

# 8100 Series

## Layer 2-4 Fast Ethernet Standalone Switches

Allied Telesis 8100 Series switches offer high-performance managed edge switching. These stackable/standalone Ethernet switches support advanced security features, and offer effective management for user connectivity at the network edge.



### Ease of management

Designed for rapid deployment with minimal configuration, the 8100 Series features Voice VLAN, LLDP-MED, Enhanced Stacking, and a Web-management GUI, to facilitate simple and effective network management.

Voice VLAN segregates VoIP traffic from regular Ethernet traffic and applies a higher QoS to it. This takes the complexity out of VoIP deployments, ensures high voice quality, and protects time-sensitive voice traffic from being flooded by other data.

LLDP-MED allows auto-configure end stations to send pre-conditioned traffic that adheres to Voice VLAN-configured network policies.

Enhanced Stacking enables the user to make software upgrades for multiple switches with a single command, plus update all configurations in a single management session.

The industry-standard CLI of AlliedWare Plus™ combined with the simple and intuitive Web management GUI reduces training needs and provides granularity of control, by providing a familiar interface for advanced users.

### Environmentally friendly

In keeping with our commitment to environmentally-friendly processes and products, the 8100 Series was designed from the start to be eco-friendly, with green production processes, reduced power consumption, and minimal hazardous waste. The 8100 Series use recyclable metal, earth-friendly packaging, high-efficiency power supplies, and effective power management, to deliver both cost savings and a reduced carbon footprint.

### Layer 3 routing

8100 Series switches provide static IPv4 routing at the edge of the network, as well as support for RIPv1 and RIPv2.

### Effective traffic monitoring

In order to fully understand the performance of the network and ensure the ongoing smooth delivery of critical data, users must be able to measure and analyze traffic in real time.

The 8100 Series facilitates effective traffic monitoring with sFlow, an industry-standard technology for monitoring high-speed switched networks. sFlow gives total network transparency, enabling performance optimization, accounting, billing for usage, and even defense against security threats.

### Gigabit and fast Ethernet SFP support

The 8100 Series supports both Gigabit and Fast Ethernet Small Form-Factor Pluggable (SFP) uplinks. The dual-speed ports make this series ideal for environments where Gigabit fiber switches will be phased in over time.

The 8100 Series allows for maintained connectivity to the legacy 100FX hardware until the uplink device is upgraded to Gigabit.

### Access Control Lists (ACLs)

ACLs work as filters that can enable inspection and classification of incoming frames. Specific actions can then be performed on these defined frames, to more effectively manage the network traffic at Layer 2 through Layer 4. ACLs are typically used as a security mechanism, either permitting or denying entry for packets on specific switch ports.

## Key Features

### IP Routing

- ▶ Static routing
- ▶ RIP

### Security

- ▶ Multiple Supplicant Authentication
- ▶ Dynamic VLAN
- ▶ Guest VLAN
- ▶ Layer 2/3/4/ Access Control List (ACL)

### Monitoring

- ▶ RMON
- ▶ sFlow management

### Management

- ▶ Voice VLAN
- ▶ LLDP-MED
- ▶ Enhanced Stacking
- ▶ The industry-standard CLI
- ▶ Web GUI

### Securing the network edge

The 8100 Series guarantee network protection and secure management, by providing strong security standards and authentication mechanism for access at the network edge.

IEEE 802.1x port authentication methods such as PEAP, EAP-TLS and EAP-TTLS supported by the 8100S models allow network administrators to restrict external devices from gaining unauthenticated access to the network.

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Multiple Supplicant Authentication lets the switch uniquely authenticate and apply the appropriate policies and VLANs for multiple users or devices on a shared port, allowing port expansion while keeping the network secure.

### Simplifying the network

AutoQoS with the 8100 Series allows one command to enable all the features for the recommended QoS settings on edge and uplink ports, to minimize

complexity and speed up QoS deployment.

### Power over Ethernet (PoE)

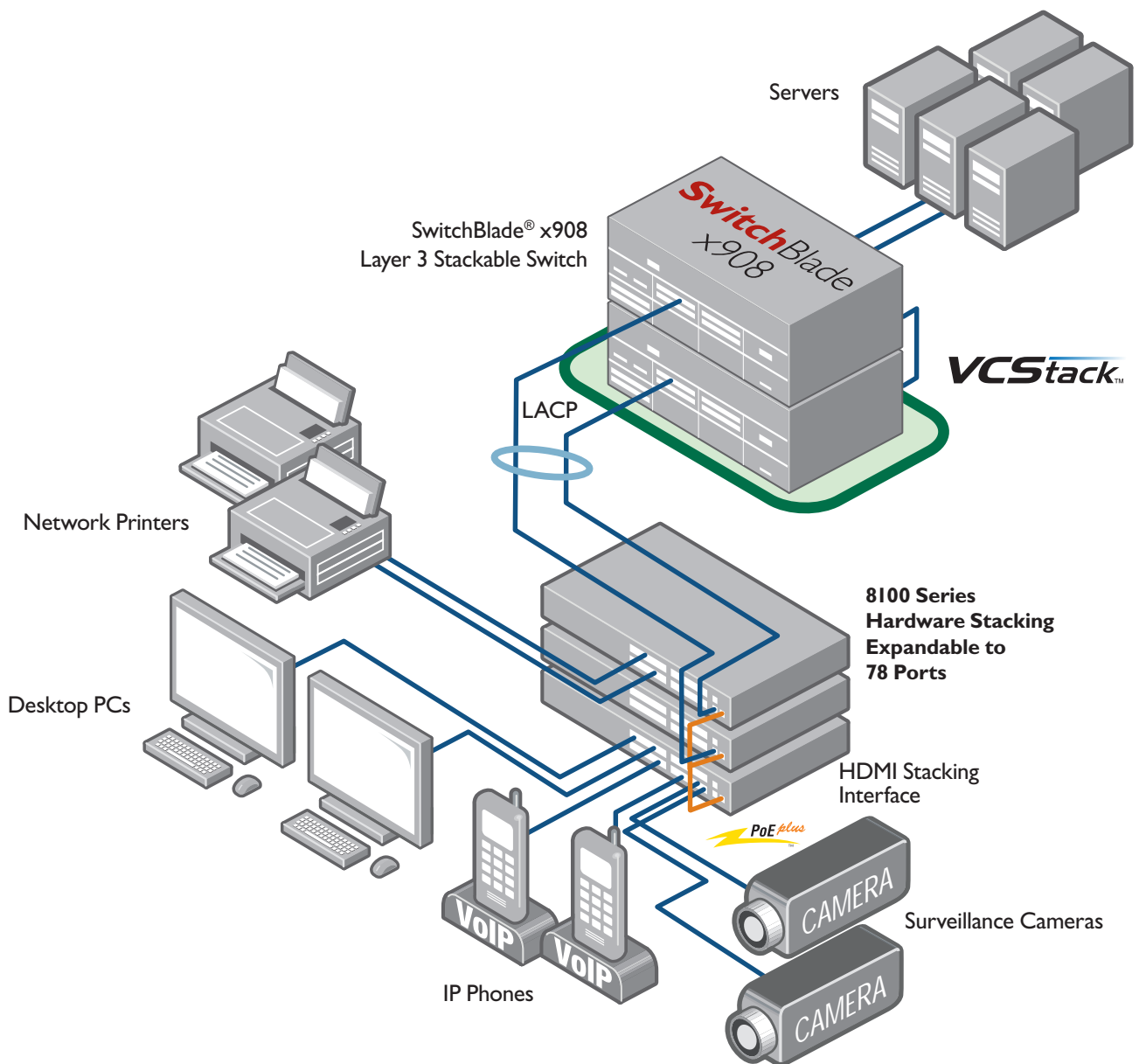
Switch configurations of 24-, 48-port PoE and AT-8100L/8POE-E all support PoE+ (IEEE 802.3at), which delivers up to 30W per port.

PoE allows users to connect and power a device using a single Ethernet cable, thus eliminating the need for additional power outlets and simplifying

installation. Furthermore, this system is unaffected by any local variance in AC power, offering a standardized power infrastructure.

PoE+, with up to double the power, provides superior power-management capability, with automatic power allocation based on the exact requirement of the power device at any given time.

## Key Solutions



## Specifications

### System capacity

- ▶ 128MB RAM
- ▶ 16MB flash memory
- ▶ 16K MAC addresses
- ▶ 266MHz CPU

### Maximum bandwidth

- ▶ Non-blocking for all packet sizes

### Wirespeed switching (Layer 2/3) on all Ethernet ports

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

### Environmental specifications

- ▶ Operating temperature: 0°C to 40°C (32°F to 104°C)
- ▶ Operating temperature (8100L/8POE): 0°C to 50°C (32°F to 122°C)
- ▶ Storage temperature: -25°C to 70°C (-13°F to 158°C)
- ▶ Operating humidity: 5% to 90% non-condensing
- ▶ Storage humidity: 5% to 90% non-condensing
- ▶ Max operating altitude: 3,048 m (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
- ▶ Link flap protection
- ▶ Group link control
- ▶ Port mirroring

### Ethernet specifications

- ▶ RFC 894 Ethernet II encapsulation
- ▶ IEEE 802.1D MAC bridges
- ▶ IEEE 802.1Q Virtual LANs
- ▶ IEEE 802.2 Logical link control
- ▶ IEEE 802.3ac VLAN TAG
- ▶ IEEE 802.1ax-2008 (LACP) link aggregation
- ▶ IEEE 802.3u 100TX
- ▶ IEEE 802.3x Full-duplex operation
- ▶ IEEE 802.3z Gigabit Ethernet
- ▶ Jumbo frames (9198 bytes)

### Quality of Service (QoS)

- ▶ Eight egress queues per port
- ▶ Egress rate limiting
- ▶ Voice VLAN
- ▶ Automatic QoS
- ▶ IEEE 802.1p Class of Service with strict and weighted round robin scheduling
- ▶ RFC 2474 DSCP for IP-based QoS
- ▶ RFC 2475 Differentiated services architecture
- ▶ Layer 2, 3 and 4 criteria

### Link Aggregation

- ▶ IEEE 802.3ad LACP - eight groups
- ▶ Static link aggregation - 24 groups

### Link Discovery

- ▶ IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
- ▶ Link Layer Discovery Protocol-Media Endpoint (LLDP-MED)

### Spanning-Tree Protocol

- ▶ IEEE 802.1D Spanning-Tree Protocol
- ▶ IEEE 802.1D-2004 Rapid Spanning-Tree Protocol
- ▶ IEEE 802.1q-2005 Multiple Spanning-Tree Protocol (15 instances)
- ▶ BPDU guard
- ▶ Loop guard
- ▶ Root guard

### 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 2618 RMON MIB
- ▶ RFC 2674 IEEE 802.1Q MIB
- ▶ RFC 2096 IP forwarding table MIB
- ▶ Allied Telesis managed switch MIB

### Management

- ▶ RFC 854 Telnet server
- ▶ Console management port
- ▶ AlliedWare Plus CLI
- ▶ Web GUI
- ▶ Enhanced Stacking
- ▶ RFC 1866 HTML
- ▶ RFC 2068 HTTP
- ▶ RFC 2616 HTTP/1.1
- ▶ RFC 1350 TFTP
- ▶ zModem
- ▶ RFC 1305 SNMP
- ▶ RFC 1155 MIB
- ▶ RFC 1157 SNMPv1
- ▶ RFC 1901 SNMPv2c
- ▶ RFC 3411 SNMPv3
- ▶ RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
- ▶ RFC 3164 Syslog protocol (client)
- ▶ Event log
- ▶ RFC 3176 sFlow
- ▶ Auto config

### VLAN

- ▶ 4096 VLANs (IEEE 802.1Q)
- ▶ Port-based VLANs
- ▶ MAC-based VLANs – 256
- ▶ IP subnet-based VLANs – 256
- ▶ Port-based Private VLANs
- ▶ GARP VLAN Registration Protocol (GVRP)

### 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
- ▶ DHCP client
- ▶ DHCP snooping
- ▶ DHCP option 82
- ▶ RFC 3046 DHCP relay
- ▶ RFC 951 BootP

### IP Multicast

- ▶ RFC 1112 IGMPv1 snooping
- ▶ RFC 2236 IGMPv2 snooping
- ▶ IGMPv2 snooping querier
- ▶ Multicast groups – 255

### IPv6

- ▶ IPv6 host
- ▶ IPv6 ACL
- ▶ ICMPv6
- ▶ Dual-stack IPv4/IPv6 management
- ▶ IPv6 applications: WEB/SSL, Telnet server/SSH,

### IP routing

- ▶ Static IPv4 routing – 4K
- ▶ RIPv1, v2
- ▶ Proxy ARP

### Security / IEEE 802.1x

- ▶ TACACS+
- ▶ RFC 2865 RADIUS client
- ▶ RFC 2866 RADIUS accounting
- ▶ IEEE 802.1x port-based Network Access Control (NAC)
- ▶ Supplicant
- ▶ Authenticator
- ▶ IEEE 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
- ▶ Dynamic VLANs
- ▶ Guest VLANs
- ▶ Secure VLANs
- ▶ Layer 2/3/4/ Access Control Lists (ACLs)
- ▶ SSLv3 for Web management
- ▶ SSL
- ▶ SSH
- ▶ SSH session time out
- ▶ Microsoft NAP compliant
- ▶ Symantec NAC support

### 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

## Safety and Electromagnetic Emissions Certifications

- ▶ EMI: FCC class A, CISPR class A, EN55022 class A, C-TICK, VCCI Class A, CE, EN61000-3-2, EN61000-3-3
- ▶ Immunity: EN55024
- ▶ Safety: UL 60950-1 (cULus), EN60950-1 (TUV), EN60825

## RoHS Standards

- ▶ Compliant with European and China RoHS standards

## Stacking Features

- ▶ 10Gbps stacking bandwidth via dedicated HDMI stacking ports
- ▶ Hardware stack up to three units (78 ports) using HDMI stacking ports or stack up to 24 units using Enhanced Stacking
- ▶ Single system appearance
- ▶ Single IP management
- ▶ Backup master
- ▶ Link aggregation / trunking across hardware stack
- ▶ Port mirroring across stack
- ▶ VLAN across stack
- ▶ Maximum HDMI stacking cable length 1m

## Package Description

### AT-8100S/xx switch

- ▶ AC power cords
- ▶ Management cable (RJ-45 to DB-9)
- ▶ Rubber feet for desktop installation and 19" rack-mountable hardware kit accessories
- ▶ Install guide and CLI users guide available at [alliedtelesis.com](http://alliedtelesis.com)
- ▶ HDMI stacking cable (1 meter)

### AT-8100L/xx switch

- ▶ AC power cord
- ▶ Management cable (RJ-45 to DB-9)
- ▶ Rubber feet for desktop installation
- ▶ Install guide and CLI users guide available at [alliedte-](http://alliedte-)

PRODUCT	SWITCHING CAPACITY	FORWARDING RATE	LATENCY	
			10MB	100MB
AT-8100L/8	5.6Gbps	8.3Mpps	80µs	10µs
AT-8100L/8POE	5.6Gbps	8.3Mpps	80µs	10µs
AT-8100S/16F8-SC	18.8Gbps	27.9Mpps	81µs	11µs
AT-8100S/16F8-LC	18.8Gbps	27.9Mpps	81µs	11µs
AT-8100S/24F-LC	18.8Gbps	27.9Mpps	81µs	11µs
AT-8100S/24C	18.8Gbps	27.9Mpps	82µs	12µs
AT-8100S/24	18.8Gbps	27.9Mpps	82µs	11µs
AT-8100S/24POE	18.8Gbps	27.9Mpps	81µs	12µs
AT-8100S/48	23.6Gbps	35.1Mpps	81µs	12µs
AT-8100S/48POE	23.6Gbps	35.1Mpps	81µs	12µs

## Physical specifications and MTBF figures

PRODUCT	WIDTH	DEPTH	HEIGHT	WEIGHT	MTBF (HOURS)
AT-8100L/8	33.0 cm (13.0 in)	20.3 cm (8.1 in)	4.4 cm (1.7 in)	1.9 kg (4.2 lb)	830,000
AT-8100L/8POE	33.0 cm (13.0 in)	20.3 cm (8.1 in)	4.4 cm (1.7 in)	2.3 kg (5.1 lb)	130,000
AT-8100S/16F8-SC	44.1 cm (17.3 in)	32.2 cm (12.7 in)	4.4 cm (1.7 in)	4.1 kg (9.1 lb)	190,000
AT-8100S/16F8-LC	44.1 cm (17.3 in)	32.2 cm (12.7 in)	4.4 cm (1.7 in)	4.4 kg (9.75 lb)	170,000
AT-8100S/24F-LC	44.1 cm (17.3 in)	29.1 cm (11.5 in)	4.4 cm (1.7 in)	4.4 kg (9.75 lb)	140,000
AT-8100S/24C	33.0 cm (13.0 in)	20.3 cm (8.1 in)	4.4 cm (1.7 in)	2.20 kg (4.80 lb)	510,000
AT-8100S/24	44.1 cm (17.3 in)	29.1 cm (11.5 in)	4.4 cm (1.7 in)	3.60 kg (8.0 lb)	430,000
AT-8100S/24POE	44.1 cm (17.3 in)	32.2 cm (12.7 in)	4.4 cm (1.7 in)	5.00 kg (11.00 lb)	70,000
AT-8100S/48	44.1 cm (17.3 in)	29.1 cm (11.5 in)	4.4 cm (1.7 in)	4.00 kg (8.9 lb)	300,000
AT-8100S/48POE	44.1 cm (17.3 in)	32.2 cm (12.7 in)	4.4 cm (1.7 in)	5.60 kg (12.30 lb)	61,000

## Power and noise characteristics

PRODUCT	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	VOLTAGE	FREQUENCY
AT-8100L/8	9.1W	31 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100L/8POE	229.1W*	150 BTU/hr	51.8 dBA	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/16F8-SC	22W*	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/16F8-LC	22W*	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/24F-LC	22W*	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/24C	18.3W†	62 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/24	19.5W	66 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/24POE	459W*	303 BTU/hr	57.0 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/48	23.2W	77 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-8100S/48POE	459W*	314 BTU/hr	58.9 dB	100-240V AC (10% auto-ranging)	47-63Hz

† Standard product with single AC power supply

\*Standard product with dual AC power supply with maximum PoE+ load

## Optical Ports Specifications

PRODUCT	OPTICAL PORTS
AT-8100S/16F8-SC	100FX (MMF)
AT-8100S/16F8-LC	100FX (MMF)
AT-8100S/24F-LC	100FX (MMF)

## Power over Ethernet specifications

PRODUCT	POE POWER AVAILABLE	MAXIMUM POE PORTS SUPPORTED		
		IEEE 802.3AF CLASS 2	IEEE 802.3 AF CLASS 3	IEEE 802.3AT CLASS 4
AT-8100L/8POE-E	185W	8	8	6
AT-8100S/24POE	370W (using two PSU)	24	24	12
AT-8100S/48POE	370W (using two PSU)	48	24	12

IEEE 803.at PoE+ LLDP-MED classification requires PD to be fully compliant with IEEE 802.3at standard  
Mode B PoE carries PoE power to powered devices on spare pairs 4/5 and 7/8 of Ethernet interface

**Ordering information**

**AT-8100L/8-xx**

8-port 10/100TX  
2 combo ports (10/100/1000T-100/1000 SFP)  
Standard one AC power supply

**AT-8100L/8POE-xx**

8-port 10/100TX PoE+  
2 combo ports (10/100/1000T-100/1000 SFP)  
Standard one AC power supply

**AT-8100S/16F8-SC-xx**

16 100M fiber SC ports, 8-port 10/100TX  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI stacking ports  
Standard two AC power supplies

**AT-8100S/16F8-LC-xx**

16 100M fiber LC ports, 8-port 10/100TX  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI stacking ports  
Standard two AC power supplies

**AT-8100S/24F-LC-xx**

24 100M fiber LC ports  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI stacking ports  
Standard two AC power supplies

**AT-8100S/24C-xx**

24 10/100TX ports  
2 combo ports (10/100/1000T-100/1000 SFP) 2  
HDMI stacking ports  
Standard one AC power supply in a compact form factor

**AT-8100S/24-xx**

24 10/100TX ports  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI stacking ports  
Standard two AC power supplies

**AT-8100S/24POE-xx**

24 10/100TX PoE+ ports  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI stacking ports  
Standard two AC power supplies

**AT-8100S/48-xx**

48 10/100TX ports  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI ports for future use  
Standard two AC power supplies

**AT-8100S/48POE-xx**

48 10/100TX PoE+ ports  
2 combo ports (10/100/1000T-100/1000 SFP)  
2 HDMI ports for future use  
Standard two AC power supplies

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/42)

**Associated products**

Small Form Pluggables (SFPs)

**AT-SPSX**

SFP, MMF, 1000Mbps, 220 / 500 m, 850 nm, LC

**AT-SPSX/1**

SFP, MMF, 1000Mbps, 220 / 550m, 850 nm, LC  
Extended temperature: -40°C to 85°C

**AT-SPEX**

SFP, MMF, 1000Mbps, 2 km, 1310 nm, LC

**AT-SPLX10**

SFP, SMF, 1000Mbps, 10 km, 1310 nm, LC

**AT-SPLX10/I**

SFP, SMF, 1000Mbps, 10 km, 1310 nm, LC  
Extended temperature: -40°C to 85°C

**AT-SPLX40**

SFP, SMF, 1000Mbps, 40 km, 1310 nm, LC

**AT-SPZX80**

SFP, SMF, 1000Mbps, 80 km, 1550 nm, LC

**AT-SPBD10-13**

SFP, SMF, 1000Mbps, 10 km, 1310/1490 nm, LC-BiDi

**AT-SPBD10-14**

SFP, SMF, 1000Mbps, 10 km, 1490/1310 nm, LC-BiDi

**AT-SPFX/2**

SFP, MMF, 100Mbps, 2 km, 1310 nm, LC

**AT-SPFXBD-LC-13**

SFP, SMF, 100Mbps, 10 km, 1310/1510 nm, LC-BiDi

**AT-SPFXBD-LC-15**

SFP, SMF, 100Mbps, 10 km, 1510/1310 nm, LC-BiDi

**AT-SPFX/15**

SFP, SMF, 100Mbps, 15 km, 1310 nm, LC