

G-Series

Policy-based 10 G Modular L2/L3/L4 Edge Switch



3-slot modular architecture supports high-density Gigabit Ethernet and 10GE I/O modules

High-availability design with redundant power assures reliable network operations

PoE and IPv4 & IPv6 routing support a variety of networks and devices

Aligns network resource utilization with business goals and priorities

384 Gbps capacity and 214 Mpps line-rate switching and routing

Product Overview

The Enterasys G3 is a Gigabit Ethernet switch with 3 expansion slots that support 24-port Gigabit Ethernet as well as 2-port and 4-port 10GE I/O modules. With its wire-rate switching and routing capabilities, including IPv6 routing, the G3 is well-suited for dynamic switching/routing environments that require high-density Gigabit Ethernet ports and high-capacity 10GE uplinks. Along with a switch capacity of 384 Gbps, the G3 provides 24 Ethernet ports (either fixed 10/100/1000Base-T or 1 Gbps SFPs). Two of the ports on the 10/100/1000 switches are combo ports, which can be accessed via either the 10/100/1000Base-T or 1 Gbps Small Form-Factor Pluggable (SFP) connectors.

In order to provide a reliable, high-availability network, the G3 offers field-replaceable redundant power supplies and supports Link Aggregation Groups (LAGs), OSPF Equal Cost Multipath and Virtual Router Redundancy Protocol (VRRP). Both the standard and Power over Ethernet (PoE) G3 models support redundant, integral power supplies, which can be configured to operate in either a load-sharing (redundant) or additive power configuration.

In conjunction with its non-blocking architecture, the G3's robust Quality of Service (QoS) features enable strong support for converged multimedia networks, including Voice over IP (VoIP) and video, as well as all types of data-intensive applications. The G3's highly customizable Layer 2/3/4 packet classification capabilities together with its intelligent queuing mechanisms ensure that mission-critical applications receive prioritized access to network resources.

Making use of Enterasys' policy capabilities, a network administrator can define distinct roles or profiles that represent specific operational groups within an organization. Each defined role is granted individualized access to specific network services and applications (e.g., manager, employee, guest) and these access privileges remain associated with users as they move across both wired and wireless network access points. Users are authenticated via IEEE 802.1X, MAC address, or web authentication, and then assigned a predefined operational role ensuring that each user has access to appropriate information, thus aligning network resource utilization with business goals and priorities.

In order to sustain a secure, feature-rich and cost-effective network well into the future, the G3 includes a lifetime warranty.

Benefits

Business Alignment

- Versatile edge switch combines the size and cost-effectiveness of a stackable and the modularity of a chassis to support business-critical applications
- High-availability design with redundant power assures reliable network operations
- Granular QoS capabilities support converged multimedia networks

Operational Efficiency

- Modular architecture supports network growth and flexible connectivity, including 10GE
- Centralized management and role-based policies reduce network operational expenses
- Complete multi-layer switching with IPv4 and optional IPv6 routing for evolving network architectures

Security

- Integral security without performance degradation
- Network security maintained concurrently with user mobility
- Network resources securely allocated according to user operational roles

Support and Service

- Industry-leading customer satisfaction and first call resolution rates
- Personalized services, including site surveys, network design, installation, and training
- Lifetime warranty

**There is nothing more important
than our customers.**

Features

Security

- Business-oriented policy-based security by user, protocol, port, or VLAN
- Technology-oriented ACL-based security by port and per VLAN
- Multiple user authentication via IEEE 802.1X, Web portal, and/or MAC address simultaneously for up to 8 users/devices per port
- Multiple user VLAN assignment via RFC 3580 for up to 8 users/devices per port
- Acceptable use policy enforcement when deployed with Enterasys Network Management Suite (NMS)
- Rapid detection, isolation, and remediation of threats when deployed with the Enterasys NMS and Intrusion Prevention System (IPS)
- Proactive protection services:
 - MAC address lockdown / lockout
 - Worm & virus quarantine
 - Source port pairing
 - ARP broadcast protection
 - BPDU port protection
 - DHCP service protection

Performance

- **Crossbar capacity:** the G3 provides a crossbar capacity of up to 285.7 Mpps and 384 Gbps bandwidth
- **Switch capacity:** the G3 performs at wire speed per port and provides switching capacity up to 214 Mpps throughput with current IOMs
- **Address table size:** up to 32,000 addresses are supported
- **Hardware queues:** 8 hardware queues per port are supported

Management

- **Secure management:** authenticated and encrypted SNMPv3 support in addition to SSHv2 and SSL
- **Policy support:** the G3 supports the creation of 31 profiles and 1,536 unique policy rules per device; the use of 100 masks are possible per user role or profile and up to 8 roles or profiles are supported per port
- **Port mirroring:** mirrors ingress traffic from switch port(s) to a local or remote device for further traffic analysis or compliance purposes
- **RMON:** provides advanced monitoring and reporting capabilities for statistics, history, alarms, events, filter and packet capture. Note: packet capture is sampling only; packet capture/filter sampling is disabled by default and cannot be enabled on the same interface concurrently with port mirroring
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications
- **Alias/node table:** dynamically updated local directory of attached users and devices used to locate and resolve IP addresses to MAC addresses throughout the network

Convergence

- **LLDP-MED (Media Endpoint Discovery):** a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **IP multicast routing:** optional advanced routing license supports DVMRP and PIM sparse mode
- **IP multicast snooping (data-driven IGMP):** automatically prevents flooding of IP multicast traffic

Connectivity

- **IEEE 802.3af Power over Ethernet:** provides up to 15.4 W per port to IEEE 802.3af compliant PoE powered devices such as IP phones, wireless access points, and security cameras
- **PoE power management:** prioritizes which ports receive power and detects powered and non-powered end devices to enable attachment of PoE and standard Ethernet devices on a single switch. Class-based power management assigns the maximum amount of power required for a PoE class (0-4) to an attached device. Manual Mode distributes power to PoE-powered I/O modules manually, allowing for extra power to be distributed to designated ports.
- **Jumbo frames:** enables high-performance remote backup and disaster-recovery services
- **IPv6 capable:** IPv4/IPv6 dual host management support with IPv6 routing via an optional IPv6 routing license

High Availability

- **Virtual Router Redundancy Protocol (VRRP):** requires optional G3 Advanced Routing License. VRRP allows creation of highly available routed environments
- **IEEE 802.1s Multiple Spanning Tree Protocol:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; encompasses IEEE 802.1D Spanning Tree Protocol and IEEE 802.1w Rapid Spanning Tree Protocol
- **IEEE 802.3ad Link Aggregation Control Protocol (LACP):** supports up to 6 trunks, each with up to 8 ports per trunk
- **Hot-swappable** power supplies, I/O modules, and SFP/XFP optics
- **Redundant power supplies and cooling**
- **Sparing simplicity:** common accessories (interface modules, power supplies)

Layer 2 Switching

- **IEEE 802.1q VLAN support and tagging:** supports up to 1,024 VLANs simultaneously
- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs

Layer 3 Services

- **Layer 3 IP routing:** static IP routing provides basic routing. RIP provides RIPv1 and RIPv2 routing at media speed for up to 2,500 IPv4 routes. Optional Advanced Routing License includes PIM, VRRP, and OSPF2 which supports ECMP to provide link redundancy/scalable bandwidth and NSSA. IPv6 routing is supported via the optional IPv6 Routing License
- **UDP helper function:** UDP broadcasts can be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevent server spoofing for UDP services such as DHCP
- **Loopback interface address:** defines an address in RIP and OSPF that can always be reachable, improving diagnostic capability

Quality of Service (QoS)

- **Traffic classification at layer 2,3,4:** enables packet classification and tagging at the network edge based on any of the following attributes: MAC address, physical port, IP address, IP protocol, IP ToS/DSCP, TCP/UDP port, and IP subnet
- **Traffic prioritization:** allows real-time traffic classification into 8 priority levels mapped to eight hardware queues; weighted round robin (WRR) or strict priority (SP) queuing are supported which keeps low priority traffic from being completely starved of bandwidth

Investment Protection

- Seamless transition from RFC 3580 and complex ACL deployments to the Enterasys role-based policy framework, without the need to make changes to the RADIUS infrastructure (e.g., adding filter-ID)
- Includes lifetime warranty that continues for five years after the date of product discontinuation.

Standards and Protocols

Switching Services Protocols

IEEE 802.1D – MAC Bridges
IEEE 802.1s – Multiple Spanning Trees
IEEE 802.1t – 802.1D Maintenance
IEEE 802.1w – Rapid Spanning Tree Reconvergence
IEEE 802.3 – Ethernet
IEEE 802.3ab – GE over Twisted Pair
IEEE 802.3ad – Link Aggregation
IEEE 802.3ae – 10 Gigabit Ethernet (fiber)
IEEE 802.3af – PoE
IEEE 802.3i – 10Base-T
IEEE 802.3u – 100Base-T, 100Base-FX
IEEE 802.3z – GE over Fiber
Full/half duplex auto-sense support on all ports
IGMP Snooping v1/v2/v3
Jumbo Frame support (9,216 bytes)
Loop Protection
One-to-One and Many-to-One Port Mirroring
Port Description
Protected Ports
Per-port Broadcast/Multicast/Unknown Unicast Suppression
Spanning Tree Backup Root
STP Pass Thru

VLAN Support

Generic Attribute Registration Protocol (GARP)
Generic VLAN Registration Protocol (GVRP)
IEEE 802.1p – Traffic Management/Mapping to 8 Queues
IEEE 802.1q – VLAN Tagging
IEEE 802.1v – Protocol-based VLANs
IEEE 802.3ac – VLAN Tagging Extensions
Port-based VLAN (private port/private VLAN)
Tagged-based VLAN
VLAN Marking of Mirror Traffic
VLAN to Policy Mapping

Quality of Service

8 Priority Queues per Port
802.3x Flow Control
IP DSCP – Differentiated Services Code Point
IP Precedence
IP Protocol
Queuing Control – Strict and Weighted Round Robin
Source/Destination IP Address
Source/Destination MAC Address

Security

ARP Spoof Protection
DHCP Spoof Protection
Dynamic and Static MAC Locking
EAP Pass Thru
IEEE 802.1x Port Authentication
MAC-based Port Authentication
RADIUS Accounting for MAC Authentication
RADIUS Client
RFC 3580 – Dynamic VLAN Assignment
RFC 3580 – Multi-user Authentication
Password Protection (encryption)
Secured Shell (SSHv2)
Secured Socket Layer (SSL)
User and IP Phone Authentication
Web-based Port Authentication

IPv4 Routing & Simulcast

ARP Dynamic Table Size: 2024
ARP Static Table Size: 512
ARP & ARP Redirect
DCHP/BOOTP Relay
DVMRP (optional license)
IP Helper Address
RFC 826 – Ethernet ARP
RFC 1058 – RIP v1
RFC 1256 – ICMP Router Discovery Messages
RFC 1583, RFC 2328 – OSPF2 (optional license)
RFC 1724 – RIPv2 MIB Extension
RFC 1850 – OSPF v2 MIB (optional license)
RFC 2236 – IGMPv2
RFC 2338 – IP Redundancy VRRP (optional license)
RFC 2362 – PIM-SM (optional license)
RFC 2453 – RIP v2
RFC 2787 – VRRP MIB (optional license)
RFC 2863 – The Interfaces Group MIB
RFC 2933 – IGMP MIB
RFC 2934 – PIM MIB for IPv4 (optional license)
RFC 3046 – DHCP/BootP Relay
RFC 3768 – VRRP – Virtual Router (optional license)
Redundancy Protocol
Static Routes

IPv6 Routing

RFC 1981 – Path MTU for IPv6
RFC 2373 – IPv6 Addressing
RFC 2460 – IPv6 Protocol Specification
RFC 2461 – Neighbor Discovery
RFC 2462 – Stateless Autoconfiguration
RFC 2463 – ICMPv6
RFC 2464 – IPv6 over Ethernet
RFC 2473 – Generic Packet Tunneling in IPv6
RFC 2711 – IPv6 Router Alert
RFC 2740 – OSPFv3
RFC 2893 – Transition Mechanisms for IPv6 Hosts and Routers (6 over 4 configured)
RFC 3315 – DHCPv6 (stateless + relay)
RFC 3484 – Default Address Selection for IPv6
RFC 3493 – Basic Socket Interface for IPv6
RFC 3513 – Addressing Architecture for IPv6
RFC 3542 – Advanced Sockets API for IPv6
RFC 3587 – IPv6 Global Unicast Address Format
RFC 3736 – Stateless DHCPv6
Dual IPv4/IPv6 TCP/IP Stack

RFC & MIB Support

ENTERASYS ENTITY MIB
ENTERASYS POLICY MIB
ENTERASYS VLAN AUTHORIZATION MIB
IEEE 802.1X MIB – Port Access
IEEE 802.3ad MIB – LAG MIB
LLDP/LLDP-MED
RFC 826 – ARP and ARP Redirect
RFC 951, RFC 1542 – DHCP/BOOTP Relay
RFC 1213 – MIB/MIB II
RFC 1493 – BRIDGE-MIB
RFC 1643 – Ethernet-like MIB
RFC 2131, RFC 3046 – DHCP Client/Relay
RFC 2233 – IF-MIB
RFC 2271 – SNMP Framework MIB
RFC 2465 – IPv6 MIB
RFC 2466 – ICMPv6 MIB
RFC 2618 – RADIUS Authentication Client MIB
RFC 2620 – RADIUS Accounting Client MIB
RFC 2668 – Managed Object Definitions for 802.3 MAUs

RFC 2674 – P-BRIDGE-MIB
 RFC 2674 – QBRIDGE-MIB VLAN Bridge MIB
 RFC 2737 – Entity MIB (physical branch only)
 RFC 2787 – VRRP-MIB
 RFC 2819 – RMON-MIB
 RFC 2863 – IF-MIB
 RFC 2933 – IGMP MIB
 RFC 3413 – SNMP Applications MIB
 RFC 3289 – DIFFSERV-MIB
 RFC 3414 – SNMP User-based Security Module (USM) MIB
 RFC 3415 – View-based Access Control Model for SNM
 RFC 3580 – IEEE 802.1X Remote Authentication Dial-in User Service (RADIUS) Usage Guidelines
 RFC 3584 – SNMP Community MIB
 RFC 3621 – Power over Ethernet MIB

Management

Alias Port Naming
 Command Line Interface
 Configuration Upload/Download
 Editable Configuration File
 FTP/TFTP Client
 Multi-configuration File Support
 NMS Automated Security Manager
 NMS Console
 NMS Inventory Manager
 NMS Policy Manager
 Node/Alias Table
 RFC 854 – Telnet
 RFC 1157 – SNMP
 RFC 1901 – Community-based SNMPv2
 RFC 2271 – SNMP Framework MIB
 RFC 3413 – SNMPv3 Applications

RFC 3414 – User-based Security Model for SNMPv3
 RFC 3415 – View-based Access Control Model for SNMP
 RMON (Stats, History, Alarms, Events, Filter, Packet Capture)
 sFlow
 Secure FTP / Secure Copy
 Simple Network Time Protocol (SNTP)
 SSH
 Syslog
 TACACS+ for Management Authentication, Authorization and Auditing
 Text-based Configuration Upload/Download
 Web-based Management
 Webview via SSL Interface

Specifications

	G3G124-24	G3G124-24P	G3G170-24
Description	24-port 10/100/1000 switch with 3 modular expansion slots (power supply not included)	24-port 10/100/1000 PoE switch with 3 modular expansion slots (power supply not included)	24-port SFP switch with 3 modular expansion slots (power supply not included)
Port	24 fixed RJ-45 10/100/1000 ports with 2 SFP combo ports expandable to 96 (Type 10Base-T, Type 100Base-TX, Type 1000Base-T)	24 fixed RJ-45 10/100/1000 ports with PoE and 2 SFP combo ports expandable to 96 (Type 10Base-T, Type 100Base-TX, Type 1000Base-T)	24 fixed SFP 1000Base-X/ 100FX ports expandable to 96 (SFP: Small Form-Factor Plug-in) transceivers for both fiber and copper connections
Empty Slots	3 empty slots for Input/Output Modules (IOMs)	3 empty slots for Input/Output Modules (IOMs)	3 empty slots for Input/Output Modules (IOMs)
Power Supplies	Power supplies not included in base unit. Order separately, see Accessories section.	Power supplies not included in base unit. Order separately, see Accessories section.	Power supplies not included in base unit. Order separately, see Accessories section.
Form Factor	Fixed modular, standalone	Fixed modular, standalone	Fixed modular, standalone
Memory and processor	256 MB RAM 32 MB flash memory	256 MB RAM 32 MB flash memory	256 MB RAM 32 MB flash memory
Performance			
Throughput	Up to 214 Mpps	Up to 214 Mpps	Up to 214 Mpps
Switching capacity	384 Gbps	384 Gbps	384 Gbps
Electrical			
PoE total power Class 3 (watts)	96 ports non-redundant, 48 ports redundant	96 ports non-redundant, 48 ports redundant	Up to 72 ports non-redundant Up to 48 ports redundant
PoE total power Class 2 (watts)	96 ports fully redundant	96 ports fully redundant	Up to 72 ports fully redundant
PoE power per port (watts)	15.4 W for Class 3	15.4 W for Class 3	15.4 W for Class 3
IEEE 802.3af Compliant	Yes	Yes	Yes
Management	NMS Policy Manager, Automated Security Manager (additional license), command line interface, web browser	NMS Policy Manager, Automated Security Manager (additional license), command line interface, web browser	NMS Policy Manager, Automated Security Manager (additional license), command line interface, web browser
Physical Specs			
Dimensions (HxWxD)	3.5x17.3x19 in / 8.8x44.1x48.1 cm	3.5x17.3x19 in / 8.8x44.1x48.1 cm	3.5x17.3x19 in / 8.8x44.1x48.1 cm
Net Weight (g/lb/Kg)	21.16 lb / 9.598 kg	21.30 lb / 9.662 kg	21.75 lb / 9.866 kg
MTBF (Hrs)	119,152	107,645	134,153
Thermal Output (BTUs/Hr)	429	443	314
Environmental Specifications			
Power Requirements			
Input Voltage	100-240 VAC	100-240 VAC	100-240 VAC
Input Frequency	50-60 Hz	50-60 Hz	50-60 Hz
Input Current	1.7 A @100 VAC / 0.7 A @240 VAC	1.8 A @100 VAC / 0.7 A @240 VAC	1.7 A @100 VAC / 0.7A @240 VAC
Power Consumption (watts)	126 W	130 W [Without PoE power draw]	92 W

Specifications (Cont.)

	G3G124-24	G3G124-24P	G3G170-24
Temperature			
Operating Temperature (C/F)	0-50° C / 32-122° F	0-50° C / 32-122° F	0-50° C / 32-122° F
Non-Operating/Storage Temperature (C/F)	-40-70° C / -40-158° F	-40-70° C / -40-158° F	-40-70° C / -40-158° F
Humidity			
Operating Humidity	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing
Agency & Standards Specifications			
Standard Safety (UL)	UL/CB/LVD	UL/CB/LVD	UL/CB/LVD
Electromagnetic Compatibility			
Standard EMC	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI
Vibration			
Non-Operational Shock and Drop	ISTA 2A	ISTA 2A	ISTA 2A

IOMs

	G3G-24TX – 24 10/100/1000 port IOM with 2 Combo SFP ports	G3G-24SFP – 24-port 1000BaseX IOM	G3K-2XFP – 2-port 10 GB IOM	G3K-4XFP – 4-port 10 GB IOM	G3G-POE – Power over Ethernet daughter card
Physical Specs					
Dimensions (HxWxD)	1.6x8.1x12.6 in / 4.1x20.5x32 cm	1.6x8.1x12.6 in / 4.1x20.5x32 cm	1.6x8.1x12.6 in / 4.1x20.5x32 cm	1.6x8.1x12.6 in / 4.1x20.5x32 cm	0.63x6.69x4.49 in / 1.6x17x11.4 cm
Net Weight (g/lb/Kg)	2.43 lb / 1.1 kg	3.09 lb / 1.4 kg	2.20 lb / 1 kg	2.43 lb / 1.1 kg	0.14 lb / 0.064 kg
MTBF (Hrs)	354,050	394,524	346,617	246,568	1,114,579
Thermal Output (BTUs/Hr)	119	79	92	136	13
Environmental Specifications					
Power Requirements					
Input Voltage	54V DC	54V DC	54V DC	54V DC	54V DC
Input Current	0.65	0.43	0.41	0.74	0.07
Power Consumption (watts)	35 W	23 W	27 W	40 W	4 W
Temperature					
Operating Temperature (C/F)	0-50° C / 32-122° F	0-50° C / 32-122° F	0-50° C / 32-122° F	0-50° C / 32-122° F	0-50° C / 32-122° F
Non-Operating/Storage Temperature (C/F)	-40-70° C / -40-158° F	-40-70° C / -40-158° F	-40-70° C / -40-158° F	-40-70° C / -40-158° F	-40-70° C / -40-158° F
Humidity					
Operating Humidity	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing	5%-95% non-condensing
Agency & Standards Specifications					
Standard Safety (UL)	UL	UL	UL	UL	UL
Electromagnetic Compatibility					
Standard EMC	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI	CE / FCC Class A / VCCI / C-Tick /BSMI
Vibration					
Non-Operational Shock and Drop	ISTA 2A	ISTA 2A	ISTA 2A	ISTA 2A	ISTA 2A

Ordering Information

Part Number	Description
G3	
G3G124-24	24-port 10/100/1000 switch with two SFP combo ports and 3 modular expansion slots (power supply not included)
G3G124-24P	24-port 10/100/1000 PoE switch with two SFP combo ports and 3 modular expansion slots (power supply not included)
G3G170-24	24-port SFP switch with 3 modular expansion slots (power supply not included)
Input Output Modules (IOM)	
G3G-24TX	24 10/100/1000 port IOM with 2 Combo SFP ports
G3G-24SFP	24-port 1000BaseX IOM
G3K-2XFP	2-port 10GbE XFP IOM
G3K-4XFP	4-port 10 GbE XFP IOM
G3G-POE	Power over Ethernet daughter card
Software License	
G3L3-LIC	Enterasys G3 IPv4 Advanced Routing License (OSPF, PIM, DVMRP, VRRP), Per Switch License
G3IPv6-LIC	Enterasys G3 IPv6 Routing License, Per Switch License
Accessories	
G3-PWR-POE	1200 watt power supply (requires 20 amp circuit)
G3-PWR	400 watt power supply (requires 15 amp circuit)

Transceivers

Enterasys transceivers provide connectivity options for Ethernet over twisted pair copper and fiber optic cables with transmission speeds from 100 Megabits per second to 10 Gigabits per second. All Enterasys transceivers meet the highest quality for extended life cycle and the best possible return on investment. For detailed specifications, compatibility and ordering information please go to: <http://www.enterasys.com/products/transceivers-ds.pdf>.

Warranty

As a customer-centric company, Enterasys is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

The Enterasys G3 comes with a lifetime warranty against manufacturing defects. For full warranty terms and conditions please go to:

<http://www.enterasys.com/support/warranty.aspx>.

Service and Support

Enterasys Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Enterasys account executive for more information about Enterasys Service and Support.

Contact Us

For more information, call Enterasys Networks toll free at **1-877-801-7082**, or +1-978-684-1000 and visit us on the Web at enterasys.com

