



## Telco-class Layer 2 Gigabit Carrier Ethernet Switch

- 32 K MAC addresses table; Telco-class Layer 2 Gigabit Carrier Ethernet Switch 4 MB Packet Buffer Size
- ITU-T G.8031 Ethernet Linear Protection and ITU-T G.8032 Ethernet Ring Protection Switching
- ITU-T Y.1731/IEEE 802.3ah MAC Layer OAM and IEEE 802.1ag Ethernet CFM
- “Front Access” design; Temperature hardened; AC/DC dual power input
- Intelligent fan control for power saving
- IPv6 management and s-flow

The ZyXEL XGS3600/MGS3600 Series are Telco-class Layer 2 Carrier Ethernet switches ideal for Ethernet service aggregation and extension. The Series meet all IEEE 802.3/u/x/z/ab/ae standards and are an excellent solution that provides an ideal combination of affordability with capabilities for Carrier Access networking which include: IEEE 802.3ah MAC Layer OAM; IEEE 802.1ag Ethernet CFM, ITU-T Y.1731 Ethernet OAM Performance Monitoring; ITU-T G.8031 Ethernet Linear Protection and ITU-T G.8032 Ethernet Ring Protection Switching.

### Benefits

#### Advanced QoS for significant services

Consistent service quality and reliable connecting ability in a converged network is the key for Carrier to connect and satisfy customers; therefore the ability to control traffic flow and set traffic policy becomes more critical than ever. The ZyXEL XGS3600/MGS3600 series L2 GbE Switches offer wire-speed flow control that classifies and prioritizes the incoming packets according to the predefined QoS policies that meet requirements of service providers.

In terms of classification, the Differentiated Services Code Point (DSCP) field and the 802.1p Class of Service (CoS) field are identified to assess the priority of incoming packets. Classification and reclassification can be based on criteria as specific as rules based on IP, MAC addresses, VLAN ID or TCP/UDP port number. For bandwidth management, the XGS3600/MGS3600 series provide 8 priority queues per port for different types of traffics, allowing service providers to set policy-based rate limitations that take full advantage of constrained network resources and guarantee the best performance.

#### Enhanced security for protection among customers

Avoiding subscribers affecting each other on a shared network or shared device is a major concern for service providers. The ZyXEL XGS3600/MGS3600 series offers a complete set of security features to protect user data while administrating the traffics. Port security provides the ability to deny unauthorized users from accessing the network. Moreover, the 802.1X feature cooperating with RADIUS is useful to prevent unauthorized access based on username and password (or other credentials) and acts as powerful access control for converged networks with mixed wired and wireless access.

The XGS3600/MGS3600 series provide a multilayer (L2/L3/L4) ACL suite of sophisticated policy-based control mechanisms that enables service providers to deploy easily based on actual network environment needs via a Web GUI or command line interface to prevent abnormal or illegal access. The policies can be defined to deny packets based on source and destination MAC addresses, IP addresses or TCP/UDP ports.



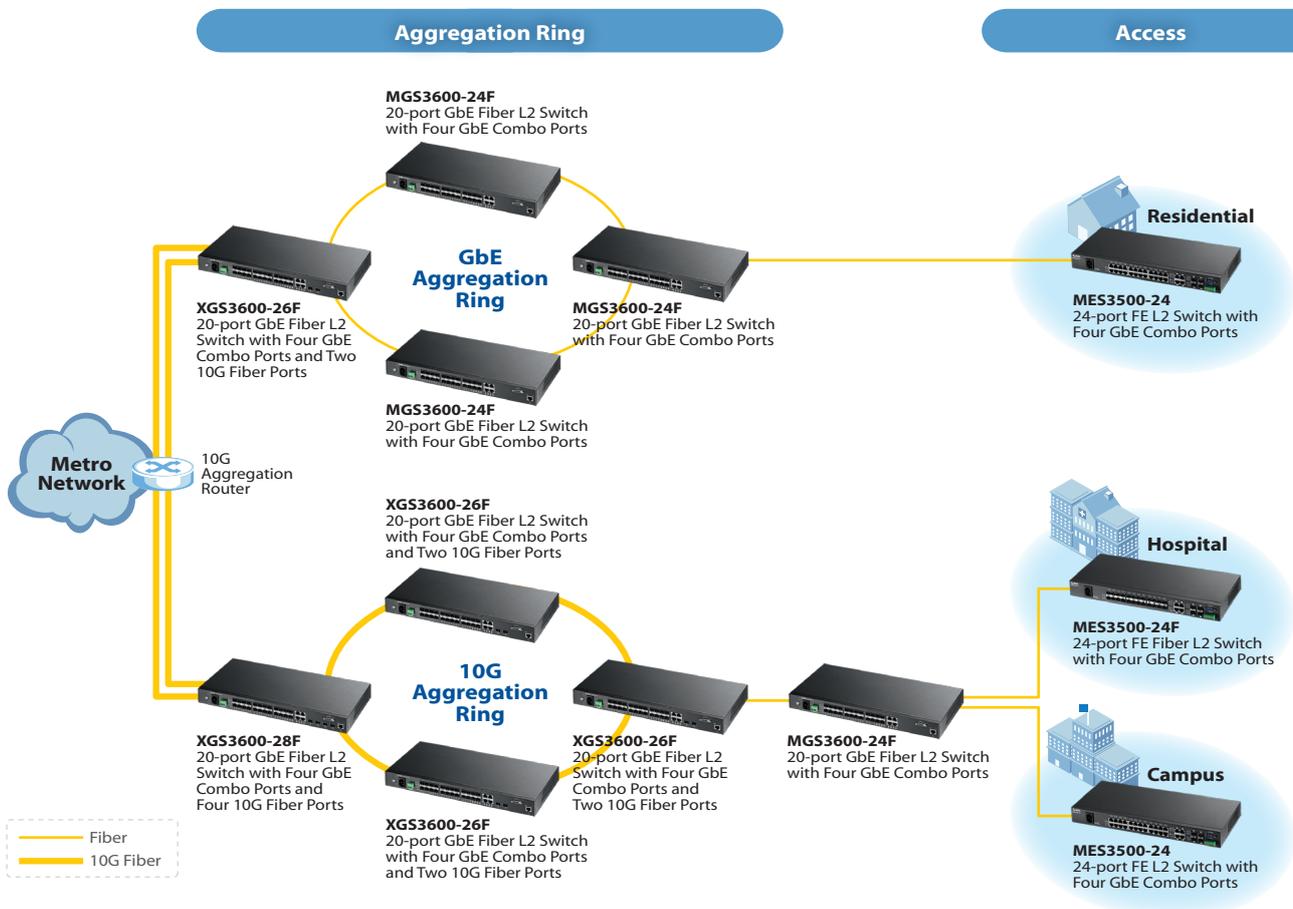
**XGS3600/MGS3600 Series**  
20-port GbE L2 Fiber Switch  
with Four GbE Combo Ports

### Resilient and redundant design

A quick recovery and round-the-clock network is vital for service providers to establish a robust network. The XGS3600/MGS3600 series provides comprehensive features to make sure network is well operated. The IEEE 802.3ad Link Aggregation feature reduces network downtime by providing redundant paths and bandwidth aggregation to critical connections, while IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) allow immediate recovery from failed connections by sending packets via the backup link.

## Key Applications

### Active Fiber Solution



### Specifications

Model	XGS3600-28F	XGS3600-26F	MGS3600-24F	
<b>Product name</b>	20-port GbE Fiber L2 Switch with Four GbE Combo Ports and Four 10G Fiber Ports 	20-port GbE Fiber L2 Switch with Four GbE Combo Ports and Two 10G Fiber Ports 	20-port GbE Fiber L2 Switch with Four GbE Combo Ports 	
<b>Port Density</b>				
<b>Open SFP (GbE)</b>	20	20	20	
<b>Combo GbE ports</b>	4	4	4	
<b>Open SFP+ (10G)</b>	4	2	-	
<b>Performance</b>				
<b>Switching capacity (Gbps)</b>	128	88	48	
<b>Switching forwarding rate (Mpps)</b>	95.32	65.47	35.71	
<b>Packet buffer (MB)</b>	4	4	4	
<b>MAC address</b>	32 K	32 K	32 K	
<b>Power Requirement</b>				
<b>Input voltage of AC</b>	100 V to 240 V	100 V to 240 V	100 V to 240 V	
<b>Input voltage of DC</b>	48 V	48 V	48 V	
<b>Maximum power consumption (watt)</b>	AC=69/DC=59	AC=55/DC=50	AC=41/DC=37	
<b>Physical Specifications</b>				
<b>Item</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	442 x 211.2 x 44/ 17.40 x 8.32 x 1.73	442 x 211.2 x 44/ 17.40 x 8.32 x 1.73	442 x 211.2 x 44/ 17.40 x 8.32 x 1.73
	<b>Weight (kg/lb.)</b>	3.1/6.84	3.1/6.84	3.1/6.84
<b>Packing</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	505 x 304 x 92/ 19.88 x 11.97 x 3.62	505 x 304 x 92/ 19.88 x 11.97 x 3.62	505 x 304 x 92/ 19.88 x 11.97 x 3.62
	<b>Weight (kg/lb.)</b>	3.88/8.55	3.88/8.55	3.88/8.55
<b>Environmental Specifications</b>				
<b>Operating</b>	<b>Temperature</b>	0°C to 65°C/32°F to 149°F	0°C to 65°C/32°F to 149°F	0°C to 65°C/32°F to 149°F
	<b>Humidity</b>	10% to 95% (non-condensing)	10% to 95% (non-condensing)	10% to 95% (non-condensing)
<b>Storage</b>	<b>Temperature</b>	-40°C to 70°C/-40°F to 158°F	-40°C to 70°C/-40°F to 158°F	-40°C to 70°C/-40°F to 158°F

### Features

#### Standard Compliance

- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-Tx Ethernet
- IEEE 802.ab 1000BASE-T Ethernet
- IEEE 802.3z 1000BASE-SX/LX Ethernet
- IEEE 802.3ae 10GBASE-SR/LR Ethernet
- IEEE 802.3x flow control
- IEEE 802.1d spanning tree protocol
- IEEE 802.1w rapid spanning tree protocol
- IEEE 802.1s multiple spanning tree protocol
- IEEE 802.1p class of service, priority protocols
- IEEE 802.1Q VLAN tagging
- IEEE 802.1X port authentication
- IEEE 802.3ad LACP aggregation
- IEEE 802.3ah Ethernet OAM
- IEEE 802.1ag Ethernet CFM
- ITU-T Y.1731 performance monitoring
- ITU-T G.8031 Ethernet linear protection
- ITU-T G.8032 Ethernet ring protection

#### MAC and Port Capability

- Flow control
- SFP read information
- Cable diagnostic
- MAC entry search
- Trunking failover

#### Traffic Management and QoS

- Support ACL and QCL for traffic filtering
- IEEE 802.1p with 8 hardware priority queues per port for different types of traffic
- IEEE 802.1ad QinQ
- IEEE 802.1Q tag-based and port-based VLAN
- WRR/SPO scheduling algorithm
- Policy based rate limiting
- Policy based bandwidth control
- Port based traffic shaping

- IGMP snooping (v1, v2, v3)
- IGMP filtering, IGMP proxy
- Jumbo frame support (9 K Bytes) for high performance data backup or recovery services
- Support GVRP, automatic VLAN member registration
- MLDv2 snooping
- Multicast VLAN Registration (MVR)
- BPDU Transparency (\*future release)

#### Link Aggregation

- IEEE 802.3ad LACP link aggregation compliant
- Support static manually port trunking
- Up to 14 trunking groups, up to 8 ports/per group randomly selected
- VLAN trunking

### Redundancy for Fault Backup

- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) provides rapid convergence of spanning tree independent of spanning-tree timer
- IEEE 802.1s multiple spanning tree provides link availability in multiple VLAN environments by allowing multiple spanning trees
- MRSTP—Multiple RSTP
- G.8032

### User Security and Authentication

- IEEE 802.1X authentication
- IP source guard (static IP/MAC binding, DHCP snooping, ARP inspection)
- Layer 2 isolation Private VLAN Edge (PVE), also known as protected ports, provides L2 isolation between clients in the same VLAN, supports multiple uplinks.
- Limiting MAC number per port
- MAC filtering per port secures access to each port
- MAC freeze
- Port security, port isolation, port mirroring
- Static MAC forwarding per port: only specified MAC addresses can access the network (port security)
- GVRP, automatic VLAN member registration
- CPU Protection
- IP-MAC-Port binding

### Network Administration Security

- SSH v1/v2
- HTTPS (SSL)

- RADIUS accounting
- TACACS+ authentication, accounting
- NTP

### Network Management

- Dual image
- Management access policy control
- IPv4/IPv6 Dual TCP/IP stack management/ host
- SysLog for all event log data collection
- Telnet Server/TFTP Server/DHCP Client
- SNMP v1, v2c, v3; SNMP trap group
- CPU utilization status; idle time-out (Auto-logout)
- RMON
- Out-of-Band management/RS-232c local console
- Firmware upgrade, configuration backup/restore via TFTP
- Link Layer Discovery Protocol (LLDP, IEEE 802.1ab) with LLDP-MED extensions
- Send system trap to trap server
- DHCP relay, DHCP relay per VLAN, DHCP relay option 82, DHCP client
- Port mirroring: supports source/destination/ both port mirroring

### Carrier Ethernet OAM

- IEEE 802.3ah OAM
- IEEE 802.1ag CFM
- ITU-T Y.1731 Ethernet OAM
- IEEE 1588v2 PTP aware function
- Sync-E (Optional)

### Intelligent ACL (L2/L3/L4 Access List Control)

- Based on port
- Based on MAC + VLAN ID
- Based on IP/MAC address (source/destination)
- Based on protocol type
- Based on TCP/UDP port number
- Based on 802.1p priority
- Based on DSCP

### MIB Information

- RFC 2674 VLAN MIB
- RFC 2819 RMON (Group 1, 2, 3 & 9)
- RFC 1213 MIB II
- RFC 1215 TRAPS MIB
- RFC 4188 Bridge MIB
- RFC 5519 Multicast Group Membership Discovery MIB
- RFC 4668 RADIUS auth. Client MIB
- RFC 4670 RADIUS Accounting MIB
- RFC 3635 Ethernet-like MIB
- RFC 2863 Interface Group MIB using SMI v2
- RFC 3636 802.3 MAU MIB
- RFC 4133 Entity MIB version 3
- RFC 4878 Link OAM MIB
- RFC 3411 SNMP Management Frameworks
- RFC 3414 User-based Security Model for SNMPv3
- RFC 3415 View-based access Control Model for SNMP
- IEEE 802.1Q Bridge MIB 2008
- IEEE 802.1 MSTP MIB
- IEEE 802.1AB LLDP-MIB
- IEEE 802.3ad
- IEEE 802.1X
- TIA 1057 LLDP-MED

## SFP Transceivers (Optional)

Speed	Model	Type	Description
Gigabit (non-DDMI)	SFP-SX-S	LC connector	GbE SFP SX Multi-Mode 550 m (1804 ft) commercial type transceiver
	SFP-LX-5S	LC connector	GbE SFP LX wavelength=1310, 5 km (5468 yd) commercial type transceiver
	SFP-LX-15S	LC connector	GbE SFP LX wavelength=1310, 15 ~ 20 km (16404 ~ 21872 yd) commercial type transceiver
	SFP-LHX-40S	LC connector	GbE SFP LHX wavelength=1310, 40 km (43744 yd) commercial type transceiver
	SFP-ZX-80S	LC connector	GbE SFP ZX wavelength=1550, 80 km (87488 yd) commercial type transceiver
Gigabit (with DDMI)	SFP-SX-DS	LC connector	GbE SFP SX Multi-Mode 550 m (1804 ft) commercial type transceiver, DDMI version
	SFP-LX-5DS	LC connector	GbE SFP LX 5 km (5468 yd) commercial type transceiver, DDMI version
	SFP-LX-15DS	LC connector	GbE SFP LX 15 ~ 20 km (16404 ~ 21872 yd) commercial type transceiver, DDMI version
	SFP-BXA-20DS	LC connector	GbE SFP; BX 20 km (21872 yd) Bidirectional Type-A 1310 ~ 1550Tx, DDMI version
	SFP-BXB-20DS	LC connector	GbE SFP; BX 20 km (21872 yd) Bidirectional Type-B 1550 ~ 1310Tx, DDMI version
	SFP-BXC-20DS	LC connector	GbE SFP; BX 20 km (21872 yd) Bidirectional Type-C 1310 ~ 1490Tx, DDMI version
	SFP-BXD-20DS	LC connector	GbE SFP; BX 20 km (21872 yd) Bidirectional Type-D 1490 ~ 1310Tx, DDMI version
	SFP-LHX-40DS	LC connector	GbE SFP LHX wavelength=1310, 40 km (43744 yd) commercial type transceiver, DDMI version
	SFP-ZX-80DS	LC connector	GbE SFP ZX wavelength=1550, 80 km (87488 yd) commercial type transceiver, DDMI version

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



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