



## AT-8600 SERIES

### Layer 3 Fast Ethernet Switches

#### AT-8624T/2M

- 24 x 10/100BASE-T ports
- 2 x Uplink Module Bays

#### AT-8648T/2SP

- 48 x 10/100BASE-T ports
- 2 x SFP ports in combo with
- 2 x 10/100/1000T uplink ports (RJ-45)\*

#### AT-8624POE

- 24 x 10/100BASE-T ports with PoE
- 2 x Uplink Module Bays

#### Summary

- Cost effective, competitively featured Fast Ethernet edge switches
- Compact 1RU for maximum port density
- Gigabit uplink modules for flexibility
- Routing protocols including RIP v1/v2 and OSPF
- Layer 2/3/4 intelligence for traffic management and security

#### Performance

The AT-8600 Series switches are Layer 3 switches with Layer 2/3/4+ intelligence. These desktop multimedia switches bring a high level of security and traffic control to the edge of your network.

Designed as a cost effective solution for today, the AT-8600 Series has the ability to expand as network demands grow – at no extra cost. With IP routing capabilities and comprehensive management tools, these switches offer flexibility and investment protection.

The AT-8600 Series switches are high-performance edge/access switches designed to provide desktop connectivity for enterprise workgroups, mid-sized networks, and high school and campus networks. More demanding customers in these segments will benefit from the Layer 2/3/4+ intelligence of the AT-8600 Series, which supports multimedia applications like voice and video.

*\*The RJ-45 ports use the same interface as the SFP ports. When an SFP is inserted into an SFP port, the corresponding RJ-45 port is disabled.*

#### Key Features

##### High Performance

- Wirespeed Layer 2 switching (port settings like ageing timer, mirroring, learning, trunking, link aggregation, port security)
- Wirespeed Layer 3 IP routing
- Wirespeed Layer 2/3/4+ filters (discard/forward/mirror/change priority)

##### Comprehensive Layer 2 Support

- 802.1Q port based VLAN (tagged)
- Up to 255 VLANs
- Static and Dynamic VLANs (GVRP, GARP)
- VLAN Relay
- Private VLAN
- 8,000 MAC Addresses
- Port security (MAC-based)

##### Redundancy

- Port Trunking with Link aggregation (802.3ad static) (LACP)
- STP/RSTP/MSTP (IEEE 802.1s)
- Redundant Power Supply (RPS) option

##### Layer 3 Features

- IP RIPv1/v2
- OSPF v2
- VRRP
- BootP relay
- DNS relay

##### Multicast

- IGMP
- IGMP snooping
- IGMP proxy
- MVR
- Broadcast forwarding
- Static multicast forwarding
- PIM-SM, PIM-DM

##### Quality of Service Features

- 802.1p (CoS)
- IP TOS/DiffServ
- 4 Queues per egress port (PQ/WRR/Bounded Delay WRR)
- Re-mapping CoS/ToS/DiffServ for ingress/egress
- QoS classifiers based on any of the following:
  - Port or VLAN
  - IP Source / Destination Address
  - TCP Source / Destination Port, Flag

- UDP Source / Destination Port
- Layer 4 protocol (ICMP, IGMP etc.)
- IPX Destination Address, Source / Destination Socket, Packet type
- MAC Source / Destination Address
- Up to three 16-bit words inside the first 64 bytes of a packet

##### Bandwidth Limiting

- Down to 64 Kbps ingress
- Down to 1 Mbps egress

##### Security

- SSH and SSL for management
- TACACS/TACACS+/RADIUS
- 802.1x port based access security
- Layer 2/3/4+ filters (permit or deny traffic)
- Storm control
- Remote Security Officer
- MD5 authentication
- PKI
- DHCP Snooping
- DHCP Option 82
- User Authentication Database

##### Management

- Web based GUI
- HTTP client/server
- Email client/SMTP
- CLI
- IP multihoming
- SNMPv3
- Trigger Facility
- NTPv3
- RMON
- Stacking (non-proprietary)
- Editor
- Mail
- Configurable debugging
- Login banner
- Release/patch licences
- LOAD via ASYN, TFTP, HTTP, LDAP
- Logging
- Scripting
- Trap MIB
- Multiple software image storage

# AT-8600 SERIES | Layer 3 Fast Ethernet Switches

These intelligent switches include Quality of Service (QoS) features, such as wirespeed Layer 2/3/4+ traffic classifiers, bandwidth limiting, Diffserv and Hardware Access control lists, which are particularly useful for multi-tenant unit, multi-business unit, Telco or Network Service Provider applications.

## Rich Feature Set

The AT-8600 Series switches include a powerful feature set. All AT-8600 Layer 3 switches include a suite of advanced switching features such as IEEE 802.1Q VLAN Tagging, IGMPv2, 802.1p Traffic Prioritization of packets at Layer 2, and broadcast storm protection. The AT-8600 Series supports various multicast applications, such as a Layer 3 multicast set-up/configuration to control traffic for VoIP phones. Multicast routing (PIM-SM, PIM-DM) is now available for the AT-8600 Series switches.

## Bandwidth Limiting

All AT-8600 Series switches come with asymmetric, bidirectional bandwidth limiting at no additional cost. This is an ideal feature for customers needing to allocate the amount of bandwidth on a per port basis. With bandwidth limiting, network administrators can define throughput levels for each port and control access based on type of end user. These features are ideal for managing different applications like VoIP, Web browsing, video, email, and to regain control of traffic across the network. The bandwidth limiting on the AT-8600 Series provides fine granularity with the ability to define ingress limits down to 64Kbps segments and egress limits down to 1Mbps segments. The segment definitions can be asymmetric and each port can be set to different values. An additional benefit is that loop back ports are not required.

## Cost Effectiveness

The AT-8600 Series switches enable a cost effective network by efficiently using bandwidth from the access edge to the core. These switches accomplish this with a combination of traffic prioritization and security filtering, ensuring that rogue traffic is not forwarded and preventing unnecessary load on the network backbone and central servers.

## Flexibility with Power Over Ethernet

Switches supporting Power over Ethernet (PoE) can simplify network design by delivering power as well as data over existing Ethernet cabling to PoE Powered Devices (PDs) in the network. PDs include VoIP phones, wireless LAN access points, Ethernet hubs and web cameras. With 400 watts available for PoE, the AT-8624POE is capable of supplying full power (15.4 watts) to PDs over all 24 ports. Because a separate power cable is not needed for PDs, network design and installation is simplified. Customers with PDs in their network have greater flexibility of network design with the AT-8624POE.

## Wirespeed Routing

A rich set of features is included to provide full support for multimedia Layer 4 applications. All switches include Layer 3 IP Static Routing, RIP, RIPv2, IGMPv2 and OSPFv2 routing protocols.

## Manageability

The AT-8600 Series offers an extensive suite of management capabilities allowing simple configuration, advanced customizable triggers with an e-mail client and full SNMP and MIB support for unmatched flexibility in monitoring and controlling events.

## Management Stacking

Stacking provides Web and CLI based management of up to nine switches with the same effort as for one switch. The Allied Telesis solution uses open standards interfaces as stacking links so that many switches can be stacked across different sites, which is not possible using the proprietary stacking cable solutions. Also the use of open standards interfaces avoids the use of expensive specialized hardware with limited topologies.

## Summary of Features

### Performance

AT-8624T/2M 11.8 Gbps switching fabric,  
6.6 Mpps forwarding rate  
AT-8648T/2SP 23.6 Gbps switching fabric,  
10.1 Mpps forwarding rate  
AT-8624POE 11.8 Gbps switching fabric,  
6.6 Mpps forwarding rate

### Latency:

40 microseconds latency between 10Mbps ports  
11 microseconds latency between 100Mbps ports  
4 microseconds latency between 1000Mbps ports

## Wirespeed switching on all Ethernet ports:

14,880pps for 10Mbps Ethernet  
148,800pps for 100Mbps Fast Ethernet  
1,488,000pps for 1000Mbps Gigabit Ethernet

32MB RAM  
8MB Flash Memory  
200MHz PowerPC CPU  
255 VLANs  
8K MAC Addresses

## Reliability

AT-8624T/2M 440,400 hrs MTBF  
AT-8648T/2SP 230,500 hrs MTBF  
AT-8624POE 180,250 hrs MTBF

## Acoustics

AT-8624T/2M 45.0 dB

## Interface Connections

10/100TX Shielded RJ-45  
100FX Multi-Mode fiber SC or MT  
1000LX Single-Mode fiber SC  
1000T Shielded RJ-45

## Power Characteristics

Voltage: 100-240vAC  
Frequency: 50-60Hz  
Power consumption max:  
AT-8624T/2M: 25W  
AT-8648T/2SP: 50W  
AT-8624POE: 450W

## Environmental Specifications

Operating Temp: 0°C - 40°C (32°F to 104°F)  
Non-Operating Temp: -25°C - 70°C (-13°F to 158°F)  
Operating Humidity: 5% - 80% non-condensing  
Non-Operating Humidity: 5% - 95% non-condensing

## Physical Characteristics

### AT-8624T/2M:

Dimensions (H x W x D) 4.4cm x 43.8cm x 22.2cm (1.75" x 17.25" x 8.74")  
Weight 3.3kg (7.2 lbs) unpackaged, or 4.9kg (10.80 lbs) packaged

### AT-8648T/2SP:

Dimensions (H x W x D) 4.4cm x 43.8cm x 26.16cm (1.75 in x 17.25 in x 10.3 in)  
Weight 3.6kg (8 lbs) unpackaged, or 5.2kg (11.46 lbs) packaged

### AT-8624POE:

Dimensions (H x W x D) 4.4cm x 43.8cm x 40.6cm (1.75" x 17.25" x 15.98")  
Weight 6.2kg (13.7lbs) unpackaged, or 7.8kg (17.20 lbs) packaged

## Electrical/Mechanical Approvals

Safety UL 1950 (UL/cUL), EN60950 (TUV)  
EMI FCC Class A, EN55022 Class A, VCCI Class A,  
C-TICK, EN61000-3-2, EN61000-3-3  
Immunity EN55024

## Country of Origin

China

# AT-8600 SERIES | Layer 3 Fast Ethernet Switches

## Standards and Protocols

Software Release 2.9.1

### Encryption

RFC 1321 MD5  
RFC 2104 HMAC  
FIPS 180 SHA-1  
FIPS 186 RSA  
FIPS 46-3 DES

### Ethernet

RFC 894 Ethernet II Encapsulation  
IEEE 802.1D MAC Bridges  
IEEE 802.1Q Virtual LANs  
IEEE 802.2 Logical Link Control  
IEEE 802.3ab 100BASE-T  
IEEE 802.3ac VLAN TAG  
IEEE 802.3ad (LACP) Link Aggregation  
IEEE 802.3af Power over Ethernet (Mode A)  
IEEE 802.3u 100BASE-T  
IEEE 802.3x Full Duplex Operation  
IEEE 802.3z Gigabit ethernet  
GARP  
GVRP

### General Routing

RFC 768 UDP  
RFC 791 IP  
RFC 792 ICMP  
RFC 793 TCP  
RFC 826 ARP  
RFC 903 Reverse ARP  
RFC 925 Multi-LAN ARP  
RFC 950 Subnetting, ICMP  
RFC 1027 Proxy ARP  
RFC 1035 DNS  
RFC 1055 SLIP  
RFC 1122 Internet Host Requirements  
RFC 1144 Van Jacobson's Compression  
RFC 1256 ICMP Router Discovery Messages RFC 1288 Finger  
RFC 1518 CIDR  
RFC 1519 CIDR  
RFC 1542 BootP  
RFC 1812 Router Requirements  
RFC 1918 IP Addressing  
RFC 2131 DHCP  
RFC 2132 DHCP Options and BOOTP Vendor Extensions  
RFC 2390 Inverse Address Resolution Protocol  
RFC 2822 Internet Message Format  
RFC 3046 DHCP Relay Agent Information Option  
RFC 3232 Assigned Numbers  
RFC 3993 Subscriber-ID Sub-option for DHCP Relay Agent Option  
draft-ietf-ipsec-nat-t-ike-08.txt Negotiation of NAT-Traversal in the IKE  
draft-ietf-ipsec-udp-encaps-08.txt UDP Encapsulation of IPsec Packets  
<http://www.iana.org/assignments/bootp-dhcp-parameters>  
BootP and DHCP parameters

### IP Multicasting

RFC 1112 Host Extensions  
RFC 2236 IGMPv2  
RFC 2362 PIM-SM  
RFC 3973 PIM-DM

draft-ietf-magma-snoop-02 IGMP and MLD snooping switches

### Management

RFC 1155 MIB  
RFC 1157 SNMP  
RFC 1212 Concise MIB definitions  
RFC 1213 MIB-II  
RFC 1493 Bridge MIB  
RFC 2011 SNMPv2 MIB for IP using SMIv2  
RFC 2012 SNMPv2 MIB for TCP using SMIv2  
RFC 2096 IP Forwarding Table MIB  
RFC 2576 Coexistence between V1, V2, and V3 of the Internet-standard Network Management Framework  
RFC 2578 Structure of Management Information Version 2 (SMIv2)  
RFC 2579 Textual Conventions for SMIv2  
RFC 2580 Conformance Statements for SMIv2  
RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types  
RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)  
RFC 2790 Host MIB  
RFC 2819 RMON (groups 1,2,3 and 9)  
RFC 2856 Textual Conventions for Additional High Capacity Data Types  
RFC 2863 The Interfaces Group MIB  
RFC 3164 Syslog Protocol  
RFC 3410 Introduction and Applicability Statements for Internet-Standard Management Framework  
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 the SNMP  
RFC 3416 Version 2 of the Protocol Operations for SNMP  
RFC 3417 Transport Mappings for the SNMP  
RFC 3418 MIB for SNMP  
RFC 3621 PoE MIB  
RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs  
RFC 3768 VRRP  
CDP  
draft-ietf-bridge-8021x-00.txt Port Access Control MIB  
IEEE 802.1AB LLDP

### OSPF

RFC 1245 OSPF protocol analysis  
RFC 1246 Experience with the OSPF protocol  
RFC 2328 OSPFv2  
RFC 3101 The OSPF Not-so-stubby Area (NSSA) Option

### QoS

RFC 2474 DSCP  
RFC 2475 An Architecture for Differentiated Services  
IEEE 802.1p Priority Tagging

### RIP

RFC 1058 RIPv1

RFC 2082 RIPv2 MD5 Authentication  
RFC 2453 RIPv2

### Security

RFC 1492 TACACS  
RFC 1779 X.500 String Representation of Distinguished Names  
RFC 1858 Fragmentation  
RFC 2284 EAP  
RFC 2510 PKI X.509 Certificate Management Protocols  
RFC 2511 X.509 Certificate Request Message Format  
RFC 2559 PKI X.509 LDAPv2  
RFC 2585 PKI X.509 Operational Protocols  
RFC 2587 PKI X.509 LDAPv2 Schema  
RFC 2865 RADIUS  
RFC 2866 RADIUS Accounting  
RFC 2868 RADIUS Attributes for Tunnel Protocol Support  
RFC 3280 X.509 Certificate and CRL profile  
RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines  
draft-grant-tacacs-02.txt TACACS+  
Diffie-Hellman  
Draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport Protocols for CMP  
draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol  
IEEE 802.1x Port Based Network Access Control  
PKCS #10 Certificate Request Syntax Standard

### Services

RFC 854 Telnet Protocol Specification  
RFC 855 Telnet Option Specifications  
RFC 856 Telnet Binary Transmission  
RFC 857 Telnet Echo Option  
RFC 858 Telnet Suppress Go Ahead Option  
RFC 932 Subnetwork addressing scheme  
RFC 951 BootP  
RFC 1091 Telnet terminal-type option  
RFC 1179 Line printer daemon protocol  
RFC 1305 NTPv3  
RFC 1350 TFTP  
RFC 1510 Network Authentication  
RFC 1542 Clarifications and Extensions for the Bootstrap protocol  
RFC 1945 HTTP/1.0  
RFC 1985 SMTP Service Extension  
RFC 2049 MIME  
RFC 2068 HTTP/1.1  
RFC 2156 MIXER  
RFC 2821 SMTP

### SSL

RFC 2246 The TLS Protocol Version 1.0  
draft-freier-ssl-version3-02.txt SSLv3

### STP / RSTP

IEEE 802.1Q - 2003 MSTP (802.1s)  
IEEE 802.1t - 2001 802.1D maintenance  
IEEE 802.1w - 2001 RSTP

# AT-8600 SERIES | Layer 3 Fast Ethernet Switches

## Ordering Information

### AT-8624T/2M-xx

24 x 10/100Base-T (RJ-45) + 2 x Uplink Module Bays  
Order number: 990-001066-xx

### AT-8648T/2SP-xx

48 x 10/100Base-T (RJ-45) + 2 x SFP ports  
Order number: 990-001072-xx

### AT-8624POE-xx

24 x 10/100Base-T (RJ-45) with PoE + 2 x Uplink Module Bays

Order number: 990-001057-xx

Where xx =  
10 for U.S. power cord  
20 for no power cord  
30 for U.K. power cord  
40 for Australia power cord  
50 for Europe power cord

## Uplink Modules

### AT-A45/SC

One module with single 100FX port (SC)  
for MMF, distance up to 2km in full-duplex  
Order number: 990-001193-00

### AT-A45/SC-SM15

One module with single 100FX port (SC)  
for SMF, distance up to 15km in full-duplex  
Order number: 990-001194-00

### AT-A46

One module with single 10/100/1000T port (RJ-45), distance up to 100m  
Order number: 990-001151-00

### AT-A47

One module with single unpopulated GBIC bay  
Order number: 990-001156-00

## GBIC Modules

### For use with AT-A47

### AT-G8SX-01

550m SX GBIC, based on 50 Micron fiber  
220m SX GBIC, based on 62.5 Micron fiber

### AT-G8LX10

10km LX GBIC, based on 9 Micron fiber

### AT-G8LX25

25km LX GBIC, based on 9 Micron fiber

### AT-G8LX40

40km LX GBIC, based on 9 Micron fiber

### AT-G8LX70

70km LX GBIC, based on 9 Micron fiber

## SFP Modules

### For use with AT-8648T/2SP-xx

### AT-SPTX

10/100/1000T 100m Copper<sup>1</sup>

### AT-SPSX

GbE multi-mode 850nm fiber

### AT-SPLX10

GbE single-mode 1310nm fiber up to 10km

### AT-SPLX40

GbE single-mode 1310nm fiber up to 40km

### AT-SPLX40/1550

GbE single-mode 1550nm fiber up to 40km

### AT-SPZX80

GbE single-mode 1550nm fiber up to 80km

## Feature Licence

### AT-8600PIM (Requires software release 2.9.1)

AT-8600 PIM-DM, PIM-SM upgrade

Order number: 980-000099

## Redundant Power Supply

### For use with AT-8624T/2M,

### AT-8648T/2SP

### AT-RPS3004

Chassis for up to 4 redundant power supplies  
(Chassis includes one power supply and cable)

Order number: 990-001243-xx

### AT-PWR3004

Additional AC redundant power supply with cable

Order number: 990-001231-00

## Redundant Power Supply

### For use with AT-8624POE

### AT-RPS3104

Chassis for up to 4 redundant power supplies  
(Chassis includes one power supply and cable)

Order number: 990-001244-xx

### AT-PWR3101

Additional AC redundant power supply with cable

Order number: 990-001240-00

Where xx =  
10 for U.S. power cord  
20 for no power cord  
30 for U.K. power cord  
40 for Australia power cord  
50 for Europe power cord

<sup>1</sup> Operates at 1000T only

## About Allied Telesis

Allied Telesis is part of the Allied Telesis Group. Founded in 1987, the company is a global provider of secure Ethernet/IP access solutions and an industry leader in the deployment of IP Triple Play networks over copper and fiber access infrastructure. Our POTS-to-10G iMAP integrated Multiservice Access Platform and iMG intelligent Multiservice Gateways, in conjunction with advanced switching, routing and WDM-based transport solutions, enable public and private network operators and service providers of all sizes to deploy scalable, carrier-grade networks for the cost-effective delivery of packet-based voice, video and data services. Visit us online at [www.alliedtelesis.com](http://www.alliedtelesis.com).

## Service and Support

Allied Telesis provides value-added support services for its customers under its Net.Cover programs. For more information on Net.Cover support programs available in your area, contact your Allied Telesis sales representative or visit our website.  
[www.alliedtelesis.com](http://www.alliedtelesis.com)

USA Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895

European Headquarters | Via Motta 24 | 6830 Chiasso | Switzerland | T: +41 91 69769.00 | F: +41 91 69769.11

Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830

[www.alliedtelesis.com](http://www.alliedtelesis.com)

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