Switches

9800 Series,
Layer 3-7 Gigabit Switches

AT-9812T
12 x 10/100/1000T copper ports, 4 x 1000X GBIC ports
AT-9816GB
16 x 1000X GBIC ports

Industry-leading features

The 9800 series reaches new heights in performance, flexibility, and reliability. Packaged in a 1.5RU standard rackmount chassis, the 9800 series incorporates a 32Gbps switching core that yields 24Mpps wirespeed Layer 3 IP and IPX switching performance.

Flexibility and reliability

GBIC interfaces provide ultimate port flexibility, supporting any combination of Gigabit copper or fibre for short haul and long haul. GBIC interfaces are hot-swappable, and an optional redundant power supply provides added reliability.

Policy-based Quality of Service

Combined with very low latency, comprehensive Quality of Service features operating at wirespeed 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, video and data applications.

Power to perform

The 9800 series top-of-the-line Layer 3-7 switches are built to meet the needs of high performance network services. Together with Allied Telesyn's advanced software feature set, AlliedWare™, the 9800 series is a superior switching solution in the mid-tier aggregation layer.

About Allied Telesyn

Allied Telesyn International is a member of the Allied Telesis Group (ATI) who, founded in 1987, now has offices throughout the globe, over 3,000 employees worldwide and over $600M of worldwide annual revenue. The attributes which have led ATI to achieve its leading position in both the enterprise, operator and connectivity business segments can be summarised by four key elements: its business focus on networking technology for professional markets, where ATI 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; support from sound warranty terms and quality services. Allied Telesyn connects the IP world efficiently thanks to affordable and highly reliable network solutions. For more information see: www.alliedtelesyneurope.com <http://www.alliedtelesyn.com>

Service & Support

Allied Telesyn 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 Telesyn sales representative or visit our website.
www.alliedtelesyn.com

Key features

- Extensive wirespeed traffic classification
- Non-blocking wirespeed under all circumstances
- Layer 2 and 3 IP and IPX routing at wirespeed (all packet sizes)
- Fixed ports 12 x 10/100/1000T
- 32Gbps core yields
- 24Mpps performance
- Low latency for voice support
- Provides up to 232,000 Layer 2 and 3 address table entries
- Policy-based QoS features
- Supports full 4096 VLANs
- GBIC modules enhance port flexibility
- Will support any combination of 1000T, 1000SX, or 1000LX GBICs
- Huge capabilities and flexibility compressed into 1.5 RU form factor
- Web-based management with GUI
- SNMP with extensive MIB support
- SMNPv3*
- IPv6 support
- Advanced routing protocols OSPF, BGP4, IS-IS, RIP, RIPv2, DVMRP, PIM-SM, PIM-DM
- Port trunking with link aggregation
- Wirespeed multicasting
- Secure SSH capability on management and access
- TACACS+
- IEEE 802.1x

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RELIABILITY

AT-9812T	480,000 hrs. MTBF
AT-9816GB	260,000 hrs. MTBF

POWER CHARACTERISTICS

Voltage	100-240V AC auto-ranging
Frequency	50-60Hz

Power consumption:

AT-9816Gx	132W (451BTU/hour) maximum 86W (294BTU/hour) typical
AT-9812Tx	131W (448BTU/hour) maximum 112W (383BTU/hour) typical

Maximum = with all T GBICs and CAM installed
Typical = with all SX fibre GBICs and CAM installed and measured with 230V AC supply

ENVIRONMENTAL SPECIFICATIONS

Operating Temp	0°C to 40°C (32°F to 104°F)
Storage Temp	–25°C to 75°C (13°F to 158°F)
Relative Humidity	5% to 95% non-condensing
Altitude	3,050 metres maximum (10,000 ft)

PHYSICAL CHARACTERISTICS

Height	6.6cm (2.6")
Width	44cm (17.3")
Depth	36cm (14.2")
Mounting	19" rackmountable 1.5 RU form-factor
Weight	AT-9816: 6.52kg or 8.5kg packaged AT-9812: 6.26kg or 8.3kg packaged

Redundant Power Supply:

Height	6.6cm (2.6")
Width	44cm (17.3")
Depth	36cm (14.2")
Mounting	19" rackmountable, 1.5RU form factor
Weight	(AT-RPS9000 with 1 power supply module) 6.6kg or 8.5kg packaged (AT-RPS9000 with 4 power supply modules) 10kg or 11.9kg packaged

ELECTRICAL/MECHANICAL APPROVALS

Emissions:	AT-9816GB EN55022 Class B, FCC Class B, VCCI Class B (the use of T GBICs may cause Class A compliance)
Immunity:	EN55024, EN61000-3-2/3

SAFETY

	UL60950, CAN/CSA-C22.2 No. 60950-00, EN60950, AS/NZS3260
Certification:	UL, cUL, TUV

COUNTRY OF ORIGIN

Singapore

STANDARDS AND PROTOCOLS

BGP-4

RFC 1771	Border Gateway Protocol 4
RFC 3065	Autonomous System Confederations for BGP
RFC 1997	BGP Communities Attribute
RFC 1998	Multi-home Routing

ENCRYPTION

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

ETHERNET

IEEE 802.1D	MAC Bridges
IEEE 802.2	Logical Link Control
IEEE 802.3u	100T
IEEE 802.3x	Full-duplex Operation
IEEE 802.3z	Gigabit Ethernet
IEEE 802.3ac	VLAN TAG
IEEE 802.3ad	(static) Link Aggregation
IEEE 802.1Q	Virtual LANs
IEEE 802.1v	VLAN Classification by Protocol and Port
RFC 894	Ethernet II Encapsulation

GENERAL ROUTING

RFC 1918	IP Addressing
RFC 791	IP
RFC 950	Subnetting, ICMP
RFC 1812	Router Requirements
RFC 1055	SLIP
RFC 1122	Internet Host Requirements
RFC 1582	RIP on Demand Circuits

'IPX Router Specification', v1.2, Novell, Inc., Part Number 107-000029-001 IPX Router Specification

RFC 792	ICMP
RFC 1288	Finger
RFC 1701	GRE
RFC 1702	GRE over IPv4
RFC 2131	DHCP
RFC 2132	DHCP options and BOOTP Vendor Extensions
RFC 1542	BootP
RFC 826	ARP
RFC 925	Multi-LAN ARP
RFC 3232	Assigned Numbers
RFC 2661	L2TP
RFC 2822	Internet Message Format
RFC 903	Reverse ARP
RFC 1027	Proxy ARP
RFC 793	TCP
RFC 768	UDP
RFC 1144	Van Jacobson's Compression

AppleTalk

ISO 9542	End System to Intermediate System Protocol
RFC 2390	Inverse Address Resolution Protocol
RFC 1142	OSI IS-IS Intra-domain Routing Protocol

ISO 10589, ISO 10589 Technical Corrigendums 1, 2, 3, ISO Intermediate System-to-Intermediate System
ISO 8473, relevant parts of ISO 8348(X.213), ISO 8343/Add2, ISO 8648, ISO TR 9577
Open System Interconnection

RFC 3022	Traditional NAT

IP MULTICASTING

RFC 2236	IGMPv2
RFC 1075	DVMRP

draft-ietf-idmr-dvmrp-v3-10 DVMRP

RFC 1112	Host Extensions
RFC 1812	Router Requirements
RFC 2715	Interoperability Rules for Multicast Routing Protocols
RFC 2362	PIM-SM

draft-ietf-pim-dm-new-v2-01 PIM-DM
draft-ietf-pim-sm-v2-new-05 PIM-SM
draft-ietf-magma-snoop-02 IGMP and MLD Snooping switches

IPv6

draft-ietf-ngtrans-hometun-01 IPv6 over IPv4 tunnels for home to Internet access

RFC 1886	DNS Extensions to support IPv6
RFC 1981	Path MTU Discovery for IPv6
RFC 2375	IPv6 Multicast Address Assignments
RFC 2460	IPv6
RFC 2080	RIPng for IPv6
RFC 2373	IPv6 Addressing Architecture
RFC 2461	Neighbour Discovery for IPv6
RFC 2462	IPv6 Stateless Address Auto-configuration
RFC 2463	ICMPv6
RFC 2464	Transmission of IPv6 Packets over Ethernet Networks
RFC 2472	IPv6 over PPP

RFC draft-vida-mld-v2 Multicast Listener Discovery (MLD) for IPv6
draft-ietf-ngtrans-introduction-to-ipv6-transition-06 An overview of the introduction of IPv6 in the Internet

RFC 2526	Reserved IPv6 Subnet Anycast Addresses
RFC 2711	IPv6 Router Alert Option
RFC 3056	Connection of IPv6 Domains via IPv4 Clouds
RFC 3315	DHCPv6
RFC 3633	IPv6 Prefix options for Dynamic Host Configuration Protocol

MANAGEMENT

RFC 1155	MIB
RFC 1157	SNMP
RFC 1213	MIB-II
RFC 1643	Ethernet MIB
RFC 1493	Bridge MIB
RFC 2790	Host MIB
RFC 1573	Evolution of the Interfaces Group of MIB-II
RFC 2338	VRRP
RFC 1757	RMON (groups 1,2,3 and 9)
RFC 3416	SNMPv2c
RFC 3418	SNMPv2c for MIB
RFC 2674	Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)
RFC 2665	Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2580	Conformance Statements for SMIv2
RFC 2578	Structure of Management Information version 2 (SMIv2)
RFC 2096	IP Forwarding Table MIB
RFC 2012	SNMPv2 MIB for TCP using SMIv2
RFC 2011	SNMPv2 MIB for IP using SMIv2
RFC 1657	Definitions of Managed Objects for BGP-4 using SMIv2

9800 Series, Layer 3-7 Gigabit Switches

RFC 1515	Definitions of Managed Objects for IEEE 802.3 MAUs
RFC 2856	Textual Conventions for Additional High Capacity Data Types
RFC 2579	Textual Conventions for SMIv2
RFC 1212	Concise MIB definitions
RFC 2576	Coexistence between v1, v2, and v3 of the Internet-standard Network Management Framework*
RFC 3164	Syslog Protocol
RFC 3410	Introduction to SNMPv3*
RFC 3411	An Architecture (SNMP)
RFC 3412	Message Processing and Dispatching(MPD) for the SNMPv3*
RFC 3413	SNMPv3 Applications*
RFC 3414	User-based Security Model (USM) for SNMPv3*
RFC 3415	View-based Access Control Model (VACM) for the SNMP
RFC 3416	Protocol Operation for SNMPv3*
RFC 3417	Transport Mappings SNMPv3*
RFC 3418	MIB for SNMPv3*
RFC 2104	Keyed-hashing for Message Authentication

OSPF

RFC 1245	OSPF protocol analysis
RFC 1246	Experience with the OSPF protocol
RFC 1583	OSPFv2
RFC 1793	Extending OSPF to Support Demand Circuits
RFC 1586	OSPF over Frame Relay

QOS

RFC 1349	Type of Service in the IP Suite
RFC 2205	Reservation Protocol
RFC 2211	Controlled-Load
RFC 2475	An Architecture for Differentiated Services
IEEE 802.1p	Priority Tagging

RIP

RFC 1058	RIPv1
RFC 1723	RIPv2

SECURITY

IEEE 802.1x	Port-based Network Access Control
draft-ylonen-ssh-protocol-00.txt	SSH Remote Login Protocol
RFC 1779	X.500 String Representation of Distinguished Names
RFC 2459	X.509 Certificate and CRL profile
RFC 2511	X.509 Certificate Request Message Format
RFC 2559	PKI X.509 LDAPv2
RFC 2587	PKI X.509 LDAPv2 Schema
RFC 2510	PKI X.509 Certificate Management Protocols
RFC 2585	PKI X.509 Operational Protocols
PKCS #10	Certificate Request Syntax Standard
draft-IETF-PKIX-CMP-Transport-Protocols-01	Transport Protocols for CMP
RFC 2865	RADIUS
RFC 2866	RADIUS Accounting
RFC 1492	TACACS
draft-grant-tacacs-02.txt	TACACS+
RFC 1413	IDP
RFC 1858	Fragmentation
RFC 959	FTP

SERVICES

RFC 2821	SMTP
RFC 2049	MIME
RFC 1985	SMTP Service Extension
RFC 1305	NTPv3
RFC 1510	Network Authentication
RFC 2156	MIXER
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 1091	Telnet terminal-type option
RFC 1350	TFTP
RFC 932	Subnetwork addressing scheme
RFC 1945	HTTP/1.0
RFC 1179	Line Printer daemon protocol

SSL

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

STP / RSTP

IEEE 802.1w	2001 RSTP
IEEE 802.1t	2001 802.1D maintenance

X.25

RFC 1356	Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode
ITU-T Recommendations X.25 (1988), X.121 (1988), X.25	

FRAME RELAY

ANSI T1S1	Frame Relay
RFC 1490, 2427	Multiprotocol Interconnect over Frame Relay

* Check with your sales representative for availability

ORDERING INFORMATION

AT-9816GB-xx

16 GBIC port Layer 3-7 switch with power supply (139W)

AT-9812T-xx

4 GBIC + 12 copper ports Layer 3-7 switch with power supply (139W)

Where xx = 10 for U.S. power cord
20 for no power cord
30 for U.K. power cord
40 for Australian power cord
50 for European power cord
80 for -48vDC power supply

NB. All 9800 series switches are shipped with 128MB of SDRAM (which can be upgraded to 256MB) and 40 k-entries of CAM (which can be upgraded to 232 k-entries).

SDRAM

AT-SD128A-00	128MB SDRAM
AT-SD256A-00	256MB SDRAM (upgrade)

Compact Flash

AT-CF032A-00	32MB compact flash card
AT-CF064A-00	64MB compact flash card
AT-CF128A-00	128MB compact flash card

Content Addressable Memory

AT-SB4262-00	192k entry line CAM daughter card

Gigabit Interface Converter (GBIC) Modules

AT-G8T
1000T GBIC copper

AT-G9T
1000T GBIC copper

AT-G8SX-01
500m SX GBIC, based on 50 Micron multi-mode fibre
220m SX GBIC, based on 62.5 Micron multi-mode fibre

AT-G8LX10
10km LX GBIC, based on 9 Micron single-mode fibre

AT-G8LX25
25km LX GBIC, based on 9 Micron single-mode fibre

AT-G8LX40
40km LX GBIC, based on 9 Micron single-mode fibre

AT-G8LX70
70km LX GBIC, based on 9 Micron single-mode fibre

AT-G8ZX70/wwww
70km ZX GBIC, based on 9 Micron single-mode fibre

Where wwww=

1610 for 1610NM	1450 for 1450NM
1590 for 1590NM	1430 for 1430NM
1570 for 1570NM	1410 for 1410NM
1550 for 1550NM	1390 for 1390NM
1530 for 1530NM	1370 for 1370NM
1510 for 1510NM	1350 for 1350NM
1490 for 1490NM	1330 for 1330NM
1470 for 1470NM	1310 for 1310NM

Redundant Power Supplies

AT-RPS9000-xx
Redundant Power Supply chassis for the AT-9816GB and AT-9812T, includes one power module

AT-PWR9000-00
Power supply module for the AT-RPS9000

AT-RPS8000-xx
Redundant power supply chassis for the AT-9816GF and AT-9812TF, includes one power module.

AT-PWR8000-00
Power supply module for the AT-RPS8000

AT-AR9800FL3UPGRD-xxx
AT-9800 full Layer 3 upgrade

AT-9800ADVL3UPGRD-xxx
9800 series advanced Layer 3 upgrade

AT-9800SecPk-00-xxx
AT-9800 Layer 3 switch security pack

Where xxx=

00 for 1 shot	025 for 25 MTACs
001 for 1 MTAC	050 for 50 MTACs
005 for 5 MTACs	100 for 100 MTACs
010 for 10 MTACs	250 for 250 MTACs

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