

## AT-9000/28SP

### Managed Layer 2 Gigabit Ethernet ECO-Switch



#### AT-9000/28SP

28 port Gigabit managed 'Green' switch with 24 100/1000Mbps SFP ports and 4 10/100/100T or SFP combo ports

#### Overview

One of a series of high performance Gigabit Ethernet switches from Allied Telesis. The AT-9000/28SP provides high performance Layer 2 switching at an affordable fixed configuration platform. The switch brings advanced enterprise features to a more affordable level while supporting the changing needs of the SMB market space to improve the delivery of converged data. Support for jumbo Ethernet frames enables higher throughput of time sensitive data.

#### Environmentally Friendly ECO-Switch

In keeping with our commitment to environmentally friendly processes and products, the AT-9000/28SP is the first of our new green range of products designed to reduce power consumption, minimize hazardous waste and even reduce office noise pollution. Among many features including the use of high efficiency power supplies, and low power chipsets we have also included an ECO-Switch button on the front panel of the AT-9000/28SP switch. This allows you to conserve additional power by turning off the port and MODE LEDs when they are not required.

#### Low Power Consumption

Specifically designed for low power consumption, the AT-9000/28SP generates less heat than previous products, which not only results in higher reliability, but also has lower running costs and less impact on the environment.

#### Ideal for Fiber Distribution or Mixed Copper Fiber

The AT-9000/28SP is ideal for fiber-based installations where traditional copper cabling just won't meet the requirement. The ability to match the fiber SFPs to meet distance, noisy industrial or security requirements is essential in so many network builds. This flexibility combined with an energy efficient Layer 2 platform offers a truly cost-effective alternative to the network designer.

#### Easy Access Networking

Featuring an industry standard CLI and Allied Telesis' intuitive featured Web interface the advanced features of the AT-9000/28SP are accessible to a wide range of system administrators. The well known CLI and Web interfaces significantly reduce learning time and minimize the cost of deployment.

#### Secure Management

Only authorized administrators can access the management interface of the AT-9000/28SP. Protocols such as SNMPv3 facilitate this protection of your network with local or remote connections.

#### Securing the Network Edge

To ensure the protection of your data, it is important to control access to your network. Protocols such as IEEE 802.1x port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be isolated to a pre-determined part of your network offering guests such benefits as Internet access while ensuring the integrity of your private network data.

#### Key Features

##### Easy, Well Known Management

- Industry standard CLI
- Simple intuitive, Allied Telesis Web interface
- SNMP

##### Ideal Product for Classroom or Retail Environment

- 28 active SFP ports
- Lower power consumption
- Near silent operation

##### Securing the Network at its Most Vulnerable Point

- IEEE 802.1x and port security (limited/dynamic)
- IEEE 802.1x basic port mode
- IEEE 802.1x multiple host mode
- IEEE 802.1x EAP-MD5
- Radius client
- SSH server

##### All the QoS Needed for an Open Office, Classroom or Retail Store Environment

- Eight priorities queues
- IEEE 802.1p for Layer 2 QoS



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## Technical Specifications

### Physical Interface

24 100/1000Mbps SFP ports for fiber connectivity  
and 4 10/100/1000T or SFP combo ports  
RJ-45 console port

### System Capacity

128MB RAM  
16MB flash memory  
8K MAC address  
Packet buffer memory 4Mbit

### Maximum Bandwidth

Non-blocking for all packet sizes  
Throughput 41.6Mpps  
Switching capacity 56Gbps  
Switch fabric speed 62Gbps  
Supports 9216 jumbo packets

### Latency

100Mbit > 25.22 usec  
1000Mbit > 3.84 usec

### Port Configurations

Auto-negotiation, duplex, MDI/MDI-X  
IEEE 802.3x flow control / back pressure  
Head of Line (HoL)

### Storm Control

Broadcast, multicast and unicast (DLF)

### Spanning-Tree Support

IEEE 802.1D Spanning-Tree Protocol  
IEEE 802.1w Rapid Spanning-Tree  
Pass-through BPDU

### Link Aggregation

Static port trunk  
IEEE 802.3ad LACP link aggregation  
Support for 12 groups per device  
Trunk can support up to eight members per group

### VLANs

Supports up to 4094 VLAN IDs  
Support for 255 active VLANs  
Port-based  
IEEE 802.1Q VLAN tag  
GARP  
GVRP  
GMRP

### General Protocols

MAC address aging  
Port mirroring  
RFC 826 ARP  
DHCP  
RFC 2131 DHCP client

### Administration

Web-based GUI  
Industry standard CLI  
RFC 854 Telnet  
Network Time Protocol  
HTTP  
TFTP

### Quality of Service (QoS)

IEEE 802.1p QoS  
Eight priority queues  
Strict priority and weighted round robin

### Multicast Standards

Layer 2 multicast forwarding and filtering  
up to 256 groups  
IGMPv1 and IGMPv2

### Network Management

RFC 1157 SNMPv1/v2c  
RFC 2570 SNMPv3  
RFC 1215 SNMP traps  
RFC 1213 MIB-II  
RFC 1573 Extended interface MIB  
RFC 1752 RMON 4 groups:  
Stats, History, Alarms, Events

### Security

Port security (limited/dynamic)  
IEEE 802.1x Basic port base  
IEEE 802.1x Multiple host mode  
IEEE 802.1x EAP-MD5  
RFC 2865 Radius client  
SSH server

### Power Specifications

AC input electrical ratings 100-240V AC, 1A  
Frequency 50/60Hz  
Maximum DC current 3.08A  
Maximum power consumption 37.42W  
Typical power consumption  
in eco friendly mode 35.65W<sup>1</sup>  
Power supply efficiency 85%  
Heat dissipation 127.768BTU /hours  
Maximum acoustic noise 41.7 dB

### Compliance Standards

IEEE 802.3 10T  
IEEE 802.3u 100TX with auto-negotiation  
IEEE 802.3ab 1000T Gigabit Ethernet  
100FX SFP support  
1000X SFP support

### 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)

Operating altitude range, up to 3,000 meters  
(9,843 feet)

### Safety and Electromagnetic

#### Emissions Certifications

EMI FCC Class A, CISPR 22 Class A,  
EN55022 Class A, C-TICK, VCCI  
Immunity EN55024, EN61000-3-2 and  
EN61000-3-3  
Safety UL 60950 (cULus),  
EN60950-1 (TUV)  
Quality and reliability MTBF — 340,000 hours

### RoHS Standards

Compliant with European, China and RoHS standards

### Package Description

AT-9000/28SP switch  
AC power cord  
Management cable (RJ-45 to DB-9)  
Rubber feet for desktop installation and  
19" rack-mountable hardware kit accessories  
Install guide and CLI user's guide available on the CD  
and at [www.alliedtelesis.com](http://www.alliedtelesis.com)

### Physical Specifications

Dimensions 44cm x 25.6cm x 4.4cm  
(W x D x H) (17.33" x 10.08" x 1.73")

Weight 4.01 kg (8.85 lbs)

<sup>1</sup> Typical power is measured running 24/28 ports on a sample unit

# AT-9000/28SP | Managed Layer 2 Gigabit Ethernet ECO-Switch



AT-9000/28SP switch back panel

## Ordering Information

**AT-9000/28SP-xx**  
28 port Gigabit managed switch with 24 100/1000Mbps SFP ports and 4 10/100/1000T or SFP combo ports

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

## Accessories

### Small Form Pluggables (SFPs)

**AT-SPTX**  
100m, 10/100/1000T, RJ-45, SFP

**AT-SPEX**  
Multi-mode Fiber, 2km, GbE, SFP

**AT-SPSX**  
Multi-mode Fiber, GbE Small Form-factor Pluggable (SFP)  
850nm

**AT-SPSX/1**  
Multi-mode Fiber, GbE Small Form-factor Pluggable (SFP)  
850nm

**AT-SPFX/2**  
Multi-mode Fiber, 2km, 100FX, SFP, 1310nm

**AT-SPFX/15**  
Single-mode Fiber, 15km, 100FX, SFP, 1310nm

**AT-SPFX/40**  
Single-mode Fiber, 40km, 100FX, SFP, 1310nm

**AT-SPLX10**  
Single-mode Fiber, 10km, GbE SFP, 1310nm

**AT-SPLX10/1**  
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

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