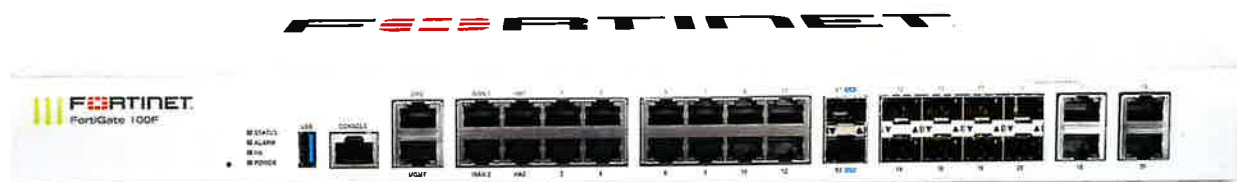# FortiGate 100F Series

FG-100F and FG-101F

Highlights

Gartner Magic Quadrant Leader for both Network Firewalls and WAN Edge Infrastructure.

Security-Driven Networking FortiOS delivers converged networking and security.

State-of-the-Art Unparalleled Performance with Fortinet's patented / SPU / vSPU processors.

Enterprise Security with consolidated AI / ML-powered FortiGuard Services.

Deep Visibility into applications, users, and devices beyond traditional firewall techniques.

AI/ML Security and Deep Visibility

The FortiGate 100F Series NGFW combines AI-powered security and machine learning to deliver Threat Protection at any scale. Get deeper visibility into your network and see applications, users, and devices before they become threats.

Powered by a rich set of AI/ML security capabilities that extend into an integrated security fabric platform, the FortiGate 100F Series delivers secure networking that is broad, deep, and automated. Secure your network end to end with advanced edge protection that includes web, content, and device security, while network segmentation and secure SD-WAN reduce complexity and risk in hybrid IT networks.

Universal ZTNA automatically controls, verifies, and facilitates user access to applications, reducing lateral threats by providing access only to validated users. Ultra-fast Threat Protection and SSL Inspection provides security at the edge you can see without impacting performance.

IPS	NGFW	Threat Protection	Interfaces
2.6 Gbps	1.6 Gbps	1 Gbps	Multiple GE RJ45, GE SFP and 10 GE SFP+ slots

Available in

Appliance

Virtual

Hosted

Cloud

Container

FortiOS Everywhere

FortiOS, Fortinet's Advanced Operating System

FortiOS enables the convergence of high performing networking and security across the Fortinet Security Fabric. Because it can be deployed anywhere, it delivers consistent and context-aware security posture across network, endpoint, and multi-cloud environments.

FortiOS powers all FortiGate deployments whether a physical or virtual device, as a container, or as a cloud service. This universal deployment model enables the consolidation of many technologies and use cases into a simplified, single policy and management framework. Its organically built best-of-breed capabilities, unified operating system, and ultra-scalability allows organizations to protect all edges, simplify operations, and run their business without compromising performance or protection.

FortiOS dramatically expands the Fortinet Security Fabric's ability to deliver advanced AI/ML-powered services, inline advanced sandbox detection, integrated ZTNA enforcement, and more, provides protection across hybrid deployment models for hardware, software, and Software-as-a-Service with SASE.

FortiOS expands visibility and control, ensures the consistent deployment and enforcement of security policies, and enables centralized management across large-scale networks with the following key attributes:

- Interactive drill-down and topology viewers that display real-time status
- On-click remediation that provides accurate and quick protection against threats and abuses
- Unique threat score system correlates weighted threats with users to prioritize investigations

Intuitive easy to use view into the network and endpoint vulnerabilities

Visibility with FOS Application Signatures

FortiConverter Migration Service

FortiConverter Service provides hassle-free migration to help organizations transition from a wide range of legacy firewalls to FortiGate Next-Generation Firewalls quickly and easily. The service eliminates errors and redundancy by employing best practices with advanced methodologies and automated processes. Organizations can accelerate their network protection with the latest FortiOS technology.

FortiGuard Services

FortiGuard AI-Powered Security

FortiGuard's rich suite of security services counter threats in real time using AI-powered, coordinated protection designed by FortiGuard Labs security threat researchers, engineers, and forensic specialists.

Web Security

Advanced cloud-delivered URL, DNS (Domain Name System), and Video Filtering providing complete protection for phishing and other web born attacks while meeting compliance.

Additionally, its dynamic inline CASB (Cloud Access Security Broker) service is focused on securing business SaaS data, while inline ZTNA traffic inspection and ZTNA posture check provide per-sessions access control to applications. It also integrates with the FortiClient Fabric Agent to extend protection to remote and mobile users.

Content Security

Advanced content security technologies enable the detection and prevention of known and unknown threats and file-based attack tactics in real-time. With capabilities like CPRL (Compact Pattern Recognition Language), AV, inline Sandbox, and lateral movement protection make it a complete solution to address ransomware, malware, and credential-based attacks.

Device Security

Advanced security technologies are optimized to monitor and protect IT, IIoT, and OT (Operational Technology) devices against vulnerability and device-based attack tactics. Its validated near-real-time IPS intelligence detects, and blocks known and zero-day threats, provides deep visibility and control into ICS/OT/SCADA protocols, and provides automated discovery, segmentation, and pattern identification-based policies.

Advanced Tools for SOC/NOC

Advanced NOC and SOC management tools attached to your NGFW provide simplified and faster time-to-activation.

SOC-as-a-Service

Includes tier-one hunting and automation, log location, 24×7 SOC analyst experts, managed firewall and endpoint functions, and alert triage.

Fabric Rating Security Best Practices

Includes supply chain virtual patching, up-to-date risk and vulnerability data to deliver quicker business decisions, and remediation for data breach situations.

Secure Any Edge at Any Scale

Powered by Security Processing Unit (SPU)

Traditional firewalls cannot protect against today's content- and connection-based threats because they rely on off-the-shelf hardware and general-purpose CPUs, causing a dangerous performance gap. Fortinet's custom SPU processors deliver the power you need—up to 520Gbps—to detect emerging threats and block malicious content while ensuring your network security solution does not become a performance bottleneck.
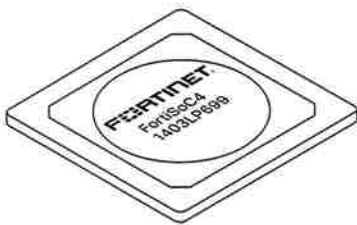
Powered by Purpose-Built Secure SD-WAN ASIC SOC4

- Combines a RISC-based CPU with Fortinet's proprietary Security Processing Unit (SPU) content and network processors for unmatched performance
- Delivers industry's fastest application identification and steering for efficient business operations
- Accelerates IPsec VPN performance for best user-experience on direct internet access
- Enables best of breed NGFW Security and deep SSL inspection with high performance
- Extends security to access layer to enable SD-Branch transformation with accelerated and integrated switch and access point connectivity
- Reduces environmental footprint by saving on average over 60% in power consumption compared to previous generation of FortiGate models

FortiCare Services

Fortinet is dedicated to helping our customers succeed, and every year FortiCare Services help thousands of organizations get the most from our Fortinet Security Fabric solution. Our lifecycle portfolio offers Design, Deploy, Operate, Optimize, and Evolve services. Operate services offer device-level FortiCare Elite service with enhanced SLAs to meet our customer's operational and availability needs. In addition, our customized account-level services provide rapid incident resolution and offer proactive care to maximize the security and performance of Fortinet deployments.

Use Cases
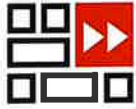
Next Generation Firewall (NGFW)

- FortiGuard Labs' suite of AI-powered Security Services—natively integrated with your NGFW—secures web, content, and devices and protects networks from ransomware and sophisticated cyberattacks
- Real-time SSL inspection (including TLS 1.3) provides full visibility into users, devices, and applications across the attack surface
- Fortinet's patented SPU (Security Processing Unit) technology provides industry-leading high-performance protection

Secure SD-WAN

- FortiGate WAN Edge powered by one OS and unified security and management framework and systems transforms and secures WANs
- Delivers superior quality of experience and effective security posture for work-from-any where models, SD-Branch, and cloud-first WAN use cases
- Achieve operational efficiencies at any scale through automation, deep analytics, and self-healing

Universal ZTNA

- Control access to applications no matter where the user is and no matter where the application is hosted for universal application of access policies
- Provide extensive authentications, checks, and enforce policy prior to granting application access—every time
- Agent-based access with FortiClient or agentless access via proxy portal for guest or BYOD
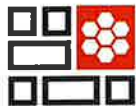
Segmentation

- Dynamic segmentation adapts to any network topology to deliver true end-to-end security—from the branch to the datacenter and across multi-cloud environments
- Ultra-scalable, low latency, VXLAN segmentation bridges physical and virtual domains with Layer 4 firewall rules
- Prevents lateral movement across the network with advanced, coordinated protection from FortiGuard Security Services detects and prevents known zero-day and unknown attacks

Hardware

FortiGate 100F Series
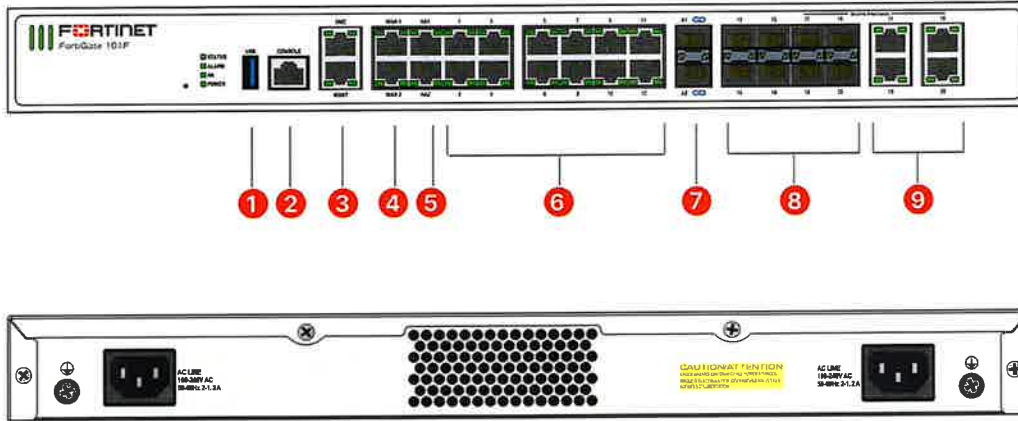
Interfaces

1. 1 x USB Port
2. 1 x Console Port
3. 2 x GE RJ45 MGMT/DMZ Ports
4. 2 x GE RJ45 WAN Ports
5. 2 x GE RJ45 HA Ports
6. 12 x GE RJ45 Ports
7. 2 × 10 GE SFP+ FortiLink Slots
8. 4 x GE SFP Slots
9. 4 x GE RJ45/ SFP Shared Media Pairs

Hardware Features

SOC4 · 1U · AC DUAL / 480GB

Dual Power Supplies

Power supply redundancy is essential in the operation of mission-critical networks. The FortiGate 100F Series offers dual built-in non-hot swappable power supplies.

Access Layer Security

FortiLink protocol enables you to converge security and the network access by integrating the FortiSwitch into the FortiGate as a logical extension of the NGFW. These FortiLink enabled ports can be reconfigured as regular ports as needed.

Specifications

	FORTIGATE 100F	FORTIGATE 101F
Interfaces and Modules		
Hardware Accelerated GE RJ45 Ports	12	
Hardware Accelerated GE RJ45 Management/ HA/ DMZ Ports	1 / 2 / 1	
Hardware Accelerated GE SFP Slots	4	
Hardware Accelerated 10 GE SFP+ FortiLink Slots (default)	2	
GE RJ45 WAN Ports	2	
GE RJ45 or SFP Shared Ports *	4	
USB Port	1	
Console Port	1	
Onboard Storage	0	1× 480 GB SSD
Included Transceivers	0	
System Performance — Enterprise Traffic Mix		
IPS Throughput [2]	2.6 Gbps	
NGFW Throughput [2,4]	1.6 Gbps	
Threat Protection Throughput [2,5]	1 Gbps	
System Performance and Capacity		
IPv4 Firewall Throughput (1518 / 512 / 64 byte, UDP)	20 / 18 / 10 Gbps	
Firewall Latency (64 byte, UDP)	4.97 µs	
Firewall Throughput (Packet per Second)	15 Mpps	
Concurrent Sessions (TCP)	1.5 Million	
New Sessions/Second (TCP)	56 000	
Firewall Policies	10 000	
IPsec VPN Throughput (512 byte) [1]	11.5 Gbps	
Gateway-to-Gateway IPsec VPN Tunnels	2000	
Client-to-Gateway IPsec VPN Tunnels	16 000	
SSL-VPN Throughput	1 Gbps	
Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode)	500	
SSL Inspection Throughput (IPS, avg. HTTPS) [3]	1 Gbps	
SSL Inspection CPS (IPS, avg. HTTPS) [3]	1800	
SSL Inspection Concurrent Session (IPS, avg. HTTPS) [3]	135 000	
Application Control Throughput (HTTP 64K) [2]	2.2 Gbps	
CAPWAP Throughput (HTTP 64K)	15 Gbps	
Virtual Domains (Default / Maximum)	10 / 10	
Maximum Number of FortiSwitches Supported	32	
Maximum Number of FortiAPs (Total / Tunnel)	128 / 64	
Maximum Number of FortiTokens	5000	
High Availability Configurations	Active-Active, Active-Passive, Clustering	

	FORTIGATE 100F	FORTIGATE 101F
Dimensions and Power		
Height x Width x Length (inches)	1.73 × 17 × 10	
Height x Width x Length (mm)	44 × 432 × 254	
Weight	7.25 lbs (3.29 kg)	7.56 lbs (3.43 kg)
Form Factor (supports EIA/non-EIA standards)	Rack Mount, 1 RU	
AC Power Supply	100–240V AC, 50/60 Hz	
Power Consumption (Average / Maximum)	35.1 W / 38.7 W	35.3 W / 39.1 W
Current (Maximum)	100V / 1A, 240V / 0.5A	
Heat Dissipation	119.77 BTU/h	121.13 BTU/h
Redundant Power Supplies	Yes (Default dual non-swappable AC PSU for 1+1 Redundancy)	
Power Supply Efficiency Rating	80Plus Compliant	
Operating Environment and Certifications		
Operating Temperature	32°–104°F (0°–40°C)	
Storage Temperature	-31°–158°F (-35°–70°C)	
Humidity	10%–90% non-condensing	
Noise Level	40.4 dBA	
Forced Airflow	Side to Back	
Operating Altitude	Up to 7400 ft (2250 m)	
Compliance	FCC Part 15B, Class A, CE, RCM, VCCI, UL/cUL, CB, BSMI	
Certifications	USGv6/IPv6	

* Latency based on Ultra Low Latency (ULL ports)

Note: All performance values are "up to" and vary depending on system configuration.

[1] IPsec VPN performance test uses AES256-SHA256.

[2] IPS (Enterprise Mix), Application Control, NGFW and Threat Protection are measured with Logging enabled.

[3] SSL Inspection performance values use an average of HTTPS sessions of different cipher suites.

[4] NGFW performance is measured with Firewall, IPS and Application Control enabled.

[5] Threat Protection performance is measured with Firewall, IPS, Application Control and Malware Protection enabled.

[5] Uses RSA-2048 certificate.

Ordering Information

Product	SKU	Description
FortiGate 100F	FG-100F	22x GE RJ45 ports (including 2x WAN ports, 1x DMZ port, 1x Mgmt port, 2x HA ports, 16x switch ports with 4 SFP port shared media), 4 SFP ports, 2× 10 GE SFP+ FortiLinks, dual power supplies redundancy.
FortiGate 101F	FG-101F	22x GE RJ45 ports (including 2x WAN ports, 1x DMZ port, 1x Mgmt port, 2x HA ports, 16x switch ports with 4 SFP port shared media), 4 SFP ports, 2× 10 GE SFP+ FortiLinks, 480GB onboard storage, dual power supplies redundancy.

Optional Accessories	SKU	Description
1 GE SFP RJ45 Transceiver Module	FN-TRAN-GC	1 GE SFP RJ45 transceiver module for all systems with SFP and SFP/SFP+slots.
1 GE SFP SX Transceiver Module	FN-TRAN-SX	1 GE SFP SX transceiver module for all systems with SFP and SFP/SFP+ slots.
1 GE SFP LX Transceiver Module	FN-TRAN-LX	1 GE SFP LX transceiver module for all systems with SFP and SFP/SFP+ slots.
10 GE SFP+ RJ45 Transceiver Module	FN-TRAN-SFP+GC	10 GE SFP+ RJ45 transceiver module for systems with SFP+ slots.
10 GE SFP+ Transceiver Module, Short Range	FN-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for all systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ Transceiver Module, Long Range	FN-TRAN-SFP+LR	10 GE SFP+ transceiver module, long range for all systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ Transceivers, Extended Range	FN-TRAN-SFP+ER	10 GE SFP+ transceiver module, extended range for all systems with SFP+ and SFP/SFP+ slots.
10GE SFP+ Transceiver Module, 30 km Long Range	FN-TRAN-SFP+BD27	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD33, ordered separately)
10GE SFP+ Transceiver Module, 30 km Long Range	FN-TRAN-SFP+BD33	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD27, ordered separately)

Subscriptions

Service Category	Service Offering	A-la-carte	Bundles		
			Enterprise Protection	Unified Threat Protection	Advanced Threat Protection
Security Services	FortiGuard IPS Service	•	•	•	•
	FortiGuard Anti-Malware Protection (AMP) — Antivirus, Mobile Malware, Botnet, CDR, Virus Outbreak Protection and FortiSandbox Cloud Service	•	•	•	•
	FortiGuard Web Security — URL and web content, Video and Secure DNS Filtering	•	•	•	
	FortiGuard Anti-Spam		•	•	
	FortiGuard IoT Detection Service	•	•		
	FortiGuard Industrial Security Service	•	•		
	FortiCloud AI-based Inline Sandbox Service [1]	•			
NOC Services	FortiGate Cloud (SMB Logging + Cloud Management)	•			
	FortiGuard Security Fabric Rating & Compliance Monitoring Service	•	•		
	FortiConverter Service	•	•		
	FortiGuard SD-WAN Underlay Bandwidth and Quality Monitoring Service	•			
SOC Services	FortiAnalyzer Cloud	•			
	FortiAnalyzer Cloud with SOCaaS	•			
Hardware and Software Support	FortiCare Essentials	•			
	FortiCare Premium	•	•	•	•
	FortiCare Elite	•			
Base Services	FortiGuard Application Control				
	FortiCloud ZTNA Inline CASB Service [1]				
	Internet Service (SaaS) DB Updates		included with FortiCare Subscription		
	GeoIP DB Updates				
	Device/OS Detection Signatures				
	Trusted Certificate DB Updates				
	DDNS (v4/v6) Service				

1. Available when running FortiOS 7.2

FortiGuard Bundles

FortiGuard Labs delivers a number of security intelligence services to augment the FortiGate firewall platform. You can easily optimize the protection capabilities of your FortiGate with one of these FortiGuard Bundles.
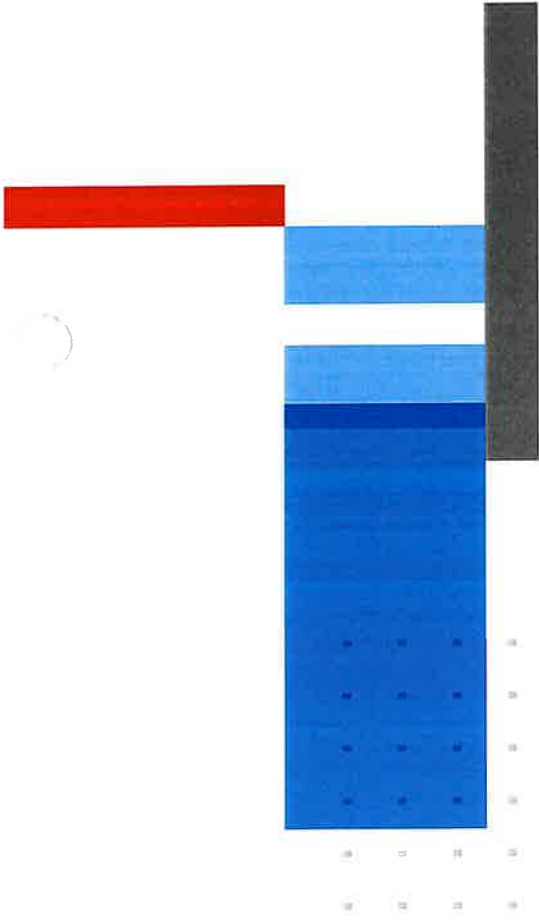
FortiCare Elite

FortiCare Elite services offers enhanced service-level agreements (SLAs) and accelerated issue resolution. This advanced support offering provides access to a dedicated support team. Single-touch ticket handling by the expert technical team streamlines resolution. This option also provides Extended End-of-Engineering support (EoE's) of 18 months for added flexibility and access to the new FortiCare Elite Portal. This intuitive portal provides a single unified view of device and security health.

Fortinet CSR Policy

Fortinet is committed to driving progress and sustainability for all through cybersecurity, with respect for human rights and ethical business practices, making possible a digital world you can always trust. You represent and warrant to Fortinet that you will not use Fortinet's products and services to engage in, or support in any way, violations or abuses of human rights, including those involving illegal censorship, surveillance, detention, or excessive use of force. Users of Fortinet products are required to comply with the Fortinet EULA and report any suspected violations of the EULA via the procedures outlined in the Fortinet Whistleblower Policy.

FEERTINET.

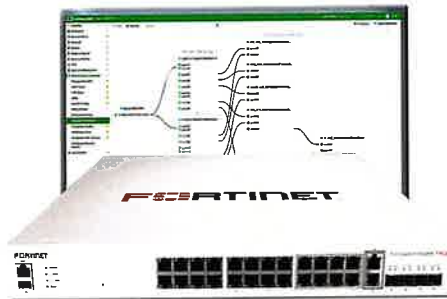February 27, 2023

FG-100F-DAT-P30-20230227

FORTINET.

FortiSwitch™ Secure Access

Available in:

Appliance

Security, Performance, and Manageability

The FortiSwitch™ Secure Access Family delivers outstanding security, performance, and manageability. Secure, simple, and scalable, FortiSwitch is the right choice for threat-conscious businesses of all sizes.

Tightly integrated into the Fortinet Security Fabric via FortiLink, FortiSwitch can be managed directly from the familiar FortiGate interface. This single-pane-of-glass management provides complete visibility and control of users and devices on the network regardless of how they connect. This makes the FortiSwitch ideal for SD-Branch and campus deployments with applications that range from desktop to data center aggregation, enabling businesses to converge their security and network access.

Security Fabric Integration through FortiLink

FortiLink is an innovative proprietary management protocol that allows our FortiGate Next-Generation Firewall to seamlessly manage any FortiSwitch. FortiLink enables the FortiSwitch to become a logical extension of the FortiGate, integrating it directly into the Fortinet Security Fabric. This management option reduces complexity and decreases management costs as network security and access layer functions are enabled and managed through a single console. FortiLink integration enables centralized policy management, including role-based access and control, making it easy to implement and manage.

Highlights

- Designed for installations from desktops to wiring closets

- Ideal for SD-Branch deployments

- Centralized security and access management from FortiGate interfaces with FortiLink

- Optimal for converged network environments; enabling voice, data, and wireless traffic to be delivered across a single network

- Supports non-FortiLink deployments through onboard GUI, API, or command line configuration

- Up to 48 ports in a compact 1 RU form factor

- Stackable up to 300 switches per FortiGate, depending on model

- Supports wire-speed switching and store and forward forwarding mode,

1

HIGHLIGHTS

Entry

100 Series

- Entry level switch
- 8-48 GE ports, PoE+ capable
- Desktop to wiring closet
- 2-4 GE SFP uplink ports
- 4× 10GE SFP+ uplink ports

Mid-Range

200 Series

- Mid-level switch
- 24-48 GE ports, PoE+ capable
- Typical wiring closet switch
- 4 GE SFP uplink ports

Premium

400 Series

- Enterprise switch
- 24-48 GE and Multi-Gig port options, PoE+ and UPOE options
- Larger wiring closet or high throughput requirements
- 4× 10 GE SFP+ uplink ports

Aggregation

500 Series

- Aggregation switch
- 24-48 GE ports, PoE+ capable
- Larger wiring closet or high throughput requirements
- 4× 10 GE SFP+ and 2× 40 GE QSFP uplink ports

DEPLOYMENT OVERVIEW

FortiSwitch is commonly managed and deployed through our FortiGate with FortiLink but can also be deployed and managed in non-FortiGate environments

FortiGate

- Deployment and management via FortiLink
- Security extended from NGFW
- Most common Fortinet deployment model
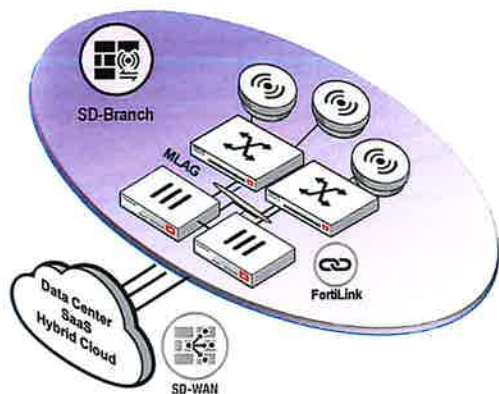
Non-FortiGate

- Standalone GUI or CLI
- Manage at scale with FortiSwitch Manager
- Industry standard, no Fortinet Security Fabric integration
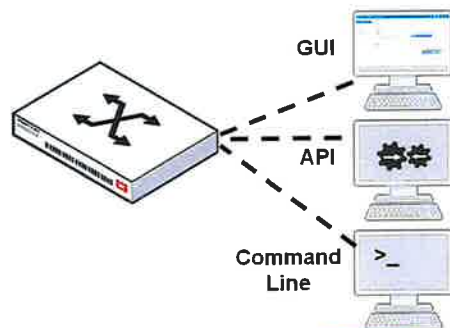
Cloud Management for both deployment options available through FortiCloud

PRODUCT OFFERINGS

Model Numbers

FS-108E-POE, FS-108E-FPOE, FS-108F, FS-108F-POE, FS-108F-FPOE, FS-124E, FS-124E-POE, FS-124E-FPOE, FS-148E, FS-148E-POE, FS-124F, FS-124F-POE, FS-124F-FPOE, FS-148F, FS-148F-POE, FS-148F-FPOE, FS-224D-FPOE, FS-224E, FS-224E-POE, FS-248D, FS-248E-POE, FS-248E-FPOE, FS-424E-FIBER, FS-M426E-FPOE, FS-424E, FS-424E-POE, FS-424E-FPOE, FS-448E, FS-448E-POE, FS-448E-FPOE, FS-524-D, FS-524D-FPOE, FS-548D, FS-548D-FPOE

FEATURES

Refer to the FortiSwitch Feature Matrix for details about the features supported by each FortiSwitch model.

| FORTISWITCH FORTILINK MODE (WITH FORTIGATE) |
| --- |
| **Management and Configuration** |
| Auto Discovery of Multiple Switches |
| 8 to 300 Managed Switches depending on FortiGate model |
| FortiLink Stacking (Auto Inter-Switch Links) |
| Software Upgrade of Switches |
| Centralized VLAN Configuration |
| Switch POE Control |
| Link Aggregation Configuration |
| Spanning Tree |
| LLDP/MED |
| IGMP Snooping |
| L3 Routing and Services (FortiGate) |
| Policy-Based Routing (FortiGate) |
| Virtual Domain (FortiGate) |
| Automated detection and recommendations |
| Dynamic Port Profiles for FortiSwitch ports |
| Provision firmware upon authorization |
| Health Monitoring |
| High Availability |
| Support FortiLink FortiGate in HA Cluster |
| LAG support for FortiLink Connection |
| Active-Active Split LAG from FortiGate to FortiSwitches for Advanced Redundancy |

FORTISWITCH FORTILINK MODE (WITH FORTIGATE)
Security and Visibility
802.1X Authentication (Port-based, MAC-based, MAB)
Syslog Collection
DHCP Snooping
Device Detection
MAC Black/While Listing (FortiGate)
Policy Control of Users and Devices (FortiGate)
Block Intra-VLAN Traffic
Network Device Detection
Host Quarantine on Switch Port
Integrated FortiGate Network Access Control (NAC) function
FortiGuard IoT identification
FortiSwitch recommendations in Security Rating
Switch Controller traffic collector
Port Statistics
Clients Monitoring
UTM Features
Firewall (FortiGate)
IPC, AV, Application Control, Botnet (FortiGate)

FEATURES

Refer to the FortiSwitch Feature Matrix for details about the features supported by each FortiSwitch model.

FORTISWITCH
Layer 2
Jumbo Frames
Auto-negotiation for Port Speed and Duplex
MDI/MDIX Auto-crossover
IEEE 802.1D MAC Bridging/STP
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
STP Root Guard
STP BPDU Guard
Edge Port / Port Fast
IEEE 802.1Q VLAN Tagging
Private VLAN
IEEE 802.3ad Link Aggregation with LACP
Unicast/Multicast traffic balance over trunking port (dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac)
IEEE 802.1AX Link Aggregation
Spanning Tree Instances (MSTP/CST)
IEEE 802.3x Flow Control and Back-pressure
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX
IEEE 802.3z 1000Base-SX/LX
IEEE 802.3ab 1000Base-T
IEEE 802.3ae 10 Gigabit Ethernet
IEEE 802.3az Energy Efficient Ethernet
IEEE 802.3bz Multi Gigabit Ethernet
IEEE 802.3 CSMA/CD Access Method and Physical Layer Specifications
Storm Control
MAC, IP, Ethertype-based VLANs
Virtual-Wire
Split Port (QSFP+ breakout to 4×10G SFP+ or 4×1G SFP)
Time-Domain Reflectcometry (TDR) Support
LAG min/max bundle
Rapid PVST interoperation
Ingress Pause Metering
Loop Guard
Per-port storm control
Priority-based Flow Control (802.1Qbb)
IEEE 802.1ad QinQ
VLAN Mapping
IEEE 802.3ba, 802.3bj, and 802.3bm 40 and 100 Gigabit Ethernet
Auto topology
Dynamically shared packet buffers
Services
IGMP proxy / querier
MLD Snooping
MLD proxy / querier
IGMP Snooping

FORTISWITCH
Layer 3
Static Routing (Hardware-based)
Dynamic Routing Protocols: OSPFv2, RIPv2, VRRP, BGP, ISIS *
Multicast Protocols: PIM-SSM *
ECMP
Bidirectional Forwarding Detection (BFD)
DHCP Relay
IP conflict detection and notification
DHCP server
Unicast Reverse Path Forwarding - uRPF
IPv6 route filtering
Filtering routemaps based on routing protocol
Security and Visibility
Port Mirroring
Admin Authentication Via RFC 2865 RADIUS
IEEE 802.1X Authentication Port-based
IEEE 802.1X Authentication MAC-based
IEEE 802.1X Guest and Fallback VLAN
IEEE 802.1X MAC Access Bypass (MAB)
IEEE 802.1X Dynamic VLAN Assignment
Radius CoA (Change of Authority)
Radius Accounting
MAC-IP Binding
sFlow
ACL
IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
IEEE 802.1ab LLDP-MED
IEEE 802.1ae MAC Security (MAC Sec)
DHCP-Snooping
Dynamic ARP Inspection
Sticky MAC and MAC Limit
IEEE 802.1X open auth
IEEE 802.1X EAP pass-through
Flow Export (NetFlow and IPFIX)
ACL Multistage
ACL Multiple Ingress
ACL Schedule
IP source guard
IPv6 RA Guard
LLDP-MED ELIN support
Per-port and per-VLAN MAC learning limit
Assign VLANs via Radius attributes (RFC 4675)
Wake on LAN

*Requires 'Advanced Features' License.

FEATURES

Refer to the FortiSwitch Feature Matrix for details about the features supported by each FortiSwitch model.

FORTISWITCH
High Availability
Multi-Chassis Link Aggregation (MCLAG)
Quality of Service
IEEE 802.1p Based Priority Queuing
IP TOS/DSCP Based Priority Queuing
IEEE 1588 PTP (Transparent Clock)
Explicit Congestion Notification
Egress priority tagging
Percentage Rate Control
Management
IPv4 and IPv6 Management
Telnet / SSH
HTTP / HTTPS
SNMP v1/v2c/v3
SNTP
Standard CLI and Web GUI Interface
Software download/upload: TFTP/FTP/GUI
Managed from FortiGate
Support for HTTP REST APIs for Configuration and Monitoring
Dual Firmware Support
RMON Group 1
Packet Capture
SPAN, RSPAN, and ERSPAN
Link Monitor
POE Control Modes
System Temperature and Alert
Syslog UDP/TCP
Provide warning if L2 table is getting full
Display Average Bandwidth and Allow Sorting on Physical Port / Interface Traffic
System alias command
SNMP v3 traps
Automation Stitches

FEATURES

ALL FORTISWITCH MODELS

RFC and MIB Support*

BFD

RFC 5880: Bidirectional Forwarding Detection (BFD)

RFC 5881: Bidirectional Forwarding Detection (BFD) for IPv4 and IPv6 (Single Hop)

RFC 5882: Generic Application of Bidirectional Forwarding Detection (BFD)

BGP

RFC 1771: A Border Gateway Protocol 4 (BGP-4)

RFC 1965: Autonomous System Confederations for BGP

RFC 1997: BGP Communities Attribute

RFC 2545: Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing

RFC 2796: BGP Route Reflection - An Alternative to Full Mesh IBGP

RFC 2842: Capabilities Advertisement with BGP-4

RFC 2858: Multiprotocol Extensions for BGP-4

RFC 4271: BGP-4

RFC 6286: Autonomous-System-Wide Unique BGP Identifier for BGP-4

RFC 6608: Subcodes for BGP Finite State Machine Error

RFC 6793: BGP Support for Four-Octet Autonomous System (AS) Number Space

RFC 7606: Revised Error Handling for BGP UPDATE Messages

RFC 7607: Codification of AS 0 Processing

RFC 7705: Autonomous System Migration Mechanisms and Their Effects on the BGP AS_PATH Attribute

RFC 8212: Default External BGP (EBGP) Route Propagation Behavior without Policies

RFC 8654: Extended Message Support for BGP

DHCP

RFC 2131: Dynamic Host Configuration Protocol

RFC 3046: DHCP Relay Agent Information Option

RFC 7513: Source Address Validation Improvement (SAVI) Solution for DHCP

IP/IPv4

RFC 2697: A Single Rate Three Color Marker

RFC 3168: The Addition of Explicit Congestion Notification (ECN) to IP

RFC 5227: IPv4 Address Conflict Detection

RFC 5517: Cisco Systems' Private VLANs: Scalable Security in a Multi-Client Environment

RFC 7039: Source Address Validation Improvement (SAVI) Framework

IP Multicast

RFC 2362: Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification

RFC 2710: Multicast Listener Discovery (MLD) for IPv6 (MLDv1)

RFC 4541: Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches

RFC 4605: Internet Group Management Protocol (IGMP)/Multicast Listener Discovery (MLD)-Based Multicast Forwarding ("IGMP/MLD Proxying")

RFC 4607: Source-Specific Multicast for IP

IPv6

RFC 2464: Transmission of IPv6 Packets over Ethernet Networks: Transmission of IPv6 Packets over Ethernet Networks

RFC 2474: Definition of the Differentiated Services Field (DS Field) in the and IPv6 Headers (DSCP)

RFC 2893: Transition Mechanisms for IPv6 Hosts and Routers

RFC 4213: Basic Transition Mechanisms for IPv6 Hosts and Router

RFC 4291: IP Version 6 Addressing Architecture

RFC 4443: Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification

RFC 4861: Neighbor Discovery for IP version 6 (IPv6)

RFC 4862: IPv6 Stateless Address Auto configuration

RFC 5095: Deprecation of Type 0 Routing Headers in IPv6

RFC 6724: Default Address Selection for Internet Protocol version 6 (IPv6)

RFC 7113: IPv6 RA Guard

RFC 8200: Internet Protocol, Version 6 (IPv6) Specification

RFC 8201: Path MTU Discovery for IP version 6

IS-IS

RFC 1195: Use of OSI IS-IS for Routing in TCP/IP and Dual Environments

RFC 5308: Routing IPv6 with IS-IS

MIB

RFC 1213: MIB II parts that apply to FortiSwitch 100 units

RFC 1354: IP Forwarding Table MIB

RFC 1493: Bridge MIB

RFC 1573: SNMP MIB II

RFC 1643: Ethernet-like Interface MIB

* RFC and MIB supported by FortiSwitch Operating System. Check FortiSwitch Feature Matrix for model specific support.

FEATURES

ALL FORTISWITCH MODELS

RFC AND MIB Support*

MIB

RFC 1724: RIPv2-MIB

RFC 1850: OSPF Version 2 Management Information Base

RFC 2233: The Interfaces Group MIB using SMIv2

RFC 2618: Radius-Auth-Client-MIB

RFC 2620: Radius-Acc-Client-MIB

RFC 2665: Definitions of Managed Objects for the Ethernet-like Interface Types

RFC 2674: Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN extensions

RFC 2787: Definitions of Managed Objects for the Virtual Router Redundancy Protocol

RFC 2819: Remote Network Monitoring Management Information Base

RFC 2863: The Interfaces Group MIB

RFC 2932: IPv4 Multicast Routing MIB

RFC 2934: Protocol Independent Multicast MIB for IPv4

RFC 3289: Management Information Base for the Differentiated Services Architecture

RFC 3433: Entity Sensor Management Information Base

RFC 3621: Power Ethernet MIB

RFC 6933: Entity MIB (Version 4)

OSPF

RFC 1583: OSPF version 2

RFC 1765: OSPF Database Overflow

RFC 2328: OSPF version 2

RFC 2370: The OSPF Opaque LSA Option

RFC 2740: OSPF for IPv6

RFC 3101: The OSPF Not-So-Stubby Area (NSSA) Option

RFC 3137: OSPF Stub Router Advertisement

RFC 3623: OSPF Graceful Restart

RFC 5340: OSPF for IPv6 (OSPFv3)

RFC 5709: OSPFv2 HMAC-SHA Cryptographic Authentication

RFC 6549: OSPFv2 Multi-Instance Extensions

RFC 6845: OSPF Hybrid Broadcast and Point-to-Multipoint Interface Type

RFC 6860: Hiding Transit-Only Networks in OSPF

RFC 7474: Security Extension for OSPFv2 When Using Manual Key Management

RFC 7503: OSPF for IPv6

RFC 8042: CCITT Draft Recommendation T.4

RFC 8362: OSPFv3 Link State Advertisement (LSA) Extensibility

OTHER

RFC 2030: SNTP

RFC 3176: InMon Corporation's sFlow: A Method for Monitoring Traffic in Switched and Routed Networks

RFC 3768: VRRP

RFC 3954: Cisco Systems NetFlow Services Export Version 9

RFC 5101: Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of Flow Information

RFC 5798: VRRPv3 (IPv4 and IPv6)

RADIUS

RFC 2865: Admin Authentication Using RADIUS

RFC 2866: RADIUS Accounting

RFC 4675: RADIUS Attributes for Virtual LAN and Priority Support

RFC 5176: Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)

RIP

RFC 1058: Routing Information Protocol

RFC 2080: RIPng for IPv6

RFC 2082: RIP-2 MD5 Authentication

RFC 2453: RIPv2

RFC 4822: RIPv2 Cryptographic Authentication

SNMP

RFC 1157: SNMPv1/v2c

RFC 2571: Architecture for Describing SNMP

RFC 2572: SNMP Message Processing and Dispatching

RFC 2573: SNMP Applications

RFC 2576: Coexistence between SNMP versions

* RFC and MIB supported by FortiSwitch Operating System. Check FortiSwitch Feature Matrix for model specific support.

SPECIFICATIONS

	FORTISWITCH 108E-POE	FORTISWITCH 108E-FPOE
Hardware Specifications		
Total Network Interfaces	8x GE RJ45 and 2x GE SFP	8x GE RJ45 and 2x GE SFP
Dedicated Management 10/100 Port	0	0
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	4 (802.3af/at)	8 (802.3af/at)
PoE Power Budget	65 W	130 W
Mean Time Between Failures	> 10 years	> 10 years
System Specifications		
Switching Capacity (Duplex)	20 Gbps	20 Gbps
Packets Per Second (Duplex)	30 Mpps	30 Mpps
MAC Address Storage	8 K	8 K
Network Latency	4µs	4µs
VLANs Supported	4 K	4 K
Link Aggregation Group Size	8	8
Total Link Aggregation Groups	8	8
Packet Buffers	512 KB	512 KB
DRAM	256 MB DDR3	256 MB DDR3
FLASH	32 MB	32 MB
ACL	640	640
Spanning Tree Instances	16	16
Dimensions		
Height x Depth x Width (inches)	$1.7 \times 8.2 \times 13$	$1.7 \times 8.2 \times 13$
Height x Depth x Width (mm)	$44 \times 209 \times 330$	$44 \times 209 \times 330$
Weight	4.3 lbs (1.95 kg)	4.5 lbs (2.04 kg)
Environment		
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC Built in	AC Built in
Redundant Power	—	—
Power Consumption* (Average / Maximum)	70.19 W / 71.10 W	135.19 W / 136.10 W
Heat Dissipation	17.7 BTU/h	17.7 BTU/h
Operating Temperature	32°-113°F (0°–45°C)	32°-113°F (0°–45°C)
Storage Temperature	-40°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back
Noise Level	Fanless	Fanless
Certification and Compliance		
	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty		
Fortinet Warranty	Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 108E-POE

FortiSwitch 108E-FPOE

SPECIFICATIONS

	FORTISWITCH 108F	FORTISWITCH 108F-POE	FORTISWITCH 108F-FPOE
Hardware Specifications			
Total Network Interfaces	7x GE RJ45, 1x GE/POE-PD RJ45, and 2x GE SFP	8x GE RJ45 and 2x GE SFP	8x GE RJ45 and 2x GE SFP
Dedicated Management 10/100 Port	0	0	0
RJ-45 Serial Console Port	1	1	1
Form Factor	Desktop	Deskop / 19" rack bracket	Deskop / 19" rack bracket
Power over Ethernet (PoE) Ports	0	8 (802.3af/at)	8 (802.3af/at)
PoE Power Budget	0	65 W	130 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	20 Gbps	20 Gbps	20 Gbps
Packets Per Second (Duplex)	30 Mpps	30 Mpps	30 Mpps
MAC Address Storage	8 K	8 K	8 K
Network Latency	4 μs	4 μs	4 μs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	8	8	8
Packet Buffers	512 KB	512 KB	512 KB
DRAM	256 MB DDR3	256 MB DDR3	256 MB DDR3
FLASH	32 MB	32 MB	32 MB
ACL	768	768	768
Spanning Tree Instances	16	16	16
Dimensions			
Height x Depth x Width (inches)	1.18 × 4.72 × 7.09	1.73 × 8.23 × 9.85	1.73 × 8.23 × 9.85
Height x Depth x Width (mm)	30 × 120 × 180	44 × 209 × 250	44 × 209 × 250
Weight	1.36 lbs (0.62 kg)	3.75 lbs (1.70 kg)	4.05 lbs (1.84 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz / PoE-PSE(af)	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	12V/1A DC power adapter included, PoE-PD Built in	AC built in	AC built in
Redundant Power	No	No	No
Power Consumption	6.2 W	74.4 W	139.2 W
Heat Dissipation	21.142 BTU/h	34.12 BTU/h	34.56 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)
Storage Temperature	-49°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)
Humidity	5%–95% non-condensing	5%–95% non-condensing	5%–95% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	Fanless	Fanless	Fanless
Certification and Compliance		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime* warranty on all models	

* Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 108F

FortiSwitch 108F-FPOE

FortiSwitch 108F-POE

SPECIFICATIONS

	FORTISWITCH 124E	FORTISWITCH 124E-POE	FORTISWITCH 124E-FPOE
Hardware Specifications			
Total Network Interfaces	24x GE RJ45 and 4x GE SFP	24x GE RJ45 and 4x GE SFP	24x GE RJ45 and 4x GE SFP
Dedicated Management 10/100 Port	0	0	0
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	0	12 (802.3af/at)	24 (802.3af/at)
PoE Power Budget	0	185 W	370 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	56 Gbps	56 Gbps	56 Gbps
Packets Per Second (Duplex)	83 Mpps	83 Mpps	83 Mpps
MAC Address Storage	8 K	8 K	8 K
Network Latency	4µs	4µs	4µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	8	8	8
Packet Buffers	512 KB	512 KB	512 KB
DRAM	256 MB DDR3	256 MB DDR3	256 MB DDR3
FLASH	32 MB	32 MB	32 MB
ACL	640	640	640
Spanning Tree Instances	16	16	16
Dimensions			
Height x Depth x Width (inches)	$1.7 \times 8.2 \times 13$	$1.7 \times 12.2 \times 17.3$	$1.7 \times 12.2 \times 17.3$
Height x Depth x Width (mm)	$44 \times 209 \times 330$	$44 \times 309 \times 440$	$44 \times 309 \times 440$
Weight	4.7 lbs (2.13 kg)	11.1 lbs (5.03 kg)	11.2 lbs (5.03 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC Built in	AC Built in	AC Built in
Redundant Power	—	—	—
Power Consumption* (Average / Maximum)	15.83 W /17.79 W	202.78 W / 205.45 W	387.78 W / 390.45 W
Heat Dissipation	54 BTU/h	60.67 BTU/h	60.67 BTU/h
Operating Temperature	32°-113°F (0°-45°C)	32°-113°F (0°-45°C)	32°-113°F (0°-45°C)
Storage Temperature	-40°-158°F (-40°-70°C)	-40°-158°F (-40°-70°C)	-40°-158°F (-40°-70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	Fanless	39.3 dBA	42.9 dBA
Certification and Compliance			
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 124E   **FortiSwitch 124E-FPOE**   **FortiSwitch 124E-POE**

SPECIFICATIONS

	FORTISWITCH 148E	FORTISWITCH 148E-POE
Hardware Specifications		
Total Network Interfaces	48x GE RJ45 and 4x GE SFP	48x GE RJ45 and 4x GE SFP
Dedicated Management 10/100 Port	0	0
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	0	24 (802.3af/at)
PoE Power Budget	0	370 W
Mean Time Between Failures	> 10 years	> 10 years
System Specifications		
Switching Capacity (Duplex)	104 Gbps	104 Gbps
Packets Per Second (Duplex)	155 Mpps	155 Mpps
MAC Address Storage	16 K	16 K
Network Latency	3860 ns	3860 ns
VLANs Supported	4 K	4 K
Link Aggregation Group Size	8	8
Total Link Aggregation Groups	16	16
Packet Buffers	1.5 MB	1.5 MB
DRAM	256 MB DDR3	256 MB DDR3
FLASH	64 MB	64 MB
ACL	640	640
Spanning Tree Instances	16	16
Dimensions		
Height x Depth x Width (inches)	1.73 × 12.2 × 17.3	1.73 × 13.7 × 17.3
Height x Depth x Width (mm)	44 × 309 × 440	44 × 348 × 440
Weight	8.6 lbs (3.9 kg)	11.5 lbs (5.2 kg)
Environment		
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC Built in	AC Built in
Redundant Power	No	No
Power Consumption* (Average / Maximum)	19.804 W / 22.137 W	389.742 W /393.109 W
Heat Dissipation	67.574 BTU/h	78.82 BTU/h
Operating Temperature	32°-113°F (0°-45°C)	32°-113°F (0°-45°C)
Storage Temperature	-4°-158°F (-20°-70°C)	-4°-158°F (-20°-70°C)
Humidity	10%-90% non-condensing	10%-90% non-condensing
Air-Flow Direction	side-to-back	side-to-back
Noise Level	36.9 dBA	38.7 dBA
Certification and Compliance		
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2
Warranty		
Fortinet Warranty		Limited lifetime** warranty on all models

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 148E

FortiSwitch 148E-POE

SPECIFICATIONS

	FORTISWITCH 124F	FORTISWITCH 124F-POE	FORTISWITCH 124F-FPOE
Hardware Specifications			
Total Network Interfaces	24x GE RJ45 and 4× 10GE SFP+	24x GE RJ45 and 4× 10GE SFP+	24x GE RJ45 and 4× 10GE SFP+
Dedicated Management 10/100 Port	0	0	0
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	0	12 (802.3af/at)	24 (802.3af/at)
PoE Power Budget	0	185 W	370 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	128 Gbps	128 Gbps	128 Gbps
Packets Per Second (Duplex)	190 Mpps	190 Mpps	190 Mpps
MAC Address Storage	32 K	32 K	32 K
Network Latency	< 1μs	< 1μs	< 1μs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	16	16	16
Packet Buffers	2 MB	2 MB	2 MB
DRAM	512 MB DDR3	512 MB DDR3	512 MB DDR3
FLASH	64 MB	64 MB	64 MB
ACL	768	768	768
Spanning Tree Instances	16	16	16
Dimensions			
Height x Depth x Width (inches)	1.73 × 9.06 × 12.99	1.73 × 10.24 × 17.32	1.73 × 10.24 × 17.32
Height x Depth x Width (mm)	44 × 230 × 330	44 × 260 × 440	44 × 260 × 440
Weight	4.48 lbs (2.03 kg)	7.85 lbs (3.56 kg)	8.42 lbs (3.82 kg)
Environment			
Power Required	100–240V AC, 50-60 Hz	100–240V AC, 50-60 Hz	100–240V AC, 50-60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	No	No	No
Power Consumption* (Average / Maximum)	24.8 W / 26.3 W	235.9 W / 237.4 W	449.8 W / 451.3 W
Heat Dissipation	89.683 BTU/h	102.982 BTU/h	118.327 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	Fanless	46.3 dBA	45.8 dBA

Certification and Compliance

FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2

Warranty

Fortinet Warranty — Limited lifetime** warranty on all models
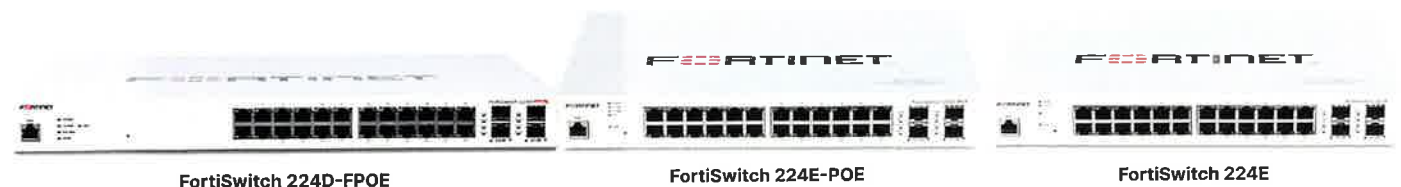
* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 124F

FortiSwitch 124F-POE

FortiSwitch 124F-FPOE

SPECIFICATIONS

	FORTISWITCH 148F	FORTISWITCH 148F-POE	FORTISWITCH 148F-FPOE
Hardware Specifications			
Total Network Interfaces	48x GE RJ45 and 4× 10GE SFP+	48x GE RJ45 and 4× 10GE SFP+	48x GE RJ45 and 4× 10GE SFP+
Dedicated Management 10/100 Port	0	0	0
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	0	24 (802.3af/at)	48 (802.3af/at)
PoE Power Budget	0	370 W	740 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	176 Gbps	176 Gbps	176 Gbps
Packets Per Second (Duplex)	260 Mpps	260 Mpps	260 Mpps
MAC Address Storage	32 K	32 K	32 K
Network Latency	< 1µs	< 1µs	< 1µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	16	16	16
Packet Buffers	2 MB	2 MB	2 MB
DRAM	512 MB DDR3	512 MB DDR3	512 MB DDR3
FLASH	64 MB	64 MB	64 MB
ACL	768	768	768
Spanning Tree Instances	16	16	16
Dimensions			
Height x Depth x Width (inches)	1.73 × 10.24 × 17.32	1.73 × 12.20 × 17.32	1.73 × 12.20 × 17.32
Height x Depth x Width (mm)	44 × 260 × 440	44 × 310 × 440	44 × 310 × 440
Weight	7.63 lbs (3.46 kg)	10.32 lbs (4.68 kg)	10.32 lbs (4.68 kg)
Environment			
Power Required	100–240V AC, 50-60 Hz	100–240V AC, 50-60 Hz	100–240V AC, 50-60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	No	No	No
Power Consumption* (Average / Maximum)	55.8 W / 57 W	474.8 W / 476.3 W	893.5 W / 895.7 W
Heat Dissipation	194.37 BTU/h	195.73 BTU/h	198.46 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	42.8 dBA	46.9 dBA	46.5 dBA
Certification and Compliance			
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 148F

FortiSwitch 148F-POE

FortiSwitch 148F-FPOE

SPECIFICATIONS

	FORTISWITCH 224D-FPOE	FORTISWITCH 224E	FORTISWITCH 224E-POE
Hardware Specifications			
Total Network Interfaces	24x GE RJ45 ports and 4x GE SFP ports	24x GE RJ45 ports and 4x GE SFP ports	24x GE RJ45 ports and 4x GE SFP ports
Dedicated Management 10/100 Port	1	1	1
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	24 (802.3af/802.3at)	NA	12 (802.3af/802.3at)
PoE Power Budget	370 W	NA	180 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	56 Gbps	56 Gbps	56 Gbps
Packets Per Second (Duplex)	83 Mpps	83 Mpps	83 Mpps
MAC Address Storage	16 K	16 K	16 K
Network Latency	< 1µs	< 1µs	< 1µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports
Packet Buffers	1.5 MB	1.5 MB	1.5 MB
DRAM	512 MB DDR3	512 MB DDR3	512 MB DDR3
FLASH	128 MB	128 MB	128 MB
ACL	512	512	512
Spanning Tree Instances	16	16	16
Route Entries (IPv4/IPv6)	64/32	64/32	64/32
Host Entries	512	512	512
Dimensions			
Height x Depth x Width (inches)	1.73 × 12.2 × 17.5	1.73 × 9 × 12.99	1.73 × 9 × 12.99
Height x Depth x Width (mm)	44 × 310 × 440	44 × 230 × 330	44 × 230 × 330
Weight	10.64 lbs (4.83 kg)	4.78 lbs (2.17 kg)	5.37 lbs (2.44 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	Optional FRPS-740	Redundant AC	Optional FRPS-740
Power Consumption* (Average / Maximum)	380 W / 397 W	17.2 W / 17.3 W	220.18 W / 223.57 W
Heat Dissipation	85 BTU/h	59.095 BTU/h	74.29554 BTU/h
Operating Temperature	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	42.7 dBA	Fanless	30.6 dBA
Certification and Compliance		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 224D-FPOE

FortiSwitch 224E-POE

FortiSwitch 224E

SPECIFICATIONS

	FORTISWITCH 248D	FORTISWITCH 248E-POE	FORTISWITCH 248E-FPOE
Hardware Specifications			
Total Network Interfaces	48x GE RJ45 ports and 4x GE SFP ports	48x GE RJ45 ports and 4x GE SFP ports	48x GE RJ45 ports and 4x GE SFP ports
Dedicated Management 10/100 Port	1	1	1
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	—	24 (802.3af/802.3at)	48 (802.3af/802.3at)
PoE Power Budget	N/A	370 W	740 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	104 Gbps	104 Gbps	104 Gbps
Packets Per Second (Duplex)	155 Mpps	155 Mpps	155 Mpps
MAC Address Storage	16 K	16 K	16 K
Network Latency	< 1µs	< 1µs	< 1µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports
Packet Buffers	1.5 MB	1.5 MB	1.5 MB
DRAM	512 MB DDR3	512 MB DDR3	512 MB DDR3
FLASH	128 MB	128 MB	128 MB
ACL	512	512	512
Spanning Tree Instances	16	16	16
Route Entries (IPv4/IPv6)	64/32	64/32	64/32
Host Entries	512	512	512
Dimensions			
Height x Depth x Width (inches)	1.73 × 9.68 × 17.3	1.73 × 16.1 × 17.3	1.73 × 16.1 × 17.3
Height x Depth x Width (mm)	44 × 246 × 440	44 × 410 × 440	44 × 410 × 440
Weight	7.81 lbs (3.54 kg)	12.12 lbs (5.5 kg)	13.44 lbs (6.1 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	—	Optional FRPS-740	Optional FRPS-740
Power Consumption* (Average / Maximum)	38.66 W / 39.19 W	457.46 W / 466.47 W	842 W / 855.02 W
Heat Dissipation	134 BTU/h	177.14268 BTU/h	162.87865 BTU/h
Operating Temperature	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% non-condensing	10%–90% non-condensing	10%–90% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	32.3 dBA	34.2 dBA	44.7 dBA
Certification and Compliance			
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 248D

FortiSwitch 248E-POE

FortiSwitch 248E-FPOE

SPECIFICATIONS

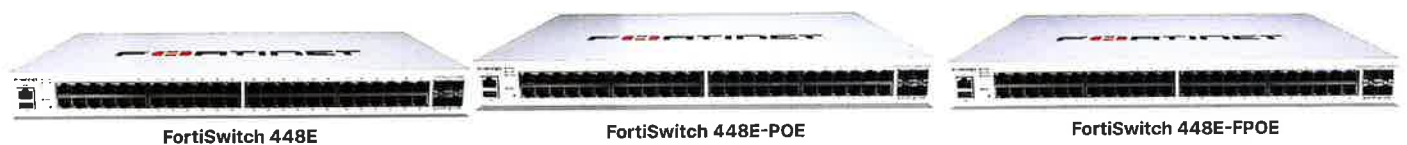|	FORTISWITCH-424E-FIBER	FORTISWITCH-M426E-FPOE
Hardware Specifications		
Total Network Interfaces	24x GE SFP and 4× 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	16x GE RJ45, 8× 2.5 GE RJ45 ports, 2× 5 GE RJ45, and 4× 10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP
Dedicated Management 10/100 Port	1	1
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	N/A	24 (16× 802.3af/at, 8× 802.3af/at/bt Type 3 Class 6)
PoE Power Budget	N/A	420 W
Mean Time Between Failures	> 10 years	> 10 years
System Specifications		
Switching Capacity (Duplex)	128 Gbps	172 Gbps
Packets Per Second (Duplex)	204 Mpps	255 Mpps
MAC Address Storage	32 K	16 K
Network Latency	< 1µs	< 1µs
VLANs Supported	4 K	4 K
Link Aggregation Group Size	8	8
Total Link Aggregation Groups	Up to number of ports	Up to number of ports
Packet Buffers	4 MB	2 MB
DRAM	1 GB DDR4	1 GB DDR4
FLASH	256 MB	256 MB
ACL	1.5k	1k
Spanning Tree Instances	16	16
Route Entries (IPv4/IPv6)	16k/8k	1000/500
Host Entries	16k	5k
Dimensions		
Height x Depth x Width (inches)	1.75 × 7.87 × 17.3	1.73 × 16.14 × 17.3
Height x Depth x Width (mm)	44 × 200 × 440	44 × 410 × 440
Weight	5.62 lbs (2.55 kg)	13.00 lbs (5.9 kg)
Environment		
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC built in	AC built in
Redundant Power	Redundant AC	Redundant AC
Power Consumption* (Average / Maximum)	36 W / 38 W	441 W / 442 W
Heat Dissipation	132.5 BTU/h	132.734 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–122°F (0°–50°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	5%–95% non-condensing	5%–95% non-condensing
Air-Flow Direction	side-to-back	side-to-back
Noise Level	32.8 dBA	35 dBA
Certification and Compliance		
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2
Warranty		
Fortinet Warranty		Limited lifetime** warranty on all models

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 424E-Fiber

FortiSwitch M426E-FPOE

SPECIFICATIONS

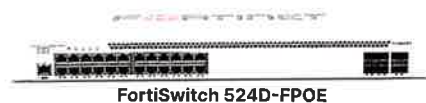|	FORTISWITCH 424E	FORTISWITCH 424E-POE	FORTISWITCH 424E-FPOE
Hardware Specifications			
Total Network Interfaces	24x GE RJ45 and 4×10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 4×10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 4×10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP
Dedicated Management 10/100 Port	1	1	1
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	—	24 (802.3af/at)	24 (802.3af/at)
PoE Power Budget	N/A	250 W	421 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	128 Gbps	128 Gbps	128 Gbps
Packets Per Second (Duplex)	204 Mpps	204 Mpps	204 Mpps
MAC Address Storage	16 K	16 K	16 K
Network Latency	< 1µs	< 1µs	< 1µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports
Packet Buffers	2 MB	2 MB	2 MB
DRAM	1 GB DDR4	1 GB DDR4	1 GB DDR4
FLASH	256 MB	256 MB	256 MB
ACL	1k	1k	1k
Spanning Tree Instances	16	16	16
Route Entries (IPv4/IPv6)	1000/500	1000/500	1000/500
Host Entries	5k	5k	5k
Dimensions			
Height x Depth x Width (inches)	1.75 × 10.23 × 17.3	1.75 × 16.14 × 17.3	1.75 × 16.14 × 17.3
Height x Depth x Width (mm)	44 × 260 × 440	44 × 410 × 440	44 × 410 × 440
Weight	6.83 lbs (3.1 kg)	11.57 lbs (5.25 kg)	12.72 lbs (5.77 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	Redundant AC	Redundant AC	Redundant AC
Power Consumption* (Average / Maximum)	22.3 W / 23.6 W	281.3 W / 283.5 W	431.2 W / 433.7 W
Heat Dissipation	76.04 BTU/h	102.64 BTU/h	117.2 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)	32°–122°F (0°–45°C)
Storage Temperature	-40°–158°F (-40°–70°C)	-4°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)
Humidity	5%–95% non-condensing	5%–95% non-condensing	5%–95% non-condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	32.3 dBA	31.8 dBA	30.9 dBA
Certification and Compliance		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 424E

FortiSwitch 424E-POE

FortiSwitch 424E-FPOE

SPECIFICATIONS

	FORTISWITCH 448E	FORTISWITCH 448E-POE	FORTISWITCH 448E-FPOE
Hardware Specifications			
Total Network Interfaces	48x GE RJ45 and 4× 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4× 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4× 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP
Dedicated Management 10/100 Port	1	1	1
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	—	48 (802.3af/at)	48 (802.3af/at)
PoE Power Budget	—	421 W	772 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	176 Gbps	176 Gbps	176 Gbps
Packets Per Second (Duplex)	262 Mpps	262 Mpps	262 Mpps
MAC Address Storage	32 K	32 K	32 K
Network Latency	<1µs	<1µs	<1µs
VLANs Supported	4 K	4 K	4 K
Link Aggregation Group Size	8	8	8
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports
Packet Buffers	4 MB	4 MB	4 MB
DRAM	1GB DDR4	1GB DDR4	1GB DDR4
FLASH	256 MB	256 MB	256 MB
ACL	1.5k	1.5k	1.5k
Spanning Tree Instances	16	16	16
Route Entries (IPv4/IPv6)	16k/8k	16k/8k	16k/8k
Host Entries	16k	16k	16k
Dimensions			
Height x Depth x Width (inches)	1.75 × 12.2 × 17.3	1.73 × 16.1 × 17.3	1.73 × 16.1 × 17.3
Height x Depth x Width (mm)	44 × 310 × 440	44 × 410 × 440	44 × 410 × 440
Weight	9.17 lbs (4.16 kg)	13.8 lbs (6.26 kg)	14.04 lbs (6.37 kg)
Environment			
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	AC built in	AC built in	AC built in
Redundant Power	Redundant AC	Redundant AC	Redundant AC
Power Consumption* (Average / Maximum)	46.5 W / 47.81 W	440.12 W / 442.234 W	921.4 W / 923.6 W
Heat Dissipation	163.032 BTU/h	163.066 BTU/h	163.1 BTU/h
Operating Temperature	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)	32°–122°F (0°–50°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% non condensing	10%–90% non condensing	10%–90% non condensing
Air-Flow Direction	side-to-back	side-to-back	side-to-back
Noise Level	35.5 dBA	38.3 dBA	50.7 dBA
Certification and Compliance		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime** warranty on all models	

* POE models power consumption is similar to non-POE model if POE is not in use
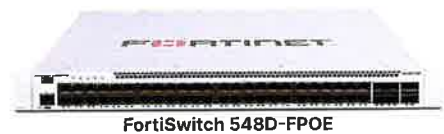** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 448E

FortiSwitch 448E-POE

FortiSwitch 448E-FPOE

SPECIFICATIONS

	FORTISWITCH 524D	FORTISWITCH 524D-FPOE
Hardware Specifications		
Total Network Interfaces	24 GE/RJ45 ports, 4× 10 GE SFP+ ports and 2× 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP	24 GE/RJ45 ports, 4× 10 GE SFP+ ports and 2× 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP
Dedicated Management 10/100/1000 Ports	1	1
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	N/A	24 (802.3af/at)
PoE Power Budget (single/dual PSU)	N/A	400 W / 720 W
Mean Time Between Failures	> 10 years	> 10 years
System Specifications		
Switching Capacity (Duplex)	288 Gbps	288 Gbps
Packets Per Second (Duplex)	428 Mpps	428 Mpps
MAC Address Storage	36 K	36 K
Network Latency	< 2μs	< 2μs
VLANs Supported	4 K	4 K
Link Aggregation Group Size	24	24
Total Link Aggregation Groups	Up to number of ports	Up to number of ports
Packet Buffers	4 MB	4 MB
DRAM	2 GB DDR3	2 GB DDR3
FLASH	128 MB	128 MB
ACL	1k	1k
Spanning Tree Instances	32	32
Route Entries (IPv4/IPv6)	16k/8k	16k/8k
Multicast Route Entries	8k	8k
Host Entries	16k	16k
Dimensions		
Height x Depth x Width (inches)	1.75 × 13.8 × 17.3	1.75 × 13.8 × 17.3
Height x Depth x Width (mm)	44 × 350 × 439	44 × 350 × 439
Weight	13.6 lbs (6.2 kg)	15.74 lbs (7.14 kg)
Environment		
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	150 W AC PSU*	600 W AC PSU*
Redundant Power	Optional FS-PSU-150*	Optional FS-PSU-600*
Power Consumption (Average / Maximum)	73 W / 75 W	570 W / 579 W (full PoE load for single power supply)
Heat Dissipation	247 BTU/h	296 BTU/h (full PoE load for single power supply)
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)
Storage Temperature	-40°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)
Humidity	5%–95% non-condensing	5%–95% non-condensing
Air-Flow Direction	front-to-back	front-to-back
Noise Level	57.3 dBA	57.3 dBA
Certification and Compliance	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2
Warranty		
Fortinet Warranty	Limited lifetime*** warranty on all models	Limited lifetime*** warranty on all models

*FS-524D, FS-524D-FPOE, FS-548D, FS-548D-FPOE Power Supply Units are Hot-Swappable. ** POE models power consumption is similar to non-POE model if POE is not in use
*** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 524D

FortiSwitch 524D-FPOE

SPECIFICATIONS

	FORTISWITCH 548D	FORTISWITCH 548D-FPOE
Hardware Specifications		
Total Network Interfaces	48x GE/RJ45 ports, 4× 10 GE SFP+ ports and 2× 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP	48x GE/RJ45 ports, 4× 10 GE SFP+ ports and 2× 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP
Dedicated Management 10/100/1000 Ports	1	1
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	N/A	48 (802.3af/at)
PoE Power Budget (single/dual PSU)	N/A	750 W / 1440 W
Mean Time Between Failures	> 10 years	> 10 years
System Specifications		
Switching Capacity (Duplex)	336 Gbps	336 Gbps
Packets Per Second (Duplex)	512 Mpps	512 Mpps
MAC Address Storage	36 K	36 K
Network Latency	< 2µs	< 2µs
VLANs Supported	4 K	4 K
Link Aggregation Group Size	48	48
Total Link Aggregation Groups	Up to number of ports	Up to number of ports
Packet Buffers	4 MB	4 MB
DRAM	2 GB DDR3	2 GB DDR3
FLASH	128 MB	128 MB
ACL	1k	1k
Spanning Tree Instances	32	32
Route Entries (IPv4/IPv6)	16k/8k	16k/8k
Multicast Route Entries	8k	8k
Host Entries	16k	16k
Dimensions		
Height x Depth x Width (inches)	1.75 × 13.8 × 17.3	1.75 × 13.8 × 17.3
Height x Depth x Width (mm)	44 × 350 × 439	44 × 350 × 439
Weight	14.1 lbs (6.4 kg)	15.74 lbs (7.14 kg)
Environment		
Power Required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	150 W AC PSU*	920 W AC PSU*
Redundant Power	Optional FS-PSU-150*	Optional FS-PSU-920*
Power Consumption** (Average / Maximum)	74 W / 77 W	925 W / 961 W (full PoE load for single power supply)
Heat Dissipation	252 BTU/h	318 BTU/h (full PoE load for single power supply)
Operating Temperature	32°–113°F (0°–45°C)	32°–113°F (0°–45°C)
Storage Temperature	-40°–158°F (-40°–70°C)	-40°–158°F (-40°–70°C)
Humidity	5%–95% non-condensing	5%–95% non-condensing
Air-Flow Direction	front-to-back	front-to-back
Noise Level	57.3 dBA	57.9 dBA
Certification and Compliance		
	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2
Warranty		
Fortinet Warranty	Limited lifetime*** warranty on all models	Limited lifetime*** warranty on all models

*FS-524D, FS-524D-FPOE, FS-548D, FS-548D-FPOE Power Supply Units are Hot-Swappable. ** POE models power consumption is similar to non-POE model if POE is not in use
*** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

FortiSwitch 548D

FortiSwitch 548D-FPOE

ORDER INFORMATION

PRODUCT	SKU	DESCRIPTION
FortiSwitch Models		
FortiSwitch 108E-POE	FS-108E-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 8 GE RJ45 + 2 SFP ports, 4 port PoE with maximum 65 W PoE limit. Fanless.
FortiSwitch 108E-FPOE	FS-108E-FPOE	Layer 2 FortiGate switch controller compatible PoE+ switch with 8 GE RJ45 + 2 SFP ports, 8 port PoE with maximum 130 W PoE limit. Fanless.
FortiSwitch 108F	FS-108F	Layer 2 FortiGate switch controller compatible switch with 8 x GE RJ45 ports, 2 x GE SFP, Fanless, 12V/3A power adapter of input voltage 100 – 240VAC, and PSE dual powered.
FortiSwitch 108F-POE	FS-108F-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 8 x GE RJ45 ports, 2 x GE SFP, Fanless with automatic Max 65W POE output limit.
FortiSwitch 108F-FPOE	FS-108F-FPOE	Layer 2 FortiGate switch controller compatible PoE+ switch with 8 x GE RJ45 ports, 2 x GE SFP, Fanless with automatic Max 130W POE output limit.
FortiSwitch 124E	FS-124E	Layer 2 FortiGate switch controller compatible switch with 24 GE RJ45 + 4 SFP ports. Fanless.
FortiSwitch 124E-POE	FS-124E-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 SFP ports, 12 port PoE with maximum 185 W limit.
FortiSwitch 124E-F-POE	FS-124E-FPOE	Layer 2 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 SFP ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 148E	FS-148E	Layer 2 FortiGate switch controller compatible switch with 48 GE RJ45 + 4 SFP ports.
FortiSwitch 148E-POE	FS-148E-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4 SFP ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 124F	FS-124F	Layer 2 FortiGate switch controller compatible switch with 24 GE RJ45 + 4 10G SFP+ ports. Fanless.
FortiSwitch 124F-POE	FS-124F-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 10G SFP+ ports, 12 port PoE with maximum 185 W limit.
FortiSwitch 124F-FPOE	FS-124F-FPOE	Layer 2 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 10G SFP+ ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 148F	FS-148F	Layer 2 FortiGate switch controller compatible switch with 48 GE RJ45 + 4 10G SFP+ ports.
FortiSwitch 148F-POE	FS-148F-POE	Layer 2 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4 10G SFP+ ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 148F-FPOE	FS-148F-FPOE	Layer 2 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4 10G SFP+ ports, 48 port PoE with maximum 740 W limit.
FortiSwitch 224D-FPOE	FS-224D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 SFP ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 224E	FS-224E	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45 + 4 SFP ports. Fanless.
FortiSwitch 224E-POE	FS-224E-POE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 4 SFP ports, 12 port PoE with maximum 180 W limit.
FortiSwitch 248D	FS-248D	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45 + 4 SFP ports.
FortiSwitch 248E-POE	FS-248E-POE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4 SFP ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 248E-FPOE	FS-248E-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4 SFP ports, 48 port PoE with maximum 740 W limit.
FortiSwitch 424E-Fiber	FS-424E-Fiber	Layer 2/3 FortiGate switch controller compatible switch with 24x GE SFP and 4× 10 GE SFP+ Uplinks
FortiSwitch M426E-FPOE	FS-M426E-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+/802.3bt Type 3 switch with 16x GE RJ45, 8× 2.5 RJ45, 2× 5 GE RJ45 and 4× 10 GE SFP+, 24 port PoE+ with maximum 420 W limit.
FortiSwitch 424E	FS-424E	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45, 4× 10 GE SFP + ports.
FortiSwitch 424E-POE	FS-424E-POE	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45, 4× 10 GE SFP + ports, 24 port PoE+ with maximum 283.5 W limit.
FortiSwitch 424E-FPOE	FS-424E-FPOE	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45, 4× 10 GE SFP + ports, 24 port PoE+ with maximum 433.7 W limit.
FortiSwitch 448E	FS-448E	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45, 4× 10 GE SFP + ports.
FortiSwitch 448E-POE	FS-448E-POE	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45, 4× 10 GE SFP + ports, 48 port PoE+ with maximum 421 W limit.
FortiSwitch 448E-FPOE	FS-448E-FPOE	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45, 4× 10 GE SFP + ports, 48 port PoE+ with maximum 772 W limit.
FortiSwitch 524D	FS-524D	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45, 4× 10 GE SFP+ and 2× 40 GE QSFP+ ports.
FortiSwitch 524D-FPOE	FS-524D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45, 4× 10 GE SFP+, 2× 40 GE QSFP+ ports. 24 port PoE with maximum 400 W limit.
FortiSwitch 548D	FS-548D	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45, 4× 10 GE SFP+ and 2× 40 GE QSFP+ ports.
FortiSwitch 548D-FPOE	FS-548D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45, 4× 10 GE SFP+ and 2× 40 GE QSFP+ ports, 48 port PoE with maximum 750 W limit.

ORDER INFORMATION

PRODUCT	SKU	DESCRIPTION
Licenses		
FortiLAN Cloud Management License*	FC-10-FSW00-628-02-DD	FortiSwitch 100 Series (none-Rugged) FortiLAN Cloud Management SKU Including Forticare 24×7. (Note, FortiCare only applicable when used with FortiLAN Cloud)
	FC-10-FSW10-628-02-DD	FortiSwitch 200-400 Series (incl all FSW Rugged Models) FortiLAN Cloud Management SKU Including Forticare 24×7. (Note, FortiCare only applicable when used with FortiLAN Cloud)
	FC-10-FSW20-628-02-DD	FortiSwitch 500-900 Series FortiLAN Cloud Management SKU Including Forticare 24×7. (Note, FortiCare only applicable when used with FortiLAN Cloud)
FortiSwitch Manager Subscription License	FC1-10-SWMVM-258-01-DD	Subscription license for 10 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
	FC2-10-SWMVM-258-01-DD	Subscription license for 100 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
	FC3-10-SWMVM-258-01-DD	Subscription license for 1000 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
FortiSwitch Advanced Features License	FS-SW-LIC-200	SW License for FS-200 Series Switches to activate Advanced Features.
	FS-SW-LIC-400	SW License for FS-400 Series Switches to activate Advanced Features.
	FS-SW-LIC-500	SW License for FS-500 Series Switches to activate Advanced Features.
Accessories		
External Redundant AC Power Supply	FRPS-740	Redundant AC power supply for up to 2 units: FS-224D-FPOE, FS-224E-POE, FS-248E-POE, FS-248E-FPOE.
Redundant AC Power Supply	FS-PSU-150	AC power supply for FS-548D and FS-524D.
	FS-PSU-600	AC power supply for FS-524D-FPOE.**
	FS-PSU-920	AC power supply for FS-548D-FPOE.**

* When managing a FortiSwitch with a FortiGate via FortiGate Cloud, no additional license is necessary.
** Provides additional PoE capacity.

For details of Transceiver modules, see the Fortinet Transceivers datasheet. Note that all PoE FortiSwitches are Alternative-A.
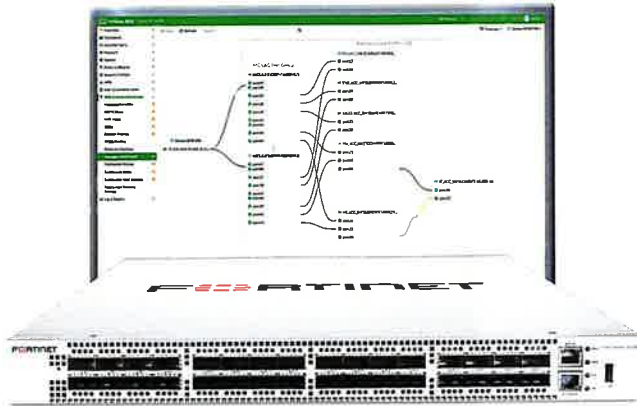
F⦂RTINET.

www.fortinet.com

FortiSwitch™ Data Center Series

Available in:

Appliance

Secure, Simple, Scalable Ethernet Solution

FortiSwitch Data Center switches deliver a secure, simple, scalable Ethernet solution with outstanding throughput, resiliency, and scalability. Virtualization and cloud computing have created dense high-bandwidth Ethernet networking requirements. FortiSwitch Data Center switches meet these challenges by providing a high-performance 10 GE, 40 GE, or 100 GE capable switching platform, with a low total cost of ownership. Ideal for Top of Rack server or firewall aggregation applications, as well as SD-Branch network core deployments, these switches are purpose-built to meet the needs of today's bandwidth-intensive environments.

Security Fabric Integration Through FortiLink

The FortiSwitch Data Center Series supports FortiGate management through FortiLink, extending the Fortinet Security Fabric to the Ethernet port level. This link allows the same policies configured and applied to FortiGate interfaces to be applied to the FortiSwitch Ethernet ports, reducing complexity and decreasing management cost. With network security and access layer functions enabled and managed through a single console, centralized policy management, including role-based access and control, are easy to implement and manage. Users or devices can be authenticated against the same database and have the same security policy applied regardless of how or where they connect to the network.

Highlights

- High throughput Ethernet switch suitable for Top of Rack or large SD-Branch network deployments

- Compact 1 RU form factor

- 1GE, 2.5GE, 5GE, 10GE, 40GE, and 100GE capable access ports

- Fixed 10GE copper port option

- 40GE or 100GE capable uplinks with breakout support for 2×50G, 4×25G, 4×10G, and 4×1G

- FortiGate management through FortiLink, enabling the Security Fabric

- Stackable up to 300 switches per FortiGate depending on model

- Dual hot-swappable power supplies for redundancy

- Supports wire-speed switching with both store and forward and cut-through forwarding modes

Product Offerings
FortiSwitch FS-1024D,
FS-1024E, FS-T1024E,
FS-1048E, FS-3032E

DEPLOYMENT

Deployment Overview

FortiSwitch is commonly managed and deployed through our FortiGate with FortiLink but can also be deployed and managed in non-FortiGate environments.

FortiGate

FortiGate management is accomplished through FortiLink, an innovative proprietary management protocol that allows our FortiGate security appliance to seamlessly manage any FortiSwitch. FortiLink enables the FortiSwitch to become a logical extension of the FortiGate, integrating it directly into the Fortinet Security Fabric.
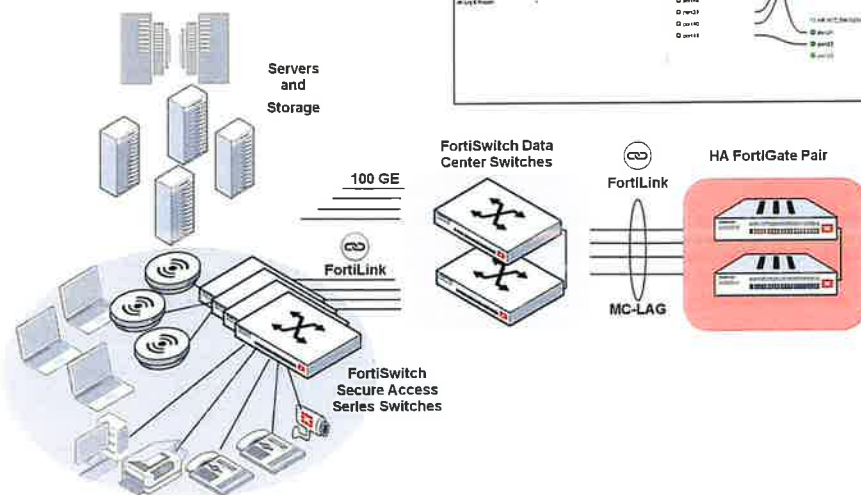
Non FortiGate

FortiSwitch can be managed without a FortiGate in a traditional stand-alone fashion with a native GUI and CLI interface. FortiSwitch Manager offers stacking and management at scale with a network design similar to a FortiGate-managed deployment. This design supports up to 2500 FortiSwitches but offers no traffic inspection or Security Fabric integration. Lastly, RESTful API's offer additional configuration and management tools.
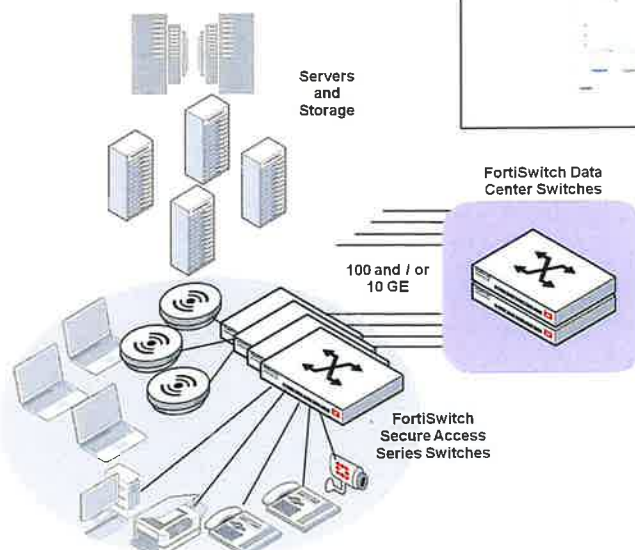
HARDWARE

FortiSwitch 1024D — front

FortiSwitch 1024D — back

FortiSwitch 1024E — front
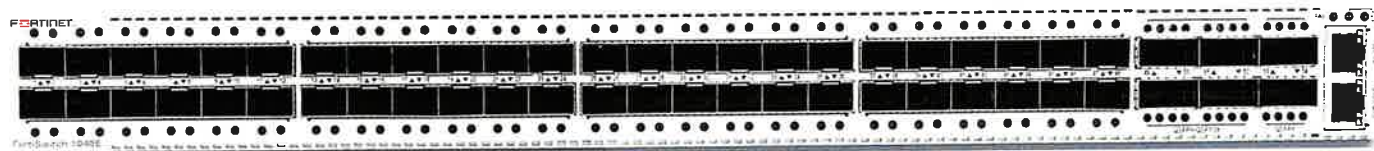

FortiSwitch 1024E — back
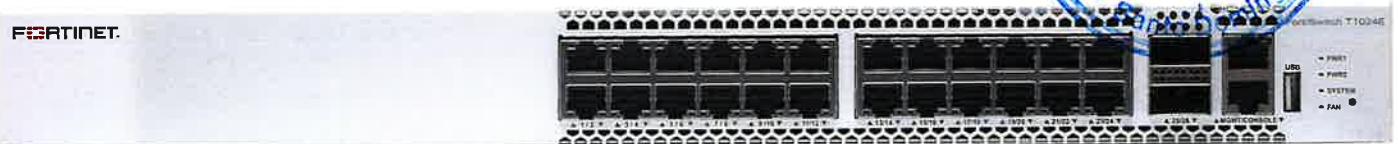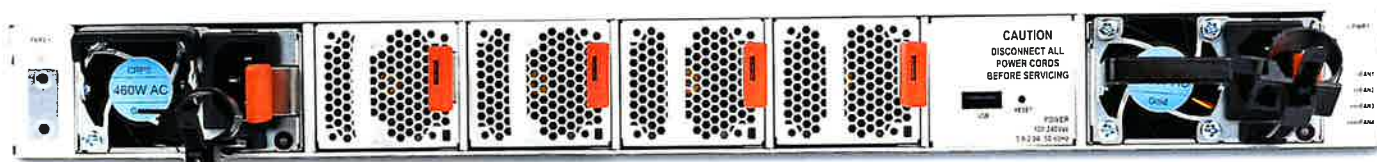

FortiSwitch T1024E — front
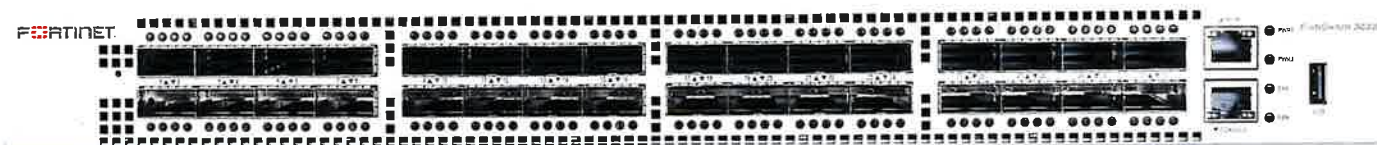

FortiSwitch T1024E — back

3

HARDWARE

FortiSwitch 1048E — front

FortiSwitch 1048E — back

FortiSwitch 3032E — front

FortiSwitch 3032E — back

FEATURES

	FORTISWITCH D/E-SERIES FORTILINK MODE (WITH FORTIGATE)
Management and Configuration	
Auto Discovery of Multiple Switches	Yes
Automated Detection and Recommendations	Yes
Centralized VLAN Configuration	Yes
Dynamic Port Profiles for FortiSwitch ports	Yes
FortiLink Stacking (Auto Inter-Switch Links)	Yes
IGMP Snooping	Yes
L3 Routing and Services	Yes (FortiGate)
Link Aggregation Configuration	Yes
LLDP/MED	Yes
Number of Managed Switches per FortiGate	8 to 300 Depending on FortiGate Model (Please refer to admin-guide)
Policy-Based Routing	Yes (FortiGate)
Provision firmware upon authorization	Yes
Software Upgrade of Switches	Yes
Spanning Tree	Yes
Switch POE Control	Yes
Virtual Domain	Yes (FortiGate)
Health Monitoring	Yes
Security and Visibility	
802.1X Authentication (Port-based, MAC-Based, MAB)	Yes
Block Intra-VLAN Traffic	Yes
Device Detection	Yes
DHCP Snooping	Yes
FortiGuard IoT identification	Yes
FortiSwitch recommendations in Security Rating	Yes
Host Quarantine on Switch Port	Yes
Integrated FortiGate Network Access Control (NAC) function	Yes
MAC Black/While Listing	Yes (FortiGate)
Network Device Detection	Yes
Policy Control of Users and Devices	Yes (FortiGate)
Switch Controller traffic collector	Yes
Syslog Collection	Yes
Port Statistics	Yes
Clients Monitoring	Yes
UTM Features	
Firewall	Yes (FortiGate)
IPC, AV, Application Control, Botnet	Yes (FortiGate)
Quality for Service Egress Priority Tagging	Yes
Quality for Service Explicit Congestion Notification	Yes
High Availability	
Active-Active Split LAG from FortiGate to FortiSwitches for Advanced Redundancy	Yes
LAG Support for FortiLink Connection	Yes
Support FortiLink FortiGate in HA Cluster	Yes

FEATURES

	FS-1024D	FS-1024E / FS-T1024E	FS-1048E	FS-3032E
Layer 2				
Auto-Negotiation for Port Speed and Duplex	Yes	Yes	Yes	Yes
Auto Topology	Yes	Yes	Yes	Yes
Edge Port / Port Fast	Yes	Yes	Yes	Yes
IEEE 802.1ad QnQ	Yes	Yes	Yes	Yes
IEEE 802.1AX Link Aggregation	Yes	Yes	Yes	Yes
IEEE 802.1D MAC Bridging/STP	Yes	Yes	Yes	Yes
IEEE 802.1Q VLAN Tagging	Yes	Yes	Yes	Yes
IEEE 802.1Qbb Priority-based Flow Control	Yes	Yes	Yes	Yes
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)	Yes	Yes	Yes	Yes
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	Yes	Yes	Yes	Yes
IEEE 802.3 CSMA/CD Access Method and Physical Layer Specifications	Yes	Yes	Yes	Yes
IEEE 802.3ab 1000Base-T	Yes	Yes	Yes	Yes
IEEE 802.3ad Link Aggregation with LACP	Yes	Yes	Yes	Yes
IEEE 802.3ae 10 Gigabit Ethernet	Yes	Yes	Yes	Yes
IEEE 802.3ba, 802.3bj, 802.3bm 40 and 100 Gigabit Ethernet	No	Yes	Yes	Yes
IEEE 802.3bz Multi Gigabit Ethernet	No	Yes	No	No
IEEE 802.3u 100Base-TX	Yes	No / Yes	No	Yes
IEEE 802.3x Flow Control and Back-pressure	Yes	Yes	Yes	Yes
IEEE 802.3z 1000Base-SX/LX	Yes	Yes	Yes	Yes
Ingress Pause Metering	Yes	Yes	Yes	No
Jumbo Frames	Yes	Yes	Yes	Yes
LAG Min/Max Bundle	Yes	Yes	Yes	Yes
Loop Guard	Yes	Yes	Yes	Yes
MAC, IP, Ethertype-based VLANs	Yes	Yes	Yes	Yes
PHY Forward Error Correction	No	Yes	Yes	Yes
Private VLAN	Yes	Yes	Yes	Yes
Rapid PVST Interoperation	Yes	Yes	Yes	Yes
Spanning Tree Instances (MSTP/CST)	32/1	32/1	32/1	32/1
Split Port	No	No	Yes	Yes
Storm Control	Yes	Yes	Yes	Yes
STP BPDU Guard	Yes	Yes	Yes	Yes
STP Root Guard	Yes	Yes	Yes	Yes
Unicast/Multicast traffic balance over trunking port (dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac)	Yes	Yes	Yes	Yes
Virtual-Wire	Yes	Yes	Yes	Yes
VLAN Mapping	Yes	Yes	Yes	Yes
Dynamically shared packet buffers	Yes	Yes	Yes	Yes

FEATURES

	FS-1024D	FS-1024E / FS-T1024E	FS-1048E	FS-3032E
Layer 3				
Bidirectional Forwarding Detection (BFD)	Yes	Yes	Yes	Yes
DHCP Relay	Yes	Yes	Yes	Yes
DHCP Server	Yes	Yes	Yes	Yes
Dynamic Routing Protocols (IPv4/IPv6)*	OSPF, RIP, VRRP, BGP, ISIS	OSPF, RIP, VRRP, BGP, ISIS	OSPF, RIP, VRRP, BGP, ISIS	OSPF, RIP, VRRP, BGP, ISIS
ECMP	Yes	Yes	Yes	Yes
Filtering Routemaps based on routing protocol	Yes	Yes	Yes	Yes
IGMP Proxy / Querier	Yes	Yes	Yes	Yes
IGMP Snooping	Yes	Yes	Yes	Yes
IP Conflict Detection and Notification	Yes	Yes	Yes	Yes
IPv6 Route Filtering	Yes	Yes	Yes	Yes
L3 Host Entries	16K	24K	32K	32K
MLD Proxy / Querier	Yes	Yes	Yes	Yes
MLD Snooping	Yes	Yes	Yes	Yes
Multicast Protocols*	PIM-SSM	PIM-SSM	PIM-SSM	PIM-SSM
Multicast Route Entries*	4k	8k	8k	8k
Policy-based Routing*	Yes	Yes	Yes	Yes
Route Entries (IPv4/IPv6)	16k/8k	24k/12k	16k/8k	8k/4k
Static Routing (Hardware-based)	Yes	Yes	Yes	Yes
Unicast Reverse Path Forwarding (uRPF)	Yes	Yes	Yes	Yes
VRF*	Yes	Yes	Yes	Yes
VXLAN	No	Yes	Yes	Yes
Security and Visibility				
ACL	Yes, 2K entries	Yes, 3K	Yes, 4K entries	Yes, 1K entries
ACL Multiple Ingress	Yes	Yes	Yes	Yes
ACL Multistage	Yes	Yes	Yes	Yes
ACL Schedule	Yes	Yes	Yes	Yes
Admin Authentication Via RFC 2865 RADIUS	Yes	Yes	Yes	Yes
Assign VLANs via Radius attributes (RFC 4675)	Yes	Yes	Yes	Yes
DHCP-Snooping	Yes	Yes	Yes	Yes
Dynamic ARP Inspection	Yes	Yes	Yes	Yes
FIPS 140-2 (level 2) support	No	Yes	Yes	Yes
Flow Export (NetFlow and IPFIX)	Yes	Yes	Yes	Yes
IEEE 802.1ab Link Layer Discovery Protocol (LLDP)	Yes	Yes	Yes	Yes
IEEE 802.1ab LLDP-MED	Yes	Yes	Yes	Yes
IEEE 802.1X Authentication MAC-based	Yes	Yes	Yes	Yes
IEEE 802.1X Authentication Port-based	Yes	Yes	Yes	Yes
IEEE 802.1X Dynamic VLAN Assignment	Yes	Yes	Yes	Yes
IEEE 802.1X EAP Pass-Through	Yes	Yes	Yes	Yes
IEEE 802.1X Guest and Fallback VLAN	Yes	Yes	Yes	Yes
IEEE 802.1X MAC Access Bypass (MAB)	Yes	Yes	Yes	Yes
IEEE 802.1X Open Auth	Yes	Yes	Yes	Yes
IP Source Guard	Yes	Yes	Yes	Yes
IPv6 RA Guard	Yes	Yes	Yes	Yes
LLDP-MED ELIN support	Yes	Yes	Yes	Yes
MAC-IP Binding	Yes	Yes	Yes	Yes
Port Mirroring	Yes	Yes	Yes	Yes
RADIUS Accounting	Yes	Yes	Yes	Yes
RADIUS CoA	Yes	Yes	Yes	Yes
sFlow	Yes	Yes	Yes	Yes
Sticky MAC	Yes	Yes	Yes	Yes
Wake on LAN	Yes	Yes	Yes	Yes

* Requires 'Advanced Features' License

FEATURES

	FS-1024D	FS-1024E / FS-T1024E	FS-1048E	FS-3032E
High Availability				
Multi-Chassis Link Aggregation (MCLAG)	Yes	Yes	Yes	Yes
Multi-Stage Load Balancing	Yes	Yes	Yes	Yes
Quality of Service				
Egress Priority Tagging	Yes	Yes	Yes	Yes
Explicit Congestion Notification	Yes	Yes	Yes	Yes
IEEE 802.1p Based Priority Queuing	Yes	Yes	Yes	Yes
IP TOS/DSCP Based Priority Queuing	Yes	Yes	Yes	Yes
Percentage Rate Control	Yes	Yes	Yes	Yes
Management				
Automation Stitches	Yes	Yes	Yes	Yes
Display Average Bandwidth and Allow Sorting on Physical Port / Interface Traffic	Yes	Yes	Yes	Yes
Dual Firmware Support	Yes	Yes	Yes	Yes
HTTP / HTTPS	Yes	Yes	Yes	Yes
IPv4 and IPv6 Management	Yes	Yes	Yes	Yes
Link Monitor	Yes	Yes	Yes	Yes
Managed from FortiGate	Yes	Yes	Yes	Yes
Packet Capture	Yes	Yes	Yes	Yes
RMON Group 1	Yes	Yes	Yes	Yes
SNMP v1/v2c/v3	Yes	Yes	Yes	Yes
SNMP v3 traps	Yes	Yes	Yes	Yes
SNTP	Yes	Yes	Yes	Yes
Software download/upload: TFTP/FTP/GUI	Yes	Yes	Yes	Yes
SPAN, RSPAN, and ERSPAN	Yes	Yes	Yes	Yes
Standard CLI and web GUI interface	Yes	Yes	Yes	Yes
Support for HTTP REST APIs for Configuration and Monitoring	Yes	Yes	Yes	Yes
Syslog UDP/TCP	Yes	Yes	Yes	Yes
System Alias Command	Yes	Yes	Yes	Yes
System Temperature and Alert	Yes	Yes	Yes	Yes
Telnet / SSH	Yes	Yes	Yes	Yes
Services				
IEEE 1588 PTP (Transparent Clock)	No	Yes	Yes	Yes

RFC COMPLIANCE

RFC and MIB Support*

BFD
RFC 5880: Bidirectional Forwarding Detection (BFD)

RFC 5881: Bidirectional Forwarding Detection (BFD) for IPv4 and IPv6 (Single Hop)

RFC 5882: Generic Application of Bidirectional Forwarding Detection (BFD)

BGP
RFC 1771: A Border Gateway Protocol 4 (BGP-4)

RFC 1965: Autonomous System Confederations for BGP

RFC 1997: BGP Communities Attribute

RFC 2545: Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing

RFC 2796: BGP Route Reflection - An Alternative to Full Mesh IBGP

RFC 2842: Capabilities Advertisement with BGP-4

RFC 2858: Multiprotocol Extensions for BGP-4

RFC 4271: BGP-4

RFC 6286: Autonomous-System-Wide Unique BGP Identifier for BGP-4

RFC 6608: Subcodes for BGP Finite State Machine Error

RFC 6793: BGP Support for Four-Octet Autonomous System (AS) Number Space

RFC 7606: Revised Error Handling for BGP UPDATE Messages

RFC 7607: Codification of AS 0 Processing

RFC 7705: Autonomous System Migration Mechanisms and Their Effects on the BGP AS_PATH Attribute

RFC 8212: Default External BGP (EBGP) Route Propagation Behavior without Policies

RFC 8654: Extended Message Support for BGP

DHCP
RFC 2131: Dynamic Host Configuration Protocol

RFC 3046: DHCP Relay Agent Information Option

RFC 7513: Source Address Validation Improvement (SAVI) Solution for DHCP

IP/IPv4
RFC 2697: A Single Rate Three Color Marker

RFC 3168: The Addition of Explicit Congestion Notification (ECN) to IP

RFC 5227: IPv4 Address Conflict Detection

RFC 5517: Cisco Systems' Private VLANs: Scalable Security in a Multi-Client Environment

RFC 7039: Source Address Validation Improvement (SAVI) Framework

RFC and MIB Support*

IP Multicast
RFC 2362: Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification

RFC 2710: Multicast Listener Discovery (MLD) for IPv6 (MLDv1)

RFC 4541: Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches

RFC 4605: Internet Group Management Protocol (IGMP)/Multicast Listener Discovery (MLD)-Based Multicast Forwarding ("IGMP/MLD Proxying")

RFC 4607: Source-Specific Multicast for IP

IPv6
RFC 2464: Transmission of IPv6 Packets over Ethernet Networks: Transmission of IPv6 Packets over Ethernet Networks

RFC 2474: Definition of the Differentiated Services Field (DS Field) in the and IPv6 Headers (DSCP)

RFC 2893: Transition Mechanisms for IPv6 Hosts and Routers

RFC 4213: Basic Transition Mechanisms for IPv6 Hosts and Router

RFC 4291: IP Version 6 Addressing Architecture

RFC 4443: Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification

RFC 4861: Neighbor Discovery for IP version 6 (IPv6)

RFC 4862: IPv6 Stateless Address Auto configuration

RFC 5095: Deprecation of Type 0 Routing Headers in IPv6

RFC 6724: Default Address Selection for Internet Protocol version 6 (IPv6)

RFC 7113: IPv6 RA Guard

RFC 8200: Internet Protocol, Version 6 (IPv6) Specification

RFC 8201: Path MTU Discovery for IP version 6

IS-IS
RFC 1195: Use of OSI IS-IS for Routing in TCP/IP and Dual Environments

RFC 5308: Routing IPv6 with IS-IS

MIB
RFC 1213: MIB II parts that apply to FortiSwitch 100 units

RFC 1354: IP Forwarding Table MIB

RFC 1493: Bridge MIB

RFC 1573: SNMP MIB II

RFC 1643: Ethernet-like Interface MIB

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* RFC and MIB supported by FortiSwitch Operating System. Check feature matrix in administration guide for model specific support.

RFC COMPLIANCE

RFC and MIB Support*

MIB

RFC 1724: RIPv2-MIB

RFC 1850: OSPF Version 2 Management Information Base

RFC 2233: The Interfaces Group MIB using SMIv2

RFC 2618: Radius-Auth-Client-MIB

RFC 2620: Radius-Acc-Client-MIB

RFC 2674: Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN extensions

RFC 2787: Definitions of Managed Objects for the Virtual Router Redundancy Protocol

RFC 2819: Remote Network Monitoring Management Information Base

RFC 2863: The Interfaces Group MIB

RFC 2932: IPv4 Multicast Routing MIB

RFC 2934: Protocol Independent Multicast MIB for IPv4

RFC 3289: Management Information Base for the Differentiated Services Architecture

RFC 3433: Entity Sensor Management Information Base

RFC 3621: Power Ethernet MIB

RFC 6933: Entity MIB (Version 4)

OSPF

RFC 1583: OSPF version 2

RFC 1765: OSPF Database Overflow

RFC 2328: OSPF version 2

RFC 2370: The OSPF Opaque LSA Option

RFC 2740: OSPF for IPv6

RFC 3101: The OSPF Not-So-Stubby Area (NSSA) Option

RFC 3137: OSPF Stub Router Advertisement

RFC 3623: OSPF Graceful Restart

RFC 5340: OSPF for IPv6 (OSPFv3)

RFC 5709: OSPFv2 HMAC-SHA Cryptographic Authentication

RFC 6549: OSPFv2 Multi-Instance Extensions

RFC 6845: OSPF Hybrid Broadcast and Point-to-Multipoint Interface Type

RFC 6860: Hiding Transit-Only Networks in OSPF

RFC 7474: Security Extension for OSPFv2 When Using Manual Key Management

RFC 7503: OSPF for IPv6

RFC 8042: CCITT Draft Recommendation T.4

RFC 8362: OSPFv3 Link State Advertisement (LSA) Extensibility

RFC and MIB Support*

OTHER

RFC 2030: SNTP

RFC 3176: InMon Corporation's sFlow: A Method for Monitoring Traffic in Switched and Routed Networks

RFC 3768: VRRP

RFC 3954: Cisco Systems NetFlow Services Export Version 9

RFC 5101: Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of Flow Information

RFC 5798: VRRPv3 (IPv4 and IPv6)

RADIUS

RFC 2865: Admin Authentication Using RADIUS

RFC 2866: RADIUS Accounting

RFC 4675: RADIUS Attributes for Virtual LAN and Priority Support

RFC 5176: Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)

RIP

RFC 1058: Routing Information Protocol

RFC 2080: RIPng for IPv6

RFC 2082: RIP-2 MD5 Authentication

RFC 2453: RIPv2

RFC 4822: RIPv2 Cryptographic Authentication

SNMP

RFC 1157: SNMPv1/v2c

RFC 2571: Architecture for Describing SNMP

RFC 2572: SNMP Message Processing and Dispatching

RFC 2573: SNMP Applications

RFC 2576: Coexistence between SNMP versions

VXLAN

RFC 7348: Virtual eXtensible Local Area Network (VXLAN)

* RFC and MIB supported by FortiSwitch Operating System. Check feature matrix in administration guide for model specific support.

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SPECIFICATIONS

	FORTISWITCH 1024D	FORTISWITCH 1024E	FORTISWITCH T1024E
Hardware Specifications			
Total Network Interfaces	24x GE/10 GE SFP+ ports	24x GE/10GE SFP+ ports and 2× 40GE / 100GE QSFP+ / QSFP28 ports	24× 1G/2.5G/5G/10GBASE-T ports and 2× 40GE / 100GE QSFP+ / QSFP28 ports
10/100/1000 Service Ports	1	1	1
RJ-45 Serial Console Port	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
System Specifications			
Switching Capacity (Duplex)	480 Gbps	880 Gbps	880 Gbps
Packets Per Second (Duplex) 64 bytes	714 Mpps	1309 Mpps	1309 Mpps
Mac Address Storage	128 K	64k	64k
Network Latency	< 800ns	~1us	~1us
VLANs Supported	4 K	4k	4k
IPv4/IPv6 Routing	Yes	Yes	Yes
Link Aggregation Group Size	Up to 24	Up to 24	Up to 24
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports
Queues/Port	8	8	8
Packet Buffers	9 MB	8 MB	8 MB
DRAM	2 GB	8 GB	8 GB
NAND	128 MB	32 MB	32 MB
Dimensions			
Height x Depth x Width (inches)	1.71 × 18.11 × 17.26	1.71 × 18.11 × 17.26	1.71 × 18.11 × 17.26
Height x Depth x Width (mm)	43.5 × 460 × 438.5	43.5 × 460 × 438.5	43.5 × 460 × 438.5
Weight	17.62 lbs (8 kg)	14.5 lbs (6.58 kg)	14.4 lbs (6.54 kg)
Environment			
Power Required	100–240V AC, 50–60 Hz	100–240V AC, 50–60 Hz	100–240V AC, 50–60 Hz
Power Consumption (Maximum)	up to 140 W	176 W	128 W
Power Supply	Dual hot swappable AC	Dual hot swappable AC	Dual hot swappable AC
Heat Dissipation	369.87 BTU/h	599.13 BTU/h	436.48 BTU/h
Operating Temperature	32°–104°F (0°–40°C)	32°–104°F (0°–40°C)	32°–104°F (0°–40°C)
Storage Temperature	-13°–158°F (-25°–70°C)	-13°–158°F (-25°–70°C)	-13°–158°F (-25°–70°C)
Humidity	10%–90% RH non-condensing	10%–90% RH non-condensing	10%–90% RH non-condensing
Air Flow	Front to back	Front to back	Front to back
Noise Level	53.2 dBA	56 dBA	57.3 dBA
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
Certification and Compliance			
		FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty			
Fortinet Warranty		Limited lifetime* warranty on all models	

* Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

SPECIFICATIONS

	FORTISWITCH 1048E	FORTISWITCH 3032E
Hardware Specifications		
Total Network Interfaces	48x GE/10 GE SFP+ ports and 6× 40 GE QSFP+ ports or 4× 100 GE QSFP28 ports	32× 40 GE / 100 GE QSFP+ / QSFP28 ports
10/100/1000 Service Ports	1	1
RJ-45 Serial Console Port	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount
System Specifications		
Switching Capacity (Duplex) *	1760 Gbps	6400 Gbps
Packets Per Second (Duplex) 64 bytes	1518 Mpps	5952 Mpps
Mac Address Storage	144 K	72 K
Network Latency	< 800ns	< 1 us
VLANs Supported	4 K	4 K
IPv4/IPv6 Routing	Yes	Yes
Link Aggregation Group Size	Up to 48	Up to number of ports
Total Link Aggregation Groups	Up to number of ports	Up to number of ports
Queues/Port	8	8
Packet Buffers	12 MB	16 MB
DRAM	8 GB	8 GB
NAND	128 MB	128 MB
Dimensions		
Height x Depth x Width (inches)	1.69 × 18.11 × 17.26	1.69 × 18.11 × 17.26
Height x Depth x Width (mm)	43 × 460 × 438.5	43 × 460 × 438.5
Weight	18.96 lbs (8.6 kg)	19.34 lbs (8.77 kg)
Environment		
Power Required	100–240V AC, 50–60 Hz	100–240V AC, 50–60 Hz
Power Consumption (Maximum)	up to 181.7 W	up to 463.8 W
Power Supply	Dual hot swappable AC	Dual hot swappable AC
Heat Dissipation	620.4 BTU/h	1582.5 BTU/h
Operating Temperature	32°–113°F (0°–45°C)	32°–104°F (0°–40°C)
Storage Temperature	-4°–158°F (-20°–70°C)	-4°–158°F (-20°–70°C)
Humidity	10%–90% RH non-condensing	10%–90% RH non-condensing
Air Flow	Front to back	Front to back
Noise Level	59 dBA	69.1 dBA
Mean Time Between Failures	> 10 years	> 10 years
Certification and Compliance		
	FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2	
Warranty		
Fortinet Warranty	Limited lifetime** warranty on all models	

* Full line rate with minimum packet size of 427 bytes on FS-1048E and 250bytes on FS-3032E

** Fortinet Warranty Policy: http://www.fortinet.com/doc/legal/EULA.pdf

ORDER INFORMATION

Product	SKU	Description
FortiSwitch 1024D	FS-1024D	Layer 2/3 FortiGate switch controller compatible switch with 24x GE/10 GE SFP/SFP+ slots. Dual AC power supplies.
FortiSwitch 1024E	FS-1024E	Layer 2/3 FortiGate switch controller compatible switch with 24 x GE/10GE SFP/SFP+ slots and 2 × 100GE QSFP28. Dual AC power supplies.
FortiSwitch T1024E	FS-T1024E	Layer 2/3 FortiGate switch controller compatible switch with 24 × 1G/2.5G/5G/10GBase-T slots and 2 x 100GE QSFP28. Dual AC power supplies.
FortiSwitch 1048E	FS-1048E	Layer 2/3 FortiGate switch controller compatible switch with 48x GE/10 GE SFP/SFP+ slots and 6× 40 GE QSFP+ or 4× 100 GE QSFP28. Dual AC power supplies.
FortiSwitch-3032E	FS-3032E	Layer 2/3 FortiGate switch controller compatible switch with 32× 100 GE QSFP28, Dual AC power supplies.
FortiLAN Cloud Management License	FC-10-FSW30-628-02-DD	FortiSwitch 1000 Series and Above FortiLAN Cloud Management SKU Including Forticare 24×7. Note, FortiCare only applicable when used with FortiLAN Cloud.
FortiGate Cloud Management*	FC-10-0030E-131-02-DD	FortiGate Cloud Management, Analysis and 1 Year Log Retention.
FortiSwitchManager Subscription License	FC1-10-SWMVM-258-01-DD	Subscription license for 10 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
	FC2-10-SWMVM-258-01-DD	Subscription license for 100 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
	FC3-10-SWMVM-258-01-DD	Subscription license for 1000 FortiSwitch Units managed by FortiSwitchManager VM. 24×7 FortiCare support (for FSWM VM) included.
Accessories		
FortiSwitch Advanced Features License	FS-SW-LIC-1000	SW License for FS-1000 Series Switches to activate Advanced Features.
	FS-SW-LIC-3000	SW License for FS-3000 Series Switches to activate Advanced Features.
AC Power Supply	FS-PSU-460	Spare AC power supply for FS-1048E/1024D.
	FS-PSU-800	Spare AC power supply for FS-3032E.

* When managing a FortiSwitch with a FortiGate via FortiGate Cloud, no additional license is necessary.

For details of Transceiver modules, see the Fortinet Transceivers datasheet.

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Fortinet Transceivers

Transceiver Modules for Fortinet Products

Highlights

Copper and optical options

Supports
- SFP
- SFP+
- SFP28
- SFP56
- QSFP+
- DAC
- CFP2
- QSFP28
- QSFP56
- QSFP-DD

Performance from 1 Gbps to 400 Gbps

Tested for compatibility with Fortinet appliances

Take the Guesswork Out of Selecting Transceivers

Common connectivity problems in enterprise and data center networks are often traced back to low-quality and incompatible transceiver modules, rather than a fault in the network appliances themselves. Fortinet's transceivers have been purpose-built and tested to work with Fortinet equipment, ensuring that your network is as stable and robust as possible, and taking the guesswork out of selecting compatible transceivers.

Wide Range for Maximum Flexibility

Supporting various form factors, media types, and throughput, Fortinet transceivers provide connectivity options to meet many different network architectures and deployment scenarios. Whether your network demands high-speed 400 GE inside the data center, or long-range 1 GE to connect data centers in different cities, Fortinet has a transceiver to meet your needs.

Available in

Appliance

Key Features and Benefits

Various Interface Options

Fortinet transceivers support various interfaces including: SFP, SFP+, DAC, and newer high-speed standards including SFP28, SFP56, QSFP+, CFP2, QSFP28, QSFP56, and QSFP-DD.

Tested for Compatibility

You can rest assured that your Fortinet transceivers have been tested for compatibility on Fortinet products, taking the guesswork out of selecting transceivers for your environment.

Maximize Network Uptime

Eliminate connectivity problems to maximize network uptime by using quality transceivers, designed to work with Fortinet products.

Cost Effective

Transceiver modules can be expensive, especially those with sensitive high-speed optics. Fortinet delivers high-quality transceivers, while keeping cost to a minimum.

Quick Reference Matrix

Maximum Transmission Distance	SFP (100MBPS)	SFP (GE)	SFP+ (10 GE)	SFP28 (25 GE)	QSFP+ (40 GE)	CFP2 (100 GE)	QSFP28 (100 GE)
10 Meter			SP-CABLE-ADASFP+				
30 Meter			FN-TRAN-SFP+GC				
100 Meter		FN-TRAN-GC FS-TRAN-GC		FN-TRAN-SFP28-SR	FN-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM3 MMF)	FG-TRAN-CFP2-SR10	FN-TRAN-QSFP28-SR FN-TRAN-QSFP28-BIDI (on OM4 MMF)
150 Meter					FN-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM4 MMF)		FN-TRAN-QSFP28-BIDI (on OM5 MMF)
220 Meter		FN-TRAN-SX (62.5/125 µm) FR-TRAN-SX (62.5/125 µm)					
300 Meter			FN-TRAN-SFP+SR				
500 Meter		FN-TRAN-SX (50/125 µm) FR-TRAN-SX (50/125 µm)					FN-TRAN-QSFP28-DR
2 Kilometer	FS-TRAN-FX						FN-TRAN-QSFP28-CWDM4
10 Kilometer		FN-TRAN-LX	FN-TRAN-SFP+LR	FG-TRAN-SFP28-LR	FN-TRAN-QSFP+LR	FG-TRAN-CFP2-LR4	FN-TRAN-QSFP28-LR
20 Kilometer							FN-TRAN-QSFP28-ER
30 Kilometer			FN-TRAN-SFP+BD27 FN-TRAN-SFP+BD33				
40 Kilometer			FN-TRAN-SFP+ER		FN-TRAN-QSFP+ER		
80 Kilometer			FN-TRAN-SFP+ZR				
90 Kilometer		FR-TRAN-ZX					

TRANSCEIVERS

HARDWARE	FS-TRAN-FX	FN-TRAN-GC / FS-TRAN-GC	FN-TRAN-SX	FR-TRAN-SX	FN-TRAN-LX	FR-TRAN-ZX
Protocol Standard	100Base-FX	1000Base-T	1000Base-SX	1000Base-SX	1000Base-LX	1000Base-LX
IEEE Standard	802.3u	802.3ab	802.3z	802.3z	802.3z	802.3z
Module Type	SFP	SFP	SFP	SFP	SFP	SFP
Data Link Rate for Ethernet	100Mbps	1.25 Gbps	1.25 Gbps	1.25 Gbps	1.25 Gbps	1.25 Gbps
Transmission Range	2km	100m	220m / 500m	500m	10km	90km
Media	MM	Copper interface	MM	MM	SM	SM
Wavelength (nm)	1310		850	850	1310	1550
Connector Type	Duplex LC	RJ-45	Duplex LC	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	<1.1W	1.05W	< 800mW	< 500mW	< 830mW	< 700mW
Operating Temperature	-40°C to 85°C	0°–85°C	0°–70°C	-40°–85°C	-40°–85°C	-40°–85°C
Hot Plug	Yes	Yes	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	No	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes	Yes	Yes

Quick Reference Matrix

TRANSCEIVERS			
HARDWARE	**FN-TRAN-SFP+GC**	**FN-TRAN-SFP+SR**	**FN-TRAN-SFP+LR**	**FN-TRAN-SFP+ER**
Protocol Standard	10GBASE-T	10GBase-SR	10GBase-LR	10GBASE-ER
IEEE Standard	802.3an	802.3ae	802.3ae	802.3ae
Module Type	SFP+	SFP+	SFP+	SFP+
Data Link Rate for Ethernet	10 Gbps	10 Gbps	10 Gbps	11.3 Gbps
Transmission Range	30m (Cat6A or better)	300m	10km	40km
Media	Copper interface	MM	SM	SM
Wavelength (nm)	—	850	1310	1550
Connector Type	RJ-45	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	2.5W	600mW	850mW	1.5W
Operating Temperature	-5°–85°C	0°–70°C	0°–85°C	-5°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	No	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

TRANSCEIVERS			
HARDWARE	**FN-TRAN-SFP+ZR**	**FN-TRAN-SFP+BD27***	**FN-TRAN-SFP+BD33****
Protocol Standard	10G-Base-ZR	10G-Base-LR/LW	10G-Base-LR/LW
IEEE Standard	802.3ae	802.3ae	802.3ae
Module Type	SFP+	SFP+	SFP–
Data Link Rate for Ethernet	11.3 Gbps	11.3Gbps	11.3Gbps
Transmission Range	80km	30km	30km
Media	SM	SM	SM
Wavelength (nm)	1550	TX: 1271 RX: 1331	TX: 1331 RX: 1271
Connector Type	Duplex LC	Single LC	Single LC
Power Dissipation	< 1.5W	<1W	<1W
Operating Temperature	-5°–70°C	-40°-85°C	-40°-85°C
Hot Plug	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes
Link Status	Yes	Yes	Yes

* Connects to FN-TRAN-SFP+BD33, ordered separately.

** Connects to FN-TRAN-SFP+BD27, ordered separately.

Specifications

TRANSCEIVERS		
HARDWARE	**FN-TRAN-SFP28-SR**	**FG-TRAN-SFP28-LR**
Protocol Standard	25GBase-SR, 10GBase-SR	25GBase-LR
IEEE Standard	802.3by, 802.3ae	802.3cc
Module Type	SFP28	SFP28
Data Link Rate for Ethernet	25.78 / 10.3 Gbps	25.78 Gbps
Transmission Range	100m	10km
Media	MM	SM
Wavelength (nm)	850	1310
Connector Type	Duplex LC	Duplex LC
Power Dissipation	1.2W	1.5W
Operating Temperature	0°–70°C	0°–70°C
Hot Plug	Yes	Yes
Serial ID PROM	Yes	Yes
Digital Monitoring	Yes	Yes
Auto Negotiation	No	No
Link Status	Yes	Yes

TRANSCEIVERS			
HARDWARE	**FN-TRAN-QSFP+SR**	**FN-TRAN-QSFP+LR**	**FN-TRAN-QSFP+ER**	**FG-TRAN-QSFP+SR BIDI**
Protocol Standard	40GBase-SR4	40GBase-LR4	40G-Base-ER4	40GBase-SR-BiDi
IEEE Standard	802.3ba	802.3ba	802.3bm	802.3ba
Module Type	QSFP+	QSFP+	QSFP+	QSFP+
Data Link Rate for Ethernet	1.06 Gbps–41.2 Gbps	41.2 Gbps	41.3 Gbps	41.2 Gbps
Transmission Range	100m (OM3)–150m (OM4)	10km	40km	100m (OM3)–150m (OM4)
Media	MM	SM	SM	MM
Wavelength (nm)	750–980	1264.5 - 1277.5 1284.5 - 1297.5 1304.5 - 1317.5 1324.5 - 1337.5	1264.5 – 1277.5 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5	850–900
Connector Type	Single 1×12 MPO	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	< 1.5W	< 3.5W	< 3.5W	< 3.5W
Operating Temperature	0°–70°C	0°–70°C	0°-70C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

Specifications

TRANSCEIVERS				
HARDWARE	FG-TRAN-CFP2-SR10	FG-TRAN-CFP2-LR4	FN-TRAN-QSFP28-SR	FN-TRAN-QSFP28-LR
Protocol Standard	100GBase-SR10	100GBase-LR4	100GBase-SR4	100GBase-LR4
IEEE Standard	802.3ba	802.3ba	802.3bm	802.3ba
Module Type	CFP2	CFP2	QSFP28	QSFP28
Data Link Rate for Ethernet	103.12 Gbps	103.1 Gbps	103.1 Gbps	103.1 Gbps
Transmission Range	100m (OM3)–150m (OM4)	10km	100m (OM4)	10km (SMF)
Media	MM	SM	MM	SM
Wavelength (nm)	850	1310	850	1310
Connector Type	24 fiber MPO	Duplex LC	MPO12	Duplex LC
Power Dissipation		< 8W	< 3.5W	< 3.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

TRANSCEIVERS				
HARDWARE	FN-TRAN-QSFP28-ER	FN-TRAN-QSFP28-DR	FN-TRAN-QSFP28-CWDM4	FN-TRAN-QSFP28-BIDI
Protocol Standard	100G-Base-LR4	100G-Base-DR	100GBase-CWDM4	100GBase-SR-BiDi
IEEE Standard	802.3ba/bm	802.3bm/cd/cu	802.3bm	802.3bm
Module Type	QSFP28	QSFP28	QSFP28	QSFP28
Data Link Rate for Ethernet	103.1 Gbps	103.1 Gbps	103.1 Gbps	103.1Gbps
Transmission Range	20km	500m	2km	100m
Media	SM	SM	SM	MM
Wavelength (nm)	1294.53 – 1296.59 1299.02 – 1301.09 1303.54 – 1305.63 1308.09 – 1310.19	1304.5 – 1317.5	1264.5 – 1277.5 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5	850 900
Connector Type	Duplex LC	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	< 3.5W	< 4.5W	< 3.5W	<3.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	10°-70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

Specifications

DIRECT ATTACH CABLES			
HARDWARE	**SP-CABLE-FS-SFP+1**	**SP-CABLE-FS-SFP+3**	**SP-CABLE-FS-SFP+5**	**SP-CABLE-ADASFP+**
Protocol Standard	10GBase-CR	10GBase-CR	10GBase-CR	10GBase-CR
Data Link Rate for Ethernet	up to 10 Gbps	up to 10 Gbps	up to 10 Gbps	1 Gbps to 10 Gbps
Module Type	SFP+	SFP+	SFP+	SFP+
Power Dissipation	< 0.5W	< 0.5W	< 0.5W	< 0.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Cable Length	1m	3m	5m	10m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Active
Transceiver	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	4.5mm	4.5mm	4.5mm	4.5mm
Digital Monitoring	N/A	N/A	N/A	Yes

DIRECT ATTACH CABLES			
HARDWARE	**FN-CABLE-SFP28-1**	**FN-CABLE-SFP28-3**	**FN-CABLE-SFP28-5**
Protocol Standard	25GBase-CR	25GBase-CR	25GBase-CR
Data Link Rate for Ethernet	25Gbps	25Gbps	25Gbps
Module Type	SFP28	SFP28	SFP28
Power Dissipation	<0.1W	<0.1W	<0.1W
Operating Temperature	-40°-85°C	-40°-85°C	-40°-85°C
Hot Plug	Yes	Yes	Yes
Cable Length	1m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included
Compliance	RoHS	RoHS	RoHS
Bend Radius	35mm (30AWG)	35mm (30AWG)	35mm (30AWG)
Cable Diameter	4.83mm	4.83mm	4.83mm
Digital Monitoring	Yes	Yes	Yes

DIRECT ATTACH CABLES			
HARDWARE	**SP-CABLE-FS-QSFP+1**	**SP-CABLE-FS-QSFP+3**	**SP-CABLE-FS-QSFP+5**
Protocol Standard	40GBase-CR4	40GBase-CR4	40GBase-CR4
Data Link Rate for Ethernet	40 Gbps	40 Gbps	40 Gbps
Module Type	QSFP+	QSFP+	QSFP+
Power Dissipation	< 0.5W	< 0.5W	< 0.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes
Cable Length	1m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included
Compliance	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	6.4mm	6.4mm	6.4mm
Digital Monitoring	N/A	N/A	N/A

Specifications

DIRECT ATTACH CABLES			
HARDWARE	FN-CABLE-QSFP28-1	FN-CABLE-QSFP28-2	FN-CABLE-QSFP28-3	FN-CABLE-QSFP28-5
Protocol Standard	100GBase-CR4	100GBase-CR4	100GBase-CR4	100GBase-CR4
Data Link Rate for Ethernet	100 Gbps	100 Gbps	100 Gbps	100 Gbps
Module Type	QSFP28	QSFP28	QSFP28	QSFP28
Power Dissipation	< 0.1W	< 0.1W	< 0.1W	< 0.1W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Cable Length	1m	2m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	6.4mm	6.4mm	6.4mm	6.4mm
Digital Monitoring	N/A	N/A	N/A	N/A

BREAKOUT DIRECT ATTACH CABLES (DAC)				
HARDWARE	FN-CABLE-QSFP28-4SFP28-1	FN-CABLE-QSFP28-4SFP28-3	FN-CABLE-QSFP28-4SFP28-5	FN-CABLE-QSFPDD-DAC-01	FN-CABLE-QSFPDD-DAC-B5
Protocol Standard	25GBase-CR	25GBase-CR	25GBase-CR	400GBase-CR8	400GBase-CR8
IEEE Standard				IEEE802.3bs	IEEE802.3bs
Data Link Rate for Ethernet	1× 100Gbps 4× 25Gbps	1× 100Gbps 4× 25Gbps	1× 100Gbps 4× 25Gbps	425Gbps	425Gbps
Module Type	1x QSFP28 4x SFP28	1x QSFP28 4x SFP28	1x QSFP28 4x SFP28	QSFP-DD	QSFP-DD
Power Dissipation	<0.1W	<0.1W	<0.1W	<0.1W	<0.1W
Operating Temperature	-40°-85°C	-40°-85°C	-40°-85°C	0°-70°C	0°-70°C
Hot Plug	Yes	Yes	Yes	Yes	Yes
Cable Length	1m	3m	5m	1m	2.5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS	RoHS
Bend Radius	30mm (30AWG)	30mm (30AWG)	30mm (30AWG)	31.5mm	40.6mm
Cable Diameter	4.83mm	4.83mm	4.83mm	9.0mm (30AWG)	11.6mm (26AWG)
Digital Monitoring	Yes	Yes	Yes	No	No

BREAKOUT CABLES			
HARDWARE	FG-TRAN-QSFP-4xSFP	FG-TRAN-QSFP-4SFP-5	FG-CABLE-SR10-SFP+	FG-CABLE-SR10-SFP+5
Connector A	1× 40 GE QSFP+	1× 40 GE QSFP+	1× 100 GE SR10 CFP2	1× 100 GE SR10 CFP2
Connector A Type	MPO	MPO	MPO	MPO
Connector B	4× 10 GE SFP+	4× 10 GE SFP+	10× 10 GE SFP+	10× 10 GE SFP+
Connector B Type	LC duplex	LC duplex	LC duplex	LC duplex
Cable Length	1m	5m	1m	5m
Cable Type	OM3 MMF	OM3 MMF	OM3 MMF	OM3 MMF
Transceiver	Not included	Not included	Not included	Not included

Fortinet Breakout Cables — Qualified on Fortinet Products (on applicable interfaces)

Ordering Information

PRODUCT	SKU	DESCRIPTION
100Mb SFP transceiver module, short range	FS-TRAN-FX	100Mb multimode SFP transceiver module, -40° to 85°C, 2km range for systems with SFP Slots and capable of 10/100Mb mode selection
1 GE SFP LX transceiver module, long range	FN-TRAN-LX	1 GE SFP LX transceiver module, 10km range, -40°C to 85°C, over SMF, for systems with SFP and SFP/SFP+ slots.
1 GE SFP RJ45 transceiver module	FN-TRAN-GC	1 GE SFP RJ45 transceiver module for systems with SFP and SFP/SFP+ slots.
1 GE SFP RJ45 transceiver module	FS-TRAN-GC	1 GE SFP RJ45 transceiver module for FortiSwitch with SFP and SFP/SFP+ slots.
1 GE SFP SX transceiver module, short range	FN-TRAN-SX	1 GE SFP SX transceiver module for systems with SFP and SFP/SFP+ slots.
1 GE SFP SX transceiver module, MMF, -40°–85°C operation	FR-TRAN-SX	1 GE SFP SX transceiver module, -40°–85°C, over MMF, for systems with SFP and SFP/SFP+ slots.
1 GE SFP transceiver module, 90 km range, -40°–85°C operation	FR-TRAN-ZX	1 GE SFP transceiver module, -40°–85°C operation, 90km range for systems with SFP slots.
10 GE SFP+ transceiver module, short range	FN-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, long range	FN-TRAN-SFP+LR	10 GE SFP+ transceiver module, 10km range for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, short range, BiDi	FN-TRAN-SFP+BD27	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD33, ordered separately)
10 GE SFP+ transceiver module, short range, BiDi	FN-TRAN-SFP+BD33	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD27, ordered separately)
10 GE SFP+ active direct attach cable, 10m/32.8 ft	SP-CABLE-ADASFP+	10 GE SFP+ active direct attach cable, 10m / 32.8ft for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, extended range	FN-TRAN-SFP+ER	10 GE SFP+ transceiver module, 40km range for systems with SFP+ slots.
10 GE SFP+ transceiver module, extended range	FN-TRAN-SFP+ZR	10 GE SFP+ transceiver module, 80km range. for systems with SFP+ slots.
10 GE copper SFP+ RJ45 transceiver module, 30m range	FN-TRAN-SFP+GC	10 GE copper SFP+ RJ45 Fortinet transceiver module (30m range) for systems with SFP+ slots.
10 GE SFP+ passive direct attach cable 1m	SP-CABLE-FS-SFP+1	10 GE SFP+ passive direct attach cable, 1m for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ passive direct attach cable 3m	SP-CABLE-FS-SFP+3	10 GE SFP+ passive direct attach cable, 3m for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ passive direct attach cable 5m	SP-CABLE-FS-SFP+5	10 GE SFP+ passive direct attach cable, 5m for systems with SFP+ and SFP/SFP+ slots.
25 GE SFP28 transceiver module, long range	FG-TRAN-SFP28-LR	25 GE SFP28 transceiver module, 10km range for systems with SFP28 slots.
25 GE/10 GE dual rate SFP28 transceiver module, short range	FN-TRAN-SFP28-SR	25 GE/10 GE dual rate SFP28 transceiver module, short range for systems with SFP28/SFP+ slots.
25 GE passive direct attach cable 1m	FN-CABLE-SFP28-1	25 GE SFP28 passive direct attach cable 1m for systems with SFP28 slots.
25 GE passive direct attach cable 3m	FN-CABLE-SFP28-3	25 GE SFP28 passive direct attach cable 3m for systems with SFP28 slots
25 GE passive direct attach cable 5m	FN-CABLE-SFP28-5	25 GE SFP28 passive direct attach cable 5m for systems with SFP28 slots.
40 GE QSFP+ transceiver module, short range	FN-TRAN-QSFP+SR	40 GE QSFP+ transceiver module, short range for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, extended range	FN-TRAN-QSFP+ER	40 GE QSFP+ transceiver module, 40km range for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, short range, BiDi	FG-TRAN-QSFP+SR-BIDI	40 GE QSFP+ transceiver module, short range BiDi for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, long range	FN-TRAN-QSFP+LR	40 GE QSFP+ transceiver module, 10km range for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 1m	SP-CABLE-FS-QSFP+1	40 GE QSFP+ passive direct attach cable, 1m for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 3m	SP-CABLE-FS-QSFP+3	40 GE QSFP+ passive direct attach cable, 3m for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 5m	SP-CABLE-FS-QSFP+5	40 GE QSFP+ passive direct attach cable, 5m for systems with QSFP+ slots.
40G/100G QSFP+ to 4x SFP+/SFP28 optical breakout 1m	FG-TRAN-QSFP-4XSFP	40G/100G QSFP+/QSFP28 to SFP+/SFP28 Parallel Breakout MPO to 4xLC connectors, 1m reach, transceivers not included.
40G/100G QSFP+ to 4x SFP+/SFP28 optical breakout 5m	FG-TRAN-QSFP-4SFP-5	40G/100G QSFP+/QSFP28 to SFP+/SFP28 Parallel Breakout MPO to 4xLC connectors, 5m reach, transceivers not included.

Ordering Information

PRODUCT	SKU	DESCRIPTION
100 GE CFP2 transceiver module, long range	FG-TRAN-CFP2-LR4	100 GE CFP2 transceiver module, 10km range, over single mode fiber, for systems with CFP2 slots.
100 GE CFP2 transceiver module, short range	FG-TRAN-CFP2-SR10	100 GE CFP2 transceiver module, 10 channel parallel fiber, short range for systems with CFP2 slots.
100 GE QSFP28 transceiver module, short range	FN-TRAN-QSFP28-SR	100 GE QSFP28 transceiver module, 4 channel parallel fiber, short range for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, long range	FN-TRAN-QSFP28-LR	100 GE QSFP28 transceiver module, 10km range for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, extended range	FN-TRAN-QSFP28-ER	100 GE QSFP28 transceiver module, 20km range, for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, short range	FN-TRAN-QSFP28-DR	100GE QSFP28 transceiver module, single channel single-mode fiber, 100GBase-DR for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, CWDM	FN-TRAN-QSFP28-CWDM4	100GE QSFP28 transceiver module, CWDM, LC connectors, 2km range, for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, short range, BiDi	FN-TRAN-QSFP28-BIDI	100 GE QSFP28 BIDI transceiver module, short range, for systems with QSFP28 slots
100 GE SR10 to 10× 10 GE fan out cable, 1m	FG-CABLE-SR10-SFP+	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 1m reach, transceiver module not included.
100 GE SR10 to 10× 10 GE fan out cable, 5m	FG-CABLE-SR10-SFP+5	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 5m reach, transceiver module not included.
100 GE passive direct attach cable 1m	FN-CABLE-QSFP28-1	100 GE QSFP28 passive direct attach cable 1m for systems with QSFP28 slots.
100 GE passive direct attach cable 2m	FN-CABLE-QSFP28-2	100 GE QSFP28 passive direct attach cable 2m for systems with QSFP28 slots.
100 GE passive direct attach cable 3m	FN-CABLE-QSFP28-3	100 GE QSFP28 passive direct attach cable 3m for systems with QSFP28 slots.
100 GE passive direct attach cable 5m	FN-CABLE-QSFP28-5	100 GE QSFP28 passive direct attach cable 5m for systems with QSFP28 slots
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 1m	FN-CABLE-QSFP28-4SFP28-1	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 1m
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 3m	FN-CABLE-QSFP28-4SFP28-3	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 3m
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 5m	FN-CABLE-QSFP28-4SFP28-5	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 5m

FEERTINET.

February 27, 2023

TRAN-DAT-R27-20230227

FEATURED

NetKey® 2 Fiber Patch Cord, OM3, LC Duplex, 3m

NKFPX2ELLLSM003

The NetKey® 2 Fiber Patch Cord is an OM3 patch cord with LC Duplex connectors. It is Low Smoke Zero Halogen (LSZH) rated and is 3 meters in length with a 1.6mm jacket.

Specifications

Fiber Type	OM3
Number of Fibers	2
Connector 1 Type	LC Duplex
Connector 2 Type	LC Duplex
Sub Brand	NetKey®
Flammability Rating	LSZH
Maximum Connector Insertion Loss (dB)	0.3
Minimum Connector Return Loss (dB)	26
Overall Length (ft.)	9.8
Overall Length (m)	3
Fiber Diameter (µm)	50
Outer Diameter (In.)	0.06
Outer Diameter (mm)	1.6
Maximum Operating Temperature (°C)	60
Maximum Operating Temperature (°F)	140
Minimum Operating Temperature (°C)	-10
Minimum Operating Temperature (°F)	14
Maximum Installation Temperature (°C)	60
Maximum Installation Temperature (°F)	140
Minimum Installation Temperature (°C)	-10
Minimum Installation Temperature (°F)	14
Resistance Properties	Flame-Resistant
Cable Color	Aqua
Environment	Indoor
Standards Met	TIA/EIA 568-C.3-1 and ISO/IEC 61755-3-1 IEC-61754-7 (International), TIA-604-2-A, -3-A, and -10-A, FOCIS -2, -3, and -10, RoHS Compliant

Specifications (continued)

Application	Provide interconnect and cross-connect of applications in entrance facilities, telecommunications rooms, data centers, at the desk and network applications to interconnect pre-terminated cassettes in main distribution, horizontal distribution, and equipment distribution areas.
Body Style	Duplex
Product Type	Fiber Optic Patch Cord
Boot Color	Aqua
Part Features	Riser rated patch cords support installations that require this flame rating in specific environments

Packaging Detail

UPC	07498391436
Std. Pkg. Qty.	1
Std. Pkg. Volume (cf)	0.0169
Std. Ctn. Qty.	50
Std. Ctn. Volume (cf)	0.8457

MÁS VENDIDO

Cordón parch. 2 fibras Opti-Core™, OM4, dúplex LC, cond. vertical

FZ2ERLNLNSNM003

El cordón de parcheo de fibra dúplex es OM4 con un cable con camisa de 1.6mm. Tiene calificación de conductor vertical (OFNR), incluye conectores dúplex LC, tiene pérdida de inserción estándar y mide 3 m de largo.

Especificaciones

Tipo de fibra	OM4
Número de fibras	2
Tipo de conector 1	Dúplex LC
Tipo de conector 2	Dúplex LC
Submarca	Opti-Core™
Grado de inflamabilidad	Conductor vertical
Pérdida máxima de inserción del conector (dB)	0.25
Pérdida mínima de retorno del conector (dB)	26
Longitud total (ft)	9.84
Longitud total (m)	3
Diámetro de fibra (µm)	50
Diámetro exterior (in)	0.62
Diámetro exterior (mm)	1.6
Temperatura máxima de funcionamiento (°C)	60
Temperatura máxima de funcionamiento (°C)	140
Temperatura mínima de funcionamiento (°C)	-10
Temperatura mínima de funcionamiento (°F)	14
Temperatura máxima de instalación (°C)	60
Temperatura máxima de instalación (°F)	140
Temperatura mínima de instalación (°C)	-10
Temperatura mínima de instalación (°F)	14
Propiedades de resistencia	Resistente a las llamas
Color de cable	Aguamarina
Ambiente	Indoor

Especificaciones (continuación)

Cumple las normas	Cumple con las normas ISO/IEC 11801, TIA/EIA-568-C.3, TIA-604-3 (FOCIS-3), TIA-604-10 (FOCIS-10) o las supera
Aplicación	Brindan interconexión y conexión cruzada de aplicaciones en instalaciones de entrada, salas de telecomunicaciones, centros de datos y aplicaciones de escritorio y de red para interconectar casetes con terminación previa en las áreas de distribución principal, de distribución horizontal y de distribución de equipos.
Estilo del cuerpo	Duplex
Tipo de producto	Cordón de parcheo de fibra óptica
Color de funda	Aqua

Detalles del empaque

UPC	07498392283
Cant. Pq. Est..	1
Volumen Pq. Est. (cf)	0.0155
Cant. Ct. Est.	10
Volumen Pq. Est. (cf)	0.1550

FORTINET

Fortinet Transceivers

Transceiver Modules for Fortinet Products

Highlights

Copper and optical options

Supports

SFP
SFP+
SFP28
SFP56
QSFP+
DAC
CFP2
QSFP28
QSFP56
QSFP-DD

Performance from 1 Gbps
to 400 Gbps

Tested for compatibility
with Fortinet appliances

Take the Guesswork Out of Selecting Transceivers

Common connectivity problems in enterprise and data center networks are often traced back to low-quality and incompatible transceiver modules, rather than a fault in the network appliances themselves. Fortinet's transceivers have been purpose-built and tested to work with Fortinet equipment, ensuring that your network is as stable and robust as possible, and taking the guesswork out of selecting compatible transceivers.

Wide Range for Maximum Flexibility

Supporting various form factors, media types, and throughput, Fortinet transceivers provide connectivity options to meet many different network architectures and deployment scenarios. Whether your network demands high-speed 400 GE inside the data center, or long-range 1 GE to connect data centers in different cities, Fortinet has a transceiver to meet your needs.

FOS

Available in

Appliance

Key Features and Benefits

Various Interface Options

Fortinet transceivers support various interfaces including: SFP, SFP+, DAC, and newer high-speed standards including SFP28, SFP56, QSFP+, CFP2, QSFP28, QSFP56, and QSFP-DD.

Tested for Compatibility

You can rest assured that your Fortinet transceivers have been tested for compatibility on Fortinet products, taking the guesswork out of selecting transceivers for your environment.

Maximize Network Uptime

Eliminate connectivity problems to maximize network uptime by using quality transceivers, designed to work with Fortinet products.

Cost Effective

Transceiver modules can be expensive, especially those with sensitive high-speed optics. Fortinet delivers high-quality transceivers, while keeping cost to a minimum.

Quick Reference Matrix

Maximum Transmission Distance	SFP (100MBPS)	SFP (GE)	SFP+ (10 GE)	SFP28 (25 GE)	QSFP+ (40 GE)	CFP2 (100 GE)	QSFP28 (100 GE)
10 Meter			SP-CABLE-ADASFP+				
30 Meter			FN-TRAN-SFP+GC				
100 Meter		FN-TRAN-GC FS-TRAN-GC		FN-TRAN-SFP28-SR	FN-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM3 MMF)	FG-TRAN-CFP2-SR10	FN-TRAN-QSFP28-SR FN-TRAN-QSFP28-BIDI (on OM4 MMF)
150 Meter					FN-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM4 MMF)		FN-TRAN-QSFP28-BIDI (on OM5 MMF)
220 Meter		FN-TRAN-SX (62.5/125 µm) FR-TRAN-SX (62.5/125 µm)					
300 Meter			FN-TRAN-SFP+SR				
500 Meter		FN-TRAN-SX (50/125 µm) FR-TRAN-SX (50/125 µm)					FN-TRAN-QSFP28-DR
2 Kilometer	FS-TRAN-FX						FN-TRAN-QSFP28-CWDM4
10 Kilometer		FN-TRAN-LX	FN-TRAN-SFP+LR	FG-TRAN-SFP28-LR	FN-TRAN-QSFP+LR	FG-TRAN-CFP2-LR4	FN-TRAN-QSFP28-LR
20 Kilometer							FN-TRAN-QSFP28-ER
30 Kilometer			FN-TRAN-SFP+BD27 FN-TRAN-SFP+BD33				
40 Kilometer			FN-TRAN-SFP+ER		FN-TRAN-QSFP+ER		
80 Kilometer			FN-TRAN-SFP+ZR				
90 Kilometer		FR-TRAN-ZX					

TRANSCEIVERS

HARDWARE	FS-TRAN-FX	FN-TRAN-GC / FS-TRAN-GC	FN-TRAN-SX	FR-TRAN-SX	FN-TRAN-LX	FR-TRAN-ZX
Protocol Standard	100Base-FX	1000Base-T	1000Base-SX	1000Base-SX	1000Base-LX	1000Base-LX
IEEE Standard	802.3u	802.3ab	802.3z	802.3z	802.3z	802.3z
Module Type	SFP	SFP	SFP	SFP	SFP	SFP
Data Link Rate for Ethernet	100Mbps	1.25 Gbps	1.25 Gbps	1.25 Gbps	1.25 Gbps	1.25 Gbps
Transmission Range	2km	100m	220m / 500m	500m	10km	90km
Media	MM	Copper interface	MM	MM	SM	SM
Wavelength (nm)	1310		850	850	1310	155
Connector Type	Duplex LC	RJ-45	Duplex LC	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	<1.1W	1.05W	< 800mW	< 500mW	< 830mW	< 700mW
Operating Temperature	-40°C to 85°C	0°–85°C	0°–70°C	-40°–85°C	-40°–85°C	-40°–85°C
Hot Plug	Yes	Yes	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	No	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes	Yes	Yes

Quick Reference Matrix

TRANSCEIVERS			
HARDWARE	FN-TRAN-SFP+GC	FN-TRAN-SFP+SR	FN-TRAN-SFP+LR	FN-TRAN-SFP+ER
Protocol Standard	10GBASE-T	10GBase-SR	10GBase-LR	10GBASE-ER
IEEE Standard	802.3an	802.3ae	802.3ae	802.3ae
Module Type	SFP+	SFP+	SFP+	SFP+
Data Link Rate for Ethernet	10 Gbps	10 Gbps	10 Gbps	11.3 Gbps
Transmission Range	30m (Cat6A or better)	300m	10km	40km
Media	Copper interface	MM	SM	SM
Wavelength (nm)	—	850	1310	1550
Connector Type	RJ-45	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	2.5W	600mW	850mW	1.5W
Operating Temperature	-5°–85°C	0°–70°C	0°–85°C	-5°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	No	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

TRANSCEIVERS			
HARDWARE	FN-TRAN-SFP+ZR	FN-TRAN-SFP+BD27*	FN-TRAN-SFP+BD33**
Protocol Standard	10G-Base-ZR	10G-Base-LR/LW	10G-Base-LR/LW
IEEE Standard	802.3ae	802.3ae	802.3ae
Module Type	SFP+	SFP+	SFP-
Data Link Rate for Ethernet	11.3 Gbps	11.3Gbps	11.3Gbps
Transmission Range	80km	30km	30km
Media	SM	SM	SM
Wavelength (nm)	1550	TX: 1271 RX: 1331	TX: 1331 RX: 1271
Connector Type	Duplex LC	Single LC	Single LC
Power Dissipation	< 1.5W	<1W	<1W
Operating Temperature	-5°–70°C	-40°-85°C	-40°-85°C
Hot Plug	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes
Link Status	Yes	Yes	Yes

* Connects to FN-TRAN-SFP+BD33, ordered separately.

** Connects to FN-TRAN-SFP+BD27, ordered separately.

Specifications

TRANSCEIVERS		
HARDWARE	**FN-TRAN-SFP28-SR**	**FG-TRAN-SFP28-LR**
Protocol Standard	25GBase-SR, 10GBase-SR	25GBase-LR
IEEE Standard	802.3by, 802.3ae	802.3cc
Module Type	SFP28	SFP28
Data Link Rate for Ethernet	25.78 / 10.3 Gbps	25.78 Gbps
Transmission Range	100m	10km
Media	MM	SM
Wavelength (nm)	850	1310
Connector Type	Duplex LC	Duplex LC
Power Dissipation	1.2W	1.5W
Operating Temperature	0°–70°C	0°–70°C
Hot Plug	Yes	Yes
Serial ID PROM	Yes	Yes
Digital Monitoring	Yes	Yes
Auto Negotiation	No	No
Link Status	Yes	Yes

TRANSCEIVERS			
HARDWARE	**FN-TRAN-QSFP+SR**	**FN-TRAN-QSFP+LR**	**FN-TRAN-QSFP+ER**	**FG-TRAN-QSFP+SR BIDI**
Protocol Standard	40GBase-SR4	40GBase-LR4	40G-Base-ER4	40GBase-SR-BiDi
IEEE Standard	802.3ba	802.3ba	802.3bm	802.3ba
Module Type	QSFP+	QSFP+	QSFP+	QSFP+
Data Link Rate for Ethernet	1.06 Gbps–41.2 Gbps	41.2 Gbps	41.3 Gbps	41.2 Gbps
Transmission Range	100m (OM3)–150m (OM4)	10km	40km	100m (OM3)–150m (OM4)
Media	MM	SM	SM	MM
Wavelength (nm)	750–980	1264.5 - 1277.5 1284.5 - 1297.5 1304.5 - 1317.5 1324.5 - 1337.5	1264.5 – 1277.5 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5	850–900
Connector Type	Single 1×12 MPO	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	< 1.5W	< 3.5W	< 3.5W	< 3.5W
Operating Temperature	0°–70°C	0°–70°C	0°-70C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

Specifications

TRANSCEIVERS			
HARDWARE	**FG-TRAN-CFP2-SR10**	**FG-TRAN-CFP2-LR4**	**FN-TRAN-QSFP28-SR**	**FN-TRAN-QSFP28-LR**
Protocol Standard	100GBase-SR10	100GBase-LR4	100GBase-SR4	100GBase-LR4
IEEE Standard	802.3ba	802.3ba	802.3bm	802.3ba
Module Type	CFP2	CFP2	QSFP28	QSFP28
Data Link Rate for Ethernet	103.12 Gbps	103.1 Gbps	103.1 Gbps	103.1 Gbps
Transmission Range	100m (OM3)–150m (OM4)	10km	100m (OM4)	10km (SMF)
Media	MM	SM	MM	SM
Wavelength (nm)	850	1310	850	1310
Connector Type	24 fiber MPO	Duplex LC	MPO12	Duplex LC
Power Dissipation		< 8W	< 3.5W	< 3.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

TRANSCEIVERS			
HARDWARE	**FN-TRAN-QSFP28-ER**	**FN-TRAN-QSFP28-DR**	**FN-TRAN-QSFP28-CWDM4**	**FN-TRAN-QSFP28-BIDI**
Protocol Standard	100G-Base-LR4	100G-Base-DR	100GBase-CWDM4	100GBase-SR-BiDi
IEEE Standard	802.3ba/bm	802.3bm/cd/cu	802.3bm	802.3bm
Module Type	QSFP28	QSFP28	QSFP28	QSFP28
Data Link Rate for Ethernet	103.1 Gbps	103.1 Gbps	103.1 Gbps	103.1Gbps
Transmission Range	20km	500m	2km	100m
Media	SM	SM	SM	MM
Wavelength (nm)	1294.53 – 1296.59 1299.02 – 1301.09 1303.54 – 1305.63 1308.09 – 1310.19	1304.5 – 1317.5	1264.5 – 1277.5 1284.5 – 1297.5 1304.5 – 1317.5 1324.5 – 1337.5	850 900
Connector Type	Duplex LC	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	< 3.5W	< 4.5W	< 3.5W	<3.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	10°-70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

Specifications

DIRECT ATTACH CABLES			
HARDWARE	SP-CABLE-FS-SFP+1	SP-CABLE-FS-SFP+3	SP-CABLE-FS-SFP+5	SP-CABLE-ADASFP+
Protocol Standard	10GBase-CR	10GBase-CR	10GBase-CR	10GBase-CR
Data Link Rate for Ethernet	up to 10 Gbps	up to 10 Gbps	up to 10 Gbps	1 Gbps to 10 Gbps
Module Type	SFP+	SFP+	SFP+	SFP+
Power Dissipation	< 0.5W	< 0.5W	< 0.5W	< 0.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Cable Length	1m	3m	5m	10m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Active
Transceiver	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	4.5mm	4.5mm	4.5mm	4.5mm
Digital Monitoring	N/A	N/A	N/A	Yes

DIRECT ATTACH CABLES			
HARDWARE	FN-CABLE-SFP28-1	FN-CABLE-SFP28-3	FN-CABLE-SFP28-5
Protocol Standard	25GBase-CR	25GBase-CR	25GBase-CR
Data Link Rate for Ethernet	25Gbps	25Gbps	25Gbps
Module Type	SFP28	SFP28	SFP28
Power Dissipation	<0.1W	<0.1W	<0.1W
Operating Temperature	-40°-85°C	-40°-85°C	-40°-85°C
Hot Plug	Yes	Yes	Yes
Cable Length	1m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included
Compliance	RoHS	RoHS	RoHS
Bend Radius	35mm (30AWG)	35mm (30AWG)	35mm (30AWG)
Cable Diameter	4.83mm	4.83mm	4.83mm
Digital Monitoring	Yes	Yes	Yes

DIRECT ATTACH CABLES			
HARDWARE	SP-CABLE-FS-QSFP+1	SP-CABLE-FS-QSFP+3	SP-CABLE-FS-QSFP+5
Protocol Standard	40GBase-CR4	40GBase-CR4	40GBase-CR4
Data Link Rate for Ethernet	40 Gbps	40 Gbps	40 Gbps
Module Type	QSFP+	QSFP+	QSFP+
Power Dissipation	< 0.5W	< 0.5W	< 0.5W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes
Cable Length	1m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included
Compliance	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	6.4mm	6.4mm	6.4mm
Digital Monitoring	N/A	N/A	N/A

Specifications

DIRECT ATTACH CABLES			
HARDWARE	**FN-CABLE-QSFP28-1**	**FN-CABLE-QSFP28-2**	**FN-CABLE-QSFP28-3**	**FN-CABLE-QSFP28-5**
Protocol Standard	100GBase-CR4	100GBase-CR4	100GBase-CR4	100GBase-CR4
Data Link Rate for Ethernet	100 Gbps	100 Gbps	100 Gbps	100 Gbps
Module Type	QSFP28	QSFP28	QSFP28	QSFP28
Power Dissipation	< 0.1W	< 0.1W	< 0.1W	< 0.1W
Operating Temperature	0°–70°C	0°–70°C	0°–70°C	0°–70°C
Hot Plug	Yes	Yes	Yes	Yes
Cable Length	1m	2m	3m	5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS
Bend Radius	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)	25mm (30AWG)
Cable Diameter	6.4mm	6.4mm	6.4mm	6.4mm
Digital Monitoring	N/A	N/A	N/A	N/A

BREAKOUT DIRECT ATTACH CABLES (DAC)				
HARDWARE	**FN-CABLE-QSFP28-4SFP28-1**	**FN-CABLE-QSFP28-4SFP28-3**	**FN-CABLE-QSFP28-4SFP28-5**	**FN-CABLE-QSFPDD-DAC-01**	**FN-CABLE-QSFPDD-DAC-B5**
Protocol Standard	25GBase-CR	25GBase-CR	25GBase-CR	400GBase-CR8	400GBase-CR8
IEEE Standard				IEEE802.3bs	IEEE802.3bs
Data Link Rate for Ethernet	1× 100Gbps 4× 25Gbps	1× 100Gbps 4× 25Gbps	1× 100Gbps 4× 25Gbps	425Gbps	425Gbps
Module Type	1x QSFP28 4x SFP28	1x QSFP28 4x SFP28	1x QSFP28 4x SFP28	QSFP-DD	QSFP-DD
Power Dissipation	<0.1W	<0.1W	<0.1W	<0.1W	<0.1W
Operating Temperature	-40°-85°C	-40°-85°C	-40°-85°C	0°-70°C	0°-70°C
Hot Plug	Yes	Yes	Yes	Yes	Yes
Cable Length	1m	3m	5m	1m	2.5m
Cable Type	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive	Twinax Copper Passive
Transceiver	Included	Included	Included	Included	Included
Compliance	RoHS	RoHS	RoHS	RoHS	RoHS
Bend Radius	30mm (30AWG)	30mm (30AWG)	30mm (30AWG)	31.5mm	40.6mm
Cable Diameter	4.83mm	4.83mm	4.83mm	9.0mm (30AWG)	11.6mm (26AWG)
Digital Monitoring	Yes	Yes	Yes	No	No

BREAKOUT CABLES			
HARDWARE	**FG-TRAN-QSFP-4xSFP**	**FG-TRAN-QSFP-4SFP-5**	**FG-CABLE-SR10-SFP+**	**FG-CABLE-SR10-SFP+5**
Connector A	1× 40 GE QSFP+	1× 40 GE QSFP+	1× 100 GE SR10 CFP2	1× 100 GE SR10 CFP2
Connector A Type	MPO	MPO	MPO	MPO
Connector B	4× 10 GE SFP+	4× 10 GE SFP+	10× 10 GE SFP+	10× 10 GE SFP+
Connector B Type	LC duplex	LC duplex	LC duplex	LC duplex
Cable Length	1m	5m	1m	5m
Cable Type	OM3 MMF	OM3 MMF	OM3 MMF	OM3 MMF
Transceiver	Not included	Not included	Not included	Not included

Fortinet Breakout Cables — Qualified on Fortinet Products (on applicable interfaces)

Ordering Information

PRODUCT	SKU	DESCRIPTION
100Mb SFP transceiver module, short range	FS-TRAN-FX	100Mb multimode SFP transceiver module, -40° to 85°C, 2km range for systems with SFP Slots and capable of 10/100Mb mode selection
1 GE SFP LX transceiver module, long range	FN-TRAN-LX	1 GE SFP LX transceiver module, 10km range, -40°C to 85°C, over SMF, for systems with SFP and SFP/SFP+ slots.
1 GE SFP RJ45 transceiver module	FN-TRAN-GC	1 GE SFP RJ45 transceiver module for systems with SFP and SFP/SFP+ slots.
1 GE SFP RJ45 transceiver module	FS-TRAN-GC	1 GE SFP RJ45 transceiver module for FortiSwitch with SFP and SFP/SFP+ slots.
1 GE SFP SX transceiver module, short range	FN-TRAN-SX	1 GE SFP SX transceiver module for systems with SFP and SFP/SFP+ slots.
1 GE SFP SX transceiver module, MMF, -40°–85°C operation	FR-TRAN-SX	1 GE SFP SX transceiver module, -40°–85°C, over MMF, for systems with SFP and SFP/SFP+ slots.
1 GE SFP transceiver module, 90 km range, -40°–85°C operation	FR-TRAN-ZX	1 GE SFP transceiver module, -40°–85°C operation, 90km range for systems with SFP slots.
10 GE SFP+ transceiver module, short range	FN-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, long range	FN-TRAN-SFP+LR	10 GE SFP+ transceiver module, 10km range for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, short range, BiDi	FN-TRAN-SFP+BD27	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD33, ordered separately)
10 GE SFP+ transceiver module, short range, BiDi	FN-TRAN-SFP+BD33	10GE SFP+ transceiver module, 30KM long range single BiDi for systems with SFP+ and SFP/SFP+ slots (connects to FN-TRAN-SFP+BD27, ordered separately)
10 GE SFP+ active direct attach cable, 10m/32.8 ft	SP-CABLE-ADASFP+	10 GE SFP+ active direct attach cable, 10m / 32.8ft for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ transceiver module, extended range	FN-TRAN-SFP+ER	10 GE SFP+ transceiver module, 40km range for systems with SFP+ slots.
10 GE SFP+ transceiver module, extended range	FN-TRAN-SFP+ZR	10 GE SFP+ transceiver module, 80km range, for systems with SFP+ slots.
10 GE copper SFP+ RJ45 transceiver module, 30m range	FN-TRAN-SFP+GC	10 GE copper SFP+ RJ45 Fortinet transceiver module (30m range) for systems with SFP+ slots.
10 GE SFP+ passive direct attach cable 1m	SP-CABLE-FS-SFP+1	10 GE SFP+ passive direct attach cable, 1m for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ passive direct attach cable 3m	SP-CABLE-FS-SFP+3	10 GE SFP+ passive direct attach cable, 3m for systems with SFP+ and SFP/SFP+ slots.
10 GE SFP+ passive direct attach cable 5m	SP-CABLE-FS-SFP+5	10 GE SFP+ passive direct attach cable, 5m for systems with SFP+ and SFP/SFP+ slots.
25 GE SFP28 transceiver module, long range	FG-TRAN-SFP28-LR	25 GE SFP28 transceiver module, 10km range for systems with SFP28 slots.
25 GE/10 GE dual rate SFP28 transceiver module, short range	FN-TRAN-SFP28-SR	25 GE/10 GE dual rate SFP28 transceiver module, short range for systems with SFP28/SFP+ slots.
25 GE passive direct attach cable 1m	FN-CABLE-SFP28-1	25 GE SFP28 passive direct attach cable 1m for systems with SFP28 slots.
25 GE passive direct attach cable 3m	FN-CABLE-SFP28-3	25 GE SFP28 passive direct attach cable 3m for systems with SFP28 slots.
25 GE passive direct attach cable 5m	FN-CABLE-SFP28-5	25 GE SFP28 passive direct attach cable 5m for systems with SFP28 slots.
40 GE QSFP+ transceiver module, short range	FN-TRAN-QSFP+SR	40 GE QSFP+ transceiver module, short range for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, extended range	FN-TRAN-QSFP+ER	40 GE QSFP+ transceiver module, 40km range for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, short range, BiDi	FG-TRAN-QSFP+SR-BIDI	40 GE QSFP+ transceiver module, short range BiDi for systems with QSFP+ slots.
40 GE QSFP+ transceiver module, long range	FN-TRAN-QSFP+LR	40 GE QSFP+ transceiver module, 10km range for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 1m	SP-CABLE-FS-QSFP+1	40 GE QSFP+ passive direct attach cable, 1m for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 3m	SP-CABLE-FS-QSFP+3	40 GE QSFP+ passive direct attach cable, 3m for systems with QSFP+ slots.
40 GE QSFP+ passive direct attach cable 5m	SP-CABLE-FS-QSFP+5	40 GE QSFP+ passive direct attach cable, 5m for systems with QSFP+ slots.
40G/100G QSFP+ to 4x SFP+/SFP28 optical breakout 1m	FG-TRAN-QSFP-4XSFP	40G/100G QSFP+/QSFP28 to SFP+/SFP28 Parallel Breakout MPO to 4xLC connectors, 1m reach, transceivers not included.
40G/100G QSFP+ to 4x SFP+/SFP28 optical breakout 5m	FG-TRAN-QSFP-4SFP-5	40G/100G QSFP+/QSFP28 to SFP+/SFP28 Parallel Breakout MPO to 4xLC connectors, 5m reach, transceivers not included.

Ordering Information

PRODUCT	SKU	DESCRIPTION
100 GE CFP2 transceiver module, long range	FG-TRAN-CFP2-LR4	100 GE CFP2 transceiver module, 10km range, over single mode fiber, for systems with CFP2 slots.
100 GE CFP2 transceiver module, short range	FG-TRAN-CFP2-SR10	100 GE CFP2 transceiver module, 10 channel parallel fiber, short range for systems with CFP2 slots.
100 GE QSFP28 transceiver module, short range	FN-TRAN-QSFP28-SR	100 GE QSFP28 transceiver module, 4 channel parallel fiber, short range for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, long range	FN-TRAN-QSFP28-LR	100 GE QSFP28 transceiver module, 10km range for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, extended range	FN-TRAN-QSFP28-ER	100 GE QSFP28 transceiver module, 20km range, for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, short range	FN-TRAN-QSFP28-DR	100GE QSFP28 transceiver module, single channel single-mode fiber, 100GBase-DR for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, CWDM	FN-TRAN-QSFP28-CWDM4	100GE QSFP28 transceiver module, CWDM, LC connectors, 2km range, for systems with QSFP28 slots.
100 GE QSFP28 transceiver module, short range, BiDi	FN-TRAN-QSFP28-BIDI	100 GE QSFP28 BIDI transceiver module, short range, for systems with QSFP28 slots
100 GE SR10 to 10× 10 GE fan out cable, 1m	FG-CABLE-SR10-SFP+	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 1m reach, transceiver module not included.
100 GE SR10 to 10× 10 GE fan out cable, 5m	FG-CABLE-SR10-SFP+5	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 5m reach, transceiver module not included.
100 GE passive direct attach cable 1m	FN-CABLE-QSFP28-1	100 GE QSFP28 passive direct attach cable 1m for systems with QSFP28 slots.
100 GE passive direct attach cable 2m	FN-CABLE-QSFP28-2	100 GE QSFP28 passive direct attach cable 2m for systems with QSFP28 slots.
100 GE passive direct attach cable 3m	FN-CABLE-QSFP28-3	100 GE QSFP28 passive direct attach cable 3m for systems with QSFP28 slots.
100 GE passive direct attach cable 5m	FN-CABLE-QSFP28-5	100 GE QSFP28 passive direct attach cable 5m for systems with QSFP28 slots
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 1m	FN-CABLE-QSFP28-4SFP28-1	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 1m
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 3m	FN-CABLE-QSFP28-4SFP28-3	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 3m
100 GE QSFP28 to 4× 25 GE SFP28 direct attach cable breakout, 5m	FN-CABLE-QSFP28-4SFP28-5	100 GE QSFP28 breakout to 4× 25 GE SFP28 passive direct attach cable, 5m

F⊏RTINET.

February 27, 2023
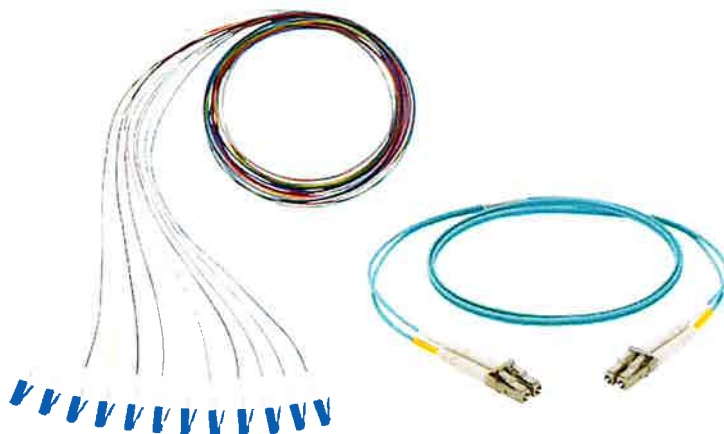
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NetKey® Fiber Optic Patch Cords and Pigtails

PANDUIT®
SPECIFICATION SHEET

technical information

The NetKey® patch cords support network applications in main, horizontal and equipment distribution areas and are available in riser (OFNR) and low smoke zero halogen (LSZH) rated jacket materials. In addition, pre-terminated fiber optic pigtails support fusion splice field termination applications.

Both fiber optic patch cords and pigtails are available in OM3, OM4 and OS2 fiber types. These patch cords and pigtails meet requirements of TIA/EIA-568-C.3-1. The fiber connectors are also FOCIS compliant or compatible to meet the requirements of TIA/EIA-455-21A. Quality control reference label provides lifetime traceability of test data.

applications

Provide interconnect and cross-connect of applications in entrance facilities, telecommunications rooms, data centers, and at the desk. Support network applications to interconnect pre-terminated cassettes in main distribution, horizontal distribution, and equipment distribution areas. Riser rated patch cords support installations that require this flame rating in specific environments.

standards

Standards requirements:	TIA/EIA 568-C.3-1 and ISO/IEC 61755-3-1 IEC-61754-7 (International)
	TIA-604-3-A, and -10-A
	FOCIS -3, and -10

optical properties

Insertion loss:	All fiber types:	0.30dB max.
Return loss:	OS2:	50dB min.
	OM3:	26dB min.
	OM4:	26dB min.

construction

Fiber size:	Pigtails:	900µm tight-buffered fiber
	Patch Cords:	1.6mm or 3.0mm duplex jacketed zip cord cable
Cable jacket ratings:	Riser (OFNR):	Per UL 1666 and c(UL) FT-4
	Low Smoke Zero Halogen (LSZH):	Per IEC 60332-1, IEC 60754-2, IEC 61034
Connector types:	LC and SC	
Jacket color:	OS2:	Yellow
	OM3:	Aqua
	OM4:	Aqua
Fiber types:	Singlemode:	OS2
	Multimode:	OM3
		OM4

NetKey® Fiber Optic Patch Cords and Pigtails

part number

Example: NKFP92ERLLSM001 = Fiber OS2, 2-fiber, 1.6mm cable, riser rated, LC duplex to LC duplex, Standard IL, 1 meter

Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Example	N	K	F	P	9	2	E	R	L	L	S	M	0	0	1

1, 2, 3, 4 – Fiber Product

NKFP = NetKey Fiber Patchcord/ Pigtail

5 – Fiber Type

- 9 = OS2
- X = OM3
- Z = OM4

6 – Fiber Count

- 1 = 1-fiber
- 2 = 2-fiber

7 – Cable Type

- B = 900µm buffer
- 2 = 2mm
- E = 1.6mm / 1.8mm
- 3 = 3.0mm (Only for SC to SC cords)

8 – Jacket Type

- N = No jacket
  (900µm tight buffered pigtail)
- L = LSZH
  (Low Smoke Zero Halogen)
- R = OFNR (Riser)
- P = Plenum

9 – Connector Type – End A

- 1 = LC
- 3 = SC
- A = LC with short boot
- B = LC duplex with short boot
- D = SC duplex with short boot
- E = LC/APC
- F = SC/APC
- L = LC duplex
- S = SC duplex
- X = LC/APC duplex
- Y = SC/APC duplex

10 – Connector Type – End B

- 1 = LC
- 3 = SC
- A = LC with short boot
- B = LC duplex with short boot
- D = SC duplex with short boot
- E = LC/APC
- F = SC/APC
- L = LC duplex
- S = SC duplex
- X = LC/APC duplex
- Y = SC/APC duplex
- N = Pigtail (no connector)

11 – Polarity or Jacket Color*

- S = Standard A-B
- T = Polarity A-A
- N = No variant (Simplex)
- K = 12 color pigtail kits
- X = Non-Standard
- Y = Standard A-B, no clip, 30cm breakout
- Z = Standard A-B, no clip

- B = Blue
- G = Gray
- J = Rose
- O = Orange
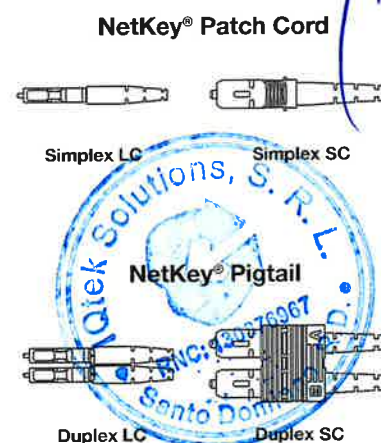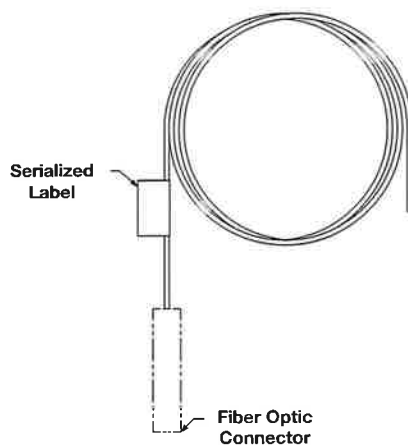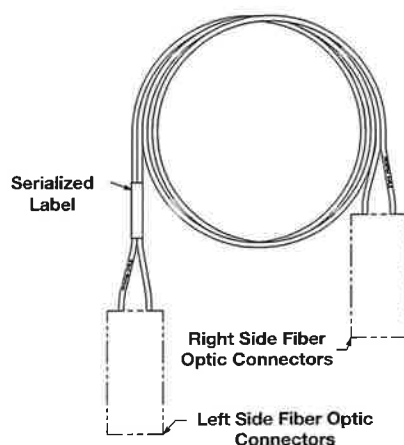- P = Pastel Green
- R = Red
- V = Violet

* Jacket Color MOQ 1Km

12 – Unit of Length or Bulk Pack

- M = Meters
- T = Meters (10-pack)
- Q = Meters (25-pack)

13, 14, 15 – Length

001 – 050
Half meter lengths upon request

Serialized Label

Right Side Fiber Optic Connectors

Left Side Fiber Optic Connectors

Serialized Label

Fiber Optic Connector

NetKey® Patch Cord

Simplex LC   Simplex SC

NetKey® Pigtail

Duplex LC   Duplex SC

For a copy of Panduit product warranties, log on to www.panduit.com/warranty

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Visit us at www.panduit.com
Contact Customer Service by email: cs@panduit.com
or by phone: 800.777.3300

PANDUIT®

NetKey® Fiber Optic Patch Cords and Pigtails

PANDUIT®
SPECIFICATION SHEET

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	Halogen (LSZH):	Per IEC 60332-1, IEC 60754-2, IEC 61034
Connector types:	LC and SC	
Jacket color:	OS2:	Yellow
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		OM4

NetKey® Fiber Optic Patch Cords and Pigtails

part number

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Pigtail

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D = SC duplex with short boot
E = LC/APC
F = SC/APC
L = LC duplex
S = SC duplex
X = LC/APC duplex
Y = SC/APC duplex

10 – Connector Type – End B

1 = LC
3 = SC
A = LC with short boot
B = LC duplex with short boot
D = SC duplex with short boot
E = LC/APC
F = SC/APC
L = LC duplex
S = SC duplex
X = LC/APC duplex
Y = SC/APC duplex
N = Pigtail (no connector)

11 – Polarity or Jacket Color*

S = Standard A-B
T = Polarity A-A
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X = Non-Standard
Y = Standard A-B, no clip,
30cm breakout
Z = Standard A-B, no clip

B = Blue
G = Gray
J = Rose
O = Orange
P = Pastel Green
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V = Violet

* Jacket Color MOQ 1Km

12 – Unit of Length or Bulk Pack

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Q = Meters (25-pack)

13, 14, 15 – Length

001 – 050
Half meter lengths upon request

NetKey® Patch Cord

Serialized
Label

Right Side Fiber
Optic Connectors

Left Side Fiber Optic
Connectors

Serialized
Label

Fiber Optic
Connector

Simplex LC   Simplex SC

NetKey® Pigtail

Duplex LC   Duplex SC

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For more information
Visit us at www.panduit.com
Contact Customer Service by email: cs@panduit.com
or by phone: 800.777.3300

PANDUIT®

FURTINET.

FortiManager

Available in:

Appliance   Virtual   Cloud
            Machine

FortiManager provides automation-driven centralized management of your Fortinet devices from a single console. This process enables full administration and visibility of your network devices through streamlined provisioning and innovative automation tools.

Integrated with the Fortinet Security Fabric advanced security architecture and automation driven network operations capabilities provide a solid foundation to secure and optimize your network security.

Single-Pane Management and Provisioning streamlines centralized policy and object management and provisioning, automatic revision history and control, and enhanced role-based access control (RBAC) features for script management and IPS management with role separation.

Fabric Automation simplifies the zero-touch provisioning (ZTP) deployment process for SD-Branch (FortiGates and access devices) with powerful templates that directly utilize meta-variables for scalable provisioning to thousands of sites.

Monitoring and Visibility for device inventory, applications, SD-WAN, LAN edge, management extension applications (MEAs), traffic, public cloud, and more.

Key Features

- Centrally manage network and security policies for thousands of FortiGate NGFWs and Secure SD-WAN plus FortiSwitches, FortiAP, and FortiExtender. Provide signature updates to FortiGate, FortiMail, FortiSandbox, and FortiClient

- Get centralized distribution of security content and signatures through the use of the built-in FortiGuard module

- Simplify configuration, deployment, and maintenance for Secure SD-WAN at scale. Accelerate FortiExtender Wireless WAN connectivity with centralized management across distributed sites

- Reduce complexity and costs by leveraging automated REST API, scripts, connectors, and automation stitches

- Automate workflows and configurations for Fortinet firewalls, switches, and wireless infrastructure

- Separate customer data and manage domains leveraging ADOMs to be compliant and operationally effective

- High availability to automate backups for up to five nodes with streamlined software and security updates for all managed devices

1

FEATURE HIGHLIGHTS

Single Pane Management and Provisioning

Device Configuration and Provisioning

FortiManager expands the network administrator's capabilities with a rich set of tools to centrally manage up to 100 000 devices including FortiGate NGFWs, FortiExtender, FortiSwitch switches, FortiAP access points, Fortinet Secure SD-WAN, and more.

Collectively configure device settings using enhanced templates with variables support, in preparation for zero-touch provision for mass deployments, firmware version enforcement for installs and upgrades, templates to assign policy packages and policy and object revision history for auditing, and a Fabric Authorization Template automatically provision and authorize Lan Edge devices on the managed FortiGates.

FortiManager includes extended SSL and certificate support for enhanced ssl-ssh-profile configuration, Restricted IPS Admin Profiles to support transitioning and upgrading from dedicated IPS solutions, custom commands on FortiSwitch and configuring MCLAG from the FortiSwitch Manager.

Automated device configuration backups and revision control make daily administrative tasks easy. Track changes in the enhanced Event Log view for review of configuration updates for auditing and compliance.

Security Policy and Objects Management

FortiManager Policy and Objects views enable admins to centrally manage and configure device policies, including updating network settings, antivirus definitions, intrusion prevention signatures, access rules, and software updates.

The global policy feature allows MSSP and PaaS providers to apply ADOM level header/footer policies for updating all policy packages or select packages. Policy and Objects views now include a revision history, providing an account of admins who have made changes, change date, summary, and a mandatory change notes field to capture change reason.

The per-policy lock feature allows admins to control the policy change by implicitly locking a policy rule when a policy is changed. Admins can also group commonly used policies in a policy block and insert in different Policy Packages.

Extend security policies across hybrid and multi-cloud environments, with common configuration assignments and policy packages for IPSec, BGP, CLI, and SD-WAN rules.

Secure SD-WAN

FortiManager offers powerful SD-WAN management capabilities using intuitive workflows and simplified provisioning at scale. Leverage application centric SD-WAN business policies to fine-tune traffic steering decisions based on performance service level agreement (SLA) targets for each WAN provider.

Simplify and accelerate SD-WAN configuration on a global scale with automated SD-WAN overlay provisioning. Utilize device blueprints for large SD-WAN deployments with support to import CSV templates and assign meta-data variables.
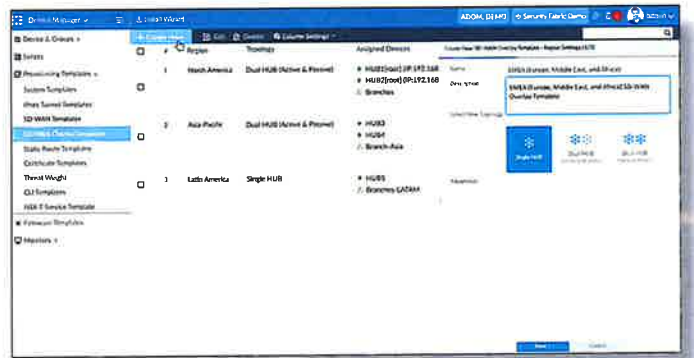
Use the Secure SD-WAN reports and monitoring dashboards to closely monitor application performance including metrics for bandwidth, latency, jitter, and packet loss.

Multi-Tenancy and Role-Based Administration

FortiManager provides granular device and role-based administration and zero-trust multi-tenancy deployments for large enterprises and a hierarchical objects database for re-use of common configurations to serve multiple customers, for clear visibility of every device and user on the network.

Administrative Domains (ADOMs) are used to manage independent security environments, each with its own security policies and configuration database. The intuitive GUI makes it easy for admins to view, create, clone, and manage ADOMs, define global Objects, Policies, and Security Profiles across ADOMs, with Health Check to keep ADOMs in sync.

Assign IPS admin restricted user role, for users performing only IPS related object config and install. Use per-admin UI background themes for unique visual associations.

FEATURE HIGHLIGHTS

FortiManager High Availability (HA)

FortiManager high availability (HA) provides enhanced reliability, data protection, redundancy, and operational performance to ensure agreed-upon uptime and availability requirements are met, with option for dedicated interface for management of the individual cluster member. In the event that the operating FortiManager unit fails, a backup FortiManager (one primary and up to four secondary) unit can take the place of the failed unit, for seamless access to devices and business-critical network operations.

Fabric Automation

Network and Security Operations Visibility (NOC/SOC)

FortiManager supports NOC-SOC workflows to assist network teams in maintaining optimal performance. Automated data exchanges between security (SOC) workflows and operational (NOC) workflows, create a single, complete workflow that not only saves time, but also provides the capacity to complete additional incident response activities.

Integration with FortiAnalyzer magnifies visibility with advanced data visualization and analytics. This insight helps analysts quickly connect the dots, identify threats, and simplify the expeditious configuration and security of managed devices.

Automation and Connectors

Utilize automation and orchestration and optimize network operations with FortiManager through querying of FortiGate NGFWs and the Fortinet Security Fabric via application programming interfaces (APIs). This process will actively collect and share network information and broaden end-to-end visibility and response.

FortiManager reduces complexity and cost by leveraging REST API, scripts, connectors, and FortiGate automation stitches to automate time-intensive processes and accelerate workflows. This method helps NOC and SOC teams by reducing administrative tasks, and addressing talent shortages. Admins can automate common tasks such as provisioning of FortiGate NGFWs and configuring new or existing devices.

Join the **Fortinet Developer Network (FNDN)** for exclusive access to articles, how-to content for automation and customization, community-built tools, scripts, and sample code.

Expanded Operations Capabilities

Increase operational efficiencies with simplified and automated provisioning and deployment of Fabric devices, using open Fabric APIs for new integrations and workflows.

Utilize ZTNA rules and policies to enforce access control, and the EMS connector to retrieve ZTNA tags or tag groups, and configure a ZTNA server and use the ZTNA tags in policies to enforce zero trust RBAC (role based access control).

Make use of FortiSwitch multiple port selection configuration templates for effortless configuration of native and allowed vlans, security policies, QoS policies, and LLDP Profiles for simplified LAN edge management.

Use the IPS wizard with IPS sensor selections and IPS templates for quick and easy creation and installation of IPS profiles. Admins can use the IPS Signatures on-hold monitor for a centralized view of all on-hold signatures, including severity, OS, application, on-hold dates, and more.

FortiManager can also act as the management update server to managed FortiGates for IoT query device identification service.
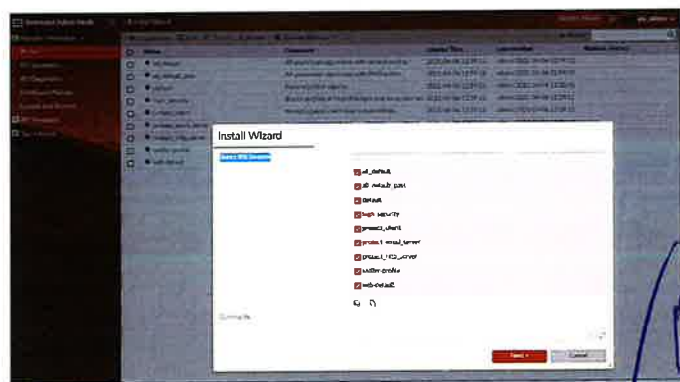
Security Fabric and Third Party Integration

FortiManager integrates with ITSM to seamlessly mitigate security incidents and events, apply configuration changes, and update policies. Integration with FortiAnalyzer provides in-depth discovery, analysis, prioritization, and reporting of network security events.

Use Fabric connectors to facilitate connections with third party vendors such as vCenter, pxGrid, ClearPass, OCI, ESXi, AWS, and others to share and exchange data.

The FortiManager workflow for audit and compliance enables review, approval, and auditing policy changes. These methods include automating processes for policy compliance, policy lifecycle management, and enforced workflow to reduce risk.

FEATURE HIGHLIGHTS

Monitoring and Visibility

Manage and Monitor with Deep Visibility

The FortiManager Device Manager provides full visibility, access, and management of Fortinet managed devices, interfaces, scripts, templates, automation, users, settings, and more. Install, edit, and delete policies. Monitor the health of FortiGate devices through customizable dashboards and widgets to see resource usage, network status of DHCP, IPsec and SSL VPN, routing, traffic shapers, and more. Easily navigate the hierarchical tree with categories for managed devices, logging devices, unauthorized devices, and customize to display as a table, folder, or a map view.

Use Fabric View to check Security Fabric ratings and configurations of FortiGate devices or groups. Access vital security and network statistics, as well as real-time monitoring and topology information to provide visibility into network and user activity. Add a FortiAnalyzer appliance or virtual machine (VM) for powerful analytics and enhanced Fabric view with asset and identity info, additional data mining, statistical analysis, and graphical reporting capabilities.

FortiManager includes a multitude of tools for simple and intuitive analysis of Fortinet firewalls, switches, access points, and more. Gain one-click access to MEAs like the FortiAIOps extension, IPS Admin visibility into installed IPS configurations and monitoring of IPS Diagnostics, and Device Inventory Monitor with device and user information, column selections to show FortiSwitch, FortiAP and SSID information, and IoT device information gathered from FOS Asset Identity Center.
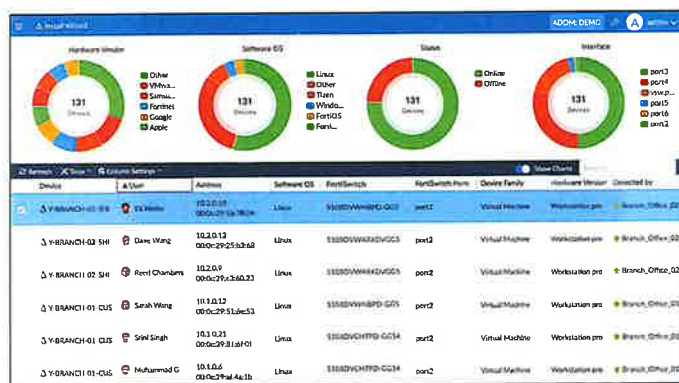
NOC Cloud Services

Management Extensions

The Management Extensions pane allows rapid expansion of the single pane to manage more Security Fabric products. The built-in engine runs containerized management extension applications (MEAs) pulled from FortiGuard Labs Threat Intelligence. FortiManager's MEAs include one-click access to modules for FortiAIOps, SD-WAN, FortiPortal, FortiWLM, FortiSigConverter, and FortiSOAR.

Dynamic Cloud Security

Fortinet cloud security and management solutions offer organizations a PaaS-based delivery option for central management of FortiGate devices from a cloud-based FortiManager.

FortiManager Cloud provides an automation-driven and single pane-of-glass management capability that is easy-to-implement, easy-to-manage, flexible, and scalable.

Use the single sign-on portal to manage Fortinet NGFW and SD-WAN. The built-in cloud-init service allows admins to easily customize a prepared image of a virtual installation for KVM, AZURE, support for Azure Virtual WAN of the Network Virtual Appliance (NVA), and AWS. FortiManager cloud-based network management helps organizations streamline FortiGate provisioning with automation-enabled management of Fortinet devices.

FortiManager-VM has been added to the Flex-VM offering to provide flex license management for FortiGates and to allow scaling up/down managed FortiGates or number of ADOMs.

Automatic configuration synchronization for the members of the Auto Scaling Group in Public Cloud in case of scale-out/scale-in events. Visibility improvement for auto scaling clusters with auto scale status, cluster type, HA status and mode and elastic IP information of the cluster members.

Trusted Platform Module (TPM) Encryption

FortiManager G Series features a dedicated micro-controller module that hardens physical networking appliances by generating, storing, and authenticating cryptographic keys in TPM. This hardware-based security mechanism protects users from malicious software and phishing attacks.

VIRTUAL OFFERINGS

FortiManager Virtual Machines

FortiManager virtual machines are a virtual version of the hardware appliance and are designed to run on many virtualization platforms, offering all the latest features of the FortiManager appliance. They allow organizations to centrally manage any number of Fortinet network security devices and scale from several to thousands, supporting centralized management, best practices compliance, and automated workflows to deliver superior protection against threats. FortiManager-VMs are available in both a subscription and perpetual offering.

FortiManager-VM-S

The new FortiManager-VM subscription license model consolidates the VM product SKU and the FortiCare Premium Support SKU into a single SKU to simplify the product purchase, upgrade, and renewal.

The FortiManager-VM S Series SKUs come in stackable subscriptions to manage 10, 100, and 1000 devices/ VDOMs. Multiple units of this SKU can be purchased at one time to increase the number of devices/ VDOMs as needed. This SKU can also be purchased with other FortiManager-VM-S SKUs to expand the total number of devices/ VDOMs.

FortiManager-VM

Fortinet offers the FortiManager-VM in a stackable license model. This software-based version of the FortiManager hardware appliance is designed to run on many virtualization platforms, which allows you to expand your virtual solution as your environment expands. The FortiManager virtual appliance family minimizes the effort required to monitor and maintain your network and offers all the features of the FortiManager hardware appliance.

SPECIFICATIONS

FORTIMANAGER VIRTUAL APPLIANCES	FMG-VM-10-UG	FMG-VM-100-UG	FMG-VM-1000-UG	FMG-VM-5000-UG
Capacity				
Devices/VDOMs (Default)[1, 3]	10 +	100 +	1000 +	5000 +
GB/ day of Logs[2]	2	5	10	25
Chassis Management	⊙	⊙	⊙	⊙
Virtual Machine				
Hypervisor Support	Up-to-date hypervisor support can be found in the release notes for each FortiManager version. Visit https://docs.fortinet.com/product/fortimanager/ and find the Release Information at the bottom section. Go to "Product Integration and Support" → "FortiManager [version] support" → "Virtualization"			
vCPU Support (Minimum / Maximum)	4 / Unlimited			
Network Interface Support (Min / Max) [4]	1 / 12			
Memory Support (Minimum / Maximum)	8 GB / Unlimited for 64-bit			
High Availability Support	Yes			

1 Each virtual domain (VDOM) operating on a physical or virtual device counts as one (1) licensed network device.
2 GB/ day of logs are not stackable. These values represent the maximum available with purchased license.
3 VM SKUs are stackable up to 100 000 Devices/VDOMs.
4 VM supports up to 12 vNIC interfaces/ports. Applicable to 6.4.3+. Actual consumable numbers vary depending on cloud platforms.

SPECIFICATIONS

FORTIMANAGER APPLIANCES	FMG-200G	FMG-400G
Capacity and Performance		
Devices/VDOMs (Default)[1]	30	150
Devices/VDOMs (Maximum)[3]	—	—
Sustained Log Rates	50	50
GB/ day	2	2
Hardware Specifications		
Storage Capacity	8 TB (2 × 4 TB)	32 TB (8 × 4 TB)
Usable Storage (after RAID)	4 TB	24 TB
RAID Levels Supported	RAID 0/1	RAID 0/1,1s/5,5s/6,6s/10/50/60
Default RAID Level	1	50
Hardware Form Factor	1 RU Rackmount	2 RU Rackmount
Total Interfaces	4xRJ45 GE	4 x GE RJ45, 2 x SFP
Console Port	RJ45	RJ45
Removable Hard Drives	No	⊘
Redundant Hot Swap Power Supplies	⊘*	⊘*
Trusted Platform Module (TPM) [2]	Gen2	⊘
Dimensions		
Height x Width x Length (inches)	1.73 × 17.24 × 16.38	3.5 × 17.5 × 22.2
Height x Width x Length (cm)	4.4 × 43.8 × 41.6	8.8 × 44.5 × 56.5
Weight	22.5 lbs (10.2 kg)	35.27 lbs (16 kg)
Environment		
AC Power Supply	100–240V 50-60 Hz	100–240V AC, 50-60 Hz
Power Consumption (Average / Maximum)	90.1 W / 99 W	140 W / 182 W
Heat Dissipation	337.8 BTU/h	621 BTU/h
Operating Temperature	32°–104°F (0°–40°C)	32°–104°F (0°–40°C)
Storage Temperature	-13°–167°F (-25°–75°C)	-4°–167°F (-20°–75°C)
Humidity	20% to 90% non-condensing	5% to 95% non-condensing
Forced Airflow	Front to Back	Front to Back
Operating Altitude	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)
Compliance		
Safety Certifications	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB

1 Each virtual domain (VDOM) operating on a physical or virtual device counts as one (1) licensed network device.
Global policies and high availability support available on all models.
2 Gen2 refers to hardware that has been upgraded since initial release.
3 Devices/VDOMs maximum with device add-on license, if supported.
* Optional redundant AC power supply, not included.

SPECIFICATIONS

FORTIMANAGER APPLIANCES	FMG-1000F	FMG-3000G	FMG-3700G
Capacity and Performance			
Devices/VDOMs (Default)[1]	1000	4000	10 000
Devices/VDOMs (Maximum)[3]	—	8000	100 000
Sustained Log Rates	50	150	150
GB/ day	2	10	10
Hardware Specifications			
Storage Capacity	32 TB (8× 4TB)	64 TB (16 × 4TB)	240TB (60× 4TB) HDD + 19.2TB (6× 3.2TB) NVMe SSD
Usable Storage (after RAID)	24 TB	56 TB	224 TB
RAID Levels Supported	RAID 0/1,1s/5,5s/6,6s/10/50/60	RAID 0/1,1s/5,5s/6,6s/10/50/60	RAID 0/1,1s/5,5s/6,6s/10/50/60
Default RAID Level	50	50	50
Hardware Form Factor	2 RU Rackmount	3 RU Rackmount	4 RU Rackmount
Total Interfaces	2x RJ45 10GE ports, 2x SFP+ ports	2 x GE RJ45 ports, 2× 25GE SFP28	2× 25GE SFP28, 2× 10GE RJ-45
Console Port	DB-9	DB-9	DB-9
Removable Hard Drives	⊘	⊘	⊘
Redundant Hot Swap Power Supplies	⊘	⊘	⊘
Trusted Platform Module (TPM) [2]	No	No	⊘
Dimensions			
Height x Width x Length (inches)	3.5 × 17.2 × 25.6	5.2 × 17.2 × 25.5	7.0 × 17.2 × 30.2
Height x Width x Length (cm)	8.9 × 43.7 × 65.0	13.2 × 44.0 × 65.0	17.8 × 43.7 × 76.7
Weight	34 lbs (15.42 kg)	65.5 lbs (30.15 kg)	120 lbs (54.6 kg)
Environment			
AC Power Supply	100–240V AC, 50–60 Hz	100-127V~/10A, 200-240V~/5A Hz	2000W AC [4]
Power Consumption (Average / Maximum)	192.5 W / 275 W	449 W / 541 W	850 W / 1423.4 W
Heat Dissipation	920 BTU/h	1846.5 BTU/h	4858 BTU/h
Operating Temperature	50°–95°F (10°–35°C)	32°–104°F (0°–40°C)	50°–95°F (10°–35°C)
Storage Temperature	-40°–140°F (-40°–60°C)	-40°–167°F (-20°–75°C)	-40°–158°F (-40°–70°C)
Humidity	8% to 90% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing
Forced Airflow	Front to Back	Front to Back	Front to Back
Operating Altitude	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)
Compliance			
Safety Certifications	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, BSMI, KC, UL/cUL, CB, GOST	FCC Part 15 Class A, RCM, VCCI, CE, BSMI, KC, UL/cUL, CB, GOST

1 Each virtual domain (VDOM) operating on a physical or virtual device counts as one (1) licensed network device.
Global policies and high availability support available on all models.
2 Gen2 refers to hardware that has been upgraded since initial release.
3 Devices/VDOMs maximum with device add-on license, if supported.
4. 3700G must connect to a 200V - 240V power source.

ORDER INFORMATION

PRODUCT	SKU	DESCRIPTION
FortiManager	FMG-200G	Centralized management appliance — 4xRJ45 GE, 8 TB storage, up to 30x Fortinet devices/VDOMs.
	FMG-400G	Centralized management appliance — 4 x GE RJ45, 2 x SFP, 32 TB storage, up to 150 Fortinet devices/ VDOMs.
	FMG-1000F	Centralized management appliance — 2x RJ45 10G, 2x SFP+ slots, 32 TB storage, up to 1000 Fortinet devices/ VDOMs.
	FMG-3000G	Centralized management appliance — 2 x GbE RJ45 ports, 2× 25GbE SFP28, 64 TB storage, dual power supplies, manages up to 4000 Fortinet devices/VDOMs.
	FMG-3700G	Centralized management appliance — 2× 25GE SFP28, 2× 10GE RJ-45, 240 TB + 19.2 TB storage, dual power supplies, manages up to 10 000 Fortinet devices/VDOMs.
FortiManager-VM Subscription License with Support and BPS	FC1-10-FMGVS-448-01-DD	Subscription license for 10 devices/VDOMs managed by FortiManager VM S-series. FortiCare Premium support plus FortiCare Best Practice services included.
	FC2-10-FMGVS-448-01-DD	Subscription license for 100 devices/VDOMs managed by FortiManager VM S-series. FortiCare Premium support plus FortiCare Best Practice services included.
	FC3-10-FMGVS-448-01-DD	Subscription license for 1000 devices/VDOMs managed by FortiManager VM S-series. FortiCare Premium support plus FortiCare Best Practice services included.
FortiManager-VM	FMG-VM-10-UG	Upgrade license for adding 10 Fortinet devices/Virtual Domains; allows for total of 2 GB/Day of Logs.
	FMG-VM-100-UG	Upgrade license for adding 100 Fortinet devices/Virtual Domains; allows for total of 5 GB/Day of Logs.
	FMG-VM-1000-UG	Upgrade license for adding 1,000 Fortinet devices/Virtual Domains; allows for total of 10 GB/Day of Logs.
	FMG-VM-5000-UG	Upgrade license for adding 5,000 Fortinet devices/Virtual Domains; allows for total of 25 GB/Day of Logs.
FortiManager-Cloud	FC1-10-MVCLD-227-01-DD	Subscription for 10 devices/VDOMs managed by FortiManager Cloud. FortiCare Premium support included.
	FC2-10-MVCLD-227-01-DD	Subscription for 100 devices/VDOMs managed by FortiManager Cloud. FortiCare Premium Support included.
	FC3-10-MVCLD-227-01-DD	Subscription for 1000 devices/VDOMs managed by FortiManager Cloud. FortiCare Premium support included.
Hardware Bundle	FMG-[Hardware Model]-BDL-447-DD	Hardware plus FortiCare Premium and FortiCare BPS.
FortiManager Device Upgrade License	FMG-DEV-100-UG	FortiManager device upgrade license for adding 100 Fortinet devices/VDOMs (3000 series and above - hardware only).

NOTE:
For hardware models, the default number of ADOMs can be found in the Release Notes on docs.fortinet.com
For FortiManager-VM Subscription licenses for five ADOMs are included. Additional ADOMs can be purchased.

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www.fortinet.com

FortiAnalyzer

Available in:

Appliance   Virtual Machine   Cloud

Fortinet Security Fabric Visibility, Analytics, and Automation for the Modern Enterprise

FortiAnalyzer is a powerful log management, analytics, and reporting platform that provides organizations with a single console to manage, automate, orchestrate, and respond, enabling simplified security operations, proactive identification and remediation of risks, and complete visibility of the entire attack landscape. Integrated with the Fortinet Security Fabric, advanced threat detection capabilities, centralized security analytics, end-to-end security posture awareness and control, helps security teams identify and mitigate threats before a breach can occur.

Orchestrate security tools, people, and process for streamlined execution of tasks and workflows, incident analysis and response, and rapidly expedite threat detection, case creation and investigation, and mitigation and response.

Automate workflows and trigger actions with connectors, playbooks, and event handlers to accelerate your network security team's ability to respond to critical alerts, events, and service level agreement (SLA) for regulation and compliance.

Respond in real-time to network security attacks, vulnerabilities, and warnings of potential compromises, with threat intelligence, event correlation, monitoring, alerts and reporting for immediate tactical response and remediation.

Key Features

- Security Fabric Analytics with event correlation and real-time detection across all logs, with Indicators of Compromise (IOC) service and detection of advanced threats

- Fortinet Security Fabric integration with FortiGate NGFWs, FortiClient, FortiSandbox, FortiWeb, FortiMail, and others for deeper visibility and critical network insights

- Enterprise-grade high availability to automatically back-up FortiAnalyzer databases (up to four node cluster), which can be geographically dispersed for disaster recovery

- Security Automation reduces complexity, leveraging REST API, scripts, connectors, and automation stitches to expedite security response and reduce time-to-detect

- Multi-Tenancy solution with quota management, leveraging ADOMs to separate customer data and manage domains for operational effectiveness and compliance

- Flexible deployment options as appliance, VM, hosted, or public cloud. Use AWS, Azure, or Google for cloud secondary archival storage

FEATURE HIGHLIGHTS

Across Fortinet's Security Fabric

Incident Detection and Response

Centralized NOC/SOC Visibility for the Attack Surface

The FortiSOC view helps security and network operations teams protect network assets with correlated log and threat data and insights through actionable views with deep drill-down capabilities. Real-time notifications, reports, predefined or customized dashboards deliver single-pane visibility and actionable results. Utilize FortiAnalyzer workflow automation for simplified orchestration of security operations, management of threats, vulnerabilities, and incident response. Proactively investigate anomalies and threats through analysis of SIEM normalized logs in Threat Hunting view.
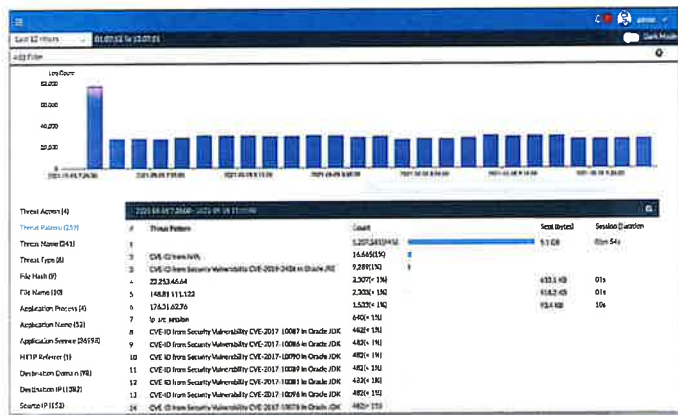
Event Management

Security teams can monitor and manage alerts and event logs from Fortinet devices, with events processed and correlated in a format that analysts can easily understand. Investigate suspicious traffic patterns and search using filters in predefined or custom event handlers to generate real-time notifications and monitoring for NOC and SOC operations, SD-WAN, SSL VPN, wireless, Shadow IT, IPS, network recon, FortiClient, and more.

Incident Management

The Incidents component in FortiSOC enables security operations teams to manage incident handling and life cycle with incidents created from events to show affected assets, endpoints, and users. Analysts can assign incidents, view and drill down on event details, incident timelines, add analysis comments, attach reports and artifacts, and review playbook execution details for complete audit history.
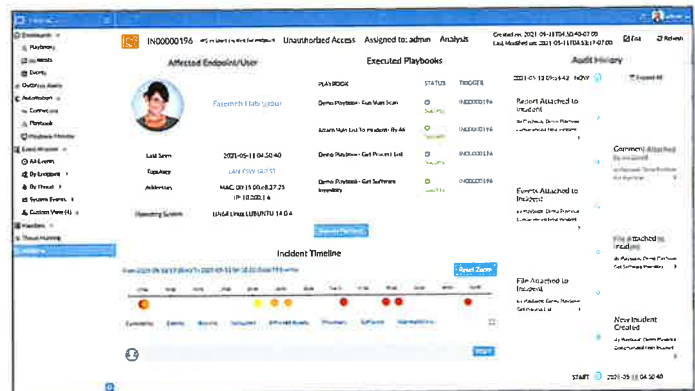
Integrate with FortiSOAR for further incident investigation and threat eradication including support to export incident data to FortiSOAR through the FortiAnalyzer fabric connector.

Playbook Automation

FortiAnalyzer Playbooks boost an organization's security team abilities to simplify investigation efforts through automated incident response, freeing up resources and allowing analysts to focus on tasks that are more critical.

Out-of-the-box playbook templates enable SOC analysts to quickly customize their use cases, with playbooks for investigation of compromised hosts, infections and critical incidents, data enrichment for Fabric View Assets and Identity views, blocking malware, C&C IPs, and more. Security teams can define custom processes, edit playbooks and tasks in the visual playbook editor, utilize the Playbook monitor to review task execution details, import or export playbooks, and use built-in connectors with **OAuth2** authentication, allowing playbooks to interact with other Security Fabric devices like FortiOS and EMS. Connector health check provides an indicator for verifying that connectors are up and working.

Subscription Licenses and FortiGuard Security Services

The FortiGuard Outbreak Detection Service delivers automated content package download for detecting the latest malware, including a summary of outbreaks and kill chain mapping for how the malware works. The package includes a FortiGuard Report for the outbreak, Event Handler, and a Report Template to detect outbreaks.

The FortiGuard Indicators of Compromise subscription empowers security teams with forensic data from 500 000 IOCs daily, used in combination with FortiAnalyzer analytics to identify suspicious usage and artifacts observed on the network or in an operations system, that have been determined with high confidence to be malicious infections or intrusions, and historical rescan of logs for threat hunting.

FEATURE HIGHLIGHTS

The Shadow IT monitoring service provides continuous monitoring of unapproved devices, resources, unsanctioned accounts and unauthorized use of SaaS and IaaS, API integration, and third party apps. The service identifies rogue users using personal accounts for managing company assets, using correlated FortiOS and FortiCASB data with a FortiCASB account subscribed for SaaS features.
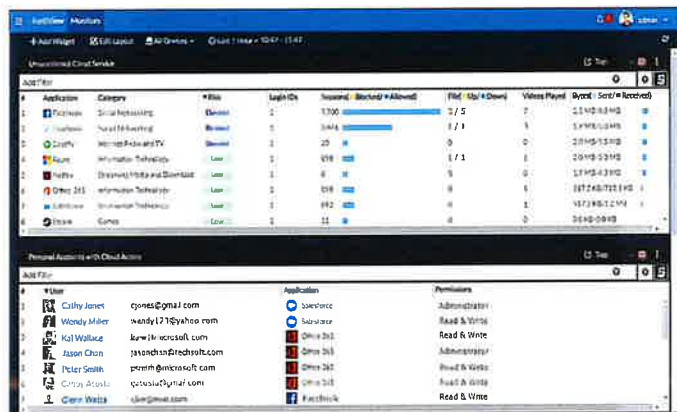

Include the Security Automation Service subscription to enable further automation for incident response with enhanced monitoring and escalation, built-in incident management workflows, connectors, playbooks and more.

Security Fabric Analytics

Analytics and Reporting

FortiAnalyzer automation driven analytics empowers security teams by providing full visibility of network devices, systems, and users, with correlated log data for threat intelligence and analysis of real-time and historical events. Analysts have access to correlated monitoring views and reports to provide deep insights with context and meaning of network activity, risks, vulnerabilities, attack attempts, and investigation of operational anomalies with monitoring of sanctioned and unsanctioned user activity for SaaS applications.
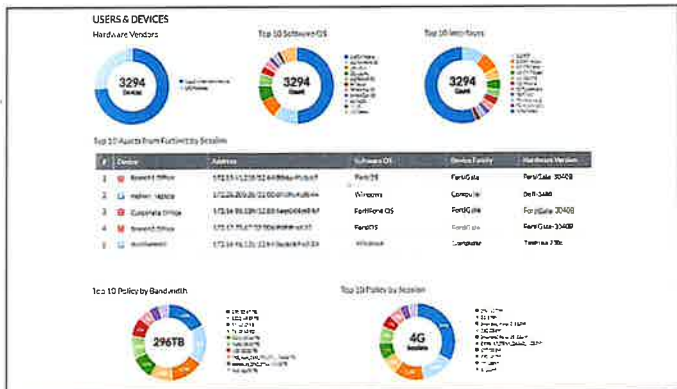
FortiAnalyzer provides over 70 report templates and more than 2000+ combined ready-to-use datasets, charts and macros for analysis of Secure SD-WAN, VPN, FortiNDR network anomaly detection, threat assessments, 360 Security Reviews, situational awareness, self-harm and risk indicators, delivering critical business metrics to stakeholders in flexible viewing formats including PDF, HTML, CSV, XML, and JSON.

FortiView is a comprehensive monitoring solution that provides multi-level views and summaries of real-time critical alerts and information such as top threats and IOCs to your network including Botnet and C&C, top sources and destinations of network traffic, top applications, websites and SaaS, VPN and System information, and other Fabric device intelligence.

Monitors view provides operations teams with customizable NOC and SOC dashboards and widgets designed for display across multiple screens in the Operations Center. Monitor events in real-time through the pre-defined dashboard views for SD-WAN, VPN, Wi-Fi, Incoming/Outgoing Traffic, Applications and Websites, FortiSandbox Detections, Endpoint Vulnerabilities, Software Inventory, Top Threats, Shadow IT (monitoring service), ZTNA, and many more.
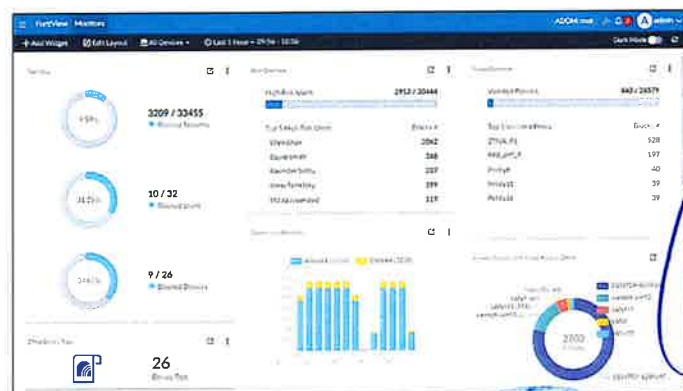
Assets and Identity

FortiAnalyzer Fabric View with Assets and Identity monitoring provides security teams with full SOC visibility and elevated awareness into an organization's endpoints and users with correlated device and UEBA information, vulnerability detections, EMS tagging, and asset classifications through telemetry with EMS, NAC, and Fortinet Fabric Agent.

Log View enables analysts to expand their investigation and utilize search filters on managed device logs, with log drill down, formatted or raw logs, log import/export, custom views and log groups, including a SIEM database with normalized logs for devices in Fabric ADOMs.

FEATURE HIGHLIGHTS

Deployments

Deploying FortiAnalyzer

FortiAnalyzer plays a pivotal role in the Fortinet Security Fabric and can be deployed in a variety of configurations to best support the needs of any organization for analytics, back-ups, disaster recovery, storage, availability, and redundancy plus log collection and log forwarding for high-volume networks with sizable generation of event logs.

FortiAnalyzer Fabric

FortiAnalyzer Fabric allows SOC Administrators to configure two operation modes supervisor and members, allowing supervisors to view member devices, their ADOMs and authorized logging devices, as well as incidents and events created on members. Search across all member FortiAnalyzers in Log View to perform Global Search of logs collected across FortiAnalyzer Fabric members with pre-defined device filters for each Member and Member ADOMs and drill down into the logs for more details.

FortiAnalyzer High Availability (HA)

FortiAnalyzer HA provides real-time redundancy to protect organizations by ensuring continuous operational availability. In the event that the primary (active) FortiAnalyzer fails, a secondary (passive) FortiAnalyzer (up to four-node cluster) will immediately take over, providing log and data reliability and eliminating the risk of having a single point of failure.

Multi-Tenancy with Flexible Quota Management

FortiAnalyzer provides the ability to manage multiple sub-accounts with each account having its own administrators and users. The time-based archive/analytic log data policy, per Administrative Domain (ADOM), allows automated quota management based on the defined policy, with trending graphs to guide policy configuration and usage monitoring.

Analyzer-Collector Mode

FortiAnalyzer provides two operation modes: Analyzer and Collector. In Collector mode, the primary task is forwarding logs of the connected devices to an Analyzer and archiving the logs. This configuration greatly benefits organizations with increasing log rates, as the resource intensive log-receiving task is off-loaded to the Collector so that the Analyzer can focus on generating analytics and reports.

Network operations teams can deploy multiple FortiAnalyzers in Collector and Analyzer modes to work together to improve the overall performance of log receiving and processing increased log volumes, providing log storage and redundancy, and rapid delivery of critical network and threat information.

Log Forwarding for Third-Party Integration

Forward logs from one FortiAnalyzer to another FortiAnalyzer unit, a syslog server, or (CEF) server. In addition to forwarding logs to another unit or server, the client FortiAnalyzer retains a local copy of the logs, which are subject to the data policy settings for archived logs. Logs are forwarded in real-time or near real-time as they are received from network devices.

Trusted Platform Module (TPM) Encryption

FortiAnalyzer G Series features a dedicated micro-controller module that hardens physical networking appliances by generating, storing, and authenticating cryptographic keys in TPM, with hardware-based security mechanisms that protect against malicious software and phishing attacks.

Cloud Services

FortiAnalyzer Cloud

FortiAnalyzer Cloud offers customers a PaaS-based delivery option for automation-driven, single pane analytics, providing log management, analytics, and reporting for Fortinet NGFW and SD-WAN with an easily accessible cloud-based solution.

FortiAnalyzer Cloud delivers reliable real-time insights into network activity with extensive reporting and monitoring for clear, consistent visibility of an organization's security posture.

Customers can easily access their FortiAnalyzer Cloud from their FortiCloud single sign-on portal.

VIRTUAL OFFERINGS

FortiAnalyzer Virtual Machines

FortiAnalyzer Virtual Machines are a virtual version of the hardware appliance and are designed to run on many virtualization platforms, offering all the latest features of the FortiAnalyzer appliance. They allow organizations to simplify their centralized log management and analytics solution, automate workflows, and help NOC and SOC teams identify and respond to threats. FortiAnalyzer-VMs are available in both a subscription and perpetual offering.

FortiAnalyzer-VM S

The new FortiAnalyzer Subscription license model consolidates the VM product SKU and the FortiCare Support SKU, plus IOC and FortiAnalyzer SOC (SOAR/SIEM) services into one single SKU, to simplify the product purchase, upgrade, and renewal.

FortiAnalyzer-VM S provides organizations with centralized security event analysis, forensic research, reporting, content archiving, data mining, malicious file quarantining, and

vulnerability assessment. Centralized collection, correlation, and analysis of geographically and chronologically diverse security data from Fortinet and third party devices deliver a simplified, consolidated view of your security posture.

The FortiAnalyzer-VM S series SKUs come in stackable 5, 50, and 500 GB/ day logs licenses, so that multiple units of this SKU can be purchased together providing organizations with the ability and cost-efficiencies to scale and meet their logging needs.

FortiAnalyzer-VM

Fortinet offers the FortiAnalyzer-VM licensing in a stackable perpetual license model, with a-la-carte services available for FortiCare Premium support and subscription license for the FortiGuard Indicators of Compromise (IOC) Service.

This software-based version of the FortiAnalyzer hardware appliance is designed to run on many virtualization platforms, which allows you to expand your virtual solution as your environment expands.

SPECIFICATIONS

FORTIANALYZER VIRTUAL APPLIANCES	FAZ-VM-GB1	FAZ-VM-GB5	FAZ-VM-GB25	FAZ-VM-GB100	FAZ-VM-GB500	FAZ-VM-GB2000
Capacity						
GB/ day of Logs *	+1	+5	+25	+100	+500	+2,000
Devices/VDOMs Maximum	10 000	10 000	10 000	10 000	10 000	10 000
Chassis Management	⊘	⊘	⊘	⊘	⊘	⊘
FortiGuard IOC Service			⊘			
Security Automation Service			⊘			
Hypervisor Support	Up-to-date hypervisor support can be found in the release note for each FortiAnalyzer version. Visit https://docs.fortinet.com/product/fortianalyzer/ and find the Release Information at the bottom section. Go to "Product Integration and Support" → "FortiAnalyzer [version] support" → "Virtualization"					
vCPU Support (Minimum / Maximum)	4 / Unlimited					
Network Interface Support (Min / Max) **	1 / 12					
Memory Support (Minimum / Maximum)	8 GB / Unlimited for 64-bit					

* Unlimited GB/ day when deployed in collector mode
** VM supports up to 12 vNIC interfaces/ports. Applicable to 6.4.3+. Actual consumable numbers vary depending on cloud platforms.

SPECIFICATIONS

FORTIANALYZER APPLIANCES	FAZ-150G	FAZ-300G	FAZ-800G
Capacity and Performance			
GB/ day of Logs	25	100	200
Analytic Sustained Rate (logs/sec)*	500	2000	4000
Collector Sustained Rate (logs/sec)*	750	3000	6000
Devices/VDOMs (Maximum)	50	180	800
Max Number of Days Analytics**	90	50	50
Options			
FortiGuard IOC Service	⊘	⊘	⊘
Security Automation Service	⊘	⊘	⊘
FortiGuard Outbreak Detection Service	⊘	⊘	⊘
Enterprise Bundle	⊘	⊘	⊘
Hardware Bundle	⊘	⊘	⊘
Hardware Specifications			
Form Factor (supports EIA/non-EIA standards)	Desktop	1 RU Rackmount	1 RU Rackmount
Total Interfaces	2 x RJ45 GE	4 x RJ45 GE	4 x RJ45 GE, 2 x SFP
Storage Capacity	4TB (2× 2TB)	8 TB (2 × 4 TB)	16 TB (4 × 4 TB)
Usable Storage (After RAID)	2 TB	4 TB	8 TB
Removable Hard Drives	No	No	⊘
RAID Levels Supported	0/1	RAID 0/1	RAID 0/1,1s/5,5s/10
RAID Type	Software	Software	Hardware / Hot Swappable
Default RAID Level	1	1	10
Redundant Hot Swap Power Supplies	No	Optional	Optional
Trusted Platform Module (TPM) ***	Gen 2	Gen 2	⊘
Dimensions			
Height x Width x Length (inches)	9.5 × 3.5 × 8	1.73 × 17.24 × 16.38	1.73 × 17.32 × 21.65
Height x Width x Length (cm)	24.1 × 8.9 × 20.55	4.4 × 43.8 × 41.6	4.4 × 44.0 × 55.0
Weight	9.35 lbs (4.24 kg)	22.5 lbs (10.2 kg)	25.75 lbs (11.68 kg)
Environment			
AC Power Supply	100–240V AC, 50–60 Hz	100–240V AC, 60–50 Hz	100–240V AC, 50–60 Hz
Power Consumption (Average / Maximum)	36 W / 43 W	90.1 W / 99 W	134 W / 174.2 W
Heat Dissipation	147.4 BTU/h	337.8 BTU/h	594.4 BTU/h
Operating Temperature	32°–104° F (0°–40° C)	32°–104° F (0°–40° C)	32°–104° F (0°–40° C)
Storage Temperature	-4°–167° F (-20°–75° C)	-13°–167° F (-25°–75° C)	-4°–167° F (-20°–75° C)
Humidity	5% to 95% non-condensing	20% to 90% non-condensing	5% to 95% non-condensing
Forced Airflow	Front to Back	Front to Back	Front to Back
Operating Altitude	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)
Compliance			
Safety Certifications	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, BSMI, KC, UL/cUL, CB, GOST	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB

* Sustained Rate - maximum constant log message rate that the FAZ platform can maintain for minimum 48 hours without SQL database and system performance degradation.
** The maximum number of days if receiving logs continuously at the sustained analytics log rate. This number can increase if the average log rate is lower.
*** Gen2 refers to hardware that has been upgraded since initial release.

SPECIFICATIONS

FORTIANALYZER APPLIANCES	FAZ-1000F	FAZ-3000G	FAZ-3500G	FAZ-3700G
Capacity and Performance				
GB/ day of Logs	660	3000	5000	8300
Analytic Sustained Rate (logs/sec)*	20 000	42 000	60 000	100 000
Collector Sustained Rate (logs/sec)*	30 000	60 000	90 000	150 000
Devices/VDOMs (Maximum)	2000	4000	10 000	10 000
Max Number of Days Analytics**	34	30	38	60
Options				
FortiGuard IOC Service	✓	✓	✓	✓
Security Automation Service	✓	✓	✓	✓
FortiGuard Outbreak Detection Service	✓	✓	✓	✓
Enterprise Bundle	✓	✓	✓	✓
Hardware Bundle	✓	✓	✓	✓
Hardware Specifications				
Form Factor (supports EIA/non-EIA standards)	2 RU Rackmount	3 RU Rackmount	4 RU Rackmount	4 RU Rackmount
Total Interfaces	2 × 10GbE RJ45, 2 × 10GbE SFP+	2 x GE RJ45, 2× 25GE SFP28	2 x GE RJ45, 2× 25GE SFP28	2× 10GE RJ-45 + 2× 25GE SFP28
Storage Capacity	32 TB (8 × 4 TB)	64 TB (16 × 4TB)	96 TB (24 × 4 TB)	240TB (60 × 4TB) 3.5" HDD + 19.2TB (6× 3.2TB) NVMe SSD
Usable Storage (After RAID)	24 TB	56 TB	80 TB	224 TB
Removable Hard Drives	✓	✓	✓	✓
RAID Levels Supported	RAID 0/1,1s/5,5s/6,6s/10/50/60	RAID 0/1,1s/5,5s/6,6s/10/50/60	RAID 0/1,1s/5,5s/6,6s/10/50/60	RAID 0/1,1s/5,5s/6,6s/10/50/60
RAID Type	Hardware / Hot Swappable	Hardware / Hot Swappable	Hardware / Hot Swappable	Hardware / Hot Swappable
Default RAID Level	50	50	50	50
Redundant Hot Swap Power Supplies	✓	✓	✓	✓
Trusted Platform Module (TPM) ***	No	No	No	✓
Dimensions				
Height x Width x Length (inches)	3.5 × 17.2 × 25.6	5.2 × 17.2 × 25.5	7.0 × 17.2 × 26.0	7.0 × 17.2 × 30.2
Height x Width x Length (cm)	8.9 × 43.7 × 65.0	13.0 × 44.0 × 65.0	17.8 × 43.7 × 66.0	17.8 × 43.7 × 76.7
Weight	34 lbs (15.42 kg)	66.5 lbs (30.15 kg)	90.75 lbs (41.2 kg)	118 lbs (53.5 kg)
Environment				
AC Power Supply	100–240V AC, 50–60 Hz	100-127V~/10A, 200-240V~/5A	100-240 VAC, 50-60 Hz	2000W AC****
Power Consumption (Average / Maximum)	192.5 W / 275 W	385 W / 500 W	629.5 W / 677.3 W	850 W / 1423.4 W
Heat Dissipation	920 BTU/h	1350 BTU/h	2345.07 BTU/h	4858 BTU/h
Operating Temperature	50°–95°F (10°–35°C)	32°-104°F (0°-40°C)	41°-95°F (5°-35°C)	50°–95°F (10°–35°C)
Storage Temperature	-40°–140°F (-40°–60°C)	-4°-167°F (-20°-75°C)	-40°–140°F (-40°–60°C)	-40°–158°F (-40°–70°C)
Humidity	8% to 90% non-condensing	5% to 95% (non-condensing)	8% to 90% (non-condensing)	8% to 90% (non-condensing)
Forced Airflow	Front to Back	Front to Back	Front to Back	Front to Back
Operating Altitude	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)	Up to 7400 ft (2250 m)
Compliance				
Safety Certifications	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB	FCC Part 15 Class A, RCM, VCCI, CE, UL/cUL, CB

* Sustained Rate - maximum constant log message rate that the FAZ platform can maintain for minimum 48 hours without SQL database and system performance degradation.
** is the max number of days if receiving logs continuously at the sustained analytics log rate. This number can increase if the average log rate is lower
*** Gen2 refers to hardware that has been upgraded since initial release.
****3700G must connect to a 200V - 240V power source.

ORDER INFORMATION

PRODUCT	SKU	DESCRIPTION
FortiAnalyzer	FAZ-150G	Centralized log and analysis appliance — 2 x RJ45 GE, 4 TB storage, up to 25 GB/ day of logs.
	FAZ-300G	Centralized log and analysis appliance — 4 x RJ45 GE, 8 TB storage, up to 100 GB/ day of logs.
	FAZ-800G	Centralized log and analysis appliance — 4 x GE, 2 x SFP, 16 TB storage, up to 200 GB/ day of logs.
	FAZ-1000F	Centralized log and analysis appliance — 2 × 10GE RJ45, 2 × 10GbE SFP+, 32 TB storage, dual power supplies, up to 660 GB/ day of logs.
	FAZ-3000G	Centralized log and analysis appliance — 2 x GE RJ45, 2× 25GE SFP28, 64 TB storage, dual power supplies, up to 3,000 GB/ day of logs.
	FAZ-3500G	Centralized log and analysis appliance — 2 x GbE RJ45, 2 x SFP28, 96 TB storage, dual power supplies, up to 5,000 GB/ day of logs.
	FAZ-3700G	Centralized log & analysis appliance - 2× 10GE RJ-45 + 2× 25GE SFP28 slots, 240TB HDD + 19.2TB NVMe SSD storage, up to 8300 GB/ day of Logs.
FortiAnalyzer-VM Subscription License with Support	FC1-10-AZVMS-465-01-DD	Subscription license for 5 GB/Day Central Logging & Analytics. Include FortiCare Premium support, IOC, Security Automation Service, and FortiGuard Outbreak Detection service.
	FC2-10-AZVMS-465-01-DD	Subscription license for 50 GB/Day Central Logging & Analytics. Include FortiCare Premium support, IOC, Security Automation Service, and FortiGuard Outbreak Detection service.
	FC3-10-AZVMS-465-01-DD	Subscription license for 500 GB/Day Central Logging & Analytics. Include FortiCare Premium support, IOC, Security Automation Service, and FortiGuard Outbreak Detection service.
FortiAnalyzer-VM	FAZ-VM-GB1	Upgrade license for adding 1 GB/Day of Logs.
	FAZ-VM-GB5	Upgrade license for adding 5 GB/Day of Logs.
	FAZ-VM-GB25	Upgrade license for adding 25 GB/Day of Logs.
	FAZ-VM-GB100	Upgrade license for adding 100 GB/Day of Logs.
	FAZ-VM-GB500	Upgrade license for adding 500 GB/Day of Logs.
	FAZ-VM-GB2000	Upgrade license for adding 2 TB/Day of Logs.
FortiAnalyzer Cloud Storage Subscription	FC1-10-AZCLD-463-01-DD	Increase FortiAnalyzer Cloud storage by 5 GB/Day for Central Logging & Analytics and FortiCloud SOCaaS. Include FortiCare Premium support, IOC and Security Automation Service.
	FC2-10-AZCLD-463-01-DD	Increase FortiAnalyzer Cloud storage by 50 GB/Day for Central Logging & Analytics and FortiCloud SOCaaS. Include FortiCare Premium support, IOC and Security Automation Service.
	FC3-10-AZCLD-463-01-DD	Increase FortiAnalyzer Cloud storage by 500 GB/Day for Central Logging & Analytics and FortiCloud SOCaaS. Include FortiCare Premium support, IOC and Security Automation Service.
FortiAnalyzer - Backup to Cloud Service	FC-10-FAZ00-286-02-DD	One year subscription to FortiAnalyzer storage connector service for 10TB data transfer to public cloud.
FortiAnalyzer Cloud	FC-10-[Model Code]-464-02-DD	FortiAnalyzer Cloud with SOCaaS: cloud-based central logging & analytics. Include All FortiGate log types, IOC service, Security Automation Service, FortiGuard Outbreak Service and SOCaaS.
	FC-10-[Model Code]-585-02-DD	FortiAnalyzerCloud: cloud-based central logging and analytics. Include all FortiGate log types, IOC service, Security Automation Service, FortiGuard Outbreak Detection Service.
FortiGuard IOC Service	FC-10-[Model Code]-149-02-DD	One year subscription license for the FortiGuard Indicator of Compromise (IOC) Service.
FortiAnalyzer Security Automation Service	FC-10-[Model Code]-335-02-DD	Subscription license for FortiAnalyzer Security Automation Service.
FortiAnalyzer-VM Security Automation Service	FC[GB Day Code]-10-LV0VM-335-02-DD	Subscription license for FortiAnalyzer-VM Security Automation Service.
FortiGuard Outbreak Detection Service	FC-10-[Model Code]-462-02-DD	Subscription license for FortiGuard Outbreak Detection Service.
FortiAnalyzer-VM Perpetual Outbreak Detection Service	FC[GB Day Code]-10-LV0VM-462-02-DD	Subscription license for FortiAnalyzer VM Perpetual FortiGuard Outbreak Detection Service.
Enterprise Protection Bundle	FC-10-[Model Code]-466-02-DD	Enterprise Protection (FortiCare Premium plus Indicators of Compromise Service, Security Automation Service, and FortiGuard Outbreak Detection service).
Hardware Bundle	FAZ-[Hardware Model]-BDL-466-DD	Hardware plus FortiCare Premium and FortiAnalyzer Enterprise Protection.

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FortiCare Advanced Support: Pro and Pro Global

Account-level Technical Support

Introduction

The critical services delivered by Fortinet capabilities require maximum uptime for smooth business operations. To achieve this, technical experts should be engaged to ensure superior security and network performance. With FortiCare Advanced Support, a designated technical expert works directly with organizations for accelerated issue resolution.

Tailored Support and Account Services

Fast-track access to technical expertise

Accelerate incident resolution and quickly track tickets and response times with specialized FortiCare dashboards. Enable in-house teams to become the experts through custom webinar, NSE training, and certification.

Maximize impact with advocates who know the business

Feel confident with customized care, featuring a named technical expert. This designated resource will be intimately familiar with your business and provide weekly status updates. Flexible service points are available for services such as after-hours cutovers or best-practice reviews.

Enhanced security with tailored guidance

Increase productivity and avoid incidents with configuration and operational reviews performed by designated resources. Confidently adopt new capabilities with account planning and upgrade assistance. Enterprises can also access root-cause analysis for critical technical incidents and malware analysis with advanced service points.

FortiCare Advanced Support:

Pro and Pro Global

provide designated technical experts who work directly with organizations for accelerated issue resolution.

The Pro Advanced Support package includes customized care across accounts and covers all devices with active FortiCare service contracts. Highlights of the service include:

- **Technical Account Manager:** A designated Technical Account Manager (TAM) will act as the primary technical interface and assist in resolving technical incidents, including technical escalations.[1]
- **Guided getting started:** Onboard new customers and provide with an overview of service deliverables.
- **Enhanced training:** Improve teams' capabilities with annual training package, including employee NSE Lab and Exam.
- **Knowledge transfer:** Deliver webinar based on customers' operational troubleshooting focused topic of interest.
- **Software upgrade assistance:** Provide software upgrade recommendations and assistance for Fortinet products.
- **Hardening check:** Recommend device configuration based on Fortinet best practices.
- **Periodic ticket review:** Conduct periodic calls to discuss open technical support tickets and on-going projects.
- **Quarterly and annual service review:** A quarterly operational service review (QSR) and an annual service review will be scheduled with the customer to review service tickets, health check observations and recommendations, inventory report, etc.

- **Tailored Customer Service Bulletins and notifications:** Review Customer Service Bulletins and security notifications and tailor the recommendations to suit the customers' environment.
- **Four-hour workaround SLA:** Take reasonable efforts to resolve the critical incident or provide a workaround within four hours.
- **Root-cause analysis:** Perform root-cause analysis for critical issues upon request.
- **18-month software troubleshooting:** Provide technical troubleshooting beyond end-of-support of Fortinet software for an additional 18-month period.
- **Service points:** Flexible service delivery with Advanced Support service points for remote after-hours assistance, product upgrade assistance, etc.

		PRO	GLOBAL PRO
Partnership	Technical Account Manager	1 Region	3 Regions
Onboarding	Guided Getting Started Program	●	●
Education	Number of Employee NSE Lab and Exam	10	10
	Knowledge Transfer	Custom Webinar	Custom Webinar
Discovery and Planning	Software Upgrade Assistance	1	2
	Hardening Check[2]	●	●
Proactive Services	Periodic Ticket Review	●	●
	Quarterly and Annual Service Review	●	●
	Technical Security Bulletin and Notification	●	●
Resolution and Troubleshooting	4-Hour Workaround SLA (P1)[3]	●	●
	Designated Ticket Management	●	●
	Technical Escalation Management	●	●
	Root-cause Analysis (P1/P2)	●	●
	18-Month Software Troubleshooting	●	●
Flexible Consumption	Service Points[4]	16	28

The Pro Global Advanced Support package is also available to extend the geographical coverage of the service. This service level provides a designated TAM per region covering EMEA, Americas, and Asia Pacific. The service features, as described in the Pro service, are provided within each region with global coordination.

FortiCare Advanced Support helps firms meet business goals through the use of Fortinet technologies. The benefits range from accelerated time to value to maximizing employee productivity. We are here to empower in-house operations teams to achieve optimal security and performance.

Order Information

Pro-Advanced Support Service	FP-10-PS001-712-02-12
Pro Global – Advanced Support Service	FP-10-PS001-713-02-12

[1] Pro Global service comes with three regional TAMs (EMEA, the Americas, and APAC).
[2] Covers FortiGate only.
[3] This option is only available to FortiCare ELITE customers. Security breach / software fault is not covered.
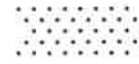[4] Service Points can be used to consume various Fortinet Services.

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FortiCare Support Services

Product Offerings

Fortinet offers a comprehensive service portfolio designed to get customers up and running quickly, to expedite escalations, and to provide expert consultation and professional services based on the unique customer deployment combined with industry best practices. This ordering guide is a quick reference to the most commonly selected support services for enterprise customers:

- **Product Support**: dedicated support for each product or service, offered in different levels depending on enterprise SLA needs:

    - *Premium*: dedicated 24×7×365 support for each product and service

    - *Elite*: premium plus higher SLA and Extended End of Engineering Support (E-EoES). Includes automated monitoring under the *FortiCare Elite Monitoring Portal*.

- **Professional Services**: fixed scope engagements aligned to common best practice deployments, and designed to speed adoption and streamline day one experience. You can use these services for:

    - **Presales Consulting**: dedicated expert teams designed to help customers planning advanced or unfamiliar projects such as SOC Readiness, Cloud Adoption, etc.

    - **Post-sales Implementation**: dedicated resources to assist in initial deployments, migrations, upgrades, and other scoped tasks.

- **Advanced Services**: dedicated advanced service teams deliver these services, which include technical and business components. Services include lifecycle management and planning, proactive reviews, quarterly business reviews, best practice adoption, and service points for a customized experience.

CUSTOMER SUCCESS			
	PRODUCT SUPPORT	**ADVANCED SERVICES**	**PROFESSIONAL SERVICES**
Focus Area	Technical support	Proactive business and technical alignment	Onboarding and rapid adoption
Service Delivery	24×7 follow the sun, plus options for premium response, automated alerts, and E-EoES	Dedicated advanced service teams deliver ongoing management of lifecycle planning and escalations	Fixed scope engagements for common use cases
Applies To	All products	FortiCare account level	Supported use cases

PRODUCT SUPPORT

Dedicated support for each product or service, offered in different levels depending on enterprise SLA requirements.

	PRODUCT SUPPORT	
	ELITE	**PREMIUM**
Focus Area	Technical support for product- or service-related issues	
Delivery Model	Globally distributed technical assistance centers (TAC)	
Service Delivery*		
Service Engagement	24x7 follow the sun, plus enhanced response times and automated alerts	24x7 follow the sun
P1-P2 Escalations (Telephone Support)	15 minutes	1 hour
P3 Escalations (Web Support)	2 hours	Next business day
Operations Integration Points		
FortiCare Asset Portal	⊘	⊘
Technical Escalation (Phone and Web)	⊘	⊘
E-EoES**	⊘	
Automated Monitoring and Alerts	⊘	
Security Rating Hygiene Recommendations	⊘	
FortiCare Elite Portal	⊘	
FortiGuard Service Updates		
Application Control, Botnet/C2, GeoIP, TrustedCert, etc.**	⊘	⊘

* Elite available for supported product lines only (table reflects FortiGate)
** E-EoES is only available on designated Long Term Support (LTS) releases.
*** Refer to the FortiGuard Ordering Guide for full details.

ORDER LIFECYCLE

New Orders - Bundles

All bundles (hardware or service) include the PREMIUM support by default. You can upgrade all bundles to ELITE support using the following upgrade SKU:

- **Elite Add-on**: FC-10-F100F-204-02-DD

New Orders - A la Carte

When ordering each component separately, you can directly purchase the Elite service level with the following SKU:

- **Elite "a la carte" SKU**: FC-10-F100F-284-02-DD

Existing Customers - Upgrade to Elite

Existing customers can upgrade to Elite service level by using the co-term SKU:

- **Elite Upgrade**: FCZ-10-F100F-204-02-DD

SEE ALSO

For small business deployments:
- **FortiCare Essentials**: designed for price-sensitive deployments and includes web-based support only. Refer to the datasheet for more information.

ADVANCED SUPPORT

These services are delivered by dedicated advanced service teams and inclcude both technical and business components. Services include lifecycle management and planning, pro-active reviews, quarterly business reviews, best practice adoption, and service points for a customized experience.

- **Core**: Technical Support response continuity through designated and skilled resources.

- **Pro**: Proactive collaboration surrounding Technical Support through assigned Technical Account Manager (TAM) focused on a consistent response and a focal point for the customer technical objectives.

- **Pro Plus**: addition of a Service Relationship Manager (SRM) to the TAM, to facilitate and drive a customer success outcome for larger or more complex enterprise environments reducing customer effort and promoting continuous improvement.

	ADVANCED SUPPORT		
	PRO PLUS	**PRO**	**CORE**
Direct Touch Engagement	Advanced Tech + Business	Advanced Tech	Tech
Service Points Included	30	16	6
Resource Alignment			
Teamed ASE Ticket Handling	⊘	⊘	⊘ (Designated ASE)
Technical Account Manager (TAM)	⊘	⊘	
Service Relationship Manager (SRM)	⊘		
Personalized Support Experience			
Escalation Matrix Management	⊘	⊘	⊘
Extended Troubleshooting Support (18 months)	⊘	⊘	
Configuration Hardening Check	⊘	⊘	
Success Plan Development	⊘		
Critical Incident Management	⊘		
Lifecycle and Vulnerability Management			
PSIRT Vulnerability Notification	⊘ Advanced Notice	⊘ Advanced Notice	⊘
Lifecycle Status Tracking	⊘	⊘	
Lifecycle Audit	⊘		
Reporting			
Case Management Reviews	⊘	⊘	
Quarterly Reporting	⊘ Attended	⊘ Attended	
Training and Skills Development			
Training Access	⊘ 14 delegates	⊘ 10 delegates	⊘ 6 delegates

ORDER LIFECYCLE

New Orders

Direct purchase each tier using single SKU:

- **Pro Plus**: FP-10-PS001-714-02-12

- **Pro**: FP-10-PS001-712-02-12

- **Core**: FP-10-PS001-711-02-12

Add-Ons

- **SRM Add-on** (Pro or Core): FP-10-PS001-707-02-12

- **Add 10 Service Points**: LIC-AS-10

NOTE: Pro and Pro Plus are available as Global options where a TAM will be assigned within each region.

ADVANCED SUPPORT - SERVICE CATALOG

SERVICE	DESCRIPTION
Remote After Hours Assistance	Provides customer with remote after-hours assistance for a maximum duration of four hours during network changes.
Software Upgrade Assistance	Consists of the testing of a target Fortinet software release against the customer's communicated configuration within laboratory conditions and the provision of a test report on the outcome.
Software Upgrade Recommendation with Bug Scrub	Fortinet performs an assessment of a target Fortinet software release against the customer's technical environment for the purpose of addressing known bug-related issues.
Software Best Practice	Consists of the delivery of a report outlining a best practice recommendation for a specific feature.
On-site Business One-day Visit	The purpose of this service option is to enable one AS resource for an on-site visit to discuss support topics like quarterly or annual business review, support with simple troubleshooting, presentation of an existing best practice recommendation, and open discussion on planned activities.
Knowledge Transfer - Custom Webinar	Provides a one-time webinar, which consists of a remote session delivered in English where one feature is explained based on the customer's configuration. The webinar is also be supplemented with best practice troubleshooting steps for commonly seen issues.
Knowledge Transfer - Custom Workshop	Provides a one-time knowledge transfer custom workshop with hands-on troubleshooting (maximum of three users) based on a reasonable number of product features or use cases that the customer provides.
Configuration Hardening Check	Provides a report that covers the FortiGate products deployed on customer network, highlighting the best practices and recommendation to be applied to the product to harden and improve device security.
Device Performance Health Check	Provides a report that covers a standalone FortiGate or a cluster of FortiGate devices deployed on customer network with recommendations to optimize utilization.
Lifecycle Audit	Provides visibility of customer network condition by accessing the system data to generate report of Fortinet hardware and software lifecycle status, the features, and bug tracker report.
Customer Readiness Testing (CRT)	Focused on testing specific customer scenarios and deployments utilizing Fortinet products under specific configuration and loading conditions.

* Catalog items available at any time are displayed in the online service catalog, may be dependant upon underlying services, and will be amended from time to time at Fortinet's sole discretion. The ordering guide provides only an indication of what may be available.

SERVICE CATALOG FOR ADVANCED SUPPORT SERVICE

Order an Advanced Support 12-month subscription service and add on service points in blocks of ten as needed using the Ten Service Points for AS Services SKU (LIC-AS-10).

PROFESSIONAL SERVICES

Professional Services enable customers to engage with a dedicated team of engineers who routinely deploy best practice configurations across a wide variety of customer-driven use cases. The team provides consultation/guidance and can assist with hands-on configuration as required.

Professional Services offer simple and streamlined options that can be scheduled when needed.

USE CASE	SUMMARY	HOW TO BUY
Configuration Migration and Deployment		
FortiConverter Service	Assistance to convert an existing FortiGate configuration to a new version and/or hardware model, engaged via Customer Support ticket process.	Subscription Service (per-model)
NGFW QuickStart	Professional Service-based package providing direct touch consultation and customization of a base NGFW configuration or best practice for the initial deployment.	Dedicated SKU based on FortiGate platform range
FortiSOAR QuickStart	FortiSOAR deployment quickstart service.	FP-10-QSSOAR-DP1-00-00
FortiNAC QuickStart (New in Q1)	FortiNAC dpeloyment quickstart service.	FP-10-QSFNAC-DP1-00-00
Best Practice Consultation (BPS)		
FortiClient	Consultation service for initial setup and best practice deployment of endpoint agents. Proper setup is crucial for security effectiveness plus system outage avoidance or SOC overload. See the FortiClient Ordering Guide.	Range SKU based on number of endpoints
FortiEDR	Consultation service for initial setup and best practice deployment of endpoint agents. Proper setup is crucial for security effectiveness plus system outage avoidance or SOC overload. See the FortiEDR Ordering Guide.	Range SKU based on number of endpoints
FortiMonitor	Consultation service for initial setup and best practice deployment of endpoint agents. Proper setup is crucial for security effectiveness plus system outage avoidance or SOC overload. See the FortiMonitor Ordering Guide.	Range SKU based on number of agents
Targeted Enagements		
Presales Consulting		
Cloud Resource Engineers	Dedicated projects for public clouds (AWS, Azure, Google, Oracle)	Term Engagements (full and part time)
Incident Readiness Services	Provides the flexibility of engaging both incident response support and proactive services such as incident response readiness assessment, cyber security tabletop exercises, or incident response playbook development.	Subscription service or hourly
Solution Architect Consultancy Service	Per-day solution architect consultancy engagement to document, design, and deliver security architecture improvements per agreed scope.	Daily
Cloud Architecture	Remotely assist the customer with architecture and infrastructure operations expertise in public cloud environments including connectivity, security and networking elements combine with the effective use of Fortinet products throughout their lifecycle within such environments.	Daily/Term Engagement (Full time)
Postsales Implementation		
Designated Engineers	Dedicated resources. Can be on-site, remote, part-time, or security-cleared. (full or part time)	Term Engagements (full and part time)
Incident Response Services	Dedicated projects for post-exploitation investigation, patient-0 discovery, recovery planning, etc.	Hourly
Professional Services	Custom engagements based on Statement of Work (SoW)	Daily
Service Catalog*		
Incident Response Readiness Assessment	Assessment done through key stakeholder interviews and document reviews. The goal of this assessment is to strengthen the overall ability of an organization to respond efficiently and effectively to an unexpected cyber incident and help prioritize cybersecurity actions and investments.	Activity-based Service points
Cyber Security Tabletop Exercise	Tests the organization's incident response plan and assist in identifying security gaps in cybersecurity or processes. Designed and delivered by the FortiGuard Incident Response Team based on experiences they've encountered during various incident response engagements.	Activity-based Service points
Incident Response Playbook Development	Assist with the development of Incident Response Playbooks. An Incident Response Playbook is a step-by-step guide organizations will use in the event of an impactful cybersecurity incident on the network, based on the most probable events.	Activity-based Service points

* Catalog items available at any time are displayed in the online service catalog, may be dependant upon underlying services, and will be amended from time to time at Fortinet's sole discretion. The ordering guide provides only an indication of what may be available.

CONFIGURATION MIGRATION

Following types of SKUs are available:

- **FortiConverter Service** - dedicated SKU for your FortiGate model (example for FG-100F: FC-10-F100F-189-02-DD)
- **NGFW Professional Service** - order PS SKU based on FortiGate range
  - FP-10-QSNGFW-DP1-00-00 (FortiGate-90-series and below)
  - FP-10-QSNGFW-DP2-00-00 (FortiGate-100-series to FortiGate-900-series)
  - FP-10-QSNGFW-DP3-00-00 (FortiGate-1000-series to FortiGate-2600-series)
- **FortiSOAR Deployment QuickStart Service**: FP-10-QSSOAR-DP1-00-00
- **FortiNAC Deployment QuickStart Service**:
  - Standard: FP-10-QSFNAC-DP1-00-00
  - Advanced: FP-10-QSFNAC-DP2-00-00

BEST PRACTICE SERVICES

Best Practice Services (BPS)

For streamlined on-boarding and endpoint setup, refer to the *ONBOARDING* section of each product Ordering Guide - *FortiClient*, *FortiEDR* and *FortiMonitor*.

TARGETED ENGAGEMENTS

Targeted Engagements

Order based on the term of engagement and number of days per week needed:

- **Solution Architect Consultancy Service**: FP-10-PS001-831-01-01 (per day SOW).
- **Dedicated Engineers**:
  - **On-site**: FP-10-PS001-923-02-12
  - **Remote**: FP-10-PS001-802-02-12
  - **Remote Part-time Two Days per Week**: FP2-10-PS001-802-02-12
  - **Remote Part-time Three Days Per Week**: FP3-10-PS001-802-02-12

SERVICE CATALOG FOR INCIDENT RESPONSE SERVICE

Order the 12-month subscription service (FP-10-IR001-709-02-12).

The following hourly response SKUs are available:

- **Digital Forensics and Incident Response consulting services - hourly**: FP-10-IR-FRNSCS
- **Incident Response Proactive Consulting Services - hourly**: FP-10-IR-PROACTIVE

Add on service points in ten as needed using the Ten Service Point for IR Services SKU (LIC-IR-10).

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Standard Fiber Patch Cables Datasheet

MAKE HIGH-SPEED ETHERNET NETWORK EQUIPMENT CONNECTIONS

Designed for data center, enterprise, FTTx, LAN and WAN, CATV network, telecom network applications , etc. requiring quick infrastructure deployment such as main, horizontal, and zone distribution areas.

Standard Fiber Patch Cables

Fiber optic patch cables are ideal for supporting high speed telecommunication network fiber applications. They are manufactured and tested in compliance with TIA 604 (FOCIS), IEC 61754 and YD/T industry standards. OM1, OM2, OM3, OM4, OM5 or OS2 fiber types are available to meet the demand of Gigabit Ethernet, 10 Gigabit Ethernet and high speed Fiber Channel. Every termination is through rigorous parameter test to ensure the highest network performance.

Standards Compliance

- RoHS, ISO 9001, CE, REACH, WEEE Compliant
- TIA 604 (FOCIS)
- TIA/EIA 492AAAE
- IEC 61754
- IEC 60793-2-10
- IEC 61300-3-35
- YD/T1272.1-2003

Features

- High quality zirconia ferrules.
- Good repeatability and interchangeability.
- LC/SC/ST/FC/LSH/MTRJ/MU connectors with standard boots are available.
- LC connectors with 12mm/18mm and SC connectors with 25mm short boots are available.
- Flame-retardant, rugged and durable jacket.
- OS2/OM5/OM4/OM3/OM2/OM1 are available.
- Factory terminated and tested for insertion loss, return loss and end face.

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Technical Specification

Physical Characteristics	Description
Connector Types	LC/SC/ST/FC/LSH/MTRJ/MU with Standard Boots; LC 12mm/18mm with Short Boots; SC 25mm with Short Boots
Polish Type	SMF: UPC-UPC; UPC-APC; APC-APC; MMF: UPC-UPC
Connector Ferrule	Zirconia Ceramic
Cable Outside Diameter	Duplex: 1.6/2.0/3.0mm, Simplex: 0.9/2.0/3.0mm
Interchangeability	≤0.2dB
Vibration	≤0.2dB

Mechanical Characteristics	Description
Fiber Type	Standard Boots: OS2/OM5/OM4/OM3/OM2/OM1; Short Boots: OS2/OM4/OM3
Fiber Count	Duplex/Simplex
Cable Jacket	PVC (Riser/OFNR)/LSZH/Plenum (OFNP)
Fiber Grade	SMF: G.657.A1/G.657.A2; OM5/OM4/OM3/OM2: Bend Insensitive; OM1: G.651

Fiber Mode	Connector Type	Connector Color	Jacket Color
OS2	LC	Blue/Green	Yellow
	SC	Blue/Green	
	ST	Black	
	FC	Black	
OM1/OM2	LC	Beige	Orange
	SC	Beige	
	ST	Black	
OM3	LC	Beige	Aqua
	SC	Aqua	
	ST	Black	
OM4	LC	Beige	Aqua
	SC	Beige	Aqua
OM5	LC	Beige	Lime Green

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Minimum Bend Radius		SMF	MMF
Fiber Cable (Dynamic/Static)	OD 2.0/3.0mm	10/5D	20/10D
	OD 1.6mm	10/5D	-
	OD 0.9mm	10mm	OM1: 15mm Others: 7.5mm
Fiber Core	OD 0.9/2.0/3.0mm	G.657.A1: 10mm G.657.A2: 7.5mm	OM1: 15mm Others: 7.5mm
	OD 1.6mm	G.657.A1: 10mm	-

Tensile Strength (Long Term/Short Term)	Duplex	Simplex
OD 3.0mm	120/225N	80/150N
OD 2.0mm	90/150N	60/100N
OD 1.6mm	90/150N	-
OD 0.9mm	-	3/6N

Optical Characteristics	Description
Connector Insertion Loss	LC/SC/ST/FC/LSH/MU/MTRJ≤0.3dB
Connector Return Loss	SMF: UPC≥50, APC≥60 (LC/SC/ST/FC/MU/MTRJ), UPC≥55, APC≥75 (LSH) MMF: UPC≥30 (LC/SC/ST/FC/LSH/MU), UPC≥35 (MTRJ)
Attenuation at 1310nm	G.657.A1: 0.36dB/km G.657.A2: 0.4dB/km
Attenuation at 1550nm	G.657.A1: 0.22dB/km G.657.A2: 0.25dB/km
Attenuation at 850nm	3.0dB/km
Attenuation at 1300nm	1.0dB/km

Environmental Characteristics	Description
Operating Temperature	-20~70°C
Storage Temperature	-40~80°C

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Transmission Distance Comparison

Data Rate	Interface Type	Fiber Mode	Wavelength	Maximum Distance
1G	1000BASE-LX	OM5	850nm	550m
		OM4	1300nm	550m
		OM3	1300nm	550m
		OM2	1300nm	550m
		OM1	1300nm	550m
		SMF	1310nm	10km
	1000BASE-SX	OM4	850nm	550m
		OM3	850nm	550m
		OM2	850nm	550m
		OM1	850nm	275m
10G	10GBASE-SR	OM4	850nm	400m
		OM3	850nm	300m
		OM2	850nm	82m
		OM1	850nm	33m
	10GBASE-LRM	OM5	850nm	220m
		OM3	1300nm	220m
		OM2	1300nm	220m
		OM1	1300nm	220m
	10GBASE-LR	SMF	1310nm	10km
	10GBASE-ER	SMF	1550nm	30-40km
	10GBASE-ZR	SMF	1550nm	80-100km
40G	40G-BIDI	OM5	850nm	200m
		OM4	850nm	150m
		OM3	850nm	100m
	40GBASE-SR4	OM5	850nm	150m
		OM4	850nm	150m
		OM3	850nm	100m
	40G-SWDM4	OM5	850nm	440m
		OM4	850nm	350m
		OM3	850nm	240m
	40GBASE-LR4	SMF	1310nm	10km
100G	100GBASE-SR4	OM5	850nm	100m
		OM4	850nm	100m
		OM3	850nm	70m
	100G-SWDM4	OM5	850nm	150m
		OM4	850nm	100m
		OM3	850nm	75m
	100GBASE-SR10	OM4	850nm	125m
		OM3	850nm	100m
	100GBASE-LR4	SMF	1310nm	10km
	100GBASE-ER4	SMF	1310nm	40km

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Technical Drawing
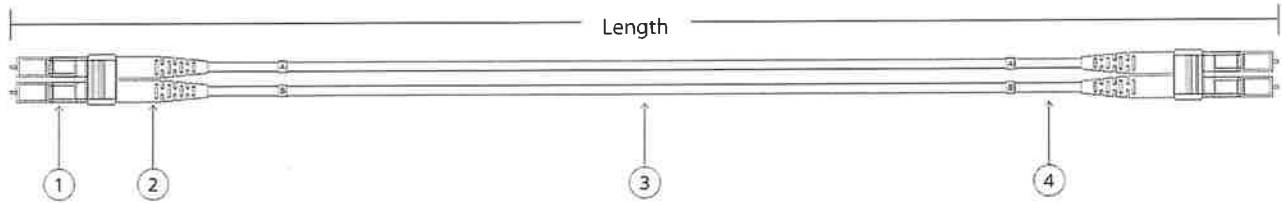
① LC Connector　　② Connector Boot　　③ Cable Jacket 2.0mm OD　　④ Heat Shrink Tub

* The total length of this cable is the distance from the connector ferrule at one end to the ferrule at the other end.

Cable Length Tolerances

Cable Length	Duplex/Simplex	Multifiber
L≤0.5m	+5cm/-0cm	+8cm/-0cm
0.5m<L≤5m	+10cm/-0cm	+12cm/-0cm
5m<L≤10m	+15cm/-0cm	+15cm/-0cm
10m<L≤30m	+20cm/-0cm	+20cm/-0cm
30m<L≤100	+1%m/-0cm	+1%m/-0cm
L>100m	+1.5%m/-0cm	+1.5%m/-0cm

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Fiber Optic Connectors Guidance

1. LC

Long Form

• Lucent Connector/Little Connector/Local Connector

Typical Applications

• High-density connections, SFP and SFP+ transceivers, XFP transceivers

2. SC

Long Form

• Subscriber Connector/Square Connector/Standard Connector

Typical Applications

• Datacom and telecom; GPON; EPON; GBIC

3. FC

Long Form

• Ferrule Connector or Fiber Channel

Typical Applications

• Datacom, telecom, measurement equipment, single mode lasers

4. ST

Long Form

• Straight Tip

Typical Applications

• Datacom

5. LSH

Typical Applications

• Telecom, DWDM systems

6. MU

Long Form

• Miniature Unit

Typical Applications

• LANs and telecommunication networks

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Connectors Boot Type Introduction

1. LC Boot Type

- Standard Boot (28.5mm)

- Short Boot (12mm)

- Short Boot (18mm)
  OD: 1.6/2.0mm

- Short Boot (18mm)
  OD: 3.0mm

2. SC Boot Type

- Standard Boot (41mm)

- Short Boot (25mm)

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Hot Products

ID	Description
#40191	1m (3ft) LC UPC to LC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm
#40446	1m (3ft) LC UPC to LC UPC Simplex OS2 Single Mode PVC (OFNR) 2.0mm
#43134	1m (3ft) LC UPC to LC UPC Duplex OM2 Multimode PVC (OFNR) 2.0mm
#41730	1m (3ft) LC UPC to LC UPC Duplex OM3 Multimode PVC (OFNR) 2.0mm
#40180	1m (3ft) LC UPC to LC UPC Duplex OM4 Multimode PVC (OFNR) 2.0mm
#141727	1m (3ft) LC UPC to LC UPC Short Boot Duplex OM4 Multimode PVC (OFNR) 2.0mm
#130953	1m (3ft) LC UPC to LC UPC Short Boot Duplex OS2 Single Mode PVC (OFNR) 2.0mm
#130973	Customized OS2 Single Mode LC/SC Short Boot
#141842	Customized OM3 Multimode LC/SC Short Boot

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