Enabling the hyper-connected world



8278XG

Wi-Fi 7 XGS-PON ONT

Powered by Zhone's advanced XGS-PON technology, the intelligent 8278XG ONT delivers symmetrical 10Gbps for multimedia services over wired and Wi-Fi 7 connections with increased 4x4 antenna coverage.

Features & Benefits

+ XGS-PON WAN interface with symmetrical data rates of up to 10 Gbps downstream and 10 Gbps upstream.
+ One 10GE and three 1GE (RJ45) interfaces to cover a variety of wired connections.
+ Two FXS POTS (RJ11) interfaces supporting SIP (MGCP available upon request).
+ USB 3.0 port for additional device connectivity.
+ Carrier-grade, dual-band (2.4 GHz and 5 GHz) 4x4 MU-MIMO Wi-Fi 7 (BE7200).
+ 160MHz channel bandwidth on 5GHz for multi-gigabit wireless speeds (5.8 Gbps).
+ MLO and Preamble Puncturing for improved connectivity.

The Zhone 8278XG brings Wi-Fi 7 performance to the fiber edge, giving service providers a single device to deliver up to 10Gbps broadband, IPTV, and voice to every room of the home.

For operators, the 8278XG integrates with standards-based XGS-PON networks and delivers symmetrical 10 Gbps service over long and densely split fiber runs, while coexisting with legacy GPON on the same fiber to protect existing network investments.

For subscribers, 4x4 Wi-Fi 7 (BE7200) adds antenna diversity for stronger signals, wider coverage, and more consistent connections where it matters most. Multi-Link Operation and Preamble Puncturing keep streaming, gaming, and video calls stable in crowded wireless environments, and EasyMesh extends that experience seamlessly through larger homes. The 10 Gigabit Ethernet port lets wired devices and mesh backhaul take full advantage of the fiber connection.

Built-in traffic prioritization keeps IPTV, voice, and real-time applications running smoothly even when the network is busy, and WPA3 security helps protect every connected device.

Standards-based remote management lets providers activate, configure, and troubleshoot the 8278XG from the network operations center, reducing truck rolls and speeding time to service.

Dual-stack IPv4/IPv6 support keeps the 8278XG ready for today's networks and tomorrow's.

Service Scenario

The 8278XG lets service providers deliver symmetrical 10Gbps Internet with 4x4 Wi-Fi 7 whole-home coverage over a single fiber connection. Providers can layer EasyMesh Wi-Fi, IPTV and streaming video, and VoIP onto QoS-prioritized service tiers for work-from-home, gaming, and smart-home subscribers.

Zero-touch activation and remote management via OMCI, TR-069, and TR-369 (USP), plus TR-143 and TR-471 performance testing, let support teams provision, diagnose, and resolve issues without a truck roll. Dying Gasp alarms separate home power loss from fiber faults, further lowering TCO.

Key Service Attributes

+ FSAN and ITU-T G.9807.1 Class N1 XGS-PON compliant.
+ One 10GBASE-T Ethernet interface and three 1000BASE-T multi-rate Ethernet interfaces.
+ Two FXS voice ports compliant with IETF SIP standards.
+ 2.4 GHz 4x4 IEEE 802.11be supporting 20 MHz and 40 MHz channel bandwidths.
+ 5 GHz 4x4 IEEE 802.11be supporting 20 MHz, 40 MHz, 80 MHz, and 160 MHz channel bandwidths.
+ Downstream and upstream MU-MIMO support.
+ One USB 3.0 port.
+ IPTV multicast support with IGMPv2 and IGMPv3.
+ Any-port, any-service data model.
+ Traffic management features including Q-in-Q tagging, IEEE 802.1Q VLANs, multiple subscriber VLANs, and per-port rate limiting.
+ Quality of Service (QoS) support with IEEE 802.1p priority bits, DiffServ, and service-based priority queuing.
+ 12 VDC power adapter.

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Product Specifications

Hardware

- Dimensions
  Width: 2.56” (65mm)
  Depth: 7.28” (185mm)
  Height: 7.87” (200mm)
- Weight: 1.5lb (0.68 kg)
- 256MByte Flash Memory
- 1GByte SDRAM (DDR4)

Interfaces

- WAN: 1x SC/APC port, XGS-PON
- Capacity: 10Gbps Down/10Gbps Up
- LAN:
  - 1x 10GBASE-T Ethernet port (RJ45)
  - 3x 1GBASE-T Ethernet port (RJ45)
- Voice: 2x FXS (RJ11) (2-wire) port
- Power: 1x 2-pin barrel power connector
- USB: 1x USB 3.0 Type-A port
- Buttons:
  - Wi-Fi Protected Setup (WPS) push button (front)
  - Recessed RESET button (bottom)
  - Power ON/OFF (rear)

XGS-PON

- Class N1 optics, 20 km (12.4 mi) reach, 1:128 split
- Maximum ODN attenuation: 29 dB link budget
- Transmitter: 1270 nm, +2.0 to +7 dBm
- Receiver: 1577 nm; -28 dBm
- Forward Error Correction (FEC) per ITU-T G.9807.1
- XGS-PON Type B protection support

Wireless

- 2.4GHz 4x4 802.11be MU-MIMO
- 5GHz 4x4 802.11be MU-MIMO
- SSIDs: 4x 2.4GHz, 4x 5GHz
- Devices per radio: 100+
- Authentication: Open, WPA/WPA2-Personal (PSK), WPA3-Personal (SAE), and WPA/WPA2/WPA3-Enterprise authentication with IEEE 802.1X/EAP
- Encryption: WEP and TKIP (legacy), AES-CCMP-128, AES-GCMP-128/256 encryption, with PMF for WPA3
- WPS modes: Push-button, AP PIN, STA PIN
- RADIUS Server support
- MAC filtering
- Wireless bridge mode
- EasyMesh support
- MLO: STR, eMLSR, Traffic Steering & Aggregation, Failover & Reliability
- 4K QAM for 20% higher data rates
- Preamble Puncturing to bypass interference

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Product Specifications

Ethernet LAN Ports
- Auto-MDI-X crossover control
- Auto-Speed or manual selection
- IEEE 802.3an 10GBASE-T
- IEEE 802.3bz 2.5GBASE-T
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3u 100BASE-TX
- IEEE 802.3az EEE
- IEEE 802.1X Authentication

Telephone
- SIP signaling: RFC 3261 compliant
- MGCP (upon request)
- Codec: G.711 (u-law and A-law), G.729B, G.726, G.722
- T.30/T.38/G.711 FAX mode
- RENs per line: 5 (maximum)
- Drop length: Residential short loop, up to 152.4m (500 ft)
- Maximum output current: 25mA
- Ring voltage: 48V RMS at 20/25Hz

Quality of Service
- HW-based internal IEEE 802.1p (CoS)
- Strict Priority (SP)
- 802.1Q (VLAN tag) QoS mapping ToS/CoS
- 8 queues per port
- Classified traffic tagging with VLAN ID and Ethernet Priority bit, and priority queue assignment
- Classify packets into different priority queues
- Traffic shaping (rateLimit) with 64 kbps granularity and accuracy error < ±10%
- ACL L2-L4 support
- DSCP IP CoS (RFC 2474)

Software Features
- IEEE 802.1D/802.1Q compliant Layer 2 switching
- MAC address learning with aging and BPDU filtering
- 2048-entry MAC address table
- Multiple T-CONT and XGEM port support
- Flexible XGEM port to T-CONT mapping
- Upstream QoS with priority queuing and scheduling
- Automatic ONT activation via serial number and password discovery
- IGMPv2/v3, IGMP Snooping, IGMP Querier and PIM-SM/SSM routing
- Dying Gasp power-failure notification

IP Routing and Firewall
- DHCP, Static IP, and PPPoE WAN connectivity
- NAT/NAPT functionality
- DNS proxy support
- SNTP
- Built-in DHCP server
- UPnP, Plug & Play support
- IP / MAC / URL Filter

IPv6
- IPv4/IPv6 dual-stack operation
- Transparent IPv6 bridging mode
- IPv6 routing and PPPoE bridged VLAN support
- DHCPv6 client/server functionality
- IPv6 Router Advertisement (RA) on LAN interfaces
- SLAAC-based WAN IPv6 address and gateway assignment
- IPv6 management support via CLI, HTTP, and TR-069

Environmental
- Operating Temperature: 32°F to 104°F (0°C to +40°C)
- Storage Temperature: –22°F to 158°F (–30°C to 70°C)
- Operating Humidity: 5% to 95% RH (non-condensing)

Powering
- DC input to device: +12VDC nominal, 3.0A
- AC input (power adapter): 100–240VAC, 50/60Hz
- Maximum power consumption: ~29W

Management
- ITU-T G.988 compliant OMCI interface
- Web-based CPE management interface
- SNMP client functionality
- Support for TR-069, TR-369, TR-098, TR-181, TR-104, TR-143 & TR-471
- Status indication via front-panel LEDs

Compliance
- CE Mark
- EN 62368-1, IEC 62368-1
- IEC 60825-1
- WEEE
- UKCA
- RoHS Directive 2011/65/EU, Directive (EU) 2015/863

Additional certifications available upon request
- FCC Part 15 Class B
- ICES-003 Class B
- Safety ETL/Intertek
- UL 62368-1
- FDA

Ordering Information

Model	Description
8278XG	1x SC/APC port, XGS-PON (Class N1) 1x 10GE + 3x 1GE RJ45 ports, 2x POTS RJ11 ports 2.4GHz 4x4 802.11be, 5GHz 4x4 802.11be 1x USB 3.0 Type A 1x 2-pin barrel, 12VDC power input Operating Temperature: 0°C to +40°C
HX-8278XG-NA	North America (UL Type-A)
HX-8278XG-UK	United Kingdom (UK Type-G)
HX-8278XG-EU	Europe (VDE Type-C)
HX-8278XG-00	No Power Supply Included

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