

# CentreCOM<sup>®</sup> SE250 Series

## 10 Gigabit Edge Switches

Allied Telesis CenterCOM SE250 Series 10 Gigabit Layer 2 switches provide high-speed, high-density edge connectivity. All ports support up to 10G speed for seamless communication to servers and other 10G terminals, and resilient aggregated connectivity to distribution and core switches.



### Overview

Allied Telesis CenterCOM SE250 Series switches provide high-speed network access with up to 10G connectivity for a cost-effective network solution. Easily support next generation end devices and applications with high-bandwidth demands.

The SE250 Series fiber models support 1/10G (SFP and SFP+) on all ports, making them ideal for long-distance connections, and for high-capacity devices such as servers. The copper models support Multi-Gigabit (1/2.5/5/10G) for flexible deployment options and the ability to support all end devices.

### Specifications

#### Performance

- ▶ Up to 32K MAC addresses
- ▶ 1GB DDR4 SDRAM
- ▶ 4094 configurable VLANs
- ▶ 256MB flash memory
- ▶ Packet Buffer memory: 3MB
- ▶ Supports 9KB L2 jumbo frames
- ▶ Wirespeed forwarding

#### Diagnostic tools

- ▶ Active Fiber Monitoring detects tampering on optical links
- ▶ Cable fault locator (TDR)
- ▶ Find-me device locator
- ▶ Link Monitoring
- ▶ Automatic link flap detection and port shutdown
- ▶ Optical Digital Diagnostic Monitoring (DDM)
- ▶ Ping polling for IPv4 and IPv6
- ▶ Port and VLAN mirroring (RSPAN)
- ▶ TraceRoute for IPv4 and IPv6
- ▶ Uni-Directional Link Detection (UDLD)

#### IPv4 Features

- ▶ Black hole routing
- ▶ DHCPv4 client and relay

#### IPv6 Features

- ▶ IPv4 and IPv6 dual stack

- ▶ Device management over IPv6 networks with SNMPv6, Telnetv6 and SSHv6
- ▶ Log to IPv6 hosts with Syslog v6

#### Management

- ▶ Allied Telesis Autonomous Management Framework™ Plus (AMF Plus) enables powerful centralized management, zero-touch device installation and recovery, and the intent-based management features in Vista Manager EX (from v3.10.1)
- ▶ Manage the SE250 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 device
- ▶ Console management port on the front panel for ease of access
- ▶ Eco-friendly mode allows ports and LEDs to be disabled to save power
- ▶ Industry-standard CLI with context-sensitive help
- ▶ Management stacking allows up to 32 devices to be managed from a single console
- ▶ 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
- ▶ Web-based Graphical User Interface (GUI)

#### 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 based on VLAN, port, MAC and general packet classifiers
- ▶ Policy-based storm protection
- ▶ Extensive remarking capabilities
- ▶ Taildrop for queue congestion control
- ▶ Queue scheduling options for 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)
- ▶ EPSR (Ethernet Protection Switched Rings) with SuperLoop Protection (SLP)
- ▶ Link aggregation (LACP) on LAN ports
- ▶ Loop protection: loop detection and thrash limiting
- ▶ PVST+ compatibility mode
- ▶ RRP snooping
- ▶ Spanning Tree Protocols (STP, RSTP, MSTP)
- ▶ STP root guard

### Security Features

- ▶ Access Control Lists (ACLs) based on layer 3 and 4 headers
- ▶ Configurable ACLs for management traffic
- ▶ Auth fail and guest VLANs
- ▶ Authentication, Authorisation and Accounting (AAA) for RADIUS and TACACS+
- ▶ Bootloader can be password protected for device security
- ▶ BPDU protection
- ▶ DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)

## Key Features

- ▶ AlliedWare Plus fully featured OS
- ▶ AMF Plus edge node<sup>1</sup>
- ▶ Vista Manager compatible
- ▶ 1/2.5/5/10G (Multi-Gigabit) connectivity on copper ports
- ▶ 1/10G (SFP and SFP+) connectivity on fiber ports
- ▶ EPSR high-speed resilient rings
- ▶ Active Fiber Monitoring
- ▶ Link Monitoring
- ▶ VLAN ACLs
- ▶ VLAN mirroring (RSPAN)
- ▶ Upstream Forwarding Only (UFO)

<sup>1</sup> 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.






## CentreCOM SE250 Series | 10 Gigabit Edge Switches

- ▶ Dynamic VLAN assignment
- ▶ Network Access and Control (NAC) features manage endpoint security
- ▶ Port-based learn limits (intrusion detection)
- ▶ Secure Copy (SCP)
- ▶ Secure File Transfer Protocol (SFTP) client
- ▶ Strong password security and encryption
- ▶ Tri-authentication: MAC-based, web-based and IEEE 802.1x

### VLAN Support

- ▶ Private VLANs provide security and port isolation for multiple customers using the same VLAN
- ▶ Voice VLAN

### Environmental Specifications

- ▶ Operating temperature range: 0°C to 50°C (32°F to 122°F)  
Derated by 1°C per 305 meters (1,000 ft)
- ▶ Storage temperature range: -20°C to 60°C (-4°F to 140°F)
- ▶ Operating relative humidity range: 0% to 90% non-condensing
- ▶ Storage relative humidity range: 0% to 95% non-condensing
- ▶ Operating altitude: 2,000 meters maximum (6,562 ft)

### Electrical approvals and compliances

- ▶ EMC: EN55022 class A, FCC class A, VCCI class A
- ▶ Immunity: EN55024, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only

### Safety

- ▶ Standards: UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1
- ▶ Certifications: UL, cUL, UL-EU

### Restrictions on Hazardous Substances (RoHS) Compliance

- ▶ EU RoHS compliant
- ▶ China RoHS compliant

## Product Specifications

PRODUCT	100/1000T/2.5/5/10G (RJ-45) COPPER PORTS	1/10G SFP+ PORTS	TOTAL PORTS	SWITCHING FABRIC	FORWARDING RATE
SE250-10XTm*	8	2	10	200Gbps	148.8Mpps
SE250-18XTm*	16	2	18	360Gbps	267.9Mpps
SE250-28XTm*	24	4	28	560Gbps	416.7Mpps
SE250-18XS*	-	18	18	360Gbps	267.9Mpps
SE250-28XS*	-	28	28	560Gbps	416.7Mpps

### Physical specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	PACKAGED DIMENSIONS	WEIGHT
SE250-10XTm*	210 × 346 × 42.5 mm (8.27 x 13.62 x 1.67 in)	TBD	TBD	TBD
SE250-18XTm*	210 × 346 × 42.5 mm (8.27 x 13.62 x 1.67 in)	TBD	TBD	TBD
SE250-28XTm*	440 × 290 × 44 mm (17.32 x 11.42 x 1.73 in)	TBD	TBD	TBD
SE250-18XS*	210 × 346 × 42.5 mm (8.27 x 13.62 x 1.67 in)	TBD	TBD	TBD
SE250-28XS*	440 × 290 × 44 mm (17.32 x 11.42 x 1.73 in)	TBD	TBD	TBD

### Power characteristics

PRODUCT	MAX POWER CONSUMPTION (W)	MAX HEAT DISSIPATION (BTU/H)
SE250-10XTm*	TBD	TBD
SE250-18XTm*	TBD	TBD
SE250-28XTm*	TBD	TBD
SE250-18XS*	TBD	TBD
SE250-28XS*	TBD	TBD

\* See your Allied Telesis sales representative for model availability.

### Latency (microseconds)

PRODUCT	PORT SPEED (μs)			
	1GBPS	2.5GBPS	5GBPS	10GBPS
SE250-10XTm*	TBD	TBD	TBD	TBD
SE250-18XTm*	TBD	TBD	TBD	TBD
SE250-28XTm*	4.48	8.43	5.72	2.73
SE250-18XS*	3.65	-	-	1.84
SE250-28XS*	3.59	-	-	1.60

## Standards and Protocols

### Authentication

- RFC 1321 MD5 Message-Digest algorithm
- RFC 1828 IP authentication using keyed MD5

### 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

- IEEE 802.2 Logical Link Control (LLC)
- IEEE 802.3 Ethernet
- IEEE 802.3ab1000BASE-T
- IEEE 802.3ae10 Gigabit Ethernet
- IEEE 802.3an10GBASE-T
- IEEE 802.3azEnergy Efficient Ethernet (EEE)
- IEEE 802.3bz2.5GBASE-T and 5GBASE-T ("multi-gigabit")
- 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 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 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
- RFC 3021 Using 31-Bit Prefixes on IPv4 Point-to-Point Links

### IPv6 Features

- 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
- Optical DDM MIB
- SNMP support SNMPv1, v2c and v3
- ANSI/TIA-1057 LLDP-Media Endpoint Detection
- 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 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 3636 IEEE 802.3 MAU MIB
- RFC 4022 MIB for the Transmission Control Protocol (TCP)
- RFC 4113 MIB for the User Datagram Protocol (UDP)
- RFC 4188 Definitions of managed objects for bridges
- RFC 4292 IP forwarding table MIB
- RFC 4293 MIB for the Internet Protocol (IP)
- RFC 4318 Definitions of managed objects for bridges with RSTP
- RFC 4560 Definitions of managed objects for remote ping, traceroute and lookup operations
- RFC 5424 The Syslog protocol

### Multicast support

- IGMP snooping (IGMPv1, v2 and v3)
- IGMP snooping fast-leave
- MLD snooping (MLDv1 and v2)
- 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 Features

- IEEE 802.1AXLink 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 802.3adStatic and dynamic link aggregation

### Security Features

- SSH remote login
- SSLv2 and SSLv3
- 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 Change of Authorization (CoA)
- 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
- RFC 3046 DHCP relay agent information option (DHCP option 82)
- RFC 3396 Encoding long options in DHCPv4
- RFC 3993 Subscriber-ID suboption for DHCP relay agent option
- RFC 4330 Simple Network Time Protocol (SNTP) version 4
- RFC 4954 SMTP service extension for authentication
- 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 802.3acVLAN tagging

## Ordering Information

### AT-SE250-10XTm\*

8-port 100M/1/2.5/5/10G copper switch with 2 SFP/SFP+ ports, and a single fixed PSU

### AT-SE250-18XTm\*

16-port 100M/1/2.5/5/10G copper switch with 2 x SFP/SFP+ ports, and a single fixed PSU

### AT-SE250-28XTm\*

24-port 100M/1/2.5/5/10G copper switch with 4 x SFP/SFP+ ports, and a single fixed PSU

### AT-SE250-18XS\*

18-port SFP/SFP+ fiber switch, with a single fixed PSU

### AT-SE250-28XS\*

28-port SFP/SFP+ fiber switch, with a single fixed PSU

### AT-BRKT-J24

Wall mount bracket

### AT-RKMT-J14

Rack mount kit for x250-10XTm, x250-18XTm, x250-18XS

### AT-RKMT-J15

Rack mount kit for x250-10XTm, x250-18XTm, x250-18XS

### AT-STND-J03

Rack mount kit to install two devices side by side in a 19-inch equipment rack - x250-10XTm, x250-18XTm, x250-18XS

\* See your Allied Telesis sales representative for model availability.

## 10G SFP+ Modules

Any 10G SFP+ module or cable can be used for stacking with the front panel 10G ports

### 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-SP10LR20/I

10GER 1310 nm long-haul, 20 km with SMF industrial temperature

### AT-SP10ER40/I

10GER 1310 nm 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>2</sup>

### AT-SP10BD10/I-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 10 km industrial temperature, TAA<sup>2</sup>

### AT-SP10BD10/I-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 10 km industrial temperature, TAA<sup>2</sup>

### AT-SP10BD20-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 20 km, TAA<sup>2</sup>

### AT-SP10BD20-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 20 km, TAA<sup>2</sup>

### AT-SP10BD40/I-12

10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 40 km industrial temperature, TAA<sup>2</sup>

### AT-SP10BD40/I-13

10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 40 km industrial temperature, TAA<sup>2</sup>

### AT-SP10BD80/I-14

10 GbE Bi-Di (1490 nm Tx, 1550 nm Rx) fiber up to 80 km industrial temperature, TAA<sup>2</sup>

### AT-SP10BD80/I-15

10 GbE Bi-Di (1550nm Tx, 1490 nm Rx) fiber up to 80 km industrial temperature, TAA<sup>2</sup>

### AT-SP10TW1

1 meter SFP+ direct attach cable

### AT-SP10TW3

3 meter SFP+ direct attach cable

## 1000Mbps SFP Modules

### AT-SPSX

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

### AT-SPLX10a

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

### AT-SPLX10/I

1000LX GbE single-mode 1310 nm fiber up to 10 km, industrial temperature

### AT-SPBD10-13

1000LX (LC) GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 10 km

### AT-SPBD10-14

1000LX (LC) GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 10 km

### AT-SPBD20-13/I

1000BX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 20 km

### AT-SPBD20-14/I

1000BX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 20 km

### AT-SPBD40-13/I

1000LX (LC) GbE single-mode Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 40 km, industrial temperature

### AT-SPBD40-14/I

1000LX (LC) GbE single-mode Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 40 km, industrial temperature

### AT-SPLX40

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

### AT-SPZX80

1000ZX GbE single-mode 1550 nm fiber up to 80 km

### AT-SPTXc

10/100/1000 TX (RJ45), up to 100 m

<sup>2</sup> Trade Agreement Act compliant

PRELIMINARY