Layer 2 Managed Gigabit Switches
GSM-16T2SFP
GSM-24T2SFP
GSM-8T16SFP

Paired SFP/Gigabit RJ-45 for Gigabit uplinks over fibre or copper

10/100/1000Mbps Gigabit RJ-45 copper ports

Comprehensive SNMP/ RMON management

SFP Slots for mini-GBIC modules – ideal for high density gigabit backbone/ server connectivity

LAYER 2 SNMP/RMON MANAGED GIGABIT SWITCHES

GSM series switches are high performance web and SNMP managed devices that provide a mix of mini-GBIC/SFP ports and 10/100/1000Mbps copper Ethernet ports. Optional fibre transceivers can be installed into the mini-GBIC slots, in combinations of either multimode or singlemode fibre transceivers for short or long distance applications. Individual models can be used as central or departmental switches to construct high-speed fibre network backbones with Gigabit or Fast Ethernet connectivity to high densities of workgroup PC's. The GSM family of switches also provides intelligent network features for a complete SNMP/RMON management solution that scales from a single departmental switch right up to large enterprise environments.

- *Non-blocking, full-line speed, store-and-forward switching architecture*
- *Auto-Negotiation and Auto-MDIX on all 10/100/1000Mbps copper ports*
- *Individual models designed for high density Gigabit backbone or workgroup connectivity applications*
- *GSM-8T16SFP model offers 8x Gigabit RJ-45 ports and 16x SFP slots for high density Gigabit backbone applications*
- *GSM-24T2SFP model offers 24x Gigabit RJ-45 ports for high density Gigabit workgroup applications*
- *GSM-16T2SFP model offers 16x Gigabit RJ-45 ports for high density Gigabit workgroup applications*
- *GSM-24T2SFP/16T2SFP offer 2x SFP slots for mini-GBIC fibre uplinks*
- *Comprehensive Layer 2 SNMP/RMON management*
- *Sophisticated GUI web management interface*
- *"Virtual Stack" – manage all GSM series switches via a single IP address*

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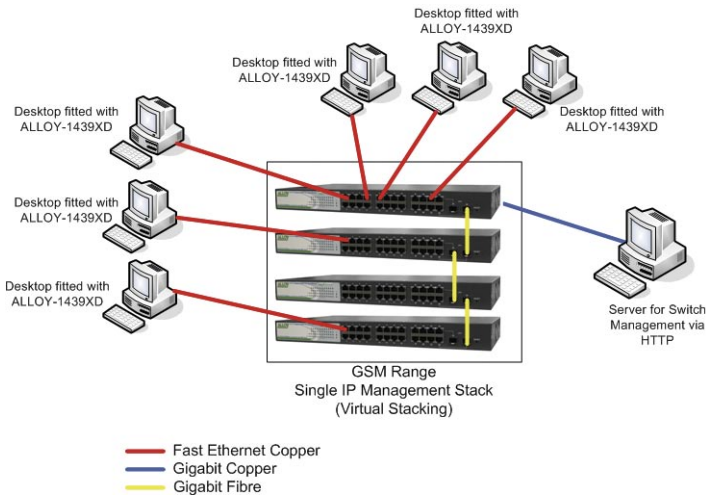
GSM-8T16SFP • GSM-24T2SFP • GSM-16T2SFP
Layer 2 Managed Gigabit Switches

Technical Specifications

Hardware and environmental

	GSM-8T16SFP	GSM-24T2SFP	GSM-16T2SFP
Network Interface	• 8x 10/100/1000Mbps RJ-45 UTP ports • 16x SFP slots for mini-GBIC modules • 1x RS-232 console management port	• 24x 10/100/1000Mbps RJ-45 UTP ports • 2x SFP slots for mini-GBIC modules (paired with UTP ports 23 & 24) • 1x RS-232 console management port	• 16x 10/100/1000Mbps RJ-45 UTP ports • 2x SFP slots for mini-GBIC modules (paired with UTP ports 15 & 16) • 1x RS-232 console management port
Transmission Mode	• 10/100Mbps – full or half duplex • 1000Mbps & SFP – full duplex only	As per GSM-8T16SFP	As per GSM-8T16SFP
Transmission Speed	• UTP: auto-sensing 10/100/1000Mbps • SFP: 1000Mbps	As per GSM-8T16SFP	As per GSM-8T16SFP
Forwarding & Filtering Packet Rates	• 1000Mbps: 1,488,000pps • 100Mbps: 148,800pps • 10Mbps: 14,880pps	As per GSM-8T16SFP	As per GSM-8T16SFP
MAC Address & Self-learning	• 8K MAC address • 4K VLAN Table entries	As per GSM-8T16SFP	As per GSM-8T16SFP
Buffer Memory	Embedded 400 KB frame buffer	As per GSM-8T16SFP	As per GSM-8T16SFP
Flow Control	• Full duplex: compliant for IEEE802.3x • Half duplex: Backpressure flow control	As per GSM-8T16SFP	As per GSM-8T16SFP
Cable - Types & Maximum Ranges	• UTP: Cat. 5/5e UTP/STP cable, up to 100m • Fibre: • 1000Base-SX: 62.5/125 or 50/125um. 850nm wavelength. Up to 220, 275, 500 or 550m, depending on grade used • 1000Base-LX: 9/125um. 1310nm wavelength. Range device dependent • 1000Base-ZX: 9/125um. 1550nm wavelength. Range device dependent • 1000Base-LX WDM: single core 9/125um. Multiplexed 1310nm & 1550nm wavelengths Range device dependent	As per GSM-8T16SFP	As per GSM-8T16SFP
LED Suite	• RJ-45 Ports 1-8: LINK/ACT, 10/100/1000Mbps • SFP Slots 9-24: SFP (LINK/ACT) • System: Power, CPU	• RJ-45 Ports 1-24: LINK/ACT, 10/100/1000Mbps • SFP Slots 15 & 16: SFP (LINK/ACT) • System: Power, CPU	• RJ-45 Ports 1-16: LINK/ACT, 10/100/1000Mbps • SFP Slots 15 & 16: SFP (LINK/ACT) • System: Power, CPU
Power	• Voltage: 100 -240VAC Frequency: 50 - 60 Hz Consumption: 30 watts	As per GSM-8T16SFP	As per GSM-8T16SFP
Operating Temperature	• Ambient: 0°-500C	As per GSM-8T16SFP	As per GSM-8T16SFP
Humidity	• 50-90%	As per GSM-8T16SFP	As per GSM-8T16SFP
Dimensions	• 44(H) x 442(W) x 209(D) mm	As per GSM-8T16SFP	As per GSM-8T16SFP
Compliance	• FCC Part 15 Class A • CE • C-Tick	As per GSM-8T16SFP	As per GSM-8T16SFP



Management

All models: GSM-8T16SFP, GSM-24T2SFP 7 GSM-16T2SFP

Interface types	RS-232 Console (CON), Command Line Interface (CLI), SNMP, GUI Web Management (HTTP)
HTTP - Web Management	
System information	Status of: Model Name, System Description, Location, Administrator Contact, Device Name, System Up Time, Current Time, BIOS Version, Firmware Version, Hardware-Mechanical Version, Serial Number, Host IP Address, Host MAC Address, Device Port, RAM Size, Flash Size
IP address allocation	• Static IP address (manual allocation) • Dynamic allocation via DHCP server on your network
Time settings	• manual input • via a Time Server on the internet
Management accounts	Account types: • Administrator: Read/Write access, password authentication • Guest: Read only access, password authentication
Management access security configuration	Implementation of management access security rules, defined on parameters: • VLAN group membership • Valid IP address in a predetermined range • Per switch port • Specify allow/deny access to HTTP, Telnet, SNMP or Any
Switch configuration files	Multiple configuration files can be saved and used including: • Default configuration • Start configuration • User configuration Start and user configuration files can be exported and imported by: • TFTP server • file export/import to/from network destination
Virtual stack configuration	The Virtual Stack function allows multiple GSM-xxx switches to be managed from a single IP Address: • One GSM Series switch configured as a Master, all other GSM Series switches as Slaves • Apply a group name to the virtual stack • Management access to all switches on the network via IP address of the master switch
Port status	Monitor the current status of all switch ports: • Media type being used (UTP or Fibre) • Link active or inactive • Port active or passive • Port using auto negotiation or forced • Speed the port is running at • Flow control enabled/disabled • SFP slots: connector type, wavelength, baud rate, temperature, mini-GBIC serial number, transmit power, receive power, bias current
Data counters	Simple Counter: • total bytes TX & RX, total packets TX & RX, total TX collisions Detailed counter: • Total bytes/packets/octets/priority/broadcast/ multicast TX & RX • Total no. 64/65-127/128-255/256-511/512-1023/1024 byte frames TX & RX • total number bad packets RX by CRC-alignment/ undersize/oversize/fragments/jabber/TX & RX buffer drops/collisions/TX FIFO drops
Port Mirroring	• Capture data from a nominated port • Select any other port as the monitoring port • Data can be captured from more than one port on the switch simultaneously
Bandwidth management	• Limit the bandwidth a port may use when sending or receiving data Limit received data by data type (all Traffic, Multicast, Broadcast traffic)
Quality of Service	Quality of Service (QoS) functions can be defined on the following parameters: • Per Port Priority - set each port with a different priority level • VLAN tagged priority for up to 8 levels • Type of Service (ToS) field IP header on Layer 3 network framework • Six types of layer 4 network transmission events • IP DiffServe QoS services. Certain types of network traffic can be prioritised by simple radio button checking: • Disable IP TCP/UDP based QoS • Web browsing, email, FTP and news – prioritise or down-prioritise • Prioritise IP Telephony (VoIP) • Prioritise iSCSI • Prioritise Streaming Audio/Video • Prioritise Databases (Oracle, IBM DB2, SQL, Microsoft) ect.
IGMP snooping	All IGMP Snooping functions supported, including query, report and leave
Packet length	Jumbo frames supported – 1518 to 9216 bytes

DHCP boot	Enable to suppress broadcast traffic during device boot
VLAN	VLAN modes supported: • 802.1q Tagged-based VLAN's (Q-in-Q double tagging with PVID's also supported) • Port-based VLAN's • Up to 256 active VLAN entries and a VLAN ID's ranging from 1-4096 supported
MAC Table configuration	• Statically add MAC entries to the switches MAC table • Display MAC address information from connecting devices • Flush the switches MAC table • Configure the MAC age out time of the switch • Block nominated MAC addresses from being forwarded
GVRP	Generic Attribute Registration Protocol (GARP) VLAN Registration Protocol (GVRP) defines a GARP application that provides the 802.1Q-compliant VLAN pruning and dynamic VLAN creation on 802.1Q trunk ports. With GVRP, the switch can: • Exchange VLAN configuration information with other GVRP switches • Prune unnecessary broadcast and unknown unicast traffic • Dynamically create and manage VLAN's on switches connected through 802.1Q trunk ports.
Spanning Tree Protocol	Spanning Tree Protocol is a standardised method (802.1D or 802.1w) for avoiding loops in switched networks. Two modes are supported: • Spanning Tree Protocol (STP) • Rapid spanning Tree Protocol (RSTP)
802.1x security	Port-based network access control provides a method to restrict users to access network resources via authenticated user information. • Definition of 802.1x user accounts • User authentication required before sending or receiving any data from an 802.1x-enabled port.
Trap Event alarm configuration	Trap messages can be sent to an administrator if certain events occur on the switch: • 24 different trap events, including: Cold/Warm Start, Link Down/Up, Authentication Failure, User Login/ Logout, STP Topology Changed/Disabled/ Enabled, LACP Disabled/Enabled/Member Added/Port Failure, GVRP Disabled/Enabled, VLAN Disabled, Module inserted/Removed, Dual Media Swapped • Alert administrator by email, mobile phone SMS or trap
Diagnostics	• EEPROM, UART, DRAM and Flash Test Diagnostics • Loopback test • Ping test
Trap event log	Supports up to 120 log entries, and displays: • SNMP Private trap events • SNMP Public trap events • All other user logs
Firmware upgrade	Firmware can be upgraded as new versions are released, via a TFTP server using any Ethernet port on the switch.
Reboot	• Reboot the switch via web management interface • Using the reset button on the front panel of the switch
CLI	
CLI access	• Access via console port. Connect switch to a DCE device (e.g. PC) with terminal emulation S/W • Telnet session
CLI authentication	Username, password
CLI commands	• Type "?" to display a list of CLI commands, and "help" for menu specific help • All commands on the switch are divided into 2 groups: Global commands and Local commands • Configuration for all areas shown under 'Web interface' section can be undertaken with CLI commands
SNTP	
SNMP access	Simple Network Management Protocol (SNMP) remotely monitor and configure SNMP devices via: • Central SNMP management device running SNMP software • RS-232 console port • Command Line Interface • Telnet
SNMP MIB	All models support MIB-2 (RFC 1213) and Bridge MIB (RFC 1493),
RMON MIB	All models support RMON MIB (RFC 1757) -statistics Group 1,2,3,9,
SNMP security	Specific details of security configuration, as with all other SNMP operations, will be dependent on the SNMP S/W used. However, authentication to access SNMP can also be established in the HTTP interface: • Disable/enable SNMP access • Establish password authentication for SNMP access

LAYER 2 MANAGED GIGABIT SWITCHES

Ultimate Gigabit Performance

Non-blocking, full-line speed, store-and-forward switching Gigabit switch architecture

Flexible Application

Individual models designed for high density Gigabit backbone or workgroup connectivity applications

Flexible Cable Media Support

GSM-8T16SFP model offers 8x Gigabit RJ-45 ports and 16x SFP slots for high density Gigabit backbones

GSM-24T2SFP model offers 24x Gigabit RJ-45 ports for high density Gigabit workgroup applications

GSM-16T2SFP model offers 16x Gigabit RJ-45 ports for high density Gigabit workgroup applications

GSM-24T2SFP/16T2SFP offer two SFP slots for mini-GBIC fibre uplinks utilising multimode, singlemode or WDM modules

MANAGEMENT FEATURES

All GSM series switches offer comprehensive management features including:

Multiple management access methods: *GUI web interface, Command line interface, Console port, Telnet, SNMP/RMON*

'Virtual Stack' management: *Manage all GSM-xxx switch models on the network from a single IP address.*

Quality of Service: *Powerful Layer 2-4 QoS functions, plus simple to configure configuration for specific traffic types such as VoIP*

VLAN: *All switch models support Port-based VLAN and IEEE802.1Q tagged VLAN,*

Port Trunking: *Aggregate ports to form a high bandwidth inter-switch backbone links of up to 12Gbps*

Port Mirroring: *Track network errors or abnormal packet transmission without interrupting the flow of data*

SNMP/RMON: *Remotely monitor and configure GSM series switches from your SNMP software application, and automate error alerts via email, SMS or trap*

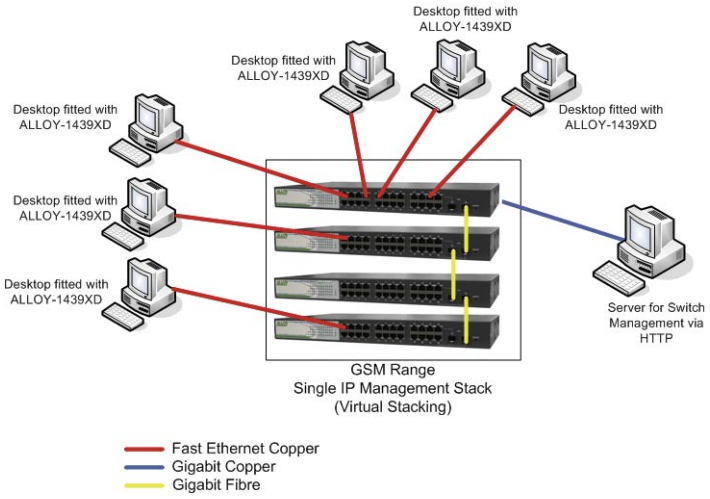
IGMP Snooping: *Intelligent forwarding of multicast packets within a Layer 2 broadcast domain. All GSM series switches support IGMP version 2*

Rapid Spanning Tree Protocol: *Protect against network loops with STP or the newer and faster Rapid Spanning Tree Protocol*

Security: *multiple security features provided, including standards-based 802.1x security user authenticated*

Ordering Codes

GSM-8T16SFP: Managed central Gigabit switch
GSM-24T2SFP Managed high density departmental Gigabit switch
GSM-16T2SFP: Managed Gigabit switch
Mini-GBIC Modules for SFP slots



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