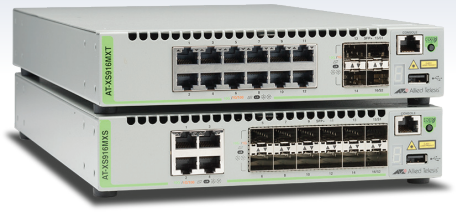
CentreCOM® XS900MX Series

Layer 3 10G Stackable Managed Switches

The AT-XS916MXT and AT-XS916MXS switches offer cost effective, high-speed 10G connectivity for servers and storage, and support 100/1000 connections for existing networks. The XS900MX Series enable a highly flexible and reliable network, which can easily scale to meet increasing traffic demands.



Overview

The XS900MX Series are the ideal 10G access switches for enterprise networks or anywhere a relay switch with 10G uplink is required. The switches also make the ideal core or aggregation switch, to connect servers and storage in a small network.

The AT-XS916MXT features 12 x 100/1000/10GBASE-T and 4 x SFP+ slots. The AT-XS916MXS features 4 x 100/1000/10GBASE-T and 12 x SFP+ slots.

Easy management

The XS900MX Series switches feature Allied Telesis Management Framework™ (AMF), a sophisticated suite of management tools that provides a simplified approach to network management.

Common tasks are automated or made so simple that the everyday running of a network can be achieved without the need for highly trained, and expensive, network engineers. Powerful features like centralized management, auto-backup, auto-upgrade, auto-provisioning and auto-recovery enable plug-and-play networking and zero-touch management.

Resiliency

Ethernet Protection Switching Ring (EPSRing™) and 10 Gigabit Ethernet allow several XS900MX Series switches to form a protected ring capable of recovery within as little as 50ms. This feature is perfect for high performance and high availability in enterprise networks.

Stackable

Create a VCStack of two XS900MX Series switches (using 10G SFP+ direct attach cables). VCStack provides a highly available system where network resources are spread out across stacked units, reducing the impact if one of the units fails. With VCStack and the XS900MX Series, up to 28 x 10G ports can be provisioned as a single virtual switch in one rack unit.

Enhanced security

A secure network environment is guaranteed, with powerful control over network traffic types, secure management options, and other multi-layered security features built right into the XS900MX Series switches:

- Tri-Authentication
- Multiple Dynamic VLAN
- Enhanced Guest VLAN
- Auth-fail VLAN
- Promiscuous/intercept web authentication
- Two-step web authentication

Advanced security features include:

- Port security
- SSH to secure remote access environment
- DHCP snooping
- RADIUS/TACACS – User authentication database
- Encryption and authentication of SNMPv3

Key Features

- Allied Telesis Management Framework™ (AMF) supports auto-recovery, zero-touch configuration, and auto-backup
- AMF edge node
- Ethernet Protection Switching Ring (EPSRing™)
- RIP and static routing (16 routes)
- Mixed hardware Virtual Chassis Stacking (VCStack™)—two units
- Compact size: units can be mounted side by side on optional rackmount bracket
- Extended operating temperature: up to 50°C
- DHCP relay
- IPv6 management and forwarding
- IEEE802.1x/MAC/web authentication support
- Loop guard prevents network loops
- Front to back cooling
- Graphical User Interface (GUI) for easy management

AlliedWare Plus™ OPERATING SYSTEM AMF™ EPSRing™ VCStack™

Specifications

Performance

- 40 Gbps of stacking bandwidth
- Supports 9216 byte jumbo frames
- Wirespeed multicasting
- Up to 16K MAC addresses
- 2M Byte Packet Buffer
- 96 MB flash memory
- 4094 configurable VLANs

Power characteristics

- 100-240 VAC, 47-63 Hz

Expandability

- VCStack two units

Flexibility and compatibility

- Port speed and duplex configuration can be set manually or by auto-negotiation

Diagnostic tools

- Find-me device locator
- Automatic link flap detection and port shutdown
- Optical Digital Diagnostic Monitoring (DDM)
- Ping polling and TraceRoute for IPv4 and IPv6
- Port mirroring
- UniDirectional Link Detection (UDLD)

IP features

- Black hole routing
- RIP and static routing for IPv4 (16 routes)
- IPv4 and IPv6 dual stack
- Device management over IPv6 networks with SNMPv6, Telnetv6 and SSHv6
- NTP client
- Log to IPv6 hosts with Syslog v6

Management

- Allied Telesis Management Framework (AMF)[1] enables powerful centralized management and zero-touch device installation and recovery
- Console management port on the front panel for ease of access
- GUI for easy management
- Eco-friendly mode allows ports and LEDs to be disabled to save power
- Industry-standard CLI with context-sensitive help
- Powerful CLI scripting engine
- Comprehensive SNMP MIB support for standards-based device management
- Built-in text editor
- Event-based triggers allow user-defined scripts to be executed upon selected system events
- USB interface allows software release files, configurations and other files to be stored for backup and distribution to other devices

Quality of Service (QoS)

- 8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling, for each switch port
- Limit bandwidth per port or per traffic class down to 64kbps
- Wirespeed traffic classification with low latency essential for VoIP and real-time streaming media applications
- Policy-based QoS on VLAN, port, MAC and general packet classifiers
- Policy-based storm protection
- Extensive remarking capabilities
- Taildrop for queue congestion control
- Strict priority, weighted round robin or mixed scheduling
- IP precedence and DiffServ marking based on layer 2, 3 and 4 headers

Resiliency features

- Control Plane Prioritization (CPP) ensures the CPU always has sufficient bandwidth to process network control traffic
- Dynamic link failover (host attach)
- EPSRing (Ethernet Protection Switched Rings) with enhanced recovery and SuperLoop Protection (SLP)
- Link aggregation (LACP) on LAN ports
- Loop protection: loop detection and thrash limiting
- PVST+ compatibility mode
- RRP snooping
- Spanning Tree (STP, RSTP, MSTP)
- STP root guard
- VCStack fast failover minimizes network disruption

Security features

- Access Control Lists (ACLs) based on layer 3 and 4 headers
- Auth-fail and guest VLANs
- Authentication, Authorisation and Accounting (AAA)
- Bootloader can be password protected for device security
- BPDU protection
- DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
- Dynamic VLAN assignment
- Network Access and Control (NAC) features manage endpoint security
- Port-based learn limits (intrusion detection)
- Private VLANs provide security and port isolation for multiple customers using the same VLAN
- Secure Copy (SCP)
- Strong password security and encryption
- Tri-authentication: MAC-based, web-based and IEEE 802.1x

Physical specifications

Dimensions (W x D x H)		32.3 cm x 21.0 cm x 4.3 cm (12.7 in x 8.3 in x 1.7 in)
Weight:	AT-XS916MXT:	2.8 kg (6.1 lb)
	AT-XS916MXS:	2.7 kg (5.9 lb)

Environmental specifications

- Operating temperature range: 0°C to 50°C (32°F to 122°F)
- Storage temperature range: -25°C to 70°C (-13°F to 158°F)
- Operating humidity range: 5% to 90% non-condensing
- Storage humidity range: 5% to 95% non-condensing
- Operating altitude: 3,000 meters maximum (9,843 ft)

Safety and electromagnetic emissions

RFI (Emissions):	FCC Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM
EMC (Immunity):	EN55024
Electrical and Laser Safety:	UL 60950-1(cULus), CSA-C22 No. 60950-1 (cULus), EN60950-1 (TUV) EN60852-1 (TUV)

Product specifications

PRODUCT	100/1000/10G BASE-T (RJ-45) COPPER PORT	SFP/SFP+ SLOT	SWITCHING FABRIC	FORWARDING RATE
AT-XS916MXT	12	4	320Gbps	238Mpps
AT-XS916MXS	4	12	320Gbps	238Mpps

Power and noise characteristics

PRODUCT	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE
AT-XS916MXT	78W	270 BTU/h	42 dBA
AT-XS916MXS	53W	180 BTU/h	42 dBA

[1] The XS900MX Series support AMF edge. AMF edge is for products used at the edge of the network, and only support a single AMF link. They cannot use cross links or virtual links.

Cryptographic Algorithms

FIPS Approved Algorithms

Encryption (Block Ciphers):

- AES (ECB, CBC, CFB and OFB Modes)
- 3DES (ECB, CBC, CFB and OFB Modes)

Block Cipher Modes:

- CCM
- CMAC
- GCM
- XTS

Digital Signatures & Asymmetric Key Generation:

- DSA
- ECDSA
- RSA

Secure Hashing:

- SHA-1
- SHA-2 (SHA-224, SHA-256, SHA-384. SHA-512)

Message Authentication:

- HMAC (SHA-1, SHA-2(224, 256, 384, 512)

Random Number Generation:

- DRBG (Hash, HMAC and Counter)

Non FIPS Approved Algorithms

RNG (AES128/192/256)
DES
MD5

Ethernet Standards

IEEE 802.2 Logical Link Control (LLC)
IEEE 802.3 Ethernet
IEEE 802.3ab 1000BASE-T
IEEE 802.3ae 10 Gigabit Ethernet
IEEE 802.3an 10GBASE-T
IEEE 802.3x Flow control - full-duplex operation
IEEE 802.3z 1000BASE-X

IPv4 standards

RFC 768 User Datagram Protocol (UDP)
RFC 791 Internet Protocol (IP)
RFC 792 Internet Control Message Protocol (ICMP)
RFC 793 Transmission Control Protocol (TCP)
RFC 826 Address Resolution Protocol (ARP)
RFC 894 Standard for the transmission of IP datagrams over Ethernet networks
RFC 919 Broadcasting Internet datagrams
RFC 922 Broadcasting Internet datagrams in the presence of subnets
RFC 932 Subnetwork addressing scheme
RFC 950 Internet standard subnetting procedure
RFC 1027 Proxy ARP
RFC 1035 DNS client
RFC 1042 Standard for the transmission of IP datagrams over IEEE 802 networks
RFC 1071 Computing the Internet checksum
RFC 1122 Internet host requirements
RFC 1191 Path MTU discovery
RFC 1256 ICMP router discovery messages
RFC 1518 An architecture for IP address allocation with CIDR
RFC 1519 Classless Inter-Domain Routing (CIDR)
RFC 1591 Domain Name System (DNS)
RFC 1812 Requirements for IPv4 routers
RFC 1918 IP addressing
RFC 2581 TCP congestion control

IPv6 standards

RFC 1981 Path MTU discovery for IPv6
RFC 2460 IPv6 specification
RFC 2464 Transmission of IPv6 packets over Ethernet networks
RFC 3484 Default address selection for IPv6
RFC 3587 IPv6 global unicast address format
RFC 3596 DNS extensions to support IPv6
RFC 4007 IPv6 scoped address architecture
RFC 4193 Unique local IPv6 unicast addresses
RFC 4213 Transition mechanisms for IPv6 hosts and routers
RFC 4291 IPv6 addressing architecture
RFC 4443 Internet Control Message Protocol (ICMPv6)
RFC 4861 Neighbor discovery for IPv6
RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC)
RFC 5014 IPv6 socket API for source address selection
RFC 5095 Deprecation of type 0 routing headers in IPv6

Management

AMF MIB and SNMP traps
AT Enterprise MIB
SNMPv1, v2c and v3
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 1155 Structure and identification of management information for TCP/IP-based Internets
RFC 1157 Simple Network Management Protocol (SNMP)
RFC 1212 Concise MIB definitions
RFC 1213 MIB for network management of TCP/IP-based Internets: MIB-II
RFC 1215 Convention for defining traps for use with the SNMP
RFC 1227 SNMP MUX protocol and MIB
RFC 1239 Standard MIB
RFC 1724 RIPv2 MIB extension
RFC 2096 IP forwarding table MIB
RFC 2578 Structure of Management Information v2 (SMIv2)
RFC 2579 Textual conventions for SMIv2
RFC 2580 Conformance statements for SMIv2
RFC 2674 Definitions of managed objects for bridges with traffic classes, multicast filtering and VLAN extensions
RFC 2741 Agent extensibility (AgentX) protocol
RFC 2819 RMON MIB (groups 1,2,3 and 9)
RFC 2863 Interfaces group MIB
RFC 3164 Syslog protocol
RFC 3411 An architecture for describing SNMP management frameworks
RFC 3412 Message processing and dispatching for the SNMP
RFC 3413 SNMP applications
RFC 3414 User-based Security Model (USM) for SNMPv3
RFC 3415 View-based Access Control Model (VACM) for SNMP
RFC 3416 Version 2 of the protocol operations for the SNMP
RFC 3417 Transport mappings for the SNMP
RFC 3418 MIB for SNMP
RFC 3635 Definitions of managed objects for the Ethernet-like interface types
RFC 4022 MIB for the Transmission Control Protocol (TCP)
RFC 4113 MIB for the User Datagram Protocol (UDP)
RFC 4293 MIB for the Internet Protocol (IP)

Multicast support

IGMP query solicitation
IGMP snooping (IGMPv1, v2 and v3)
IGMP snooping fast-leave
MLD snooping (MLDv1 and v2)
RFC 2715 Interoperability rules for multicast routing protocols
RFC 3306 Unicast-prefix-based IPv6 multicast addresses
RFC 4541 IGMP and MLD snooping switches

Quality of Service (QoS)

IEEE 802.1p Priority tagging
RFC 2211 Specification of the controlled-load network element service
RFC 2474 DiffServ precedence for eight queues/port
RFC 2475 DiffServ architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2697 A single-rate three-color marker
RFC 2698 A two-rate three-color marker
RFC 3246 DiffServ Expedited Forwarding (EF)

Resiliency

IEEE 802.1AX Link aggregation (static and LACP)
IEEE 802.1D MAC bridges
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
IEEE 802.3ad Static and dynamic link aggregation

Security

SSH remote login
SSLv2 andSSLv3
TACACS+ accounting and authentication
IEEE 802.1X authentication protocols (TLS, TTLS, PEAP and MD5)
IEEE 802.1X multi-supplicant authentication
IEEE 802.1X port-based network access control
RFC 2818 HTTP over TLS ("HTTPS")
RFC 2865 RADIUS authentication
RFC 2866 RADIUS accounting
RFC 3280 Internet X.509 PKI Certificate and Certificate Revocation List (CRL) profile
RFC 3546 Transport Layer Security (TLS) extensions
RFC 3580 IEEE 802.1x RADIUS usage guidelines
RFC 3748 PPP Extensible Authentication Protocol (EAP)
RFC 4251 Secure Shell (SSHv2) protocol architecture
RFC 4252 Secure Shell (SSHv2) authentication protocol
RFC 4253 Secure Shell (SSHv2) transport layer protocol
RFC 4254 Secure Shell (SSHv2) connection protocol
RFC 5246 TLS v1.2

Services

RFC 854 Telnet protocol specification
RFC 855 Telnet option specifications
RFC 857 Telnet echo option
RFC 858 Telnet suppress go ahead option
RFC 1091 Telnet terminal-type option
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 1985 SMTP service extension
RFC 2049 MIME
RFC 2131 DHCPv4 client
RFC 2616 Hypertext Transfer Protocol - HTTP/1.1
RFC 2821 Simple Mail Transfer Protocol (SMTP)
RFC 2822 Internet message format
RFC 4330 Simple Network Time Protocol (SNTP) version 4
RFC 5905 Network Time Protocol (NTP) version 4

VLAN support

IEEE 802.1Q Virtual LAN (VLAN) bridges
IEEE 802.1v VLAN classification by protocol and port
IEEE 802.3ac VLAN tagging

Voice over IP (VoIP)

LLDP-MED ANSI/TIA-1057
Voice VLAN

Ordering information

AT-XS916MXT-xx
12-port 100/1000/10G Base-T (RJ-45) stackable switch with 4 SFP/SFP+slot

AT-XS916MXS-xx
12 SFP/SFP+ slot stackable switch with 4-port 100/1000/10G Base-T (RJ-45)

Where xx = 10 for US power cord
20 for no power cord
30 for UK power cord
40 for Australian power cord
50 for European power cord

Small Form Pluggable (SFP) modules

1000Mbps SFP modules

AT-SPTXa
1000T 100 m copper

AT-SPSX
1000SX GbE multi-mode 850 nm fiber up to 550 m

AT-SPEX
1000X GbE multi-mode 1310 nm fiber up to 2 km

AT-SPLX10
1000LX GbE single-mode 1310 nm fiber up to 10 km

AT-SPLX40
1000LX GbE single-mode 1310 nm fiber up to 40 km

10G SFP+ modules

AT-SP10SR
10GSR 850 nm short-haul, 300 m with MMF

AT-SP10SR/I
10GSR 850 nm short-haul, 300 m with MMF industrial temperature

AT-SP10LRM
10GLRM 1310 nm short-haul, 220 m with MMF

AT-SP10LR
10GLR 1310 nm medium-haul, 10 km with SMF

AT-SP10LR/I
10GLR 1310 nm medium-haul, 10 km with SMF industrial temperature

AT-SP10ER40/I
10GER 1310nm long-haul, 40 km with SMF industrial temperature

AT-SP10TW1
1 meter SFP+ direct attach cable, can also be used as a stacking cable

Accessories

AT-RKMT-J14
Rack mount kit to install one device in a 19-inch equipment rack

AT-RKMT-J15
Rack mount kit to install two devices side by side in a 19-inch equipment rack

Feature Licenses

NAME	DESCRIPTION	INCLUDES
AT-FL-XS9X-UDLD	UniDirectional Link Detection	▶ UDLD

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