UBG1000 Universal Bussiness Gateway

Technical Specifications

Version: 1.0

Contents

1 Product Description

1.1 Overview

UBG1000 is a multifunctional enterprise gateway that integrates voice service and data service. It is designed to provide flexible, cost-effective and future-oriented communication solution for SMES (small and medium enterprises), call centers as well as telecom operators. The gateway supports several access ways, including xPON, WiFi, 3G/4G LTE and Gigabit Ethernet port. It combines the functions of router, firewall, VoIP call, file storage/sharing and centrailized network management.

UBG1000 has 8 FXS ports (or 6 FXS ports + 2 FXO ports). It not only can connect with traditional analog phones, PBX and FAX machine, but also can seamlessly interact with VoIP network and PSTN. Moreover, the SIP-based gateway is compatible with most of IPPBX, softswitches and SIP-based network platforms.

Besides, UBG1000 offers high-speed VPN function and network services like VLAN and QoS. Therefore the gateway allows user to create stable VPN tunnel between two private networks, and to devide local-area network into several VLANs. VLAN can isolate broadcast domains (this function helps prevent user from visiting those websites that are not related to work), while QoS can limit network traffic and bandwidth.

Meanwhile, UBG1000 provides convenient remote management function. It supports network management protocols of TR-069 and SNMP, as well as carrier-grade network management system. The gateway can also work with cloud management platform to centrally manage all devices under the same network.

1.2 Product Appearance

1.3 Key Features

Multi-service Convergence

Provide xPON, WiFi, 3G/4G LTE and Gigabit Ethernet port for network access; converge multiple services, such as internet surfing, VoIP call, storage and remote management, etc.

Safe and Reliable WiFi Access

Offer 802.11n WiFi to establish safe and reliable wireless network.

- Based on 802.11n;

- Support 4 SSIDs, allowing user to set different SSID for different wireless network;

- Compatible with IEEE802.11b/g;

- Support multiple authentication and encryption schemes and thus provide safe and reliable wireless access.

Convenient File Starage and Sharing

Provide a USB port which can be connected to a USB flash disk and thus allow user to store and share files.

- USB port supports PNP (Plug-and-Play) and hot plugging;

- USB-related configuration can be carried out on the Web GUI, making file storage and sharing more convenient.

Security-related Functions

- Professional Firewall and anti-DoS attacks, ensuring network safety;

- Filtering of Mac addresses, IP addresses, URL addresses;

- Rules for access control;

- Tracking of internet surfing activities.

Ensuring Bandwidth for Important Services

Offer advanced QoS function for data and VoIP services, making the transmission of important service data be at the top of the priority list.

- Speed limitation based on port; bandwidth control of 256K two-way dataflow;

- Dataflow classification based on DiffServ, DSCP, SSID, VLAN and message size;

- Priority of DSCP, 802.1P and so on.

Convenient and Efficient Management Function

Support TR-069 and SNMP, allowing remote configuration, maintenance and management. Besides, the all-in-one gateway can work with an integrated cloud platform, which allows user to upgrade, configure and log in other devices remotely.

- User-friendly Web GUI for quick configuration

- TR-069, SNMP and carrier-grade network management

- Automatic service delivery, remote upgrade (without manual intervention) via network management system;

- Remote performance monitoring, faulty location on UBG1000 via network management system; make maintenance cost to be reduced.

2 Indicators & Ports

2.1 Description of Indicators

Indicator	Definition	Description
RUN	Running Indicator	Flash: the gateway is running normally
		Off: The gateway malfunctions and cannot run normally
PWR	Power Indicator	On: The gateway is powered on
		Off: The gateway has no power input
Admin	Admin Indicator	Reserved
Alarm	Alarm Indicator	Reserved
VPN	VPN Indicator	Reserved
WIFI	WiFi Indicator	Fast Flashing: WiFi is in normal running
		Off: WiFi is not turned on or WiFi
		On: The WiFi module is faulty
Fiber	Indicator for interacting between system and fiber module	On: The gateway's system is properly interacting with the fiber module
		Off: The gateway's system fails to interact with the fiber module

USB	USB Indicator	On: USB flash disk is inserted into USB port properly
		Off: USB port is faulty or USB flash disk is not inserted into USB port
GE(Link)	Network Link Indicator	Fast Flashing: the gateway is properly connected to network
		Off: The gateway is not connected to network or network connection is improper
GE(Speed)	Network Speed Indicator	On: Work at 1000Mbps
		Off: Network speed lower than 1000Mbps
xPON(LED)	Indicator for xPON Register	Flash: xPON port is being registered
		On: xPON port is registered successfully
		Off: xPON port has no fiber signal
xPON(LOS)	Indicator for fiber signal loss	Flash: xPON has no fiber signal
		Off: xPON has fiber signal
LTE1	LTE1 Indicator	Flash: LTE module 1 is properly interacting with LTE card 1
		Off: LTE module 1 is faulty or no LTE card is inserted into LTE slot 1
LTE0	LTE0 Indicator	Flash: LTE module 0 is properly interacting with LTE card 0
		Off: LTE module 0 is faulty or no LTE card is inserted into LTE slot 0
FE0~FE7	LAN Port In-use Indicators (0-7)	Flash: the corresponding LAN port is in use
		Off: the corresponding LAN port is idle
		On: The corresponding LAN port is faulty
FXS0~FXS7	FXS In-use Indicators (0-7)	Slow flashing: The FXS port is initialized normally and is in idle status
		On: the FXS port is currently occupied by a call
		Off: The FXS port is faulty

2.2 Description of Ports

Port	Definition	Description
RST	Reset Button	Press RST button for 7s: factory settings are restored
		Press RST button for 5s: default IP address and username/password are restored
Console	Console Port	RS232 standard, 57600bps
USB	USB Port	Used to connect to USB flash disk
GE	Gigabit network Port	Gigabit Ethernet port for uplink data. When the gateway's GPON port is in use, this port can only be used as a gigabit LAN port
GPON	Fiber Port	GPON port
FE0~FE7	LAN ports (0-7)	10/100M Ethernet ports Any of ports can be connected to a PC to visit UBG1000. All FE ports share a same IP address
FXS0~FXS7 Or FXO0~FXO1 + FXS2~FXS7	FXS Ports (0-7) Or FXO ports (0-1) +FXS ports (2-7)	FXS ports are used to connect to analog telephones, while FXO ports are used to connect to PSTN lines

2.3 Specifications of Ports

2.3.1 Network Port

Specification of GPON Port:

- SC Fiber Port

- Uplink transmission rate of 1.25 Gbps; downlink transmission rate of 2.5Gbp

- Network converage radius: 20 kilometers

- High-sensitive optical receiver: not less than -28dBm

- Optical Power: Greater than 0dBm

- Security: ONU Authentication Mechanism

Specification of 3G/4G LTE

- 2 USIM Card Slots (Built-in)

- Voltage: 3.4v~4.2v

- Standard USIM card

- Antenna Interface: SMA

2.3.2 User-side Port

User-side ports include 8 10/100M Ethernet ports, 8 POTS ports, 1 USB port and 2 WiFi interface

- 8 FE ports: 10/100Base-T, RJ-45 Interface
    - Half/full duplex and dataflow control, automatic negotiation and manual configuration
    - Self-adaptive MDI/MDIX
- 8 POTS ports (FXS/FXO): RJ11 Interface
- 2 WiFi Interfaces: 802.11b/g/n
- 1 USB port: 2.0 standard

Note: UBG1000 only allows either GPON or GE to be put in use. When GPON port is used, GE port will become a LAN port. In this case, the gateway supports 9 LAN ports (FE ports), 1 GPON port and 3G/4G. When GE port is used, the gateway does not support GPON.

3 Product Functions

3.1 GPON

- Dynamic bandwidth allocation mechanism enables all users to share the 2.5Gbps bandwidth more reasonably; Qos ensures the quality of different services under the same network

- IGMP multicast for making full use of bandwidth

- Multicast VLAN

- Uplink GPON (comply with ITU-T G.984 standard)

- IEEE 802.1Q VLAN protocol

- Broadcast suppression and storm control

3.2 Wi-Fi

WiFi enables users to quickly access internet at a low cost.

- Frequencies of 2.4GHz and 5.8GHz

- External antenna: IEEE802.11b/g/n (2*2)

- Maximum WiFi access: 30 users

- Automatic or Manual choosing of WiFi channel

- Automatic or manual control of data speed

- Control of wireless transmission power

- 4 SSIDs

- enabling & disabling of SSID broadcast

- Access control based on Mac address

- WPA-PSK, WPA2-PSK

- WPS/WDS

- Maximum transmission power of 18dbm, which can be adjusted to meed different requirements

3.3 3G/4G LTE

3G/4G LTE can serve as a backup of GPON or GE to access uplink network. It does not support load balancing, and user can choose different frequency bands according to actual conditions.

Type 1:

- Support frequency band of UMTS/HSDPA/HSPA+ B1/B8(900/2100MHz)

- Support frequency band of TD-SCDMA B34/B39

- Support frequency band of FDD-LTE B1/B3/B7/B8 (900/1800/2100/2600MHz)

- Support frequency band of TDD-LTE B38/B39/B40/B41　(1900/2300/2500/2600MHz)

- Support frequency band of 2G EDGE/GPRS 900/1800MHz

Type 2:

- Support frequency band of UMTS/HSDPA/HSPA+ (850/1900MHz)

- Support frequency band of FDD-LTE B2/B4/B5/B13/B17 (1900/AWS1700/850/700MHz)

- Support frequency band of 2G EDGE/GPRS 850/1900MHz

Type 3:

- Support frequency band of UMTS/HSDPA/HSPA+ B1/B8(900/2100MHz)

- Support frequency band of 2G EDGE/GPRS 900/1800MHz

3.4 Voice Capabilities

- NGN SIP, IMS SIP

- 8 FXS ports or 6 FXS ports +2 FXO ports

- VoIP protocols: SIP RFC3261 v2.0, TCP/UDP/TLS, RTP/RTCP

- DTMF: RFC 2833, SIP INFO or In-band

- G.168 Echo Cancellation, 128ms

- Codec Algorithm: G.711, G.729, G.723 and iLBC

- FAX: T3.8 and Pass-through

- Comfort Noise Generator (CNG)

- Silence Suppression

- Automatic Gain Control

- Voice Activity Detection (VAD)

- Dynamic Jitter Buffer

- L3 DIFFServ QoS

- NAT: STUN, UPnP, DDNS and Static Address

- Supplementary Service: call Forward (Unconditional/No Answer/Busy), Call Waiting, Call Hold, Call Transfer (Blind/Attended), 3-Way Conference, Do-not-disturb, Hotline and Caller ID Display

- Call Progress Tones: Dial Tone, Ringback Tone and Busy Tone

3.5 FXS

- Call ID: Bellcore Type 1&2, ETSI, BT, NTT and DTMF

- Polarity Reversal

- Hook Flash Detection

- Connector: RJ11

3.6 FXO

- Caller ID: FSK, DTMF

- Polarity Reversal

- Busy Tone Detection

- No Current Detection

- Auto Matching for PSTN Impedance

- Answer Delay

- Connector: RJ11

3.7 Software Features

- Ring Group

- PBX auto attendant

- Built-in IPPBX, Support 32 extensions

- Routing Groups for Multiple Calls

- Caller/Called Number Manipulation

- Routing Based on Time Period

- Routing Based on Caller/Called Prefixes

- Routing Based on Source Trunks

- Failover Routing

- Regular Expression and DigitMap

- IVR Customization
- Call Detailed Records (CDRs)

3.8 USB

- 1 USB Port
- USB 2.0 Standard, Full-rate Interface
- File Sharing Via USB
- PNP (Plug and Play) and Hot-plugging of USB Flash Disk

3.9 Data Transmission Capability

3.9.1 VLAN

- IEEE 802.1q VLAN
- Range of VLAN ID: 3-4094
- Tag VLAN & Untagged VLAN
- Data Transmission Based on VLAN

3.9.2 Vitual Subports of WAN

- Allow to create 8 virtual subports for WAN for different services
- Data Transmission and Routing
  - Static Routing & Strategy Routing
  - Access Ways: IP, PPPoE, DHCP
- Port Binding

  – When LAN/WLAN is bound to a subport of WAN, the data of LAN/WLAN will go out through this subport;

  – When LAN/WLAN is not bound to any subport of WAN, the data of LAN/WLAN will go out through the default route.

3.9.3 Other Functions

- DHCP Server or DHCP Client
- DNS（Domain Name Server）& DDNS（Dynamic DNS）
  - DNS relay: transmit DNS request from a device under the same network
  - IPv4 DNS client: obtain IPv4 address of the same domain from an external DNS server

- Each subport of WAN connects to a corresponding DNS server; information of DNS server can be automatically obtained or can be configured manually

    - Comply with standards of RFC1034, RFC1035 and RFC2939

    - DDNS Parameters: service provider, domain, username and password
- NTP

- NAT/NAPT

- Port Mapping and DMZ

- Cloning of Mac address

3.10 QoS

- Speed limitation based on user-side port and service flow

    Classification of uplink Service flow based on physical port , source Mac address, destination Mac address, priority of VLAN (IEEE802.1D), Ethernet type (IP, PPPoE or ARP/RARP), destination IP address, IP protocol (TCP, UDP, ICMP or IGMP), IP DSCP and TCP/UDP port

- Priority of uplink service flow based on DSCP value

- Mapping from TOS/DSCP to 802.1p based on IP

- Speed limitation of ports

- Traffic shaping of ports

3.11 UPnP

- UPnP IGD 1.0 protocol
    - Serve as UPnP Client

3.12 VPN

- L2TP server / L2TP client: 16 connections at most

- L2TP over IPSec: 12 connections at most

- PPTP server/PPTP client: 16 connections at most

- IPSec Net2Net & Road Warrior

- GRE

- OpenVPN Client

- Domain Routing

3.13 Security

- Firewall

- Anti-DoS Attack

- Filtering of URL addresses

- Filtering of IP addresses

- Filtering of Mac addresses

- Authentication of Raduis/Portal

3.14 Maintenance

- Remote Management via TR069/SNMP

- Cloud Management Platform

- HTTP/HTTPS/TFTP Firmware Upgrade

- SSH/Telnet Management

- Management based on user grading

- Call Detailed Records (CDRs): 5000 at most

- Ping/Tracertoute/Nslookup

- Network Capture

- Debug logs from Web GUI

- HTTP/HTTPS Web Configuration

- Restore& Backup

- Syslog, Operation Log and Running log

- User-friendly Web GUI (Chinese/English)

4 Others

4.1 Power Input

Name	Requirements
Power Input	100V～240V AC，50Hz～60Hz
Power Consumption	≤36W

4.2 Working Enviroment

Name	Requirements
Operating Temperature	0℃～45℃
Storage Temperature	-20℃～80℃
Humidity	10%~90%（Non-condensing）

4.3 Size & Weight

Name	Requirements
Size (W/D/H)	340×206×44mm
Weight	Net Weight: 2.2 kg

4.4 Protocols & Standards

Name	Protocols / Standards
GPON	ITU-T G.984
VoIP	SIP,G.711A/U,G.729,G.723, iLBC,T.38

Name	Protocols / Standards
Route	NAT，NAPT
Network	DHCP，DNS，DDNS，NTP
Ethernet	IEEE 802.3ab
USB Protocol	USB 2.0
Wi-Fi	IEEE 802.11b/g/n
VLAN	IEEE 802.10，802.1P/Q