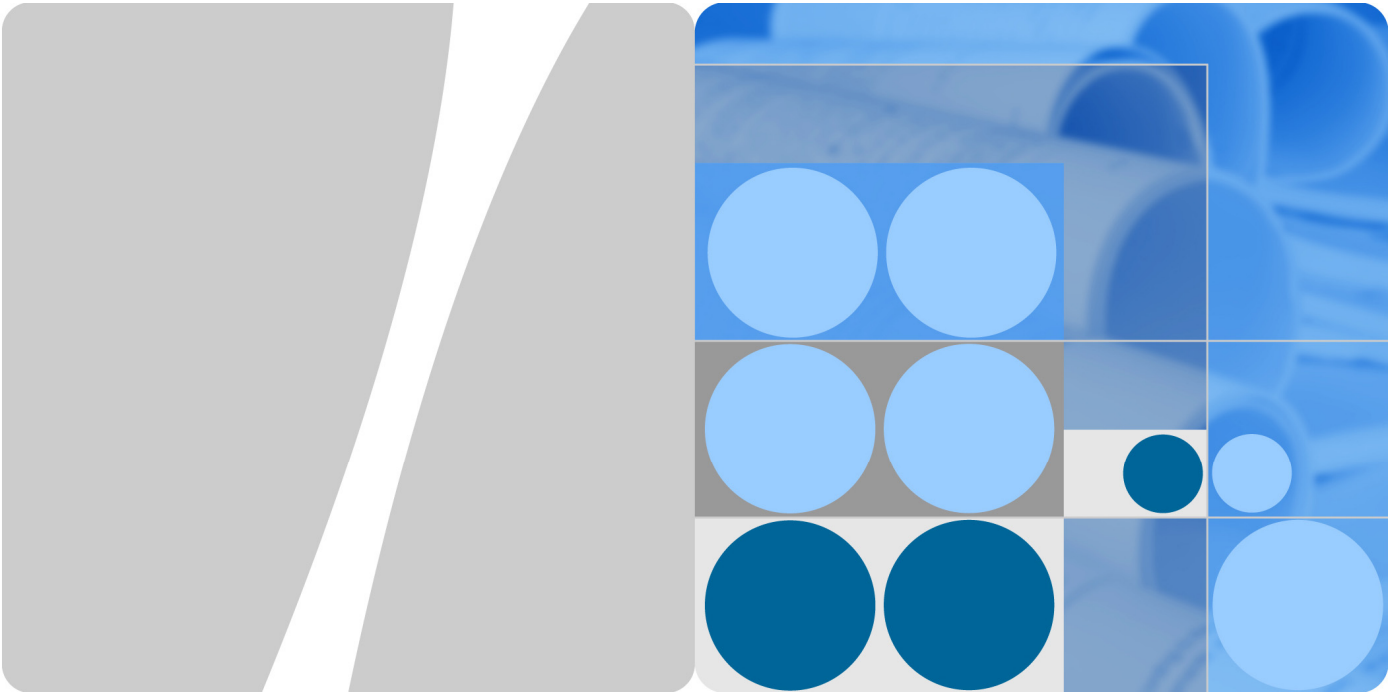


Part Number: 203151



# HUAWEI HG655d Home Gateway Product Description

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HUAWEI TECHNOLOGIES CO., LTD.



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## **Huawei Technologies Co., Ltd.**

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

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

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

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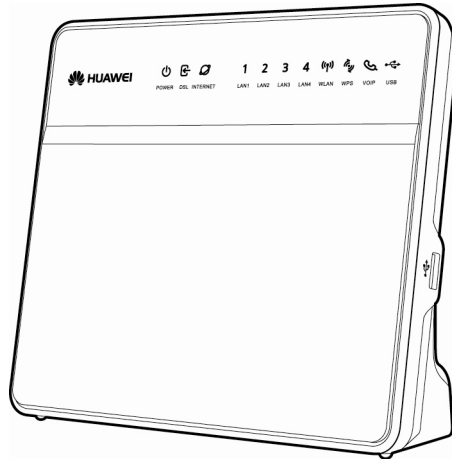
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# 1 Overview

## 1.1 Introduction to the HG655d

Figure 1-1 Appearance of the HG655d



HUAWEI HG655d Home Gateway (hereinafter referred to as the HG655d) provides universal interfaces compatible with homogeneous products, such as an uplink ADSL2+/VDSL2 compliance interface, one USB host interface, four FE interfaces, one LINE interface, two POTS interfaces, and an 802.11b/g/n WiFi interface.

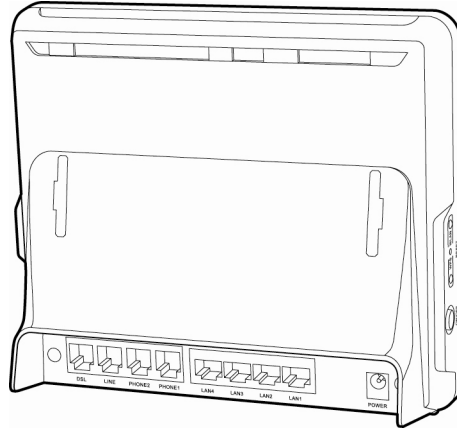
The HG655d provides a high-speed VDSL2+ interface to access the broadband WAN. For the LAN, it also provides abundant interfaces such as Ethernet, WiFi and USB interfaces to connect various household terminals, such as PC, STB, phone, and USB devices. By supporting 802.11b/g/n, the WLAN interface of the HG655d provides wireless networking and interworking function in the home. The HG655d also supports multiple USB devices, such as USB disk and USB card reader.

The HG655d provides flexible network configuration and Quality of Service (QoS) policies to improve end-to-end quality assurance cooperating with network devices of the operators. It extends high-quality and high-speed broadband services to household terminals and supports development of data, communication and entertainment services.

## 1.2 Hardware Features

### 1.2.1 Interfaces and Buttons

**Figure 1-2** Interfaces and buttons on the HG655d

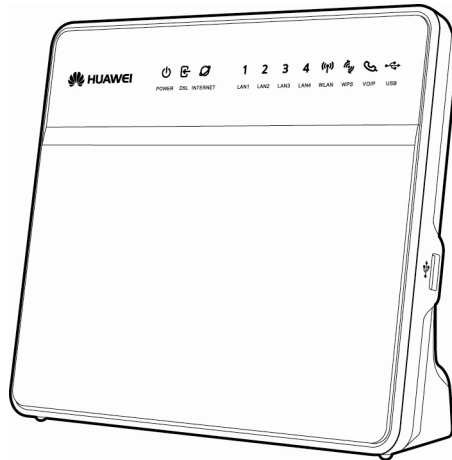


**Table 1-1** Interfaces and buttons on the HG655d

Interface/Button	is used to...
DSL	connect HG655d to the MODEM interface on the splitter.
LINE	connect the HG655d to the PHONE interface on the splitter or to the telephone jack on the wall.
PHONE1, PHONE2	connect the HG655d to the telephone.
LAN1, LAN2, LAN3, LAN4	connect the HG655d to the Ethernet interface on the computer or STB.
POWER	connect the HG655d to the power adapter.
ON/OFF	power on or off the HG655d.
RESET	restore the factory settings of the HG655d.
WLAN	enable or disable wireless network function quickly.
WPS	enable the WPS negotiation.
USB	connect the USB devices.

## 1.2.2 Indicators

**Figure 1-3** Indicators on the HG655d



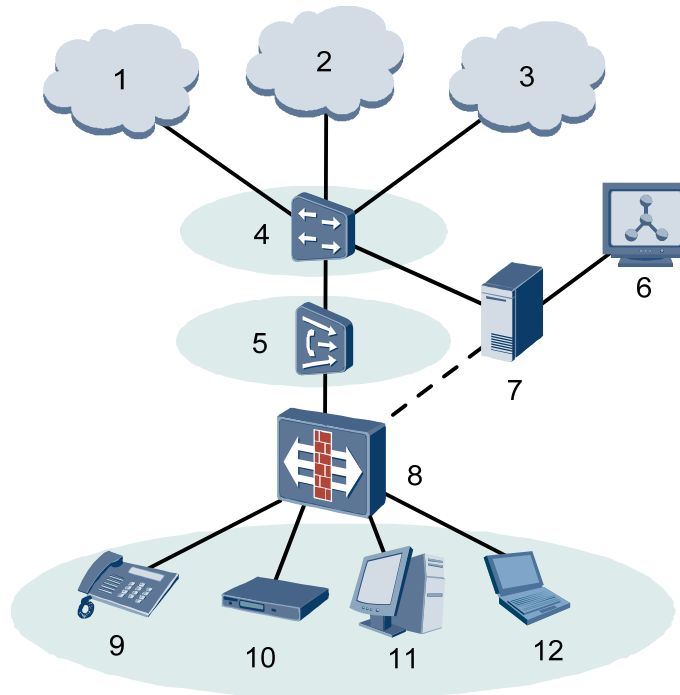
**Table 1-2** Indicators on the HG655d

Indicator	indicates...
POWER	the power condition of the HG655d.
DSL	the status of the ADSL line connection.
INTERNET	the status of the connection between the HG655d and the LAN in routing mode.
LAN1, LAN2, LAN3, LAN4	the status of the Ethernet connection between the HG655d and the PC.
WLAN	the status of the wireless network connection.
WPS	the status of the wireless network connection through the WPS protocol.
VOIP	the status of the connection between the HG655d and the telephone.
USB	the status of the connection between the HG655d and the USB device.

## 1.3 Network Architecture

Figure 1-4 shows the location of the HG655d in the network.

**Figure 1-4** Networking diagram of the HG655d



**NOTE**

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

Table 1-3 lists the network units in the networking diagram of the HG655d.

**Table 1-3** Network units in the networking diagram of the HG655d

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



No.	Item	Full Name
7	ACS	Auto-Configuration Server
8	HG655d	-
9	Telephone	-
10	STB	set-top box
11	Desktop computer	-
12	Notebook computer	-

# 2 Functional Features

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## 2.1 xDSL uplink dual backup

Supports ADSL2+/VDSL2 compliance uplink.

## 2.2 Routing Function

The HG655d has an embedded PPP dialer. It supports the functions of a Dynamic Host Configuration Protocol (DHCP) server and simultaneous access of multiple users and devices.

## 2.3 LAN Function

The HG655d provides high-speed, secure, and convenient wireless network access, and supports 802.11n, 802.11g, and 802.11b. It can implement the network access at a high speed by using a powerful built-in antenna.

## 2.4 WPS Function

The HG655d provides the WPS function. A wireless connection can be set up between the computer and the HG655d conveniently and securely.

## 2.5 VoIP Function

Provides the Voice over IP (VoIP) and Fax (T.38) services and supports value-added services.

## 2.6 Flexible QoS Policies

The HG655d supports multiple methods of traffic classification, thus ensuring that user services at different levels of network applications are smoothly implemented and that end users can enjoy quality video and audio services.

## 2.7 Standardized TR-069 Management

The HG655d 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 HG655d 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 Management and Maintenance

The HG655d supports the TR-069 remote management, provides a Web-based configuration utility, and ensures secure use of the Web-based configuration utility through password verification.

# 3 Technical Specifications

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## 3.1 Interface Features

### 3.1.1 DSL Interface

#### Support for Multiple DSL Standards

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

G.992.5 (G.dmt.bitplus) Annex A

- VDSL2  
G.993.2 Annex B

#### Other Features

- Support for multiple permanent virtual channels (PVCs)
- Support for manual configuration of PVC parameters

### 3.1.2 Ethernet Interface

- Provision of four Ethernet interfaces
- Support for the IEEE 802.3u standard
- Support for the 10/100 Mbit/s adaptation
- Support for the MDI/MDIX auto-sensing

### 3.1.3 FXS Interface

Supports two POTS telephones

### 3.1.4 LINE Interface

Supports FXO line emergency function

### 3.1.5 USB Interface

- Supports USB 2.0 host Interface
- Supports USB mass storage device

## 3.2 Security Features

- Support for the firewall:
  - Blacklist function
  - Protection against denial of service (DoS) attacks
- Support for MAC address filtering
- Support for secure use of the Web-based configuration utility through password verification

## 3.3 Routing Features

- Support for multiple working modes on each PVC  
You can set the working mode of a PVC to one of the following modes:
  - Pure bridging mode (RFC2684 bridged)
  - MAC Encapsulated Routing (MER) (RFC2684 bridged static IP and RFC2684 bridged DHCP client)
  - Point-to-Point Protocol over Ethernet (PPPoE) (RFC1661 and RFC2516)
  - Point-to-Point Protocol over ATM (PPPoA) (RFC1661 and RFC2364)
- Support for Routing Information Protocol (RIP) v1 and RIP v2
- Support for the Network Address and Port Translation (NAPT)
- Support for a DHCP server
- Support for a DHCP client
- Support for a Domain Name System (DNS) client
- Support for a DNS relay

## 3.4 QoS Features

- Support for multiple methods of traffic classification based on:
  - LAN interface

- Differentiated Services Code Point (DSCP)
- Ports (source ports and destination ports) at the fourth layer
- IP addresses (source IP addresses and destination IP addresses)
- Support for queuing methods based on priorities:
  - First In, First Out (FIFO) queuing: supporting one queue
  - Priority queuing: supporting four queues

## 3.5 ATM Features

- Support for Asynchronous Transfer Mode (ATM) Forum UNI 3.0/3.1/4.0
- Support for the QoS of the Asynchronous Transfer Mode (ATM)
- Support for multiple service types:
  - Unspecified bit rate (UBR)
  - Constant bit rate (CBR)
  - Real-time variable bit rate (rt-VBR)
  - Non-real-time variable bit rate (nrt-VBR)

## 3.6 VoIP Features

- Support SIP (RFC 3261)
- Support SDP (RFC 2327)
- Support RTP (RFC 1889) and RTCP (RFC 1890)
- Support G.711a, G.711u and G.722
- Support the value-added services, such as call transfer, call waiting, call hold, and three-way calling
- Support echo cancellation, silence suppression, and comfort noise generation

## 3.7 Supports jitter buffer Maintenance and Management

- Support for TR-069
- Support for the remote and local management through the Web-based configuration utility
- Support for the software upgrade in Hyper Text Transport Protocol (HTTP) mode

## 3.8 Power Supply Specifications

- Entire-device power supply: 12 V DC, 1.5A
- Entire-device power consumption: < 18 W

## 3.9 Physical Specifications

- Dimensions (L × W × H): 194 mm × 60mm × 165mm
- Weight: < 1.0kg

## 3.10 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

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<b>ACS</b>	Auto-Configuration Server
<b>ADSL</b>	Asymmetrical Digital Subscriber Line
<b>ADSL2+</b>	Asymmetrical Digital Subscriber Line 2 plus
<b>AES</b>	Advanced Encryption Standard
<b>ATM</b>	Asynchronous Transfer Mode
<b>BRAS</b>	Broadband Remote Access Server
<b>CBR</b>	Constant Bit Rate
<b>DHCP</b>	Dynamic Host Configuration Protocol
<b>DNS</b>	Domain Name System
<b>DoS</b>	Denial of Service
<b>DSCP</b>	Differentiated Services Code Point
<b>DSL</b>	Digital Subscriber Line
<b>DSLAM</b>	Digital Subscriber Line Access Multiplexer
<b>FIFO</b>	First In, First Out
<b>FXS</b>	Foreign Exchange Station
<b>HTTP</b>	Hyper Text Transport Protocol
<b>IP</b>	Internet Protocol
<b>IPTV</b>	Internet Protocol Television
<b>LAN</b>	Local Area Network
<b>MAC</b>	Media Access Control
<b>MER</b>	MAC Encapsulation Routing
<b>NAPT</b>	Network Address and Port Translation
<b>NAT</b>	Network Address Translation

<b>NGN</b>	Next Generation Network
<b>NRT-VBR</b>	non-real-time variable bit rate
<b>OSS</b>	Operations Support System
<b>PC</b>	Personal Computer
<b>PPPoE</b>	Point-to-Point Protocol over Ethernet
<b>PPPoA</b>	Point-to-Point Protocol over ATM
<b>PSK</b>	pre-shared key
<b>PVC</b>	Permanent Virtual Channel
<b>QoS</b>	Quality of Service
<b>RIP</b>	Routing Information Protocol
<b>RT-VBR</b>	real-time variable bit rate
<b>STB</b>	set-top box
<b>TKIP</b>	Temporal Key Integrity Protocol
<b>ToS</b>	Type of Service
<b>UBR</b>	Unspecified Bit Rate
<b>VDSL</b>	Very high bit rate Digital Subscriber Line
<b>VoIP</b>	Voice over IP
<b>WAN</b>	Wide Area Network
<b>WLAN</b>	Wireless Local Area Network
<b>WPS</b>	WiFi Protected Setup