

CentreCOM[®] GS980EM/10H

Gigabit Layer 3 Lite PoE++ Switch

The Allied Telesis GS980EM/10H Gigabit Layer 3 Lite PoE++ switch offers an impressive set of features in a compact design. Ideal for deployment at the network edge, the GS980EM/10H features flexible Power over Ethernet capabilities to support IoT device connectivity in today's converged business environments.



Overview

Allied Telesis GS980EM/10H is secure and reliable, and enables a high value solution for flexible PoE at the network edge.

The GS980EM/10H can provide up to 90 Watts (PoE++) on all ports. This enables powering high power devices such as high resolution PTZ cameras with heater/blowers for outdoor applications, enhanced infrared lighting and lighting controllers, and more.

Specifications

Performance

- ▶ Supports 10KB jumbo frames
- ▶ 4094 configurable VLANs
- ▶ Up to 16K MAC addresses
- ▶ Up to 2K multicast entries
- ▶ 512MB DDR3 SDRAM
- ▶ 128MB NAND flash memory
- ▶ Packet buffer memory: 1.5MB

Reliability

- ▶ Modular AlliedWare Plus operating system
- ▶ Full environmental monitoring of PSUs, fans, temperature and internal voltages. SNMP traps alert network managers in case of any failure

Flexibility and Compatibility

- ▶ 1G-SFP ports on GS980EM will support any combination of Allied Telesis 1000Mbps SFP modules listed in this document under Ordering Information
- ▶ Port speed and duplex configuration can be set manually or by auto-negotiation

Diagnostic Tools

- ▶ Active Fiber Monitoring detects tampering on optical links
- ▶ Built-In Self Test (BIST)
- ▶ Cable fault locator (TDR)
- ▶ Find-me device locator
- ▶ Automatic link flap detection and port shutdown
- ▶ Optical Digital Diagnostic Monitoring (DDM)

- ▶ Ping polling for IPv4 and IPv6
- ▶ Port mirroring
- ▶ Trace Route for IPv4 and IPv6
- ▶ Uni-Directional Link Detection (UDLD)

IP Features

- ▶ RIP, OSPF, and static routing for IPv4
- ▶ Device management over IPv6 networks with SNMPv6, Telnetv6, SSHv6
- ▶ IPv6 hardware ACLs
- ▶ Log to IPv6 hosts with Syslog v6

Management

- ▶ Allied Telesis Autonomous Management Framework (AMF) enables powerful centralized management and zero-touch device installation and recovery
- ▶ Console management port on the front panel for ease of access
- ▶ Eco-friendly mode allows ports and LEDs to be disabled to save power
- ▶ Web-based Graphical User Interface (GUI)
- ▶ 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
- ▶ USB interface allows software release files, configurations and other files to be stored for backup and distribution to other devices

Quality of Service

- ▶ 8 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
- ▶ Wire speed traffic classification with low latency essential for VoIP and real-time streaming media applications
- ▶ IPv6 QoS support
- ▶ Policy-based QoS based on VLAN, port, MAC and general packet classifiers
- ▶ Policy-based storm protection
- ▶ Extensive remarking capabilities
- ▶ Queue scheduling options for Strict priority, weighted round robin or mixed scheduling
- ▶ Type of Services (ToS) IP precedence and DiffServ marking based on layer 2, 3 and 4 headers

Key Features

- ▶ Allied Telesis Autonomous Management Framework™ (AMF) edge node
- ▶ Up to 90 Watts of PoE power per port
- ▶ AlliedWare Plus Enterprise-class operating system
- ▶ Energy Efficient Ethernet saves power
- ▶ Fanless design for silent operation
- ▶ Active Fiber Monitoring
- ▶ EPSRing™ enables resilient high-speed rings
- ▶ Static routing, RIP, OSPFv2
- ▶ IEEE 802.1x/MAC/Web authentication support
- ▶ IEEE 802.3x Flow Control
- ▶ Flexible deployment options including DIN rail mounting

Resiliency Features

- ▶ Control Plane Prioritization (CPP) ensures the CPU always has sufficient bandwidth to process network control traffic
- ▶ Dynamic link failover (host attach)
- ▶ EPSRing (Ethernet Protection Switched Rings) with Super-Loop Protection (SLP) and enhanced recovery for extra resiliency
- ▶ Loop protection: loop detection and thrash limiting
- ▶ PVST+ compatibility mode
- ▶ STP root guard

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Security Features

- ▶ Access Control Lists (ACLs) based on layer 3 and 4 headers
- ▶ 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
- ▶ 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)
- ▶ Secure File Transfer (SFTP) client
- ▶ Strong password security and encryption
- ▶ Tri-authentication: MAC-based, web-based and IEEE 802.1x
- ▶ Web-based authentication

Environmental Specifications

- ▶ Operating temperature range: 0°C to 50°C (32°F to 122°F)
- ▶ Storage temperature range: -25°C to 70°C (-13°F to 158°F)
- ▶ Operating relative humidity range: 5% to 90% non-condensing
- ▶ Storage relative humidity range: 5% to 95% non-condensing
- ▶ Operating altitude: Up to 3,000 meters maximum (9,843 ft)

Electrical Approvals and Compliances

- ▶ EMC: EN55032 class A, FCC class A, VCCI class A, ICES-003 class A
- ▶ Immunity: EN55024, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only

Safety

- ▶ Standards: UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950.1
- ▶ Certification: UL, cUL

Restrictions on Hazardous Substances (RoHS) Compliance

- ▶ EU RoHS compliant
- ▶ China RoHS compliant

Product Specifications

PRODUCT	POE++ ENABLED PORTS	1000X SFP PORTS	SWITCHING FABRIC	FORWARDING RATE
GS980EM/10H	8	2	24Gbps	14.9Mpps

Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	MOUNTING	WEIGHT		PACKAGED DIMENSIONS
			UNPACKAGED	PACKAGED	
GS980EM/10H	210 x 180 x 42.5 mm (8.26 x 7.08 x 1.67 in)	Rack-mount	1.6 kg	2.7 kg	417 x 336 x 151 mm (16.42 x 13.23 x 1.67 in)

Power Characteristics

PRODUCT	MAXIMUM POE POWER (using PWR300 redundant PSUs)	MAXIMUM POE PORTS SUPPORTED					NO POE LOAD		FULL POE LOAD	
		POE (7.5W)	POE (15.4W)	POE + (30W)	POE ++ (60W)	POE ++ (90W)	MAX POWER CONSUMPTION (W)	MAX HEAT DISSIPATION (BTU/H)	MAX POWER CONSUMPTION (W)	MAX HEAT DISSIPATION (BTU/H)
GS980EM/10H	240W (PWR300 x 1)	8	8	8	4	2	21	71	320	218
	480W (PWR300 x 2)	8	8	8	8	5			600	409
	720W (PWR300 x 3)	8	8	8	8	8			880	600

Latency (microseconds)

PRODUCT	PORT SPEED	
	100MBPS	1GBPS
GS980EM/10H	5.4µs	3.0µs

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 Standards

IEEE 802.2 Logical Link Control (LLC)

IEEE 802.3 Ethernet

IEEE 802.3ab 1000BASE-T

IEEE 802.3af Power over Ethernet (PoE)

IEEE 802.3at Power over Ethernet up to 30W (PoE+)

IEEE 802.3bt Power over Ethernet Plus Plus (PoE++)¹

IEEE 802.3az Energy 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 951 Bootstrap Protocol (BootP)

RFC 1027 Proxy ARP

RFC 1035 DNS client

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 1256 ICMP router discovery messages

RFC 1518 An architecture for IP address allocation with CIDR

RFC 1519 Classless Inter-Domain Routing (CIDR)

RFC 1542 Clarifications and extensions for BootP

RFC 1591 Domain Name System (DNS)

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 3484 Default address selection for IPv6

RFC 4007 IPv6 scoped address architecture

RFC 4193 Unique local IPv6 unicast addresses

RFC 4291 IPv6 addressing architecture

RFC 4443 Internet Control Message Protocol (ICMPv6)

RFC 5014 IPv6 socket API for source address selection

RFC 5095 Deprecation of type 0 routing headers in IPv6

Management

AT Enterprise MIB including AMF MIB and SNMP traps

SNMPv1, v2c and v3

IEEE 802.1AB Link 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 2011 SNMPv2 MIB for IP using SMIv2

RFC 2012 SNMPv2 MIB for TCP using SMIv2

RFC 2013 SNMPv2 MIB for UDP using SMIv2

RFC 2096 IP forwarding table MIB

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 2787 Definitions of managed objects for VRRP

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

RFC 2863 Interfaces group MIB

RFC 3164 Syslog protocol

RFC 3176 sFlow: a method for monitoring traffic in switched and routed networks

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 4188 Definitions of managed objects for bridges

RFC 4318 Definitions of managed objects for bridges with RSTP

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

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Multicast Support

Bootstrap Router (BSR) mechanism for PIM-SM

IGMP query solicitation

IGMP snooping (IGMPv1, v2 and v3)

IGMP snooping fast-leave

IGMP/MLD multicast forwarding (IGMP/MLD proxy)

MLD snooping (MLDv1 and v2)

RFC 1112 Host extensions for IP multicasting (IGMPv1)

RFC 2236 Internet Group Management Protocol v2 (IGMPv2)

RFC 2710 Multicast Listener Discovery (MLD) for IPv6

RFC 2715 Interoperability rules for multicast routing protocols

RFC 3306 Unicast-prefix-based IPv6 multicast addresses

RFC 3973 PIM Dense Mode (DM)

RFC 4541 IGMP and MLD snooping switches

RFC 4601 Protocol Independent Multicast - Sparse Mode (PIM-SM): protocol specification (revised)

Open Shortest Path First (OSPF)

OSPF link-local signaling

OSPF MD5 authentication

OSPF restart signaling

Out-of-band LSDB resync

RFC 1245 OSPF protocol analysis

RFC 1246 Experience with the OSPF protocol

RFC 1370 Applicability statement for OSPF

RFC 1765 OSPF database overflow

RFC 2328 OSPFv2

RFC 2370 OSPF opaque LSA option

RFC 3101 OSPF Not-So-Stubby Area (NSSA) option

RFC 3509 Alternative implementations of OSPF area border routers

RFC 3623 Graceful OSPF restart

RFC 3630 Traffic engineering extensions to OSPF

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 802.1AX Link 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 802.3ad Static 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 2246 TLS protocol v1.0

RFC 2818 HTTP over TLS ("HTTPS")

RFC 3546 Transport Layer Security (TLS) extensions

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

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 2132 DHCP options and BootP vendor extensions

RFC 2616 Hypertext Transfer Protocol - HTTP/1.1

¹ Support for the 802.3bt standard coming soon

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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

Generic VLAN Registration Protocol (GVRP)
IEEE 802.1Q Virtual LAN (VLAN) bridges
IEEE 802.1v VLAN classification by protocol and port
IEEE 802.3ac VLAN tagging

Voice over IP (VoIP)

LLDP-MED ANSI/TIA-1057
Voice VLAN

Ordering Information

Switches

19 inch rack-mount brackets included

AT-GS980EM/10H

8-port 10/100/1000T PoE++ switch with 2 SFP ports, and 3 external PSU ports²

² Power supplies must be ordered separately

Power Supplies

AT-PWR300-xx

300W PoE power supply (for GS980EM/10H and x320-10GH switches)

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

SFP Modules

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, 1550 nm Rx) fiber up to 20 km

AT-SPBD20-14/I

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

AT-SPBD40-13/I

1000LX GbE single-mode Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 40 km, industrial temperature

AT-SPBD40-14/I

1000LX GbE single-mode Bi-Di (1490 nm Tx, 1310 nm Rx) fiber up to 40 km, industrial temperature

Feature Licenses

NAME	DESCRIPTION	INCLUDES
AT-FL-G98EM-01	GS980EM premium license	<ul style="list-style-type: none">▶ OSPF (128 Routes)▶ PIMv4-SM, DM and SSM▶ RIP (256 Routes)▶ STATIC (128 Routes)▶ EPSR Master