

## 9400 SERIES

### Managed Gigabit Ethernet Switches with Enhanced Security and Layer 2-4 Intelligence



#### AT-9424T/GB-xx\*\*

Layer 2+ switch with 24 ports of 10/100/1000T plus 2 combo GBIC slots (unpopulated)

#### AT-9424T/SP-xx

Layer 2+ switch with 24 ports of 10/100/1000T plus 2 combo SFP slots (unpopulated)

#### AT-9408LC/SP-xx

Layer 2+ switch with 8 ports 1000SX (LC connectors) plus 4 SFPs (active) plus memory flash card slot

#### Smarter, More Secure and More Cost-effective

The 9400 series is an advanced Layer 2 managed Gigabit switch for the access edge that brings enhanced security to Gigabit networks. Many network administrators demand easy to manage, cost-effective, intelligent switches at the LAN edge, and the 9400 switch answers such demands, with the optimal balance of features, performance, and value. More intelligent than simple Layer 2 switches, the cost-effective 9400 offers advanced attack detection and suppression capabilities for increased security and advanced QoS to support converged applications.

The 9400 series provides the perfect solution for:

- Traditional Enterprise LAN (wiring closet)
- Service-provisioned leased offices or MTUs
- Security-conscious government institutions
- Security-conscious financial institutions
- Cost/security-conscious educational institutions

#### Management Stacking

Stacking provides CLI-based management of up to 24 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.

#### Layer 2-4 Intelligence

The 9400 series packs a lot of features in one rack unit. With advanced AlliedWare® technology the 9400 switches allow network administrators to configure the switch to examine packet formats and content from Layer 2, Layer 3, or Layer 4 (also known as the MAC, IP and TCP/UDP layers). After these layer parameters are defined and detected, network security can be improved with Access Control lists (ACLs) and DoS attack detection features. Rate limits can be established for excessive bandwidth usage and converged applications are supported.

#### Securing the LAN Edge

To address the heightened concern of network attacks in the form of Denial of Services (DoS), Allied Telesis now makes security features its primary focus. Assisted by the Layer 2-4 intelligence, network administrators can deploy 9400 switches to complement WAN firewalls and PC anti-virus protections to fortify the network against malicious attacks. The 9400 switches come pre-programmed to detect six well-known DoS attacks. Coupled with security features such as IEEE 802.1x (port-based network access control) and Radius/ TACACS+, the 9400 series provides tiered security on each port. Deploying tiered security in unsecured areas such as visitors' meeting rooms and lounges provide cost-effective protections at the network layer.

#### Service Features for Revenue Generation

In a global economic climate, network administrators must focus on managing capital spending—a concern that forces resource utilization to center stage. Allied Telesis designed the 9400 to allow smart management of network resources with two key features:

- Ingress and egress rate-limiting to provision bandwidth intelligently.
- QoS support with IEEE 802.1p and DSCP for priority traffic. The 9400 series also includes CoS to DSCP remarking, allowing Layer 2 QoS priorities to be preserved over the WAN.

Network administrators can configure the 9400 to control bandwidth-wasting traffic—such as music streaming to desktops—by dynamically lowering the priority and limiting bandwidth to a trickle. Such features benefit metropolitan providers by enabling them to charge a fee to provision different bandwidth and QoS priorities as value-added services for customers.

\*\* Contact local sales representative for availability

#### Key Features

##### Layer 2-4 Intelligence

- Packet look-up at MAC, IP, TCP/ UDP layers
- For QoS, ACL, mirroring, rate-limiting

##### Advanced Security

- DoS attack protection
- Radius/ TACACS+
- Port security
- Secure Telnet
- IEEE 802.1x
- Layer 2-4 ACL

##### Advanced Services

- Rate limiting (ingress and egress)
- Eight levels of services
- IEEE 802.1p for MAC-based QoS
- DSCP for IP-based QoS

##### Layer 2 Redundancy

- IEEE 802.1s Multiple STP (compatible with PVST+)
- IEEE 802.3ad link aggregation (static)
- IEEE 802.1D Spanning-Tree
- IEEE 802.1w Rapid STP

##### Stacking

- Management stacking of up to 24 switches with Enhanced Stacking™

# 9400 SERIES | Managed Gigabit Ethernet Switches with Enhanced Security

## Hardware Specification

### Physical Characteristics

Dimensions (H x W x D):

AT-9408LC/SP 4.4cm x 43.8cm x 22.2cm  
(1.75" x 17.25" x 8.75")

AT-9424T/GB 4.4cm x 43.8cm x 22.2cm  
(1.75" x 17.25" x 8.75")

AT-9424T/SP 4.4cm x 43.8cm x 22.2cm  
(1.75" x 17.25" x 8.75")

Weight:

AT-9408LC/SP 3.00kg (6.65 lb.)

AT-9424T/GB 3.11kg (6.85 lb.)

AT-9424T/SP 3.11kg (6.85 lb.)

Recommended minimum ventilation on all sides

10cm (4.0 in.)

### System Capacity

32MB RAM

16MB flash memory

200MHz PowerPC CPU

4096 VLANs

16000 MAC addresses

8 megabytes file system

### Performance

Latency:

<81 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 throughput:

AT-9424TSP/GB 35.7Mpps

AT-9424TSP/SP 35.7Mpps

AT-9408LC/SP 17.8Mpps

Chipset switching capacity:

AT-9424TSP/GB 48Gbps (Full-duplex)

AT-9424TSP/SP 48Gbps (Full-duplex)

AT-9408LC/SP 24Gbps (Full-duplex)

Auto MDI/MDI-X

## Software Specification

### Interface Standards

IEEE 802.3 10T and 10FL

IEEE 802.3u 100TX and 100FX

IEEE 802.3z 1000SX

IEEE 802.3ab 1000T

### General Standards

IEEE 802.1d Bridging

IEEE 802.3ac VLAN tag frame extension

IEEE 802.3x BackPressure/ flow control

Head of line blocking

Eight egress queues per port

## Redundancy

IEEE 802.1D Spanning-Tree Protocol

IEEE 802.1w Rapid Spanning-Tree

IEEE 802.1s Multiple Spanning-Tree  
(compatible with PVST+)

IEEE 802.3ad LACP link aggregation  
(with three trunk groups and  
up to eight port in a trunk)

Static port trunk

Router Redundancy Protocol (RRP) snooping

## Quality of Services (QoS)

Layer 2, 3 and 4 criteria

Flow groups, traffic classes and policies

DSCP replacement

IEEE 802.1Q priority replacement

Type of Service replacement

Type of Service to IEEE 802.1Q priority replacement

IEEE 802.1Q priority to Type of Service replacement

Maximum bandwidth control

Burst size control

Support for ingress and egress ports

IEEE 802.1p Class of Service with strict and weighted  
round robin scheduling

## VLANs

IEEE 802.1Q VLAN tagging

Port-based VLANs

Compliant and non-compliant IEEE 802.1Q VLAN modes

Protected port VLAN

MAC address-based VLANs (AT-9448Ts/XP only)

Selectable management VLAN

GARP VLAN Registration Protocol (GVRP)

## Multicast

RFC 1112 IGMP snooping (v1)

RFC 2236 IGMP snooping (v2)

RFC 2710 Multicast Listener Discovery  
(MLD) snooping (v1)

RFC 3810 Multicast Listener Discovery  
(MLD) snooping (v2)

## Management and Monitoring

RFC 1157 SNMPv1

RFC 1901 SNMPv2

RFC 3411 SNMPv3

RFC 1213 MIB-II

RFC 1215 TRAP MIB

RFC 1493 Bridge MIB

RFC 2863 Interfaces group MIB

RFC 1643 Ethernet-like MIB

RFC 1757 RMON 4 groups:

Stats, History, Alarms and Events

IEEE 802.1Q MIB

Private MIB

RFC 1866 HTML

RFC 2068 HTTP

RFC 2616 HTTPS

RFC 854 Telnet server

RFC 1350 TFTP client

IP address allocation:

RFC 951 / RFC1542 BOOTP client

RFC 2131 DHCP client

Manual

RFC 2030 SNTP, Simple Network Time Protocol

Syslog client

Dual software images, dual configuration files

Two event logs:

4,000 event capacity in temporary memory

2,000 event capacity in permanent memory

## Management Access Methods

Enhanced Stacking

Two 10Gbps full-duplex stacking port per port

Single IP address for management

Resilient bi-directional ring architecture

Out of band management (serial port)

In-band management (over the network) using Telnet,

web browser or SNMP

## Management Interfaces

Menus

Command line

Web browser

SNMPv1/ v2/ v3

## Security

RFC 1492 TACACS+

RFC 2865 RADIUS Client

RFC 2866 RADIUS Accounting

IEEE 802.1x Port-based network access control  
with multiple supplicants per port

Ingress and egress control of broadcast, multicast

and unknown unicast traffic

Ingress rate limiting

MAC address security/lockdown

Layer 2/3/4/ Access Control Lists (ACLs)

SSHv2 for Telnet mgmt

SSLv3 for Web mgmt

Management access control list

## Fault Protection

DoS attack protection

Smurf

SYN flood

Teardrop

Land

IP option

Ping of Death

SNMP attack

Bad cable detection

Broadcast storm control

# 9400 SERIES | Managed Gigabit Ethernet Switches with Enhanced Security

## Miscellaneous Specifications

### Power Characteristics

Voltage	100-240V AC
Current	4.0/2.0A
Frequency	50-60Hz

Maximum power consumption:

AT-9408LC/SP	58 watts
AT-9424T/GB	54 watts
AT-9424T/SP	54 watts

### Environmental Specifications

Operating temp.	0°C to 40°C (32°F to 104°F)
Storage temp.	-25°C to 70°C (-13°F to 158°F)
Operating humidity	5% to 90% non-condensing
Storage humidity	5% to 95% non-condensing
Maximum operating altitude	3,048m (10,000ft)

### Electrical/Mechanical Approvals

Safety UL 60950-1, CSA C22.2 No. 60950-1-03, EN60950, EN60825 (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

## Ordering Information

### AT-9424T/GB-xx\*\*

Layer 2+ switch with 24 ports of 10/100/1000T plus 2 combo GBIC slots (unpopulated)

### AT-9424T/SP-xx

Layer 2+ switch with 24 ports of 10/100/1000T plus 2 combo SFP slots (unpopulated)

### AT-9408LC/SP-xx

Layer 2+ switch with 8 ports 1000SX plus 4 SFP slots (active)

Where xx = 10 for US power cord  
20 for no power cord  
30 for UK power cord  
40 for Australian power cord  
50 for European power cord

## Accessories

### Redundant Power Supply

AT-RPS3204 Chassis for up to 4 redundant power supplies (chassis includes one power supply and one cable)

### AT-PWR3202

Additional 200w redundant power supply with cable

### GBICs

#### AT-G8T

1000T GBIC Copper

#### AT-G8SX-01

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

### Small Form Pluggables (SFPs)

#### AT-SPSX

Multi-mode fiber, GbE Small Form-factor Pluggable (SFP) 850nm

#### AT-SPLX10

Single-mode fiber, 10km, GbE SFP, 1310nm

#### AT-SPLX40

Single-mode fiber, 40km, GbE SFP, 1310nm

#### AT-SPLX40/1550

Single-mode fiber, 40km, GbE SFP, 1550nm

#### AT-SPZX80

Single-mode fiber, 80km, GbE SFP, 1550nm

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)

© 2010 Allied Telesis Inc. All rights reserved. Information in this document is subject to change without notice. All company names, logos, and product designs that are trademarks or registered trademarks are the property of their respective owners. 617-00601 Rev.0