AT-9800 SERIES
Flexible Gigabit Layer 3 Switches

AT-9816GB V2
16 x 1000BASE-X GBIC ports

AT-9812T V2
12 x 10/100/1000BASE-T copper ports
4 x 1000BASE-X GBIC ports

Industry Leading Features
Packaged in a 1.5RU standard rack mount chassis, the AT-9800 Series incorporates a 32Gbps switching core that yields 24 Million packets per second wire-speed Layer 3 IP and IPX switching performance.

Flexibility and Reliability
GBIC interfaces provide port flexibility, supporting any combination of gigabit copper or fiber for short haul and long haul. GBIC interfaces are hot-swappable.

Policy-Based Quality of Service (QoS)
Combined with very low latency, comprehensive quality of service features operating at wire speed provide flow based traffic management with full prioritisation and classification, and min/max bandwidth profiles. An ideal solution for high-end aggregation in multicasting and combined voice, data, and video applications.

Power to Perform
The AT-9800 switches are built to meet the needs of high performance network services. Together with Allied Telesis’s advanced software feature set, AlliedWare, the AT-9800 Series is a superior switching solution in the mid-tier aggregation layer.

Traffic Management
Industry leading QoS features with independent bandwidth and latency control allow multi-faceted tuning of network traffic. Minimum and maximum bandwidth limiting in 64Kbps increments and low latency for voice applications operating at wire speed.

Multiprotoocol Service
Wire-speed IPv4 and IPX are complimented with advanced IPv6 for full multiprotocol capability. Many routing protocols RIPv1/v2, OSPFv2, BGP4, IS-IS, VRRP, IGMP, DVMRP, PIM-DM/SM ensuring operation within almost any architecture.

About Allied Telesis
Allied Telesis was founded in 1987 and now has offices around the globe, more than 2,800 employees and over $500M of worldwide annual revenue. The attributes which have led Allied Telesis to achieve its leading position in the enterprise, operator and connectivity business segments can be summarised by four key elements: its business focus on networking technology for professional markets, where Allied Telesis has proved to be the only company capable of providing a total end-to-end solution at a high price/performance ratio; the ability to handle every aspect of its own products from design to marketing; the development of components and solutions which accommodate flexible, efficient and reliable network construction; and support from sound warranty terms and quality services. Allied Telesis connects the IP world efficiently thanks to affordable and highly reliable network solutions. For more information see: 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

Key Features
Performance
- Wire-speed traffic classification
- Wire-speed IPv4 and IPX routing (Layer 3 and 4)
- 32 Gbps non-blocking switch fabric
- Wire-speed multicasting services
- Provides up to 232,000 Layer 2 or 3 address entries
- 4096 VLANs
- Advanced routing protocols OSPF, BGP4, IS-IS, RIP and RIPv2, DVMRP, PIM-DM, PIM-SM
- 24 Million packets per second performance
- Low latency for voice support

Availability
- Load balancing (optional)

QoS
- Policy based QoS features
- Class of Service (CoS)
- IEEE 802.1p prioritisation
- DiffServ
- Bandwidth limiting (64KB increments)

Management
- IEEE 802.1x
- SNMPv3 with extensive MIB support
- Secure SSH capability on management and access
- TACACS+
- Web based management with GUI
- Port trunking with link aggregation

Flexibility
- IPv6 support
- GBIC modules enhance port flexibility
- Will support any combination of 1000BASE-T, 1000BASE-SX, or 1000BASE-LX GBICs
- Huge capabilities and flexibility compressed into 1.5RU form factor
- Compact Flash Socket for operational cost reduction
- Auto-ranging 100-240V AC
- 48vDC power supply option* (factory installed)

Security
- Stateful Inspection Firewall
- Check with your sales representative for availability

* Check with your sales representative for availability
**AT-9800 SERIES | Flexible Gigabit Layer 3 Switches**

**Performance**

**Reliability**
- MTBF: AT-9816GB V2: 260,000 hours
- AT-9812T V2: 480,000 hours

**Acoustic Noise**
- 46.0 dB

**Power Characteristics**
- Voltage: 100-240V A.C.
- Frequency: auto ranging
- Frequency: 50-60Hz

**Power Consumption**
- AT-9816GB V2: 132 Watts (451 BTU/hour) maximum
- AT-9812T V2: 131 Watts (448 BTU/hour) maximum
- AT-9816GB V2: 132 Watts (451 BTU/hour) maximum

**Environmental Specifications**

- **Storage Temperature:**
  - AT-9800: -25°C to 75°C (13°F to 167°F)
  - AT-9816GB V2: -25°C to 75°C (13°F to 167°F)
  - AT-9812T V2: -25°C to 75°C (13°F to 167°F)

- **Relative Humidity Range:** 5% - 95%
- **Non Condensing**
- **Relative Humidity Range:** 5% - 95%

- **Altitude:**
  - Maximum: 3,050 Meters
  - Non condensing

**Country of Origin**
- Singapore

**Standards and Protocols**

**Software Release 2.9.1**

**BGP-4**
- RFC 1771 Border Gateway Protocol 4
- RFC 1997 BGP Communities Attribute
- RFC 1998 Multi-home Routing
- RFC 2385 Protection of BGP Sessions via the TCP MDS
- RFC 2439 BGP Route Flap Damping
- RFC 2858 Multiprotocol Extensions for BGP-4
- RFC 2918 Route Refresh Capability for BGP-4
- RFC 3065 Autonomous System Confederations for BGP
- RFC 3292 Capabilities Advertisement with BGP-4

**Encryption**
- RFC 1321 MD5
- RFC 2104 HMAC
- RFC 1864 RSA
- RFC 46-3 DES

**Ethernet**
- RFC 894 Ethernet II Encapsulation
- IEEE 802.1D MAC Bridges
- IEEE 802.1Q Virtual LANs
- IEEE 802.1v 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 802.3x Full Duplex Operation
- IEEE 802.3z Gigabit Ethernet
- GARP
- GVRP

**General Routing**
- RFC 768 UDP
- RFC 791 IP
- RFC 791 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 OSI IS-IS intra-domain routing Protocol
- RFC 1145 Van Jacobson's Compression
- RFC 1234 ICMP Router Discovery Messages
- RFC 1288 Finger
- RFC 1332 The PPP Internet Control Protocol (IPCP)
- RFC 1378 The PPP AppleTalk Control Protocol (ATCP)
- 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 1582 RIP on Demand Circuits
- RFC 1661 The Point-to-Point Protocol (PPP)
- RFC 1762 The PPP DECNets Phase IV Control Protocol (DNCP)
- RFC 1812 Router Requirements
- RFC 1877 PPP Internet Control Protocol Control Protocol Extensions for Name Server Addresses
- RFC 1918 IP Addressing
- RFC 1962 The PPP Compression Control Protocol (CCP)
- RFC 1968 The PPP Encryption Control Protocol (ECP)
- RFC 1974 PPP Stac LZS Compression Protocol
- RFC 1978 PPP Predictor Compression Protocol
- RFC 1990 The PPP Multilink Protocol (MP)
- RFC 2125 The PPP Bandwidth Allocation Protocol (BAP)
- / The PPP Bandwidth Allocation Control Protocol (BACP)
- RFC 2131 DHCP
- RFC 2132 DHCP Options and BOOTP Vendor Extensions
- RFC 2390 Inverse Address Resolution Protocol
- RFC 2516 A Method for Transmitting PPP over Ethernet (PPPoE)
- RFC 2661 L2TP
- RFC 2822 Internet Message Format
- RFC 3046 DHCP Relay Agent Information Option
- RFC 3222 Assigned Numbers
- RFC 3993 Subscriber-ID Sub-option for DHCP Relay Agent Option
- ISO 10589, ISO 10589 Technical Corrigendum 1, 2, 3
- Adet, ISO 8648, ISO TR 9577 Open System Interconnection"
- ISO 9542 End System to Intermediate System Protocol

**General Routing and Firewall**
- RFC 3022 Traditional NAT

**IP Multicasting**
- RFC 1075 DMVPN
- RFC 1112 Host Extensions
- RFC 2236 IGMPv2
- RFC 2342 PIM-SM
- RFC 2715 Interoperability Rules for Multicast Routing
- RFC 3973 PIM-DM
- draft-ietf-magma-snoop-02 IGMP and MLD snooping
- draft-ietf-idmr-dvmrp-v3-9 DVMRP
- draft-ietf-pim-dot3-mdmc-02 PIM-DM
- RFC 2715 Interoperability Rules for Multicast Routing
- RFC 3973 PIM-DM
- draft-ietf-mdmc-dot3-02 PIM-DM

**IPv6**
- RFC 1981 Path MTU Discovery for IPv6
- RFC 2008 IPv6
- RFC 2364 Administrative Scoped IPv6 Multicast
- RFC 2375 IPv6 Multicast Address Assignments
- RFC 2460 IPv6
- RFC 2461 Neighbour Discovery for IPv6
- RFC 2462 IPv6 Stateless Address Autoconfiguration

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### AT-9800 SERIES | Flexible Gigabit Layer 3 Switches

RFC 2463 ICHPv6  
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks  
RFC 2465 Allocation Guidelines for IPv6 Multicast Addresses Management Information Base for IP Version 6: Textual Conventions and General Group  
RFC 2466 Management Information Base for IP Version 6: ICMPv6 Group  
RFC 2472 IPv6 over PPP  
RFC 2526 Reserved IPv6 Subnet Anycast Addresses  
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels  
RFC 2710 Multicast Listener Discovery (MLD) for IPv6  
RFC 2711 IPv6 Router Alert Option  
RFC 2851 Textual Conventions for Internet Network Addresses  
RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers  
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds  
RFC 3315 DHCPv6  
RFC 3404 Default Address Selection for IPv6  
RFC 3513 IPv6 Addressing Architecture  
RFC 3587 IPv6 Global Unicast Address Format  
RFC 3596 DNS Extensions to support IPv6  
RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6  

### Management  
RFC 1155 MIB  
RFC 1157 SNMP  
RFC 1212 Concise MIB definitions  
RFC 1213 MIB-II  
RFC 1493 Bridge MIB  
RFC 1643 Ethernet MIB  
RFC 1657 Definitions of Managed Objects for BGP-4 using SMv2  
RFC 2011 SNMPv2-MIB for IP using SMv2  
RFC 2012 SNMPv2-MIB for TCP using SMv2  
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 SMv2  
RFC 2580 Conformance Statements for SMv2  
RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types  
RFC 2667 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-II  
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 3636 Definitions of Managed Objects for IEEE 802.3 MDUs  
RFC 3769 VRMP  
draft-ietf-bridge-8021x-00.txt Port Access Control MIB  
CDP  
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 2205 Reservation Protocol  
RFC 2211 Controlled-Load  
RFC 2474 DSCP  
RFC 2475 An Architecture for Differentiated Services  
IEEE 802.1p Priority Tagging  

### RIP  
RFC 1058 RIP+1  
RFC 2453 RIPv2  
RFC 2082 RIP-2MDS Authentication  

### Security  
RFC 895 FTP  
RFC 1413 IDP  
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 2685 RADIUS  
RFC 2686 RADIUS Accounting  
RFC 2688 RADIUS Attributes for Tunnel Protocol Support  
RFC 3200 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+  
draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol  
IEEE 802.1x Port Based Network Access Control  
PKCS #10 Certificate Request Syntax Standard  
Diffie-Hellman  

### 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 922 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 1995 HTTP/1.0  
RFC 1985 SMPT Service Extension  
RFC 2068 HTTP/1.1  
RFC 2156 MIXER  
RFC 2721 SSMTP  

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

### STP / RSTP  
IEEE 802.1t - 2001 802.1D maintenance  
IEEE 802.1w - 2001 RSTP  

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Allied Telesis  
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AT-9800 SERIES | Flexible Gigabit Layer 3 Switches

Ordering Information

AT-9816GB V2-xx
16 GBIC port layer 3-7 switch with power supply
Ordering information: 990-001381-xx (RoHS compliant)

AT-9812T V2-xx
4 GBIC + 12 copper ports layer 3-7 switch with power supply
Ordering information: 990-000576-xx (not RoHS compliant)

Where xx =
10 for U.S. power cord
20 for no power cord
30 of U.K. power cord
40 for Asia/Pacific power cord
50 for European power cord
80 for 48v DC power supply

NB: All AT-9800 Series switches are shipped with 128MB of SDRAM (upgraded to 256MB) and 40 k-entries of CAM.

SDRAM
AT-SD256A-00
256MB SDRAM (upgrade)
Order number: 990-001345-00

Compact Flash
AT-CF128A-00
128MB compact flash card
Order number: 990-000819-00

Gigabit Interface Converter (GBIC) Modules
AT-G8T
1000T GBIC Copper
Order number: 990-97208-00

AT-G8SX-01
500m SX GBIC, based on 50 micron MMF
220m SX GBIC, based on 62.5 micron MMF
Order number: 990-02023-00

AT-G8LX10
10km LX GBIC, based on 9 micron SMF
Order number: 990-11138-00

AT-G8LX25
25km LX GBIC, based on 9 micron SMF
Order number: 990-11643-00

AT-G8LX40
40km LX GBIC, based on 9 micron SMF
Order number: 990-11644-00

AT-G8LX70
70km LX GBIC, based on 9 micron SMF
Order number: 990-11645-00

AT-G8ZX70/wwww
70km ZX GBIC, based on 9 micron SMF
Order number: 990-01999-xx

Where wwww= Where xx= Wavelength
1610 00 1610NM
1590 01 1590NM
1570 02 1570NM
1550 03 1550NM
1530 04 1530NM
1510 05 1510NM
1490 06 1490NM
1470 07 1470NM
1450 08 1450NM
1430 09 1430NM
1410 10 1410NM
1390 11 1390NM
1370 12 1370NM
1350 13 1350NM
1330 14 1330NM
1310 15 1310NM

AT-9800ADVL3UPGRD
AT-9800 series advanced Layer 3 upgrade
· IPv6
· BGP4
· Load balancing
Order number: 980-10025-00

AT-9800SecPk
AT-9800 Layer 3 switch security pack
· Firewall
· SMTP Proxy
· HTTP Proxy
Order number: 980-10031-y

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

1 Included in North American products as part of their base configuration. Free registration required in other regions.

Feature Licences

AT-AR-9800FL3UPGRD
AT-9800 full Layer 3 upgrade
· IPX routing
· RSVP
· PIM DM
· PIM SM
· DVMRP
· VRRP
Order number: 980-10033-00

* The GBICs listed are subject to change at any time without notice.