▲ BiPAC 7404VGOX ▲ BiPAC 7404VGPX / BiPAC 7401VGPX

3G/VoIP/802.11g ADSL2+ (VPN) Firewall Router Series with PSTN Fixed-line support

Product Model	USB port for 3G backup	Auto Fail-over	FXS Port	FXO Port	Gateway - Least Cost Routing Support	IPSec VPN	Wi-Fi Protected Setup (WPS)
BiPAC 7404VGOX	✓	✓	2	1	✓	16 VPN tunnels	✓
BiPAC 7404VGPX	✓	✓	2	1	✓	VPN pass-through	✓
BiPAC 7401VGPX	✓	✓	1	1	-	VPN pass-through	✓

BiPAC 7404VGX series

3G/VoIP/802.11g ADSL2+ (VPN) Firewall Router Series with PSTN Fixed-line support

Communication just got cheaper! Make the most economical and secure VoIP calls over a 3G mobile network - with Internet sharing!

The BiPAC 7404VGX series, a Dual-WAN 3G / ADSL2+ (VPN) firewall router integrated with VoIP functionalities is a brilliant design for SOHO and office users to enjoy economical VoIP calls concurrently with mobile, high-speed and high-level security of data communications. It features a USB 2.0 port for plugging in a 3G / HSDPA modem, which works as a backup WAN, functioning as an automatic fail-over when an ADSL2+ connection breaks down. The Gateway feature called "Least Cost Routing" enables users to choose the most economical rate of VoIP calls provided by different Internet Telephony Service Providers (ITSP). This router series integrates an FXS port allowing you to make VoIP calls simply by connecting the device to your existing telephone set. The additional FXO port enables you to make calls through PSTN Fixed-line while sharing a high-speed Internet connection. The Quality of Service (QoS) feature ensures a smooth net connection for inbound and outbound data with minimal traffic congestion. With the BiPAC 7404VGX series, you can create your own mobile hotspot for Wi-Fi access to make low cost landline calls and mobile calls wherever a 3G connection is available - in a meeting or at a trade show.

Truly Cost Saving

Making VoIP calls with toll-quality is extremely simple; just connect the router to your existing telephone sets. The BiPAC 7404VGX series complies with the most popularly adopted VoIP industrial standard, SIP protocol, to ensure the interoperability with SIP devices and major VoIP Gateways. The Gateway feature called "Least Cost Routing" offers the choice of the most economical rate provided by different ITSP. One RJ-11 FXO port is integrated to transmit inbound and outbound calls through PSTN Fixed-line, so that users may still be able to receive phone calls through PSTN, while enjoying VoIP service at the same time. In addition, outgoing calls will be automatically redirected to PSTN when the Internet or VoIP service is not available. The router also supports a wider range of telephony features, such as call waiting, silence suppression, line echo cancellation, caller ID, etc.

### 3G Mobility and Always-On Connection

With the BiPAC 7404VGX series you can connect a 3G / HSDPA USB modem to its built-in USB port, enabling you to use a 3G / HSDPA, UMTS, EDGE, GPRS, or GSM Internet connection, which makes downstream rates of up to 14.4 Mbps[*3] possible. With the increasing popularity of the 3G standard, communication via the BiPAC 7404VGX series is becoming more convenient and widely available - allowing you to watch movies, download music on the road, or access e-mail no matter where you may be. You can even share your Internet connection with others, no matter if you're in a meeting or speeding across the country on a train. The auto fail-over feature ensures maximum connectivity and minimum interruption by quickly and smoothly connecting to a 3G network in the event that your ADSL line fails. The BiPAC 7404VGX series will then automatically reconnect to the ADSL connection when it's restored, reducing connection costs. These features are perfect for office situations where constant and uninterrupted connection is paramount and of upmost importance.

Wireless Mobility and Protection

An integrated 802.11g Wireless Access Point offers quick yet easy access with data encryption for added security. The Wireless Protected Access (WPA-PSK / WPA2-PSK) and Wireless Encryption Protocol (WEP) features enhance the level of transmission security and access control over Wireless LAN. The BiPAC 7404VGX series also supports Wi-Fi Protected Setup (WPS) standard, allowing users to establish a secure wireless network by simply pushing a button. If your network requires wider coverage, the built-in Wireless Distribution System (WDS) repeater function allows you to expand your wireless network without the need for any external cables.

Secure VPN Connections

The BiPAC 7404VGOX supports embedded IPSec VPN (Virtual Private Network) protocols, allowing users to establish encrypted private connections of up to 16 simultaneous tunnels over the Internet. With a built-in DES / 3DES VPN accelerator, the router enhances IPSec VPN performance significantly - so you can access your corporate intranet and transmit sensitive data between branch offices and remote sites anytime; even when you are on the road, thus enhancing productivity greatly.
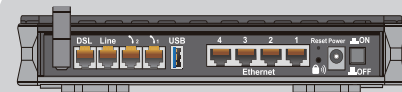
▲ BiPAC 7404VGOX Rear Panel
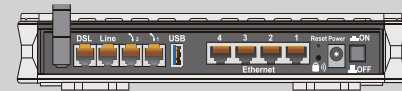

▲ BiPAC 7404VGPX Rear Panel
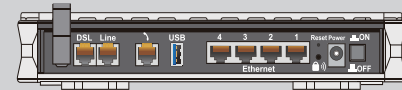
▲ BiPAC 7401VGX Rear Panel

- Dual WAN interfaces for ADSL2+ and 3G connections
- High speed Internet access with ADSL2 / 2+; backward compatible with ADSL
- Auto fail-over feature to ensure an always-on connection
- USB 2.0 port for plugging a 3G / HSDPA modem as backup (available separately)
- Make phone calls via the Internet as well as PSTN Fixed-line
- Voice over IP compliant with SIP standard
- Two FXS ports for connecting to regular telephones (BiPAC 7404VGOX/VGPX)
- One FXO port for voice calls via PSTN Fixed-line
- Gateway - Least Cost Routing support (for retail package only) (BiPAC 7404VGOX/VGPX only)
- 802.11g Wireless AP with WPA-PSK / WPA2-PSK support
- Wi-Fi Protected Setup (WPS)
- 16 IPSec VPN tunnels Support (BiPAC 7404VGOX only)
- Secured VPN with powerful 3DES (BiPAC 7404VGOX only)
- SOHO firewall security with DoS prevention and SPI
- Quality of Service control
- Supports IPTV Application[*4]

Ideal for:
- SOHO users
- Office users
- Event or meeting organizers

BILLION™

Powering communications with Security
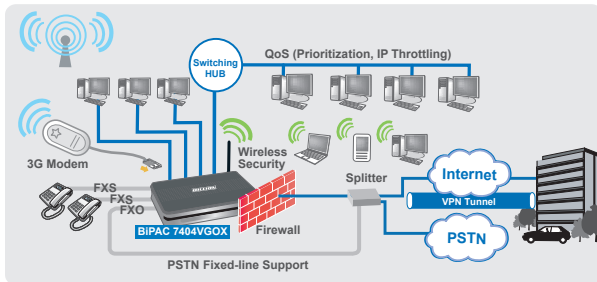
Compatible 3G USB modems*3

Brand	Model
Huawei	E169, E220, E270, E172, E272,E169G, E160G, E170
Sierra	Aircard 880U, Aircard 875U, Aircard 885U
ZTE	MF622, MF638, MF628
NOVATEL	MC950D
BandRich	Bandluxe C100
Alcatel	OT-X020
C-Motech	D50
Telstra	USB3-8521

This list is continuously updated at http://www.billion.com/compatible-3G.html

Features & Specifications

ADSL Compliance

- **Compliant with ADSL Standard**
  - Full-rate ANSI T1.413 Issue 2
  - G.dmt (ITU G.992.1)
  - G.lite (ITU G.992.2)
  - G.hs (ITU G.994.1)
  - ADSL over ISDN / U-R2
- **Compliant with ADSL2 Standard**
  - G.dmt.bis (ITU G.992.3)
  - ADSL2 Annex M (ITU G.992.3 Annex M) (BiPAC 7404VGOXA/VGPXA, and BiPAC 7401VGPXA only)
- **Compliant with ADSL2+ Standard**
  - G.dmt.bis plus (ITU G.992.5)
  - ADSL2+ Annex M (ITU G.992.5 Annex M) (BiPAC 7404VGOXA/VGPXA, and BiPAC 7401VGPXA only)

Network Protocols and Features

- NAT, static routing and RIP-1 / 2
- Universal Plug and Play (UPnP) Compliant
- Dynamic Domain Name System (DDNS)
- Virtual Server and DMZ
- SNTP, DNS relay and IGMP Proxy
- POP3 (email account checking)
- IGMP snooping for video service

Firewall

- Built-in NAT firewall
- Stateful Packet Inspection (SPI)
- DoS attack prevention including IP Spoofing, Land Attack, Smurf Attack, Ping of Death, TCP SYN Flooding, etc.
- Packet Filtering - port, source IP address, destination IP address, MAC address
- URL Content Filtering - string or domain name detection in URL string

Quality of Service Control

- Supports the DiffServ approach
- Traffic prioritization and bandwidth management based-on IP protocol, port number and address

Wireless LAN

- Compliant with IEEE 802.11g and 802.11b standards
- 2.4 GHz – 2.484 GHz frequency range
- Up to 54 Mbps wireless operation rate
- Wi-Fi Protected Setup (WPS) for easy setup
- 64/128 bits WEP supported for encryption
- Wireless security with WPA-PSK/WPA2-PSK support
- WDS repeater function support

IPTV Applications*4

- IGMP Snooping
- Virtual LAN (VLAN)
- Quality of Service (QoS)

VoIP

- Two RJ-11 FXS ports for connecting to regular telephones (BiPAC 7404VGOX/VGPX)
- One RJ-11 FXS port (BiPAC 7401VGPX)
- One RJ-11 FXO port for PSTN Fixed-line
- Compliant with SIP standard (RFC3261)
- Supports G.711 A/µ law, and G.729 Audio Codec standards
- Supports Telephony Features: call waiting, silence suppression, voice activity detection (VAD), comfort noise generation (CNG), G.168 line echo cancellation, caller ID (Bell 202,V23)
- Voice over data, QoS control to ensure higher voice quality
- Automatic fallback to PSTN Fixed-line when the Internet or VoIP service is not available.
- Gateway – Least Cost Routing support (for retail package only) (BiPAC 7404VGOX/VGPX only)

ATM and PPP Protocols

- ATM Adaptation Layer Type 5 (AAL5)
- Multiple Protocol over AAL5 (RFC 2684, formerly RFC 1483)
- Bridged or routed Ethernet encapsulation
- VC and LLC based multiplexing
- PPP over Ethernet (PPPoE)
- PPP over ATM (RFC 2364)
- Classical IP over ATM (RFC 1577)
- MAC Encapsulated Routing (RFC 1483 MER)
- OAM F4 / F5

Virtual Private Network (VPN) (BiPAC 7404VGOX only)

- 16 IPSec VPN Tunnels
  8 L2TP VPN Tunnels (Dial-in: 4, Dial-out: 4)
  8 PPTP VPN Tunnels (Dial-in: 4, Dial-out: 4)
- Embedded IPSec, L2TP & PPTP client / server
- IKE key management
- DES, 3DES and AES encryption for IPSec
- Embedded powerful 3DES accelerator
- MPPE Encryption for PPTP
- L2TP over IPSec
- L2TP / PPTP / IPSec pass-through

Management

- Quick Installation Wizard and Auto-scan ADSL settings
- Web-based GUI for remote and local management
- Firmware upgrade and configuration data upload and download via web-based GUI
- Embedded Telnet server for remote and local management
- SNMP v3, MIB-I and MIB-II support
- Supports DHCP server / client / relay
- TR-069*1 supports remote management

Hardware Specifications

Physical Interface
- WLAN: detachable antenna
- DSL: ADSL port
- Telephone:
  1-port FXO (For PSTN Fixed-line support)
  2-port FXS (BiPAC 7404VGOX/7404VGPX)
  1-port FXS (BiPAC 7401VGPX)
- USB 2.0 supports 3G/HSDPA modem backup
- Ethernet: 4-port 10/100M auto-crossover (MDI/MDI-X) Switch
- Console: the Ethernet Port # 4 can be also connected to console
- Factory default reset button
- WPS push button
- Power jack
- Power switch

Physical Specifications
- Dimensions: 9.04" x 6.10" x 1.46" (229.5mm x 155mm x 37mm)

Power Requirements
- Input: 15V DC, 1.6A

Operating Environment

- Operating temperature: 0 – 40°C
- Storage temperature: -20 – 70°C
- Humidity: 20 – 95% non-condensing

Models & Standards Supported

Product Models
- BiPAC 7404VGOX:
  3G/ VoIP/ 802.11g ADSL2+ VPN Firewall Router
- BiPAC 7404VGPX:
  3G/ VoIP/ 802.11g ADSL2+ Firewall Router
- BiPAC 7401VGPX:
  3G/ VoIP/ 802.11g ADSL2+ Firewall Router

Standards
- BiPAC 7404VGOXA/VGPXA/BiPAC 7401VGPXA: Supports Annex A and Annex M (Annex A and Annex M: ADSL over POTS)
- BiPAC 7404VGOXU/VGPXU/BiPAC 7401VGPXU: Supports Annex B and U-R2 (Annex B and U-R2: ADSL over ISDN)

*Notes:
1. On request for Telco / ISP projects
2. The router may require firmware modification for certain ADSL2 / 2+ / Annex M DSLAMs.
3. The 3G / HSDPA data rate depends on your local service provider and your 3G / HSDPA modem.
4. IPTV application may require subscription to IPTV services from a Telco / ISP.
5. Specifications on this datasheet are subject to change without prior notice.

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