

Product Specifications

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

XGS3-24042

Version 3.0

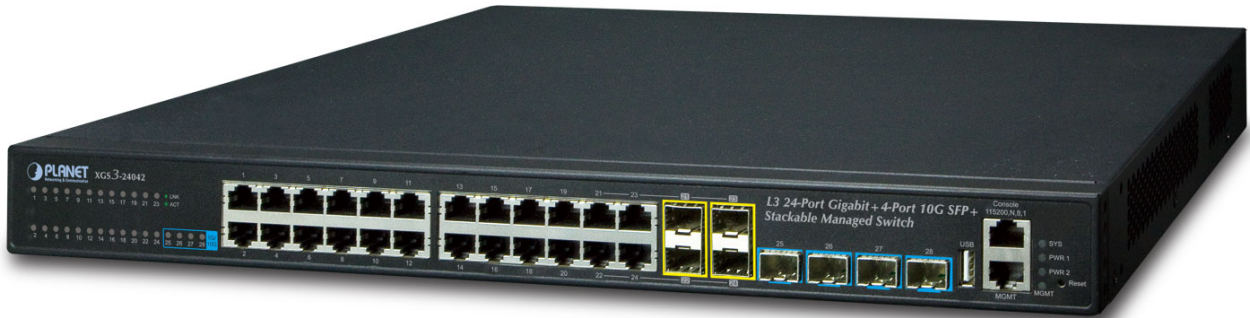
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Change History:

Revision:	Date:	Author:	Change List
Version 3.0	2018/2/7	Calvin Chao	Redundant power input changed
Version 2.0	2015/1/21	Jos Li	1. Main chipset changed. Modify PCBA design to include 4 SFP+ without card module.
Version 1.0	2011/12/26	Neo Tsai	Initial Release
Version 0.9	2011/12/12	Neo Tsai	Draft Version

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1. PRODUCT DESCRIPTION

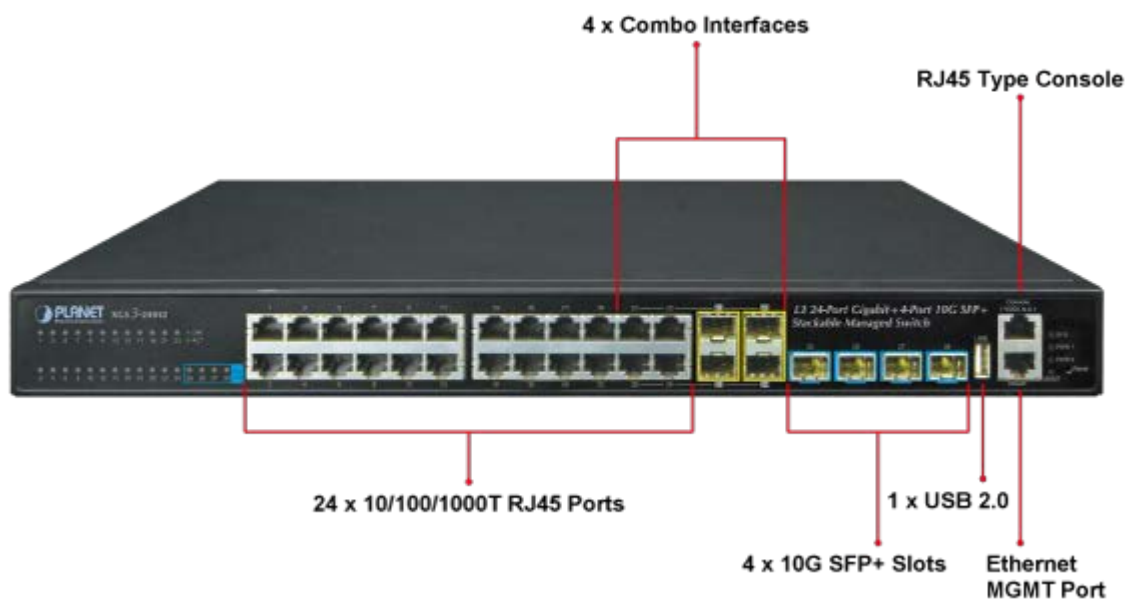


Powerful Layer 3 Gigabit Routing for Enterprise-level Solution

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**
- **Dual AC Redundant Power System**

The XGS3-24042 can handle extremely large amounts of data in a secure topology linking to an enterprise backbone or high capacity servers. The powerful WRR (Weighted Round Robin) and Network Security features make the XGS3-24042 perform effective data traffic control for ISP and enterprise VoIP, video streaming, and multicast applications.



Rich Multi-Layer and Multicast Networking Protocols

The XGS3 series supports IPv6/IPv4 routing protocols including Layer 3 IP Static Routing, **RIPv1/v2** (Routing Information Protocol), **OSPF**(Open Shortest Path First), and **VRRP**(Virtual Router Redundancy Protocol) protocols. Built in with abundant multicast features, the XGS3 series supports 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 series solution is cost-effective yet has the ability to expand to meet today's demand for network expansion.

High Performance 10Gbps Ethernet Capacity

The XGS3-24042's four built-in SFP+ slots boast 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. 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.

Dual AC Redundant Power to Ensure Continuous Operation

The XGS3-24042 is equipped with two 100~240V AC power supply units for redundant power supply installation. A redundant power system is also provided to enhance the reliability with dual AC power supply units. The redundant power system is specifically designed to handle the demands of high-tech facilities requiring the highest power integrity.



IP Stacking Management

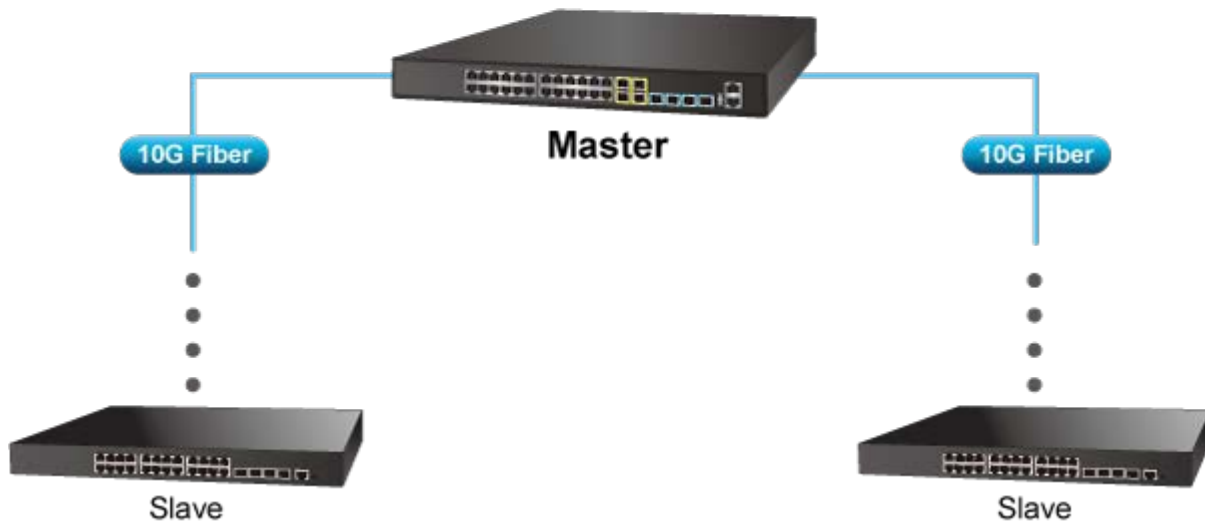
The XGS3-24042 supports IP stacking function that helps network managers to easily configure up to 24 switches in the same series via one single IP address instead of connecting and setting each unit one by one. PLANET XGS3 series adopting the IP Stacking technology enables centralized management through a single unit, regardless of the physical location or switch type, as long as they are connected to the same local network.

Full IPv6 Support

The XGS3-24042 provides **IPv6 management** and enterprise-level secure features such as **SSH, ACL, WRR** and **RADIUS** authentication. It 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.

IP Stacking

Up to 24 units with XGS3-24042



Robust Layer 2 Features

The XGS3-24042 can be programmed for basic switch management functions such as port speed configuration, port aggregation, VLAN, Multiple Spanning Tree Protocol, WRR, bandwidth control and IGMP snooping. This switch provides 802.1Q tagged VLAN, Q-in-Q, voice VLAN and GVRP Protocol functions. By supporting port aggregation, the XGS3-24042 allows the operation of a high-speed trunk combined with multiple ports. It enables up to 16 groups for trunking with a maximum of 8 ports for each group.



Excellent Layer 2 to Layer 4 Traffic Control

The XGS3-24042 is loaded with powerful traffic management and WRR features to enhance services offered by telecoms. 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. It also empowers the enterprises to take full advantage of the limited network resources and guarantees the best in VoIP and video conferencing transmission.

Powerful Security

The XGS3-24042 supports ACL policies comprehensively. The traffic can be classified 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.

Efficient and Secure 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.

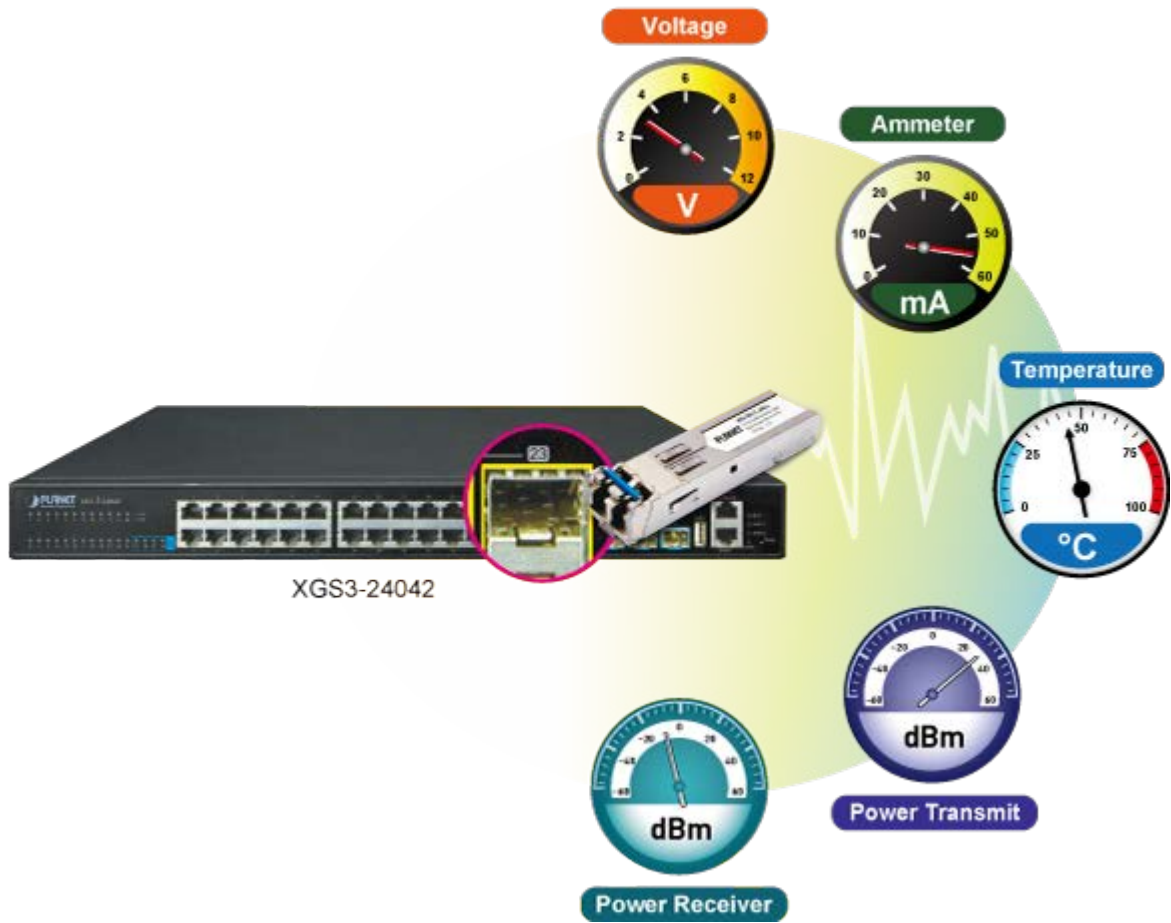
For reducing product learning time, the XGS3-24042 offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the XGS3-24042 offers secure remote management by supporting SSH connection which encrypts the packet content at each session.



Intelligent SFP Diagnosis Mechanism

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

Digital Diagnostic Monitor (DDM)



2. PRODUCT FEATURES

➤ **Physical Ports**

- 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 RS232 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 and SFP interfaces
- 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 standard
- Supports auto-negotiation and half-duplex/full-duplex modes for all 10BASE-T, 100BASE-TX and 1000BASE-T ports
- 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 12 trunk groups, up to 8 ports per trunk group
 - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
 - Cisco ether-channel (static trunk)
- Supports Spanning Tree Protocol
 - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
 - RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
 - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
 - Supports 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
- Support for 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; IPv6 MLD v1 and v2 snooping
- Querier mode support
- 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

➤ **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
- 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
- Supports DDM
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms and events)
- Supports sFlow
- Supports ULDP
- Supports ULPP (Uplink Protection Protocol)
- Supports ULSM (Uplink State Monitor protocol)
- Supports LLDP/LLDP MED
- Supports DHCP Option82, Option37/38
- Supports ping, trace route function for IPv4 and IPv6

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC:	Marvell 98DX3336	x 1
Switch PHY:	Marvell 88E1680	X 2
	Marvell 88E1545	x 1
	Marvell 88E1548A1	x 1
CPU	DUAL CORE 800M ARM7	x 1
Flash:	32MB SPI + 128MB NAND	x 1
SDRAM:	512MB	x 1

3.2 FUNCTION SPECIFICATIONS

Product	XGS3-24042
Hardware Specifications	
Hardware Version	3
Copper Ports	24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	4 100/1000BASE-X SFP combo interfaces with Port-21 to Port-24 Supports 100/1000Mbps dual mode and DDM
SFP+ Slots	4 10GBASE-SR/LR SFP+ interface (port-25 to port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver
Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-forward
Switch Fabric	128Gbps/non-blocking
Switch Throughput	95.23Mpps
Address Table	16K MAC address table with auto learning function
Shared Data Buffer	1.5MB
Flow Control	Back pressure for half -duplex IEEE 802.3x pause frame for full -duplex
Jumbo Frame	10K
LED	System:

	<p>PWR/MGMT/SYS</p> <p>Ports:</p> <p>10/100/1000T RJ45 Port: LNK/ACT</p> <p>1/10G SFP+ slot: LNK/ACT</p>
Dimensions (W x D x H)	440 x 320 x 43.6 mm, 1U height
Weight	4503g
Power Consumption	<p>12 watts/41.17 BTU (System)</p> <p>27 watts/92.64 BTU (Ethernet full loading)</p>
Power Requirements	AC 100~240V, 50/60Hz
Management Function	
System Configuration	Console, Telnet, SSH, Web browser, SNMP v1, v2c and v3
Management	<p>Supports both IPv4 and IPv6 addressing</p> <p>Supports the user IP security inspection for IPv4/IPv6 SNMP</p> <p>Supports MIB and TRAP</p> <p>Supports IPv4/IPv6 FTP/TFTP</p> <p>Supports IPv4/IPv6 NTP</p> <p>Supports RMON 1, 2, 3, 9 four groups</p> <p>Supports the RADIUS authentication for IPv4/IPv6 Telnet user name and password</p> <p>Supports IPv4/IPv6 SSH</p> <p>The right configuration for users to adopt RADIUS server's shell management</p> <p>Supports CLI, console, Telnet</p> <p>Supports SNMP v1, v2c and v3</p> <p>Supports Security IP safety net management function: avoid unlawful landing at nonrestrictive area</p> <p>Supports Syslog server for IPv4 and IPv6</p> <p>Supports TACACS+</p>
IPv4 Layer 3 Functions	
IP Routing Protocol	<ul style="list-style-type: none"> ■ Static Routing ■ RIPv1/v2 ■ OSPFv2 ■ BGP4

	<ul style="list-style-type: none"> ■ Policy-based Routing(PBR) ■ LPM Routing
Multicast Routing Protocol	<ul style="list-style-type: none"> ■ IGMP v1/v2/v3 ■ IGMP Proxy ■ DVMRP ■ PIM-DM ■ PIM-SM ■ PIM-SSM ■ Any Cast RP ■ MSDP ■ Illegal Multicast Source Detect
Layer 3 Protocol	<ul style="list-style-type: none"> ■ VRRP ■ URPF, ■ ECMP ■ BFD
Routing Interface	Per VLAN
IPv6 Layer 3 Functions	
IP Routing Protocol	<ul style="list-style-type: none"> ■ RIPng ■ OSPFv3 ■ BGP4+ ■ IPv6 LPM Routing ■ IPv6 Policy-based Routing(PBR)
Multicast Routing Protocol	<ul style="list-style-type: none"> ■ MLD Snooping ■ IPv6 Muticast VLAN ■ MLDv1/v2 ■ PIM-SM/DM for IPv6 ■ IPv6 Any Cast RP ■ IPv6 ACL ■ IPv6 QoS
Layer 3 Protocol	<ul style="list-style-type: none"> ■ IPv6 VRRPv3 ■ IPv6 URPF ■ IPv6 RA ■ 6to4 Tunnel ■ Configured Tunnel ■ ISATAP Tunnel ■ GRE Tunnel

	<ul style="list-style-type: none"> ■ ICMPv6 ■ ND,DNSv6
Layer 2 Functions	
Port Configuration	<p>Port disable/enable</p> <p>Auto-negotiation 10/100/1000Mbps full and half duplex mode selection</p> <p>Flow control disable/enable</p> <p>Bandwidth control on each port</p> <p>Port loopback detect</p>
Port Status	<p>Display each port's speed duplex mode, link status, flow control status and auto negotiation status</p>
VLAN	<p>802.1Q tagged based VLAN, up to 256 VLAN groups</p> <p>802.1ad Q-in-Q (VLAN stacking)</p> <p>GVRP for VLAN management</p> <p>Private VLAN Edge (PVE) supported</p> <p>Protocol-based VLAN</p> <p>MAC-based VLAN</p> <p>IP subnet VLAN</p>
Bandwidth Control	<p>TX/RX/Both</p>
Link Aggregation	<p>IEEE 802.3ad LACP/static trunk</p> <p>Supports 12 groups with 8 ports per trunk group</p>
QoS	<p>8 priority queues on all switch ports</p> <p>Supports strict priority and Weighted Round Robin (WRR) CoS policies</p> <p>Traffic classification:</p> <ul style="list-style-type: none"> - IEEE 802.1p CoS/ToS - IPv4/IPv6 DSCP - Port-based WRR
Multicast	<p>IGMP v1/v2/v3 snooping</p> <p>Querier mode support</p> <p>MLD v1/v2 snooping</p> <p>Multicast VLAN Register (MVR)</p>

<p>Access Control List</p>	<p>Supports Standard and Expanded ACL</p> <p>IP-based ACL/MAC-based ACL</p> <p>Time-based ACL</p> <p>Up to 512 entries</p>
<p>Bandwidth Control</p>	<p>At least 64Kbps step</p>
<p>Security</p>	<p>Supports MAC + port binding</p> <p>IPv4/IPv6 + MAC + port binding</p> <p>IPv4/IPv6 + port binding</p> <p>Supports MAC filter</p> <p>ARP scanning prevention</p>
<p>Authentication</p>	<p>IEEE 802.1x port-based network access control</p> <p>AAA authentication: TACACS+ and IPv4/IPv6 over RADIUS</p>
<p>SNMP MIBs</p>	<p>RFC 1213 MIB-II</p> <p>RFC 1215 Internet Engineering Task Force</p> <p>RFC 1271 RMON</p> <p>RFC 1354 IP-Forwarding MIB</p> <p>RFC 1493 Bridge MIB</p> <p>RFC 1643 Ether-like MIB</p> <p>RFC 1907 SNMP v2</p> <p>RFC 2011 IP/ICMP MIB</p> <p>RFC 2012 TCP MIB</p> <p>RFC 2013 UDP MIB</p> <p>RFC 2096 IP forward MIB</p> <p>RFC 2233 if MIB</p> <p>RFC 2452 TCP6 MIB</p> <p>RFC 2454 UDP6 MIB</p> <p>RFC 2465 IPv6 MIB</p> <p>RFC 2466 ICMP6 MIB</p> <p>RFC 2573 SNMP v3 notify</p> <p>RFC 2574 SNMP v3 vacm</p> <p>RFC 2674 Bridge MIB Extensions (IEEE 802.1Q MIB)</p>

	RFC 2674 Bridge MIB Extensions (IEEE 802.1P MIB)
Standard Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	<p>IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z Gigabit 1000BASE-SX/LX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3ae 10Gb/s 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 RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 RFC 2328 OSPF v2 RFC 1058 RIP v1 RFC 2453 RIP v2</p>
Environment	
Operating	<p>Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)</p>
Storage	<p>Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)</p>

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

440 x 350 x 44mm (W x D x H), 1U height

Weight:

4.75kg

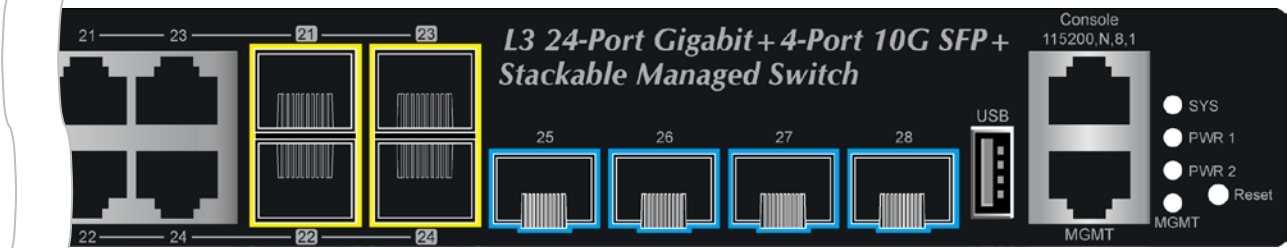
■ **Front Panel:**



■ **Rear Panel:**



■ **LED Definition**



XGS3-24042 LED panel

■ **System**

LED	Color	Function
PWR	Green	Lights to indicate that the Switch has power.
	Off	Power is off.
SYS	Green	Lights to indicate the system diagnosis is completed.
		Blinks to indicate system diagnosis is running.
MGMT	Green	Lights to indicate the link through that port is successfully established
		Blinks to indicate that the port is activity
	Off	No connection

■ **10/100/1000BASE-T Interfaces (Port-1 to Port-24)**

LED	Color	Function	
LNK/ACT	Green	Lights:	To indicate the link through that port is successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.

■ **1/10G SFP+ Interfaces (Port-25 to Port-28)**

LED	Color	Function	
LNK/ACT	Green	Lights:	To indicate the link through that port is successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.

3.4 ENVIRONMENTAL SPECIFICATIONS

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

3.5 ELECTRICAL SPECIFICATIONS

AC Power Input Voltage:	100 ~ 240VAC, 50/60Hz, auto-sensing.
Power Consumption (System On):	110V: 11.8 watts
	220V: 11.7 watts
Power Consumption (Full Loading):	110V: 27 watts
	220V: 26.7 watts

3.6 REGULATORY COMPLIANCE

FCC Class A, CE.

3.7 RELIABILITY

MTBF > 50,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- XGS3-24042 x 1
- Quick Installation Guide x 1
- Power Cord x 2
- RJ45-to-DB9 Console Cable x 1
- Ground cable X 1
- SFP Dust Caps x 8
- Rubber Feet x 4
- Two Rack-mounting Brackets with attachment screws x 2

3.9 PACKING DIMENSIONS

Dimensions (Box)	530 x 480 x 110 mm (W x D x H)
Weight	TBD (gross weight)
Dimensions (Carton)	555 x 375 x 510 mm (W x D x H)
Quantity	3pcs in one carton