AR1220E-S appearance



1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	Two SIC slots	4	Product model silkscreen

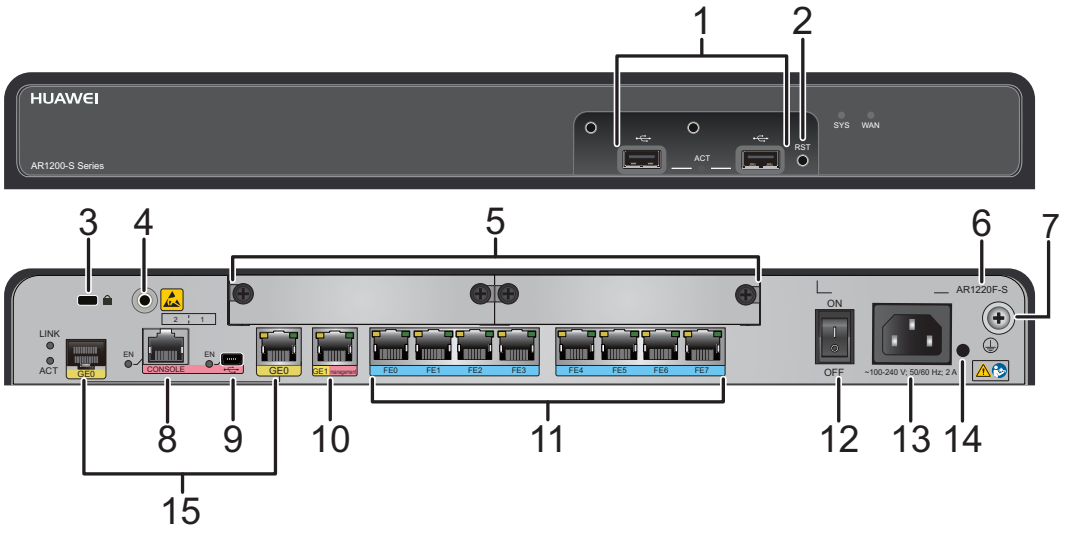
5	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	6	CONSOLE interface
7	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	8	WAN interface: GE combo interface
9	LAN interfaces: eight GE electrical interfaces	10	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
11	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	-	-

4.7.4 AR1220F-S

Appearance and Structure

Figure 4-19 shows the appearance of the AR1220F-S router.

Figure 4-19 AR1220F-S appearance



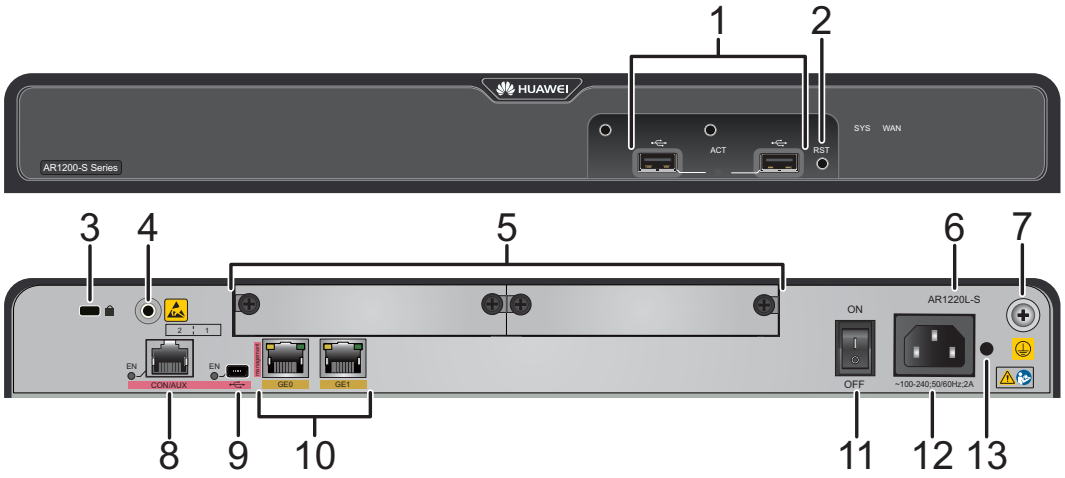
1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	Security lock	4	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	8	CONSOLE interface
9	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	10	WAN interface: GE electrical interface
11	LAN interfaces: eight FE electrical interfaces	12	Power switch
13	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.	14	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.
15	WAN interface: GE combo interface	-	-

4.7.5 AR1220L-S

Appearance and Structure

Figure 4-20 shows the appearance of the AR1220L-S router.

Figure 4-20 AR1220L-S appearance



1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	Security lock	4	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
5	Two SIC slots	6	Product model silkscreen
7	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	8	CON/AUX interface **NOTE** The AR1220L-S does not support AUX login.
9	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	10	WAN interfaces: two GE electrical interfaces **NOTE** GE0 is a management interface and is used to upgrade the router.

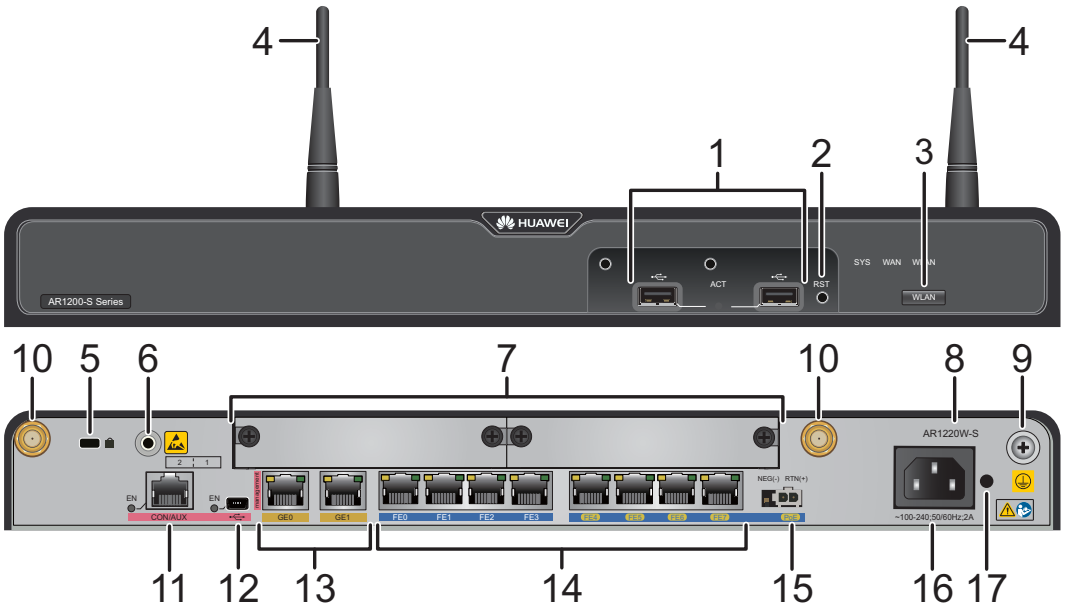
11	Power switch	12	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
13	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	-	-

4.7.6 AR1220W-S

Appearance and Structure

Figure 4-21 shows the appearance of the AR1220W-S router.

Figure 4-21 AR1220W-S appearance



1	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	2	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
3	WLAN button **NOTE** This button is used to enable and disable the WLAN function.	4	Two Wi-Fi antennas
5	Security lock	6	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
7	Two SIC slots	8	Product model silkscreen
9	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	10	Two Wi-Fi antenna interfaces
11	CON/AUX interface **NOTE** The AR1220W-S does not support AUX login.	12	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.
13	WAN interfaces: two GE electrical interfaces **NOTE** GE0 is a management interface and is used to upgrade the router.	14	LAN interfaces: eight FE electrical interfaces
15	PoE power jack **NOTE** The PoE power jack connects to a 100 W PoE power adapter to provide power for PDs (such as IP phones, WLAN APs, and cameras) connected to FE interfaces of the router.	16	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
17	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	-	-

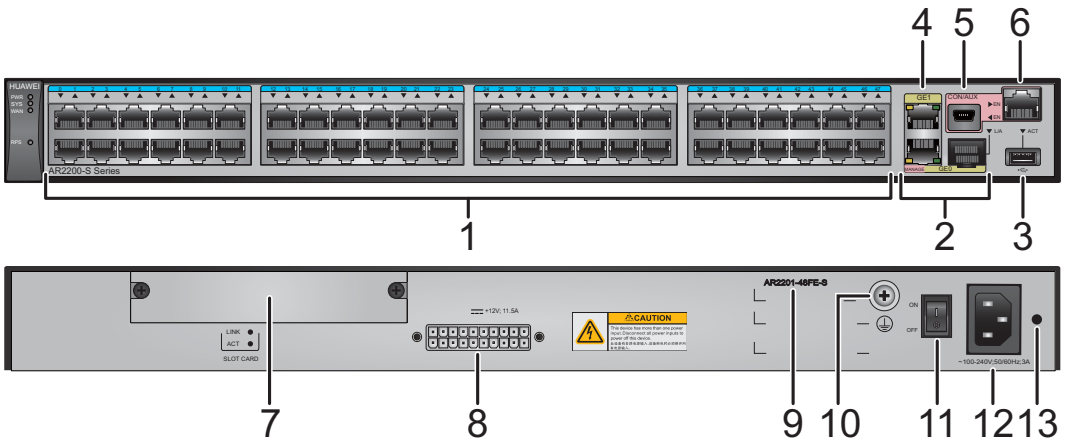
4.8 AR2200-S Series

4.8.1 AR2201-48FE-S

Appearance and Structure

Figure 4-22 shows the appearance of the AR2201-48FE-S router.

Figure 4-22 AR2201-48FE-S appearance



1	LAN interfaces: forty-eight FE electrical interfaces	2	WAN interface: GE combo interface
3	USB interface (host)	4	WAN interface: GE electrical interface
5	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	6	CON/AUX interface **NOTE** The AR2201-48FE-S does not support AUX login.
7	Extended card slot **NOTE** The slot is reserved, and no extended card is supported currently.	8	RPS power socket **NOTE** The router uses a 150 W RPS power supply.
9	Product model silkscreen	10	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
11	Power switch	12	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.

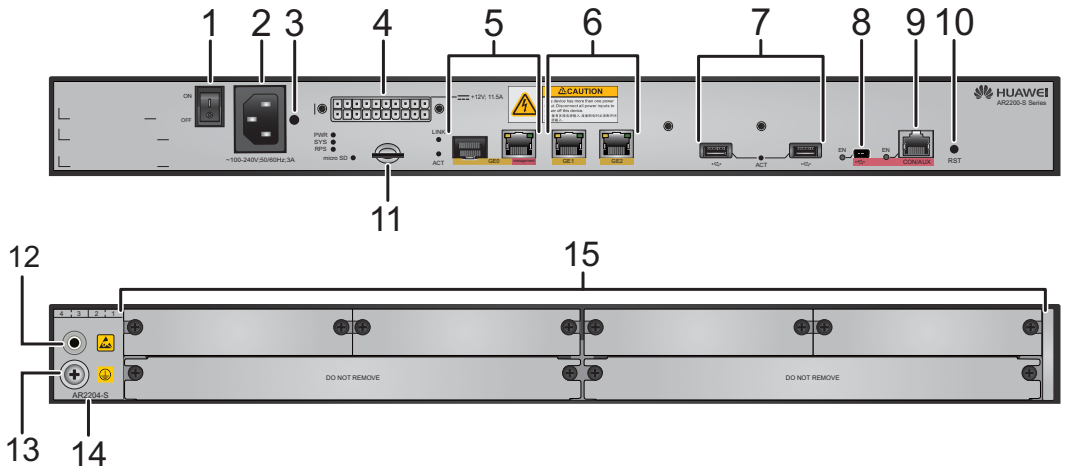
13	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	-	-

4.8.2 AR2204-S

Appearance and Structure

Figure 4-23 shows the appearance of the AR2204-S router.

Figure 4-23 AR2204-S appearance



1	Power switch	2	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
3	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	4	RPS power socket **NOTE** The router uses a 150 W RPS power supply.
5	WAN interface: GE combo interface	6	WAN interfaces: two GE electrical interfaces

7	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	8	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.
9	CON/AUX interface **NOTE** The AR2204-S does not support AUX login.	10	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
11	Micro SD card slot	12	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
13	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	14	Product model silkscreen
15	Four SIC slots	-	-

Slot Distribution

NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-24 shows the slot distribution of the AR2204-S router.

Figure 4-24 Slot distribution of the AR2204-S router

Device Model		Slot Distribution	Slot Combination
AR2204-S	Front view	NA	NA
	Rear view	4(SIC) 3(SIC) 2(SIC) 1(SIC) NA NA	Two SIC slots are combined into one WSIC slot 4(WSIC) 2(WSIC) NA NA

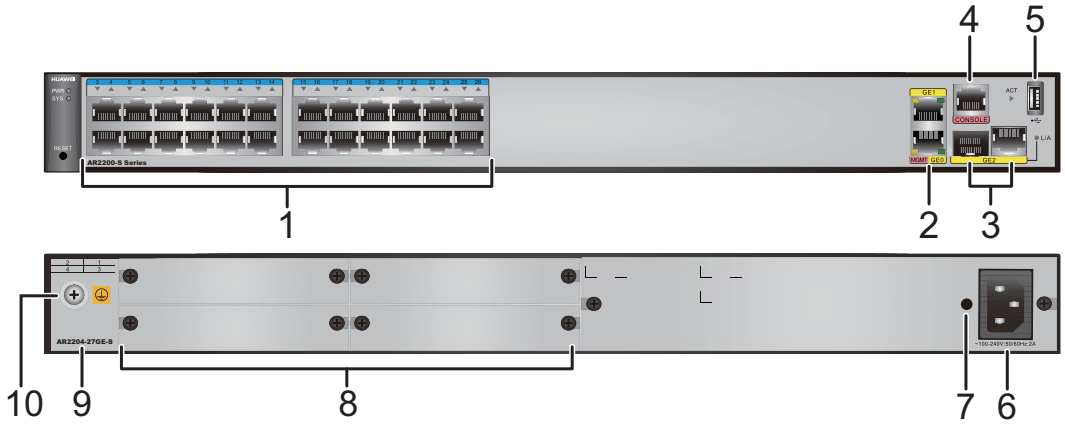
- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.

4.8.3 AR2204-27GE-S

Appearance and Structure

Figure 4-25 shows the appearance of the AR2204-27GE-S router.

Figure 4-25 AR2204-27GE-S appearance



1	LAN interfaces: twenty-four GE electrical interfaces **NOTE** All GE LAN interfaces can be configured as WAN interfaces.	2	WAN interfaces: two GE electrical interfaces **NOTE** GE0 is a management interface and is used to upgrade the router.
3	WAN interface: GE combo interface	4	CONSOLE interface
5	One USB interface (host)	6	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.

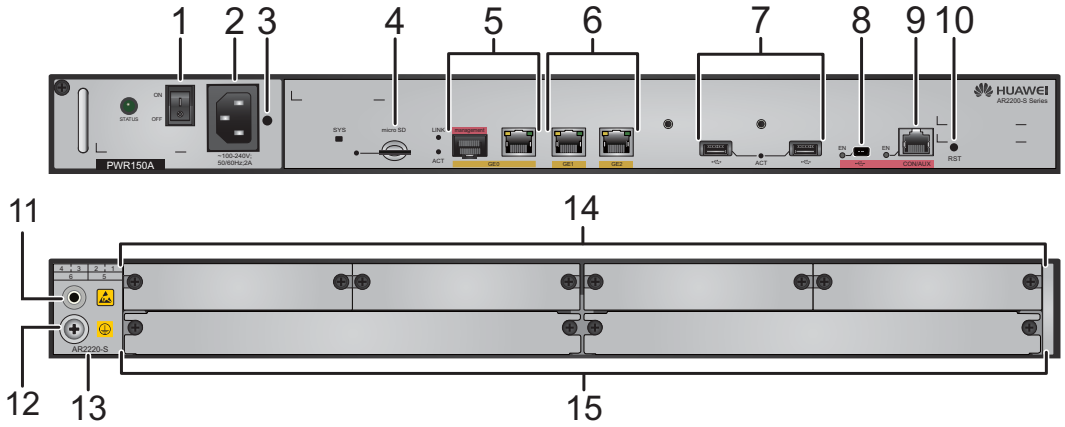
7	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	8	Four SIC slots
9	Product model silkscreen	10	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.

4.8.4 AR2220-S

Appearance and Structure

Figure 4-26 shows the appearance of the AR2220-S router.

Figure 4-26 AR2220-S appearance



1	Power switch	2	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.
3	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.	4	Micro SD card slot
5	WAN interface: GE combo interface	6	WAN interfaces: two GE electrical interfaces

7	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 	8	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.
9	CON/AUX interface **NOTE** The AR2220-S does not support AUX login.	10	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
11	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	12	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
13	Product model silkscreen	14	Four SIC slots
15	Two WSIC slots	-	-

Slot Distribution

NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.

Figure 4-27 shows the slot distribution of the AR2220-S router.

Figure 4-27 Slot distribution of the AR2220-S router

Device Model		Slot Distribution	Slot Combination
AR2220-S	Front view	NA	NA
	Rear view	4(SIC) 3(SIC) 2(SIC) 1(SIC) 6(WSIC) 5(WSIC)	Two SIC slots are combined into one WSIC slot 4(WSIC) 2(WSIC) 6(WSIC) 5(WSIC) Two WSIC slots are combined into one XSIC slot 6(XSIC) 5(XSIC)

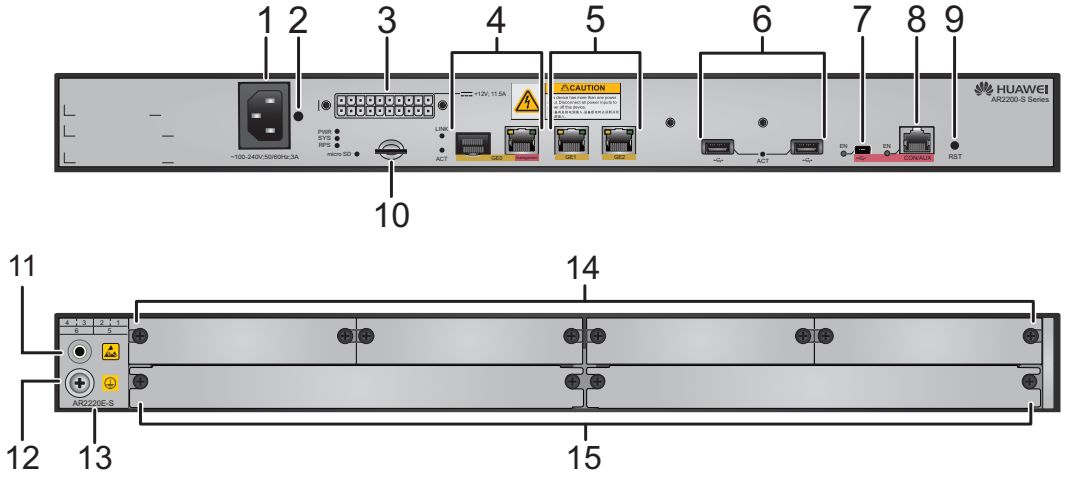
- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.
- New slot 2 and slot 5 can be combined into new slot 5.
- New slot 4 and slot 6 can be combined into new slot 6.

4.8.5 AR2220E-S

Appearance and Structure

Figure 4-28 shows the appearance of the AR2220E-S router.

Figure 4-28 AR2220E-S appearance



1	AC power jack **NOTE** Use an AC power cable to connect the router to an external power source.	2	Jack for power cable locking strap **NOTE** Insert a power cable locking strap in this jack to secure the power cable.

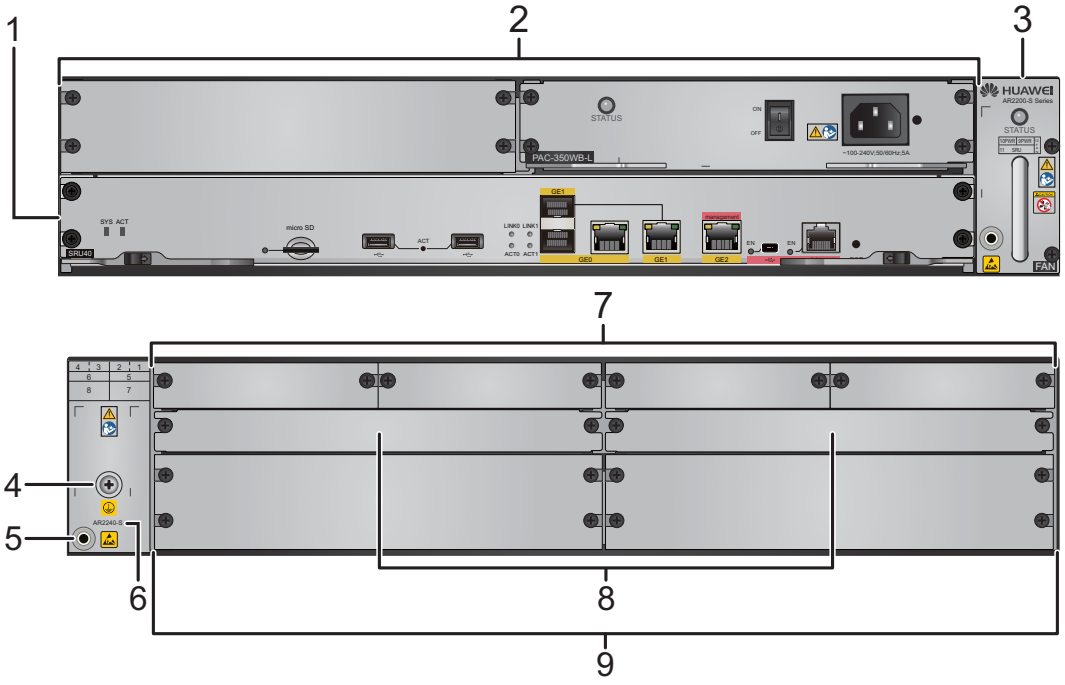
3	RPS power socket **NOTE** Use an RPS150 power and communication cable to connect the router to a 150 W RPS power supply system.	4	WAN interface: GE combo interface
5	WAN interfaces: two GE electrical interfaces	6	Two USB interfaces (host) **NOTE** After a 3G USB modem is inserted, you are advised to install a plastic USB protection cap (optional) on it. There are two tapped holes above a USB interface. Insert screws in the tapped holes to fix the plastic protection cap. The following figure shows a plastic USB protection cap. 
7	Mini USB interface **NOTE** The Mini USB interface and console interface cannot be used at the same time.	8	CON/AUX interface **NOTE** The AR2220E-S does not support AUX login.
9	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.	10	Micro SD card slot
11	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	12	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
13	Product model silkscreen	14	Four SIC slots
15	Two WSIC slots	-	-

4.8.6 AR2240-S

Appearance and Structure

Figure 4-29 shows the appearance of the AR2240-S router.

Figure 4-29 AR2240-S appearance



1	SRU slot	2	Two power module slots Applicable power modules: ● 350 W AC power module ● 850 W AC PoE power module
3	Fan module slot	4	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
5	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	6	Product model silkscreen
7	Four SIC slots	8	Two WSIC slots
9	Two XSIC slots	-	-

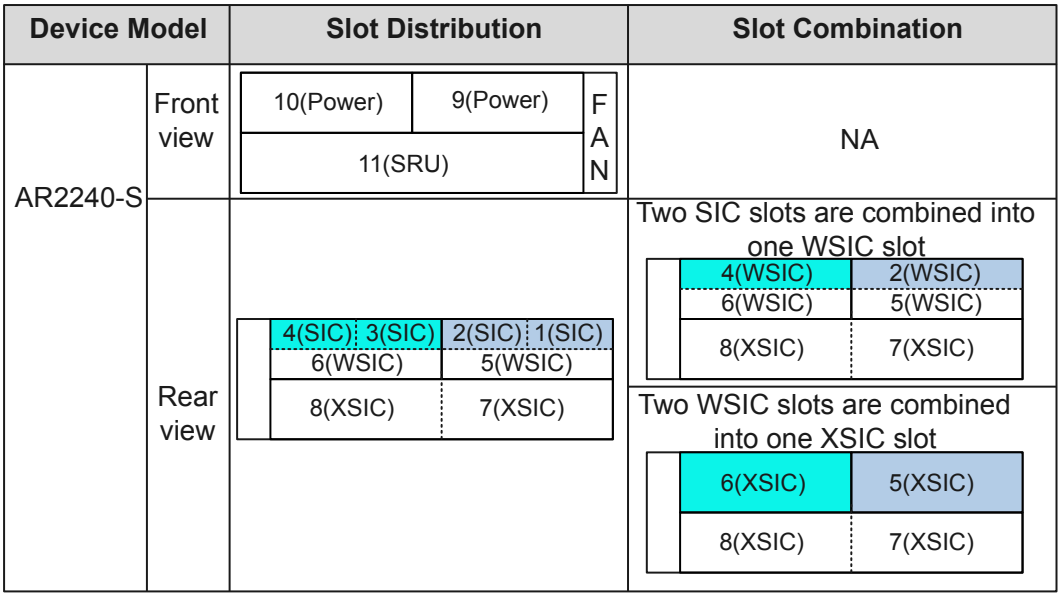
Slot Distribution

NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot with a special component. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

Figure 4-30 shows the slot distribution of the AR2240-S router.

Figure 4-30 Slot distribution of the AR2240-S router



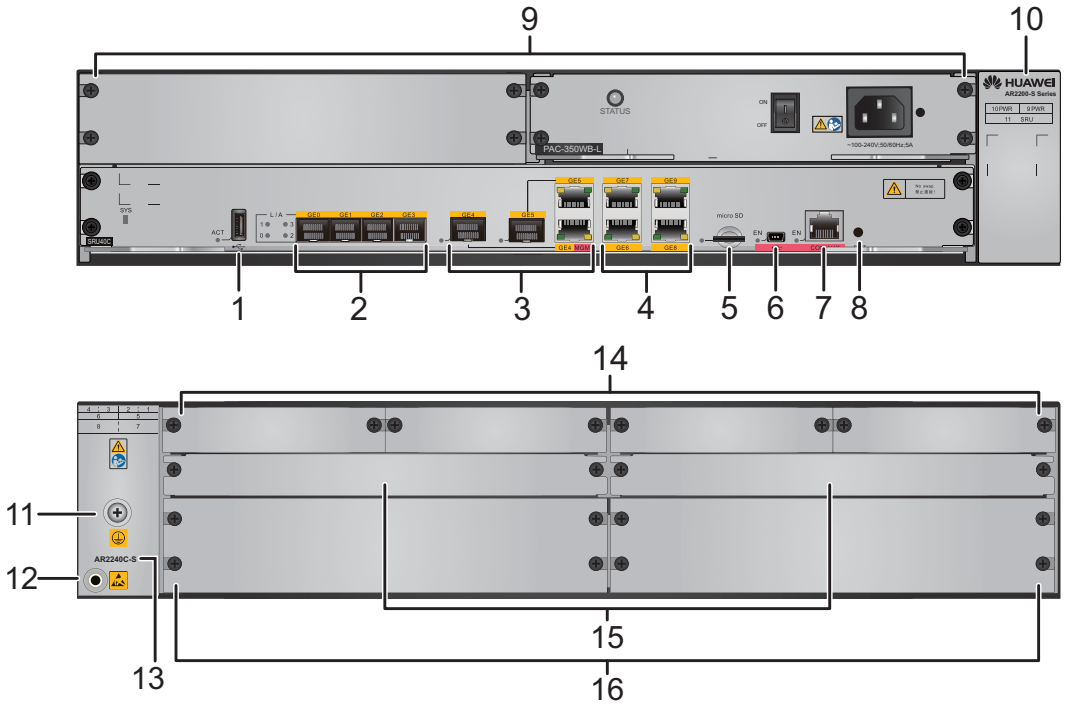
- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.
- New slot 2 and slot 5 can be combined into new slot 5.
- New slot 4 and slot 6 can be combined into new slot 6.

4.8.7 AR2240C-S

Appearance and Structure

Figure 4-31 shows the appearance of the AR2240C-S router.

Figure 4-31 AR2240C-S appearance



1	USB interface (host)	2	WAN interfaces: four GE optical interfaces
3	WAN interfaces: two GE combo interfaces	4	WAN interfaces: four GE electrical interfaces
5	Micro SD card slot	6	Mini USB interface
7	CON/AUX interface	8	RST button **NOTE** ● This button is used to reset the router. ● Resetting the router will interrupt services. Exercise caution when deciding to press this button.
9	Two power module slots Applicable power modules: ● 350 W AC power module ● 850 W AC PoE power module	10	Built-in fan module
11	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.	12	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.
13	Product model silkscreen	14	Four SIC slots

15	Two WSIC slots	16	Two XSIC slots

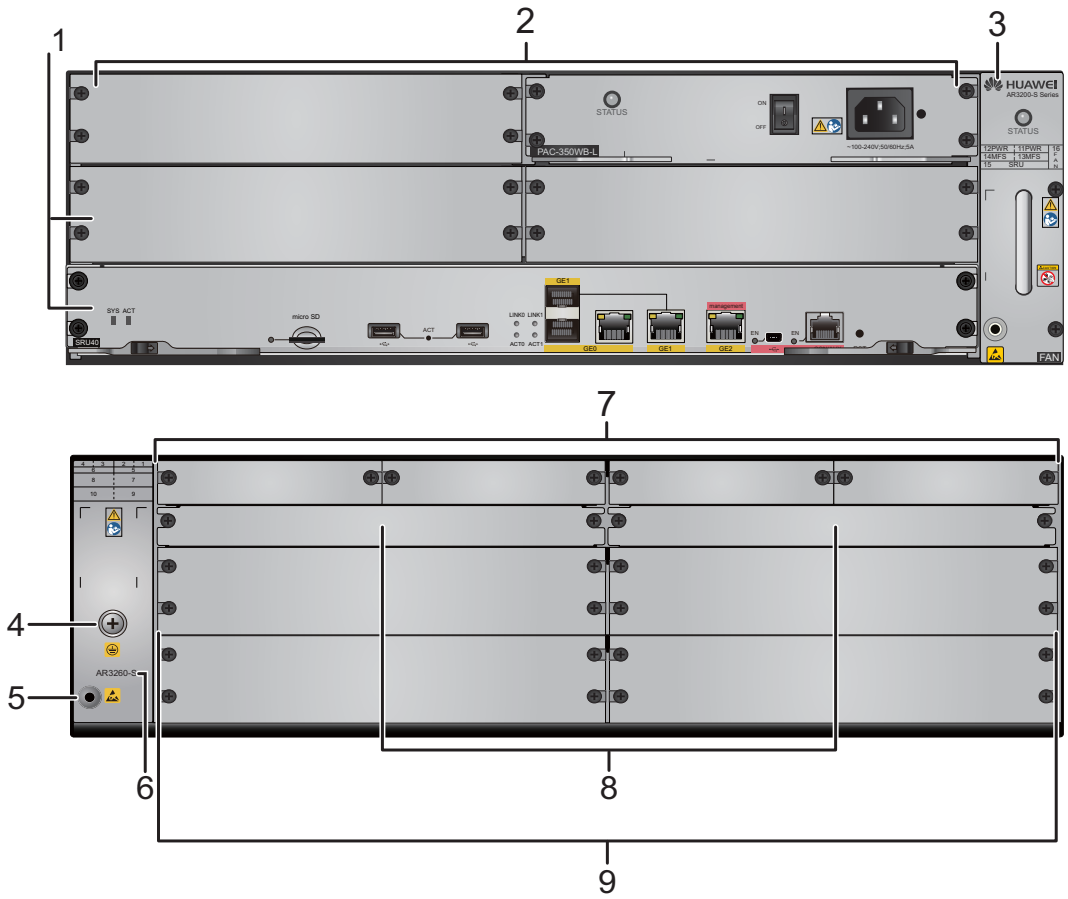
4.9 AR3200-S Series

4.9.1 AR3260-S

Appearance and Structure

Figure 4-32 shows the appearance of the AR3260-S router.

Figure 4-32 AR3260-S appearance



1	SRU slot **NOTE** ● Versions earlier than V200R005C00: support a single SRU and reserve the capability to support double SRUs. ● V200R005C00 and later versions: support double SRUs working in hot standby mode.	2	Two power module slots Applicable power modules: ● 350 W AC power module ● 850 W AC PoE power module

3	Fan module slot	4	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
5	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	6	Product model silkscreen
7	Four SIC slots	8	Two WSIC slots
9	Four XSIC slots	-	-

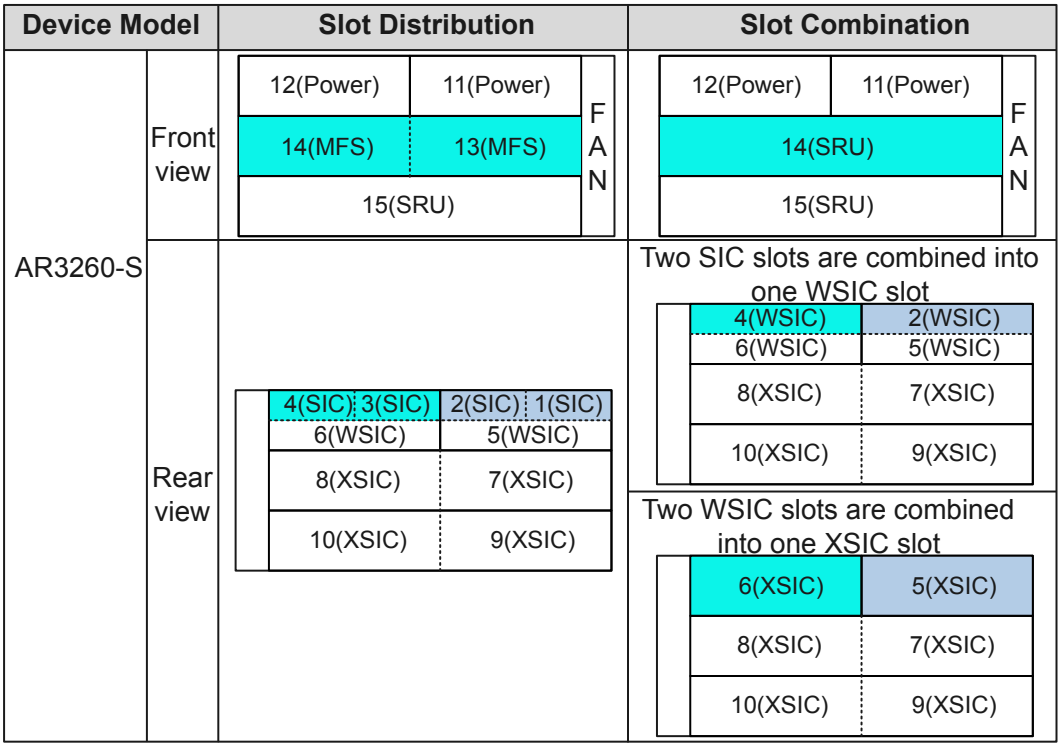
Slot Distribution

NOTE

- Two SIC slots can be combined into one WSIC slot by removing the guide rail between them.
- Two SIC slots and the WSIC slot below them can be combined into one XSIC slot by removing the guide rails.
- After two slots are combined into one, the new slot ID is the larger one between the two original slot IDs.
- In V200R002C00 and later versions, a WSIC card can be inserted into an XSIC slot with a special component. The WSIC card is in the lower part of the slot and uses the XSIC slot ID as its own slot ID.

Figure 4-33 shows the slot distribution of the AR3260-S router.

Figure 4-33 Slot distribution of the AR3260-S router



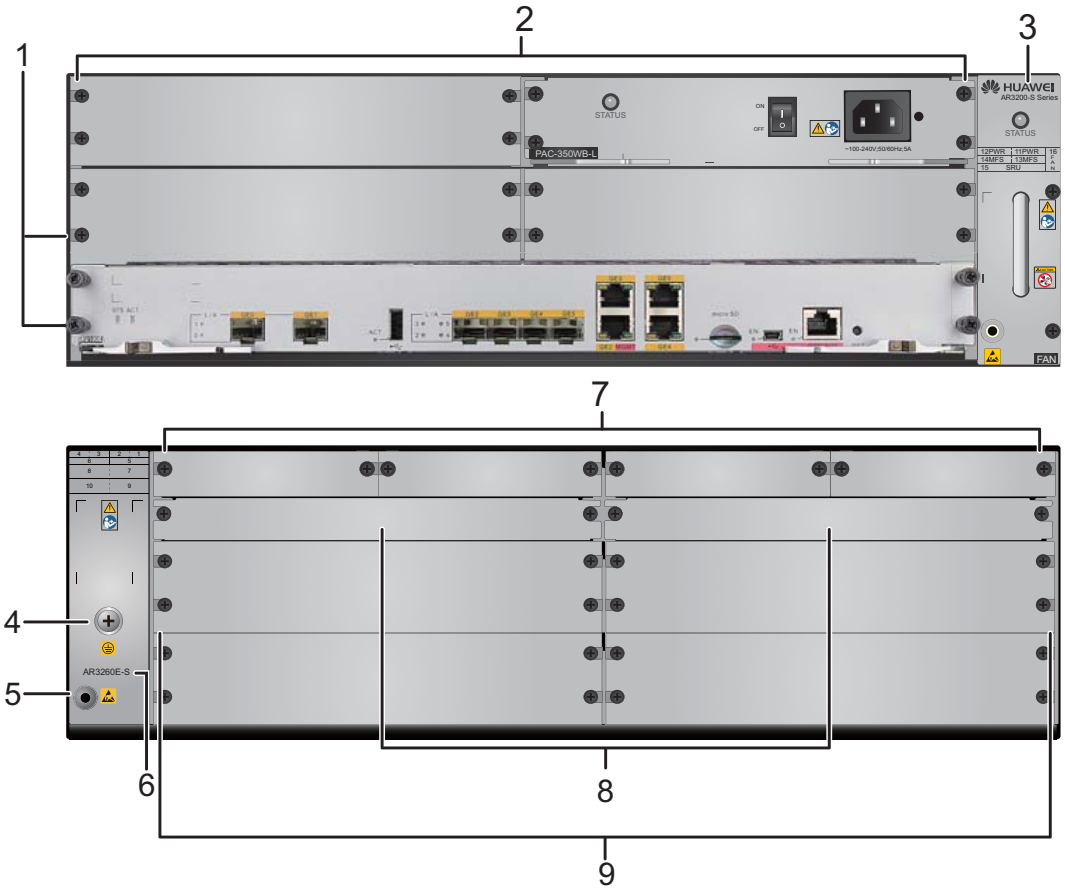
- Slot 1 and slot 2 can be combined into new slot 2.
- Slot 3 and slot 4 can be combined into new slot 4.
- New slot 2 and slot 5 can be combined into new slot 5.
- New slot 4 and slot 6 can be combined into new slot 6.
- New slot 13 and slot 14 can be combined into new slot 14 to function as the standby SRU slot.

4.9.2 AR3260E-S

Appearance and Structure

Figure 4-34 shows the appearance of the AR3260E-S router.

Figure 4-34 AR3260E-S appearance



1	Two SRU slots **NOTE** ● Versions earlier than V200R005C00: support a single SRU and reserve the capability to support double SRUs. ● V200R005C00 and later versions: support double SRUs working in hot standby mode.	2	Two power module slots Applicable power modules: ● 350 W AC power module ● 850 W AC PoE power module
3	Fan module slot	4	Ground point **NOTE** Reliably ground the router by connecting a ground cable to the ground point to protect the router against lightning and interference.
5	ESD jack **NOTE** When maintaining the router, wear an ESD wrist strap and insert the other end of the ESD wrist strap in the ESD jack.	6	Product model silkscreen
7	Four SIC slots	8	Two WSIC slots

9	Four XSIC slots	-	-

5 Operation and Maintenance

About This Chapter

5.1 Various Maintenance Methods

The device supports various local and remote maintenance methods.

5.1.1 Command Line Maintenance

The device provides the command line mode for local or remote maintenance:

- Local maintenance using the console interface
- Local or remote maintenance using Telnet
- Secure shell (SSH) maintenance: guarantees security and provides authentication for login users on an insecure network, and defends against various attacks, including IP address spoofing, plain text password interception, and denial of service (DoS).

5.1.2 Web-based Network Management System

The device supports the web-based network management system, which provides GUI for device configuration and management.

Users can use the web-based system to manage network devices on the GUI. A junior engineer can use the GUI easily.

5.1.3 CWMP Maintenance

The CPE WAN Management Protocol (CWMP) is drafted by the Digital Subscriber's Line (DSL) forum. It is also called TR-069 standard. CWMP standardizes the communication between customer premises equipment (CPE) and auto-configuration server (ACS).

There are a lot of user devices separated on the access network. They are difficult to manage and maintain. TheARs are the CPE deployed at the user network side. The ACS uses CWMP

to remotely manage the CPE. This reduces maintenance cost and improves troubleshooting efficiency.

5.1.4 Remote Deployment and Maintenance Using USB

As the network expands, more and more network devices are used and software commissioning costs increase. USB-based deployment does not require software commissioning, which reduces deployment costs.

Before using a USB flash drive to configure the device, store software package and configuration files on the USB flash drive. Software engineers do not need to commission devices onsite. After installing the device, hardware engineers will insert the USB flash drive into the USB interface on the device and power on it. After being started, the device automatically loads and upgrades the software.

5.1.5 SNMP-based Maintenance

The device supports the Simple Network Management Protocol (SNMP) v1/v2c/v3 and the Client/Server model. The ARs can be managed by the network management system (NMS), such as iManager U2000 and eSight.

5.2 Fault Location

5.2.1 Device Fault Location

The device supports the following functions to locate device faults:

- Log

  After detecting a device error or recovery event, the device logs the event and sends the information to the background server.
- Fast information collection

  A system administrator can use **display diagnostic-information** to collect device fault information.
- Device monitoring

  The device can monitor all the key indexes and components such as voltage, temperature, fan, power supply unit and board. In addition, the device can send a trap if an error occurs.

5.2.2 Service Fault Location

The device supports the following functions to locate service faults:

- Locating Ethernet interface faults

  The device supports interface status display, line tests, and loopback tests on interfaces. The device tests packet sending and receiving on interfaces and collect packet statistics, assisting administrators to locate network faults and Ethernet interface connection faults.
- Network-side interface faults

  The device supports WAN interface tests, which collect traffic statistics and event statistics on WAN interfaces and perform tests such as ATM OAM, and interface loopback.

- Port mirroring and traffic mirroring

  The device supports packet mirroring on Ethernet interfaces, mirroring of packets from a network-side interface to a user-side Ethernet interface, and mirroring of protocol packets sent to the CPU.

- Connection fault

  The device tests connections and display connection status on network-side interfaces, and collect connection statistics.

- Voice signal fault

  The device records the entire signal interaction process and test signal online. In addition, the device tests the quality of VoIP services and locate dialing and service faults.

6 Technical Specifications

About This Chapter

6.1 AR100-S Series

6.1.1 AR101-S

Technical Specifications

Table 6-1 lists the technical specifications of the AR101-S router.

Table 6-1 AR101-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 900 MHz

Item	Specification
Memory	256 MB
Flash	256 MB
Micro SD card (default)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	230 mm x 130 mm x 30 mm (9.06 in. x 5.12 in. x 1.18 in.), 1 U height
Weight	0.6 kg (1.32 lb)
Power specifications	
Rated input voltage (AC)	110 V to 220 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	15 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1

Item	Specification
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 40°C (32°F to 104°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010305

6.1.2 AR101W-S

Technical Specifications

Table 6-2 lists the technical specifications of the AR101W-S router.

Table 6-2 AR101W-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 900 MHz
Memory	256 MB
Flash	256 MB
Micro SD card (default)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	230 mm x 130 mm x 30 mm (9.06 in. x 5.12 in. x 1.18 in.), 1 U height
Weight	0.6 kg (1.32 lb)

Item	Specification
Power specifications	
Rated input voltage (AC)	110 V AC to 220 V AC, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	15 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 40°C (32°F to 104°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)

Item	Specification
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010306

6.1.3 AR101GW-Lc-S

Technical Specifications

Table 6-3 lists the technical specifications of the AR101GW-Lc-S router.

Table 6-3 AR101GW-Lc-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	230 mm x 130 mm x 30 mm (9.1 in. x 5.1 in. x 1.2 in.), 1 U height
Weight	0.6 kg (1.32 lb)
Power specifications	
Rated input voltage (AC)	110 V AC to 220 V AC, 50 Hz/60 Hz
Maximum AC input voltage	90 V AC to 270 V AC, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported

Item	Specification
Power consumption	
Maximum power consumption	15 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE electrical interface and two LTE antenna interfaces LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 40°C (32°F to 104°F) **NOTE** When the altitude is 1800-5000 m (5906-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010367

6.2 AR110-S Series

6.2.1 AR111-S

Technical Specifications

Table 6-4 lists the technical specifications of the AR111-S router.

Table 6-4 AR111-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	256 MB
Flash	256 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	9.3 W
Heat dissipation	
Fans	None

Item	Specification
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010284

6.2.2 AR111EC-S

Technical Specifications

Table 6-5 lists the technical specifications of the AR111EC-S router.

Table 6-5 AR111EC-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 900 MHz
Memory	256 MB

Item	Specification
Flash	256 MB
Micro SD card (default)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	230 mm x 130 mm x 30 mm (9.06 in. x 5.12 in. x 1.18 in.), 1 U height
Weight	0.6 kg (1.32 lb)
Power specifications	
Rated input voltage (AC)	110 V to 220 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 270 V, 45 Hz to 65 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	15 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces

Item	Specification
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 40°C (32°F to 104°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010456

6.3 AR120-S Series

6.3.1 AR121-S

Technical Specifications

Table 6-6 lists the technical specifications of the AR121-S router.

Table 6-6 AR121-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height

Item	Specification
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	9.3 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)

Item	Specification
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010325

6.3.2 AR121W-S

Technical Specifications

Table 6-7 lists the technical specifications of the AR121W-S router.

Table 6-7 AR121W-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	11.32 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010326

6.4 AR150-S series

6.4.1 AR151-S

Technical Specifications

Table 6-8 lists the technical specifications of the AR151-S router.

Table 6-8 AR151-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	

Item	Specification
Maximum power consumption	11.6 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces, among which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02356729

6.4.2 AR151W-P-S

Technical Specifications

Table 6-9 lists the technical specifications of the AR151W-P-S series routers.

Table 6-9 AR151W-P-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces FE0 to FE3)
Power consumption	
Maximum power consumption	10.4 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)

Item	Specification
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one FE electrical interface LAN interfaces: four FE electrical interfaces, among which LAN interface FE0 can be used as a WAN interface, and two Wi-Fi antenna interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02356730

6.4.3 AR151G-U-S

Technical Specifications

Table 6-10 lists the technical specifications of the AR151G-U-S router.

Table 6-10 AR151G-U-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported

Item	Specification
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	12.4 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one FE electrical interfaces and two 3G-U antenna interfaces LAN interfaces: four FE electrical interfaces, among which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported

Item	Specification
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02356731

6.4.4 AR151-S2

Technical Specifications

Table 6-11 lists the technical specifications of the AR151-S2 router.

Table 6-11 AR151-S2 technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	

Item	Specification
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	9.3W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing

Item	Specification
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010213

6.5 AR160-S series

6.5.1 AR161-S

Technical Specifications

Table 6-12 lists the technical specifications of the AR161-S router.

Table 6-12 AR161-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W

Item	Specification
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	9.3 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010318

6.5.2 AR161W-S

Technical Specifications

Table 6-13 lists the technical specifications of the AR161W-S router.

Table 6-13 AR161W-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	2 A
Maximum output power	24 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	11.3 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)

Item	Specification
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one GE electrical interface LAN interfaces: four GE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	50010319

6.6 AR200-S series

6.6.1 AR201-S

Technical Specifications

Table 6-14 lists the technical specifications of the AR201-S router.

Table 6-14 AR201-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None

Item	Specification
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	12.3 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one FE electrical interface LAN interfaces: eight FE electrical interfaces, among which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported

Item	Specification
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353845

6.6.2 AR207-S

Technical Specifications

Table 6-15 lists the technical specifications of the AR207-S router.

Table 6-15 AR207-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 300.0 mm x 216.4 mm x 44.0 mm (11.81 in. x 8.52 in. x 1.73 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 216.4 mm x 44.0 mm (19.0 in. x 8.52 in. x 1.73 in.), 1 U height
Weight	2.8 kg (6.17 lb)
Power specifications	

Item	Specification
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum output current	3 A
Maximum output power	36 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption	
Maximum power consumption	16.1 W
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interface: one ADSL-A/M interface LAN interfaces: eight FE electrical interfaces, among which LAN interface FE0 can be used as a WAN interface
Extended slots	Not supported
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)

Item	Specification
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353846

6.7 AR1200-S series

6.7.1 AR1220-S

Technical Specifications

Table 6-16 lists the technical specifications of the AR1220-S router.

Table 6-16 AR1220-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.0 in. x 9.2 in. x 1.75 in.), 1 U height
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A

Item	Specification
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	27 W
Maximum power consumption	32 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interface: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353523

6.7.2 AR1220C-S

Technical Specifications

Table 6-17 lists the technical specifications of the AR1220C-S router.

Table 6-17 AR1220C-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.0 in. x 9.2 in. x 1.75 in.), 1 U height
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	0.8 A
Maximum output power	25 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	14 W
Maximum power consumption	15 W

Item	Specification
Heat dissipation	
Fans	None
Airflow (facing the front panel)	None
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces (standard configuration)	WAN interfaces: four GE electrical interfaces and one GE optical interface LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351YEU
Safety and Regulatory Standards	

Item	Specification
EMC standards	● CISPR32 Class A ● EN 55032 Class A ● CISPR24 ● EN 55024 ● ETSI EN 300 386 ● AS/NZS CISPR32 Class A ● FCC Part 15 Subpart B Class A ● ICES 003 Class A ● IEC 61000-3-2 ● EN 61000-3-2 ● IEC 61000-3-3 ● EN 61000-3-3 ● GB 9254 ● VCCI-CISPR32 Class A
Environmental standards	● RoHS ● REACH ● WEEE
Safety standards	● IEC 60950-1 ● EN 60950-1 ● UL 60950-1 ● CSA C22.2 No 60950-1 ● GB 4943.1

6.7.3 AR1220E-S

Technical Specifications

Table 6-18 lists the technical specifications of the AR1220E-S router.

Table 6-18 AR1220E-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	1 GB
Flash	512 MB

Item	Specification
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.00 in. x 9.2 in. x 1.75 in.), 1 U height
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	18 W
Maximum power consumption	20 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2

Item	Specification
Service interfaces	WAN interface: two GE combo interfaces LAN interfaces: eight GE electrical interfaces
Extended slots	2xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02350DQP

6.7.4 AR1220F-S

Technical Specifications

Table 6-19 lists the technical specifications of the AR1220F-S router.

Table 6-19 AR1220F-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.0 in. x 9.2 in. x 1.75 in.), 1 U height

Item	Specification
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	20 W
Maximum power consumption	25 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interfaces: one GE electrical interface and one GE combo interface LAN interfaces: eight FE electrical interfaces
Extended slots	2xSIC
Environment parameters	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02350BVH

6.7.5 AR1220L-S

Technical Specifications

Table 6-20 lists the technical specifications of the AR1220L-S router.

Table 6-20 AR1220L-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.0 in. x 9.2 in. x 1.75 in.), 1 U height
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz

Item	Specification
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	25 W
Maximum power consumption	30 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interface: two GE electrical interfaces
Extended slots	2xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)

Item	Specification
Part number	02356732

6.7.6 AR1220W-S

Technical Specifications

Table 6-21 lists the technical specifications of the AR1220W-S router.

Table 6-21 AR1220W-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 500 MHz
Memory	512 MB
Flash	256 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 390.0 mm x 232.5 mm x 44.5 mm (15.35 in. x 9.2 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 232.5 mm x 44.5 mm (19.0 in. x 9.2 in. x 1.75 in.), 1 U height
Weight	2.9 kg (6.39 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Supported (interfaces FE4 to FE7)
Power consumption (empty chassis)	

Item	Specification
Typical power consumption	36 W
Maximum power consumption	42 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interface: two GE electrical interfaces LAN interfaces: eight FE electrical interfaces and two Wi-Fi antenna interfaces
Extended slots	2xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353524

6.8 AR2200-S series

6.8.1 AR2201-48FE-S

Technical Specifications

Table 6-22 lists the technical specifications of the AR2201-48FE-S routers.

Table 6-22 AR2201-48FE-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 533 MHz
Memory	512 MB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 314.9 mm x 43.6 mm (17.4 in. x 12.4 in. x 1.72 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 314.9 mm x 43.6 mm (19.0 in. x 12.4 in. x 1.72 in.), 1 U height
Weight	4.5 kg (9.92 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	60 W
RPS	Supported
PoE power supply	Not supported
Power consumption (empty chassis)	

Item	Specification
Typical power consumption	35 W
Maximum power consumption	40 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: one GE combo interface and one GE electrical interface LAN interfaces: 48 FE electrical interfaces
Extended slots	None
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02356733

6.8.2 AR2204-S

Technical Specifications

Table 6-23 lists the technical specifications of the AR2204-S router.

Table 6-23 AR2204-S technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 800 MHz
Memory	1 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 420.0 mm x 44.4 mm (17.4 in. x 16.5 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 420.0 mm x 44.4 mm (19.0 in. x 16.5 in. x 1.75 in.), 1 U height
Weight	6 kg (13.22 lb)
Power specifications	
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	35 W
Maximum power consumption	55 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	

Item	Specification
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	4xSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 300 m (984 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02356734

6.8.3 AR2204-27GE-S

Technical Specifications

Table 6-24 lists the technical specifications of the AR2204-27GE-S routers.

Table 6-24 AR2204-27GE-S routers technical specifications

Item	Specification
System parameters	
Processor	Dual-core, 1 GHz
Memory	512 MB
Flash	512 MB
Micro SD card (default: sd1)	None
Hard disk	Not supported

Item	Specification
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 420.0 mm x 44.4 mm (17.4 in. x 16.5 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 420.0 mm x 44.4 mm (19.0 in. x 16.5 in. x 1.75 in.), 1 U height
Weight	5 kg
Power specifications	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V AC to 264 V AC, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	60 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	25 W
Maximum power consumption	30 W
Heat dissipation	
Fan module	Built-in, unpluggable fans
Airflow (facing the front panel)	Left-to-right
Interface density	
Management interfaces	1 (RJ45)
Console interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces (standard configuration)	WAN interfaces: two GE electrical interfaces and one GE combo interface LAN interfaces: 24 GE electrical interfaces
Extended slots	4×SIC

Item	Specification
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is between 1800 m and 5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351YEV
Safety and Regulatory Standards	
EMC standards	● CISPR32 Class A ● EN 55032 Class A ● CISPR24 ● EN 55024 ● ETSI EN 300 386 ● AS/NZS CISPR32 Class A ● FCC Part 15 Subpart B Class A ● ICES 003 Class A ● IEC 61000-3-2 ● EN 61000-3-2 ● IEC 61000-3-3 ● EN 61000-3-3 ● GB 9254 ● VCCI-CISPR32 Class A
Environmental standards	● RoHS ● REACH ● WEEE
Safety standards	● IEC 60950-1 ● EN 60950-1 ● UL 60950-1 ● CSA C22.2 No 60950-1 ● GB 4943.1

6.8.4 AR2220-S

Technical Specifications

Table 6-25 lists the technical specifications of the AR2220-S router.

Table 6-25 AR2220-S technical specifications

Item	Specification
System parameters	
Processor	Quad-core, 600 MHz
Memory	2 GB
Flash	16 MB
Micro SD card (default sd1)	2 GB
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 420.0 mm x 44.5 mm (17.4 in. x 16.5 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 420.0 mm x 44.5 mm (19.0 in. x 16.5 in. x 1.75 in.), 1 U height
Weight	7 kg (15.43 lb)
Power specifications	
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	2 A
Maximum output power	150 W
RPS power supply	Not supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	47 W
Maximum power consumption	65 W

Item	Specification
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	● 4xSIC ● 2xWSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02353978

6.8.5 AR2220E-S

Technical Specifications

Table 6-26 lists the technical specifications of the AR2220E-S router.

Table 6-26 AR2220E-S technical specifications

Item	Specification
System parameters	

Item	Specification
Processor	Quad-core, 1 GHz
Memory	1 GB
Flash	512 MB
Micro SD card (default sd1)	None
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 420.0 mm x 44.5 mm (17.4 in. x 16.5 in. x 1.75 in.), 1 U height ● With mounting brackets installed: 482.6 mm x 420.0 mm x 44.5 mm (19.0 in. x 16.5 in. x 1.75 in.), 1 U height
Weight	6 kg (13.22 lb)
Power specifications	
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	3 A
Maximum output power	150 W
RPS power supply	Supported
PoE power supply	Not supported
Power consumption (empty chassis)	
Typical power consumption	27 W
Maximum power consumption	29 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)

Item	Specification
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	WAN interfaces: one GE combo interface and two GE electrical interfaces
Extended slots	● 4xSIC ● 2xWSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351ATY

6.8.6 AR2240-S

Technical Specifications

Table 6-27 lists the technical specifications of the AR2240-S router.

Table 6-27 AR2240-S technical specifications

Item	Specification
System parameters	
Processor	8-core, 600 MHz
Memory	2 GB
Flash	16 MB
Micro SD card (default sd1)	2 GB
Hard disk	Not supported

Item	Specification
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 470.0 mm x 88.1 mm (17.4 in. x 18.5 in. x 3.47 in.), 2 U height ● With mounting brackets installed: 482.6 mm x 470.0 mm x 88.1 mm (19.0 in. x 18.5 in. x 3.47 in.), 2 U height
Weight	8.85 kg (19.51 lb)
Power specifications	
AC model (using 350 W AC power modules)	Supports two hot swappable 350 W AC power modules.
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	5 A
Maximum output power	350 W
RPS power supply	Not supported
PoE power supply	Not supported
AC PoE model (using 850 W PoE AC power modules)	Supports two hot swappable 850 W PoE AC power modules.
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	10 A
Maximum output power	850 W
RPS power supply	Not supported
PoE power supply	Supported
Power consumption (empty chassis)	
Typical power consumption	67 W

Item	Specification
Maximum power consumption	97 W
Heat dissipation	
Fans	Independent pluggable fan modules
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	Two GE combo interfaces (WAN) and one GE electrical interfaces (WAN)
Extended slots	● 4xSIC ● 2xWSIC ● 2xXSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02113993

6.8.7 AR2240C-S

Technical Specifications

Table 6-28 lists the technical specifications of the AR2240C-S router.

Table 6-28 AR2240C-S technical specifications

Item	Specification
System parameters	
Processor	Six-core, 1.2 GHz
Memory	2 GB
Flash	32 MB
Micro SD card (default sd1)	2 GB
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 470.0 mm x 88.1 mm (17.4 in. x 18.5 in. x 3.47 in.), 2 U height ● With mounting brackets installed: 482.6 mm x 470.0 mm x 88.1 mm (19.0 in. x 18.5 in. x 3.47 in.), 2 U height
Weight	8.85 kg
Power specifications	
AC model (using 350 W AC power modules)	Supports two hot swappable 350 W AC power modules.
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	5 A
RPS power supply	Not supported
PoE power supply	Not supported
AC PoE model (using 850 W PoE AC power modules)	Supports two hot swappable 850 W PoE AC power modules.
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	10 A

Item	Specification
Maximum output power	850 W
RPS power supply	Not supported
PoE power supply	Supported
Power consumption (empty chassis)	
Typical power consumption	110 W
Maximum power consumption	125 W
Heat dissipation	
Fans	Built-in, unpluggable fans
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	WAN interfaces: four GE electrical interfaces, two GE combo interfaces, and four GE optical interfaces
Extended slots	● 4xSIC ● 2xWSIC ● 2xXSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351AUA

6.9 AR3200-S series

6.9.1 AR3260-S

Technical Specifications

Table 6-29 lists the technical specifications of the AR3260-S router.

Table 6-29 AR3260-S technical specifications

Item	Specification
System parameters	
Processor	8-core, 600 MHz
Memory	2 GB
Flash	16 MB
Micro SD card (default sd1)	2 GB
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 470.0 mm x 130.5 mm (17.4 in. x 18.5 in. x 5.14 in.), 3 U height ● With mounting brackets installed: 482.6 mm x 470.0 mm x 130.5 mm (19.0 in. x 18.5 in. x 5.14 in.), 3 U height
Weight	11 kg
Power specifications	
AC model (using 350 W AC power modules)	Supports two hot swappable 350 W AC power modules.
Rated input voltage (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	5 A
Maximum output power	350 W
RPS power supply	Not supported

Item	Specification
PoE power supply	Not supported
AC PoE model (using 850 W PoE AC power modules)	Supports two hot swappable 850 W PoE AC power modules.
Rated input voltage (AC)	100 V/240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	10 A
Maximum output power	850 W
RPS power supply	Not supported
PoE power supply	Supported
Power consumption (empty chassis)	
Typical power consumption	67 W
Maximum power consumption	97 W
Heat dissipation	
Fans	Independent pluggable fan modules
Airflow (facing the front panel)	Left to right
Interface density	
Management interfaces	1 (RJ45)
CON/AUX interfaces	1 (RJ45)
USB 2.0 interfaces	2
Service interfaces	Two GE combo interfaces (WAN) and one GE electrical interfaces (WAN)
Extended slots	● 4xSIC ● 2xWSIC ● 4xXSIC
Environment parameters	

Item	Specification
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02350BVG

6.9.2 AR3260E-S

Technical Specifications

Table 6-30 lists the technical specifications of the AR3260E-S router.

Table 6-30 AR3260E-S technical specifications

Item	Specification
System parameters	
Processor	12-core, 1.2 GHz
Memory	4 GB
Flash	16 MB
Micro SD card (default sd1)	2 GB
Hard disk	Not supported
Dimensions and weight	
Dimensions (W x D x H)	● With no mounting bracket installed: 442.0 mm x 470.0 mm x 130.5 mm (17.4 in. x 18.5 in. x 5.14 in.), 3 U height ● With mounting brackets installed: 482.6 mm x 470.0 mm x 130.5 mm (19.0 in. x 18.5 in. x 5.14 in.), 3 U height
Weight	11 kg (24.25 lb)
Power specifications	

Item	Specification
AC model (using 350 W AC power modules)	Supports two hot swappable 350 W AC power modules.
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	5 A
Maximum output power	350 W
RPS power supply	Not supported
PoE power supply	Not supported
AC PoE model (using 850 W PoE AC power modules)	Supports two hot swappable 850 W PoE AC power modules.
Rated input voltage range (AC)	100 V to 240 V, 50 Hz/60 Hz
Maximum input voltage range (AC)	90 V to 264 V, 47 Hz to 63 Hz
Maximum input current	10 A
Maximum output power	850 W
RPS power supply	Not supported
PoE power supply	Supported
Power consumption (empty chassis)	
Typical power consumption	62 W
Maximum power consumption	92 W
Heat dissipation	
Fans	Independent pluggable fan modules
Airflow (facing the front panel)	Left to right
Interface density	

Item	Specification
Management interfaces	1 (RJ45)
CON/AUX interface	1 (RJ45)
USB 2.0 interfaces	1
Service interfaces	SRU100E: four GE combo interfaces (WAN) and two GE optical interfaces (WAN)
Extended slots	● 4xSIC ● 2xWSIC ● 4xXSIC
Environment parameters	
Operating temperature	0°C to 45°C (32°F to 113°F) **NOTE** When the altitude is 1800 m-5000 m (5906ft.-16404.2 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Operating relative humidity	5% to 95%, noncondensing
Operating altitude	< 5000 m (16404.2 ft.)
Part number	02351AUB

7 Component Selection Guide

About This Chapter

7.1 Router Purchase List

Table 7-1 Purchase list of AR Routers

Component	Typical Configuration	Remarks
AR101-S	AR101-S, 1 GE WAN, 4 GE LAN, 1 USB2.0	Mandatory
AR101W-S	AR101W-S, 1 GE WAN, 4 GE LAN, WIFI 2.4G+5G, 1 USB2.0	Mandatory
AR101GW-Lc-S	AR101GW-Lc-S, 1 GE WAN, 4 GE LAN, 1 LTE, WIFI 2.4G+5G, 1 USB2.0	Mandatory
AR111-S	AR111-S, 1GE WAN, 4GE LAN, 1USB	Mandatory
AR111EC-S	AR111EC-S, 1 GE WAN, 4 GE LAN, 1 USB2.0	Mandatory
AR121-S	AR121-S, 1FE WAN, 4FE LAN, 1USB	Mandatory
AR121W-S	AR121W-S, 1FE WAN, 4FE LAN, 802.11b/g/n AP, 1USB	Mandatory
AR151-S	AR151-S, 1FE WAN, 4FE LAN, 1USB	Mandatory
AR151W-P-S	AR151W-P-S, 1FE WAN, 4FE LAN(PoE), 802.11b/g/n AP, 1 USB	Mandatory
AR151G-U-S	AR151G-U-S, 1FE WAN, WCDMA HSPA+7, 4FE LAN, 1 USB	Mandatory

Component	Typical Configuration	Remarks
AR151-S2	AR151-S2, 1GE WAN, 4GE LAN, 1USB	Mandatory
AR201-S	AR201-S, 1FE WAN, 8FE LAN, 1USB	Mandatory
AR207-S	AR207-S, ADSL2+ ANNEX A/M WAN, 8FE LAN, 1USB	Mandatory
AR1220-S	AR1220-S, 2GE WAN, 8FE LAN, 2 USB, 2 SIC	Mandatory
AR1220C-S	AR1220C-S, 5GE WAN, 8GE LAN, 2 USB, 2 SIC	Mandatory
AR1220W-S	AR1220W-S, 2GE WAN, 8FE LAN, 802.11b/g/n AP, 2 USB, 2 SIC	Mandatory
AR1220E-S	AR1220E-S, 2GE COMBO, 8GE LAN, 2 USB, 2 SIC	Mandatory
AR1220L-S	AR1220L-S, 2GE WAN, 2 USB, 2 SIC	Mandatory
AR1220F-S	AR1220F-S, 1GE WAN, 1GE COMBO, 8FE LAN, 2 USB, 2 SIC	Mandatory
AR2201-48FE-S	AR2201-48FE-S, 2GE WAN(1GE Combo), 1 USB, 48FE LAN, 60W AC Power	Mandatory
AR2204-S	AR2204-S, 3GE WAN(1GE Combo), 2 USB, 4 SIC, 2 DSP DIMM, 150W AC Power	Mandatory
AR2204-27GE-S	AR2204-27GE-S, 3GE WAN(1GE Combo), 24GE LAN, 1 USB, 4 SIC (cannot combine into WSIC), 60W AC Power	Mandatory
AR2220-S	AR2220-S, 3GE WAN(1GE Combo), 2 USB, 4 SIC, 2 WSIC, 1 DSP Slot, 150W AC Power	Mandatory
AR2240-S	AR2240-S, Service and Router Unit 40, 4 SIC, 2 WSIC, 2 XSIC, 350W AC Power	Mandatory
AR3260-S	AR3260-S, Service and Router Unit 40, 4 SIC, 2 WSIC, 2 XSIC, 350W AC Power	Mandatory
PoE power supply unit	100 W PoE power supply adapter module	Optional. Only the AR1220W-S supports PoE power supply.
Fan	● AR2240-S Fan module ● AR3260-S Fan module	Mandatory Only the AR2240-S and AR3260-S support fan.

Component	Typical Configuration	Remarks
AC power supply unit	350 W AC power supply unit	Optional. By default, a router has one AC power supply unit. To perform load balancing, two AC power supply units can be installed. Only the AR2240-S and AR3260-S support AC power supply unit.
DSP module	16/32/64/128-channel voice DSP module	Optional. Only the AR2204-S, AR2220-S, AR2240-S, and AR3260-S support voice DSP module.

7.2 Card Category

Table 7-2 describes the cards supported by AR series routers.

Table 7-2 Cards supported by AR series routers

Card Type	Card Name	Card Description	Hot Swap
SRU	SRU40	Service and Router Unit 40	Supported
SRU	SRU100E	Service and Router Unit 100E	Supported
Ethernet LAN card	8FE1GE	8-port 100M-RJ45+1-port 1000M-RJ45-L2/L3 Ethernet electrical interface card	Supported
Ethernet LAN card	9ES2	8 Port 100BASE-RJ45 and 1 Port 1000BASE- RJ45 L2 Ethernet Interface Card	Supported

Card Type	Card Name	Card Description	Hot Swap
Ethernet LAN card	24GE	24-port 1000M-RJ45-L2/L3 Ethernet electrical interface card	Supported
Ethernet LAN card	24ES2GP	24-Port 1000BASE-RJ45 L2 with PoE Ethernet interface card	Supported
Ethernet LAN card	4GE-2S	4-Port 1000BASE-SFP-L2 Ethernet interface card	Supported
Ethernet LAN card	4ES2G-S	4-Port 1000BASE-RJ45 L2 Ethernet interface card	Supported
Ethernet LAN card	4ES2GP-S	4-Port 1000BASE-RJ45 L2 with PoE Ethernet interface card	Supported
Ethernet WAN card	1GEC	1-port-GE combo WAN interface card	Supported
Ethernet WAN card	4GECS	4-port-GE combo WAN interface card	Supported
Ethernet WAN card	2FE	2-port-FE WAN interface card	Supported
Ethernet WAN card	2X10GL	2-Port 10GE Optical Ports interface card	Supported
Ethernet WAN card	4GEW-T	4-port-GE electrical WAN interface card	Supported
Ethernet WAN card	4GEW-S	4-port-GE optical WAN interface card	Supported
E1/T1 card	1E1/T1-M	1-port-channelized E1/T1/PRI/VE1 multifunctional interface card	Supported
E1/T1 card	2E1/T1-M	2-port-channelized E1/T1/PRI/VE1 multifunctional interface card	Supported
E1/T1 card	2E1/T1-M-W	2-port-channelized E1/T1/PRI/VE1 multifunctional interface card - WSIC	Supported
E1/T1 card	4E1/T1-M	4-port-channelized E1/PRI multifunctional interface card	Supported

Card Type	Card Name	Card Description	Hot Swap
E1/T1 card	8E1/T1-M	8-port-channelized E1/PRI multifunctional interface card	Supported
E1/T1 card	1E1/T1-F	1-port-fractional channelized E1/T1 WAN interface card	Supported
E1/T1 card	2E1/T1-F	2-port-fractional channelized E1/T1 WAN interface card	Supported
E1/T1 card	4E1/T1-F	4-port-fractional channelized E1 WAN interface card	Supported
E1/T1 card	8E1/T1-F	8-port-fractional channelized E1 WAN interface card	Supported
E1/T1 card	4E1-IMA	4-port-E1 ATM IMA interface card	Supported
E3/T3 card	1E3/CE3/T3/CT3	1-Port Channelized/ Unchannelized E3/T3 WAN interface card	Supported
Synchronous/ Asynchronous card	1SA	1-port-synchronous/ asynchronous WAN interface card	Supported
Synchronous/ Asynchronous card	2SA	2-port-synchronous/ asynchronous WAN interface card	Supported
Synchronous/ Asynchronous card	8SA	8-Port Synchronous/ Asynchronous WAN Interface card	Supported
Synchronous/ Asynchronous card	8AS	8-port-asynchronous WAN interface card	Supported
3G/LTE card	3G-HSPA+7	3G WAN interface card	Supported
3G/LTE card	3G-EVDO	3G CDMA2000 EVDO interface card	Supported
3G/LTE card	1LTE-L	WCDMA LTE Data card	Supported
3G/LTE card	1LTE-LV	WCDMA LTE Data card	Supported
3G/LTE card	1LTEC	TDD LTE/FDD LTE/HSPA+/TD-SCDMA/GSM Data card	Supported

Card Type	Card Name	Card Description	Hot Swap
3G/LTE card	1LTE-Lt	TDD/FDD/TD-SCDMA/UMTS/EVDO Data card	Supported
3G/LTE card	1LTE-Lt-7	TDD/FDD/TD-SCDMA/UMTS/EVDO Data card	Supported
3G/LTE card	1LTE-Lo	FDD/HSPA+ Data card	Supported
3G/LTE card	1LTE-Lc	TDD/FDD/TD-SCDMA/HSPA+ Data card	Supported
E&M card	6E&M	6-Port E&M-RJ45 Analog Trunk Interface card	Supported
POS/CPOS card	1CPOS-155M	1-port CPOS interface card	Supported
POS/CPOS card	1CPOS-155M-W	1-port CPOS interface card - WSIC	Supported
POS/CPOS card	1STM1	1-Port-155M POS Optical Interface card	Supported
POS/CPOS card	1STM4	1-Port-622M POS Optical Interface card	Supported
POS/CPOS card	4STM1	4-Port 155M Packet over SDH/SONET Optical Interface card	Supported
ISDN S/T WAN card	1BST	1-port ISDN S/T WAN interface card	Supported
Voice card	2BST	2-port-ISDN S/T voice interface card	Supported
Voice card	2BST-W	2-port-ISDN S/T voice interface card - WSIC	Supported
Voice card	4FXS1FXO	4-port FXS + 1-port FXO voice interface card	Supported
Voice card	16FXS	16-port-FXS voice interface card	Supported
Voice card	32FXS	32-port-FXS voice interface card	Supported
Voice card	4FXO	4-port-FXO voice interface card	Supported
Voice card	1VE1	1-Port Voice E1 Interface card	Supported
xDSL card	1ADSL-A/M	1-port-ADSL2+ ANNEX A/M WAN interface card	Supported

Card Type	Card Name	Card Description	Hot Swap
xDSL card	1ADSL-B/J	1-port-ADSL2+ ANNEX B/J WAN interface card	Supported
xDSL card	4G.SHDSL	1-port-4G.SHDSL WAN interface card	Supported
xDSL card	1GBIS4W	1-Port 4 Pair G.SHDSL WAN Interface card (WSIC)	Supported
xDSL card	VDSL2	1-port-VDSL2 over POTS WAN interface card	Supported
xDSL card	2VDSL2	2-Port VDSL2 over POTS with Bonding WAN Interface card	Supported
xPON card	1PON	1-port-EPON/GPON interface card	Supported