NETGEAR®
PROSAFE®

ProSafe® 24-port 10 Gigabit
Stackable L2+ Managed Switch
XSM7224S

Data Sheet

The NETGEAR ProSafe 10 Gigabit Stackable Managed Switch, XSM7224S, allows for a flexible top-of-rack infrastructure. All 24 ports of 10 Gigabit SFP+ interfaces are Gigabit/10 Gigabit capable and deliver wired speed performance with ultra low latency. Four shared 10GBase-T interfaces broaden 10 Gigabit connectivity with auto-sensing RJ45. Local/distant stacking provides versatile 10 Gigabit deployment possibilities, such as Distributed (LACP) Aggregation for virtualized servers and storage.

Enterprise-class L2+

Combining superior resiliency, enterprise-class security, and non-blocking performance, the XSM7224S offers a full set of Layer 2 management features, as well as Layer 2+ (Layer 3 lite) with unsurpassed affordability. Together with VLAN routing, voice-class prioritization, and chassis-like stacking, the XSM7224S can be deployed as a data center top-of-rack switch, or closer to the core of small and medium businesses' growing networks, as a distribution layer 10 Gigabit Ethernet aggregation switch.

L3 Scalability

The Layer 3 upgrade license XSM7224L unlocks the IPv4/IPv6 dynamic routing capabilities of the XSM7224S. Purposely built for enterprise networks and core/aggregation layers of SMB networks, an L3 upgraded XSM7224S provides advanced routing protocols such as OSPF, VRRP, and multicast for converged applications.

Data Center Availability

The NETGEAR 10 Gigabit Stackable Managed Switch, XSM7224S comes with a removable power module for the main power supply with a second internal redundant power supply available as an option. Two removable fan trays increase the availability of the system, providing front-to-back cooling airflow for best compatibility with data center hot aisle/cold aisle airflow patterns. Like all NETGEAR ProSafe Managed Switches, the XSM7224S is backed by the NETGEAR ProSafe Lifetime Warranty†, including ProSupport 24x7 Advanced Technical Support*, and 3-Year Next Business Day Onsite Hardware Replacement**.

24 SFP+10 Gigabit ports **1**

4 Combo 10GBaseT RJ45 ports **2**

Console port
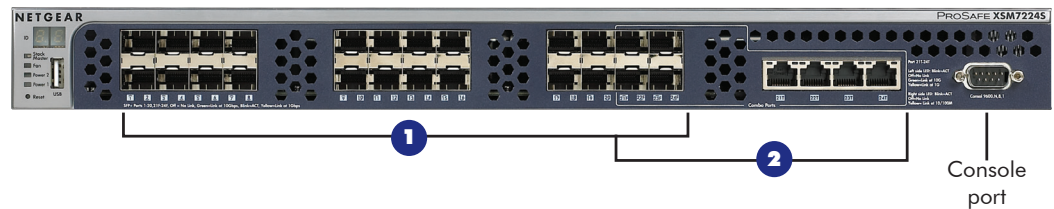
Extra bay for optional redundant power supply
Spare part: APS300W
Sold Separately

Two Removable Fan Trays
2 Fans per Tray
Spare part (each tray): AFT200
Included

Replaceable modular main power supply
Included

Layer 3 upgrade license, see details on page 13:
- Ordering part number: XSM7224L-10000S
- RIP, OSPF, VRRP
- Multicast routing

24/7
TECHNICAL SUPPORT*

1-888-NETGEAR (638-4327)
Email: info@NETGEAR.com

NETGEAR
PROSAFE
LIFETIME
WARRANTY*

Lifetime
Tech Support*

NBD* 3-year
on-site service

Features at a Glance

XSM7224S

| Hardware Main Features	Benefits
24-port 10Gigabit SFP+ Compatible with 1000 speeds	• 10 Gigabit wire-speed performance for aggregation applications • Ultra low latency for top-of-rack applications • Connect any Gigabit Ethernet (1000BaseT, 1000SX/LX) or 10 Gigabit Ethernet (10GBaseX) equipment with an array of SFP modules
4 shared 10GBaseT RJ45 interfaces	• 100/1000/10GBaseT auto-sensing flexibility • 10 Gigabit up to 100 m with Category 6A or better cables • Legacy Category 6 cables allow up to 50 m 10GBaseT distances (30 m worst-case crosstalk within a cable bundle)
Physical stacking up to 4 switches	• Chassis-like unique GUI /CLI • Dual-ring resilient topology with 4 ports per switch • Any of the 24 ports are stack-capable for added flexibility • High speed 10 x 8 = 80 GE overall stacking performance • Single IP address management • Hot-swappable, automatic unit replacement • Server-to-switch distributed redundant trunking across the stack for active-active server teaming connections • Any-to-one port mirroring
Redundant hot-swappable power supplies Replaceable fan trays Front-to-back cooling airflow	• Data center class availability • APS300W optional redundant power supply (hot-swap) • AFT200 spare fan tray (hot-swap)
Software Main Features	**Benefits**
Layer 2 (IPv4 / IPv6 switching) Layer 2+ (Layer 3 lite - IPv4 routing)	• Unsurpassed affordability for VLAN / subnet routing
Multiple STP, 802.3ad LACP, redundant power supply	• Enhanced resiliency for highly available networks
Fabric 480 Gbps Performance 357 Mpps Latency (10 Gigabit) <1.59 μs Packet buffer memory 16 Mb	• Improved architecture for data center server access layer • Non-blocking performance for critical top-of-rack applications • High-speed and high-capacity solution for virtualization • Extended buffering for maximum iSCSI /NFS scalability
NETGEAR ProSafe Control Center GUI Industry standard CLI	• Same easy management as all other FSM72/GSM72/GSM73xx • Reduced operational expense
IPv4/IPv6 L2, L3, L4 ACL (access control lists)	• Enterprise-class security • Network protection based on user profile • Network protection based on trusted application
IPv4/IPv6 L2, L3, L4 QoS (8 priority queues, DiffServ)	• Voice-class prioritization • Traffic prioritization based on user profile or application • More queues for VoIP, video & critical applications
IGMP snooping v2,v3 IGMP proxy, IGMP querier	• Easier multicast for IP surveillance, IPTV • Multicast traffic reaches only the interested receivers, even without a dedicated external multicast router
32 K MAC – 1 K VLANs – 2 K multicast addresses 64 trunks 8-port each – DHCP server/relay 64 IP routes – 128 IP interfaces	• Deployable at enterprise edge, remote branch offices or closer to the core of SMB networks
L3 License Upgrade Features	**Benefits**
Layer 3 - IPv4 (RIPv1/v2, OSPFv1/v2, VRRP) Layer 3 - IPv6 (OSPFv3)	• Advanced routing capabilities for core/aggregation layers • Ideal for IPv4 / IPv6 transitioning networks
Multicast routing - IPv4/IPv6 Multicast L2 - IPv6 (MLD)	• Advanced routing of multicast streams (PIM, sparse, dense) • Simplify large IPTV & video deployments

Target Applications

Top-of-Rack Access Layer for Servers

Core

XSM7224S

ReadyNAS 4200

Server Racks
(Servers, Storage)

10 GE
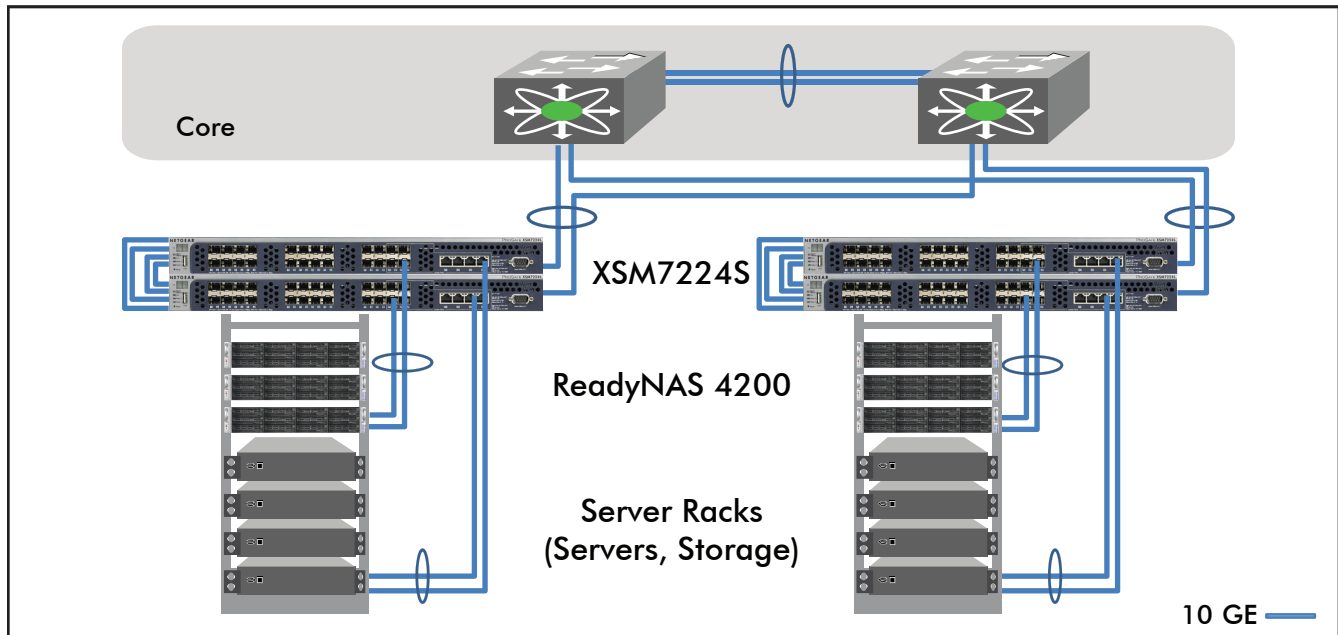
With virtualization, servers and network storage devices need high-performance connectivity, low latency and network redundancy. The XSM7224S simplifies and lowers the cost of typical top-of-rack architecture. In this configuration, two stacked switches per rack connect up to 21 servers/storage units in a server-to-switch distributed redundant trunking mode. The hardware-stacking dual-ring topology provides one unique CLI/GUI platform, simple management, network and servers/storage perfect resiliency, as well as intelligent load balancing. All servers can set up their NIC with active-active teaming across the stack, allowing distributed LACP for better performance.

Core/Aggregation for Mid-sized Networks

L3 licensing upgrade

Core

XSM7224S

GSM72xxPS/GSM73xxS Access Layer

10 GE
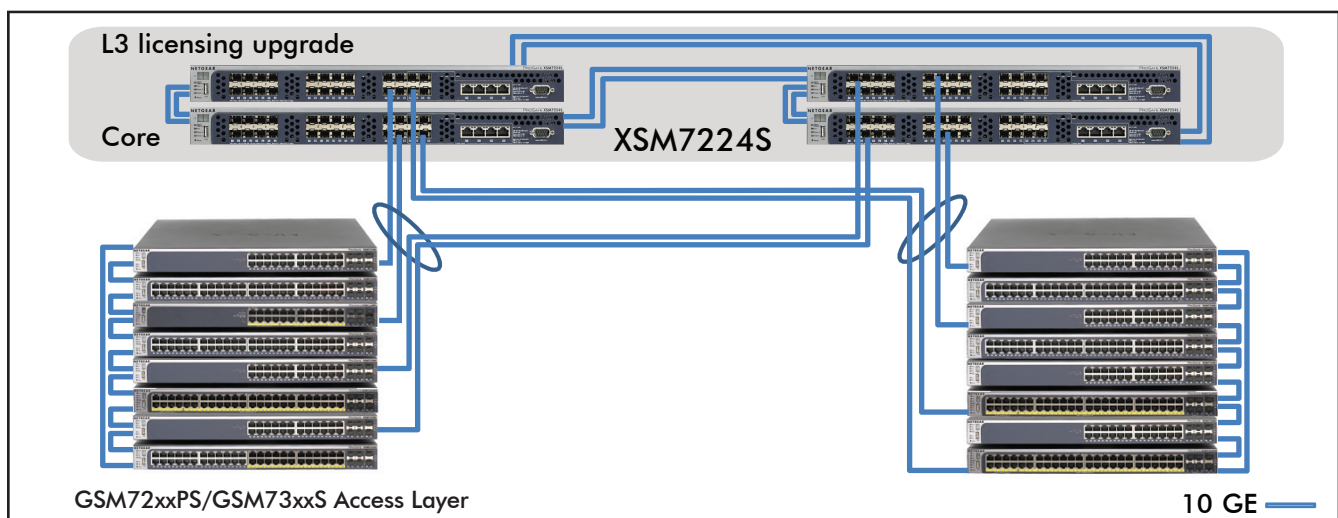
XSM7224S offers enterprise-class aggregation layer for medium-sized enterprise networks and even core capability for two-tiered typical SMB networks. 1000BT/SX/LX are supported by each SFP+ port for more flexibility with non 10 Gigabit legacy equipments. With the Layer 3 license upgrade, the XSM7224S is optimized for Layer 2/Layer 3 core switching. In this configuration, 4 stacked XSM7224S switches authorize high performance distributed trunks and management is simplified. Each stack acts as a single routing switch, with only one GUI/CLI and multiple distributed link aggregations. Spanning Tree is no longer required for network resiliency. Distributed Link Aggregation (LACP) provides intelligent load balancing across the network – from the edge to the core.

NETGEAR Hardware Stacking

Local and Distant Stack Topology

Local Stack Topology

When switches are deployed in the same rack they can use either:

- SFP+ Direct Attach cables and SFP+ ports
- CAT6A RJ45 cables and combo 10GBaseT ports

Four ports per switch are preferred for stacking and all 24 ports are stack-capable.

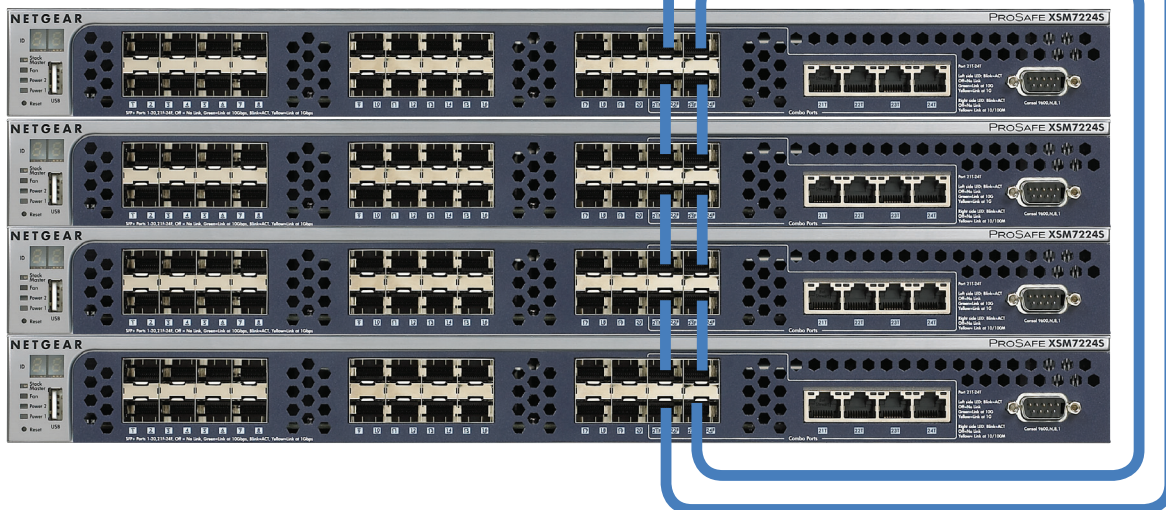Each ring speed is 20 Gbps half duplex (40 Gbps full duplex).

Dual ring overall speed is 40 Gbps half duplex (80 Gbps full duplex).

AXC761
1 m Direct Attach SFP+ Cable

- Two cables per switch in the stack

Or Cat6A RJ45 patch cables

- Two cables per switch in the stack
- For use with built-in 10GbaseT ports

Distant Stack Topology

When switches are deployed in several locations, SFP+ optics (AXM761 or AXM762 or AXM763) and fiber are used for this hardware dual-ring topology, providing highest resiliency and intelligent load balancing.

Each ring speed is 20 Gbps half duplex (40 Gbps full duplex).

Dual ring overall speed is 40 Gbps half duplex (80 Gbps full duplex).

Local and Distant Stack can be combined for maximum flexibility, using Direct Attach SFP+ or CAT6A copper cables and AXM761/AXM762/AXM763 SFP+ optics.

AXM761 or AXM762 or AXM763
SFP+ 10GBase-SR or LR or LRM optics

- Four SFP+ modules per switch are recommended for full 80 Gbps bandwidth and complete redundancy

NETGEAR Hardware Stacking

Features	Benefits
Single IP address management	• Stack up to 4 switches as a single "chassis" logical unit • One GUI and one CLI managing the whole stack • The stack acts as a single switch in the network • The other switches in the network also see the stack as a single switch • Growth is easy, adding a switch to the stack is as simple as connecting the new unit to the stack (configuration is instantly updated)
Bi-directional architecture 4 ports per switch 80 Gigabit local stacking capacity 80 Gigabit distant stacking capacity	• Higher stacking throughput capacity with lower latency and jitter for VoIP and video traffic • Each switch in the stack understands the shortest path to forward traffic, bi-directionally both up and down • Vertical/local stacking and horizontal/distant stacking can be mixed for convenient 10 Gigabit deployments (core, distribution layer, top-of-rack)
Stack fast resiliency Automatic unit replacement (AUR)	• Dual-ring architecture ensures that if a switch fails within the stack all the other switches can still communicate with one another • If the stack master fails, the secondary stack master takes over in less than 2 seconds for minimum packet loss • Adding a new switch to the stack or replacing a failed unit requires no service interruption, the configuration file is automatically pushed by the stack
Distributed LACP across the stack	• Increased performance with distributed trunks • Greater redundancy as several switches within the trunk (up to 8 ports per trunk – 64 trunks are allowed) • Server-to-switch distributed redundant trunking across the stack for active-active server teaming connections
Many-to-one port mirroring across the stack	• More flexibility for device troubleshooting • As for a chassis, port mirroring is available from every port to every port across the stack
VLANs automatic propagation across the stack	• As for a chassis, VLAN port tagging or private groups are available everywhere across the stack as for a dingle switch (unit 1, port 2; unit 2, port 3, etc.) • No configuration required for the VLAN propagation between the switches

Associated Modules and Optics

SFPs (optics)

AXM761
ProSafe 10GBase-SR
SFP+ LC GBIC

- 10 Gigabit Ethernet "short-reach" fiber connectivity
- LC duplex connector
- Fits into any 10 GE SFP+ interface (front)
- Drives 10 Gigabit Ethernet up to 300 m distances with 50/125μm laser-optimized OM3 multimode fiber cables
- Drives 10 Gigabit Ethernet up to 33 m distances with 62.5/125μm OM1 multimode fiber cables
- 5-year Warranty
- Ordering part number: AXM761-10000S

AXM762
ProSafe 10GBase-LR
SFP+ LC GBIC

- 10 Gigabit Ethernet "long-reach" fiber connectivity
- LC duplex connector
- Fits into any 10 GE SFP+ interface (front)
- Drives 10 Gigabit Ethernet up to 10 km distances with 9/125μm SMF single mode fiber cables
- 5-year Warranty
- Ordering part number: AXM762-10000S

AXM763
ProSafe 10GBase-LRM
SFP+ LC GBIC

- 10 Gigabit Ethernet LRM "long reach multimode" fiber connectivity (802.3aq standard)
- LC duplex connector
- Fits into any 10 GE SFP+ interface (front)
- Drives 10 Gigabit Ethernet up to 220 m distances with legacy 62.5/125μm OM1 multimode fiber cables
- Drives 10 Gigabit Ethernet up to 260 m distances with 50/125μm laser-optimized OM3 multimode fiber cables
- 5-year warranty
- Ordering part number: AXM763-10000S

AGM731F
ProSafe 1000Base-SX
SFP LC GBIC

- Gigabit Ethernet "short-reach" fiber connectivity
- LC duplex connector
- Fits into any 10 GE SFP+ interface (front)
- Drives Gigabit Ethernet up to 550 m distances with 50/125μm laser-optimized OM3 multimode fiber cables
- Drives Gigabit Ethernet up to 275 m distances with 62.5/125μm OM1 multimode fiber cables
- 5-year Warranty
- Ordering part number: AGM731F

AGM732F
ProSafe 1000Base-LX
SFP LC GBIC

- Gigabit Ethernet "long-reach" fiber connectivity
- LC duplex connector
- Fits into any 10 GE SFP+ interface (front)
- Drives Gigabit Ethernet up to 10 km distances with 9/125μm SMF single mode fiber cables
- Drives Gigabit Ethernet up to 550 m distances with 62.5/125μm OM1 or 50/125μm OM3 multimode fiber cables
- 5-year Warranty
- Ordering part number: AGM732F

Associated Modules and Optics

AGM734
ProSafe 1000Base-T
SFP RJ45 GBIC

- Gigabit Ethernet RJ45 copper connectivity
- RJ45 connector
- Fits into any 10 GE SFP+ interface (front)
- Drives Gigabit Ethernet up to 100 m distances with CAT5E / CAT6 or better cables
- Supports only 1000BaseT mode, no 10BaseT/100BaseT auto-sensing
- 5-year Warranty
- Ordering part number: AGM734-10000S

AXC753
ProSafe 3m Direct
Attach SFP+ to XFP

3m SFP+ to XFP Direct Attach Cable
- Direct Attach copper cable (10GSFP+Cu)
- SFP+ connector on one side
- XFP connector on the other side
- Fits into any 10 GE SFP+ interface (front)
- XFP connector fits into any 10 GE XFP interface such as XCM8808X (Chassis Switch)
- Drives 10 Gigabit Ethernet (3 m distance)
- 5-year Warranty
- Ordering part number: AXC753-10000S

AXC761
ProSafe 1m Direct
Attach SFP+ Cable

1m SFP+ Direct Attach Cable
- Direct Attach SFP+ copper cable (10GSFP+Cu)
- SFP+ connector on both sides
- Fits into any 10 GE SFP+ interface (front)
- Drives 10 Gigabit Ethernet (1 m distance)
- 5-year Warranty
- Ordering part number: AXC761-10000S

AXC763
ProSafe 3m Direct
Attach SFP+ Cable

3m SFP+ Direct Attach Cable
- Direct Attach SFP+ copper cable (10GSFP+Cu)
- SFP+ connector on both sides
- Fits into any 10 GE SFP+ interface (front)
- Drives 10 Gigabit Ethernet (3 m distance)
- 5-year Warranty
- Ordering part number: AXC763-10000S

APS300W
ProSafe Auxiliary Power Supply

Optional Redundant Power Supply
- Provides a second redundant power supply
- Fits into the second power supply bay
- Hot-swappable
- 5-year Warranty
- Ordering part number: APS300W-10000S

AFT200
ProSafe Auxiliary Fan Tray

Spare Modular Fan Tray
- Provides a replaceable fan tray
- AFT200 contains only one fan tray with two fans
- Two fan trays are required for the switch
- 5-year Warranty
- Ordering part number: AFT200-10000S

XSM7224S

TECHNICAL SPECIFICATIONS	
Physical Interfaces	**Front** • 24 x 10 Gigabit SFP+ ports • All SFP+ ports support 1000 Mbps/10 GE speed • 4 shared RJ45 auto-sensing 10GBaseT ports • All RJ45 ports support 100 Mbps/1000 Mbps/10 GE speed • USB port (config/firmware files storage) • Serial RS-232 port for console **Total** • 24 x 10 Gigabit ports
Processor/Memory	• Multi-core processor: Cavium CN5230-750 @ 750 MHz (four cores) • System runtime memory: 512 MB (DDR2 SDRAM) • Bootram: 32-bit 8 MB flash • Packet buffer memory: 16 Mb per switch • Code storage (flash): 128 MB
Hardware Stacking	• Stack height: 4 switches • 4 ports used per switch • All 24-port are stack-capable • Shared RJ45 10GBaseT ports are also stack-capable • Local stacking (copper) and distant stacking (fiber) possible mix and match • Stacking performance: 80 Gbps (full duplex)
Performance Summary	• Switching fabric: 480 Gbps • Throughput: 357 Mpps • Forwarding mode: Store and Forward • Latency (64-byte frames, 1 Gbps): <4.1μs • Latency (64-byte frames, 10 Gbps): < 1.59 μs • Addressing: 48-bit MAC address • Address database size: 32,000 MAC addresses • Number of VLANs: 1,024 (IEEE® 802.1Q) • Number of multicast groups filtered (L2): 1K • Number of trunks: 64 trunks, 8-port per trunk • Number of hardware queues for QoS: 8 • Number of ACLs: 100 ACLs and 16,384 rules (supporting both ingress and egress ACL) • ARP table: 6,144 • Number of static routes: 64 • Number of IP interfaces: 128 • Number of Spanning Tree: 32 • Jumbo frame support: up to 9 K packet size • Acoustic noise (ANSI-S10.12): 44 dB @ 25° C ambient temperature • Heat dissipation: 666.42 Btu/hr • Mean time between failures (MTBF): 180,178 hours (~20.5 years) @ 25° C and 68,419 hours (~ 7.8 years) @ 55° C ambient temperature
L3 Services – Routing	• L2+ static routing (subnets, VLANs) • 64 static IP routes • 128 IP interfaces • IP Source Guard
L3 Services - DHCP	• DHCP server (1,024 clients) • DHCP L2 relay • DHCP Snooping (32K bindings)
L3 Services - Multicast	• IGMP querier
L2 Services – Switching	• MAC address table: 32,000 • ARP cache size: 6,144 • Proxy ARP • Dynamic ARP Inspection

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L2 Services – VLANs	• IEEE 802.1Q static VLAN (up to 1,024 VLANs) • IEEE 802.1v Protocol VLAN • Port-based VLAN • MAC-based VLAN • IP subnet-based VLAN • Protocol-based VLAN • Voice VLAN (based on IP phones OUIs) • Guest VLAN with IEEE 802.1x • Auto-VLAN assignment via RADIUS • IEEE 802.1 Q-in-Q (Double-VLAN tagging) • GARP with GVRP/GMRP (automatic registration for membership in VLANs or in multicast groups) • Private groups
L2 Services - Availability	• IEEE 802.3ad Link Aggregation (Static or LACP) up to 64 trunks per stack and up to 8 ports per trunk • 802.1AX-2008 • User selectable LAG hashing algorithm (seven) for Load-Balancing • IEEE 802.1D Spanning Tree Protocol (max 32 Spanning Trees) • IEEE 802.1w Rapid Spanning Tree • IEEE 802.1s Multiple Spanning Tree
L2 Services – Multicast	• IGMP v1, v2, v3 snooping support • IGMP querier mode support • Static multicast filtering (1,000 multicast groups)
L2/L3/L4 Services – QoS	• IPv4/IPv6 L2/L3/L4 QoS: MAC, IP, TCP/UDP ports • IEEE 802.1p Class of Service (CoS) • DiffServ QoS (RFC 2998) • Weighted round robin (WRR) queue technology • Strict priority queue technology • Ingress rate limit in 1 Kbps increments • Ingress and egress traffic • WRED (Weighted random early detection) queue management algorithm
L2/L3/L4 Services – Security	• IPv4/IPv6 Access control lists (ACL) L2/L3/L4: MAC, IP, TCP • MAC-based source/destination ACL • IP subnet-based source/destination ACL • Protocol-based source/destination ACL • ACL over VLAN • Dynamic ACLs • Time ACL • 100 ACLs and 16,384 rules • Ingress and egress ACL • Network storm protection including broadcast multicast and unicast traffic • DoS configurable protection • End-to-end flow control (stand alone mode - not accross the stack) • Service-aware flow control • Data Center Mode flow control • ICMP throttling • Protected ports • Port locking • MAC filtering • Port security • DHCP snooping • IP Source Guard • Dynamic ARP inspection • RADIUS (RFC 2865) • RADIUS accounting (RFC 2866) • IEEE 802.1x port access authentication (RADIUS) • Network access control: Captive portal with internal authentication or external RADIUS authentication • Possible configuration of 10 captive portals • TACACS+ • AAA IAS Users • LLPF (Link Layer Protocol Filtering) • IP Address Conflict Detection

XSM7224S

IEEE Network Protocols	• IEEE 802.3 Ethernet • IEEE 802.3i 10BASE-T • IEEE 802.3u 100BASE-T • IEEE 802.3ab 1000BASE-T • IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX • IEEE 802.3ae 10-Gigabit Ethernet • IEEE 802.3ad Trunking (LACP) • IEEE 802.1AB LLDP with ANSI/TIA-1057 (LLDP-MED) • IEEE 802.1D Spanning Tree (STP) • IEEE 802.1s Multiple Spanning Tree (MSTP) • IEEE 802.1w Rapid Spanning Tree (RSTP) • IEEE 802.1p Quality of Service • IEEE 802.1Q VLAN tagging • IEEE 802.1v protocol-based VLAN • IEEE 802.1X Radius network access control • IEEE 802.3x flow control • IEEE 802.1Qbb Priority-Based Flow Control
IETF RFC Standards – System Facilities	• RFC 768 UDP • RFC 783 TFTP • RFC 791 IP • RFC 792 ICMP • RFC 793 TCP • RFC 826 Ethernet ARP • RFC 894 transmission of IP datagrams over Ethernet networks • RFC 896 congestion control in IP/TCP networks • RFC 951 BOOTP • RFC 1321 message-digest algorithm • RFC 1534 interoperation between BOOTP and DHCP • RFC 2131 DHCP client/server • RFC 2132 DHCP options & BOOTP vendor extensions • RFC 2030 Simple Network Time Protocol (SNTP) version 4 for IPv4, IPv6 and OSI • RFC 2865 RADIUS Client (both switch and management access) • RFC 2866 RADIUS Accounting • RFC 2868 RADIUS attributes for Tunnel Protocol support • RFC 2869 RADIUS Extensions • RFC2869bis RADIUS support for Extensible Authentication Protocol (EAP) • RFC 3164 The BSD Syslog Protocol • RFC 3580 802.1X RADIUS usage guidelines (VLAN assignment via RADIUS, dynamic VLAN)
IETF RFC Standards – Switching MIB	• RFC 1213 MIB-II • RFC 1493 Bridge MIB • RFC 1643 Ethernet-like MIB • RFC 2233 The Interfaces Group MIB using SMI v2 • RFC 2674 VLAN MIB • RFC 2613 SMON MIB • RFC 2618 RADIUS Authentication Client MIB • RFC 2620 RADIUS Accounting MIB • RFC 2737 Entity MIB version 2 • RFC 2819 RMON Groups 1,2,3 & 9 • IEEE 802.1X MIB (IEEE 802.1-PAE-MIB 2004 Revision) • IEEE 802.1AB – LLDP MIB • ANSI/TIA 1057 – LLDP-MED MIB • Private Enterprise MIBs supporting switching features
IETF RFC Standards – QOS	• RFC 2474 definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 headers • RFC 2475 an architecture for differentiated services • RFC 2597 Assured Forwarding PHB Group • RFC 3246 An Expedited Forwarding PHB (Per-Hop Behavior) • RFC 3260 New Terminology and Clarifications for DiffServ • RFC 3289 Management Information Base for the Differentiated Services Architecture (read-only) • Private MIBs for full configuration of DiffServ, ACL and CoS functionality

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IETF RFC Standards – Management	• RFC 854 Telnet
	• RFC 855 Telnet Option
	• RFC 1155 SMI v1
	• RFC 1157 SNMP
	• RFC 1212 Concise MIB Definitions
	• RFC 1867 HTML/2.0 Forms with file upload extensions
	• RFC 1901 Community-based SNMP v2
	• RFC 1908 Coexistence between SNMP v1 & SNMP v2
	• RFC 2068 HTTP/1.1 protocol as updated by draft-ietf-http-v11-spec-rev-03
	• RFC 2271 SNMP Framework MIB
	• RFC 2295 Transparent Content Negotiation
	• RFC 2296 Remote Variant Selection; RSVA/1.0 State Management "cookies" – draft-ietf-http-state-mgmt-05
	• RFC 2576 Coexistence between SNMP v1, v2 and v3
	• RFC 2578 SMI v2
	• RFC 2579 Textual Conventions for SMI v2
	• RFC 2580 Conformance statements for SMI v2
	• RFC 3410 Introduction and Applicability Statements for Internet Standard Management Framework
	• RFC 3411 An Architecture for Describing SNMP Management Frameworks
	• RFC 3412 Message Processing & Dispatching
	• RFC 3413 SNMP Applications
	• RFC 3414 User-based Security Model
	• RFC 3415 View-based Access Control Model
	• RFC 3416 Version 2 of SNMP Protocol Operations
	• RFC 3417 Transport Mappings
	• RFC 3418 Management Information Base(MIB) for the Simple Network Management Protocol (SNMP)
	• **SSL 3.0 and TLS 1.0**
	  - RFC 2246 The TLS Protocol, Version 1.0
	  - RFC 2818 HTTP over TLS
	  - RFC 2346 AES Ciphersuites for Transport Layer Security
	• **SSH 1.5 and 2.0**
	  - RFC 4253 SSH Transport Layer Protocol
	  - RFC 4252 SSH Authentication Protocol
	  - RFC 4254 SSH Connection Protocol
	  - RFC 4251 SSH Protocol Architecture
	  - RFC 4716 SECSH Public Key File Format
	  - RFC 4419 Diffie-Hellman Group Exchange for the SSH
	  - Transport Layer Protocol

Management	• SNMP v1, v2c, v3 with multiple IP addresses • LLDP, LLDP-MED • Port mirroring support (many-to-one) • Flow-based mirroring • Syslog, Event log, Trap log, Email log event, ISDP • TFTP, SFTP, HTTP, SCP, or local USB flash for configuration files and firmware upgrades • Runtime image download (TFTP) • Port description • sFlow® • Web-based graphic user interface (Prosafe Control Center web GUI) • Command Line interface (Industrial Standard CLI: ISCLI) • IPv6 management • Cable test • SSLv3/TLSv1.0 Web security for the GUI • Secure Shell (SSHv1, v2) for CLI • Telnet sessions for management CPU (5 sessions) • Configurable management VLAN • Auto-install • Admin access control via RADIUS or TACACS+
LEDS	• Per port: Speed, link, activity • Per device: Power, fan status, stack ID, • Stack master

XSM7224S

Physical Specifications	• Dimensions (w x d x h): 440 x 431 x 43 mm (17.3 x 17 x 1.7 in) • Weight: 6.3 kg (13.89 lb)
Power Consumption	• 195.2W maximum 100–240V AC, 50–60 Hz universal input (666.42 Btu/hr)
Environmental Specifications	**Operating:** • Temperature: 32° to 122° F (0° to 50° C) • Humidity: 90% maximum relative humidity, non-condensing • Altitude: 10,000 ft (3,000 m) maximum **Storage:** • Temperature: – 4° to 158°F (–20° to 70°C) • Humidity: 95% maximum relative humidity, non-condensing • Altitude: 10,000 ft (3,000 m) maximum
SafetyElectromagnetic Emissions and Immunity	• CE mark, commercial • FCC Part 15 Class A, VCCI Class A • Class A EN 55022 (CISPR 22) Class A • Class A C-Tick • EN 50082-1 • EN 55024
Safety	• CE mark, commercial • CSA certified (CSA 22.2 #950) • UL listed (UL 1950)/cUL IEC 950/EN 60950
Package Contents	• ProSafe® 24-port Stackable 10 Gigabit L2+ Managed Switch (XSM7224S) • Power cord • Rubber footpads for tabletop installation • Rubber caps for the SFP+ sockets • Rack-mounting kit • Null-modem serial cable (RS-232) with 9-pin connector • Resource CD
Warranty and Support	• ProSafe Lifetime Warranty† • ProSupport Lifetime 24x7 Advanced Technical Support* • Next business day onsite hardware replacement support, 3 years (included)**
Modules & Accessories	• AGM731F 1000BASE-SX SFP GBIC • AGM732F 1000BASE-LX SFP GBIC • AGM734 1000BASE-T RJ45 SFP GBIC • AXC753 3m SFP+ to XFP Direct Attach Cable • AXC761 1m SFP+ Direct Attach Cable • AXC763 3m SFP+ Direct Attach Cable • AXM761 10GBASE-SR SFP+ GBIC • AXM762 10GBASE-LR SFP+ GBIC • AXM763 10GBASE-LRM SFP+ GBIC (Long Reach Multimode) • APS300W ProSafe Auxiliary Power Supply • AFT200 ProSafe Auxiliary Fan Tray
Ordering Information	**Americas**: XSM7224S-100NAS **Europe**: XSM7224S-100EUS **Asia**: XSM7224S-100AJS
ProSupport™ Service Packs	• XPressHW, Category 4: PRR0334 (3-year next-business day hardware replacement contract, applicable where next business day <u>onsite</u> hardware replacement is <u>not</u> available)
Layer 3 Upgrade License	• All regions * XSM7224L-10000S (See details Page 13)

XSM7224S + XSM7224L

ADDITIONAL TECHNICAL SPECIFICATIONS, WITH LAYER 3 LICENSE UPGRADE	
L3 Services – Routing	• IPv6 Static Routing (64 IPv6 routes) • IPv4/IPv6 unicast dynamic routing • RIP v1/v2 (IPv4) • OSPF v2/v3 (IPv4) • OSPFv3 (IPv6) • Maximum OSPF LSAs (v2: 18536, v3: 9416) • OSPF equal-cost multi-path (4 - ECMP routes) • NSF OSPF Graceful Restart (RFC 3623) • VRRP 64 instances • IPv6 tunnel support • ICMPv6
L3 Services – DHCP	• IPv6 DHCP server (1,024 clients and 160 delegated prefix) • IPv6 DHCP/ BOOTP Relay • DNSv6 support
L3 Services - Multicast	• IPv4/IPv6 multicast streams routing between VLANs, subnets or different networks • IPv4/IPv6 PIM-SM (sparse mode) • IPv4/IPv6 PIM-DM (dense mode) • Distance Vector Multicast Routing Protocol (DVMRP) • 1,024 IP Multicast Groups • Neighbor discovery
L2 Services – Multicast	• IPv6: MLD v1, v2 snooping support • MLD proxy
IETF RFC Standards – IPv4 Routing	• RFC 1027 Using ARP to implement transparent subnet gateways (Proxy ARP) • RFC 1256 ICMP Router Discovery Messages • RFC 1765 OSPF Database Overflow • RFC 1812 Requirements for IP Version 4 Routers • RFC 2082 RIP-2 MD5 Authentication • RFC 2131 DHCP relay • RFC 2328 OSPF Version 2 • RFC 2370 The OSPF Opaque LSA Option • RFC 2453 RIP v2 • RFC 3046 DHCP Relay Agent Information Option • RFC 3101 The OSPF "Not So Stubby Area" (NSSA) Option • RFC 3137 OSPF Stub Router Advertisement • RFC 3623 NSF OSPF Graceful Restart (Nonstop forwarding) • RFC 3768 VRRP – Virtual Router Redundancy Protocol • Route Redistribution across RIP, OSPF and BGP • VLAN routing
IETF RFC Standards – IPv4 Routing MIB	• RFC 1724 RIP v2 MIB Extension • RFC 1850 OSPF MIB • RFC 2096 IP Forwarding Table MIB • RFC 2787 VRRP MIB • Private Enterprise MIB supporting routing features
IETF RFC Standards – Multicast	• RFC 1112 Host Extensions for IP Multicasting • RFC 2236 Internet Group Management Protocol, Version 2 • RFC 2365 Administratively Scoped IP Multicast • RFC 2710 Multicast Listener Discovery (MLD) for IPv6 • RFC 3376 Internet Group Management Protocol, Version 3 • RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 • RFC 3973 Protocol Independent Multicast - dense mode (PIM-DM) • RFC 4601 Protocol Independent Multicast - sparse mode (PIM-SM) • Draft-ietf-idmr-dvmrp-v3-10 Distance Vector Multicast Routing Protocol • Draft-ietf-magma-igmp-proxy-06 IGMP/MLD-based Multicast Forwarding ("IGMP/MLD Proxying") • Draft-ietf-magma-igmpv3-and-routing-05 IGMPv3/MLDv2 and Multicast Routing Protocol Interaction • Draft-ietf-pim-sm-bsr-05 Bootstrap Router (BSR) Mechanism for PIM

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IETF RFC Standards – Multicast MIB	• RFC 2932 IPv4 Multicast Routing MIB • RFC 5060 Protocol Independent Multicast MIB • Draft-ietf-idmr-dvmrp-mib-11 Distance-Vector Multicast Routing Protocol MIB • Draft-ietf-magma-mgmd-mib-05 Multicast Group Membership Discovery MIB • Draft-ietf-pim-bsr-mib-06 – PIM Bootstrap Router MIB • Private Enterprise MIB supporting Multicast features
IETF RFC Standards – IPv6 Routing	• RFC 1981 – Path MTU for IPv6 • RFC 2460 – IPv6 Protocol Specification • RFC 2461 – Neighbor Discovery • RFC 2462 – Stateless Auto configuration • RFC 2464 – IPv6 over Ethernet • RFC 2711 – IPv6 Router Alert • RFC 2740 – OSPFv3 • RFC 3056 – Connection of IPv6 Domains via IPv4 Clouds • RFC 3315 – DHCPv6 (stateless + relay) • RFC 3484 – Default Address Selection for IPv6 • RFC 3493 – Basic Socket Interface for IPv6 • RFC 3542 – Advanced Sockets API for IPv6 • RFC 3587 – IPv6 Global Unicast Address Format • RFC 3736 – Stateless DHCPv6 • RFC 4213 – Basic Transition Mechanisms for IPv6 • RFC 4291 - Addressing Architecture for IPv6 • RFC 4443 – ICMPv6
IETF RFC Standards – IPv6 Routing MIB	• RFC 2465 – IPv6 MIB • RFC 2466 – ICMPv6 MIB