



## Telco-class Layer 2 Gigabit Carrier Ethernet Switch

- 16 K MAC address table
- Policy-based QoS optimizes multi-service quality
- IGMP snooping v1, v2, v3, MVR
- Multilayer-aware (L2/L3/L4) ACL for security protection
- High redundancy and resilient architecture with RSTP and port trunking
- Temperature harden and protection against humidity and dust
- Removable fan module
- IPv6 management support

The MGS3700-12C 12-port Combo 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 MGS3700-12C offers 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 MGS3700-12C 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 MGS3700-12C 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 MGS3700-12C 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.



**MGS3700-12C**  
12-port Combo GbE L2  
Managed Switch

### Resilient and redundant design

A quick recovery and round-the-clock network is vital for service providers to establish a robust network. The MGS3700-12C 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 MGS3700-12C supports backup power system, the power is supplied to the switch in case of an unexpected outage.

### Intelligent fan control algorithm for power saving

Fans play an important role in energy consumption since it's the key to heat dissipation. The MGS3700-12C features auto temperature detection and appropriate fan speeds with the Intelligent Fan Control algorithm based on complex mathematics and physics formulas. When the ambient temperature is low, the switch would decrease fan speed to prevent unnecessary power waste from excessive cooling.

### Removable fan modules

Removable fan modules provide flexibility and high availability, and they solve the noise problem when the modules are approaching the end of their life cycle. When necessary, customers can replace the fans with new ones by their own to save cost.

### Optimized design for Metropolitan Area Network (MAN)

The MGS3700-12C offers high operating temperature tolerance, flexible AC/DC dual-input power source as well as protection against humidity and dust for service providers to extend their networks. The MGS3700-12C 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.

### Specifications

Model	MGS3700-12C	MGS-3712F
<b>Product name</b>	12-port Combo GbE L2 Managed Switch 	8-port GbE L2 Switch with Four GbE Uplink Ports 
<b>Port Density</b>		
<b>Dual personality ports (Fixed RJ-45 1000BASE-T or SFP open slots)</b>	12	4
<b>Open SFP slot (GbE)</b>	0	8
<b>Performance</b>		
<b>Switching fabric speed (Gbps)</b>	24	24
<b>Forwarding rate (Mpps)</b>	17.8	17.8
<b>Packet buffer (Bytes)</b>	1 M	1 M
<b>MAC address table</b>	16 K	16 K
<b>Power Requirement—Input Power</b>		
<b>AC, DC dual power supply</b>	Yes	Yes
<b>AC power</b>	100 - 240 V AC, 50/60 Hz	100 - 240 V AC, 50/60 Hz
<b>DC power</b>	-36 to -72 V DC	-36 to -72 V DC
<b>Physical Specifications</b>		
<b>Dimensions (WxDxH)(mm/in.)</b>	438 x 225 x 44.5/17.24 x 8.86 x 1.75	438 x 225 x 44.5/17.24 x 8.86 x 1.75
<b>Weight, fully loaded (kg/lb.)</b>	3.4/7.5	3.4/7.5
<b>Environmental Specifications</b>		
<b>Operating temperature</b>	0°C to 65°C/32°F to 149°F	0°C to 65°C/32°F to 149°F
<b>Storage temperature</b>	-25°C to 70°C/-13°F to 158°F	-25°C to 70°C/-13°F to 158°F
<b>Operating humidity</b>	-10% to 99% (non-condensing)	-10% to 99% (non-condensing)
<b>Software Specifications</b>		
<b>IPv6</b>	Yes	No
<b>RSPAN</b>	Yes	No
<b>Carrier enhancement features</b>	Yes	No

### Features

#### Standard Compliance

- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-Tx Ethernet
- IEEE 802.3ab 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)

#### 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 (9 K Bytes) for high performance data backup or recovery services
- Support GVRP, automatic VLAN member registration
- Multicast VLAN Registration (MVR)
- BPDU transparency

#### 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

### 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
- RSPAN
- IP-MAC-Port binding

### Network Administration Security

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

### Network Management

- Supports ZyXEL iStacking™, up to 24 switches can be managed by one IP address
- Intuitive Web-based management with all features configurable
- Text-based configuration profile for massive deployment
- Telnet CLI (Cisco like)
- SNMP v1, v2c, v3
- SNMP trap group
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
- Out-of-Band management: RS-232c local console
- 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/both port mirroring
- IEEE 802.3ah Ethernet Operations, Administration and Management (OAM)
- 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

- 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
- RFC2233 ifVHC packet group
- RFC2674 VLAN MIB
- RFC2925 PING-MIB and TRACEROUTE-MIB
- ZyXEL private MIB

### Safety Agency Certification

- BSMI
- LVD/EN 60950-1
- CE
- FCC
- WEEE/RoHS 2/REACH compliant

## SFP Transceivers (Optional)

Speed	Model	Type	Description
<b>Gigabit (non-DDMI)</b>	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
<b>Gigabit (with DDMI)</b>	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)



Copyright © 2013 ZyXEL Communications Corp. All rights reserved. ZyXEL, ZyXEL logo are registered trademarks of ZyXEL Communications Corp. All other brands, product names, or trademarks mentioned are the property of their respective owners. All specifications are subject to change without notice.

