

## Compact, High-Performance 1U DSLAM/MDU ONU

- ✓ *High-Performance 1U DSLAM/MDU ONU (Active Ethernet and GPON Uplinks)*
- ✓ *24 Port VDSL2 30a (with ADSL2+ fallback) with optional POTS Splitters*
- ✓ *SLMS family member supporting industry-leading multimedia traffic management*
- ✓ *Environmentally Hardened*
- ✓ *Fiber or Copper Active Ethernet Uplinks with EAPS, RSTP (802.w), or LAG/LACP (802.3ad)*
- ✓ *Removable Fan Tray*
- ✓ *WebGUI, CLI, SNMP Management*



The Zhone MX-160/260 provides next generation VDSL2 DSLAM/MDU ONU features in a compact, hardened form-factor that makes it easy and cost-effective to deliver uncompromised triple play services throughout serving area. Models are available with 24 VDSL2 30a Ports with option of integrated POTS splitters.

This MX family product is designed for easy configuration and management via built-in Web Graphical Interface. It's compact design allows easy deployment in remote cabinets and space constrained central offices.

The MX-160/260 offers multiple Active Ethernet and GPON (MX-260 only) uplink interfaces. The Fast/Gigabit Ethernet interfaces on MX family products can be configured as linear, ring, or aggregated links.

Zhone's MX-160/260 VDSL2 solution offers full-rate VDSL2 30a performance for packet-based service delivery. This low-power, fully programmable, high performance solution enables service providers to cost-effectively generate additional revenue through their triple-play offering, including the different iterations of video services emerging in the marketplace. As an end-to-end solution, Zhone offers VDSL2 CPE and CO products to offer high-speed, long reach and low cost solutions for multi-tenant and multi-dwelling unit (MxU), remote terminal and CO deployments.

### **Ease of Management**

MX-160/260 provides simple yet powerful management facility via embedded Web GUI along with complete NMS integration.

### **Triple Play Services**

MX-160/260 includes high-performance packet switching with advanced IP capabilities to deliver secure, reliable, and efficient voice, data, and video services. Now service providers can offer compelling bundles of multi-line voice, high-speed Internet access, and multi-set IP video (including HDTV) over their existing copper infrastructure.

MX-160/260 is defined by its ease of use and packet processing/switching capability to support rich triple-play services on each subscriber port.

### **Optical or Copper Transport**

MX-160/260 provides multiple SFP-based and RJ45 Fast/Gigabit Ethernet uplinks, supporting both copper and fiber, to provide simple cost-effective transport. The FastE/GigE ports allow point-to-point, link aggregation, and daisy-chained linear or ring deployments, and on rings the MX-160/260 provides standards-based EAPS support.

### **End-to-End Access Management**

The easy-to-use Zhone Management System (ZMS) provides OSMINE-certified management and provisioning across the access network, from CPE to the Central Office. The MX-160/260 is fully remote managed, allowing carriers to reduce service turn-up intervals, reduce truck rolls, and ultimately, improve customer service.

## Technical Specifications

### Dimensions

- 1.72in H x 17.32in W x 9.06in D
- 4.37cm H x 43.99 cm W x 23.02 cm D

### Weight

- 10lbs (4.53kg)

### Power

- DC: -43.75V to -59.90V (Dual/Redundant Inputs)
- Optional AC and Line Power Supplies

### Interfaces

- Uplink Interfaces:
  - MX-160
  - (4) SFP-based 100/1000Mbps Ethernet
  - (2) RJ45 100/1000Mbps Ethernet
- MX-260
  - (1) GPON (Fiber) with SC/APC connector
  - (3) SFP-based 100/1000Mbps Ethernet
  - (2) RJ45 100/1000Mbps Ethernet
- Subscriber Line Interfaces:
  - 24 VDSL2 30a (ITU-T G.993.2)
  - (1) Telco 50-pin connector
  - 24 POTS Splitters (600 Ohm or 900 Ohm)
  - (1) Telco 50-pin connector
- Serial craft management interface
- 10/100BT management interface
- Alarm Output & Input connections
- Port Status LEDs

### Standards Support

- ITU-T G.993.2 (VDSL2)
- VDSL2 Bonding
- ITU-T G.992.5 (ADSL2+) Fallback
- ADSL2+ Bonding
- SELT/DELT
- ITU-T G.984 (GPON)
- IEEE 802.3 Ethernet
- IEEE 802.1p
- IEEE 802.1Q
- IEEE 802.w
- IEEE 802.3ad

### Protocol Support

- IP host and gateway support
- EAPS RFC3619 support
- RIP v1 (RFC 1058) RIP v2 (RFC 2453)
- RFC 1483/2684 encapsulation
- DHCP server (RFC 2131, 2132)
- DHCP Relay with Option 82
- Bridging 802.1D support
- VLAN 802.1p/q support
- RSTP 802.w support
- Link Aggregation and LACP 802.3ad support
- Dense / sparse multicast support, IGMPv2
- Integrated access control and content protection
- RADIUS Authentication

### Management

- In-band IP
- Out-band IP over 10/100BT Ethernet or V.24 RS-232 serial for async terminal
- ZMS (Zhone Management System) via SNMP v2c for GUI and CORBA/XML Northbound interface
- Embedded Web Graphical Interface
- Command Line Interface (CLI)

### Bandwidth/Distance

- Data rates provisionable up to 100Mbps symmetrical

### Regulatory Compliance

- Safety
  - CSA 22.2 No. 60950-1
  - EN 60950-1
  - IEC 60950-1
  - UL 60950-1
- EMC Emissions
  - FCC Part 15 Class A
  - EN 55022 Class A
  - ICES-003 Class A
  - VCCI Class A
- EMC Immunity
  - EN 300 386 v1.4.1
- Environmental
  - ETS 300 019-2-x
  - ISTA Transportation and Handling

### Operating Requirements

- Operating Temperature: -40°F to 149°F (-40°C to 65°C)
- Storage temperature: -40°F to 149°F (-40°C to 65°C)
- Humidity: Up to 85%, non-condensing
- Altitude: -200ft to 16,500ft (-60m to 5,000m)

## Ordering Information

### Models

MX-160	MX 24-PORT VDSL2, NO SPLTR, 4 FE/GE, -48V DC (REQUIRES SFPS)
MX-161	MX 24-PORT VDSL2, W/ 600OHM SPLTR, 4 FE/GE, -48V DC (REQUIRES SFPS)
MX-162	MX 24-PORT VDSL2, W/ 900OHM SPLTR, 4 FE/GE, -48V DC (REQUIRES SFPS)
MX-260	MX 24-PORT VDSL2, NO SPLTR, 3 FE/GE, 1 GPON, -48V DC (REQUIRES SFPS)
MX-261	MX 24-PORT VDSL2, W/ 600OHM SPLTR, 3 FE/GE, 1 GPON, -48V DC (REQUIRES SFPS)
MX-262	MX 24-PORT VDSL2, W/ 900OHM SPLTR, 3 FE/GE, 1 GPON, -48V DC (REQUIRES SFPS)

### Accessories

XP-AC-SUPPLY	Raptor/MALC XP AC Power Supply, 90-264 VAC, 48 VDC, 150W
XP-CO-LP-SHELF	Raptor/MALC XP Line Power CO Shelf 40-60VDC IN, +/- 190VDC OUT, w/ 24 channels
XP-RT-LP-UNIT	Raptor/MALC XP Line Power RT Unit +/- 190VDC IN, 40-60VDC OUT, w/ 5 channels