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COMMUNICATIONS

MGS3700-12C

12-port Combo GbE L2 Managed Switch

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.

- 12 combo Gigabit ports (RJ-45/SFP open slots)
- 24 Gbps non-blocking switching fabric; 17.8 Mpps forwarding rate
- Multilayer-aware (L2/L3/L4) ACL for security protection
- Front access design; external alarm block
- Supports CO-LPR (Dying Gasp); errdisable recovery trap; CPU protection
- Operating temperature: 0°C to 65°C

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 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 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.

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 802.1D-2004 rapid spanning tree protocol 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.

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-2004 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
- 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)

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

Network administration security

- SSH 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
- 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
- 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

Specifications

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

SFP transceivers (Optional)

Speed	Model	Type	Description
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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