



### Leading the Industry with the 2<sup>nd</sup> Generation of 10-Gigabit Web Managed (Plus) Switches, Purposely Designed for SMB with Cost-Effective 10GBASE-T Connectivity and Basic L2 Management Features

As a leading provider of network equipment for SMBs, NETGEAR® continues to lead the networking industry with its 2<sup>nd</sup> Generation of ProSAFE® 10-Gigabit Web Managed (Plus) Switches. The XS708Ev2 and XS716E are the market's most cost efficient 10-Gigabit switches. Built for SMBs, workgroups, and even home offices, the XS708Ev2 provides 8 (eight) 10-Gigabit Copper ports and 1 Shared (Combo) Copper/SFP+ fiber port, while the XS716E provides 16 (sixteen) 10-Gigabit Copper ports and 1 Shared (Combo) Copper/SFP+ fiber port, all at an affordable price.

These 10-Gigabit Web Managed switches are purposely designed as a cost-effective way to provide 10G connections to 10G-capable servers and NAS (Network Attached Storage) systems, and to meet current and future needs on virtualization, converged networking, and mobility, removing the bottlenecks created by the proliferation of Gigabit-to-the-desktop and the explosion of wireless devices on the network.

As part of the ProSAFE Web Managed (Plus) switch product family, the XS708Ev2 and XS716E 10-Gigabit Ethernet switches come with configurable L2 network features such as VLAN, QoS, IGMP snooping, port trunking/link aggregation and rate limiting. These features help to further optimize business network performance, delivering great value and empowering the SMB network. Both switches feature an easy-to-use web browser-based management GUI in addition to plug-and-play connectivity.

The XS708Ev2 and XS716E are ideal switches for SMBs in need of simple and affordable 10-Gigabit Ethernet connectivity into their 10G-capable servers and storage devices. Either can be used at the "center of a small business or home office network" or as an aggregation/access switch in a larger organization, connecting to a 10-Gigabit NETGEAR ProSAFE Fully Managed Switch on one end and extending the 10G connections to the edge. They are also ideal for smaller workgroups that need high bandwidth for sharing, collaborating, editing, and publishing high-density content like video or animation. Customers can use Cat6 or Cat7 copper cables with standard RJ45 Ethernet jacks that are already widely used in their current network. Network speeds can improve up to 10x going from traditional Gigabit to 10-Gigabit with minimal network changes and upgrades.

## Highlights

### Configurable L2 Networking Features

ProSAFE 10-Gigabit Web Managed (Plus) Switches provide plug-and-play connectivity and additional configurable L2 network features including:

- Port-based and 802.1Q-based VLAN support for traffic segmentation
- Port-based and 802.1p/DSACP-based QoS (Quality of Service) for traffic prioritization
- Auto "denial-of-service" (DoS) prevention
- IGMP snooping support for multicast optimization
- Loop detection and broadcast storm controls
- Rate limiting and priority queuing for better bandwidth allocation
- Port mirroring for network monitoring
- Port trunking/link aggregation (LAG) allows for increased throughput beyond 10G or to provide redundancy across the link(s)
- Jumbo frame support

### 10-Gigabit Transition with BASE-T

10GBASE-T allows a standard RJ45 Ethernet jack and existing Cat 6 or Cat 7 network cables to be used, delivering a 10X increase in network performance with minimum changes/upgrades.

- 10GBASE-T is backward compatible, auto-negotiating between higher and lower speeds, alleviating the need for an all-at-once network equipment upgrade
- Cat 5/Cat 5e supported at 1G speeds only, up to 100 meters
- Cat 6 twisted pair supports 10-Gigabit speeds up to 45 meters
- Cat 6a or Cat 7 cabling supports 10-Gigabit speeds up to 100 meters

### Designed as Core Switch for SMB Network

- 10G connection to 10G-capable servers and network storage
- 10-Gigabit fiber link for long-haul connections
- Future-proof your network with 10G bandwidth

### Act as Aggregation Switch for Medium Sized Networks

- 10-Gigabit switches help to resolve the congestion issue between the network edge and the core, caused by the adoption of Gigabit-to-the-desktop

- 10-Gigabit Ethernet provides greater scalability than multiple Gigabit Ethernet links, resulting in a simplified and highly efficient network infrastructure
- Up to four (XS708Ev2) or eight (XS716E) 10-Gigabit Ethernet links can be aggregated into two 40-Gbps (XS708Ev2) or 80-Gbps (XS716E) uplink/downlink connections using static manual LAGs

### Smart IT, not Big IT

- Easy-to-use web browser-based management GUI makes setup and management simple
- Standards-based technology ensures interoperability with any standards-based devices in the existing network
- Worry-free with NETGEAR ProSAFE LIFETIME Hardware Warranty\* and Next-Business-Day (NBD) Replacement
- Get deployment assistance with 90-days Free 24x7 Advanced Technical Phone Support\*\*
- LIFETIME Online Chat Technical Support

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### Hardware at a Glance

		FRONT				REAR		SIDE
Model Name	Form-Factor	100M/1G/10G Copper Ports	1G/10G SFP+ Ports	LED's	Reset Button	Power Supply	Kensington Lock	Fans
XS708Ev2	Rackmount/Desktop	8	1 shared (combo)	Power, Fan, Port Link/Speed/Activity	Yes	1 internal PSU, fixed	Yes	2 internal, fixed fans
XS716E	Rackmount/Desktop	16	1 shared (combo)	Power, Fan, Port Link/Speed/Activity	Yes	1 internal PSU, fixed	Yes	2 internal, fixed fans



- 8 x 10GBASE-T copper ports supporting 10G/1G/100M speeds
- 1 x Shared (combo) 10GBASE-T copper/10GBASE-X SFP+ port supporting 10G/1G speeds



- 16 x 10GBASE-T copper ports supporting 10G/1G/100M speeds
- 1 x Shared (combo) 10GBASE-T copper/10GBASE-X SFP+ port supporting 10G/1G speeds

### Software at a Glance

LAYER 2 FEATURES							
Management	VLANs	QoS	Port Trunking (Manual LAG)	IP Multicast Filtering	Rate Limiting & Priority Queueing	Jumbo Frame Support	IEEE (802.3az) Energy Efficient Ethernet
Web browser-based GUI (HTTP), ProSAFE Plus Utility (PSU)	Port-based, IEEE 802.1Q-based	Port-based, IEEE 802.1p DSCP-based	Up to 8 LAGs with max 8 members <sup>1</sup>	IGMP Snooping	Yes	Yes	Yes

### Performance at a Glance

Model Name	Fabric	Packet buffer	Latency (Max Connection Speed)	VLANs	MAC Address Table	Priority Queues	Multicast IGMP Group	Packet Forwarding Rate (64 byte)	Jumbo Frames (bytes)
XS708Ev2	160Gbps line-rate	2 MB	10GBASE-T: <3.70 μs 10GBASE-X SFP+: <3.67 μs	128	16K Entries (dynamic)	8 (WRR)	128	119 Mfps	up to 9K
XS716E	320Gbps line-rate	2 MB	10GBASE-T: <3.43 μs 10GBASE-X SFP+: <2.41 μs	128	16K Entries (dynamic)	8 (WRR)	128	238 Mfps	up to 9K

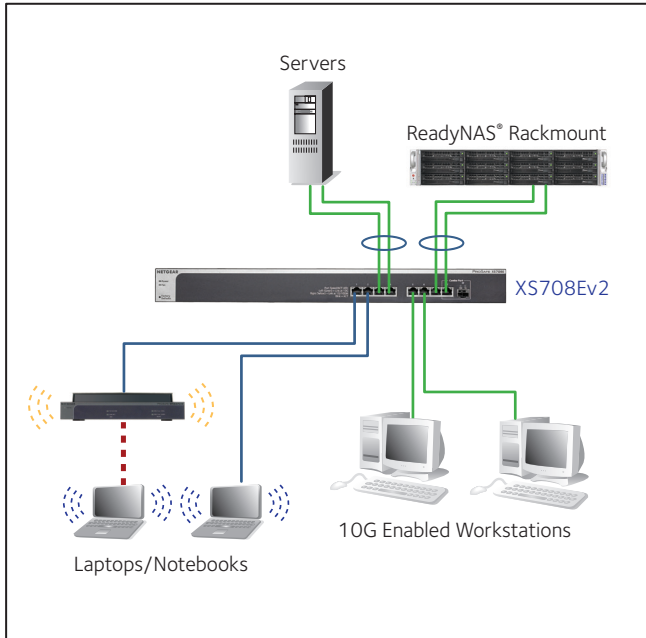
<sup>1</sup> Varies based on model. XS708Ev2 has up to 4 LAGs, XS716E has up to 8 LAGs, both with up to 8 members each.

### Features and Benefits

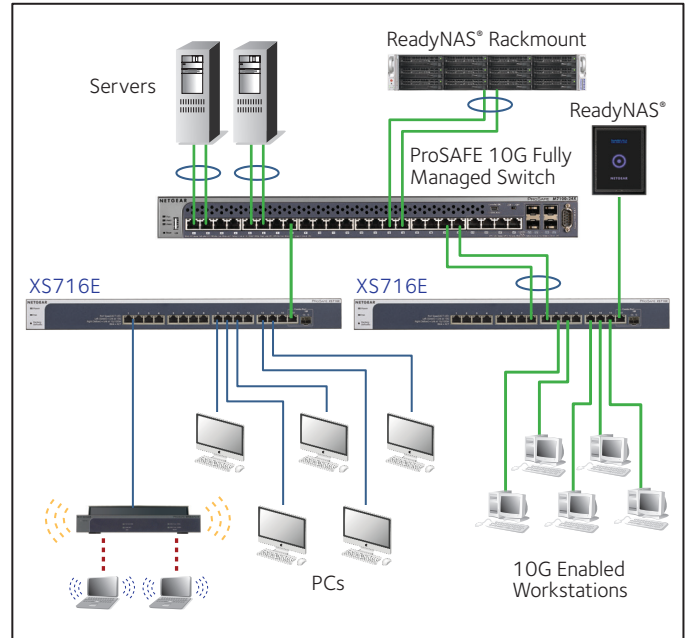
HARDWARE FEATURES	BENEFITS
10GBASE-T Copper Ethernet connections	Support low-latency, line-rate 10G Copper "BASE-T" technology with backward compatibility to Fast Ethernet and Gigabit Ethernet. Cost-effectively migrate current network to 10G capacity by utilizing the existing Cat 6 RJ45 short connections (up to 45m) and Cat 6a/Cat 7 connections up to 100m.
10GBASE-X SFP+ ports	Providing flexibility to uplink to 10G-capable core or aggregation switches that support fiber links. Backward compatible to Gigabit fiber. Support copper or fiber modules.
Rackmount or desktop	Flexible deployment for either rackmount or desktop placement.
Kensington lock slot	Prevent theft, removal, or tampering when used for desktop deployment.
SOFTWARE FEATURES	BENEFITS
Port-based and 802.1Q-based VLANs	Segment network into smaller groups for more secure and efficient use of network resources.
Comprehensive QoS features: <ul style="list-style-type: none"> <li>• Port-based or 802.1p-based prioritization</li> <li>• Layer 3-based (DSCP) prioritization</li> <li>• Port-based ingress and egress rate limiting</li> </ul>	Advanced controls for optimized network performance and better delivery of mission-critical traffic such as voice and video. Ingress and egress rate limiting allows for bandwidth shaping for mitigating network resources constraints or for optimizing guest access bandwidth on the network.
IGMP Snooping	For improved network efficiency on delivering multicast traffic. Save cost and improve network efficiency by ensuring multicast traffic only reaches designated receivers without the need of an extra multicast router.
Port trunking / Link Aggregation (Static Manual LAGs)	Build up bigger bandwidth to support aggregated uplink/downlink traffic or to provide redundant link(s) using Static Manual LAGs.
Loop detection and auto DoS prevention	Detect accidental network loops and protect against DoS attacks.
Port Mirroring	For better and quicker network diagnostics and troubleshooting.
Energy Efficient Ethernet (IEEE 802.3az)	For maximum power savings and reduced energy costs.
Cable Test	Easily identify bad Ethernet cables.

### Target Application

XS708Ev2 in SMB Network



XS716E as Workgroup Aggregation



— 10GE link    — GE link    - - - Wireless link

### Why 10-Gigabit Switches and Why from NETGEAR?

NETGEAR introduced the industry's first cost-effective 10-Gigabit Switches for SMBs in 2013 and is the leading provider for 10G solutions at affordable price points:

- Ideal for SMBs to use as the core switch, connecting to 10G-capable Servers and network storage.
- Expand network capacity, remove performance bottlenecks and/or support premise expansion needs.
- Cost-effectively expand 10G bandwidth from core switch in medium-sized networks to access switches which are equipped with 10G uplinks.
- Improved usability for easier and smoother deployment of voice, video, and WLAN on the same converged platform.
- LIFETIME warranty\* on hardware, LIFETIME Next-Business-Day (NBD) replacement, LIFETIME tech support online chat, and 90-days Free Advanced Tech Phone Support\*\* for peace-of-mind.

### Technical Specifications

PRODUCT	XS708Ev2	XS716E
		
100M/1G/10G RJ-45 copper ports	8	16
1G/10G SFP+ (fiber) ports	1 shared (combo)	
PERFORMANCE SPECIFICATION		
Packet buffer memory (Dynamically shared across only used ports)	2MB	
Forwarding modes	Store-and-forward	
Bandwidth	160Gbps	320 Gbps
Priority queues	8	
Priority queuing	Weighted Round Robin (WRR)	
MAC Address database size (48-bit MAC addresses)	16K	
Multicast groups	128	
Number of VLANs	128	
Packet forwarding rate (64 byte packet size) (Mfps or Mpps)	119.0 Mfps	238.1 Mfps
Speed / Latency (copper ports)	100Mbps: <7.38 μs 1Gbps: <3.04 μs 10Gbps: <3.70 μs	100Mbps: <7.14 μs 1Gbps: <2.68 μs 10Gbps: <3.43 μs
Speed / Latency (SFP+ fiber port)	10Gbps: <3.67 μs	10Gbps: <2.41 μs
Jumbo frame support	Up to 9K packet size	
Acoustic noise level @ 25°C (dBA) (ANSI-S10.12)	36.7 dBA	33.9 dBA
Mean Time Between Failures (MTBF) @ 25°C	397,731 hours	348,257 hours
L2 SERVICES - VLANS		
IEEE 802.1Q VLAN tagging	Yes	
Port-based VLANs (physical)	Yes	
L2 SERVICES - AVAILABILITY		
Broadcast, multicast, unknown unicast storm control	Yes	
Static Manual LAGs (Port Trunking)	Yes	
IEEE 802.3x (full duplex and flow control)	Yes	
L2 SERVICES - MULTICAST FILTERING		
IGMP snooping (v1, v2, and v3)	Yes (IGMP v3 source filtering not supported)	
IGMP snooping querier	No	
Block unknown multicast	Yes	
Static multicast router port	No	
L3 SERVICES - DHCP		
DHCP client	Yes	

PRODUCT	XS708Ev2	XS716E
<b>LINK AGGREGATION</b>		
Static Manual LAGs (Port Trunking)	Yes	
# of Static LAGs / # of members in each LAG	4 LAGs with max 8 members in each LAG	8 LAGs with max 8 members in each LAG
<b>NETWORK SECURITY</b>		
Broadcast, multicast, unknown unicast storm control	Yes	
DoS attacks prevention	Yes	
<b>QUALITY OF SERVICE (QOS)</b>		
Port-based rate limiting	Ingress and egress	
Port-based QoS	Yes	
IEEE 802.1p COS	Yes	
IPv4 DSCP	Yes	
IPv4 ToS	Yes	
TCP/UDP-based	No	
Weighted Round Robin (WRR)	Yes	
Strict priority queue technology	No	
<b>IEEE NETWORK PROTOCOLS</b>		
<ul style="list-style-type: none"> <li>• IEEE 802.3 Ethernet</li> <li>• IEEE 802.3u 100BASE-TX</li> <li>• IEEE 802.3ab 1000BASE-T</li> <li>• IEEE 802.3an 10GBASE-T 10Gbps Ethernet Over Copper Twisted Pair Cable</li> <li>• IEEE 802.3ae 10-Gigabit Ethernet Over Fiber (10GBASE-SR, 10GBASE-LR, 10GBASE-LRM, 10GBASE-ER, 10GBASE-LX4)</li> </ul>	<ul style="list-style-type: none"> <li>• IEEE 802.3aq 10-Gigabit over Fiber (10GBASE-LRM)</li> <li>• IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX</li> <li>• IEEE 802.1Q VLAN Tagging</li> <li>• IEEE 802.3x Full-Duplex Flow Control</li> <li>• IEEE 802.1p Class of Service</li> <li>• IEEE 802.3az Energy Efficient Ethernet (EEE)</li> </ul>	
<b>MANAGEMENT</b>		
Password management	Yes	
Web browser-based graphical user interface (GUI)	Yes	
ProSAFE Plus Configuration Utility (PCU) for multi-switch management	Yes	
Firmware upgrade	TFTP (Plus Utility) / HTTP (Web GUI)	
Config file transfers (backup, restore)	Plus Utility or Web GUI	
Cable test utility	Yes	
Port mirroring	Yes	
Max number of source ports allowed (many-to-one port mirroring)	7	15
Mirroring port can still work normally?	Yes	
<b>LEDS</b>		
Per port	Speed, Link, Activity	
Per device	Power and Fan	

PRODUCT	XS708Ev2	XS716E
<b>PHYSICAL SPECIFICATIONS</b>		
Dimensions (W x D x H)	440 x 204 x 43 mm (17.3 x 8.0 x 1.7 in)	440 x 204 x 43 mm (17.3 x 8.0 x 1.7 in)
Weight	2.80 kg (6.17 lb)	3.20 kg (7.07 lb)
<b>POWER CONSUMPTION</b>		
Power Supply	Fixed internal PSU, 100–240VAC, 50–60Hz, 2A max Power cord localized to country of sale	Fixed internal PSU, 100–240VAC, 50–60Hz, 2.5A max Power cord localized to country of sale
Max power (worst case, all ports used, line-rate traffic) (Watts)	43.4 W	62.7 W
Min power (link-down standby) (Watts)	13.7 W	20.9 W
Heat Dissipation (max and min) (BTU/hr)	Max: 148.39 BTU Min: 46.85 BTU	Max: 214.40 BTU Min: 71.38 BTU
Energy Efficient Ethernet (EEE) IEEE 802.3az	Yes (deactivated by default)	
Short cable power reduction	Yes	
Auto power-down	Yes	
Fan(s)	2	
<b>ENVIRONMENTAL SPECIFICATIONS</b>		
<b>Operating</b>		
Operating temperature	0° to 50°C (32° to 122°F)	
Humidity (relative)	90% maximum relative humidity (RH), non-condensing	
Altitude	10,000 ft (3,000 m) maximum	
<b>Storage</b>		
Storage temperature	–20° to 70°C (– 4° to 158°F)	
Humidity (relative)	95% maximum relative humidity, non-condensing	
Altitude	10,000 ft (3,000 m) maximum	
<b>ELECTROMAGNETIC EMISSIONS AND IMMUNITY</b>		
Certifications	CE mark, commercial	
	47 CFR FCC Part 15, SubpartB, Class A; ANSI C63.4: 2014	
	EN 55022:2010 + AC:2011, Class A	
	EN 55024:2010	
	AS/NZS CISPR 22:2009 + A1:2010, Class A	
	V-3/2015.04, Class A	
	V-4/2012.04	
	ICES-003:2012 Issue 5, Class A	
	Russia EAC mark	
	Korea KC mark	
	CCC (China Compulsory Certificate)	
	CNS 13438	
	CNS 13438	
Electromagnetic Compliance (Class A or B)	Class A	

PRODUCT	XS708Ev2	XS716E
SAFETY CERTIFICATIONS		
Certifications	CB mark, commercial	
	UL/cUL Listed (UL 60950-1)/CAN/CSA C22.2 No. 60960-1-07	
	EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013	
	IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013	
	AN/NZS 60950.1:2011/Amdt 1: 2012	
	Russia EAC mark	
	CCC (China Compulsory Certificate)	
WARRANTY AND SUPPORT		
ProSAFE Lifetime Warranty	Included, Lifetime*	
Lifetime Online Technical Support*	Included, Lifetime*	
Lifetime Next-Business-Day (NBD) Replacement	Included, Lifetime*	
ProSUPPORT OnCall 24x7 Service Packs**	Category 1: PMB0311 (1 yr.) PMB0331 (3 yrs.) PMB0351 (5 yrs.)	Category 2: PMB0312 (1 yr.) PMB0332 (3 yrs.) PMB0352 (5 yrs.)



### Ordering Information

PACKAGE CONTENT	
All Models	ProSAFE® 10-Gigabit Ethernet Web Managed (Plus) Switch
	Power cord (localized to country of sale)
	Rack-mounting kit
	Rubber footpads for tabletop installation
	Quick install guide
	Resource CD with installation guide, ProSAFE Plus utility software and links to additional online documentation including the Web browser-based management GUI User Manual and datasheet.
ORDERING INFORMATION	
XS708E-200NES	North America, Latin America and Europe
XS708E-200AJS	Asia Pacific and Australia
XS708E-200PRS	China
XS708E-200INS	India
XS716E-100NES	North America, Latin America and Europe
XS716E-100AJS	Asia Pacific and Australia
XS716E-100PRS	China
XS716E-100INS	India
OPTIONAL MODULES AND ACCESSORIES	
AXM761-10000S	SFP+ Transceiver 10GBASE-SR (Short range, multimode)
AXM762-10000S	SFP+ Transceiver 10GBASE-LR (Long range, single mode)
AXM763-10000S	SFP+ Transceiver 10GBASE-LRM (Long range, multimode) (XS708T/XS716T only)
AXM764-10000S	SFP+ Transceiver 10GBASE-LR Lite (Long range lite, single mode)
AGM731F-10000S	SFP Transceiver 1000BASE-SX (Short range, multimode)
AGM732F-10000S	SFP Transceiver 1000BASE-LX (Long range, single mode)
AGM734-10000S	SFP Transceiver 1000BASE-T Copper RJ45 GBIC
AXC753-10000S	SFP+ to XFP DAC CABLE (3m)
AXC761-10000S	SFP+ DAC CABLE (1m)
AXC763-10000S	SFP+ DAC CABLE (3m)

\* This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and modifications to product may void the warranty; covers hardware, fans, and internal power supplies - not software or external power supplies; see <http://www.netgear.com/about/warranty/> for details. Lifetime technical support includes basic phone support for 90 days from purchase date and lifetime online chat support when purchased from a NETGEAR authorized reseller.

\*\* The NETGEAR OnCall 24x7 contract provides unlimited phone and email technical support for your networking product. For ProSAFE products purchased prior to 06/2014, also includes Next-Business-Day (NBD) hardware replacement.

† NETGEAR #1 in Fixed Web(Smart)-Managed Worldwide Market Share according to IHS Infonetics Ethernet Switches Market Share and Forecast, 1Q16 Edition, June 2016. NETGEAR #1 in US Market Share according to NPD data for Unmanaged and Web/Smart Switches, June 2016.

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