



EdgeSwitch[®]16 KG

10G 16-Port Managed Aggregation Switch

Model: ES-16-XG

Non-Blocking Throughput Switching

Maximum Performance and Low Latency

10G Ethernet SFP+ and RJ45 Ports





Advanced Switching Technology for the Masses

Build and expand your network with Ubiquiti Networks[®] EdgeSwitch[™] XG, part of the EdgeMAX[®] line of products. The EdgeSwitch XG is a fully managed, 10G fiber switch that enhances network capacity and provides high-bandwidth services to growing networks.

The EdgeSwitch XG offers an extensive suite of advanced Layer-2 switching features and protocols, and also provides Layer-3 routing capability.

Switching Performance

The EdgeSwitch XG offers the forwarding capacity to simultaneously process traffic on all ports at line rate without any packet loss.

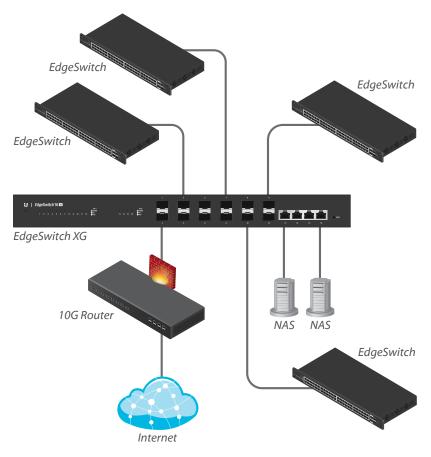
For its total, non-blocking throughput, the EdgeSwitch XG supports up to 160 Gbps.

10G High-Capacity Links

The EdgeSwitch XG offers maximum performance and low latency as an aggregation switch.

For fiber connectivity, it features 12 SFP+ ports. For copper connectivity, the EdgeSwitch XG offers four RJ45 ports that support 10GBASE-T, the standard for 10 Gbps connections using Cat6 (or higher) cabling and RJ45 connectors.

Deployment Example



The EdgeSwitch XG connects to the following:

- Multiple EdgeSwitches and a 10G router via SFP+ ports
- NAS (Network-Attached Storage) devices via 10G RJ45 ports



Comprehensive User Interface

Designed for convenient management, the EdgeSwitch Configuration Interface allows administrators to configure and monitor switch features in a graphical user interface.

For advanced users, an industry-standard command-line

interface (CLI) is available through the serial console port, telnet, and SSH.



Powerful Functionality

The EdgeSwitch XG uses a sophisticated operating system that provides basic switching features and a variety of advanced features including:

- MSTP/RSTP/STP
- VLAN, Private VLAN, Voice VLAN
- Link Aggregation
- DHCP Snooping, IGMP Snooping
- TACACS+, RADIUS, 802.1X, MAC Filtering, ACL
- DiffServ, CoS
- Static Routing
- DHCP Server Functionality

EdgeMAX" EdgeSwitch 16-Port						B Save Configuration	Log Out
Basic > Dashboard				Basic - System -	· Switching •	Routing - Security -	QoS ₹
Dashboard Port Summary	VLAN Port Channel (LAG)) Port Mirroring Fi	rmware Upgrade Restart Switch				
EdgeSwitch						GENTINE PROFIL	2
System Information							
System Description		EdgeSwitch 16	-Port 10G, 1.4.01.4836834, Linux 3.6.5				
System Name		UBNT EdgeSwi	tch				
System Location							
System Contact							
IP Address		10.17.111.112					
Burned In MAC Address		F0:9F:C2:F7:F7	:88				
System Up Time		30 days, 0 hou	irs, 43 mins, 8 secs				_
Device Information		_		_			
Machine Type		EdgeSwitch 16	-Port 10G				
Machine Model		ES-16-XG					
Serial Number F09FC2F7F78			i				
Software Version 1.4.01.483683			4				
System Resource Usage							
CPU Utilization (60 Second Average)			13 %				
Memory Usage			32 %				
Temperature Status Normal							
Logged In Users					_		
User Nam	De		Connection From			Idle Time	
ubnt		10.242.1.16			00:00:00		- 1
Recent Log Entries							
Log Time	Severity			Description			
Jan 29 00:09:00	Info	HTTP Session 19 started fo	or user ubnt connected from 10.242.1.16				
Jan 28 22:44:42	Notice	Spanning Tree Topology C	hange Received: MSTID: 0 0/16				
Jan 28 22:44:40	Notice	Spanning Tree Topology C	hange Received: MSTID: 0 0/16				
Jan 28 22:44:38	Notice		hange Received: MSTID: 0 0/16				
Jan 28 22:44:36	Notice	Spanning Tree Topology C	hange Received: MSTID: 0 0/16				_
			Refresh			© Copyright 2013-2015 Ublquiti M	ietworks, Inc.

usic > I	Port Summary									Basic +	System -	Swit	ching +	Rout	ng T	Security	- Qo	ş .
Dashi	board Port Su	mmary VLAN	Port Channel (LAG) Port M	irroring	Firmv	vare Upgrade		Restart Switch										
Port S	Summary																1	?
lisplay	10 0 rows					Showing 1 t	to 10 of	22 entries							Filter:			
	Interface \$	Port Description	٥	Туре	٥	Admin Mode	¢	Physical Mode	о и	hysical Status		¢	STP Mode	٥	LACP Mode	¢ L	Jnk Status	0
	0/1			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	Jnk Down	
	0/2			Normal		Enabled		10 Gbps Full					Enabled		Enabled	Ĺ	ink Down	
	0/3			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	ink Down	
	0/4			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	ink Down	
	0/5			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	ink Down	
	0/6			Normal		Enabled		10 Gbps Full					Enabled		Enabled	Ĺ	Ink Down	
	0/7			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	Jnk Down	
	0/8			Normal		Enabled		10 Gbps Full					Enabled		Enabled	Ĺ	Jnk Down	
	0/9			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	ink Down	
	0/10			Normal		Enabled		10 Gbps Full					Enabled		Enabled	L	ink Down	
					First	Previous	1 2	3 Next	Last									
						Refre	sh	Edit										

IGENAX EdgeSwitch 16-Port 10G 1.4.0alpha1		Save Configuration Log Out
Basic > VLAN		Basic * System * Switching * Routing * Security * QoS *
Dashboard Port Summary VLAN Port Channel (LA	G) Port Mirroring Firmware Upgrade Restart Switch	
VLAN Wizard		2
Trunk Port	1 13 Pert Charmels	
Display All a rows	Showing 1 to 1 of 1 entries	Filter:
ULAN C Name ID	C Port Participation: T Tagged U Untagged E Exclude O Other	Apply to All Ports
I default	1 U U U U U U U U U U U U U U U U U U U	TUE
	First Previous 1 Next Last	
2 Add		
Enter VLAN ID in the range 2 to 4093. Use '-' to specify a range and ',' to separate VLAN IDs or VLAN ranges in	the list	
use - to specify a range and , to separate vibin ios of vibin ranges in	Refresh Submit Remove	
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Models

EdgeSwitch 16 XG

Model: ES-16-XG

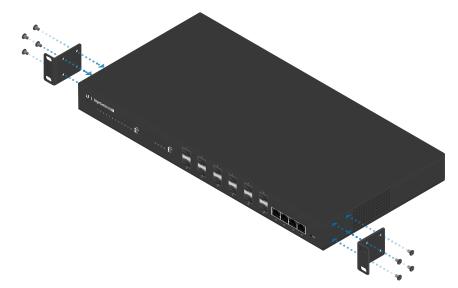
- (12) SFP+ Ports
- (4) 10G RJ45 Ports
- (1) RJ45 Serial Console Port
- Non-Blocking Throughput: 160 Gbps
- Switching Capacity: 320 Gbps
- Forwarding Rate: 238.10 Mpps
- Rack Mountable with Rack-Mount Brackets (Included)
- DC Input Option (Redundant or Stand-Alone)



Front Panel



Back Panel



Attaching Rack-Mount Brackets to the EdgeSwitch XG

*Edge*Switch[®]16 **E** Hardware Specifications

	ES-16-XG					
Dimensions		443 x 221 x 43 mm (17.44 x 8.70 x 1.69")				
Weight	Rack-Mount Brackets Included	Rack-Mount Brackets Excluded				
	2.71 kg (5.97 lb)	2.62 kg (5.78 lb)				
Enclosure Characteristics	SGCC St					
Total Non-Blocking Throughput	160 G					
Switching Capacity		320 Gbps				
Forwarding Rate		238.10 Mpps				
Max. DC Power Consumption		36W (Excludes SFP/SFP+ Modules)				
Power Method	AC	DC				
	100-240VAC/50-60 Hz, Universal Input	DC 56W, 25 to 16V, with 2.5 mm DC Power Inline Connector				
Supported Voltage Range	100 to 240VAC	25 to 16VDC				
Power Supply	AC/DC, Internal, 56W DC					
LEDs Per Data Port		Speed/Link/Activity				
Networking Interfaces	(12) 1/10 Gbps SFP+ Ethernet Ports(4) 1/10 Gbps RJ45 Ethernet Ports					
Management Interface	(1) RJ45 Serial Port, Ethernet In/Out Band					
Certifications	CE, FCC, IC					
Rack Mount	Yes, 1U High					
ESD/EMP Protection	Air: ± 24 kV, Contact: ± 24 kV					
Operating Temperature	-5 to 40° C (23 to 104° F)					
Operating Humidity	5 to 95% Noncondensing					
Shock and Vibration	ETSI300-019-1.4 Standard					



Software Specifications

Software	Information

Core Switching Features	 ANSI/TIA-1057: LLDP-Media Endpoint Discovery (MED) IEEE 802.1AB: Link Layer Discovery Protocol (LLDP) IEEE 802.1D: Spanning Tree Compatibility IEEE 802.1S: Multiple Spanning Tree Compatibility IEEE 802.1Q: Virtual LANs with Port-Based VLANs IEEE 802.1p: Ethernet Priority with User Provisioning and Mapping IEEE 802.1X: Port-Based Authentication with Guest VLAN Support IEEE 802.3ab: 1000BASE-T IEEE 802.3ac: VLAN Tagging IEEE 802.3ac: VLAN Tagging IEEE 802.3ac: VLAN Tagging IEEE 802.3a: Flow Control IEEE 802.3a: Flow Control IEEE 802.1D-2004: Generic Attribute Registration Protocol: Clause 12 (GARP) IEEE 802.1Q-2003: Dynamic VLAN registration: Clause 10 (GMRP) IEEE 802.1Q-2003: Dynamic VLAN registration: Clause 11.2 (GVRP) RFC 4541: Considerations for Internet Group Management Protocol (IGMP) Snooping Switches RFC 5171: Unidirectional Link Detection (UDLD) Protocol
Advanced Layer 2 Features	 Broadcast Storm Recovery Broadcast/Multicast/Unknown Unicast Storm Recovery DHCP Snooping IGMP Snooping Querier Independent VLAN Learning (IVL) Support Jumbo Ethernet Frame Support Port MAC Locking Port Mirroring Port de Ports Static MAC Filtering TACACS+ Voice VLANs Unauthenticated VLAN Internal 802.1X Authentication Server

	Soltware information
Platform Specifications	 DHCP Server Maximum Number of Pools: 128 Maximum Number of Leases (Total): 2048 Routing Number of Routes: 16 Number of Routing Interfaces: 15 VLANs: 255 MAC Addresses: 8k MSTP Instances: 4 LAGs: 6 ACLs: 100 with 10 Rules per Port Traffic Classes (Queues): 8
System Facilities	 Event and Error Logging Facility Run-Time and Configuration Download Capability PING Utility FTP/TFTP Transfers via IPv4/IPv6 Malicious Code Detection BootP and DHCP RFC 2021: Remote Network Monitoring Management Information Base Version 2 RFC 2030: Simple Network Time Protocol (SNTP) RFC 2819: Remote Network Monitoring Management Information Base RFC 2865: RADIUS Client RFC 2866: RADIUS Accounting RFC 2868: RADIUS Accounting RFC 2869: RADIUS Activibutes for Tunnel Protocol Support RFC 2869: RADIUS Extensions RFC 3579: RADIUS Support for EAP RFC 3580: IEEE 802.1X RADIUS Usage Guidelines RFC 3164: BSD Syslog Protocol
Management	 Web UI Industry-Standard CLI IPv6 Management Password Management Autoinstall Support for Firmware Images and Configuration Files SNMP v1, v2, and v3 SSH 1.5 and 2.0

Layer 3 Routing

• SSL 3.0 and TLS 1.0 • Secure Copy (SCP)

Static Routing

• Telnet (Multi-Session Support)

	Software Information
QoS	 Access Control Lists (ACLs), Permit/Deny Actions for Inbound IP and Layer 2 Traffic Classification Based on: Time-Based ACL Source/Destination IP Address TCCP/UDP Source/Destination Port IP Protocol Type Type of Service (ToS) or Differentiated Services (DSCP) Field Source/Destination MAC Address EtherType IEEE 802.1p User Priority VLAN ID RFC 1858: Security Considerations for IP Fragment Filtering Optional ACL Rule Attributes Assign Flow to a Specific Class of Service (CoS) Queue Redirect Matching Traffic Flows Differentiated Services (Diffserv) Classify Traffic Based on Same Criteria as ACLS Mark the IP DSCP or Precedence Header Fields, Optional Police the Flow to a Specific Rate with Two-Color Aware Support RFC 2474: Definition of the Differentiated Services RFC 2475: An Architecture for Differentiated Services RFC 3260: New Terminology and Clarifications for DiffServ Class of Service (CoS) Queue Mapping Configuration AutoVolP: Automatic CoS Settings for VolP IP DSCP-to-Queue Mapping Configurable Interface Trust Mode (IEEE 802.1p, DSCP, or Untrusted) Interface Egress Shaping Rate
	Strict Priority versus Weighted Scheduling per Queue

