AT-9900 SERIES
Multilayer IPv4 and IPv6 Gigabit Switches

AT-9924T
24 x 10/100/1000BASE-T copper ports and 4 x 1000BASE-X SFP combo ports

AT-9924SP
24 x 100/1000BASE-X SFP ports

Industry Leading Features
The AT-9900 series delivers performance, flexibility, and reliability. Packaged in a 1RU standard rack mount chassis, all AT-9900 switches incorporate a switching core that yields wire-speed Layer 3 IPv4 routing, exceptional Quality of Service (QoS) features, and a robust hardware design with dual hot-swappable power supplies.

Policy-based Quality of Service
Comprehensive, low latency QoS features operating at wire-speed provide flow-based traffic management with full classification, prioritization, traffic shaping and min/max bandwidth profiles. The AT-9924 QoS features are ideal for service providers wanting to ensure maximum availability of premium voice, video and data services, and at the same time manage customer service level agreements (SLAs). For enterprise customers, the AT-9924 QoS features protect productivity by guaranteeing performance of business-critical applications including VoIP services, and help restore and maintain responsiveness of enterprise applications in the networked workplace.

Reliability
Dual internal hot-swappable load-sharing power supplies provide ultimate space-saving reliability and redundancy for maximum service uptime. Both 110/240V AC and 48V DC PSU versions are available. There is no requirement for an external RPS, and combined with front-to-back cooling and a 1RU height, the AT-9924 is perfect for the high-density rack environment where conditions are demanding and space is at a premium.

Power to Perform
The AT-9924 top-of-the-line multilayer switch is part of a series built to meet the needs of high performance network services. Together with Allied Telesis’ advanced software feature set, AlliedWare, the AT-9924 is a superior high-density gigabit switching solution, bringing true intelligence to the network.

Key Features
• 1RU form factor
• Non-blocking Layer 2 and 3 IPv4 switching and routing at wire-speed
• Provides up to 256K Layer 3 IPv4 address table entries
• Supports full 4096 VLANS
• Supports 4096 Layer 3 interfaces
• Supports VLAN double tagging
• Private VLANs, providing security and port isolation of multiple customers using the same VLAN
• 802.1x support for network security
• Supports 9KByte Jumbo frame size
• 100MB SFP support (AT-9924SP-V2 only)
• Full environmental monitoring, with alerts to network manager in case of failure
• Extensive wire-speed traffic classification
• Comprehensive wire-speed QoS features
• Low switching latency, ideal for voice and multi-media applications
• Advanced routing protocols OSPF, BGP-4, RIP and RIP-2, DVMRP, PIM-SM, PIM-DM
• STP, RSTP, MSTP (802.1s)
• DHCP Snooping
• DHCP Option 82
• Port trunking (802.3ad LACP)
• Port mirroring
• Asynchronous management port
• SSH for secure management
• SNMPv3
• GUI
• EPSR
• VRRP

1 When Jumbo frame support is enabled, the MRU is 9710 bytes for ports operating at 10/100Mbps, and 10,240 bytes at 1Gbps, however maximum layer 3 supported frame size is 9198 bytes.
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Performance
- Switching Capacity: 48Gbps
- Forwarding Rate: 36Mpps

Up to 256K IPv4 routes
Up to 16K MAC addresses
Up to 80K BGP routes
4K VLANs
Packet buffer memory:
64MB
160MB
16MB Flash Memory

Reliability
- MTBF:
  1 PSU: 130,000 hours
  2 PSUs: 240,000 hours

Acoustic Noise
- 51.0 dB

Power Characteristics
- AC:
  Voltage: 100-240V AC (10% auto ranging)
  Frequency: 47-63Hz
- DC:
  Voltage: 40-60V DC

Power Consumption
- 75Watts (256 BTU/hour) maximum

Environmental Specifications
- Operating Temp:
  0°C to 50°C (32°F to 122°F)
- Storage Temp:
  -25°C to 70°C (-13°F to 158°F)
- Operating Humidity:
  5% to 80% non-condensing
- Storage Humidity:
  5% to 95% non-condensing
- Operating Altitude: 10,000ft

Physical Dimensions
- Height: 44.5mm (1.75")
- Width: 440mm (16.7")
- Depth: 440mm (16.7")
- Mounting: 19" rack mountable, 1 RU form-factor

Electrical Approvals and Compliances
- EMC:
  EN55022 class A, FCC class A, VCCI class A,
  AS/NZS CISPR22 class A
- Immunity: EN55024, EN61000-3-2/3, CNS 13438 Class A

Weight
- AT-9924T: 6.8kg (15.0 lbs) or 7.7kg (17.0 lbs) packaged
- AT-9924SP: 6.8kg (15.0 lbs) or 7.7kg (17.0 lbs) packaged
- AT-PWR01 (AC or DC): 1.0 kg (2.2 lbs) or 1.8 kg (4.0 lbs) packaged

Restrictions on Hazardous Substances (RoHS) Compliance
- EU RoHS compliant

Country of Origin
- Singapore

Standards and Protocols
- Software Release 2.9.1
- BGP-4
  RFC 1771 Border Gateway Protocol 4
  RFC 1946 BGP Router Reflection
  RFC 1997 BGP Communities Attribute
  RFC 1999 Multi-home Routing
  RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option
  RFC 2439 BGP Route Flap Damping
  RFC 2585 Multiprotocol Extensions for BGP-4
  RFC 2918 Route Refresh Capability for BGP-4
  RFC 3085 Autonomous System Confederations for BGP
  RFC 3392 Capabilities Advertisement with BGP-4

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

Ethernet
- RFC 894 Ethernet II Encapsulation
- IEEE 802.1D MAC Bridges
- IEEE 802.1Q Virtual LANs
- IEEE 802.1q VLAN Classification by Protocol and Port
- IEEE 802.2 Logical Link Control
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3ac VLAN TAG
- IEEE 802.3ad LACP Link Aggregation
- IEEE 802.3u 100BASE-T
- IEEE 802.3x Full Duplex Operation
- IEEE 802.3z Gigabit ethernet

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 1122 Internet Host Requirements
- RFC 1256 ICMP Router Discovery Messages
- RFC 1288 Finger
- RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)
- RFC 1518 CIDR
- RFC 1519 CIDR
- RFC 1542 BootP
- RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)
- RFC 1570 PPP LCP Extensions
- RFC 1661 The Point-to-Point Protocol (PPP)
- RFC 1762 The PPP DECom Phase IV Control Protocol (DCNCP)
- RFC 1812 Router Requirements
- RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
- RFC 1918 IP Addressing
### AT-9900 SERIES | Multilayer IPv4 and IPv6 Gigabit Switches

**Ordering Information**

**AT-9924T**
- 24 x 10/100/1000BASE-T and 4 x 1000BASE-X SFP combo ports and 256MB of SDRAM factory fitted.
- 1 PSU and blanking plate
- Order number: 990-001077-xx

**AT-9924SP**
- 24 x 100/1000BASE-X SFP ports and 256MB of SDRAM factory fitted.
- 1 PSU and blanking plate
- Order number: 990-002215-xx

**AT-9924T-DP-zz**
- 2 PSUs
- Order number: 990-002072-zz

**AT-9924SP-DP-v2-zz**
- 2 PSUs
- Order number: 990-002214-zz

| Where xx = | 00 for all power cords |
| Where zz = | 10 for U.S. power cord |
| Where zz = | 20 for no power card |
| Where zz = | 30 for U.K. power cord |
| Where zz = | 40 for Asia/Pacific power card |
| Where zz = | 50 for European power card |
| Where zz = | 80 for 48V DC power supply |

**Compact Flash**

**AT-CF128A-00**
- 128MB CF Card
- Order number: 990-000819-00

**100 MB SFP modules (AT-9924SP only)**
- AT-SPFX80-LC-13
  - 100BASE-BX Bi-Di (1310nm Tx, 1550 Rx) fiber up to 15km
- AT-SPFX80-LC-15
  - 100BASE-BX Bi-Di (1550nm Tx, 1310 Rx) fiber up to 15km
- AT-SPFX/2
  - 100BASE-FX 1310nm fiber up to 2km
- AT-SPFX/15
  - 100BASE-FX 1310nm fiber up to 15km
- AT-SPFX/40
  - 100BASE-FX 1310nm fiber up to 40km

**GbE SFP modules**

| Where xx = | 00 for all power cords |
| Where zz = | 10 for U.S. power cord |
| Where zz = | 20 for no power card |
| Where zz = | 30 for U.K. power cord |
| Where zz = | 40 for Asia/Pacific power card |
| Where zz = | 50 for European power card |
| Where zz = | 80 for 48V DC power supply |

**Power Supply Units**

**AT-PWR01-xx**
- Spare hot-swappable load-sharing power supply modules for the AT-9924 series of switches
- Order number: 990-001084-xx

| Where xx = | 10 for U.S. power card |
| Where xx = | 20 for no power card |
| Where xx = | 30 for U.K. power card |
| Where xx = | 40 for Asia/Pacific power card |
| Where xx = | 50 for European power card |
| Where xx = | 80 for 48V DC power supply |

**Software Options**

**AT-9900FL3UPGRD**
- AT-9924 full Layer 3 upgrade:
  - RSVP
  - DVMRP
  - VRRP
  - PIM SM
  - PIM DM
- Order number: 980-000001-00

**AT-9900ADV3UPGRD**
- AT-9924 series advanced Layer 3 upgrade:
  - IPv6
  - BGP-4
- Order number: 980-000009-00

**AT-AR-VLANDTAG**
- AT-9924 VLAN double tagging (Q-in-Q / Nested VLANs) upgrade:
- Order number: 980-10041-00

**AT-AR-3DES**
- (for SSL)
- AT-9924 3DES upgrade:
- Order number: 980-10000-yyy

| Where yyy = | 00 for 1 shot |
| Where yyy = | 01 for 1 licence |
| Where yyy = | 05 for 5 licences |
| Where yyy = | 10 for 10 licences |
| Where yyy = | 25 for 25 licences |
| Where yyy = | 50 for 50 licences |
| Where yyy = | 100 for 100 licences |
| Where yyy = | 250 for 250 licences |

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*Please check with your sales representative, for RoHS compliance on SFP modules.*
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 & 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