

## AT-9400 Series Managed Gigabit Ethernet Switches with Enhanced Security & Layer 2-4 Intelligence



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

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

### AT-9424T/SP-xx

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

### AT-9408LC/SP-xx

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

### AT-9448Ts/XP-xx

Layer 2+ stackable switch with 48-port 10/100/1000Base-T plus 2 XFPs + memory flash card slot

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

The AT-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 AT-9400 switch answers such demands, with the optimal balance of features, performance, and value. More intelligent than simple L2 switches, the cost-effective AT-9400 offers advanced attack detection and suppression capabilities for increased security and advanced QoS to support converged applications.

The AT-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

### Layer 2-4 Intelligence

The AT-9400 Series packs a lot of features in one rack unit. With advanced AlliedWare™ technology the AT-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 L2-L4 intelligence, network administrators can deploy AT-9400 switches to complement WAN firewalls and PC anti-virus protections to fortify the network against malicious attacks. The AT-9400 switches come pre-programmed to detect six well-known DOS attacks. Coupled with security features such as 802.1x (Port-Based Network Access Control) and Radius/TACACS+, the AT-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 AT-9400 to allow smart management of network resources with two key features:

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

Network administrators can configure the AT-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 sales associate for availability

### Key Features

#### L2-L4 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
- 802.1x
- L2-L4 ACL

#### Advanced Services

- Rate Limiting (Ingress & Egress)
- 8 levels of Services
- 802.1p for MAC-based QoS
- DSCP for IP-based QoS

#### L2 Redundancy

- 802.1s Multiple STP (compatible with PVST+)
- 802.3ad Link Aggregation (static)
- 802.1D Spanning Tree
- 802.1w Rapid STP

# AT-9400 Series | Managed Gigabit Ethernet Switches with Enhanced Security

## Hardware Specification

### Physical characteristics

Dimensions (H x W x D):

AT-9408LC/SP	4.4 cm x 43.8 cm x 22.2 cm (1.75 in. x 17.25 in. x 8.75 in.)
AT-9424T/GB	4.4 cm x 43.8 cm x 22.2 cm (1.75 in. x 17.25 in. x 8.75 in.)
AT-9424T/SP	4.4 cm x 43.8 cm x 22.2 cm (1.75 in. x 17.25 in. x 8.75 in.)
AT-9448Ts/XP	4.4 cm x 43.8 cm x 30.48 cm (1.75 in. x 17.25 in. x 12.0 in.)

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.)
AT-9448Ts/XP	5.04kg (11.20 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 10 Mbps ports  
<11 microseconds latency between 100 Mbps ports  
<4 microseconds latency between 1000 Mbps ports  
Wire-speed Switching on all Ethernet ports  
14,880pps for 10Mbps Ethernet  
148,800pps for 100Mbps Fast Ethernet  
1,488,000pps for 1000Mbps Gigabit

Ethernet Throughput:

35.7 Mpps (64-byte packets)

Chipset switching capacity:

AT-9424TSP/GB	48Gbps (Full Duplex)
AT-9424TSP/SP	48Gbps (Full Duplex)
AT-9408LC/SP	24Gbps (Full Duplex)
AT-9448Ts/XP	96Gbps (Full Duplex)

Auto MDI/MDI-X

## Software Specification

### Interface Standards

802.3	10Base-T & 10Base-FL
802.3u	100Base-TX & 100Base-FX
802.3z	1000Base-SX
802.3ab	1000Base-T

### General Standards

802.1d	Bridging
802.3ac	VLAN Tag Frame Extension
802.3x	BackPressure/ Flow control
Head of Line Blocking	
Eight Egress Queues per Port	

## Redundancy

802.1D	Spanning Tree Protocol
802.1w	Rapid Spanning Tree
802.1s	Multiple Spanning Tree (compatible with PVST+)
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  
802.1q Priority Replacement  
Type of Service Replacement  
Type of Service to 802.1q Priority Replacement  
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 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 3376	IGMP Snooping (v3)
RFC 2710	Multicast Listener Discovery (MLD) snooping (v1)
RFC 3810	Multicast Listener Discovery (MLD) snooping (v 2)

## Management and Monitoring

RFC 1157	SNMPv1
RFC 1901	SNMPv2
RFC 3411	SNMP v3
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 & Events
RFC 2674	802.1Q MIB
AlliedTelesis	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™

(AT-9408LC/SP, AT-9424T/SP, AT-9424T/GB)

Stacking with AT-STACKXG stacking module

(AT-9448Ts/XP)

Stack up to eight switches

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

SNMP v1/ v2/ v3

## Security

RFC 1492	TACACS+
RFC 2865	RADIUS Client
RFC 2866	RADIUS Accounting
IEEE802.1x	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

# AT-9400 Series | Managed Gigabit Ethernet Switches with Enhanced Security

## Miscellaneous Specifications

### Power Characteristics

Voltage	100-240vAC
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
AT-9448Ts/XP	143 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 10/100/1000Base-T plus 2 combo GBIC slots (unpopulated)

### AT-9424T/SP-xx

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

### AT-9408LC/SP-xx

Layer 2+ Switch with 8 ports 1000Base-SX plus 4 SFP slots (active)

### AT-9448Ts/XP-xx

Layer 2+ stackable switch with 48-port 10/100/1000Base-T plus 2 XFPs (unpopulated) + memory flash card slot

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

## Accessories

### Stacking accessories

AT-StackXG-00	Stacking module for the AT-9448Ts/XP switch. One AT-StackXG/0.5-00 cable included.
AT-StackXG/0.5-00	0.5 meter cable for stacking
AT-StackXG/1-00	1 meter cable for stacking

### 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-G9T	1000T GBIC Copper
AT-G8SX-01	550m SX GBIC, based on 50 Micron fiber 220m SX GBIC, based on 62.5 Micron fiber
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

## 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
AT-SPZX80/xxxx	Single-mode Fiber, CWDM, 80km GbE SFP
xxxx =	CWDM Wavelengths: 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610

## 10Gbps Small Form Pluggables (XFPs)

AT-XPSR	Multi-mode Fiber, 850 nm
AT-XPLR	Single-mode Fiber, 10km, 1310nm
AT-XPER40	Single-Mode Fiber, 40km, 1550nm

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