



## Key Features

- Flexible Design
  - Cost-Effective Ethernet Managed Desktops
  - 2 Dual Personality GbE Ports (Fiber Port Support Both GbE/FE SFP)
  - Desktop and Rack-Mount Sizes
- Security
  - Port Security
  - 802.1X Guest VLAN
  - Network Storm Protection
  - 802.1X Port-Based/MAC-Based Access Control
  - IP-MAC-Port Binding Access Control

## Carrier Switches Metro Switch 2000 Series

The ZyXEL Metro Switch 2000 Series currently consists of one switch: the MES-2110.

The Metro Switch 2000 Series is an efficient carrier-grade metro access switch designed for reliable triple-play services. It provides an ideal solution to deliver triple-play services (data, voice and video) over single single-mode fiber for fiber-to-the-home (FTTH) or fiber-to-the-building (FTTB) applications. The Metro Switch 2000 Series allows administrators to easily configure features, monitor performance and troubleshoot the switches via Web browser and SNMP network management platforms.

The MES-2110 has eight 10/100 Mbps Fast Ethernet ports and two Dual Personality GbE ports for high-speed uplinks to the core data networks with 5.6 Gbps non-blocking switch fabric and the 4.2 million packets per-second forwarding rate.

## Key Benefits

### Future-proof Features Protect Triple-play Service Investment

The Metro Switch 2000 Series are wire-speed, high-performance metro access switches. With extensive supports to IEEE-approved specifications, the Metro Switch 2000 Series leverages your existing investment in multi-service environments. With integrated QoS features conforms to the IEEE 802.3p/Q standard, it is assured that time critical applications are handled with the required quality. The Metro Switch 2000 Series can prioritize applications with WFQ (Weighted Fair Queuing) scheduling algorithm to allocate more bandwidth to key traffics such as voice transmission, empowering the enterprise to take full advantage of limited network resources and to guarantee the best performance. These features enable the Metro Switch 2000 Series to support triple-play services easily.

### Flexible Network Management and Troubleshooting Reduce Costs

The Metro Switch 2000 Series is designed with standard-based management protocols such as SNMP, RMON, Telnet and Web-based HTTP. It offers administrators a user-friendly and effective tools for remote monitoring and configuration. This greatly reduces operating costs and offers more flexible maintenance for ZyXEL switches. The IT staff can opt for the Web or command-line interface to suit their needs, and they are also empowered to build a highly secure and efficient corporate network.

### Hassle-free Features Lower Deployment Cost

The Metro Switch 2000 Series comes with a slim housing that is ideal for installation in locations with limited space or for applications requiring low port density. The Metro Switch 2000 Series supports auto MDI/MDI-X to enable straight or crossover cables being connected, taking the guesswork away from end users. These features help service providers to deploy networks more easily with much less time and cost.

### Supporting DDMI (Digital Diagnostics Monitoring Interface) SFP Provides Enhances Monitor And Control for Less Management Efforts

The enhanced digital interface allows real-time permise to device operating parameters, and includes optional digital features such as soft control and monitoring of SFP I/O signals. In addition, it fully incorporates the functionality needed to implement digital alarms and warnings.

The digital diagnostic monitoring interface enables users to have the capability of performing component monitoring, fault isolation and failure prediction tasks on their transceiver-based applications.

#### DDMI Monitors:

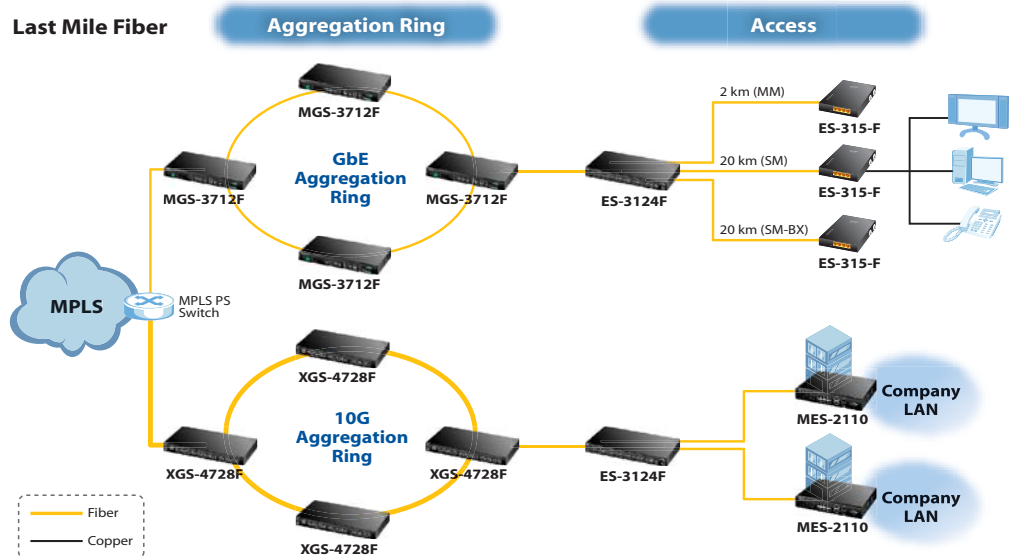
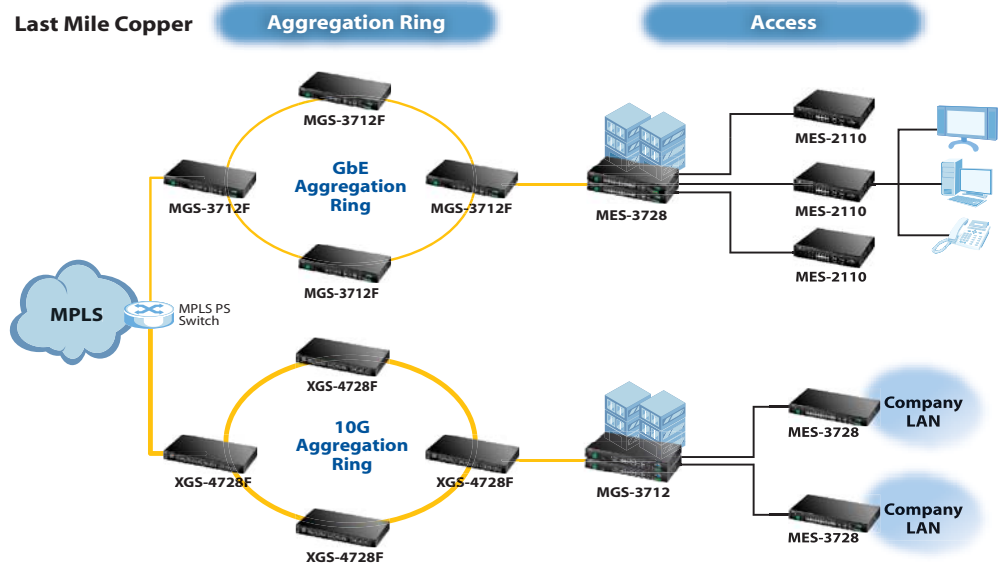
- Temperature
- Supply voltage
- Transmitted bias current
- Transmitted power
- Received power

All features listed above include alarm and warning thresholds.

## Key Applications

### Service Providers Network

Competitive and customer pressure now compel you to offer unique, In order to satisfy home and commercial subscribers with Triple-Play services incorporating astounding voice, video and data delivery, ZyXEL solutions help customers to offer responsive, rich and personalized online experience for ubiquitous connectivity and therefore more revenue.



## Specifications

### Standard Compliance

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-TX
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-SX/LX/LHX
- IEEE 802.3ad port trunking
- IEEE 802.3 10Base-T
- IEEE 802.1d spanning tree protocol
- IEEE 802.1w rapid spanning tree protocol
- IEEE 802.3x flow control
- IEEE 802.1p class of service
- IEEE 802.1ad VLAN stacking
- IEEE 802.1Q VLAN tagging

### System Capacity

- 8 10/100Base-TX RJ-45 ports
- 2 dual personality ports (1000Base SFP or 100Base SFP)
- RS-232 console (RJ-45)

### System Performance

- 5.6 Gbps non-blocking switching fabric
- Switching forwarding rate 4.2 Mpps
- Wire-speed performance

### MAC and Packet Buffer

- 8K MAC entries
- 128K packet buffer

### Traffic Management and QoS

- Rate limiting: rule-based/port-based bandwidth control kbps granularity
- Port-based egress traffic shaping
- Broadcast storm control
- IEEE 802.1p with 4 priority queues per port for different types of traffic
- WRR (Weighted Round Robin) and All High Before Low Queuing (SPQ) Scheduling algorithm
- DSCP to 802.1p priority mapping
- DSCP
- IGMP snooping v1, v2
- Support MVR

### Link Aggregation

- IEEE 802.3ad LACP link aggregation compliant
- Support static manually port trunking

### Resilient Network

- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

### User Security and Authentication

- Static MAC address filtering per port secures access to each port
- Specific MAC forwarding per port: only specified MAC addresses can access the network (port security)
- Limited MAC number per port
- IEEE 802.1Q tag-based and port-based VLAN
- 4k static VLAN
- Full range 4K PVID support
- Port isolation
- VLAN stacking (Q-in-Q)
- IP source guard (DHCP snooping, ARP inspection)

### Network Administration Security

- User name/password required for web/telnet/local console administrators
- Two level security by specific SNMP read/write community
- Multiple log-in session
- Multiple permission authorization management

### Network Management

- Supports up to 24 switches can be managed by one IP address
- Web-based management
- Telnet CLI
- SNMP v1, v2c
- RS-232c local console
- IP management: static IP or DHCP client
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis

- Port mirroring: supports source/destination/both port mirroring
- Menu-driven/Command Line
- User's IP security control to prevent illegal access
- E-mail alarm warning
- Port configuration, status, statistics, security
- Loss-of-link management on fiber ports

### MIB Information

- RFC1213 MIB II
- RFC1493 Bridge MIB
- RFC1643 Ethernet MIB
- RFC1757 RMON group 1, 2, 3, 9
- RFC2011 IP MIB
- RFC2012 TCP MIB
- RFC2013 UDP MIB
- ZyXEL private MIB for EMS management

### Power Requirements

- Input voltage of AC: 100-240 V AC, 50/60 Hz

### Physical Specifications

- Dimensions: 268 (W) x 128 (D) x 44 (H) mm
- Weight: 1.2 kg

### Environmental Specifications

- Operating temperature: 0°C ~ 45°C
- Storage temperature: -25°C ~ 70°C
- Operating humidity: 10% ~ 90%, (non-condensing)

### Certifications

- Emissions: FCC Part 15 of Class A & CE approved
- Safety: EN 60950



## Transceivers

### Optional SFP Transceivers

Speed	Model	Type	Description
<b>Gigabit</b>	SFP-1000T	RJ-45 connector	Up to 100 m using standard Ethernet cable
	SFP-SX-D	LC connector	SFP SX 550 m commercial type transceiver, DDMI version
	SFP-LX-10-D	LC connector	SFP LX 10 km commercial type transceiver, DDMI version
	SFP-BX1310-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version
	SFP-BX1490-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version
	SFP-LHX1310-40-D	LC connector	SFP LHX 1310 wavelength 40 km commercial type transceiver, DDMI version
	SFP-ZX-80-D	LC connector	SFP ZX 80 km commercial type transceiver, DDMI version
<b>Fast Ethernet</b>	SFP-100FX-2	LC connector	Multimode, up to 550 m reach
	SFP-100TX	RJ-45 connector	Up to 100 m reach using standard Ethernet cable
	SFP-100LX-20	LC connector	Multimode, up to 550 m reach
	SFP-100BX1310-20-D	LC connector	Bidirectional singlemode, up to 20 km reach, DDMI version
	SFP-100BX1550-20-D	LC connector	Bidirectional singlemode, up to 20 km reach, DDMI version

*IMPORTANT: Bi-directional SFP must be used in pairs (Example: 1x SFP-BX1310-10-D and 1x SFP-BX1490-10-D connected together is a solution)*

For more product information, visit us on the web at [www.ZyXEL.com](http://www.ZyXEL.com)



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