

XG9500 Series

MULTISERVICE BUSINESS ROUTERS



2.5G GPON and XGSPON Ready

Aethra Telecommunications XG9500 Series routers are designed to fully support GPON up to 2.5G and XGSPON architectures with a scalable licensing model to support Communication Service Provider needs.

Different performance levels can be guaranteed with a simple license upgrade to enable upscaling the device in the field without the need for an hardware upgrade.

Total Wireless ready

XG9500 Series routers also offer, on selected models, mobile WAN with 5G / LTE for hybrid access and WiFi ax wireless connectivity, enabling Total Wireless usage scenarios.

Enterprise Class Business Features

Aethra Telecommunications XG9500 Series routers and integrated access devices support enterprise grade features (advanced routing and QoS, VRF-Lite...) and traffic acceleration with sustainable throughput with active services.

Integrated Analog Voice Gateway

XG9500 Series include data-only routers and integrated access devices with analog voice ports.

XG Series	LAN WAN			WiFi ax ¹	FXS	5G	VOICE CHANNELS	USB 3.0
	SFP+ (10G 2.5G 1G)	10G RJ45	2.5G RJ45					
XG9500-WAX	2	1	4	✓	-	-	-	1
XG9500-5GWAX	2	1	4	✓	-	✓	-	1
XG9520-WAX	2	1	4	✓	2	-	4	1
XG9520-5GWAX	2	1	4	✓	2	✓	4	1

NOTES

¹ Please contact your sales representative

Table 1: Aethra Telecommunications XG9500 Series Configurations.

License	Typical Scenario	Supported Throughput	SFP+	10G RJ45
Standard License	GPON up to 2.5G p2p fiber	Up to 2.5Gbps ds 1Gbps us	1 up to 2.5G	Disabled
Performance License	XGSPON	Up to 10Gbps ds 2Gbps us	2 up to 10G	Enabled

Table 2: Aethra Telecommunications XG9500 License Options.

Flexible LAN/WAN Configuration and Ultra-Broadband Connectivity

XG9500 Series access devices offer wide configuration flexibility in connectivity setup. All the interfaces can be configured to operate as either WAN or LAN ports with a throughput of up to 10Gbps. The same router / IAD can be used for FTTC and FTTH customers also supporting usage of external ONTs.

Together with the fixed WAN interfaces, the 5G/LTE option provide mobile connectivity that can be used as backup and/or a second active WAN in hybrid access scenarios.

Future-proof with micro-App Support

The new ATOS Operating System of XG9500 Series routers supports the deployment of container based micro-Apps, which enable the router to automate different levels of vertical and customized behaviours, such as Zero Touch Provisioning systems or scripting based automations.

OVS Virtual Switching

Aethra Telecommunications XG9500 Series routers support Virtual switching capabilities based on Open Virtual Switch (OVS) technology in order to provide high end and flexible traffic flow management.

Features include switch virtual interfaces, S-VLAN and C-VLAN support, Rapid Spanning Tree and a fully dynamic flow based traffic management without impacting routing performances.

SPECIFICATIONS

LED Indicators

- POWER / SYSTEM
- INTERNET
- MOBILE
- Wi-Fi
- USB
- FXS1, FXS2
- ETH0-1, ETH0-2, ETH0-3, ETH0-4
- ETH1, ETH2, ETH3

Physical Interfaces

- 4-port 2.5GbE with RJ-45 connectors (Eth0)
- 1-port 10GbE with RJ-45 connector (Eth1)
- 1-port 10GbE with SFP+ connector (Eth2)
- 1-port 10GbE with SFP+ connector (Eth3)
- 1-port console with RJ45 connector
- 1-host USB
- 2-port FXS with RJ-11connectors

Mobile 5G

- 5G NR
- NSA Bands:
n1 / n2 / n3 / n5 / n7 / n8 / n12 / n20 / n25 / n28 / n38 / n40 / n41 / n48 / n66 / n71 / n77 / n78 / n79
- SA Bands:
n1 / n2 / n3 / n5 / n7 / n8 / n12 / n20 / n25 / n28 / n38 / n40 / n41 / n48 / n66 / n71 / n77 / n78 / n79
- DL 4x4 MIMO:
n1 / n2 / n3 / n7 / n25 / n38 / n40 / n41 / n48 / n66 / n77 / n78 / n79
- UL 2x2 MIMO:
n41
- LTE
- LTE Category:
DL Cat 20/ UL Cat 18
- LTE Bands:
B1 / B2 / B3 / B4 / B5 / B7 / B8 / B12 (B17) / B13 / B14 / B18 / B19 / B20 / B25 / B26 / B28 / B29 / B30 / B32 / B34 / B38 / B39 / B40 / B41 / B42 / B43 / B46 (AA) / B48 / B66 / B71
- DL 4x4 MIMO:
B1 / B2 / B3 / B4 / B7 / B25 / B30 / B32 / B34 / B38 / B39 / B40 / B41 / B42 / B43 / B48 / B66
- UMTS
- WCDMA Bands:
B1 / B2 / B3 / B4 / B5 / B6 / B8 / B19

WiFi Interface

- IEEE 802.11ax @2.4GHz & 5GHz 2x2x2
- IEEE 802.11ac
- IEEE 802.11b/g/n
- WPA2 and WPA3
- IEEE 802.1x authentication
- MAC filtering

Voice Interfaces

- FXS
- Compliant to Q.552 requirements
- Port impedance: real 600Ω or complex Euro values
- Low distortion ringing voltages
- Diagnostic features

Voice Processing

- Voice Codes
- ITU-T G.711 (A-law, μ-law)
- ITU-T G.729a (Factory Setup Option)
- ITU-T G.165/G.168 echo cancellation
- Voice Activity Detection and Comfort Noise

Generation

- RTP/RTCP (RFC1889)
- Up to 2 Voice Channels VoIP

Signalling

- SIP 2.0 according to RFC 3261 (TCP or UDP transport)
- En-block and Overlap sending
- DTMF detection and carrying (RFC2833), DTMF info
- Local Generation of
 - Dial tone
 - Ring back tone (180 Ringing reply)
 - Call Waiting tone- Busy tone
 - Fast Busy tone

Fax and Modem Support

- T.38 fax relay
- Automatic G.711 Fax and Modem Pass-Through

Supplementary Services⁽¹⁾

- Locally managed⁽²⁾ or Softswitch-based
 - Call hold
 - Consultation call
 - Call waiting
 - Call forwarding
 - Caller Identity Presentation (CLIP), DTMF and FSK based
 - Identity restriction
 - Call transfer
 - 3party conference (FXS only)
 - MSN

IP Functions

- IP Routing
 - RIP v1/v1c/ v2, RIPvng, BGPv4, OSPFv3
 - VRF-Lite
 - Enhanced Network Address and Port Translation (NAPT) engine, with multiple ALGs (including SIP, TFTP and H.323)
 - DHCP Server/Client/Relay, DHCP Learning
 - Multicast IGMP v1/v2/v3, MLDv2, PIM-SM, Static
- IP Multipath Balancer
- Routing Filtering Redistribution
- Firewalling
 - Extended Access Lists
 - Stateful Packet Inspection including Denial of Service attacks
- IPv6 Dual Stack
 - NAT64
 - DHCPv6 server, Prefix Delegation, Stateless mode, Stateful mode
- IP Services
 - DNS proxy
 - DDNS client
 - ICMP v4/v6, IGMP snooping, Telnet, TFTP
 - BFD Bidirectional Forwarding Detection
 - Layer 3 QoS according to DiffServ model (RFC2474, RFC2475)
 - Priority based queuing (Absolute Priority, WFQ, RED)
 - Extensive monitoring, tracing and troubleshooting facilities

L7 Application Control

- Advanced Layer 7 traffic recognition and management for over 400 known applications
- Application-Aware Access List filtering
- Intelligent traffic monitoring with QoS prioritization and dynamic Traffic Steering

VPN

- Protocols
 - GRE, EoGRE, IPsec, PPTP, L2TP, DM-VPN spoke, Easy-VPN client, Open VPN client
- IKEv2 Authentication
 - PSK, EAP, EAP+Radius, PUBKEY
- IKEv1 Authentication
 - PSK, PSK+Xauth, PSK+Xauth+Radius
- IPsec Authentication
 - SHA-1, MD5
- Encryption
 - MPPE, DES, 3DES, AES128, AES192, AES256

Roadwarrior VPN

- Support for IPsec Roadwarrior Clients in Smart Working Scenarios:
 - IKEv1
 - IKEv2 / IKEv2-EAP
 - DHCP over IPsec
 - IPsec NAT-traversal (NAT-T)

LAG / LACP

- Link Aggregation supported modes:
 - 802.3ad
 - Balance-xor
 - Active-backup
 - Balance-rr

Ethernet Services

- Self Learning Bridge with up to 1k MAC addresses and automatic ageing
- Full-Duplex IEEE 802.3x
- Half-Duplex back pressure flow control
- Automatic MDI/MDI-X crossover
- Broadcast/Multicast storm protection
- VLANs (802.1Q and 802.1p) port based management
 - Tag/Re-Tag/Untag
 - Trunking (VLAN multiplexing)
 - Priority based queuing

Virtual Switching

- OVS Virtual Switching
 - Add / Remove Multiple Virtual Switches
 - Add / Remove Virtual Interfaces
 - Add / Remove Physical Interfaces as Switch Ports
 - Switch Virtual Interfaces Configuration
 - Fully featured Flow based traffic management
 - Service Chain dynamic configuration
 - Access and T runk port configuration
 - Q-in-Q S-VLAN and C-VLAN support
 - RSTP - Rapid Spanning Tree Protocol Support

Authentication

- PAP/CHAP/MS-CHAPv1 and v2 authentication
- Basic and Digest schemes (RFC2617)

Service Resiliency

- VRRP (RFC2338)
- Dial on Demand Routing
- Smart Backup

Management & Configuration

- Password Protected Access
 - 2 login levels + configurable privilege access right
 - AAA and local authentication
 - TACACS+
- Local Management
 - Console port
 - Extensive CLI

- Remote Management
 - CLI (internal Telnet Server)
 - HTTP (embedded WEB Server)
 - HTTPS (embedded Secure HTTP WEB Server)
 - SNMP Agent (v1, v2c, v3)
 - SSH v1, v2
 - Syslog
 - Network Performance Monitor (IP-SLA Querier and Responder)
 - Ping MIB
 - TR-069⁽³⁾
- Firmware upgrades: Local and Remote (TFTP & FTP client embedded)

Performance Testing

- Embedded iPerf compatible bandwidth test tool
- Server / Client mode

PCI DSS 2.0 Compliance

Aethra Telecommunications Routers and Integrated Access Devices include high-end security features that can be used to help businesses ensure that all the payment data and transaction are protected according to the specifications of the Payment Card Industry (PCI) Data Security Standard.

Please refer to the "PCI DSS 2.0 Compliance with Aethra Telecommunications Routers and Integrated Access Devices" white paper to understand how to use

BG Series Integrated Access Devices to help secure the access portion of the network in order to achieve PCI DSS Compliance.

Environment

- Operating Temperature: $-5^{\circ} \div 45^{\circ}\text{C}$ ($23^{\circ} \div 113^{\circ}\text{F}$)
- Non-Operating Temperature: $-40^{\circ} \div 70^{\circ}\text{C}$ ($-40^{\circ} \div 158^{\circ}\text{F}$)
- Operating Humidity: $10 \div 93\%$ (noncondensing)

Compliance & Approvals

- Storage: ETSI EN 300 019-2-1 T 1.3
- Transportation: ETSI EN 300 019-2-2 T 2.3
- Operating Conditions: ETSI EN 300 019-2-3 T 3.2
- EMC: EN 55032, EN 55035, EN 61000-3-2, EN 61000-3-3
- Protection: ITU-T K.21
- Safety: EN 62368-1

Dimensions and Weight

- 283mm x 175mm x 47mm
- 1356g

Power

- External power supply
- AC input voltage: 100-240 Vac
- AC input frequency: 50/60 Hz
- AC input current: max 1.5 A
- Max consumption: $< = 49\text{W}$

NOTES

⁽¹⁾ Supplementary Services management is not yet fully standardised by international bodies and their implementation could be subject to revisions

⁽²⁾ Depending on the specific service, a common implementation between the IAD and the Softswitch needs to be agreed

⁽³⁾ TR-069 available under license

DISCLAIMER

The information provided in this document is subject to change without notice, and should not be construed as a commitment or as an implied warranty of merchantability.

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Figure 1: Aethra Telecommunications XG9520 Front Panel.

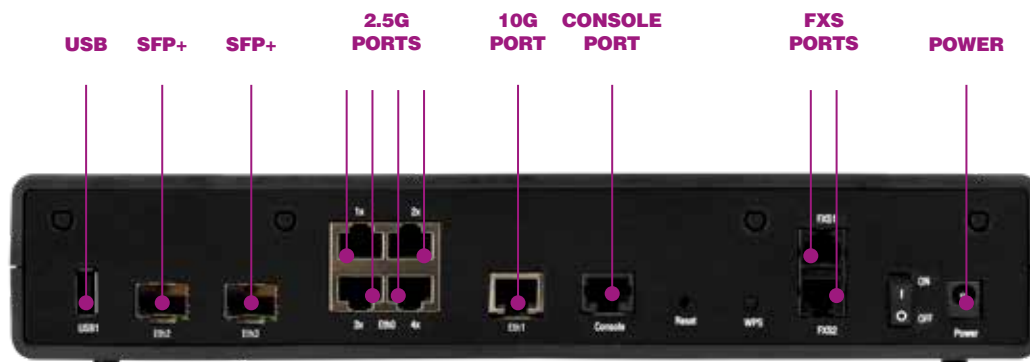


Figure 2: Aethra Telecommunications XG9520 Interfaces.