ZyXEL

Telco-class Layer 2 Gigabit Carrier Ethernet Switch

- **Front access design; external alarm input/output block**
- **Fully managed Layer 2 switching solution**
- **IPTV, L2 multicast, IGMP snooping, and MVR for convergence**
- **Enhanced network protection with IP source guard, DHCP snooping, ARP inspection, CPU protection**
- **L2, L3, and L4 filtering, MAC freeze, port isolation for access control**
- **Future-proofed with IPv6 support**
- **Policy-based QoS optimizes multi-service quality**
- **High redundancy and resilient architecture with RSTP and port trunking**
- **Remote configuration & management via IEEE 802.3ah (OAM)**
- **Tiered service provisioning: the build-in rate limiting feature to control both ingress and egress date rate**

ZyXEL green

MGS3520 Series

24-port/48-port GbE L2 Switch

The MGS3520 Series GbE L2 Managed Switch is specially designed for service providers to deliver profitable Ethernet services. With the high-performance hardware platform, service providers can easily extend network topologies while enabling robust security, QoS and management functions to help customers fulfilling differentiated needs for Metro Ethernet services.

Benefits

Advanced QoS for significant services

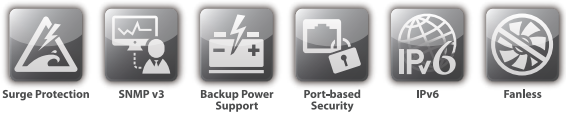
Consistent service quality and reliable connecting ability in a converged network is the key for service providers to win customers and build loyalty; therefore the ability to control traffic flow and set traffic policy becomes more critical than ever. The MGS3520 Series offers wire-speed flow control that classifies and prioritizes the incoming packets according to the predefine 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 MGS3520 Series provides 8 priority queues per port for different types of traffics, allowing service providers to set rule-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 MGS3520 Series offers a complete set of security features to protect user data while administrating the traffics. The intrusion lock function detects the "plugged" and "unplugged" status change of Ethernet cables, and the switch would deactivate a specific port automatically if needed, and the 802.1X authentication can secure the network from unauthorized users. 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 MGS3520 Series provides 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.



Resilient and redundant design

A quick recovery and round-the-clock network is vital for service providers to establish a robust network. The MGS3520 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. Furthermore, since the MGS3520 Series supports backup power system, the power is supplied to the switch in case of an unexpected outage.

Agile traffic control for converged networking applications

Design for access layer converged data, video and voice applications, the ZyXEL MGS3520 Series has a rich Layer 2 feature set that can shape the traffic for diverse VoIP, video conference, and IPTV deployment. Supporting L2 multicast and IGMP snooping, the MGS3520 Series can support large IPTV deployments, which using bandwidth efficiently by directing multicast traffic to the subscribers only. The Multicast VLAN Registration (MVR) function ensures better network security by allowing a single multicast VLAN to be shared in the network while subscribers remain in separate VLANs. These advanced traffic control features of the MGS3520 Series provide hotels, businesses, and educational institutions greater agility and more effective traffic management for converged applications of today.

Future-Proof connectivity for evolving networks

The ZyXEL MGS3520 Series helps business and organizations stay ahead and get ready for future IPv6 networks. It supports dual stack (IPv4 and IPv6) and IPv6 host that allows business and organizations to deploy the MGS3520 switch at the network edge today, and easily migrate to the next-generation Internet Protocol in the future. With support for IPv6 ACL packet filtering, the MGS3520 L2 Gigabit switch can create secured IPv6 networks that are protected from illegal IPv6 clients. The MGS3520 Series is designed with a comprehensive set of IPv6 management features that include ICMPv6, neighbor discovery and DHCPv6 relay, which facilitate the migration to next-generation networking applications without an extensive equipment upgrade.

Optimized design for Metropolitan Area Network (MAN)

The MGS3520 Series adopts the “front access” design for technicians to easily wire and maintain outdoor cabinets. The external alarm input/output block connects mechanical cabinet parts to the management network and offers better protection to the equipment.

Carrier switches supports Digital Diagnostics Monitoring Interface (DDMI) SFP

The enhanced digital interface allows real-time access 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:

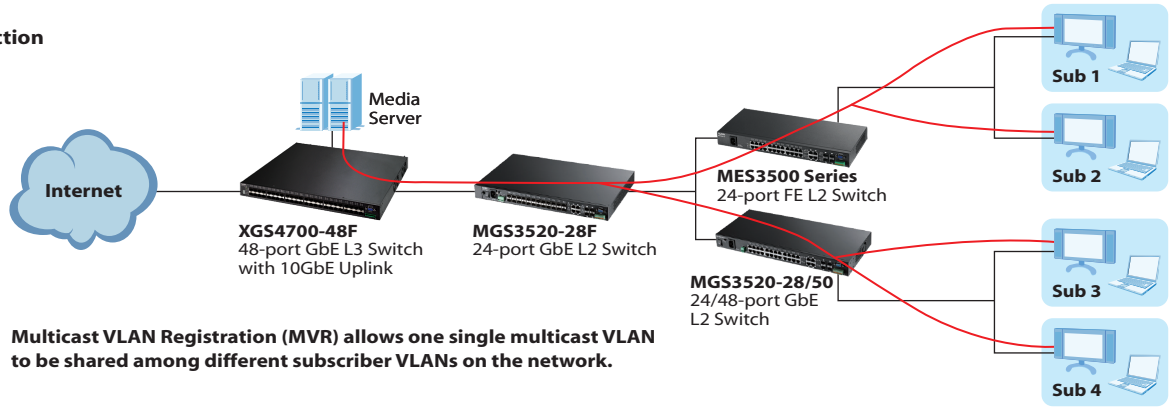
- Temperature
- Supply voltage
- Transmitted bias current
- Transmitted power
- Received power

All features listed above include alarm and warning thresholds

Key Applications

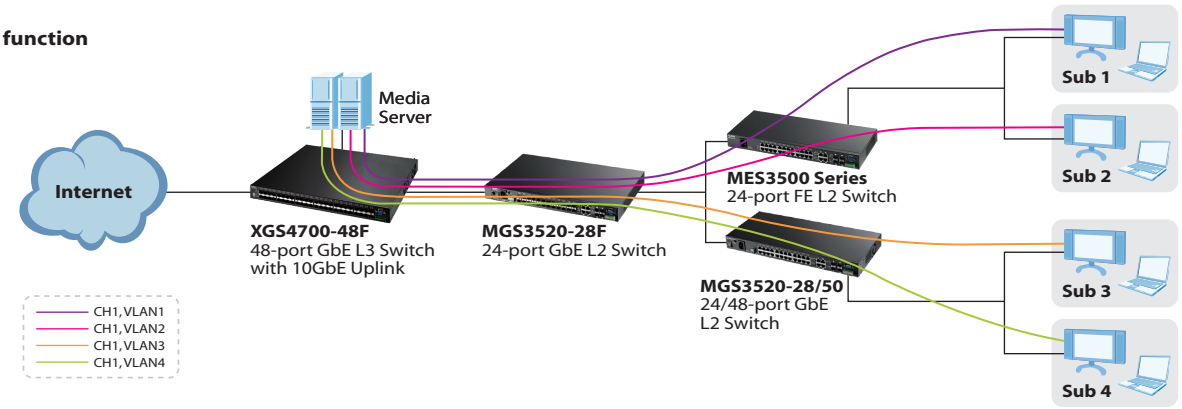
Active Fiber with IPTV Service

With MVR function



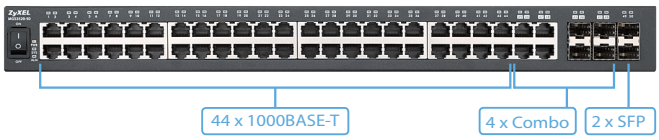
Multicast VLAN Registration (MVR) allows one single multicast VLAN to be shared among different subscriber VLANs on the network.

Without MVR function



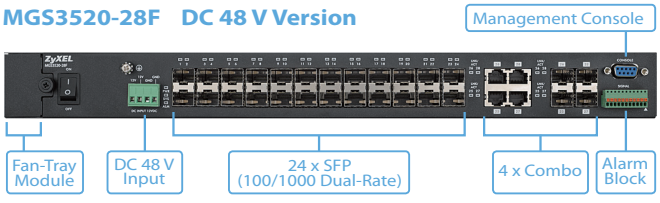
Front Panel/Rear Panel

MGS3520-50 Front Panel

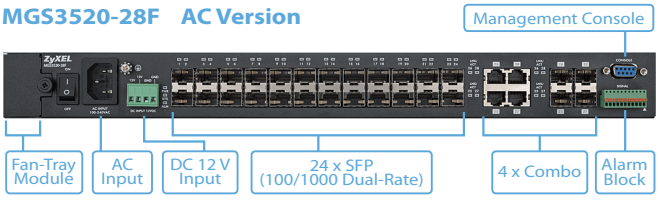


MGS3520-50 Back Panel

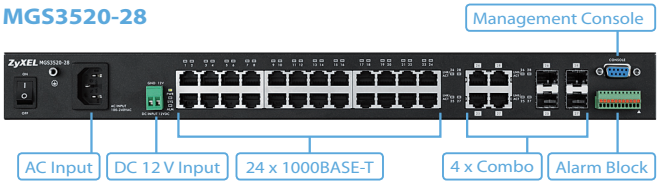
MGS3520-28F DC 48 V Version



MGS3520-28F AC Version



MGS3520-28



Specifications

Model		MGS3520-50*	MGS3520-28F*	MGS3520-28
Product name		44-port FE Fiber L2 Switch 	24-port GbE L2 Fiber Switch 	24-port GbE L2 Copper Switch 
Fan type		Fanless	Fan-Tray	Fanless
Surge protection (6KV)		Yes	Yes	-
CO-LPR (Dying gasp)		Yes	Yes	Yes
Hardware monitor		Yes	Yes	Yes
Port Density				
100/1000 GbE BASE-T, fixed		44	-	24
Open SFP (Dual rate: GbE/ FE)		2	24	-
Combo GbE ports (GbE/FE)		4	4	4
Performance				
Switching capacity (Gbps)		100	56	56
Forwarding rate (Mpps)		74.4	41.67	41.67
Packet buffer		12 Mbit	12 Mbit	12M bit
MAC address		16 K	16 K	16 K
Power Requirement				
AC power model with BPS DC 12 V		AC power input (100 V to 240 V); BPS DC power input (11.2 V to 12.8 V)		
DC power 48 V model		-	-36 to -72 V DC	-
Physical Specifications				
Item	Dimensions (WxDxH)(mm/in.)	440 x 270 x 44/ 10.4 x 10.6 x 1.73	440 x 270 x 44/ 10.4 x 10.6 x 1.73	440 x 270 x 44/ 10.4 x 10.6 x 1.73
	Weight (kg/lb.)	3.7/8.16	3.72/8.2	3.09/6.83
Packing	Dimensions (WxDxH)(mm/in.)	512 x 314 x 384/ 20.15 x 12.36 x 15.11	512 x 314 x 384/ 20.15 x 12.36 x 15.11	500 x 283 x 71/ 19.68 x 11.14 x 2.79
	Weight (kg/lb.)	4.4/9.7	4.42/9.77	3.636/8.04
Environmental Specifications				
Operating	Temperature	0°C to 50°C/32°F to 122°F	0°C to 50°C/32°F to 122°F	0°C to 50°C/32°F to 122°F
	Humidity	10% to 95% (Non-condensing)	10% to 95% (Non-condensing)	10% to 95% (Non-condensing)
Storage	Temperature	-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
	Humidity	5% to 95% RH (Non-condensing)	5% to 95% RH (Non-condensing)	5% to 95% RH (Non-condensing)

*: Coming soon.

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-X
- 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 802.1ad VLAN stacking
- IEEE 802.3az Energy Efficient Ethernet (EEE)

User Security and Authentication

- IEEE 802.1X authentication
- IP source guard (static IP/MAC binding, DHCP snooping, ARP inspection)
- IP subnet VLAN & VLAN isolation
- Limiting MAC number per port
- Loop guard prevents a switch from being affected by another switch which is already in a looping status
- MAC filtering per port secures access to each port
- MAC freeze
- Port security, port isolation, port mirroring, intrusion lock
- RADIUS MAC authentication
- Static MAC forwarding per port: only specified MAC addresses can access the network (port security)
- Wire speed filtering per MAC/IP/TCP/UDP
- Wire speed mirroring per MAC/IP/TCP/UDP
- Wire speed rate limiting per MAC/IP/TCP/UDP
- GVRP, automatic VLAN member registration
- Guest VLAN
- CPU protection
- IP-MAC-Port binding

Network Administration Security

- SSH v1/v2
- SSL
- RADIUS accounting
- TACACS+ authentication, accounting
- NTP, daylight saving

Traffic Management and QoS
- Broadcast storm control
- IEEE 802.1p with 8 hardware priority queues per port for different types of traffic
- IEEE 802.1ad QinQ/selected QinQ
- IEEE 802.1Q tag-based and port-based VLAN
- Weighted Fair Queuing (WFQ)/WRR/SPQ scheduling algorithm
- Policy based rate limiting
- Policy based bandwidth control
- Port based traffic shaping/rate limiting
- Rule-based traffic mirroring
- IGMP snooping (v1, v2, v3)
- IGMP filtering
- Jumbo frame support (9K Bytes) for high performance data backup or recovery services
- Support GVRP, automatic VLAN member registration
- Multicast VLAN Registration (MVR)
- BPDU transparency
- Selective Q-in-Q

Network Management
- Intuitive Web-based management with all features configurable
- Text-based configuration profile for massive deployment
- Telnet CLI (Cisco like)
- SNMP v1, v2c, v3, trap group
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events) for traffic management, monitoring, and analysis
- Firmware upgrade, configuration backup/restore via ftp
- Alarm led indicator for early warning of hardware troubles
- Send system trap to trap server
- DHCP relay, DHCP relay per VLAN, DHCP relay option 82, DHCP client
- Port mirroring: supports source/destination/port mirroring
- IEEE 802.3ah Ethernet operations, administration and management
- IEEE 802.1ag CFM
- CO-LPR (Dying gasp)
- sflow

Intelligent ACL (L2/L3/L4 Access List Control)
- Based on port
- Based on MAC + VLAN ID
- Based on IP address (source/destination)
- Based on protocol type
- Based on TCP/UDP port number MIB information

Link Aggregation
- IEEE 802.3ad LACP link aggregation compliant
- Support static manually port trunking
- Up to 6 aggregation groups, 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

MIB
- ZyXEL new private MIB
- RFC 1066 TCP/IP-based MIB
- RFC 1213, 1157 SNMPv2c/v3 MIB
- RFC 1493 bridge MIB
- RFC 1643 Ethernet MIB
- RFC 1757 RMON group 1, 2, 3, 9
- RFC 2011, 2012, 2013 SNMPv2 MIB
- RFC 2233 SMIv2 MIB
- RFC 2358 Ethernet-like MIB
- RFC 2674 bridge MIB extension
- RFC 2819, 2925 remote management MIB
- RFC 3621 power Ethernet MIB
- RFC 4022 management information base for transmission control protocol
- RFC 4113 management information base for user datagram protocol
- RFC 4292 IP forwarding table MIB
- RFC 4293 Management Information Base (MIB) for IP

Safety Certification
- LVD: EN609501: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013

EMC
- CE:
  - EN55022: 2010 + AC: 2011
  - EN61000-3-2: 2006 + A1: 2009 + A2: 2009
  - EN61000-3-3: 2013
  - EN55024: 2010
  - AS/NZS CISPR 22: 2009 + A1: 2010
- FCC Part 15, subpart B
- ICES-003 Issue 5

RoHS
- Level A

Accessories

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

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For more product information, visit us on the web at www.ZyXEL.com

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