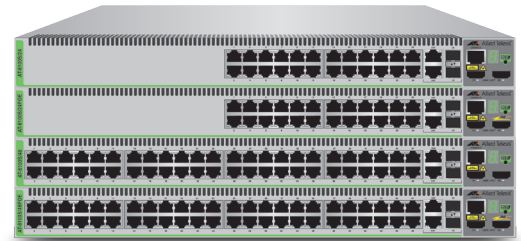Allied Telesis™

# AT-8100S Series

## Layer 2~4 Stackable Fast Ethernet Switches

## AT-8100S Series

A series of Layer 2~4 24 and 48 port Fast Ethernet stackable switches with PoE and non PoE ports. All PoE ports support the next generation IEEE 802.3at (PoE+) 30W specification.

## Overview

The AT-8100S Series provides high performance Layer 2~4 switching in an affordable fixed configuration stackable platform. The AT-8100S/24 and AT-8100S/24POE switch offers 24 10/100TX ports, two 1Gbps combo ports, plus two integrated dedicated stacking connectors that deliver a total of 10Gbps stacking bandwidth to each switch. The AT-8100S/48 and AT-8100S/48POE switch offers 48 10/100TX ports, two 1Gbps combo ports, plus two integrated dedicated stacking connectors that deliver a total of 10Gbps stacking bandwidth. The stacking capability integrated into this platform is configured as a resilient ring topology designed to provide high reliability and simplified management for higher port density applications. Up to 8 switches of either 24 or 48 varients can be stacked together providing up to 384 ports of Fast Ethernet connectivity, manageable as a single IP entity.

## Key Features

### Easy, Well Known Management
- Industry Standard AlliedWarePlus CLI
- Simple intuitive, full featured Allied Telesis Web Interface
- Secure encrypted Web and CLI management with SSHv2 and SSL
- SNMP
- Two levels access privileges

### Affordable Truly Stackable 10/100/1000 Switching Platform
- Single IP address stack management
- 10Gig resilient ring stacking architecture
- Across stack link aggregation
- Across stack VLAN configuration
- Across stack port mirroring
- Redundant standby stack master
- Stackable up to 8 devices

### Power Supply Redundancy
- Integrated dual power supplies on the AT-8100S/24POE and AT-8100S/48POE models
- Optional integrated dual power supplies on AT-8100S/24 and AT-8100S/48 models
- Optional DC power versions available on AT-8100S/24 and AT-8100S/48

### Power over Ethernet
- Provides standards-based IEEE 802.3at Power over Ethernet to all 24 10/100TX ports or 48 10/100TX ports
- Support for up to 24 class 3 powered devices at 15.4 watts on AT-8100S/24POE and AT-8100S/48POE
- Support for up to 12 class 4 powered devices at 30 watts on AT-8100S/24POE and AT-8100S/48POE

### All the QoS Needed in the Wiring Closet for Today's Voice and Data Networking
- Eight priority queues
- IEEE 802.1p for Layer 2 QoS
- DSCP (Diffserv) for Layer 3 QoS
- IEEE 802.1p to DSCP remarking traffic ready for transport to the Layer 3 core of the network
- Layer 2 and Layer 3 Access Control List (ACL)
- Voice VLAN
- Automatic QoS

### Securing the Network at its Most Vulnerable Point
- IEEE 802.1x and RADIUS network login: for advanced control for user authentication and accountability
- Guest VLAN: to ensure visitors or unauthorized users connect only to services defined by IT. E.g. Internet
- Dynamic VLAN
- TACACS+: for ease of management security administration
- Port MAC Address security options

### Access Control Lists
- Access Control Lists enable inspection of incoming frames and classify them based on various criteria. Specific actions can then be applied to these frames in order to more effectively manage the network traffic at layer 2 through layer 4. Typically ACLs are used as a security mechanism, either permitting or denying entry (hence the name Access Control) for frames in a group, but can also be applied to QoS.

# AT-8100S Series | Layer 2~4 Stackable Fast Ethernet Switches

## Management Stacking

Enhanced 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 Ethernet interfaces as stacking links so that many switches can be remotely stacked across different sites.

## Environmentally Friendly ECO-Switch

In keeping with our commitment to environmentally friendly processes and products, the AT-8100S series is a new green range of Fast Ethernet L2~4 products have been designed to reduce power consumption, minimize hazardous waste and even reduce office noise pollution.

Among many features include the use of high efficiency power supplies and low power chip sets, and reduced power drive on over short cable lengths, the switches also included an ECO-Switch button on the front panel allowing you to conserve additional power by turning off the all the diagnostic LED indicators when they are not required.

## Low Power Consumption with Silent Operation

The AT-8100S/24 and AT-8100S/48 products are designed for silent operation, allowing them to be used in office environments as well as wiring closets.

## Ideal Branch Office and Wiring Closet Connectivity

Powerful line rate performance and stackability make this switch ideal for branch offices or the wiring closet of larger offices. The state-of-the art QoS capability of this product ensures reliable delivery of advanced network services such as voice while effectively controlling the continually increasing traffic needs found in today's networks. The switch is able to automatically configure a dedicated voice VLAN when an IP phone is connected to a port. AutoQoS enables advanced networking features at the edge without complex configuration. Automatic detection of voice, video or data traffic types is used to prioritize the traffic in the network.
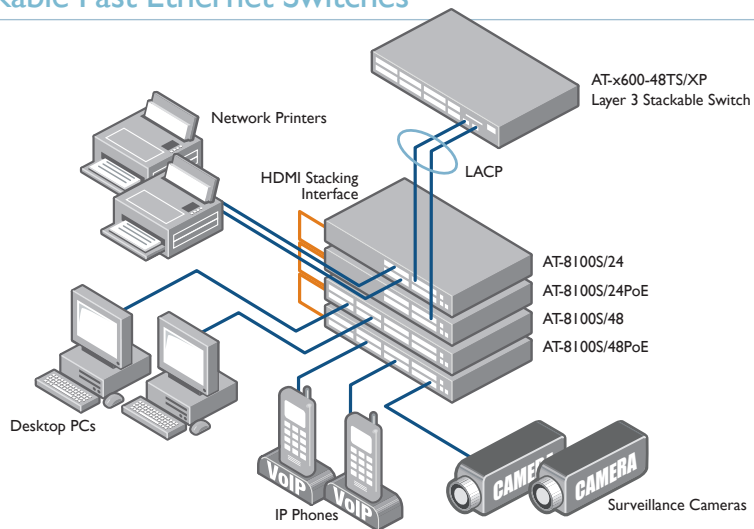
## Easy Access Networking

Featuring the industry standard CLI of AlliedWare Plus and Allied Telesis' intuitive yet fully featured Web interface, the advanced features of the AT-8100S Series 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 8100S series switches. Security protocols such as SSL, SSH and SNMPv3 facilitate the protection of your network for both local and 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. The switch is also fully compliant with Microsoft Network Access Protection (NAP) and Symantec Network Access Control (SNAC).

## Gigabit and Fast Ethernet SFP Support

All switches in the 8100S family support both Gigabit and Fast Ethernet Small Form-factor Pluggables (SFPs). This makes the 8100S series an ideal family for environments where Gigabit fiber switches will be phased in over time. The 8100S family allows for connectivity to the legacy 100BaseFX hardware until it is upgraded to Gigabit. Support for both speeds of SFPs allows organizations to stay within budget as they migrate to faster technologies.

## IPv6 Aware Switch

In addition to the extensive IPv6 support the 8100S Series functions as a L2 switch in a pure IPv6 network as well as in a combined IPv4/IPv6 network. The system is IPv6-aware switch and is capable of bridging Ethernet packets encapsulating IPv6 frames, similarly to IPv4 frames. With this respect, the system follows the transmission of IPv6 Packets over Ethernet Networks. This is done with no user configuration. IPv6 packets are bridged regardless of any extension headers that may exist.

## Layer 3 Routing

The switch provides static IPv4 routing at the edge of the network as well as support for RIPv1 and RIPv2.

## Redundant Power Options

The PoE variants of the AT-8100S switch family feature two internal power supplies as standard, ensuring continuous switch operation of both the switch, and the PoE power, even in the event of a power supply failure. Non PoE models with dual power supplies can be ordered as variants to the standard product.

## System Capacity

128MB RAM
16MB flash memory
16K MAC addresses
4096 VLANs (802.1Q)
41.6 Mpps L3 Forwarding Rates
41.6 Mpps L2 Forwarding Rates
2048 ACL Rules
8 QoS Queues Per Port
1024 Layer 2 multicast groups
Maximum Jumbo Frames 13312 Bytes
Port Mirroring (remote option)
Dual software images
Temperature threshold alert

## Maximum Bandwidth

Non-blocking for all packet sizes

## Wire-speed switching on all Ethernet ports

14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet

## Latency

10Mbit — TBD
100Mbit — TBD
1000Mbit — TBD

## Power Characteristics

Voltage: 100-240V AC (10% auto ranging)
Frequency: 47-63Hz

### AT-8100S/24

Standard product with single AC power supply or optional dual power supply
Maximum Power Consumption estimated 14W
Typical Power Consumption (Eco-friendly mode) TBD

### AT-8100S/48

Standard product with dual AC power supply
Maximum Power Consumption estimated 23W
Typical Power Consumption (Eco-friendly mode) TBD

### AT-8100S/24POE

Standard product with dual AC power supply
Maximum Power Consumption TBD
Typical Power Consumption (Eco-friendly mode) TBD

### AT-8100S/48POE

Standard product with dual AC power supply
Maximum Power Consumption TBD
Typical Power Consumption (Eco-friendly mode) TBD

## Environmental Specifications

Operating temperature: 0°C to 40°C
Storage temperature: -25°C to 70°C
Operating humidity: 5% to 80% non-condensing
Storage humidity: 5% to 95% non-condensing
Max operating altitude: 3,048m (10,000 ft)

## Port Configuration

Auto-negotiation, duplex, MDI/MDI-X, IEEE 802.3x flow control/back pressure
Head of Line (HOL) Blocking Prevention
Broadcast Storm Control
Bad Cable Detection
Redundant Master/Slave Management
Link Flop Protection
Group Link Control

## Ethernet Specifications

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 802.3u 100BASE-T
IEEE 802.3x Full Duplex Operation
IEEE 802.3z Gigabit Ethernet
IEEE 802.3af Power over Ethernet Class 3
IEEE 802.3at Power over Ethernet Class 4

## Quality of Service (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
Ingress rate limiting
Egress rate control (shaping)
Head of line blocking prevention
Eight egress queues per port
IEEE 802.1p Class of Service with Strict and Weighted Round Robin Scheduling/Strict Priority Scheduling
Mark packet based on traffic classification (Action to mark 802.1P, Translate 802.1P to DSCP, Translate DSCP to 802.1P)
IEEE 802.1p Priority Tagging
RFC 2474 DSCP for IP-based QoS
RFC 2475 An Architecture for Differentiated Services
802.1p to DSCP Remarking
DSCP to 802.1p Remarking
Mark packet based on traffic classification
Access Control Lists (ACLs)
Voice VLAN
Automatic QOS

## Spanning Tree Protocol

IEEE 802.1D Spanning-Tree Protocol
IEEE 802.1w Rapid Spanning-Tree
IEEE 802.1s Multiple Spanning-Tree
BPDU Guard
Loop Guard

## Management

RFC 854 Telnet server
Console management port
AlliedWare Plus CLI
Web GUI
RFC 1866 HTML
RFC 2068 HTTP
RFC 2616 HTTPS
RFC 1350 TFTP client
Xmodem
RFC 2030 SNTP
RFC 1155 MIB
RFC 1157 SNMPv1
RFC 1901 SNMPv2
RFC 3411 SNMPv3
RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
RFC 3164 Syslog Protocol
802.3 MAUs
Event Log
VRRP Snooping
VRRP
RFC 3176 sFlow

## MIB Support

RFC 1213 MIB-II
RFC 1215 TRAP MIB
RFC 1493 Bridge MIB
RFC 2863 Interfaces group MIB
RFC 1643 Ethernet-like MIB
RFC 2674 IEEE 802.1Q MIB
RFC 2096 IP Forwarding Table MIB
RFC 3768 VRRP MIB
Allied Telesis Private MIB

## VLAN

4096 VLANs
MAC based VLANs — 1K
Protocol based VLANs — 16K
Port-based VLANs
Port Protected
IP Subnet based VLANs — 256
GARP VLAN Registration Protocol (GVRP)

## Link Aggregation

Static Trunking
IEEE 802.3ad LACP
Dynamic LACP
Port Trunking up to 8 per trunk, 32 groups

## Link Discovery

IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Link Layer Discovery Protocol-Media Endpoint (LLDP-MED) (supports up to 1600 neighbors — TBD)

## General Protocols

RFC 768 UDP
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 950 Subnetting, ICMP
RFC 1027 Proxy ARP
RFC 1035 DNS
RFC 1122 Internet Host Requirements
ECMP
DHCP client
DHCP snooping
RFC 3046 DHCP Relay Agent Information Option
RFC 3993 Subscriber-ID Sub-option for DHCP Relay
RFC 951 BootP

## IP Multicast

RFC 1112 IGMPv1
RFC 2236 IGMPv2
RFC 3376 IGMPv3
RFC 2710 Multicast Listener Discovery (MLD) for IPv6 (v1)
RFC 3810 Multicast Listener Discovery (MLD) for IPv6 (v2)
IGMP Querier
Multicast Groups — 1024

## Security / 802.1x

RFC 1492 TACACS
TACACS+
RFC 2865 RADIUS Client
RFC 2866 RADIUS Accounting
IEEE 802.1x Port Based Network Access Control
Web based authentication
Supplicant
Authenticator
802.1x multiple supplicant mode
Piggy-back mode
Per port MAC address limiting
Per port MAC address filtering
MAC address security/lockdown
RFC 1321 MD-5
EAP, EAP-TLS, LEAP, PEAP, TTLS

# AT-8100S Series | Layer 2~4 Stackable Fast Ethernet Switches

Dynamic VLANs
Guest VLANs
Secure VLANs
Layer 2/3/4/ Access Control Lists (ACLs)
64 ACL profiles
256 rules per ACL profile
ACLs based on:
   - Ethernet frame type
   - MAC address/VLAN ID/IEEE 802.1p
   - Layer 2/3 protocol
   - IP subnet/address/ToS/DSCP
   - UDP/TCP port/flag
SSHv2 for Telnet mgmt
SSLv3 for Web mgmt
SSL Sessions — 10
Telnet Sessions — 10
SSH Sessions — 10
Microsoft NAP compliant
Symantec NAC support

## DoS Attack Protection

Smurf
SYN Flood
Teardrop
Land
IP Option
Ping of Death
Fault Protection

## IPv6

IPv6 Host
IPv6 QoS
IPv6 ACL
RFC 2461 IPv6 Neighbor Discovery
RFC 2463 ICMPv6
RFC 1981 Path MTU Discovery
Dual-stack IPv4/IPv6 Protocol
IPv6 Tunneling over IPv4
IPv6 Network Management
IPv6 Applications: WEB/SSL, Telnet Server/SSH, AAA/Radius,
   Management ACLs, SNTP, PING, TFTP/Copy, Syslog

## IP Routing

Static IPv4 Routing
RIPv1, v2
Proxy ARP

## Stacking Features

10Gbps stacking bandwidth via dedicated HDMI stacking ports
Stack up to eight units using HDMI stacking ports
Stack up to 24 units using Enhanced stacking
Single system appearance
Single IP management
Backup master
Link Aggregation / Trunking Across Stack
Port Mirroring across stack
VLAN across stack
Maximum HDMI stacking cable length 1m

## Physical Characteristics

280W PoE AC PSU
30W AC PSU

## Acoustic Noise

AT-8100S/24 — Fanless
AT-8100S/24PoE — TBD
AT-8100S/48 — Fanless
AT-8100S/48PoE — TBD

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## Ordering Information

### Stackable Fast Ethernet Switches

**AT-8100S/24-xx**
24 x 10/100TX RJ45 Ports
2 Combo Ports (2 x 10/100/1000T RJ45 Ports or 2 x 100/1000
   SFP Ports)
2 x HDMI Stacking Ports

**AT-8100S/24POE-xx**
24 x 10/100TX POE RJ45 Ports
2 Combo Ports (2 x 10/100/1000T RJ45 Ports or 2 x 100/1000
   SFP Ports)
2 x HDMI Stacking Ports
Internal Dual AC Power Supplies

**AT-8100S/48-xx**
48 x 10/100TX RJ45 Ports
2 Combo Ports (2 x 10/100/1000T RJ45 Ports or 2 x 100/1000
   SFP Ports)
2 x HDMI Stacking Ports

**AT-8100S/48POE-xx**
48 x 10/100TX POE RJ45 Ports
2 Combo Ports (2 x 10/100/1000T RJ45 Ports or 2 x 100/1000
   SFP Ports)
2 x HDMI Stacking Ports
Internal Dual AC Power Supplies

### Small Form Pluggable Optics Modules

**AT-SPSX**
SFP, MMF, 1000Mbps, 220 / 500m, 850nm, LC

**AT-SPEX**
SFP, MMF, 1000Mbps, 2km, 1310nm, LC

**AT-SPLX10**
SFP, SMF, 1000Mbps, 10km, 1310nm, LC

**AT-SPLX40**
SFP, SMF, 1000Mbps, 40km, 1310nm, LC

**AT-SPLX40/1550**
SFP, SMF, 1000Mbps, 40km, 1550nm, LC

**AT-SPZX80**
SFP, SMF, 1000Mbps, 80km, 1550nm, LC

**AT-SPBD10-13**
SFP, SMF, 1000Mbps, 10km, 1310/1490nm, LC-BiDi

**AT-SPBD10-15**
SFP, SMF, 1000Mbps, 10km, 1490/1310nm, LC-BiDi

**AT-SPFX/2**
SFP, MMF, 100Mbps, 2km, 1310nm, LC

**AT-SPFXBD-LC-13**
SFP, SMF, 100Mbps, 10km, 1310/1510nm, LC-BiDi

**AT-SPFXBD-LC-15**
SFP, SMF, 100Mbps, 10km, 1510/1310nm, LC-BiDi

**AT-SPFX/15**
SFP, SMF, 100Mbps, 15km, 1310nm, LC

*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*
   *80 for DC power supply*
   *(AT-8100S/24 and AT-8100S/48)*

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Connecting The (IP) World

Allied Telesis