24-Port Gigabit + 4-Port 10G SFP+
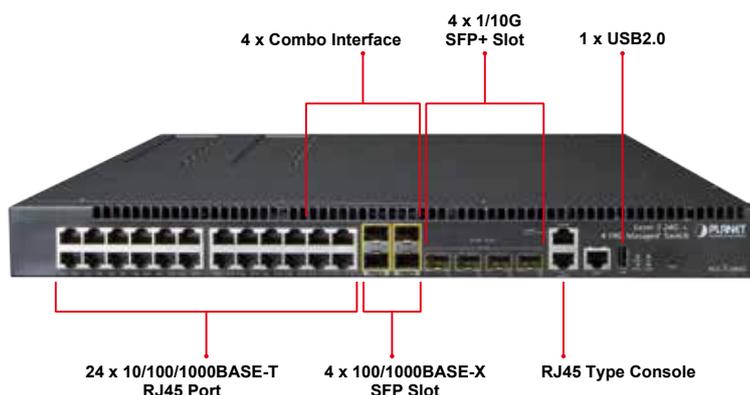# Layer 3 Stackable Managed Switch

IPv6 Routing and 10G Ethernet Switch Solutions for the Next Generation Internet Protocol

PLANET XGS3-24042 Layer 3 Stackable Managed Gigabit Switch supports multi-layer IPv6/IPv4 Gigabit Ethernet Routing, and provides 24 10/100/1000Mbps Gigabit Ethernet ports, 4 shared Gigabit SFP slots and 4 extra 10G SFP+ uplink slots to meet the bandwidth requirements and protect network investment for enterprises. The XGS3-24042 is implemented with the following advanced technologies:

- IPv6/IPv4 Routing and Management
- 10G Ethernet Switching
- Single IP Address Management
- Redundant Power System

Positioned as the distribution or aggregation layer switch for large networks, the XGS3-24042 supports IP Stacking technology that helps to manage and configure up to 24 units via one single IP address easily. It is suitable for campus networks, metropolitan IP networks and other large infrastructures as it offers intelligent security features, high performance and flexibility. The XGS3-24042 can also be an excellent choice as a core layer switch for enterprises, data centers or small- and medium-sized networks.

4 x Combo Interface

4 x 1/10G SFP+ Slot

1 x USB2.0

24 x 10/100/1000BASE-T RJ45 Port

4 x 100/1000BASE-X SFP Slot

RJ45 Type Console

Physical Port

- 24-port 10/100/1000BASE-T RJ45 copper
- 4 100/1000BASE-X mini-GBIC/SFP slots, shared with Port-21 to Port-24
- 4 10GBASE-SR/LR SFP+ slots, compatible with 1000BASE-SX/LX/BX SFP
- RJ45 to DB9 console interface for switch basic management and setup
- 1 RJ45 Ethernet management port for switch basic management and setup
- 1 USB 2.0 for backup/upload configuration and firmware upgrade

IP Stacking

- Connects with stack member via both Gigabit TP/SFP interface and 10G SFP+ slots
- Single IP address management, supporting up to 24 units stacked together

IP Routing Features

- IP routing protocol supports RIPv1/v2, RIPng, OSPFv2/v3, BGP4/4+
- Routing interface provides per VLAN routing mode
- VRRPv1/v3 protocol for redundant routing deployment
- Supports route redistribution

Multicast Routing Features

- Supports PIM-DM (Protocol Independent Multicast – Dense Mode) and PIM-SM (Protocol Independent Multicast – Sparse Mode) and PIM-SSM (Protocol Independent Multicast – Source Specific Multicast)
- Supports DVMRP (Distance Vector Multicast Routing Protocol)
- Supports IGMP v1/v2/v3 and MLD v1/v2

Layer 2 Features

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet and IEEE 802.3ae 10Gb/s Ethernet standard
- Supports auto-negotiation and half-duplex/full-duplex modes for all 10BASE-T, 100BASE-TX and 1000BASE-T ports

Supporting 10Gb Ethernet

With 10Gbps uplink, the XGS3-24042 can handle extremely large amounts of data in a secure topology linking to an enterprise backbone or high capacity servers. Each of the SFP+ slots supports Dual-Speed, 10GBASE-SR/LR or 1000BASE-SX/LX, meaning the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

High Performance

The XGS3-24042 boasts a high-performance switch architecture that is capable of providing non-blocking switch fabric and wire-speed throughput as high as 128Gbps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands.

Rich Multi-Layer and Multicast Networking Protocols

The XGS3-24042 supports various Layer 2 and management networking protocols to meet the requirements of complex network constructions. It is compatible with 802.1D/w/ s, 802.1Q, 802.1p, 802.3ad, 802.3x, GVRP, DHCP, SNTP, etc.

The XGS3-24042 also supports IPv6/IPv4 routing protocols including Layer 3 IP static routing, RIPv1/v2, RIPng, OSPFv2/v3, and VRRP protocols. Built in with abundant multicast features, the XGS3-24042 supports rich L2 multicast features such as IGMPv1/v2/v3 and MLDv1/v2 snooping, and L3 multicast protocols -- DVMRP, PIM-DM, PIM-SM and PIM-SSM. Offering the rich application experience, the product supports multicast VLAN registration, multicast receive control and illegal multicast source detect functions. The XGS3-24042 solution performs a cost-effective solution for today with the ability to expand as network demands grow.

Abundant IPv6 Support

The XGS3-24042 provides IPv6 management and enterprise-level secure features such as SSH, ACL, WRR (Weighted Round Robin) and RADIUS authentication. The XGS3-24042 thus helps the enterprises to step in the IPv6 era with the lowest investment. In addition, you don't need to replace the network facilities when the IPv6 FTTx edge network is built.

Excellent and Secure Traffic Control

The XGS3-24042 is loaded with powerful traffic management and WRR features to enhance services offered by telecoms and enterprises. The WRR functionalities include wire-speed Layer 4 traffic classifiers and bandwidth limitation which are particularly useful for multi-tenant unit, multi-business unit, Telco, or network service applications. The ACL policies supported can classify the traffic by source/destination IP addresses, source/destination MAC addresses, IP protocols, TCP/UDP, IP precedence, time ranges and ToS. Moreover, various policies can be conducted to forward the traffic. The XGS3-24042 also provides IEEE 802.1x port based access authentication, which can be deployed with RADIUS, to ensure the port level security and block illegal users. Thus, the XGS3-24042 empowers ISP and enterprises to take full advantage of the limited network resources and guarantees the best performance in VoIP and video conferencing transmission.

- Auto-MDI/MDI-X detection on each RJ45 port
- Prevents packet loss flow control
  - IEEE 802.3x pause frame flow control in full-duplex mode
  - Back-pressure flow control in half-duplex mode
- High performance Store-and-Forward architecture, broadcast storm control, port loopback detect
- 16K MAC address table, automatic source address learning and aging
- Supports VLAN
  - IEEE 802.1Q tag-based VLAN
  - GVRP for dynamic VLAN management
  - Up to 256 VLANs groups, out of 4041 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q, IEEE 802.1ad) supported
  - Private VLAN Edge (PVE) supported
  - GVRP protocol for Management VLAN
  - Protocol-based VLAN
  - MAC-based VLAN
  - IP subnet VLAN
- Supports Link Aggregation
  - Maximum 128 trunk groups with up to 8 ports per trunk group
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-channel (static trunk)
- Supports Spanning Tree Protocol
  - IEEE 802.1D Classic Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), spanning tree by VLAN
  - BPDU & root guard
- Port mirroring to monitor the incoming or outgoing traffic on a particular port (many to many)
- Provides port mirror (many-to-1)

Quality of Service

- 8 priority queues on all switch ports
- Supports strict priority and WRR (Weighted Round Robin) CoS policies
- Traffic classification
  - IEEE 802.1p CoS/ToS
  - IPv4/IPv6 DSCP
  - Port-based WRR
- Strict priority and WRR CoS policies

Multicast

- Supports IPv4 IGMP snooping v1, v2 and v3, and IPv6 MLD

Robust Layer 2 Features

The XGS3-24042 can be programmed for basic switch management functions such as port speed configuration, port aggregation, VLAN, Spanning Tree Protocol, WRR, bandwidth control and IGMP snooping. It also supports 802.1Q tagged VLAN, Q-in-Q, voice VLAN and GVRP Protocol. The VLAN groups allowed to be on the XGS3-24042 will be maximally up to 256. By supporting port aggregation, the XGS3-24042 allows the operation of a high-speed trunk combined with multiple ports. It enables up to 128 groups for trunking with a maximum of 8 ports for each group.

Efficient Management

For efficient management, the XGS3-24042 Managed Gigabit Switch is equipped with console, Web and SNMP management interfaces. With its built-in Web-based management interface, the XGS3-24042 offers an easy-to-use, platform-independent management and configuration facility. The XGS3-24042 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the XGS3-24042 can be accessed via Telnet and the console port. Moreover, the XGS3-24042 offers secure remote management by supporting SSH connection which encrypts the packet content at each session.

Flexibility and Extension Solution

The XGS3-24042 provides four 100/1000Mbps dual speed SFP Fiber combo ports and four 1/10Gbps SFP+ Fiber ports. Each of the SFP+ slots supports Dual-Speed, 10GBASE-SR/LR or 1000BASE-SX/LX. Therefore, the administrator can flexibly choose the suitable SFP transceiver according to not only the transmission distance, but also the transmission speed required. The distance can be extended from 550 meters to 2km (multi-mode fiber) or up to 10/20/30/40/50/70/120 km (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP/SFP+ Diagnosis Mechanism

The XGS3-24042 supports SFP/SFP+-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP/SFP+, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

Digital Diagnostic Monitor (DDM)
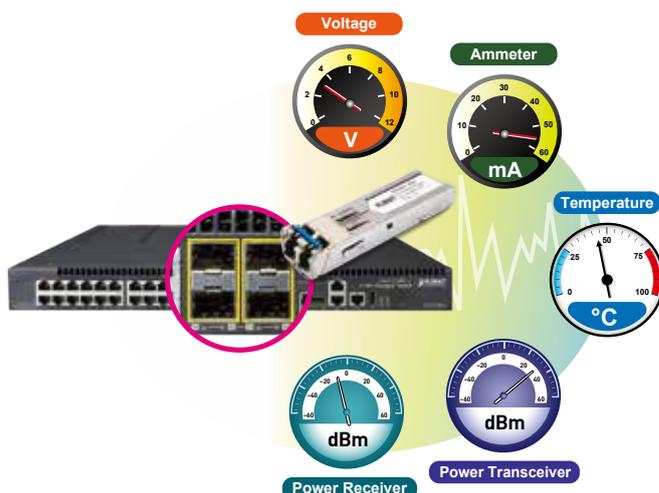
- v1 and v2 snooping
- Querier mode supports
- Supports Multicast VLAN Register (MVR)

Security

- IEEE 802.1x port-based network access authentication
- MAC-based network access authentication
- Built-in RADIUS client to cooperate with the RADIUS servers for IPv4 and IPv6
- TACACS+ login users access authentication
- IP-based Access Control List (ACL)
- MAC-based Access Control List
- Supports DHCP snooping
- Supports ARP inspection
- IP Source Guard prevents IP spoofing attacks
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- Supports URPF to avoid IP address clone
- IPv6 ND snooping

Management

- Management IP for IPv4 and IPv6
- Switch Management Interface
  - Console/Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c and v3 switch management
  - SSH/SSL secure access
- BOOTP and DHCP for IP address assignment
- DHCP relay and option 82
- Firmware upload/download via TFTP or HTTP Protocol for IPv4 and IPv6
- SNTP (Simple Network Time Protocol) for IPv4 and IPv6
- User privilege levels control
- Syslog server for IPv4 and IPv6
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms and events)
- Supports ping, trace route function for IPv4 and IPv6
- User Privilege levels control
- Link Layer Discovery Protocol (LLDP) and LLDP-MED

Redundant Power System

- 100~240V AC, -40V~-60V DC (optional) dual redundant power

AC and DC Redundant Power to Ensure Continuous Operation

The XGS3-24042 is equipped with one 100~240V AC power supply unit and one empty power supply slot for redundant DC power supply – XGS3-PWR150-48 installation, which supports -40 ~ -60V DC power input. With XGS3-PWR150-48 DC power supply implemented, the XGS3-24042 can be applied as the telecom level device. A redundant power system is also provided to enhance the reliability with either AC or DC power supply unit. The redundant power system is specifically designed to handle the demands of high-tech facilities requiring the highest power integrity.
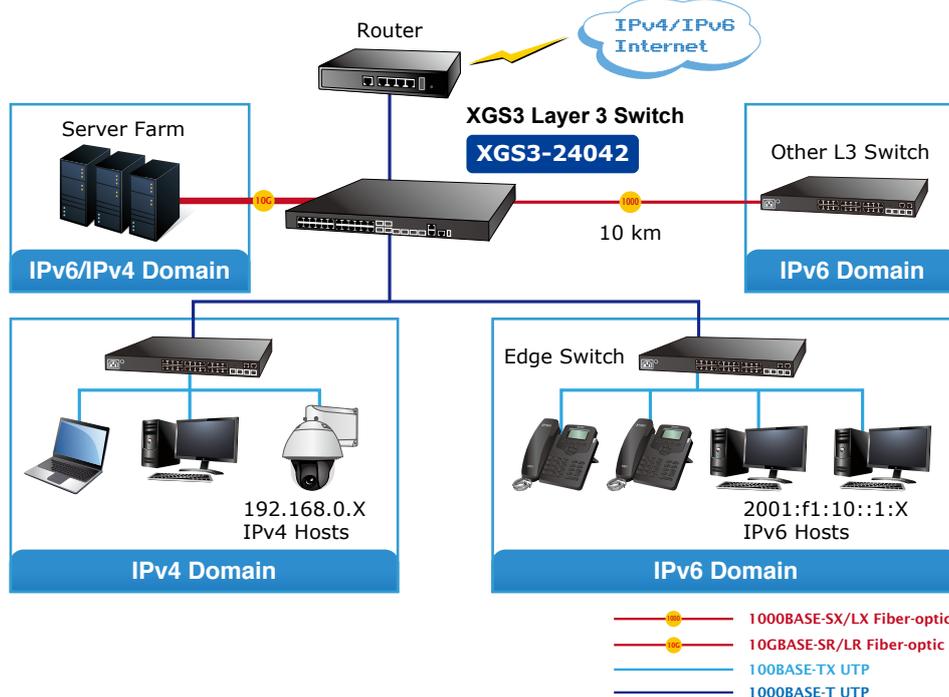
Redundant Power Input System

Grounding **Selectable DC Power Input** **AC Power Input**

Applications

Core Routing Switch

With 24 Gigabit ports, 4 SFP+ fiber interfaces and Layer 3 IP/multicast routing capability, the XGS3-24042 provides high-performance solution for telecoms, network service providers and enterprises.

Core IPv6/IPv4 Routing Switch

Router

IPv4/IPv6 Internet

Server Farm

XGS3 Layer 3 Switch

XGS3-24042

Other L3 Switch

IPv6/IPv4 Domain

10 km

IPv6 Domain

Edge Switch

192.168.0.X
IPv4 Hosts

2001:f1:10::1:X
IPv6 Hosts

IPv4 Domain

IPv6 Domain

1000BASE-SX/LX Fiber-optic
10GBASE-SR/LR Fiber-optic
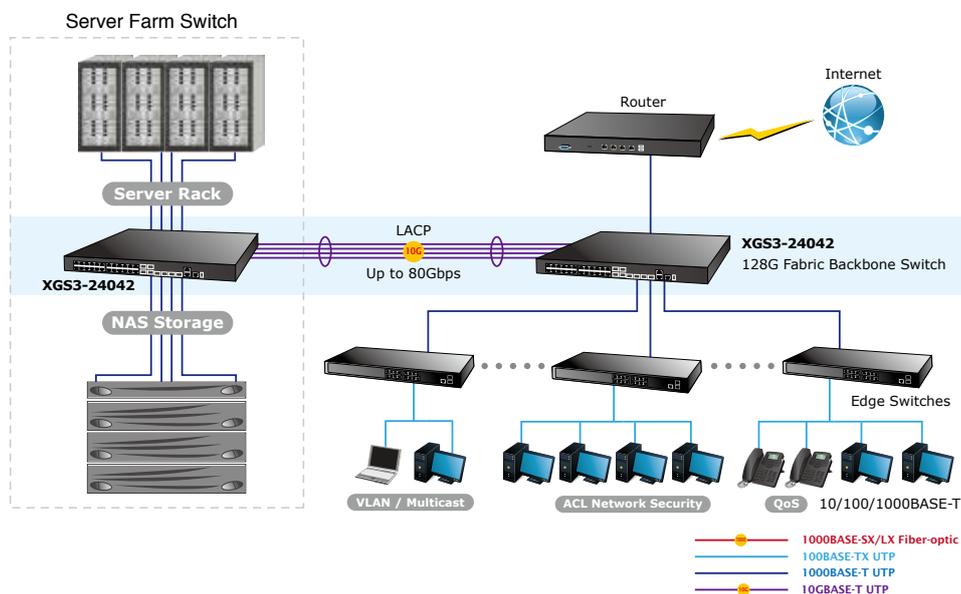100BASE-TX UTP
1000BASE-T UTP

Campus/ISP/Telecom High-density and VRRP Backbone Routing Switch

With the built-in robust IPv4/IPv6 Layer 3 IP and multicast routing protocols, the XGS3-24042 ensures reliable routing between VLANs and network segments. The routing protocols can be applied by VLAN interface with up to 1K routing entries. The high-density routing interfaces provide expandability to meet the growing network's needs. Moreover, with the hot VLAN feature – Q-in-Q (VLAN stacking) – supported, it allows the service providers to offer certain services such as Internet access on specific VLANs for specific customers and yet still provides other types of services for their other customers on other VLANs.
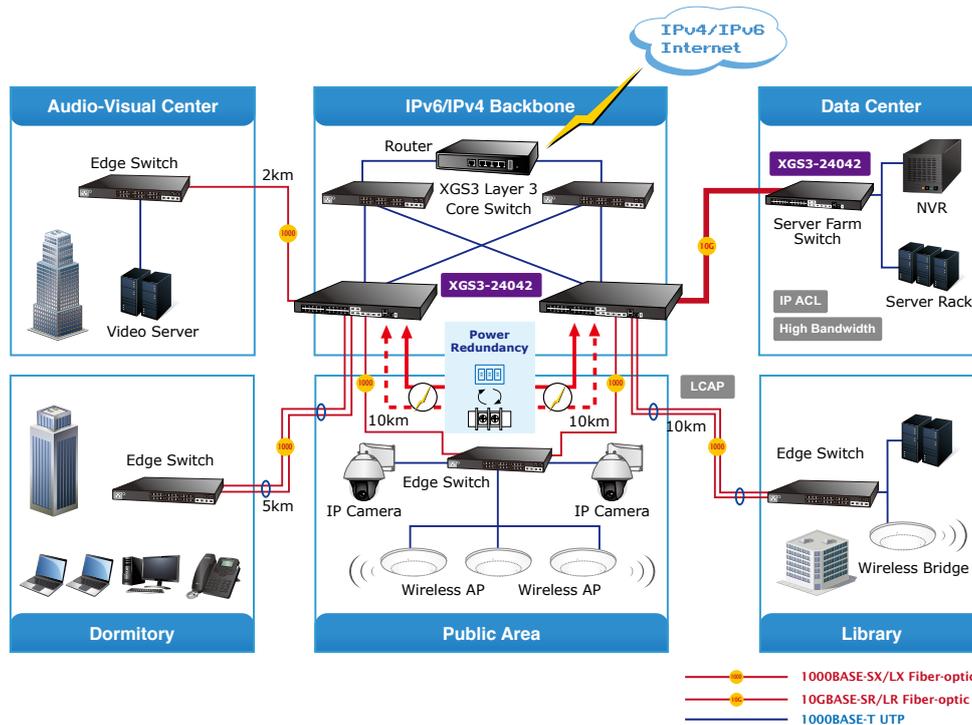
Data Center Security and QoS Switch

The XGS3-24042 performs 128 Gigabits per second, non-blocking switch fabric so it can easily provide a local, high bandwidth, and Gigabit Ethernet network for the backbone of your department. With the four built-in SFP+ ports, the XGS3-24042 provides the 10G uplink to the backbone network through 10G Ethernet LR/SR SFP+ modules. It further improves the network efficiency and protects the network clients by offering the security and QoS features.

Specifications

Product	XGS3-24042
Hardware Version	2.0
Hardware Specifications	
Copper Ports	24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP/Mini-GBIC Slots	4 1000BASE- X SFP interface (Shared with Port-21 to Port-24) Compatible with 100BASE-X SFP transceiver
SFP+/Mini-GBIC Slots	4 10GBASE-SR/LR SFP+ interface (Port-25 to Port-28) Compatible with 1000BASE-X SFP transceiver
Switch Processing Scheme	Store-and-Forward
Switch Fabric	128Gbps
Throughput	95Mpps@64bytes
Address Table	16K entries
Shared Data Buffer	12Mbits
VLAN Table	4K
Routing Table	13K
Layer 3 Interface	1K
Port Queues	8
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	9Kbytes
LED	System: PWR1, PWR2, Mode, SYS Ports: Link/Act
Dimensions (W x D x H)	440 x 350 x 44.5 mm, 1U height
Weight	4.75kg
Power Requirements	AC: 100 ~ 240VAC, 50/60Hz, auto-sensing DC: -48V DC (optional)
Power Consumption	30 watts (max.)
IPv4 Layer 3 functions	
IP Routing Protocol	RIPng, OSPFv3, BGPv4+
Multicast Routing Protocol	PIM-SM/DM for IPv6 MLD for IPv6 (v1) MLDv1/v2 MLD Snooping, 6 to 4 Tunnels Multicast receive control Illegal multicast source detect
Layer 3 Protocol	Configured Tunnels, ISATAP, CIDR
Layer 2 Functions	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Bandwidth control on each port Port Loopback detect
VLAN	802.1Q tagged based VLAN, up to 4K VLAN groups Q-in-Q GVRP Private VLAN Voice VLAN MAC-based VLAN Protocol-based VLAN
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), Spanning Tree by VLAN Root Guard BPDU Guard
Link Aggregation	Static Trunk IEEE 802.3ad LACP Supports 128 groups with 8 ports per trunk group
QoS	Traffic classification based, strict priority, SWRR, WRR, DWRR, SDWRR, WRED 8-level priority for switching - Port number - 802.1p priority - DSCP/TOS field in IP packet Policy-based DiffServ
Multicast	IGMP v1/v2/v3 snooping IGMP proxy IGMP querier mode support MLD v1/v2, MLD v1/v2 snooping

Access Control List	Support standard and expanded ACL IP-based ACL/MAC-based ACL Time-based ACL ACL pool can be used for QoS classification
Security	Supports MAC+ port binding IPv4/IPv6 + MAC+ port binding IPv4/IPv6 + port binding Supports MAC filter ARP spoofing prevention ARP scanning prevention IP source guard IPv6 ND snooping
Authentication	IEEE 802.1x Port-based network access control AAA Authentication: IPv4/IPv6 over TACACS+/RADIUS
SNMP MIBs	RFC-1213 MIB-II IF-MIB RFC-1493 Bridge MIB RFC-1643 Ethernet MIB RFC-2863 Interface MIB RFC-2665 Ether-Like MIB RFC-2674 Extended Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3 and 9) RFC-2737 Entity MIB RFC-2618 RADIUS Client MIB RFC-2933 IGMP-STD-MIB RFC-3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB

Management Functions	
System Configuration	Console, Telnet, SSH, Web browser, SSL, SNMPv1, v2c and v3
Management	Supports the unit for IPv4/IPv6 HTTP and SSL Supports the user IP security inspection for IPv4/IPv6 SNMP Supports MIB and TRAP Supports IPv4/IPv6 FTP/TFTP Supports IPv4/IPv6 NTP Supports RMOM 1, 2, 3, 9 four group Supports the RADIUS authentication for IPv4/IPv6 Telnet user name and password Supports IPv4/IPv6 SSH The right configuration for users to adopt RADIUS server's shell management Supports the function for timing-reset bases needs Supports CLI, Console (RS232), Telnet Supports SNMPv1/v2c/v3 Supports Security IP safety net management function: avoid unlawful landing at nonrestrictive area Supports TACACS+

System Configuration	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP 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 IEEE 802.1Q VLAN tagging IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP

Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

Ordering Information

XGS3-24042	24-Port Gigabit + 4-Port 10G SFP+ Layer 3 Stackable Managed Switch
XGS3-PWR150-48	150-watt 48VDC power supply for XGS3-24042 (v2) and XGS3-24242 (v2) (40V-60VDC)

Ordering Information

Model	Description
MTB-Series Transceiver	10GBASE-SR/LR SFP+ Transceiver
MGB-Series Transceiver	1000BASE-SX/LX SFP Transceiver
MFB-Series Transceiver	100BASE-FX SFP Transceiver
CB-DASFP-0.5M/ CB-DASFP-2M	10G SFP+ Directly-attached Copper Cable (0.5/2M in length)

XGS3-24042v2