

# CentreCOM® XS900MX Series

## Layer 3 10G Stackable Managed Switches

The XS916MXT and 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 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 Autonomous Management Framework™ Plus (AMF Plus), 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

Flexi-stacking allows a user to stack two XS900MX Series switches, with the choice of using 10G SFP+ direct attach cables, or RJ45 copper connectivity. 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 Autonomous Management Framework™ Plus (AMF Plus) supports auto-recovery, zero-touch configuration, and auto-backup
- ▶ AMF Plus secure mode
- ▶ AMF Plus edge node
- ▶ Vista Manager EX compatible
- ▶ Ethernet Protection Switching Ring (EPSRing™)
- ▶ RIP, OSPF, and static routing
- ▶ Unicast and Multicast routing
- ▶ Mixed hardware Virtual Chassis Stacking (VCStack™)—two units
- ▶ Flexi-stacking
- ▶ 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
- ▶ NETCONF/RESTCONF with YANG data modelling

**AMF PLUS**

**EPSRING™**

**VCSTACK™**

**VISTA MANAGER™ EX**

## Specifications

### Performance

- ▶ 40 Gbps of stacking bandwidth
- ▶ 9KB L2 and L3 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 with SFP+ direct attach, or copper RJ45 cables

### 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)
- ▶ Extended routing with premium license - Static routing (128 routes), RIP (256 routes), OSPF (256 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
- ▶ IPv6 Ready certified

### Management

- ▶ Allied Telesis Autonomous Management Framework Plus (AMF Plus)<sup>1</sup> enables powerful centralized management and zero-touch device installation and recovery
- ▶ Manage the XS900MX Series with Vista Manager EX—our graphical single-pane-of-glass monitoring and management tool for AMF Plus networks, which also supports wireless and third party devices
- ▶ From AW+ 5.5.2-2, an AMF Plus license operating in the network provides all standard AMF network management and automation features, and also enables the AMF Plus intent-based networking features menu in Vista Manager EX (from version 3.10.1 onwards)
- ▶ Console management port on the front panel for ease of access
- ▶ GUI for easy management
- ▶ NETCONF/RESTCONF northbound interface with YANG data modelling
- ▶ 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)
- ▶ ESPR Master (with premium license)
- ▶ 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
- ▶ ACL Groups enable multiple hosts/ports to be included in a single ACL, reducing configuration
- ▶ 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
- ▶ DoS attack blocking and virus throttling
- ▶ 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)	21.0 cm x 32.3 cm x 4.3 cm (8.3 in x 12.7 in x 1.7 in)
Weight: XS916MXT:	2.8 kg (6.1 lb)
XS916MXS:	2.7 kg (5.9 lb)
Packaged:	
Dimensions (W x D x H)	40.0 cm x 33.0 cm x 15.0 cm (15.7 in x 13.0 in x 5.9 in)
Weight: XS916MXT:	4.5 kg (9.9 lb)
XS916MXS:	4.2 kg (9.3 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
XS916MXT	12	4	320Gbps	238Mpps
XS916MXS	4	12	320Gbps	238Mpps

### Power and noise characteristics

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

### Latency

PRODUCT	64byte			1518byte		
	100Mbps	1000Mbps	10Gbps	100Mbps	1000Mbps	10Gbps
XS916MXT	6.93µs	2.40µs	1.35µs	6.93µs	2.40µs	2.51µs
XS916MXS	6.88µs	2.80µs	2.35µs	6.90µs	2.82µs	3.49µs

## 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 Features

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 Features

RFC 1981 Path MTU discovery for IPv6

RFC 2460 IPv6 specification

RFC 2464 Transmission of IPv6 packets over Ethernet networks

RFC 2711 IPv6 router alert option

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 Plus edge node<sup>1</sup>

AT Enterprise MIB including AMF Plus MIB and SNMP traps  
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 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 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 4292 IP forwarding table MIB

RFC 4293 MIB for the Internet Protocol (IP)

RFC 5424 Syslog protocol

## 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

## Open Shortest Path First (OSPF)

OSPF link-local signaling

OSPF MD5 authentication

OSPF restart signaling

Out-of-band LSDB resync

RFC 1245 OSPF protocol analysis

RFC 1246 Experience with the OSPF protocol

RFC 1370 Applicability statement for OSPF

RFC 1765 OSPF database overflow

RFC 2328 OSPFv2

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

RFC 2370 OSPF opaque LSA option  
RFC 3101 OSPF Not-So-Stubby Area (NSSA) option  
RFC 3509 Alternative implementations of OSPF area border routers  
RFC 3623 Graceful OSPF restart  
RFC 3630 Traffic engineering extensions to OSPF

## 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

## Routing Information Protocol (RIP)

RFC 1058 Routing Information Protocol (RIP)  
RFC 2082 RIP-2 MD5 authentication  
RFC 2453 RIPv2

## Security

SSH remote login  
SSLv2 and SSLv3  
TACACS+ Accounting, Authentication, Authorization (AAA)  
IEEE 802.1X authentication protocols (TLS, TTLS, PEAP and MD5)  
IEEE 802.1X multi-suplicant authentication  
IEEE 802.1X port-based network access control  
RFC 2560 X.509 Online Certificate Status Protocol (OCSP)  
RFC 2818 HTTP over TLS ("HTTPS")  
RFC 2865 RADIUS authentication  
RFC 2866 RADIUS accounting  
RFC 2868 RADIUS attributes for tunnel protocol support  
RFC 2986 PKCS #10: certification request syntax specification v1.7  
RFC 3546 Transport Layer Security (TLS) extensions  
RFC 3579 RADIUS support for Extensible Authentication Protocol (EAP)  
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 5176 RADIUS CoA (Change of Authorization)  
RFC 5246 Transport Layer Security (TLS) v1.2  
RFC 5280 X.509 certificate and Certificate Revocation List (CRL) profile  
RFC 5425 Transport Layer Security (TLS) transport mapping for Syslog  
RFC 5656 Elliptic curve algorithm integration for SSH  
RFC 6125 Domain-based application service identity within PKI using X.509 certificates with TLS  
RFC 6614 Transport Layer Security (TLS) encryption for RADIUS  
RFC 6668 SHA-2 data integrity verification for SSH

## 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

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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-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-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-SP10ZR80/I

10GER 1550 nm long-haul, 80 km with SMF industrial temperature

### AT-SP10TM

1G/2.5G/5G/10G, 100m copper, TAA<sup>1</sup>

### AT-SP10BD10/I-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 10 km industrial temperature, TAA<sup>1</sup>

### AT-SP10BD10/I-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 10 km industrial temperature, TAA<sup>1</sup>

### AT-SP10BD20-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 20 km, TAA<sup>1</sup>

### AT-SP10BD20-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 20 km, TAA<sup>1</sup>

### AT-SP10BD40/I-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 40 km industrial temperature, TAA<sup>1</sup>

### AT-SP10BD40/I-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 40 km industrial temperature, TAA<sup>1</sup>

## 10GbE SFP+ Cables

### AT-SP10TW1

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

### AT-SP10TW3

3 meter SFP+ direct attach cable, can also be used as a stacking cable

## Accessories

### AT-RKMT-J15

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

### AT-STND-J03

Stand-kit for AT-XS916MXT and AT-XS916MXS

<sup>1</sup> Trade Act Agreement compliant

## Feature Licenses

NAME	DESCRIPTION	INCLUDES	STACK LICENSING
AT-FL-XS9MX-01	XS900MX premium license	<ul style="list-style-type: none"> <li>▶ IPv4 Static routing (128 routes)</li> <li>▶ RIP (256 routes)</li> <li>▶ OSPFv2 (256 routes)</li> <li>▶ PIMv4-SM, DM and SSM</li> <li>▶ EPSR master</li> </ul>	▶ One license per stack member
AT-FL-XS9X-UDLD	UniDirectional Link Detection	<ul style="list-style-type: none"> <li>▶ UDLD</li> </ul>	▶ One license per stack member