IE300 Series

Industrial Ethernet Layer 3 Switches

Our ruggedized IE300 Industrial Ethernet switches provide enduring performance in harsh environments, such as those found in manufacturing, transportation and physical security. Offering high throughput, rich functionality and advanced security features, IE300 switches deliver the performance and reliability demanded by industrial deployments in the age of the Internet of Things (IoT).

Overview

Allied Telesis IE300 Series are a highperforming and feature-rich choice for today's networks. The IE300 are ideal for Industrial Ethernet applications, being qualified for Manufacturing, Railway Transportation (Telco & Signaling), Roadway Transportation (Traffic Control) and Smart Cities.

With a fanless design and a wide operating temperature range of -40°C to 75°C, they tolerate harsh and demanding environments, such as those found in industrial and outdoor deployment.

Device management is provided via industry standard CLI, web-based Graphical User Interface (GUI), SNMP, Telnet and SSH, as well as the Allied Telesis Autonomous Management Framework™ (AMF).

Powerful network management

The Allied Telesis Autonomous Management Framework™ (AMF) meets the increased management requirements of modern converged networks, automating many everyday tasks including configuration management. AMF has powerful centralized management features that manage a complete network as a single virtual device. The network can be expanded with plug-and-play simplicity, and network node recovery is fully zero-touch.

AMF secure mode increases network security with management traffic encryption, authorization, and monitoring. AMF Guestnode allows third party devices, such as security cameras, to be part of an AMF network.

Securing the network edge

Ensuring data protection means controlling network access. Protocols such as IEEE 802.1X port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be segregated into a pre-determined part of the network. This offers network guests Internet access, while ensuring the integrity of private network data.

Gigabit and fast Ethernet support

The IE300 Series SFP ports support both gigabit and Fast Ethernet Small Form-Factor Pluggables (SFPs). This makes the IE300 Series ideal for environments where gigabit fiber switches will be phased in over time. This allows for connectivity to the legacy 100FX hardware until it is upgraded to gigabit Ethernet.

Support for both speeds of SFPs allows organizations to stay within budget as they migrate to faster technologies.

High network resiliency

The IE300 Series supports highly stable and reliable network switching with a recovery time of less than 50ms. You can customize the IE300 with the most appropriate mechanism and protocol to prevent network connection failure. Choices include Allied Telesis Ethernet Protection Switched Ring (EPSRing™), and the standard ITU-T G.8032.

Configurable power budget

On the PoE sourcing IE300 switches, you can configure both the overall power budget and the power feeding limit on a per-port basis, to establish a close relationship between the power sourcing feature and the real capabilities of the external Power Supply Unit (PSU).[1]

Key Features

- AlliedWare Plus™ functionality
- Allied Telesis Autonomous Management Framework™ (AMF) node
- OpenFlow for SDN
- Routing capability (ECMP, OSPF, RIP, Static and BGP)
- Active Fiber Monitoring™
- Ethernet Protection Switched Ring (EPSRing™)
- Ethernet Ring Protection Switching (ITU-T G.8032)
- Upstream Forwarding Only (UFO)
- Deterministic real-time Ethernet (IEEE 1588v2 PTP)
- IEEE 802.3at PoE+ sourcing (30W)
- Hi-PoE sourcing (60W)
- Continuous PoE
- Enhanced Thermal Shutdown
- Redundant power inputs
- Alarm input/output
- Fanless design

Future-proof

The IE300 Series ensures a future-proof network with a comprehensive feature set, and are Software Defined Networking (SDN) ready supporting OpenFlow v1.3.

[1] Power supply must be compliant with local/national safety and electrical code requirements. Select the supply with the most appropriated output power derating curve.

Key Details

Allied Telesis Autonomous Management Framework (AMF)

- AMF is a sophisticated suite of management tools that provide a simplified approach to network management. Common tasks are automated or made so simple that the every-day 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.
- AMF secure mode encrypts all AMF traffic, provides unit and user authorization, and monitors network access to greatly enhance network security.

Software Defined Networking (SDN)

- OpenFlow is a key technology that enables the use of SDN to build smart applications that unlock value and reduce cost.

High Availability

- EPSRing™ and ITU-T G.8032 enable a protected ring capable of recovery within as little as 50ms. These features are perfect for high performance and high availability.
- Spanning Tree Protocol compatible, RSTP; MSTP; static Link Aggregation Group (LAG), and dynamic Link Aggregation Control Protocol (LACP) support

Industry-leading Quality of Service (QoS)

- Comprehensive low-latency wire-speed QoS provides flow-based traffic management with full classification, prioritization, traffic shaping and min/max bandwidth profiles. Enjoy boosted network performance and guaranteed delivery of business-critical Ethernet services and applications. Time-critical services such as voice and video take precedence over non-essential services such as file downloads, maintaining responsiveness of your applications.

sFlow

- sFlow is an industry standard technology for monitoring high speed switched networks. It provides complete visibility into network use, enabling performance optimization, usage accounting/billing, and defense against security threats. Sampled packets sent to a collector ensure it always has a real-time view of network traffic.

Active Fiber Monitoring

- Active Fiber Monitoring prevents eavesdropping on fiber communications by monitoring received optical power. If an intrusion is detected, the link can be automatically shut down, or an operator alert can be sent.

Link Layer Discovery Protocol – Media Endpoint Discovery (LLDP – MED)

- LLDP-MED extends LLDP basic network endpoint discovery and management functions. LLDP-MED allows for media endpoint specific messages, providing detailed information on power equipments, network policy, location discovery (for Emergency Call Services) and inventory.

VLAN Translation

- VLAN Translation allows traffic arriving on a VLAN to be mapped to a different VLAN on the outgoing paired interface.
- In Metro networks, it is common for a network Service Provider (SP) to give each customer their own unique VLAN, yet at the customer location give all customers the same VLAN-ID for tagged packets to use on the wire. SPs can use VLAN Translation to change the tagged packet's VLAN-ID at the customer location to the VLAN-ID for tagged packets to use within the SP's network.
- This feature is also useful in Enterprise environments where it can be used to merge two networks together, without manually reconfiguring the VLAN numbering scheme. This situation can occur if two companies have merged and the same VLAN-ID is used for two different purposes.

VLAN Mirroring (RSPAN)

- VLAN mirroring allows traffic from a port on a remote switch to be analyzed locally. Traffic being transmitted or received on the port is duplicated and sent across the network on a special VLAN.

Security (Tri-Authentication)

- Authentication options on the IE300 Series also include alternatives to IEEE 802.1X port-based authentication, such as web authentication, to enable guest access and MAC authentication for endpoints that do not have an IEEE 802.1X supplicant. All three authentication methods—IEEE 802.1X, MAC-based and Web-based—can be enabled simultaneously on the same port for tri-authentication.

Access Control Lists (ACLs)

- AlliedWare Plus delivers industry-standard Access Control functionality through ACLs. ACLs filter network traffic to control whether routed packets are forwarded or blocked at the port interface. This provides a powerful network security mechanism to select the types of traffic to be analyzed, forwarded, or influenced in some way.

Upstream Forwarding Only (UFO)

- UFO lets you manage which ports in a VLAN can communicate with each other, and which only have upstream access to services, for secure multi-user deployment.

Dynamic Host Configuration Protocol (DHCP) Snooping

- DHCP servers allocate IP addresses to clients, and the switch keeps a record of addresses issued on each port. IP source guard checks against this DHCP snooping database to ensure only clients with specific IP and/or MAC address can access the network. DHCP snooping can be combined with other features, like dynamic ARP inspection, to increase security in layer 2 switched environments, and also provides a traceable history, which meets the growing legal requirements placed on service providers.

Deterministic Real-Time Ethernet (IEEE 1588v2 PTP)

- IEEE 1588v2 Precise Time Protocol is a fault tolerant method enabling clock synchronization in a distributed system that communicates using an Ethernet network; this deterministic communication network is designed to provide precise timing for automation applications and measurement systems.
- IE300 supports IEEE 1588v2, one-step Transparent Clock, End-to-End mode, performs an active role on Ethernet networks reducing the effects of Jitter; as transparent switch, it adjusts the timing content of PTP packets as a function of the delay caused by the switch.

PoE, PoE+ and Hi-PoE

- IE300 is a Power Sourcing Equipment (PSE), compliant with IEEE802.3af, IEEE802.3at standards. Each port supplies either 15.40W (PoE), or 30.00W (PoE+); four ports are configurable for Hi-PoE, which uses all four pairs in the cable to supply up to 60W. When supplying Hi-PoE, the IE300 supports both single signature and dual signature negotiation with power devices. Practical use is to support PTZ cameras with heater/blowers for outdoor application, enhanced infrared lighting, lighting controller and LED lighting fixtures, Remote Point of Sale (POS) kiosks, as well as other devices.
- IE300 allows the configuration of the overall power budget as well as the power feeding limit on port basis; that establishes a close relationship between power sourcing feature with the real capabilities of the external PSU.

Continuous PoE

- Enabling the unique Continuous PoE feature, the switch retains PoE sourcing during restart events, such as those due to operator command, software exception, watchdog timeout or diagnostic failures.
- The restart event is not propagated to the end devices, and camera operation is not affected.

Alarm Input/Output

- Alarm Input/Output are useful for security integration solution; they respond to events instantly and automatically by a pre-defined event scheme, and notify alert message to the monitoring control center. The 2-pin terminal blocks may be connected to sensors and actuator relays. Alarm Input receives signal from external devices like motion sensor and magnets; that will trigger subsequent actions if something changes. Alarm output controls external device upon a event (i.e. sirens, strobes, PTZ camera).

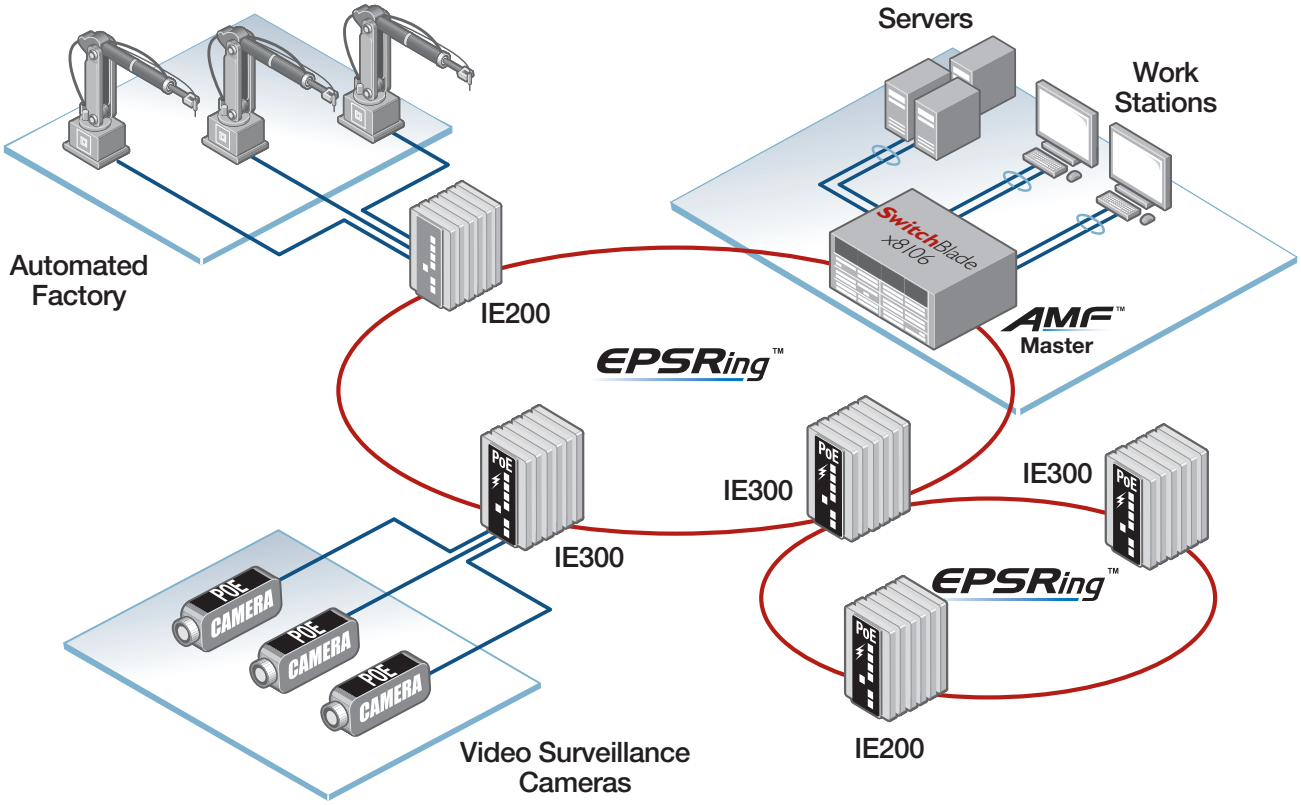
Enhanced Thermal Shutdown

- The enhanced Thermal Shutdown feature acts when the switch exceeds the safe operating temperature; different stages allow to preserve services and prevent damage. When the operating temp reaches critical levels, the system cuts the PoE sourcing to non-critical interfaces first, then to critical interfaces; if the temp still increases, then all services will be disabled and the system will enter the standby mode. The system restores operation when the temperature returns at acceptable levels.

Premium Software License

- By default, the IE300 Series offers a comprehensive Layer 2 and basic Layer 3 feature set that includes static routing and IPv6 management features. The feature set can easily be upgraded with premium software licenses.

Key Solutions



EPSRing™ and ITU-T G.8032 provide high speed resilient ring connectivity. This diagram shows the IE Series in a double ring network topology.

The IE Series operates at a large -40°C to +75°C temperature range and allows deployment in outdoor and harsh industrial environments.

PoE models feed 30 Watts per port, and support remotely controlled Pan, Tilt and Zoom (PTZ) video cameras.

The IE300 can source up to 60 Watts on four ports. The Hi-PoE utilizes all four pairs in the cable to provide power and expands the range of devices that can be added to the network, such as PTZ cameras with a heater/blower, enhanced infrared lighting, POS terminals, and thin client computer.

Management can be automated with the Allied Telesis Autonomous Management Framework™ (AMF).

Specifications

PRODUCT	10/100/1000T (RJ-45) COPPER PORTS	100/1000X SFP PORTS	TOTAL PORTS	POE+ ENABLED PORTS	SWITCHING FABRIC	FORWARDING RATE
IE300-12GP	8	4	12	8	24Gbps	17.8Mpps
IE300-12GT	8	4	12	-	24Gbps	17.8Mpps

Performance

MAC address	16K entries
Packet Buffer	1.5 MBytes (12.2 Mbits)
Priority Queues	8
Simultaneous VLANs	4K
VLANs ID range	1 – 4094
Jumbo frames	9KB jumbo packets
Multicast groups	1,023 (Layer 2), or 512 (Layer 2) and 512 (Layer 3)[2]

Other Interfaces

Type	Serial console (UART)
Port no.	1
Connector	RJ-45 female
Type	USB2.0 (Host Controller Class)
Port no.	1
Connector	Type A receptacle
Type	Alarm input (320µA @3.3Vdc)
Port no.	1
Connector	2-pin Terminal Block
Type	Alarm output (0.5A @30Vdc)
Port no.	1
Connector	2-pin Terminal Block
Type	Power Input
Port no.	2
Connector	2-pin Terminal Block

Reliability

- Modular AlliedWarePlus™ operating system
- Redundant power input
- Full environmental monitoring of temperature and internal voltages. SNMP traps alert network managers in case of any failure
- Enhanced Thermal Shutdown

Flexibility and Compatibility

- Gigabit SFP ports supports any combination of Allied Telesis 10Mbps, 100Mbps and 1Gbps SFP modules listed in this document under Ordering Information

Diagnostic Tools

- Active Fiber Monitoring detects tampering on optical links
- Automatic link flap detection and port shutdown
- Built-In Self Test (BIST)
- Connectivity Fault Management (CFM) - Continuity Check Protocol (CCP) for use with G.8032 ERPS
- Cable fault locator (TDR)
- Event logging via SYSlog over IPv4
- Find-me device locator
- Optical Digital Diagnostics Monitoring (DDM)
- Automatic link flap detection and port shutdown
- Ping polling for IPv4 and IPv6
- Port and VLAN mirroring (RSPAN)
- TraceRoute for IPv4 and IPv6

[2] When PIM is enabled; see the Command Reference guide for recommended settings

IPv4 Features

- Black hole routing
- Directed broadcast forwarding
- DHCP server and relay
- DNS relay
- Equal Cost Multi Path (ECMP) routing
- Route redistribution (OSPF, RIP, and BGP)
- Static unicast and multicast routes for IPv4
- UDP broadcast helper (IP helper)

IPv6 Features

- DHCPv6 relay, DHCPv6 client
- Device management over IPv6 networks with
- SNMPv6, Telnetv6 and SSHv6
- IPv4 and IPv6 dual stack
- IPv6 hardware ACLs
- NTPv6 client and server
- Static unicast routing for IPv6

Management

- Front panel LEDs provide at-a-glance PSU status, PoE status, and fault information
- Allied Telesis Autonomous Management Framework (AMF) node
- 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
- Powerful CLI scripting engine
- Built-in text editor
- Event-based triggers allow user-defined scripts to be executed upon selected system events
- SNMPv1/v2c/v3 support
- Comprehensive SNMP MIB support for standards based device management
- USB interface allows software release files, configurations and other files to be stored for backup and distribution to other devices
- Recessed Reset button

Quality of Service

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

Resiliency Features

- Control Plane Prioritization (CPP) ensures the CPU always has sufficient bandwidth to process network control traffic
- Dynamic link failover (host attach)
- Ethernet Protection Switching Ring (EPSR) with SuperLoop Prevention (EPSR-SLP)
- Ethernet Ring Protection Switching (G.8032 ERPS)
- Loop protection: loop detection and thrash limiting
- PVST+ compatibility mode
- Router Redundancy Protocol (RRP) snooping
- Spanning Tree Protocol (STP) root guard

Security Features

- Access Control Lists (ACLs) based on layer 3 and 4 headers
- Access Control Lists (ACLs) for management traffic
- Authentication, Authorisation and Accounting (AAA)
- Auth fail and guest VLANs
- BPDU protection
- Bootloader can be password protected for device security
- DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
- DoS attack blocking and virus throttling
- Dynamic VLAN assignment
- MAC address filtering and MAC address lock-down
- 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
- RADIUS local server (100 users) and accounting
- Secure Copy (SCP)
- Strong password security and encryption
- TACACS+ authentication and accounting
- Tri-authentication: MAC-based, Web-based and IEEE 802.1X

Software Defined Networking (SDN)

- OpenFlow v1.3 support

Environmental Specifications

- Operating temperature range: -40°C to 75°C (-40°F to 167°F)
- Storage temperature range: -40°C to 85°C (-40°F to 185°F)
- Operating humidity range: 5% to 95% non-condensing
- Storage humidity range: 5% to 95% non-condensing
- Operating altitude: 3,000 meters maximum (9,843 ft)

Mechanical

- EN 50022, EN 60715 Standardized mounting on rails

Environmental Compliance

- RoHS
- China RoHS
- WEEE

Electrical/Mechanical Approvals

Compliance Mark	CE, FCC
Safety	EN/IEC/UL 60950-1 EN/IEC/UL 60950-22 CAN/CSA-22.2 no. 60950-1 CAN/CSA-22.2 no. 60950-22
EMC	CISPR 32 EN55024 EN55032 Class A EN61000-3-2 EN61000-3-3 EN61000-4-2 (ESD) EN61000-4-3 (RS) EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS) EN61000-4-8 EN61000-4-11 FCC Part 15B, Class A
Shock	EN60068-2-27 EN60068-2-31
Vibration	EN60068-2-6
Traffic Control	NEMA TS2

Physical Specifications

PRODUCT	WIDTH	DEPTH	HEIGHT	WEIGHT	ENCLOSURE	MOUNTING	PROTECTION RATE
IE300-12GP	146 mm (5.75 in)	127 mm (5.00 in)	152 mm (6.00 in)	2.0 kg (.4.5 lb)	Aluminum shell	DIN rail, wall mount	IP30, IP31*
IE300-12GT	146 mm (5.75 in)	127 mm (5.00 in)	152 mm (6.00 in)	2.0 kg (.4.4 lb)	Aluminum shell	DIN rail, wall mount	IP30, IP31*

* with additional cover tool

Power Characteristics

PRODUCT	INPUT VOLTAGE	COOLING	NO POE LOAD			FULL POE LOAD			MAX POE POWER	MAX POE SOURCING PORTS		
			MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE		POE (15W)	POE+ (30W)	HI-POE (60W)
IE300-12GP	**48V DC *, 53.5V DC ****	**fanless**	43W		-	320W ***	147 BTU/hr	-	240W	8	8	4
IE300-12GT	**12~55V DC**	**fanless**	30W	102 BTU/hr	-	-	-	-	-	-	-	-

* sourcing IEEE 802.3at Type 1 (PoE)

** sourcing IEEE 802.3at Type 2 (PoE+, Hi-PoE)

*** include PD's consumption and margin

Standards and Protocols

AlliedWare Plus Operating System

Version 5.4.8-1

Authentication

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

Border Gateway Protocol (BGP)

BGP dynamic capability
BGP outbound route filtering
RFC 1772 Application of the Border Gateway Protocol (BGP) in the Internet
RFC 1997 BGP communities attribute
RFC 2385 Protection of BGP sessions via the TCP MD5 signature option
RFC 2439 BGP route flap damping
RFC 2545 Use of BGP-4 multiprotocol extensions for IPv6 inter-domain routing
RFC 2858 Multiprotocol extensions for BGP-4
RFC 2918 Route refresh capability for BGP-4
RFC 3392 Capabilities advertisement with BGP-4
RFC 3882 Configuring BGP to block Denial-of-Service (DoS) attacks
RFC 4271 Border Gateway Protocol 4 (BGP-4)
RFC 4360 BGP extended communities
RFC 4456 BGP route reflection - an alternative to full mesh iBGP
RFC 4724 BGP graceful restart
RFC 5065 Autonomous system confederations for BGP

Encryption (management traffic only)

FIPS 180-1 Secure Hash standard (SHA-1)
FIPS 186 Digital signature standard (RSA)
FIPS 46-3 Data Encryption Standard (DES and 3DES)

Ethernet

IEEE 802.2 Logical Link Control (LLC)
IEEE 802.3 Ethernet
IEEE 802.3ab 1000BASE-T
IEEE 802.3af Power over Ethernet (PoE)
IEEE 802.3at Power over Ethernet up to 30W (PoE+)
IEEE 802.3az Energy Efficient Ethernet (EEE)
IEEE 802.3u 100BASE-X
IEEE 802.3x Flow control - full-duplex operation
IEEE 802.3z 1000BASE-X
IEEE 1588v2 Precision clock synchronization protocol v2

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 951 Bootstrap Protocol (BootP)
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 1542 Clarifications and extensions for BootP
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 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
RFC 5175 IPv6 Router Advertisement (RA) flags option
RFC 6105 IPv6 Router Advertisement (RA) guard

Management

AT Enterprise MIB including AMF MIB and traps
Optical DDM 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 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 2787 Definitions of managed objects for VRRP
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 3621 Power over Ethernet (PoE) MIB
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
RFC 6527 Definitions of managed objects for VRRPv3

Multicast Support

Bootstrap Router (BSR) mechanism for PIM-SM
IGMP query solicitation
IGMP snooping (IGMPv1, v2 and v3)
IGMP snooping fast-leave
IGMP/MLD multicast forwarding (IGMP/MLD proxy)
MLD snooping (MLDv1 and v2)
PIM and PIM SSM for IPv6
RFC 1112 Host extensions for IP multicasting (IGMPv1)
RFC 2236 Internet Group Management Protocol v2 (IGMPv2)
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2715 Interoperability rules for multicast routing protocols
RFC 3306 Unicast-prefix-based IPv6 multicast addresses
RFC 3376 IGMPv3
RFC 3810 Multicast Listener Discovery v2 (MLDv2) for IPv6
RFC 3956 Embedding the Rendezvous Point (RP) address in an IPv6 multicast address
RFC 3973 PIM Dense Mode (DM)
RFC 4541 IGMP and MLD snooping switches
RFC 4601 Protocol Independent Multicast - Sparse Mode (PIM-SM): protocol specification (revised)
RFC 4604 Using IGMPv3 and MLDv2 for source-specific multicast
RFC 4607 Source-specific multicast for IP

Open Shortest Path First (OSPF)

OSPF link-local signaling
OSPF MD5 authentication
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
FC 2328 OSPFv2
RFC 2370 OSPF opaque LSA option
RFC 2740 OSPFv3 for IPv6
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
RFC 4552 Authentication/confidentiality for OSPFv3
RFC 5329 Traffic engineering extensions to OSPFv3
RFC 5340 OSPFv3 for IPv6 (partial support)

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 3246 DiffServ Expedited Forwarding (EF)

Resiliency Features

ITU-T G.8023 / Y.1344 Ethernet Ring Protection Switching (ERPS)
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
RFC 5798 Virtual Router Redundancy Protocol version 3 (VRRPv3) for IPv4 and IPv6

Routing Information Protocol (RIP)

RFC 1058 Routing Information Protocol (RIP)
RFC 2080 RIPng for IPv6
RFC 2081 RIPng protocol applicability statement
RFC 2082 RIP-2 MD5 authentication
RFC 2453 RIPv2

Security Features

SSH remote login
SSLv2 and SSLv3
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 2560 (OCSP) X.509 Online Certificate Status Protocol
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 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 (server, relay and client)
RFC 2132 DHCP options and BootP vendor extensions
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 3993 Subscriber-ID suboption for DHCP relay agent option
RFC 4330 Simple Network Time Protocol (SNTP) version 4
RFC 5905 Network Time Protocol (NTP) version 4

VLAN Support

Generic VLAN Registration Protocol (GVRP)
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

Voice over IP (VoIP)

LLDP-MED ANSI/TIA-1057
Voice VLAN

Ordering Information

NAME	DESCRIPTION	INCLUDES
AT-FL-IE3-L2-01	IE300 series Layer-2 Premium license	▶ EPSR Master ▶ VLAN Translation ▶ VLAN double tagging (QinQ) ▶ UDLD
AT-FL-IE3-L3-01	IE300 series Layer-3 Premium license	▶ OSPF (256 routes) ▶ OSPFv3 (256 routes) ▶ BGP4 (256 routes) ▶ BGP4+ for IPv6 (256 routes) ▶ PIM-SM, DM and SSM ▶ PIMv6-SM and SSM ▶ RIP ▶ RIPng ▶ VRRP and VRRPv3
AT-FL-IE3-G8032	IE300 series license for ITU-T G.8032 and Ethernet CFM	▶ ITU-T G.8032 ▶ Ethernet CFM
AT-FL-IE3-OF13-1YR	OpenFlow license	▶ OpenFlow v1.3 for 1 year
AT-FL-IE3-OF13-5YR	OpenFlow license	▶ OpenFlow v1.3 for 5 years

Switches

The DIN rail and wall mount kits are included.

AT-IE300-12GP-80
8x 10/100/1000T,
4x 100/1000X SFP,
Industrial Ethernet, Layer 3 Switch, Hi-PoE Support

AT-IE300-12GT-80
8x 10/100/1000T,
4x 100/1000X SFP,
Industrial Ethernet, Layer 3 Switch

Supported SFP Modules

Refer to the installation guide for the recommended Max. Operating Temperature according to the selected SFP module.

1000Mbps SFP Modules

AT-SPBD10-13
10 km, 1G BiDi SFP, LC, SMF
(1310Tx/1490Rx)

AT-SPBD10-14
10 km, 1G BiDi SFP, LC, SMF
(1490Tx/1310Rx)

AT-SPBD20-13/I
20 km, 1G BiDi SFP, SC, SMF, I-Temp
(1310Tx/1490Rx)

AT-SPBD20-14/I
20 km, 1G BiDi SFP, SC, SMF, I-Temp
(1490Tx/1310Rx)

AT-SPBD20LC/I-13
20 km, 1G BiDi SFP, LC, SMF, I-Temp
(1310Tx/1490Rx)

AT-SPBD20LC/I-14
20 km, 1G BiDi SFP, LC, SMF, I-Temp
(1490Tx/1310Rx)

AT-SPEX
2 km, 1000EX SFP, LC, MMF, 1310 nm

AT-SPEX/E
2 km, 1000EX SFP, LC, MMF, 1310 nm, Ext. Temp

AT-SPLX10
10 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPLX10/I
10 km, 1000LX SFP, LC, SMF, 1310 nm, I-Temp

AT-SPLX10/E
10 km, 1000LX SFP, LC, SMF, 1310 nm, Ext. Temp

AT-SPLX40
40 km, 1000LX SFP, LC, SMF, 1310 nm

AT-SPLX40/E
40 km, 1000LX SFP, LC, SMF, 1310 nm, Ext. Temp

AT-SPSX
550 m, 1000SX SFP, LC, MMF, 850 nm

AT-SPSX/I
550 m, 1000SX SFP, LC, MMF, 850 nm, I-Temp

AT-SPSX/E
550 m, 1000SX SFP, LC, MMF, 850 nm, Ext. Temp

AT-SPTX
100 m, 10/100/1000T SFP, RJ-45

AT-SPTX/I
100 m, 10/100/1000T SFP, RJ-45, I-Temp

AT-SPZX80
80 km, 1000ZX SFP, LC, SMF, 1550 nm

100Mbps SFP Modules

AT-SPFX/2
2 km, 100FX SFP, LC, MMF, 1310 nm

AT-SPFX/15
15 km, 100FX SFP, LC, SMF, 1310 nm

AT-SPFXBD-LC-13
15 km, 100FX BiDi SFP, LC, SMF
(1310 Tx/1550 Rx)

AT-SPFXBD-LC-15
15 km, 100FX BiDi SFP, LC, SMF
(1550 Rx/1310 Tx)

North America Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895
Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830
EMEA & CSA Operations | Incheonweg 7 | 1437 EK Rozenburg | The Netherlands | T: +31 20 7950020 | F: +31 20 7950021
alliedtelesis.com

617-000565 RevV