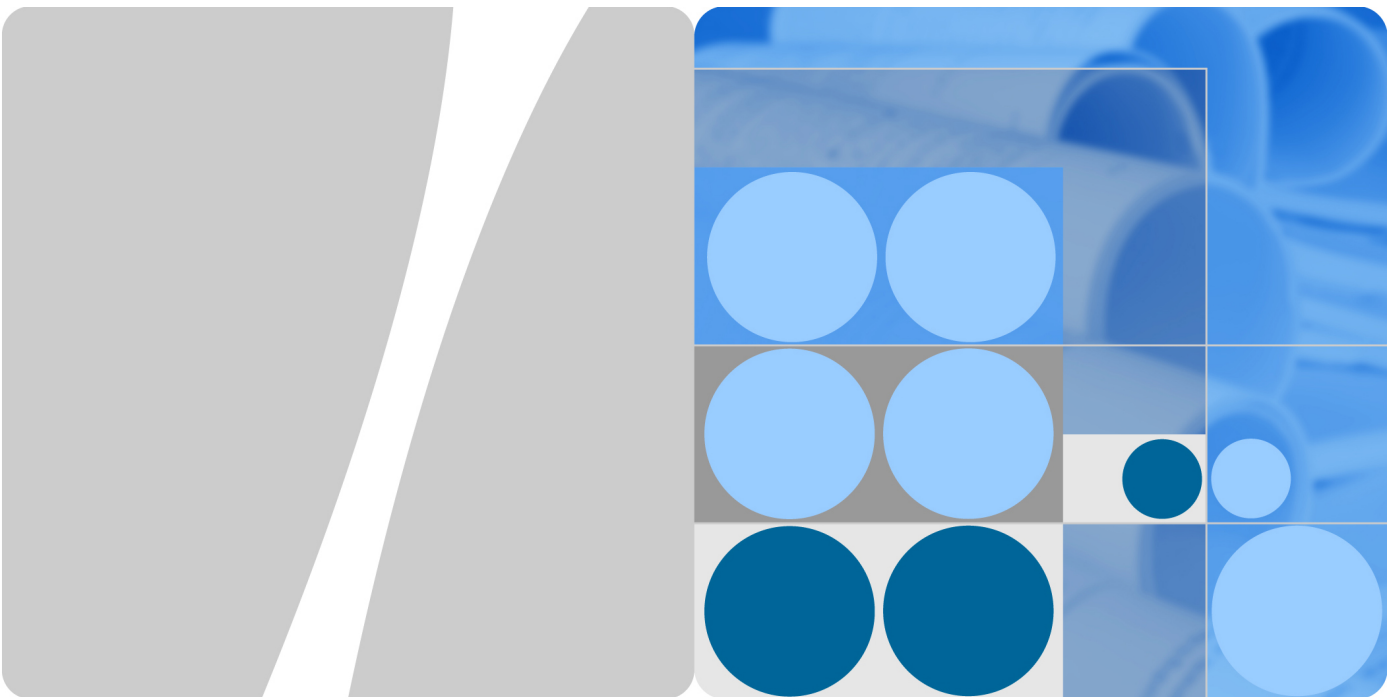


Part Number: 203185



HG532e Home Gateway Product Description

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HUAWEI TECHNOLOGIES CO., LTD.





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1 Overview

1.1 Introduction to the HG532e

Figure 1-1 Appearance of the HG532e



HG532e Home Gateway (hereinafter referred to as the HG532e) is a type of Asymmetrical Digital Subscriber Line (ADSL) terminal. At the network side, it provides ADSL2+ for rapid Internet access and high-speed broadband access.

For users, it provides an 802.11b/g/n interface and four Ethernet interfaces. After connecting to a PC, STB, notebook computer, or another terminal, users can enjoy data, voice, and a range of other services.

The HG532e boasts powerful routing and bridging functions and supports NAT/firewall technology, with flexible network configuration and QoS policies. Moreover, the unit provides quality guarantees for latency-sensitive voice services and for video services susceptible to packet loss. Using the HG532e, users can enjoy high-speed and high-quality broadband services at home.

As a broadband network terminal, the HG532e is an extension of an operator's broadband network. HG532e provides powerful remote maintenance and administration functions. It supports the latest TR-069 terminal management standards and remote upgrades, thus facilitating large-scale deployment and maintenance.

1.2 Hardware Features

1.2.1 Interfaces and Buttons

Figure 1-2 Interfaces and buttons on the HG532e

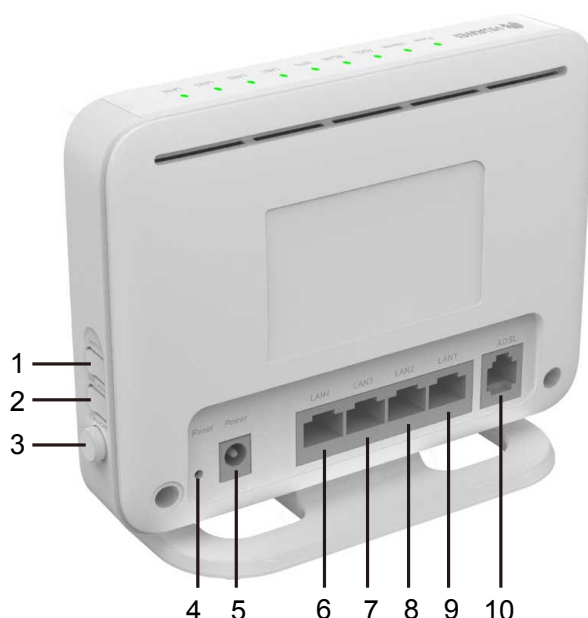


Table 1-1 Interfaces and buttons on the HG532e

No.	Description
1	WPS button, which is used to enable the WPS negotiation function.
2	WLAN button, which is used to enable or disable wireless network function quickly.
3	Power button, which is used to power on or off the HG532e.
4	Reset button, which is used to restore the factory settings of the HG532e.
5	Power interface, which is used to connect the HG532e to the power adapter.
6 - 9	LAN interfaces, which are used to connect the HG532e to the Ethernet interface on the computer.
10	ADSL interface, which is used to connect HG532e to the MODEM interface on the splitter or to the telephone jack on the wall.

1.2.2 Indicators

Figure 1-3 Indicators on the HG532e

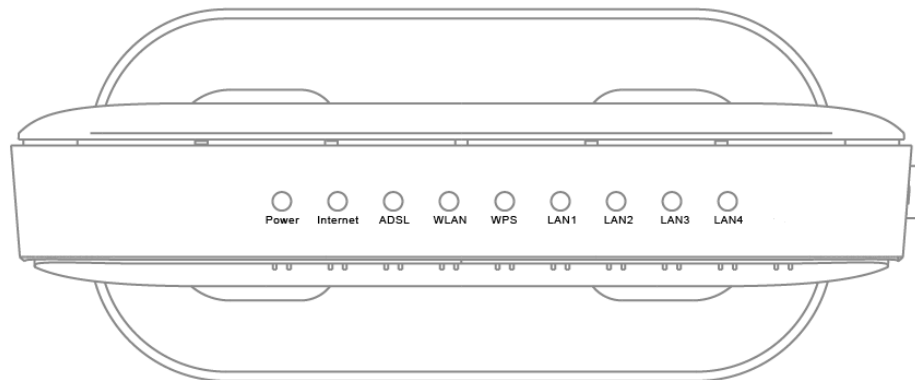


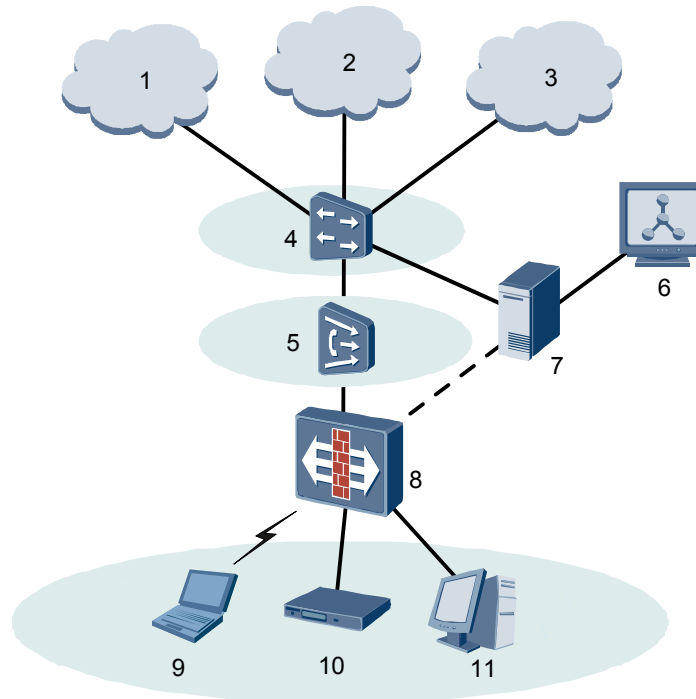
Table 1-2 Indicators on the HG532e

Indicator	Used to...
Power	indicate the power condition of the HG532e.
Internet	indicate the status of the connection between the HG532e and the LAN in routing mode.
ADSL	indicate the status of the DSL line.
WLAN	indicate the status of the wireless network connection.
WPS	indicate the status of the wireless network connection through the WPS protocol.
LAN1 - LAN4	indicate the status of the Ethernet connection between the HG532e and the PC.

1.3 Network Architecture

Figure 1-4 shows the location of the HG532e in the network.

Figure 1-4 Networking diagram of the HG532e



NOTE

- / indicates an actual network connection.
- - - - indicates a logical management channel.
- ⚡ indicates a wireless connection.

Table 1-3 lists the network units in the networking diagram of the HG532e.

Table 1-3 Network units in the networking diagram of the HG532e

No.	Item	Full Name
1	NGN	Next Generation Network
2	Internet	-
3	IPTV	Internet Protocol Television
4	BRAS	Broadband Remote Access Server
5	DSLAM	Digital Subscriber Line Access Multiplexer
6	OSS	Operations Support System
7	ACS	Auto-Configuration Server
8	HG532e	-
9	Notebook Computer	-
10	STB	Set-top box
11	Desktop Computer	-

2 Functional Features

2.1 High-bandwidth ADSL2+ Upstream Link

With an embedded high-performance ADSL2+ network processor, the HG532e can bring more abundant service experiences to users.

2.2 WLAN Function

The HG532e provides high-speed, secure, and convenient wireless network access, and supports 802.11n (2.4 GHz), 802.11b, 802.11g. It can implement the network access at a high speed by using a powerful built-in antenna. The IEEE 802.11n supports the MIMO 2*2 technology and the access rate can reach 300Mbit/s in 1T1R antenna mode.

2.3 WPS Function

The HG532e provides the WPS2.0 function. A wireless connection can be set up between the computer and the HG532e conveniently and securely.

2.4 Routing Function

The HG532e provides the Routing function. An address can be obtained by embedded PPP dialer and DHCP of the home gateway.

2.5 IPv6 Function

The HG532e provides the IPv6 function. It supports the IPv4 & IPv6 dual stack mode and the DS-Lite mode. Other modes can be customized.

2.6 Flexible QoS Policies

The HG532e supports multiple methods of traffic classification, and supports the PQ and WFQ queue scheduling, thus ensuring that the data transmission of various services using different policies and that end users can enjoy quality video and audio services.

2.7 Standardized TR-069 Management

The HG532e is completely compatible with the TR-069 standard defined by the Digital Subscriber Line (DSL) Forum. Providing complete remote management and diagnostic functions, it can implement the zero configuration solution. In addition, the HG532e can carry out customized service provisioning conveniently through automatic upgrade based on the service provisioning process. Hence operation and maintenance cost can be greatly reduced.

2.8 Convenient and Secure Configuration and Management

The HG532e supports the TR-069 remote management, provides a Web-based configuration interface, and ensures secure use of the Web-based configuration utility through password verification.

3 Technical Specifications

3.1 Interface Features

3.1.1 DSL Interface

Multiple DSL Standards

- ADSL2+
 - Supports G.992.5 (G.dmt.bitplus) Annex A
 - Supports G.992.5 (G.dmt.bitplus) Annex M
- ADSL2
 - Supports G.992.3 (G.dmt.bis) Annex A
 - Supports G.992.3 (G.dmt.bis) Annex L
 - Supports G.992.3 (G.dmt.bis) Annex M
- ADSL
 - Supports G.992.1 (G.dmt) Annex A
 - Supports G.994.1 (G.hs)
 - Supports ANSI T1.413 Issue 2

Other Features

- Supports multiple permanent virtual channels (most 8 PVCs)
- Supports manual configuration of PVC parameters

3.1.2 Ethernet Interface

- Provision of four 10/100 M adaptive Ethernet interfaces
- Supports IEEE 802.3 and IEEE 802.3u standard
- Supports line Auto MDI and MDIX Auto-sensing

3.1.3 WLAN Interface

- Supports 802.11g, 802.11n (2.4 GHz) , 802.11b
- Supports WPS2.0 (PBC mode and PIN mode)

- Supports DQPSK, DBPSK, CCK, OFDM, BPSK, QPSK, 16-QAM and 64-QAM wireless modulation method
- Supports SSID hiding
- Supports multiple SSIDs (4 SSIDs)
- Supports Open System, WPA-PSK and WPA2-PSK security
- Supports 64/128 digits WEP encryption
- Supports TKIP encryption
- Supports AES encryption
- Supports WFM (Wireless Fidelity Multimedia)
- Supports enable or disable the WLAN function by press WLAN button or config the Web-based utility
- WLAN Rates:
 - 802.11b: 1 Mbit/s, 2 Mbit/s, 5.5 Mbit/s, 11 Mbit/s
 - 802.11g: 1 Mbit/s, 2 Mbit/s, 5.5 Mbit/s, 6 Mbit/s, 9 Mbit/s, 11 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, 54 Mbit/s
 - 802.11n (with 2T2R antenna used) : 7.2 Mbit/s, 14.4 Mbit/s, 15.0 Mbit/s, 21.7 Mbit/s, 28.9 Mbit/s, 30.0 M bit/s, 43.3 Mbit/s, 45.0 Mbit/s, 57.8 Mbit/s, 60.0 Mbit/s, 65.0Mbit/s, 72.2 Mbit/s, 86.7 Mbit/s, 90.0 Mbit/s, 115.6 Mbit/s, 120.0 Mbit/s, 130.0 Mbit/s, 135.0 Mbit/s, 144.4 Mbit/s, 150.0 Mbit/s, 180.0 Mbit/s, 240.0 Mbit/s, 270.0 Mbit/s, 300.0 Mbit/s

3.2 Security Features

- Supports powerful wireless network security
- Supports IP/MAC address filtering
- Supports port/URL filtering
- Supports ACL
- Supports DMZ
- Supports the PAP (RFC 1334) ,CHAP (RFC 1994) and the default PAP/CHAP adaptive
- Supports SPI (Stateful Packet Inspection)
- Prevents DoS attacks such as the SYN flooding, port scanning, ICMP Redirection, ping of death, teardrop, and LAND

3.3 Routing & Bridged Features

- Supports NAT, NAPT (RFC1631, RFC2663, RFC2766, RFC3022) and ALG expansion
- Supports RIP v1 (RFC1058), RIP v2 (RFC1389, RFC1723, RFC2453)
- Supports multiple PVC working mode:
 - IPOA (RFC2684 Bridged)
 - IPOE (RFC2684 Bridged Static IP, RFC2684 Bridged DHCP Client)
 - PPPoE (RFC1661, RFC2516)

- PPPoA (RFC1661, RFC2364)
- Supports DHCP server, DHCP client, DHCPv6 Server, DHCPv6 Client and DHCP relay
- Supports DNS client and DNS proxy
- Supports IGMP proxy and IGMP snooping
- Supports IPv6
 - Supports IPv4 and IPv6 dual-stack
 - Supports DS-Lite
- Supports port mapping
- Supports UPnP

3.4 QoS Features

- Support multiple methods of traffic classification based on:
 - LAN interface and WLAN SSID
 - IP address (source and destination address)
 - Ports (source ports and destination ports) at the fourth layer
 - Mac address (source and destination address)
 - 802.1p
 - VLAN and 802.1q
 - Differentiated Services Code Point (DSCP)
 - Protocol (TCP, UDP, ICMP)
- Support for re-marking the result of traffic classification based on:
 - 802.1p
 - DSCP
 - TOS/IPP
- Support for queuing methods based on priorities (up to four queues):
 - Priority queuing (6 PQs)
 - Weighted Fair Queuing (4 WFQs)

3.5 ATM Features

- Supports LLC-SNAP and VC-MUX
- Supports OAM F5
- Supports ATM OAM F5 loop
- Supports multiple ATM QoS service levels (CBR, rt-VBR, nrt-VBR, UBR with PCR, UBR without PCR)

3.6 Network Management

- Supports TR-069 and upgrading through TR-069
- Supports Views system logs
- Supports remote and local web configuration and management

3.7 Power Supply Specifications

- Entire-device power supply: 12 V DC, 0.5 A
- Entire-device power consumption: < 6 W

3.8 Physical Specifications

- Dimensions (W × L × H): 31 mm % 145 mm % 110 mm
- Weight: about 360 g

3.9 Environmental Specifications

- Ambient temperature for operation: 0°C to 40°C (32°F to 104°F)
- Relative humidity for operation: 5% to 95%, non-condensing

4 Acronyms and Abbreviations

ACS	Auto-Configuration Server
ADSL	Asymmetrical Digital Subscriber Line
ADSL2+	Asymmetrical Digital Subscriber Line 2 plus
AES	Advanced Encryption Standard
ATM	Asynchronous Transfer Mode
BRAS	Broadband Remote Access Server
CBR	Constant Bit Rate
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DoS	Denial of Service
DSCP	Differentiated Services Code Point
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Multiplexer
HTTP	Hyper Text Transport Protocol
IP	Internet Protocol
IPTV	Internet Protocol Television
LAN	Local Area Network
MAC	Media Access Control
NAPT	Network Address and Port Translation
NAT	Network Address Translation
NGN	Next Generation Network
nrt-VBR	non-real-time Variable Bit Rate
OSS	Operations Support System

PC	Personal Computer
PPPoA	Point-to-Point Protocol over ATM
PPPoE	Point-to-Point Protocol over Ethernet
PQ	Priority Queue
PVC	Permanent Virtual Channel
QoS	Quality of Service
RIP	Routing Information Protocol
rt-VBR	real-time Variable Bit Rate
SSID	Service Set Identifier
STB	set-top box
TKIP	Temporal Key Integrity Protocol
ToS	Type of Service
WAN	Wide Area Network
WEP	Wired Equivalent Privacy
WLAN	Wireless Local Area Network
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup
WFQ	Weighted Fair Queue