BiPAC 8900X *R3*

VDSL2/ADSL2+ 3G/4G LTE VPN Firewall Router

The Billion BiPAC 8900X *R3* is a multi-service VDSL2 router. It features fiber-ready triple-WAN VDSL2 supports backward compatibility to ADSL2+ for a longer reach distance, an all-in-one advanced device including Gigabit Ethernet, connections to 3G/4G LTE and NAS (Network Attached Storage) in one unit. As well as being IPv6-capable, the BiPAC 8900X *R3* VDSL2 router supports superfast fibre connections via a Gigabit Ethernet WAN port. It also has one USB port, allowing the device to act as a NAS (Network Attached Storage) device with DLNA (Digital Living Network Alliance) and FTP (File Transfer Protocol) access. Moreover, the USB port can host a 3G/4G LTE modem connecting to the 3G/4G LTE network for Internet access. With an array of advanced features, the Billion BiPAC 8900X *R3* delivers a future-proof solution for VDSL2 connections, superfast FTTC and ultra-speed FTTH (Fiber-To-The-Home) network deployment and services.

Pathway to the Future

IPv6 (Internet Protocol Version 6), launched as the current IPv4 is getting filled up, gradually becomes the indispensible addressing system for the savvy cloud computing users. Equipped with IPV6, the BiPAC 8900X *R3* eagerly provides users a better working environment to work with, a shortcut to upgrade and a more efficient solution to save budget. For the customers during this transition period, dual stack (IPv4 and IPv6) feature enables the hosts a convenient way to reserve both address to smooth over this coexistent period.

3G/4G LTE Mobility and Always-On Connectivity

With the BiPAC 8900X *R3* you can connect a 3G/4G LTE USB modem to its built-in USB port, allowing you to watch movies, download music or access e-mail no matter where you may be. You can even share your Internet connection with others, when away on business, at a show, or wherever there is mobile signal but no fixed line access. The auto fail-over feature ensures maximum connectivity and minimum interruption by quickly and smoothly connecting to a 3G/4G LTE network in the event that your DSL/fibre/cable line fails. The BiPAC 8900X *R3* will then automatically reconnect to the DSL/fibre/cable connection when it's restored, reducing connection costs. These features are perfect for office situations where a constant and uninterrupted connection is critical.

Experience Gigabit

The BiPAC 8900X *R3* has four Gigabit LAN ports and one Giga Ethernet WAN port that can be configured as a WAN interface for broadband connectivity. This EWAN offers another broadband connectivity option for connecting to a cable, DSL, fibre modem. The BiPAC 8900X *R3* again offers users convenience and optimal network performance with data rates reaching up to 1Gbps.

Secure VPN Connections

The BiPAC 8900X *R*3 supports comprehensive and robust IPSec VPN (Virtual Private Network) protocols for business users to establish private encrypted tunnels over the public Internet to secure data transmission between headquarters and branch offices. With a built-in DES/3DES VPN accelerator, the router enhances IPSec VPN performance significantly.

Ideal for SOHO and home users

- Triple-WAN ports for 3G/4G LTE, VDSL2/ADSL2+ fallback, Gigabit Ethernet WAN (EWAN) for broadband connectivity
- Gigabit WAN and LAN
- IPv6 ready (IPv4/IPv6 dual stack)
- Fibre (FTTC/FTTP/FTTH) ready with high WAN throughput
- NBN (National Broadband Network) ready * Note -1
- USB port for NAS, DLNA media server, and 3G/4G LTE USB modem
- SNR adjustments to achieve highest sync speeds
- Monitoring of individual LAN ports
- QoS for traffic prioritization and bandwidth management
- 16 IPSec VPN tunnels
- SOHO firewall security
- Auto failover
- Supports IPTV application * Note -2
- Ease of use with quick installation wizard (EZSO)
- Broadcom chipset for better stability
- Ideal for SOHO and office users

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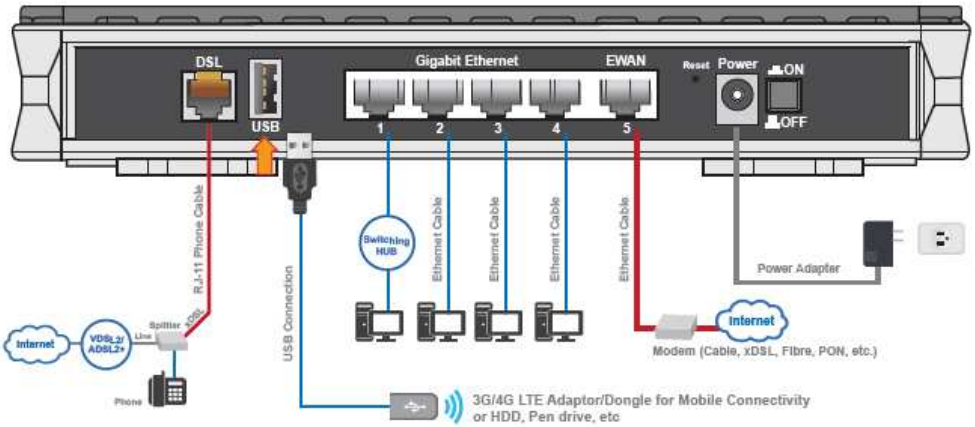

Features & Specifications

VDSL2/ADSL2+ Compliance

- Compliant with xDSL Standard
  - ITU-T G.993.2 (VDSL2)
  - ITU-T G.998.4 (G.inp)
  - ITU-T G.993.5 (G.vector)
  - ITU-T G.992.5 (G.dmt.bis plus, Annex M)
  - ITU-T G.992.3 (G.dmt.bis, Annex M)
  - Full-rate ANSI T1.413 Issue 2
  - ITU-T G.992.1 (G.dmt)
  - ITU-T G.992.2 (G.lite)
  - ITU-T G.994.1 (G.hs)
- Supports VDSL2 band plan: 997 and 998
- ADSL/2/2+ fallback modes
- Supports VDSL2 profiles: 8a, 8b, 8c, 8d, 12a, 12b, and 17a
- Supports ATM and PTM modes

Network Protocols and Features

- IPv4 or IPv4 / IPv6 dual stack
- NAT, static (v4/v6) routing and RIP-1/2
- IPv6 stateless/stateful address auto-configuration
- IPv6 router advertisement
- IPv6 over PPP
- DHCPv6
- IP Tunnel IPv6 in IPv4 (6RD)
- IP Tunnel IPv4 in IPv6 (DS-Lite)
- Universal Plug and Play (UPnP) compliant
- Dynamic Domain Name System (DDNS)
- Virtual server and DMZ
- SNTP, DNS relay, IGMP proxy and IGMP snooping for video service
- MLD proxy and MLD snooping for video service
- Management based-on IP protocol, port number and address
- SMTP client with SSL/TLS
- Supports port-based and tag-based Interface Grouping (VLAN)

Firewall

- Built-in NAT firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc
- Remote access control for web based access
- Packet filtering (v4/v6) - port, source IP address, destination IP address
- URL content filtering (v4/v6) - string or domain name detection in URL string
- MAC filtering
- Password protection for system management

Quality of Service Control

- Supports the DiffServ approach
- Traffic prioritization and bandwidth management based-on IPv4/IPv6 protocol, port number and address

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

IPTV Application * Note -2

- IGMP snooping and IGMP proxy
- MLD snooping and MLD proxy
- Interface Grouping (Virtual LAN)
- VLAN MUX support
- Quality of Service (QoS)

USB Application Server

- 3G/4G LTE USB modem
- Storage/NAS: FTP, samba, and DLNA media server

Virtual Private Network (VPN)

- 16 IPSec VPN tunnels
- IKE key management
- DES, 3DES and AES encryption for IPSec
- L2TP over IPSec
- PAP/CHAP/MS-CHAPv2 authentication for PPTP
- IPSec pass-through
- GRE (Generic Routing Encapsulation) tunnel

Management

- Easy Sign-On (EZSO)
- Web-based GUI for remote and local management (IPv4/IPv6)
- Firmware upgrade and configuration data upload and download via web-based GUI
- Embedded Telnet server for remote and local management
- SNMP v1, v2, MIB-I and MIB-II support
- Supports DHCP server/client/relay
- TR-069 * Note -3 supports remote management
- Available syslog
- Mail alert for WAN IP changed
- Wake on LAN
- Auto failover and fallback
- Push service

Hardware Specifications

Physical Interface

- DSL: VDSL/ADSL port
- USB 2.0 support storage service, FTP, NAS, DLNA and 3G/4G LTE USB modem
- Ethernet: 4-port 10/100/1000M auto-crossover (MDI/MDI-X) switch
- EWAN: RJ-45 Giga Ethernet port can be configured as a WAN interface for broadband connectivity
- Factory default reset button
- Power jack
- Power switch

Physical Specifications

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

Power Requiements

- Input : 15V DC, 2.0A

Operating Environment

- Operating temperature: 0℃ ~ 40℃
- Storage temperature: -20℃ ~ 70℃
- Humidity : 20% ~ 95% non-condensing

***Notes:**

1. This is only applicable for Australia and New Zealand.
2. IPTV application may require subscription to IPTV services from a Telco / ISP.
3. On request for Telco / ISP projects
4. Specifications on this datasheet are subject to change without prior notice.

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