CentreCOM® GS980EM Series

Gigabit Layer 3 Lite PoE++/PoE Pass-through Switches

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

Overview

Allied Telesis GS980EM Series are secure and reliable, offering 8 x Gigabit PoE enabled ports and 2 x SFP uplinks, and providing 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. The GS980EM/10H requires a PWR300 external power supply to operate and provide PoE power. Up to three PWR300 PSUs can be used to increase the available PoE power.

The GS980EM/11PT can supply up to 30 Watts (PoE+) to connected devices. It can be powered by an AC power adapter, or by PoE[1]. When deployed together, the GS980EM/11PT can be powered by the GS980EM/10H, while PoE pass-through enables power from the GS980EM/10H to pass through the GS980EM/11PT to power connected end points.

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

[1] The GS980EM/11PT uses PD port 11 to receive PoE power, but cannot be powered by PoE if the AC adapter is connected

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 100Mbps and 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
- Manage the GS980EM Series with Vista Manager EX - our graphical single-pane-of-glass monitoring and management tool for AMF networks, which also supports wireless and third party devices
- AMF Security (AMF-Sec) enables a self-defending network - managing the GS980EM (or other AMF switches) to automatically block the spread of malware by quarantining suspect end devices
- 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

Key Features

- Allied Telesis Autonomous Management Framework™ (AMF) edge node
- Vista Manager EX compatible
- AMF-Security compatible
- Full 30 Watts of PoE+
- Up to 90 Watts of PoE++ (GS980EM/10H only)
- PoE pass-through (GS980EM/11PT only)
- 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

- 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

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

Security Features

- Access Control Lists (ACLs) based on layer 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
- 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

Product Specifications

PRODUCT	10/100/1000T (RJ-45) POE+ ENABLED PORTS	10/100/1000T (RJ-45) POE++ ENABLED PORTS	10/100/1000T (RJ-45) POE-IN PORT	1000X SFP PORTS	SWITCHING FABRIC	FORWARDING RATE
GS980EM/10H	-	8	-	2	24Gbps	14.9Mpps
GS980EM/11PT	8	-	1	2	24Gbps	16.4Mpps

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)
GS980EM/11PT	210 x 180 x 42.5 mm (8.26 x 7.08 x 1.67 in)	Rack-mount	1.6 kg	3.5 kg	417 x 336 x 151 mm (16.42 x 13.23 x 1.67 in)

Power Characteristics

PRODUCT	MAXIMUM POE POWER	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 (1 x PWR300 PSU)	8	8	8	4	2	21	71	320	218
	480W (2 x PWR300 PSUs)	8	8	8	8	5			600	409
	720W (3 x PWR300 PSUs)	8	8	8	8	8			880	600
GS980EM/11PT	0W (switch powered by 30W PoE)[1]	0	0	0	0	0	22	75	98W (using AC power adapter)	350 (using AC power adapter)
	31.6W (switch powered by 60W PoE)[1]	4	2	1	0	0				
	46.2W (switch powered by 90W PoE)[1]	6	3	1	0	0				
	62W (switch powered by AC Adaptor)	8	4	2	0	0				

[1] The GS980EM/11PT uses PD port 11 to receive PoE power, but cannot be powered by PoE if the AC adapter is connected1

Latency (microseconds)

PRODUCT	PORT SPEED	
	100MBPS	1GBPS
GS980EM/10H	5.4µs	3.0µs
GS980EM/11PT	5.5µs	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 802.3ab1000BASE-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++)[2]
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 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 802.1ABLink 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 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

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 802.3adStatic 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-supplicant 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

[2] Support for the 802.3bt standard coming soon

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
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

Feature Licenses

NAME	DESCRIPTION	INCLUDES
AT-FL-G98EM-01	GS980EM premium license	▶ OSPF (128 Routes) ▶ PIMv4-SM, DM and SSM ▶ RIP (256 Routes) ▶ STATIC (128 Routes) ▶ EPSR Master

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 ports[3]

AT-GS980EM/11PT
8-port 10/100/1000T PoE+ switch with 2 SFP ports, one AC adapter port[4], and one PoE-in port[5] (supporting PD and PoE pass-through)

[3] PWR300 power supplies for the GS980EM/10H must be ordered separately
[4] The GS980EM/11PT ships with an AC power adapter
[5] The GS980EM/11PT can be powered by PoE from 30W (class 4) to 90W (class 8)

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-SPLXI0/I
1000LX GbE single-mode 1310 nm fiber up to 10 km industrial temperature

AT-SPBDI0-13
1000LX GbE Bi-Di (1310 nm Tx, 1490 nm Rx) fiber up to 10 km

AT-SPBDI0-14
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

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

617-000671 RevD