FS970M Series

FAST ETHERNET MANAGED ACCESS SWITCHES

The Allied Telesis FS970M Series provides high performance Fast Ethernet connectivity at the edge of the network. These switches support security and full management features for small- and medium-sized enterprises, government, education, video surveillance, and Point of Sale (POS) applications.

The FS970M Series consists of fiber and copper, Power over Ethernet (PoE), and non-PoE models to meet different requirements from different SMB networks. The copper models support configurations of 8, 24, and 48 × 10/100TX Fast Ethernet ports. PoE models support the IEEE 802.3at (PoE+) standard, delivering up to 30 Watts of power for video surveillance and security applications. The FS970M Series also includes fiber models configured with 24 × 100FX fiber ports, or a versatile option with 16 × 100FX fiber ports and an additional 8 × 10/100TX ports. All FS970M Series models also provide two Gigabit combo (10/100/1000T/SFP) uplink ports for faster, long distance connectivity.

Key Features

Simplified Management

» Industry standard CLI

» Simple, intuitive, full-featured Web interface

» Secure, encrypted Web and CLI management with SSHv2 and SSL

» SNMP v1, v2C, v3

Layer 3 Routing

» The FS970M Series provides static IPv4 routing at the edge of the network, as well as support for RIPv1 and RIPv2

Security at the Edge

» Edge is the most vulnerable point of the network and the FS970M Series provides a full set of security features including Multi Supplicant Authentication, IEEE 802.1x, RADIUS, and TACACS+ and Dynamic VLAN

» Guest VLAN ensures visitors or unauthorized users connect only to services defined by IT, such as Internet services

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

Centralized Power with PoE+

» PoE+ provides centralized power connection to media, cameras, IP phones and wireless access points

» PoE+ reduces costs and offers greater flexibility with the capability to connect devices requiring more power (up to 30W) such as pan-tilt-zoom security cameras

Fiber Connectivity

» All models feature two Gigabit fiber-capable combo ports

» Fiber enables long distance connectivity, using existing fiber infrastructure to interconnect buildings and departments

» Some models provide fixed 16 or 24 fiber Fast Ethernet ports

» Fiber provides even higher security for government, hospitals, and locations with highly-secured data

» Fiber provides complete immunity to electrical interference, ideal for high voltage environments and in locations with high EMI (Electromagnetic Interference), such as alongside utility lines, conveyor belts, power lines, and railroad tracks

Simple Management

Managing a network with a smaller IT infrastructure can be a challenge. The FS970M Series features full management capabilities, with simplified deployment and minimum configuration time.

The FS970M Series also provides special features that facilitate simple and effective network management such as LLDP-MED, Voice VLAN, and Web management. With LLDP-MED, the user can auto-configure end stations, sending preconditioned traffic that adheres to Voice VLAN. Voice VLAN segregates VoIP traffic from regular Ethernet traffic and applies a higher Quality of Service (QoS). This takes the complexity out of VoIP deployments, ensuring high voice quality and protecting time-sensitive voice traffic from being flooded by other data.

An industry-standard CLI, combined with a simple and intuitive Web management interface, reduces the training needs for IT support teams, enabling customers with less technical backgrounds to easily troubleshoot or make adjustments to the network.

Enhanced Stacking

The Allied Telesis FS970M Series of managed switches makes network configuration and management simple. Enhanced Stacking allows management, configuration, and software upgrades for up to 24 switches with a single command in a single management session.

The switches can also share the same IP address, reducing the number of addresses assigned to network devices for remote management. Remotely managing a new switch in your LAN is as simple as plugging it in. Once connected to the LAN, the device can be managed remotely from any workstation.

Quality of Service

The FS970M Series also supports priority QoS, which prioritizes data with a simple command — providing better service to selected network traffic while minimizing the complexity of QoS deployment in the network. Allied Telesis QoS gives the user more control over the traffic of data, and allocates network resources more efficiently. QoS is also fundamental for IP Triple Play (voice, video, and data) applications.

Environmentally Friendly

The FS970M Series is designed to reduce power consumption and to minimize hazardous waste. Fans are designed to minimize noise pollution. High efficiency power supplies, low power chipsets, and effective power management deliver both a reduced carbon footprint and cost savings for the end user.

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 the traffic in real time.

The FS970M Series facilitates effective traffic monitoring with sFlow, an industry-standard technology for monitoring high-speed switched networks. sFlow provides complete visibility into the use of the network, enabling performance optimization, accounting, billing for usage, and even defense against security threats.

Investment Protection

With the depletion of IPv4 address space, IPv6 is rapidly becoming a mandatory requirement for many healthcare, education, government, and enterprise customers. To meet this need, now and into the future, the FS970M Series supports IPv6 applications.

Network Protection

To ensure protection of data and the network, the FS970M Series provides a solid set of security features and secure management options.

FS970M Series switches use IEEE 802.1x port-based authentication and dynamic VLAN assignment to assure compliance to network security policies and either grant access or offer remediation. 802.1x and MAC authentication ensures the network is only accessed by known users and devices. Secure access is also available for guests.

Security from malicious network attacks is provided by a comprehensive range of features such as DHCP snooping, STP root guard, BPDU protection, and Access Control Lists. Each of these can be configured to perform a variety of actions upon detection of a suspected attack.

Network Access Control (NAC) gives unprecedented control over user access to the network in order to mitigate threats to network infrastructure.

Smooth Network

Advanced storm protection features include bandwidth limiting, policy-based storm protection, and packet storm protection.

Network storms are often caused by cabling errors that result in a network loop. The Allied Telesis FS970M Series provides features to detect loops as soon as they are created. Loop detection and broadcast storm control take immediate action to prevent network storms.

Specifications

System Capacity
128MB RAM
16MB flash memory
16K MAC addresses
266MHz CPU

Maximum Bandwidth
Non-blocking for all packet sizes

Wirespeed Switching on all Ethernet Ports
14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet

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
IEEE 802.3af Power over Ethernet class 3
IEEE 802.3at Power over Ethernet class 4
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 - 8 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

Management
RFC 854 Telnet server
Console management port
Industry-standard CLI
Web GUI
Enhanced Stacking
RFC 1866 HTML

PRODUCT	10/100TX FE PORTS	100FX PORTS	1GIG/SFP UPLINKS	PoE+ PORTS	SWITCHING CAPACITY	FORWARDING RATE	LATENCY	
							10MB	100MB
AT-FS970M/8	8	–	2	–	5.6Gbps	4.1Mpps	80µs	10µs
AT-FS970M/8PS	8	–	2	8	5.6Gbps	4.1Mpps	80µs	10µs
AT-FS970M/8PS-E	8	–	2	8	5.6Gbps	4.1Mpps	80µs	10µs
AT-FS970M/24C	24	–	2	–	8.8Gbps	6.5Mpps	82µs	12µs
AT-FS970M/24PS	24	–	2	24	8.8Gbps	6.5Mpps	81µs	12µs
AT-FS970M/24LPS	24	–	2	24	8.8Gbps	6.5Mpps	81µs	12µs
AT-FS970M/16F8-LC	8	16	2	–	8.8Gbps	6.5Mpps	81µs	11µs
AT-FS970M/16F8-SC	8	16	2	–	8.8Gbps	6.5Mpps	81µs	11µs
AT-FS970M/24F	–	24	2	–	8.8Gbps	6.5Mpps	81µs	11µs
AT-FS970M/48	48	–	2	–	13.6Gbps	10.1Mpps	81µs	12µs
AT-FS970M/48PS	48	–	2	48	13.6Gbps	10.1Mpps	81µs	12µs

Power and Noise Characteristics

PRODUCT	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	VOLTAGE	FREQUENCY
AT-FS970M/8	9.1W	31 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/8PS	230W*	150 BTU/hr	51.8 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/8PS-E	230W*	150 BTU/hr	51.8 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/24C	18.3W	62 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/24PS	460W*	300 BTU/hr	57.0 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/24LPS	230W	150 BTU/hr	57.0 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/16F8-LC	22W	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/16F8-SC	22W	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/24F	22W	75 BTU/hr	55.4 dB	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/48	23.2W	77 BTU/hr	Fanless	100-240V AC (10% auto-ranging)	47-63Hz
AT-FS970M/48PS	460W*	314 BTU/hr	58.9 dB	100-240V AC (10% auto-ranging)	47-63Hz

* With maximum PoE load

Power over Ethernet Specifications

POWER SUPPLY UNIT	POE POWER AVAILABLE	MAXIMUM POE PORTS SUPPORTED		
		IEEE 802.3af CLASS 2	IEEE 802.3af CLASS 3	IEEE 802.3at CLASS 4
AT-FS970M/8PS	185W	8	8	6
AT-FS970M/8PS-E	185W	8	8	6
AT-FS970M/24PS	370W	24	24	12
AT-FS970M/24LPS	185W	24	12	6
AT-FS970M/48PS	370W	48	24	12

RFC 2068 HTTP
RFC 2616 HTTPS
RFC 1350 TFTP
zModem
RFC 1305 SNTP
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

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

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)

IP Multicast

IGMP snooping
Multicast groups – 255

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

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

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

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 temperature: 0°C to 40°C (AT-FS970M/8PS-E supports up to 50°C)
Storage temperature: -25°C to 70°C
Operating humidity: 5% to 90% non-condensing
Storage humidity: 5% to 95% non-condensing
Max operating altitude: 3,048 m (10,000 ft)
Airflow: front (port side) to back (fan/power side)

Safety and Electromagnetic Emissions Certifications

EMI: FCC class A, CISPR class A, EN55022 class A, C-TICK, VCCI Class A, CE, EN601000-3-2, EN601000-3-3
Immunity: EN55024
Safety: UL 60950-1 (cULus), EN60950-1 (TUV), EN60825

RoHS Standards

Compliant with European and China RoHS standards

FS970M Series | Fast Ethernet Managed Access Switches

Physical Characteristics

Dimensions (W × D × H):

AT-FS970M/8	33 cm × 20.3 cm × 4.4 cm (13 in × 8.1 in × 1.7 in)
AT-FS970M/8PS	33 cm × 20.3 cm × 4.4 cm (13 in × 8.1 in × 1.7 in)
AT-FS970M/8PS-E	33 cm × 20.3 cm × 4.4 cm (13 in × 8.1 in × 1.7 in)
AT-FS970M/24C	33 cm × 20.3 cm × 4.4 cm (13 in × 8.1 in × 1.7 in)
AT-FS970M/24PS	44.1 cm × 32.3 cm × 4.4 cm (17.3 in × 12.7 in × 1.7 in)
AT-FS970M/24LPS	44.1 cm × 32.3 cm × 4.4 cm (17.3 in × 12.7 in × 1.7 in)
AT-FS970M/16F8-LC	44.1 cm × 32.3 cm × 4.4 cm (17.3 in × 12.7 in × 1.7 in)
AT-FS970M/16F8-SC	44.1 cm × 32.3 cm × 4.4 cm (17.3 in × 12.7 in × 1.7 in)
AT-FS970M/24F	44.1 cm × 29.1 cm × 4.4 cm (17.3 in × 11.5 in × 1.7 in)
AT-FS970M/48	44.1 cm × 29.1 cm × 4.4 cm (17.3 in × 11.5 in × 1.7 in)
AT-FS970M/48PS	44.1 cm × 32.3 cm × 4.4 cm (17.3 in × 12.7 in × 1.7 in)

Weight:

AT-FS970M/8	1.9 kg (4.2 lbs)
AT-FS970M/8PS	2.3 kg (5.1 lbs)
AT-FS970M/8PS-E	2.3 kg (5.1 lbs)
AT-FS970M/24C	2.2 kg (4.8 lbs)
AT-FS970M/24PS	5.0 kg (11.0 lbs)
AT-FS970M/24LPS	4.4 kg (9.7 lbs)
AT-FS970M/16F8-LC	4.4 kg (9.75 lbs)
AT-FS970M/16F8-SC	4.4 kg (9.75 lbs)
AT-FS970M/24F	4.4 kg (9.75 lbs)
AT-FS970M/48	4.0 kg (8.9 lbs)
AT-FS970M/48PS	5.6 kg (12.3 lbs)

Package Description

AT-FS970M/xx switch
AC power cord(s)
Management cable (RJ-45 to DB-9)
Rubber feet for desktop installation
Install Guide and CLI user's guide available at alliedtelesis.com

Ordering Information

Fast Ethernet Switches

AT-FS970M/8-xx
8-port 10/100TX switch with 2 Gigabit/SFP combo uplinks and one fixed AC power supply

AT-FS970M/8PS-xx
8-port 10/100TX PoE+ switch with 2 Gigabit/SFP combo uplinks and one fixed AC power supply

AT-FS970M/8PS-E-xx
8-port 10/100TX extended temperature PoE+ switch with 2 Gigabit/SFP combo uplinks and one fixed AC power supply

AT-FS970M/24C-xx
24-port 10/100TX compact switch with 2 Gigabit/SFP combo ports and one fixed AC power supply

AT-FS970M/24PS-xx
24-port 10/100TX PoE+ switch with 2 Gigabit/SFP combo ports and two fixed AC power supplies

AT-FS970M/24LPS-xx
24-port 10/100TX PoE+ switch with 2 Gigabit/SFP combo ports and one fixed AC power supply

AT-FS970M/16F8-LC-xx
16-port 100FX and 8-port 10/100TX switch with 2 Gigabit/SFP combo uplinks and two fixed AC power supplies

AT-FS970M/16F8-SC-xx
16-port 100FX and 8-port 10/100TX switch with 2 Gigabit/SFP combo uplinks and two fixed AC power supplies

AT-FS970M/24F-xx
24-port 100FX switch with 2 Gigabit/SFP combo uplinks and two fixed AC power supplies

AT-FS970M/48-xx
48-port 10/100TX compact switch with 2 Gigabit/SFP combo ports and one fixed AC power supply

AT-FS970M/48PS-xx
48-port 10/100TX PoE+ switch with 2 Gigabit/SFP combo ports and two fixed AC power supplies

Small Form Pluggable Optics Modules

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

AT-SPSX-I
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

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

Allied Telesis | the solution : the network

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