Allied Telesis

2002/95/EC RoHS COMPLIANT

AT-8600 SERIES

Layer 3 Fast Ethernet Switches

AT-8624T/2M
24 x 10/100BASE-T ports
2 x Uplink Module Bays

AT-8624T/2M-V2
24 x 10/100BASE-T ports
2 x Uplink Module Bays pre-populated with AT-A65 modules (10/100/1000Base-T / 1000Base-X SFP Combo)

AT-8648T/2SP
48 x 10/100BASE-T ports
2 x 1000Base-X SFP ports in combo with 2 x 10/100/1000T uplink ports (RJ-45)[1]

AT-8624POE
24 x 10/100BASE-T ports with PoE
2 x Uplink Module Bays

AT-8624POE-V2
24 x 10/100BASE-T ports with PoE
2 x Uplink Module Bays pre-populated with AT-A65 modules (10/100/1000Base-T / 1000Base-X SFP Combo)

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.

[1] *The RJ-45 port uses the same interface as the SFP port. 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)
- DOS Attack Prevention
- 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

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.

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.

Security

DOS Attack Prevention along with authenication via 8O2.1X provides strong protection against network threats.

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

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
32MB Packet Buffer Memory (8624)
64MB Packet Buffer Memory (8648)
32 IP Interfaces

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

Enviromental 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 1000BASE-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 ports
2 x Uplink Module Bays

AT-8624T/2M-V2-xx
24 x 10/100Base-T ports
2 x Uplink Module Bays pre-populated with AT-A65 modules (10/100/1000Base-T / 1000Base-X SFP Combo)

AT-8648T/2SP-xx
48 x 10/100Base-T ports
2 x 1000Base-X SFP ports in combo with
2 x 10/100/1000T uplink ports (RJ-45)[2]

AT-8624POE-xx
24 x 10/100BASE-T ports with PoE
2 x Uplink Module Bays

AT-8624POE-V2-xx
24 x 10/100BASE-T ports with PoE
2 x Uplink Module Bays pre-populated with AT-A65 modules (10/100/1000Base-T / 1000Base-X SFP Combo)

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

AT-A45/SC-SM15
One module with single 100FX port (SC) for SMF, distance up to 15km in full-duplex

AT-A46
One module with single 10/100/1000Base-T port (RJ-45), distance up to 100m

AT-A47
One module with single unpopulated GBIC bay

AT-A65 (AlliedWare 291-17 or higher required)
One module with a 10/100/1000Base-T (RJ-45) port and a 1000Base-X combo port[2]

GBIC Modules
For use with AT-A47

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

AT-SPTX
1000T 100m Copper[3]

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-SPZX80
GbE single-mode 1550nm fiber up to 80km

AT-SPBD10-13
1000BASE-BX Bi-Di (1310nm Tx, 1490nm Rx) fiber up to 10km

AT-SPBD10-14
1000BASE-BX Bi-Di (1490nm Tx, 1310nm Rx) fiber up to 10km

Feature Licence

AT-8600PIM (Requires software release 2.9.1)
AT-8600 PIM-DM, PIM-SM upgrade

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)

AT-PWR3004
Additional AC redundant power supply with cable

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)

AT-PWR3101
Additional AC redundant power supply with cable
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

[2] *The RJ-45 port uses the same interface as the SFP port. When an SFP is inserted into an SFP port, the corresponding RJ-45 port is disabled.*

[3] *Operates at 1000Base-T. Not for use with the AT-A65.*

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.

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.
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