

FASTIRON GS SERIES



SCALABLE POWER OVER ETHERNET SWITCHES
POWERING CONVERGENCE—AT THE EDGE

HIGHLIGHTS

- ▶ Compact 24-port and 48-port 10/100/1000 Mbps base models upgradeable with power over Ethernet (PoE) and 2 ports of 10-Gigabit Ethernet
- ▶ Support for 48 10/100/1000 Class 3 IEEE 802.3af Power over Ethernet (PoE) ports—industry's highest capacity in a compact switch
- ▶ Ideal for VoIP and wireless LAN deployments
- ▶ Support for leading VoIP equipment with automatic voice VLAN and QoS configuration
- ▶ Option for modular and field-upgradeable 2-port 10-Gigabit Ethernet XFP module for high-performance networking
- ▶ IronShield 360 security protects network access and integrity; features include closed loop threat detection and mitigation, 802.1x with multi-device authentication, dynamic VLAN assignment, extended ACLs, MAC filters
- ▶ Port mirroring and sFlow traffic sampling can be configured together to provide system-wide traffic monitoring for traffic accounting, intrusion detection, 802.1x identity monitoring, capacity planning and fault isolation

Overview

The FastIron GS Series line of compact switches is a new generation of power over Ethernet (PoE) switches designed for cost-effective network convergence and high-performance networking. This product family is designed for organizations looking for the convenience and scaling benefits of a stackable switch with the option to expand to 10-Gigabit Ethernet on a compact and convergence-ready platform.

Featuring modular upgradeability for Power over Ethernet, 10-Gigabit Ethernet and redundant power in a 1.5U high form, the FastIron GS Series provides enterprise organizations with a flexible and cost-effective solution for high-performance convergence at the network edge.

The FastIron GS Series is available in two PoE models and two non-PoE models. The two PoE models are the FastIron GS 624P-POE and FastIron GS 648P-POE. These switches support 24 and 48 10/100/1000 Mbps PoE ports, respectively. The FastIron GS 624P and FastIron GS 648P support 24 and 48 10/100/1000 Mbps ports, respectively. The two non-PoE switches are field-upgradeable to support PoE providing a flexible solution for customers that want to upgrade to PoE after deployment.

The trend towards network convergence is driving the need for high availability solutions. The FastIron GS Series features 1+1 power redundancy using hot-swappable and field replaceable power modules that install into the rear of the unit. The power supplies are load sharing supplies which provide full 1+1 redundancy for as many as 48 Class 1 and Class 2 PoE ports and 31 Class 3 (15.4 watts) ports. For the 24-port FastIron GS 624P-POE model, the system can support true 1+1 redundancy for 24 Class 1, Class 2 or Class 3 PoE ports. The 48-port FastIron GS 648-POE supports up to 48 10/100/1000 Class 3 (15.4 watts) PoE ports with two power supplies—the highest Class 3 PoE port density in the industry for a compact switch.

The FastIron GS Series includes PoE upgradeable models—the FastIron GS 624P and the FastIron GS 648P. Both models are ideal for network installations that do not have an immediate need for PoE, but will benefit from the investment protection provided by the upgradeability option. Additionally, FastIron GS Series switches are field upgradeable to include a 2-port 10-Gigabit Ethernet (10-GbE) module with small form factor pluggable XFP transceivers. Supported transceivers include SR, LR, ER, ZR, and ZRD optics supporting fiber lengths up to 80Km. Offering network managers the flexibility to upgrade to 10-GbE helps to future-proof the network provides added investment protection.

To meet existing and emerging network requirements, the FastIron GS Series includes advanced Layer 2 features and protocols including Foundry’s Metro Ring Protocol and Virtual Switch Redundancy Protocol supporting resilient

layer 2 topologies. In addition, the FastIron GS Series supports advanced quality of service (QoS) controls including prioritization, classifying, and marking of Ethernet and IP traffic. Network managers can configure the switches to prioritize and re-mark VoIP traffic using 802.1p priority and IP Type of Service and DiffServ Codepoints (TOS/DSCP). Lastly, the FastIron GS simplifies VoIP deployments with dynamic voice VLAN assignment, which dynamically assigns voice traffic to a operator specified VLAN.

The FastIron GS Series features advanced bandwidth management and IronShield security capabilities including ingress and egress rate limiting, denial of service protection, IEEE 802.1x with multi-device authentication and dynamic VLAN assignment, MAC filters, standard and extended access control lists, port mirroring and embedded sFlow packet sampling. The embedded sFlow provides system-wide traffic monitoring that can be used for accounting, troubleshooting and intrusion detection. Using Foundry’s IronView Network Management (INM) System to process sFlow data from the FastIron GS switches, IronShield 360 provides a closed loop threat detection and response solution. sFlow packet samples are scanned for known threat signatures. Upon a positive match, INM can be configured to automatically send a control command to the FastIron GS switch to throttle or disable the port on which the threat has been detected. This advanced security capability provides a network-wide security umbrella without the added complexity and cost of ancillary sensors.

FastIron GS Series Specifications

FEATURES	FGS624P	FGS648P	FGS624P-POE	FGS648P-POE
Switching Performance	108 Gbps	216 Gbps	108 Gbps	216 Gbps
Forwarding Performance	161 Mpps	202 Mpps	161 Mpps	202 Mpps
10/100/1000 Port Density	24 with 4-port Combo	48 with 4-port Combo	24 with 4-port Combo	48 with 4-port Combo
10/100/1000 PoE Density with 15.4W Each	24 (optional)	48 (optional)	24 (1 PSU)	48 (2 PSU)
10/100/1000 PoE Density with 10W Each	24 (optional)	48 (optional)	24 (1 PSU)	48 (1 PSU)
100/1000 Mbps SFP Density	4 Combo Ports	4 Combo Ports	4 Combo Ports	4 Combo Ports
10-Gigabit Ethernet	2	2	2	2
100 Mbps Optics	100FX and 100Base-BX			
Gigabit Ethernet Optics	SX, SX2, LX, LHA, LHB, 1000Base-BX, and CWDM			
10-Gigabit Ethernet Optics	SR, LR, ER, ZR, and ZRD			
AC and DC Power Supply	Yes			
Power Supply Redundancy	1 + 1 Load Sharing			

Advanced Capabilities

HIGH DENSITY POWER OVER ETHERNET IN A COMPACT SWITCH

The FastIron GS Series can deliver 15.4 watts of power on all ports simultaneously. This capacity is a significant advantage for environments that require high power density for devices such as surveillance cameras, color LCD phones, point-of-service terminals and other powered endpoints.

The capability to deliver high-density full-power PoE on all ports reduces the need to purchase additional hardware to support the higher power requirements.

FLEXIBLE, “GROW AS YOU GO” ARCHITECTURE

Convergence planning and network implementation can occur over an extended period and budget constraints may require phased deployments. The FastIron GS Series makes it easy to deploy a solution today that can be upgraded later to support PoE and 10-GbE when needed.

Each power supply within a FastIron GS switch can support up to 480 watts of PoE power providing up to 48 10/100/1000 Mbps PoE ports of 15.4 watts per port in a dual power configuration. This scalability allows you to size your installation to meet current needs with room for future growth.

As network traffic increases, network managers can easily upgrade to 10-GbE to provide high-capacity connectivity to the network backbone and/or high-performance server. The FastIron GS can be upgraded at time of purchase or in the field with a two-port 10-GbE module with XFP optics.

HIGH AVAILABILITY HARDWARE FEATURES

Voice over IP (VoIP) solutions require high availability, especially for the power supplies that power the Power over Ethernet interfaces. FastIron GS switches fulfill this requirement with dual, hot-swappable AC and DC power supplies. Redundant power configurations include redundant AC, redundant DC and mixed AC + DC power configurations.

Additional design features include intake and exhaust temperature sensors and fan spin detection to aid in rapid detection of abnormal or failed operating conditions to help minimize mean time to repair.

HIGH AVAILABILITY LAYER 2 PROTOCOLS

Software features such as Virtual Switch Redundancy Protocol, Foundry's Metro Ring Protocol, Rapid Spanning Tree Protocol, and 802.3ad Link Aggregation provide alternate paths for traffic in the event of a link failure. Sub-second fault detection utilizing Link Fault Signaling and Uni-directional Link Detection (UDLD) ensure rapid fault detection and recovery. FastIron GS software and hardware features provide a robust and resilient infrastructure solution in a cost-effective and compact form.

ADVANCED SECURITY SOLUTIONS

FastIron GS Series switches come standard with IronShield™ security features including denial of service (DoS) prevention, 802.1x port security, standard and extended access control lists, MAC filters, private VLANs, and IronShield 360 closed loop threat mitigation.

IronShield 360 extends the performance of the Foundry networking solutions by delivering closed-loop and automated threat mitigation without impacting network performance. FastIron GS switches, in combination with Foundry's IronView Network Management System, can automatically detect, react, and stop threats in real time without human intervention.

Key Features and Benefits

FLEXIBLE AND HIGH-CAPACITY ARCHITECTURE

- ▶ 24- and 48-port 10/100/1000-Mbps (RJ-45) Power over Ethernet models
- ▶ 24- and 48-port 10/100/1000-Mbps (RJ-45) PoE upgradeable models
- ▶ Field upgradeable or orderable to include 2-port 10-GbE XFP module that supports SR, LR, ER, ZR, and ZRD XFP optics
- ▶ Support for up to two redundant, removable, and load-sharing power supplies

POWER OVER ETHERNET

- ▶ Standards-based IEEE 802.3af PoE support
- ▶ Support for up to 48 ports of 10/100/1000 Mbps PoE, up to 15.4 Watts per port using the 48-port model configured with two power supplies
- ▶ Fully redundant 1+1 power configurations:
 - 24-port PoE model with two power supplies supports up to 15.4W for each port
 - 48-port PoE model with two power supplies supports up to 10W for each port
- ▶ PoE auto-detection enables support for PoE and non-PoE devices without configuration changes
- ▶ Per-port LED indicators to easily identify power-consuming devices
- ▶ Per-port short circuit protection to supply system protection
- ▶ Software accessible system and per port power consumption
- ▶ Power redundancy for increased reliability
- ▶ Interoperability with popular voice over IP equipment, including legacy Cisco IP phones
- ▶ Advanced QoS capabilities ensure high quality VoIP support

IRONSHIELD ADVANCED SECURITY FEATURES

- ▶ Multilevel access security for console access
- ▶ IronShield 360—System-wide, automated closed-loop threat detection and mitigation solution
- ▶ Secure web-based management interface preventing unauthorized users from accessing or changing the switch configuration
- ▶ Terminal Access Controller Access Control Systems (TACACS/TACACS+) and RADIUS operator authentication
- ▶ Secure Shell and SNMPv3 restrict and encrypt communications to the management interface and system

- ▶ Layer 2/Layer 3/Layer 4 ACLs and binding the ACL to TELNET, web-management, and SNMP interfaces
- ▶ IEEE 802.1x authentication including multiple device authentication and dynamic VLAN, ACL, and MAC filter assignment for authenticated clients
- ▶ Private VLANs provide security and isolation between switch ports to help ensure that users cannot snoop on other users' traffic
- ▶ Denial of Service Protection - Monitoring, throttling, and locking out of ICMP and TCP SYN traffic both to the management address of the switch and for transit traffic

ADVANCED QUALITY OF SERVICE

- ▶ Packet classification, reclassification, policing, marking, and re-marking
- ▶ Identification, classification, and reclassification of traffic based on specific criteria such as port, source/destination MAC address, 802.1p priority bit, source/destination IP address, Type of Service (ToS), Differentiated Services Codepoints (DSCP), or TCP/UDP port
- ▶ Flexible queue servicing utilizing configurable Weighted Round Robin (WRR), Strict Priority (SP), or hybrid SP/WRR
- ▶ 8 hardware queues for flexible QoS management
- ▶ Ingress rate limiting—standard and extended ACL control
- ▶ Egress rate limiting—per port, per queue
- ▶ Support for up to 256 wire-speed ingress traffic policers with each policer supporting configurable metering with maximum and burst size settings, color aware and out-of-profile packet remarking or dropping

HIGH AVAILABILITY SYSTEM DESIGN AND SOFTWARE FEATURES

- ▶ Internal, redundant, hot-swappable power supplies for increased PoE reliability
- ▶ Advanced Layer 2 redundancy features: Metro Ring Protocol, Virtual Switch Redundancy Protocol, Rapid Spanning Tree, Per-VLAN Spanning Tree
- ▶ sFlow—an industry standard for network traffic monitoring
- ▶ sFlow and port mirroring on the same port
- ▶ Efficient space-saving form factor with front-facing data ports and a built-in temperature monitor sensor

Technical Specifications

STANDARDS COMPLIANCE

- 802.1d Bridging
- 802.1D-1998
- 802.1q/p VLAN Tagging and Priority
- 802.1w Rapid Spanning Tree
- 802.1X Port-based Authentication, Dynamic VLAN, ACL, and MAC Filter Group Assignment
- 802.3 10Base-T
- 802.3 Ethernet Like MIB
- 802.3ad Link Aggregation (Dynamic and Static) and Trunk Groups
- 802.3af Power over Ethernet
- 802.3u 100Base-TX
- 802.3x Flow Control
- 802.3z 1000Base-SX/LX/T
- 802.3ae 10-Gigabit Ethernet
- Auto MDI/MDIX

LAYER 2 FEATURES

- 4,096 VLANs
- 16,000 MAC Addresses
- Foundry's Protocol VLAN
- Private VLAN
- Subnet VLAN
- Port Security (MAC Address Locking)
- Port-based Access Control Lists
- Dual Mode VLANs
- Fast Port Span
- Generic VLAN Registration Protocol
- MAC-Layer Filtering
- Mirror/Monitor Ports
- Per VLAN STP (PVST/PVST+)
- VLAN Groups
- Single-instance Spanning Tree
- Uni-Directional Link Detection (UDLD)
- Dynamic Voice VLAN Assignment
- Jumbo Frames up to 9,216 bytes

LAYER 2 METRO FEATURES

- Super Aggregated VLAN or Q-in-Q
- Metro Ring Protocol
- Virtual Switch Redundancy
- Topology Groups

IP MULTICAST

- IGMP Snooping (v1/v2)
- IGMPv1 (RFC 1112)
- IGMPv2 (RFC 2236)
- IGMPv3

QUALITY OF SERVICE

- 802.1p Mapping to Priority Queue
- MAC Address Mapping to Priority Queue
- ACL Mapping to Priority Queue
- ACL Mapping to ToS/DSCP
- ACL Mapping and Marking of ToS/DSCP
- DiffServ Support
- QoS Queue Management Using Weighted Round Robin (WRR), Strict Priority (SP), and a combination of WRR and SP

TRAFFIC MANAGEMENT

- Inbound Rate Limiting per port
- Outbound Rate Limiting per port and per queue
- Broadcast and Unicast Rate Limiting

MANAGEMENT AND CONTROL

- Virtual Cable Tester
- 802.3 MAU MIB (RFC 2239)
- Architecture for Describing SNMP Framework (RFC 2571)
- BootP (RFC 951 & RFC 1542)
- BootP/DHCP Relay (RFC 2131)
- Bridge MIB (RFC 1493)
- Configuration Logging

- Ethernet Interface MIB (RFC 1643)
- Ethernet MIB (RFC 1643)
- Foundry Discovery Protocol (FDP)
- Embedded HTTP (RFC 2068)
- Embedded HTTPS (RFC 2818)
- ICMP Router Discovery Protocol (RFC 1256)
- Industry Standard Command Line Interface (CLI)
- Integration with HP OpenView for Sun Solaris, HP-UX, IBM's AIX, Windows NT Standalone and Windows NT
- IP Forwarding Table MIB (RFC 1354)
- IronView Network Manager (INM) Web-based Graphical User Interface
- Embedded Web Management
- sFlow (RFC 3176)
- MIB-II (RFC 1213)
- Repeater MIB (RFC 1516)
- RIPv2 MIB (RFC 1724)
- RMON MIB (RFC 1757)
- SNMP Message Processing and Dispatching (RFC 2572)
- SNMP MIB II (RFC 1573)
- SNMP View-based Access Control Model SNMP (RFC 2575)
- SNMPv1/v2c (RFC 1157)
- SNMPv3 Applications (RFC 2573)
- SNMPv3 Intro to Framework (RFC 2570)
- SNMPv3 User-based Security Model (RFC 2574)
- SNTP Simple Network Time Protocol
- Support for Multiple syslog Servers
- TELNET Client and Server (RFC 854)
- TFTP (RFC 783)

PERFORMANCE

FastIron GS 624P / 624P-POE:

- Switching Capacity 108 Gbps
- Forwarding Performance 161 Mpps

FastIron GS 648P / 648P-POE:

- Switching Capacity 216 Gbps
- Forwarding Performance 202 Mpps

ELEMENT SECURITY OPTIONS

- Authentication, Authorization, and Accounting (AAA)
- Bi-level Access Mode (Standard and EXEC Level)
- Protection for Denial of Service attacks
- RADIUS
- Secure Copy (SCP)
- Secure Shell
- TACACS/TACACS+
- Username/Password

PHYSICAL DIMENSIONS

All FastIron GS Models:

- 2.63" (H) x 17.5" (W) x 19.6" (D)
- 6.68cm (H) x 44.45cm (W) x 49.78cm (D)

WEIGHT

FastIron GS 624 Models:

- 25 lbs (11.36 kg)
Fully Loaded including dual redundant power
- 17.5 lbs (7.95 kg) Empty

FastIron GS 648 Models:

- 29 lbs (11.36 kg)
Fully Loaded including dual redundant power
- 17.5 lbs (7.95 kg) Empty

ENVIRONMENTAL RANGES

- Acoustic: 51dB
- Operating temperature: 32° to 104°F (0° to 40°C)
- Relative Humidity: 5% to 95%, non-condensing
- Storage temperature: -23° to 158°F (-25° to 70°C)
- Maximum Watts: 600W (2,047 BTU/Hr) per supply
- Storage altitude: 10,000ft (3,000m) maximum

MTBF

- FastIron GS 624P with 4 SFP, 2-port 10-GbE, and 2 RPS-FGS—267,411
- FastIron GS 648P with 4 SFP, 2-port 10-GbE, and 2 RPS-FGS—218,140
- FGS-2XG with 2 XFP (LRs)—1,597,580
- RPS-FGS—346,230

POWER REQUIREMENTS

RPS-FGS:

- Operating 85VAC to 254VAC input, universal/wide input
- Rated 100 to 240VAC ~ 50/60 Hz @ 8amp to 3.2amp
- 600 watts of total output power

RPSDC-FGS:

- Operating 40VDC to 60VDC input, universal/wide input
- Rated -48 to 60VDC @ 18amp to 14.3amp
- 600 watts of total output power

SAFETY CERTIFICATIONS

- EN 60950-1
- CAN/CS-C22.2 No. 60950-1-03
- EN 60825-1
Safety of Laser Products—Part 1
- EN 60825-2
Safety of Laser Products—Part 2
- IEC 950
- UL 1950 Third Edition
- UL 60950-1
- CSA 950

ELECTROMAGNETIC EMISSION CERTIFICATIONS

- FCC Class A (Part 15)
- EN 55022/CISPR-22 Class A
- VCCI Class A

IMMUNITY

- Generic: EN 50082-1

WARRANTY

- 5-Year Limited Lifetime Hardware Warranty
- 90-days Software
- RoHS Compliant (5 of 6)

Ordering Information

PART NUMBER	DESCRIPTION
FGS624P	FastIron GS 624P with 20-port 10/100/1000 Mbps (RJ-45), 4-port Combo to support 10/100/1000 Mbps (RJ-45) or 100/1000 SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 AC power supply.
FGS624P-DC	FastIron GS 624P-DC with 20-port 10/100/1000 Mbps (RJ-45), 4-port Combo to support 10/100/1000 Mbps (RJ-45) or 100/1000 Mbps SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 DC power supply.
FGS648P	FastIron GS 648P with 44-port 10/100/1000 Mbps (RJ-45), 4-port Combo to support 10/100/1000 Mbps (RJ-45) or 100/1000 Mbps SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 AC power supply.
FGS648P-DC	FastIron GS 648P-DC with 44-port 10/100/1000 Mbps (RJ-45), 4-port Combo to support 10/100/1000 Mbps (RJ-45) or 100/1000 Mbps SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 DC power supply.
FGS624P-POE	FastIron GS 624P-POE with 20-port 10/100/1000 Mbps 802.3af, 4-port Combo to support 10/100/1000 Mbps 802.3af (RJ-45) or 100/1000 SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 AC power supply.
FGS624P-POE-DC	FastIron GS 624P-POE with 20-port 10/100/1000 Mbps 802.3af, 4-port Combo to support 10/100/1000 Mbps 802.3af (RJ-45) or 100/1000 Mbps SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 DC power supply.
FGS648P-POE	FastIron GS 648P-POE with 44-port 10/100/1000 Mbps 802.3af, 4-port Combo to support 10/100/1000 Mbps 802.3af (RJ-45) or 100/1000 Mbps SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 AC power supply.
FGS648P-POE-DC	FastIron GS 648P-POE with 44-port 10/100/1000 Mbps 802.3af, 4-port Combo to support 10/100/1000 Mbps 802.3af (RJ-45) or 100/1000 SFP, optional 1- or 2-port 10-GbE Expansion slot, and 1 DC power supply.
FGS-2XG	Field Upgradeable 2-port XFP 10-Gigabit Ethernet Module.
FGS-24GCPOE	PoE DIMM module to deliver PoE for 24 ports of 10/100/1000. Used for the FGS624P and the FGS648P models. The FGS648P needs 2 PoE DIMM modules to enable all 48-ports for PoE.
RPS-FGS	Spare/Redundant 110/220 VAC power supply.
RPSDC-FGS	Spare/Redundant -48 VDC power supply.



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