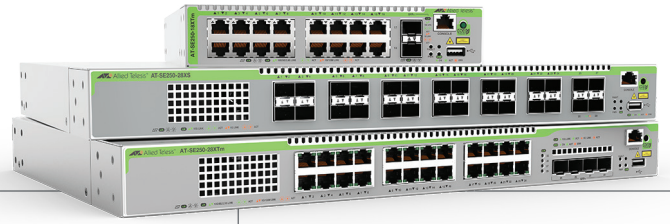


SE250 Series

10 Gigabit Edge 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 server connectivity, next generation end devices, and today's high-bandwidth applications.

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
- 2 GB DDR4 SDRAM
- 4094 configurable VLANs
- 256 MB 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

- DNS relay
- 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
- MLD v1/v2 snooping

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
- AMF Security (AMF-Sec) enables a self-defending network - managing the SE250 (or other AMF Plus switches) to automatically block the spread of malware by quarantining suspect end devices
- Console management port on the front panel for ease of access
- 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
- Management stacking allows up to 32 devices to be managed from a single console
- Powerful CLI scripting engine
- Comprehensive SNMP MIB support for standardsbased device management
- Built-in text editor
- Event-based triggers allow user-defined scripts to be executed upon selected system events
- sFlow enables traffic monitoring in switched networks
- 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

Key Features

- AlliedWare Plus fully featured OS
- AMF Plus edge node¹
- Vista Manager compatible
- AMF-Security 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
- Enhanced Transmission Selection (ETS)
- Active Fiber Monitoring
- Link Monitoring
- VLAN ACLs
- VLAN mirroring (RSPAN)
- NETCONF/RESTCONF with YANG data modelling

- IP precedence and DiffServ marking based on layer 2, 3 and 4 headers
- Enhanced Transmission Selection (ETS)

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)
- Ethernet Ring Protection Switching (ITU-T G.8032 ERPS)
- 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

¹ 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.

SPECIFICATIONS

Product Specifications

	100/1000T/2.5/5/10G (RJ-45) copper ports	1/10 Gigabit sfp+ ports	Total Ports	Switching Fabric	Forwarding Rate
SE250-18XTm²	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

	Width	Depth	Height	Weight
SE250-18XTm²	210 mm (8.27 in)	346 mm (13.62 in)	42.5 mm (1.67 in)	TBD
SE250-28XTm	440 mm (17.32 in)	290 mm (11.41 in)	44 mm (1.73 in)	4.0 kg (8.8 lb)
SE250-18XS	210 mm (8.27 in)	346 mm (13.62 in)	42.5 mm (1.67 in)	2.7 kg (5.9 lb)
SE250-28XS	440 mm (17.32 in)	290 mm (11.41 in)	44 mm (1.73 in)	3.8 kg (8.3 lb)

Power and Noise

	Max Power Consumption	Max Heat dissipation	Noise
SE250-18XTm²	TBD	TBD	TBD
SE250-28XTm	160W	540 BTU/h	46-63 db
SE250-18XS	70W	236 BTU/h	39-48 db
SE250-28XS	86W	293 BTU/h	39-52 db

Latency (microseconds)

	Port Speed			
	1Gbps	2.5Gbps	5Gbps	10Gbps
SE250-18XTm²	4.86µs	7.23µs	4.63µs	3.49µs
SE250-28XTm	4.48µs	8.43µs	5.72µs	2.73µs
SE250-18XS	3.65µs	-	-	1.84µs
SE250-28XS	3.59µs	-	-	1.60µs

Security Features

- Access Control Lists (ACLs) based on layer 3 and 4 headers
- Configurable ACLs for management traffic
- Auth fail and guest VLANs
- Authentication, Authorization and Accounting (AAA) for TACACS+ and RADIUS
- Bootloader can be password protected for device security
- BPDU protection
- DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
- DoS attack blocking and virus throttling
- 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
- Simple Certificate Enrollment Protocol (SCEP) supports secure management

- Tri-authentication: MAC-based, web-based and IEEE 802.1x

VLAN Features

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

Electrical approvals and compliances

- EMC: ETSI EN300-386, EN300-132-2, FCC class A, VCCI class A
- Immunity: EN55024, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only

Safety

- Standards: UL62368-1, 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

STANDARDS & 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

² Coming soon

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 1724	RIPv2 MIB extension
RFC 2578	Structure of Management Information v2 (SMIPv2)
RFC 2579	Textual conventions for SMIPv2
RFC 2580	Conformance statements for SMIPv2
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 3176	sFlow: a method for monitoring traffic in switched and routed networks
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
IEEE 802.1Qaz	Enhanced Transmission Selection (ETS)
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 802.1AX	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 Features

SSH remote login	
SSLv2 and SSLv3	
IEEE 802.1X	authentication protocols (TLS, TTLS, PEAP and MD5)
IEEE 802.1X	multi-suppliant 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 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
RFC 8446	Transport Layer Security (TLS) v1.3
RFC 8894	Simple Certificate Enrollment Protocol (SCEP)

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 3315	DHCPv6 client
RFC 3396	Encoding long options in DHCPv4
RFC 3646	DNS configuration options for DHCPv6
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 802.1ad	Provider bridges (VLAN stacking, Q-in-Q)
IEEE 802.1Q	Virtual LAN (VLAN) bridges
IEEE 802.1v	VLAN classification by protocol and port
IEEE 802.3ac	VLAN tagging

ORDERING INFORMATION

AT-SE250-18XTm²	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 SE250-18XTm and SE250-18XS
AT-RKMT-J15	Rack mount kit for SE250-18XTm and SE250-18XS
AT-STND-J03	Rack mount kit to install two devices side by side in a 19-inch equipment rack - SE250-18XTm and SE250-18XS

² Coming soon

Accessories

10GbE 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-SP10LRa/I	10GLR 1310 nm medium-haul, 10 km with SMF industrial temperature TAA ³
AT-SP10ER40a/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, 100 m copper, TAA ³ (note that 2.5G/5G speeds are not supported)
AT-SP10BD10/I-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 10 km industrial temperature, TAA ³
AT-SP10BD10/I-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 10 km industrial temperature, TAA ³

AT-SP10BD20-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 20 km, TAA ³
AT-SP10BD20-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 20 km, TAA ³
AT-SP10BD40/I-12	10 GbE Bi-Di (1270 nm Tx, 1330 nm Rx) fiber up to 40 km industrial temperature, TAA ³
AT-SP10BD40/I-13	10 GbE Bi-Di (1330 nm Tx, 1270 nm Rx) fiber up to 40 km industrial temperature, TAA ³
AT-SP10BD80/I-14	10 GbE Bi-Di (1490 nm Tx, 1550 nm Rx) fiber up to 80 km industrial temperature, TAA ³
AT-SP10BD80/I-15	10 GbE Bi-Di (1550nm Tx, 1490 nm Rx) fiber up to 80 km industrial temperature, TAA ³
AT-SP10TW1	1 meter SFP+ direct attach cable
AT-SP10TW3	3 meter SFP+ direct attach cable

³ Trade Act Agreement compliant

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 GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 10 km
AT-SPBD10-14	1000LX 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 industrial temperature
AT-SPBD20-14/I	1000BX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 20 km industrial temperature
AT-SPBD40-13/I	1000LX GbE single-mode Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 40 km, industrial temperature
AT-SPBD40-14/I	1000LX 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