

# CentreCOM<sup>®</sup> GS970M Series

## Managed Gigabit Ethernet Switches

The Allied Telesis CentreCOM GS970M Series of Layer 3 Gigabit switches offer an impressive set of features in a compact design, making them ideal for applications at the network edge.



### Overview

Allied Telesis CentreCOM GS970M Series switches provide an excellent access solution for today's networks, supporting Gigabit to the desktop for maximum performance. The Power over Ethernet Plus (PoE+) models provide an ideal solution for connecting and remotely powering wireless access points, IP video surveillance cameras, and IP phones. The GS970M models feature 8, 16 or 24 Gigabit ports, and 2 or 4 SFP uplinks, for secure connectivity at the network edge.

### Specifications

#### Performance

- ▶ 10KB L2 jumbo frames
- ▶ Wirespeed multicasting
- ▶ Up to 16K MAC addresses
- ▶ 512MB DDR SDRAM (GS970M non PoE)
- ▶ 256MB DDR SDRAM (GS970M PS)
- ▶ 4094 configurable VLANs (GS970M non PoE)
- ▶ 2048 configurable VLANs (GS970M PS)
- ▶ 64MB flash memory
- ▶ Packet Buffer memory: 1.5MB

#### Diagnostic tools

- ▶ Active Fiber Monitoring detects tampering on optical links
- ▶ Built-In Self Test (BIST)
- ▶ Find-me device locator
- ▶ Cable fault locator (TDR)
- ▶ Optical Digital Diagnostics Monitoring (DDM)
- ▶ Automatic link flap detection and port shutdown
- ▶ Ping polling for IPv4 and IPv6
- ▶ Port and VLAN mirroring (RSPAN)
- ▶ TraceRoute for IPv4 and IPv6

#### IP Features

- ▶ IPv4 static routing and RIP
- ▶ Device management over IPv6 networks with SNMPv6, Telnetv6, SSHv6
- ▶ NTPv6 client
- ▶ IPv6 Ready certified

### Management

- ▶ Allied Telesis Autonomous Management Framework<sup>™</sup> Plus (AMF Plus) enables powerful centralized management and zero-touch device installation and recovery
- ▶ Manage the GS970M Series with Vista Manager EX—our graphical single-pane-of-glass monitoring and management tool for AMF Plus networks, which also supports wireless and third party devices
- ▶ From AW+ 5.5.2-2, an AMF Plus license operating in the network provides all standard AMF network management and automation features, and also enables the AMF Plus intent-based networking features in Vista Manager EX (from version 3.10.1 onwards)
- ▶ Console management port on the front panel for ease of access
- ▶ NETCONF/RESTCONF northbound interface with YANG data modelling
- ▶ Eco-friendly mode allows ports and LEDs to be disabled to save power
- ▶ Industry-standard CLI with context-sensitive help
- ▶ Powerful CLI scripting engine
- ▶ Comprehensive SNMP MIB support for standards-based device management
- ▶ Built-in text editor
- ▶ Event-based triggers allow user-defined scripts to be executed upon selected system events
- ▶ SD/SDHC memory card socket allows software release files, configurations and other files to be stored for backup and distribution to other devices
- ▶ Configurable logs and triggers provide an audit trail of SD card insertion and removal

### Quality of Service (QoS)

- ▶ Eight priority queues with a hierarchy of high-priority queues for real-time traffic, and mixed scheduling, for each switch port
- ▶ Limit bandwidth per port or per traffic class down to 64kbps
- ▶ Wirespeed traffic classification with low latency essential for VoIP and real-time streaming media applications
- ▶ Policy-based QoS based on VLAN, port, MAC and general packet classifiers
- ▶ Policy-based storm protection
- ▶ Extensive remarking capabilities
- ▶ Taildrop for queue congestion control
- ▶ Strict priority, weighted round robin or mixed scheduling
- ▶ IP precedence and DiffServ marking based on Layer 2, 3 and 4 headers

### Resiliency Features

- ▶ Control Plane Prioritization (CPP) ensures the CPU always has sufficient bandwidth to process network control traffic
- ▶ Dynamic link failover (host attach)
- ▶ EPSRing<sup>™</sup> (Ethernet Protection Switched Rings) with enhanced recovery
- ▶ Loop protection: loop detection and thrash limiting
- ▶ PVST+ compatibility mode
- ▶ STP root guard
- ▶ UniDirectional Link Detection (UDLD)

### Security Features

- ▶ Access Control Lists (ACLs) based on Layer 2, 3 and 4 headers
- ▶ Dynamic ACLs assigned via port authentication
- ▶ ACL Groups enable multiple hosts/ports to be included in a single ACL, reducing configuration
- ▶ Configurable auth-fail and guest VLANs
- ▶ Authentication, Authorization, and Accounting (AAA)
- ▶ Bootloader can be password protected for device security
- ▶ BPDU protection
- ▶ DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
- ▶ DoS attack blocking and virus throttling
- ▶ Dynamic VLAN assignment

## Key Features

- ▶ Modular AlliedWare Plus operating system
- ▶ Allied Telesis Autonomous Management Framework<sup>™</sup> Plus (AMF Plus) edge node
- ▶ Vista Manager EX compatible
- ▶ Eco-friendly
- ▶ IPv6 features
- ▶ IEEE 802.1x/MAC/Web authentication support
- ▶ Graphical User Interface (GUI) for easy management
- ▶ L3 features supported
  - ▶ Static routing
  - ▶ RIP
- ▶ NETCONF/RESTCONF with YANG data modelling

Product Specifications

PRODUCT	10/100/1000T (RJ-45) COPPER PORTS	100/1000X SFP PORTS	TOTAL PORTS	POE ENABLED PORTS	SWITCHING FABRIC	FORWARDING RATE
GS970M/10PS	8	2	10	8	20Gbps	14.9Mpps
GS970M/10	8	2	10	-	20Gbps	14.9Mpps
GS970M/18PS	16	2	18	16	36Gbps	26.8Mpps
GS970M/18	16	2	18	-	36Gbps	26.8Mpps
GS970M/28PS	24	4	28	24	56Gbps	41.7Mpps
GS970M/28	24	4	28	-	56Gbps	41.7Mpps

Physical specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	PACKAGED DIMENSIONS	WEIGHT
GS970M/10PS	210 x 275 x 42.5 mm (8.27 x 10.83 x 1.67 in)	2.1 kg (4.6 lb)	43 x 36 x 15 cm (16.93 x 14.17 x 5.90 in)	3.45 kg (7.6 lb)
GS970M/10	265 x 180 x 42.5 mm (10.43 x 7.08 x 1.67 in)	1.5 kg (3.3 lb)	43 x 36 x 15 cm (16.93 x 14.17 x 5.90 in)	2.85 kg (6.3 lb)
GS970M/18PS	341 x 231 x 44 mm (13.42 x 9.09 x 1.73 in)	3.0 kg (6.6 lb)	43 x 36 x 15 cm (16.93 x 14.17 x 5.90 in)	4.35 kg (9.6 lb)
GS970M/18	341 x 231 x 44 mm (13.42 x 9.09 x 1.73 in)	2.4 kg (5.3 lb)	43 x 36 x 15 cm (16.93 x 14.17 x 5.90 in)	4.0 kg (8.8 lb)
GS970M/28PS	440 x 290 x 44 mm (17.32 x 11.42 x 1.73 in)	4.7 kg (10.4 lb)	53 x 43 x 15 cm (20.86 x 16.93 x 5.90 in)	6.35 kg (14.0 lb)
GS970M/28	341 x 231 x 44 mm (13.42 x 9.09 x 1.73 in)	2.4 kg (5.3 lb)	43 x 36 x 15 cm (16.93 x 14.17 x 5.90 in)	4.0 kg (8.8 lb)

Latency (microseconds)

PRODUCT	PORT SPEED		
	10MBPS	100MBPS	1GBPS
GS970M/10	55µs	7.8µs	3.4µs
GS970M/18	56µs	7.9µs	3.4µs
GS970M/28	59µs	8.6µs	4.3µs

Power characteristics

PRODUCT	NO POE LOAD			FULL POE+ LOAD			MAX POE POWER	MAX POE PORTS AT 15W PER PORT	MAX POE+ PORTS AT 30W PER PORT
	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE	MAX POWER CONSUMPTION	MAX HEAT DISSIPATION	NOISE			
GS970M/10PS	16W	55 BTU/hr	33 dBA	180W	126 BTU/hr	41 dBA	124W	8	4
GS970M/10	16W	55 BTU/hr	Fanless	-	-	-	-	-	-
GS970M/18PS	21W	72 BTU/hr	34 dBA	330W	169 BTU/hr	42 dBA	247W	16	8
GS970M/18	18W	61 BTU/hr	29 dBA	-	-	-	-	-	-
GS970M/28PS	37W	127 BTU/hr	33 dBA	520W	303 BTU/hr	42 dBA	370W	24	12
GS970M/28	26W	89 BTU/hr	34 dBA	-	-	-	-	-	-

- ▶ MAC address filtering and MAC address lock-down
- ▶ Network Access and Control (NAC) features manage endpoint security
- ▶ Port-based learn limits (intrusion detection)
- ▶ Private VLANs provide security and port isolation for multiple customers using the same VLAN
- ▶ Secure Copy (SCP)
- ▶ Strong password security and encryption
- ▶ Tri-authentication: MAC-based, Web-based and IEEE 802.1x

Environmental Specifications

Operating ambient temp.	0°C to 50°C (32°F to 122°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 3,000 m (9,842 ft)
Maximum Non operating	Altitude 4,000 m (13,100 ft)

Safety and Electromagnetic Emissions

EMI (Emissions) : FCC Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, CISPR Class A  
 EMC (Immunity) : EN55024  
 Electrical and Laser Safety : EN60950-1 (TUV), UL 60950-1(cULus), EN60825-1  
 Compliance Marks : UL, cUL, UL-EU, CE

Restrictions on Hazardous Substances (RoHS) Compliance

- ▶ EU RoHS compliant
- ▶ China RoHS compliant

## Standards and Protocols

### Cryptographic Algorithms

#### FIPS Approved Algorithms

Encryption (Block Ciphers):

- ▶ AES (ECB, CBC, CFB and OFB Modes)
- ▶ 3DES (ECB, CBC, CFB and OFB Modes)

Block Cipher Modes:

- ▶ CCM
- ▶ CMAC

- ▶ GCM
- ▶ XTS

Digital Signatures & Asymmetric Key Generation:

- ▶ DSA
- ▶ ECDSA

- ▶ RSA

Secure Hashing:

- ▶ SHA-1
- ▶ SHA-2 (SHA-224, SHA-256, SHA-384, SHA-512)

Message Authentication:

- ▶ HMAC (SHA-1, SHA-2(224, 256, 384, 512))

Random Number Generation:

- ▶ DRBG (Hash, HMAC and Counter)

### Non FIPS Approved Algorithms

RNG (AES128/192/256)

DES

MD5

### Ethernet

IEEE 802.2 Logical Link Control (LLC)

IEEE 802.3 Ethernet

IEEE 802.3ab1000BASE-T

IEEE 802.3af Power over Ethernet (PoE)

IEEE 802.3at Power over Ethernet plus (PoE+)

IEEE 802.3azEnergy Efficient Ethernet (EEE)

IEEE 802.3u 100BASE-X

IEEE 802.3x Flow control - full-duplex operation

IEEE 802.3z 1000BASE-X

### IPv4 Features

RFC 768 User Datagram Protocol (UDP)

RFC 791 Internet Protocol (IP)

RFC 792 Internet Control Message Protocol (ICMP)

RFC 793 Transmission Control Protocol (TCP)

RFC 826 Address Resolution Protocol (ARP)

RFC 894 Standard for the transmission of IP datagrams over Ethernet networks

RFC 919 Broadcasting Internet datagrams

RFC 922 Broadcasting Internet datagrams in the presence of subnets

RFC 932 Subnetwork addressing scheme

RFC 950 Internet standard subnetting procedure

RFC 1042 Standard for the transmission of IP datagrams over IEEE 802 networks

RFC 1071 Computing the Internet checksum

RFC 1122 Internet host requirements

RFC 1191 Path MTU discovery

RFC 1518 An architecture for IP address allocation with CIDR

RFC 1519 Classless Inter-Domain Routing (CIDR)

RFC 1812 Requirements for IPv4 routers

RFC 1918 IP addressing

RFC 2581 TCP congestion control

### IPv6 Features

RFC 1981 Path MTU discovery for IPv6

RFC 2460 IPv6 specification

RFC 2464 Transmission of IPv6 packets over Ethernet networks

RFC 2711 IPv6 router alert option

RFC 3484 Default address selection for IPv6

RFC 3587 IPv6 global unicast address format

RFC 3596 DNS extensions to support IPv6

RFC 4007 IPv6 scoped address architecture

RFC 4193 Unique local IPv6 unicast addresses

RFC 4213 Transition mechanisms for IPv6 hosts and routers

RFC 4291 IPv6 addressing architecture

RFC 4443 Internet Control Message Protocol (ICMPv6)

RFC 4861 Neighbor discovery for IPv6

RFC 4862 IPv6 Stateless Address Auto-Configuration (SLAAC)

RFC 5014 IPv6 socket API for source address selection

RFC 5095 Deprecation of type 0 routing headers in IPv6

### Management

AMF Plus edge node<sup>1</sup>

AT Enterprise MIB including AMF Plus MIB and SNMP traps

SNMPv1, v2c and v3

IEEE 802.1ABLink Layer Discovery Protocol (LLDP)

RFC 1155 Structure and identification of management information for TCP/IP-based Internets

RFC 1157 Simple Network Management Protocol (SNMP)

RFC 1212 Concise MIB definitions

RFC 1213 MIB for network management of TCP/IP-based Internets: MIB-II

RFC 1215 Convention for defining traps for use with the SNMP

RFC 1227 SNMP MUX protocol and MIB

RFC 1239 Standard MIB

RFC 1724 RIPv2 MIB extension

RFC 2578 Structure of Management Information v2 (SMIv2)

RFC 2579 Textual conventions for SMIv2

RFC 2580 Conformance statements for SMIv2

RFC 2674 Definitions of managed objects for bridges with traffic classes, multicast filtering and VLAN extensions

RFC 2741 Agent extensibility (AgentX) protocol

RFC 2819 RMON MIB (groups 1,2,3 and 9)

RFC 2863 Interfaces group MIB

RFC 3411 An architecture for describing SNMP management frameworks

RFC 3412 Message processing and dispatching for the SNMP

RFC 3413 SNMP applications

RFC 3414 User-based Security Model (USM) for SNMPv3

RFC 3415 View-based Access Control Model (VACM) for SNMP

RFC 3416 Version 2 of the protocol operations for the SNMP

RFC 3417 Transport mappings for the SNMP

RFC 3418 MIB for SNMP

RFC 3621 Power over Ethernet (PoE) MIB

RFC 3635 Definitions of managed objects for the Ethernet-like interface types

RFC 3636 IEEE 802.3 MAU MIB

RFC 4022 MIB for the Transmission Control Protocol (TCP)

RFC 4113 MIB for the User Datagram Protocol (UDP)

RFC 4188 Definitions of managed objects for bridges

RFC 4292 IP forwarding table MIB

RFC 4293 MIB for the Internet Protocol (IP)

RFC 4318 Definitions of managed objects for bridges with RSTP

RFC 4560 Definitions of managed objects for remote ping, traceroute and lookup operations

RFC 5424 The Syslog protocol

### Multicast Support

IGMP query solicitation

IGMP snooping (IGMPv1, v2 and v3)

IGMP snooping fast-leave

MLD snooping (MLDv1 and v2)

RFC 2715 Interoperability rules for multicast routing protocols

RFC 3306 Unicast-prefix-based IPv6 multicast addresses

RFC 4541 IGMP and MLD snooping switches

### Quality of Service (QoS)

IEEE 802.1p Priority tagging

RFC 2211 Specification of the controlled-load network element service

RFC 2474 DiffServ precedence for eight queues/port

RFC 2475 DiffServ architecture

RFC 2597 DiffServ Assured Forwarding (AF)

RFC 2697 A single-rate three-color marker

RFC 2698 A two-rate three-color marker

RFC 3246 DiffServ Expedited Forwarding (EF)

### Resiliency Features

IEEE 802.1AXLink aggregation (static and LACP)

IEEE 802.1D MAC bridges

IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

IEEE 802.3adStatic and dynamic link aggregation

### Routing Information Protocol (RIP)

RFC 1058 Routing Information Protocol (RIP)

RFC 2082 RIP-2 MD5 authentication

RFC 2453 RIPv2

### Security Features

SSH remote login

SSLv2 and SSLv3

TACACS+ Accounting, Authentication and Authorisation (AAA)

IEEE 802.1X authentication protocols (TLS, TTLS, PEAP and MD5)

IEEE 802.1X multi-suplicant authentication

IEEE 802.1X port-based network access control

RFC 2560 X.509 Online Certificate Status Protocol (OCSP)

RFC 2818 HTTP over TLS ("HTTPS")

RFC 2865 RADIUS authentication

RFC 2866 RADIUS accounting

RFC 2986 PKCS #10: certification request syntax specification v1.7

RFC 3546 Transport Layer Security (TLS) extensions

RFC 3580 IEEE 802.1x RADIUS usage guidelines

RFC 3748 PPP Extensible Authentication Protocol (EAP)

RFC 4251 Secure Shell (SSHv2) protocol architecture

RFC 4252 Secure Shell (SSHv2) authentication protocol

RFC 4253 Secure Shell (SSHv2) transport layer protocol

RFC 4254 Secure Shell (SSHv2) connection protocol

RFC 5176 RADIUS CoA (Change of Authorization)

RFC 5246 Transport Layer Security (TLS) v1.2

RFC 5280 X.509 certificate and Certificate Revocation List (CRL) profile

RFC 5425 Transport Layer Security (TLS) transport mapping for Syslog

RFC 5656 Elliptic curve algorithm integration for SSH

RFC 6125 Domain-based application service identity within PKI using X.509 certificates with TLS

RFC 6614 Transport Layer Security (TLS) encryption for RADIUS

RFC 6668 SHA-2 data integrity verification for SSH Services

### Services

RFC 854 Telnet protocol specification

RFC 855 Telnet option specifications

RFC 857 Telnet echo option

RFC 858 Telnet suppress go ahead option

RFC 1091 Telnet terminal-type option

RFC 1350 Trivial File Transfer Protocol (TFTP)

RFC 1985 SMTP service extension

RFC 2049 MIME

RFC 2131 DHCPv4 client

RFC 2616 Hypertext Transfer Protocol - HTTP/1.1

RFC 2821 Simple Mail Transfer Protocol (SMTP)

RFC 2822 Internet message format

RFC 4330 Simple Network Time Protocol (SNTP) version 4

RFC 5905 Network Time Protocol (NTP) version 4

### VLAN support

IEEE 802.1Q Virtual LAN (VLAN) bridges

IEEE 802.1v VLAN classification by protocol and port

IEEE 802.3acVLAN tagging

### Voice over IP (VoIP)

LLDP-MED ANSI/TIA-1057

Voice VLAN

<sup>1</sup> AMF Plus edge is for products used at the edge of the network, and only support a single AMF Plus link. They cannot use cross links or virtual links.

# CentreCOM GS970M Series | Managed Gigabit Ethernet Switches

## Feature Licenses

NAME	DESCRIPTION	INCLUDES
AT-FL-GS97-UDLD	UniDirectional Link Detection	▶ UDLD

## Ordering Information

### AT-GS970M/10PS-R-xx<sup>1</sup>

L3 switch with 8 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports with rack mount kit

### AT-GS970M/10-xx

L3 switch with 8 x 10/100/1000T ports and 2 x 100/1000X SFP ports

### AT-GS970M/18PS-R-xx<sup>1</sup>

L3 switch with 16 x 10/100/1000T PoE ports and 2 x 100/1000X SFP ports with rack mount kit

### AT-GS970M/18-xx

L3 switch with 16 x 10/100/1000T ports and 2 x 100/1000X SFP ports

### AT-GS970M/28PS-xx

L3 switch with 24 x 10/100/1000T PoE ports and 4 x 100/1000X SFP ports

### AT-GS970M/28-xx

L3 switch with 24 x 10/100/1000T ports and 4 x 100/1000X SFP ports

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

### AT-RKMT-J05

Rack mount kit for GS970M/10

### AT-RKMT-J13

Rack mount kit for GS970M/18 and 18PS

### AT-RKMT-J14

Rack mount kit for GS970M/10PS

### AT-RKMT-J15

Rack mount shelf kit for two GS970M/10 units

### AT-BRKT-J23

Wall mount kit for GS970M/10

### AT-BRKT-J24

Wall mount kit for GS970M/18, 28, 10PS, 18PS and 28PS

## SFP modules

### AT-SPFX/2

100FX multi-mode 1310 nm fiber up to 2 km

### AT-SPFX/15

100FX single-mode 1310 nm fiber up to 15 km

### AT-SPFXBD-LC-13

100BX Bi-Di (1310 nm Tx, 1550 nm Rx) fiber up to 10 km

### AT-SPFXBD-LC-15

100BX Bi-Di (1550 nm Tx, 1310 nm Rx) fiber up to 10 km

### AT-SPTX

1000T 100 m copper

### AT-SPSX

1000SX GbE multi-mode 850 nm fiber up to 550 m

### AT-SPSX/I

1000SX GbE multi-mode 850 nm fiber up to 550 m industrial temperature

### AT-SPEX

1000X GbE multi-mode 1310 nm fiber up to 2 km

### AT-SPLX10

1000LX GbE single-mode 1310 nm fiber up to 10 km

### AT-SPLX10/I

1000LX GbE single-mode 1310 nm fiber up to 10 km industrial temperature

### AT-SPBD10-13

1000LX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 10 km

### AT-SPBD10-14

1000LX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 10 km

### AT-SPLX40

1000LX GbE single-mode 1310 nm fiber up to 40 km

### AT-SPZX80

1000ZX GbE single-mode 1550 nm fiber up to 80 km

### AT-SPBD20-13/I

1000BX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 20 km, industrial temperature

### AT-SPBD20-14/I

1000BX GbE Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 20 km, industrial temperature

<sup>1</sup>PS-R models only available in North America and Asia Pacific regions