

# GR2512 / GR2511

## 2/1-Port WiFi VoIP Router



### Features

- Superior voice quality and versatile features support
- Integrated wire and wireless access in box
- Support Telephone/FAX over IP
- Embedded router and L2/L3/L4 switch mechanism
- Supports rich supplementary call features
- Intelligent Dial Plan and flexible route selection
- Good interoperability with Soft switch, IP-Centrex, IP-PBX, and SIP server
- Auto provisioning, web management and security enhancement
- Cyber attack and broadcast storm protection
- Wide range of spec combination for various ODM requirements



**GR2512** WiFi VoIP Router series is a SIP-based high performance WiFi IP gateway with embedded router. It is ideal for residential/SOHO or even SME (Small & Medium Enterprise) VoIP communications. They can support 2/1 FXS ports for phone or FAX and also provides a PSTN backup line. Furthermore, this product is configurable for matching with different telephones, facsimiles, voice mail systems, IVR system and different country networks over the world by software settings.

Besides compact and cost-effective design, it is built with a powerful router and full wire-speed Ethernet switch that not only save money and space, but also offer unbeatable superior voice quality for VoIP calls. This router can be configured downgrade to an IP-Share/NAT or a pure bridged switch for various applications. Of course, the WiFi facility enables user's PCs to connect to Internet or link this VoIP router to Internet world. This WiFi support brings a lot of convenience, benefits and mobility for better productivity.

For much wider markets, the SIP stack, extensions, and network protocols are compliant with the international standards and can easily interoperate with most popular SIP server, Soft switch, IP-Centrex, IP-PBX and SIP terminals. For plug & play function, an auto-provisioning system (APS) mechanism is also supported by this device. Users may easily configure and maintain the device thru the web-based management or Auto-upgrade of APS. A Secure APS server system is optional to improve the security of service for Internet Service Provider.



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### Specifications

#### Model Options

Model	WAN	WiFi	LAN	FXS	PSTN Port	Type
GR2512	1	1	4	2	None	Generic
GR2512BU	1	1	4	2	PSTN backup (Life)	ODM
GR2512P	1	1	4	2	PSTN Pass thru	ODM
GR2511	1	1	4	1	None	Generic
GR2511BU	1	1	4	1	PSTN backup (Life)	ODM
GR2511P	1	1	4	1	PSTN Pass thru	ODM

### Specifications

#### Hardware

- Compact Anti-fire ABS plastic housing with wall-mount design
- Housing Dimension: 176 x 103 x 32.5mm
- Temperature: Operating 0° to 45° C, Storage: -20° to 70° C
- Humidity: Operating 15% to 85%, Storage: 10% to 90%

#### Interface

- 2/1 POTS ports for Analog phone/FAX/modem
- SLIC Spec:
  - 5 REN (distance dependant) supported
  - Configurable network parameters & line impedance for countries
  - Configurable ringing parameters Trapeze or Sinus
- 100/10Mbps RJ45 Ethernet ports for WAN & LAN
  - Compliant with IEEE802.3u / 802.3 standards
  - 1 WAN port and 4 LAN ports
  - Full/Half-duplex, Auto polarity, Auto MDI/MDXO, Auto-negotiation, VLAN tagging
  - Full wire speed Layer 2/3/4 switching performance
- LEDs: POWER, WAN, LAN1 to LAN4, FXS, (FX32)
  - PSTN for PSTN call indication and system status
- 1 Reset button for factory default setting
- 1 console port for engineering service
- 1 DC power input Jack 2.5mm diameter

#### Power

- External DC wall-mount type power supply
- Input DC 13V/0.8A

#### VoIP Protocol Stack

- SIP V2 (RFC3261), SDP (RFC2327) standards
- SIP basic messages: REGISTER, INVITE, ACK, BYE, CANCEL, SUBSCRIBE, NOTIFY, OPTIONS, INFO (RFC2976), UPDATE (RFC3311), OFFER/ANSWER (RFC3264), REFER (RFC3515), "Replaces" Header (RFC3891)
- SIP authentication (HTTP Digest with MD5)
- Outbound proxy server for all signal and media
- (\*\*) direct P2P (Ad-hoc) connection and IP address dial

#### Phone Call Services

- Basic Calls
- Caller ID generation for type I and II
- CLIP / CLIP
- Supplementary features: Call Hold, Call Transfer, Call Forward, Call Waiting, CWI, Call waiting Caller ID, 3-way Call Conferencing, Message Waiting Indication (\*\*) and more
- ITU T.30/T.38 FAX support
- FAX Tone detection (Pass Through)
- Flexible Dial Plan support
- (\*\*) PSTN backup line (Emergency, network/power failure)
- (\*\*) PSTN Pass Thru (Emergency, PSTN call-in, PSTN call-out)
- Support 1 or 2 accounts for the device
- Support idle line hunting
- Repeat dialing on busy
- DND
- Anonymous call blocking
- Call return
- IVR Control commands



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## Specifications

### Audio Codec

- G. 711a/μ-law (64K)
- G.726 (16K, 24K, 32K, 40K)
- G.729A/B (8K) Optional
- G.723.1 (5.3K, 6.3K) Optional
- ITU T.30/T.38 for FAX
- ITU V.29 Modem (Reserved)

### Voice Features

- Exchange of Codec capability
- Dynamic Payload
- Adjustable audio frames per packet
- DTMG in-band and out-of-band (RFC2833)
- Tone/Ring generation configurable  
Dial tone, Special Dial tone, Ring tone, Ring back tone, Busy one, Network busy/congestion tone, Call Waiting tone
- Voice Activity Detection (VAD)
- Comfort Noise Generation (CNG)
- Dynamic voice gain controllable
- Line Echo Cancellation ITU G.168 (LEC) with an effective 64ms tail length
- Adaptive jitter buffering
- Packet loss concealment (PLC)

### Network Protocols

- IPv4 (RFC791), ARP(RFC826), DHCP (RFC2131), PPPoE (RFC2516), ICMP (RFC792), TCP (RFC793), UDP (RFC768), RTP(RFC3550), RTP Profile (RFC3551), RTCP (RFC 3605), SRTP (Reserved)
- HTTP Server, TFTP Client, Telnet Server

### WAN Side Network Protocols:

- Static IP, DHCP(RFC2131) & PPPoE (RFC 2516)
- Single/Multiple PPPoE Dial-Up
- Dos attacking secure and broadcast storm protection
- NAT traversal with STUN (RFC3489)
- HTTP (RFC2068) server
- TFTP Client support
- SNMP protocols
- DNS client and DDNS support
  - DNS resolving for SIP+STUN+TFTP servers
  - DNS primary + secondary support
  - Obtain DNS server from DHCP
  - DNS Relay
- PPTP & L2TP client
- Single / Multiple NAPT
- DMZ support
- Multi-VPN pass-through
- Inbound filtering
- Policy based parental controls
- IGMP snooping
- IP Multi-cast (reserved)
- Web-based ping & Trace route command



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## Specifications

### LAN Side Network Protocols:

- Support Router, IP-Share/NAT and LAN Bridge Modes
- Very cyber secure and robust broadband VoIP router
  - Stateful packet inspection
  - Static Routing table
  - RIP1 / RIP2
  - Individual priorities to handle different services and streams
  - Application Layer Gateways (ALG) support
- Reliable and secure rule based firewall for home/SOHO
- DNS relay (proxy)
- Network Address Translation (NAT)/ PAT support
- DHCP server (RFC 2131) and (\*\*) relay function

### Quality of Service:

- Support QoS function in the network system
- VLAN tagging IEEE 802.1q
- Voice priority over data IEEE 802.1p
- TOS (RFC791) marking
- Diffserv Codepoint (DSCP) (RFC 2475)
- Voice traffic priority at ensured configured bandwidth
- Traffic shaping using bandwidth limitation per port

### WiFi Functions:

- Support IEEE 802.11b / IEEE 802.11g
- Support WPA2 , QoS
- Supports both transmit and receive antenna diversity
- Data rates:1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54Mbps
- DSSS with DBPSK and DQPSK, CCK modulations and demodulations with long and short preamble.
- OFDM with BPSK, QPSK, 16QAM and 64QAM modulations and demodulations supported with rate compatible punctured convolution coding with coding rate of 1/2, 2/3 and 3/4.
- Efficient IQ-imbalance calibration, DC offset, phase noise, frequency offset and timing offset compensation provided for the radio frequency front-end impairments.
- Selectable digital transmit and receiver FIR filters provided to meet the requirement of transmit spectrum mask and to reject the adjacent channel interference, respectively.
- Programmable scaling both in transmitter and receiver to trade the quantization noise against the increasing probability of clipping
- Fast receiver automatic gain control (AGC)
- Adaptive transmit power control supported
- Hardware based encryption/decryption engine of IEEE802.11i, including 64-bit/128-bit WEP, TKIP and AES

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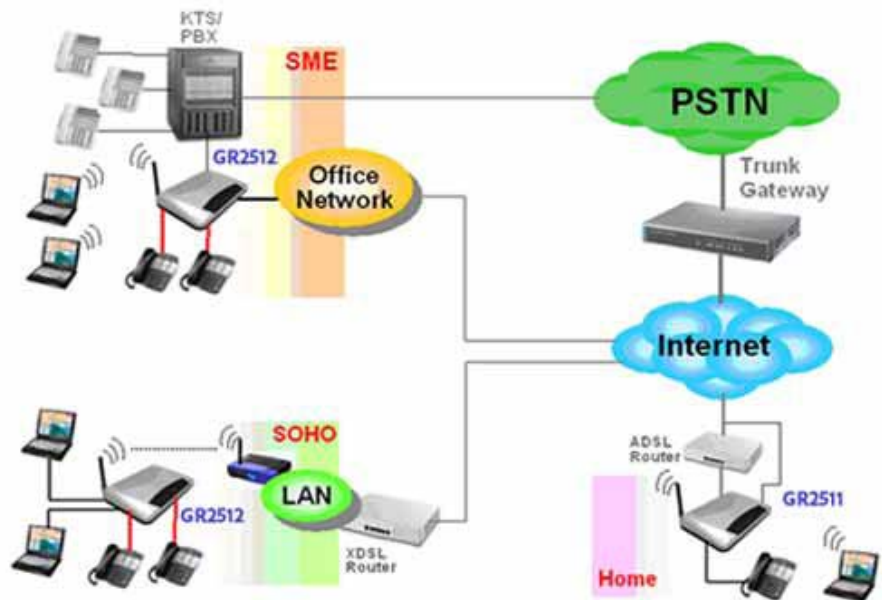
### Management

- HTTP Passwords up to 16 digits
- User and administrator separate management levels
- (\*\*\*) Encrypted configuration file for local saving
- Firmware upgrade thru Web, TFTP or APS server

### Auto-Provisioning Support:

- Auto-provisioning thru general APS
- Boot time or periodic auto-activation of APS
- Remote Firmware and configuration file upgrade
- Status and performance monitoring
- Failsafe Upgrade

(\*\*) Reserved for the future



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