



I.M. Orange Moldova S.A.
IDNO 1003600106115
Str. Alba Iulia 75, MD-2071 Chisinau
Republica Moldova
Capital social 179499609 lei
Administrator Olga Surugiu
www.orange.md

Fluxul de lucru în perioada de exploatare operațională





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Despre companie

Una din activitățile de bază a companiei Orange Moldova este prestarea unei game largi de servicii în domeniul IT/ domeniul Securității Cibernetică, asistență acordată clienților pentru dezvoltarea, modernizarea și suportul infrastructurii sale IT.

Compania Orange Moldova utilizează în activitatea sa cele mai noi tehnologii în domeniile de soluții aplicative de nivelul întreprinderii, centre de date, soluții de stocare, automatizare, telecomunicații și transport de date. Experiența echipei tehnice din cadrul companiei Orange Moldova permite prestarea serviciilor de cea mai înaltă calitate și aliniată la cele mai bune practice internaționale.

Orange Moldova este partenerul celor mai renumiți Vendori – producători: Lenovo, HP, Fortinet, Cisco, McAfee, Microsoft, Oracle, VmWare, Huawei etc. Acest lucru se datorează inclusiv faptului că Orange Moldova nu doar implementează soluții/ bunuri pentru clienții săi dar și utilizează soluțiile și bunurile în scopul propriu, ceea ce oferă un avantaj considerabil față de alți parteneri din Republica Moldova.

Echipa tehnică și de suport include specialiști de cea mai înaltă calificare și cu experiență vastă de integrare și suport a sistemelor informatice complexe.

Echipa tehnică și de suport oferă servicii de mentenanță și suport la nivel național.

Orange Moldova este parte a Grupului Orange, unul dintre liderii mondiali în servicii de telecomunicații, cu sediul în Paris, Franța. Grupul Orange conduce un număr de aproximativ 20 000 de persoane angajate și care își desfășoară activitatea în Franța, Belgia, Marea Britanie, Elveția, Austria, Polonia, Slovacia, România, Moldova, Spania; în Africa, Orientul mijlociu și în Caraibe.

Orange este parte a grupului France Telecom, una dintre cele mai mari companii de comunicații din lume, cu peste 163 milioane de utilizatori pe cinci continente. Este inclusiv un furnizor de frunte a sistemelor informatice și a serviciilor și soluțiilor cuprinse în ele.

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Grupul Orange prezintă rezultate record în ultima perioadă. Companie a înregistrat vânzări de 43,513 miliarde Euro.

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Descrierea

Pentru toate echipamentele incluse în lista de echipamente pe durata garanției echipamentelor în caz și în perioada ulterioară, compania Orange Moldova va presta serviciile în conformitate cu nivele de deservire (Service Level Agreement - SLA) în descrierea serviciilor.

Punctul unic de contact

Pe durata prestării serviciilor Orange Moldova va desemna 2 (două) persoane responsabile certificate pentru controlul activităților de zi cu zi pentru îndeplinirea cererilor de suport. Acestea persoane vor acționa ca punct unic de contact în caz de escaladări, schimbare echipament cu produse Fortinet existente în stoc, suport tehnic etc.

Termenul de prestare a serviciilor

Serviciile vor fi prestate pentru toata perioada de garanție a echipamentelor, produselor.

Termenul de prestare a serviciilor poate fi prelungit ulterior la solicitarea Beneficiarului.

Serviciile vor fi prestate pentru toata perioada contractată, dacă este indicată într-un contract de prelungire a garanției sau contract de prestare a serviciilor de mentenanță.

Nivelul de deservire (SLA)

Orange Moldova va asigura nivele de deservire în conformitate cu Descrierea Serviciilor.

Nivele de deservire solicitate pot fi clasificate pe 2 (două) nivele de descriere:

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NIVEL	DESCRIERE
Critice – 24/7, timp de reacție 1 oră, timp de răspuns 4 ore	Sisteme care necesită o reacție rapidă în cazul unui incident, și cu demararea procedurilor de remediere imediată sau într-un timp scurt. Pentru aceste sisteme este caracteristic graficul de lucru 24 din 24 inclusiv zilele de sărbători naționale/ internaționale.
Moderat Critice – 9X5, timp de reacție 1 oră, timp de răspuns 24 ore	Sisteme care necesită o reacție rapidă din partea echipei de asistență tehnică doar în timpul zilei lucrătoare, nu afectează funcționalitățile principale ale sistemului informatic, și demararea remedierii incidentului poate fi începută mai târziu.

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Termenii și indicatorii care definesc Nivele de Deservire (SLA)

Cerere de suport este solicitarea asistenței tehnice sau raportarea unui incident prin metodele definite în metodele de comunicare definite către serviciul “hot-line”.

Timp de reacție indicatorul care definește timpul maxim de confirmare a cererii de suport. Pentru măsurarea acestui indicator se vor folosi datele din sistemul de înregistrare a cererilor de suport.

Exemplu. Incidentul a fost raportat la orele 4:00, organizația de suport confirmă recepționarea cererii de suport până la orele 5:00 prin metodele definite și în dependență de tipul incidentului începe procedura de depanare, în acest caz timpul de reacție este de o (1) oră.

Timp de răspuns este indicatorul care definește timpul minim pentru prezentarea unui scenariu de remediere a incidentului. Se va face o diferențiere între timpul de reacție din cauza că depanarea unui subsistem poate necesita prezența la sediul beneficiarului sau în centrul de date.

Exemplu. Incidentul a fost raportat la orele 4:00, timp de o (1) oră a fost confirmată recepționarea cererii de suport, specialiștii se deplasează la locul incidentului. Timpul de începere a procedurii de depanare și prezența a specialiștilor la locul incidentului este 8:00, în acest caz timpul de răspuns este 4 ore.

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Timp de soluționare indicatorul care definește timpul maxim de înlăturare a problemei.

Exemplu. Incidentul a fost raportat în data de 1.09.2021 la orele 4:00, timp de o (1) oră a fost confirmată recepționarea cererii de suport, specialiștii se deplasează la locul incidentului. Timpul de înlăturare a problemei va fi în maxim 7 zile lucrătoare de la data reclamării acesteia.

Acoperire este indicatorul care definește disponibilitatea specialiștilor furnizorului de servicii pentru soluționarea incidentelor.

Exemplu. Specialiștii furnizorului de servicii sunt disponibili pentru recepționarea și soluționarea cererilor de suport de Luni până Vineri în timpul orelor de lucru 8:00 – 18:00, în acest caz acoperirea este Luni-Vineri 8X5. În cazul când se solicită disponibilitatea specialiștilor în regim de 24 ore pe zi, inclusiv zilele de sărbători naționale/ internaționale acoperirea este de 24X7.

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Organizarea și asigurarea suportului

Pentru comunicarea cu furnizorul de servicii și înregistrarea cererilor de suport în contractul de deservire vor fi indicate:

- Numărul unic de telefon și fax a serviciului “hot-line”

Tel. +33 4 89 87 05 55

<https://support.fortinet.com/WebChatOnline.aspx>

Clientul poate utiliza și Service Desk al companiei Orange Moldova:

Tel. +373 22 977 700

Fax. +373 22 977 710

A dresa: Or. Chișinău, str. Alba Iulia nr.75

Denumirea: I.M. Orange Moldova S.A.

- Lista de persoane responsabile pe tip de incident și telefoane de contact:

Ion Cozma

email: ion.cozma@orange.com

Tel. +37369198955

Anatolie Bulgaru

Email: anatolie.bulgaru@orange.com

Tel. +37369198955

Robert Gutuleac

email: robert.gutuleac@netsafe.md

Tel. +373 (68) 115511

Netsafe Distribution

Support Tehnic: <http://support.netsafe.ro/>

- FortiCare Support: Technical Assistance Center interfața pentru cererile de suport și/sau interfața la sistemul automatizat de înregistrare a cererilor de suport “service desk”:

<https://customersso1.fortinet.com/saml->

[idp/jrx0g5n1etn0aoy9/login/?SAMLRequest=hZLJTsMwEIZfJf9azdqtZUKFalSS0QKBy7IOJPWKLGDZwzl7XFS1ks52Rr9M%2F83ywxFU7d86Winb%2BHFVAVKwXs3ZYzmRaTWqXuFofFKGw2okwpPx2P8G3ZMOs2xQsuAeLCqj5yyLEhasER2sNZLQ5ENJNgTYZgMNumEZyIPplE2nTywYOvdlBbUZ%2B6IWuRxLB2SaXw9NGIUGesVQJE0TdwHhgps42e7T7YjnQLpRj3aVybrdIxC86NldD3MGeVqBE6llwgqlf4juTWkJGmPIW6VHo7Z85qbgQq5Fo0gJwkL5ZXI9z3wp8OluQXm00e5jfFhgVLRAd9JnR6DxqAfZVSbi7vfxpA13bevi%2FHRTFzYE1Erjbs2Df1Bp5P%2FrjGOOnM1vMQjXvJ2x%2F5R9PF1%2FEbPEvXwMkSkGiR5zFv%2BwO3i2%2F9vXXq9zUSr53I28EHbflvqoMq17KncYWpKoU%2BMNZ1rV5O7MgyC%2BIRPP7iRCh17%2FXuPgA&RelayState=UmV0dXJuVXJsPUwzUnBZMnRsZEM5cGJtUmxiQzVoYzNCNCZoa2V5PQ%3D%3D](https://customersso1.fortinet.com/saml-idp/jrx0g5n1etn0aoy9/login/?SAMLRequest=hZLJTsMwEIZfJf9azdqtZUKFalSS0QKBy7IOJPWKLGDZwzl7XFS1ks52Rr9M%2F83ywxFU7d86Winb%2BHFVAVKwXs3ZYzmRaTWqXuFofFKGw2okwpPx2P8G3ZMOs2xQsuAeLCqj5yyLEhasER2sNZLQ5ENJNgTYZgMNumEZyIPplE2nTywYOvdlBbUZ%2B6IWuRxLB2SaXw9NGIUGesVQJE0TdwHhgps42e7T7YjnQLpRj3aVybrdIxC86NldD3MGeVqBE6llwgqlf4juTWkJGmPIW6VHo7Z85qbgQq5Fo0gJwkL5ZXI9z3wp8OluQXm00e5jfFhgVLRAd9JnR6DxqAfZVSbi7vfxpA13bevi%2FHRTFzYE1Erjbs2Df1Bp5P%2FrjGOOnM1vMQjXvJ2x%2F5R9PF1%2FEbPEvXwMkSkGiR5zFv%2BwO3i2%2F9vXXq9zUSr53I28EHbflvqoMq17KncYWpKoU%2BMNZ1rV5O7MgyC%2BIRPP7iRCh17%2FXuPgA&RelayState=UmV0dXJuVXJsPUwzUnBZMnRsZEM5cGJtUmxiQzVoYzNCNCZoa2V5PQ%3D%3D)

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- Lista persoanelor pentru escaladare incidentelor

Ion Cozma

email: ion.cozma@orange.com

Tel. +37369198955

Anatolie Bulgaru

Email: anatolie.bulgaru@orange.com

Tel. +37369198955

Service Desk al companiei Orange Moldova:

Tel. +373 22 977 700

Fax. +373 22 977 710

- Lista de contacte pentru adresările directe la Distribuitor:

Robert Gutuleac

email: robert.gutuleac@netsafe.md

Tel. +373 (68) 115511

Netsafe Distribution

Suport Tehnic: <http://support.netsafe.ro/>

Important: Pentru a deschide cererea de suport va fi necesar următoarea informație:

- Product Serial Number
- Persoana responsabilă din partea Beneficiarului pentru asigurarea accesului fizic și logic la sistemele afectate: telefon și email
- Adresa locației echipamentului
- Descrierea problemei – simptome, caracterul problemei

Timp de reacție

Din momentul când a fost comunicată cererea de suport, Executorul va începe activitatea de depanare a cauzei incidentului nu mai mult decât peste o oră, cu excepția cazului în care Beneficiarul va fixa alt timp de intervenție.

Locul prestării serviciilor

Serviciile vor fi prestate la locul instalării echipamentelor sau la distanță. Pentru aceasta Beneficiarul va asigura accesul fizic și logic la locul instalării echipamentelor.

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Limba de comunicare

Limba de comunicare cu serviciul “hot-line” poate fi la alegerea Beneficiarului – limba de stat, limba rusă sau limba engleză.

Procedurile de suport

I. Înregistrarea cererilor de suport – în caz de necesitate, Beneficiarul se va adresa către serviciul “hot-line” sau va accesa FortiCare Support Portal. Serviciul “hot-line” comunică Beneficiarului un număr unic, acordat cererii de suport.

Obligator se va comunica următoarele informații:

- Descrierea problemei – simptome, caracterul problemei
- Timpul apariției problemei
- Persoana responsabilă din partea Beneficiarului pentru asigurarea accesului la sistemele afectate
- Persoana responsabilă din partea serviciului de suport

II. Procesul de depanare – în același timp cu înregistrarea cererii de suport Executorul va începe activitatea de determinare și înlăturare a cauzei cheie. Procesul de depanare va fi demarat nu mai târziu decât SLA-ul agreat.

Specialiștii Executorului se pot adresa Clientului pentru a concretiza informația primită, pentru a primi date suplimentare despre defecțiune, sau pot interveni on-site.

III. Escaladare – în caz de necesitate Executorul va escalada incidentul la producător. Executorul va livra alt echipament existent pe perioada soluționării problemei.

IV. Raport de progres – la cererea Beneficiarului Executorul se obligă să informeze Beneficiarul despre starea cereri de suport. Executorul se obligă să informeze Beneficiarul despre orice întârzieri în efectuarea procedurilor de remediere a incidentului, despre cauzele apariției acestora și măsurile întreprinse pentru a le înlătura. La fel progresul și starea incidentelor se va monitoriza prin intermediul sistemului Service Desk disponibil Beneficiarului.

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V. Raport periodic – Dacă este indicat în contract, executorul se obligă să raporteze Beneficiarului lunar despre orice incidente înregistrate, starea lor, cauzele apariției, metodele de soluționare, la fel ca și orice altă informație creată sau obținută în rezultatul furnizării serviciilor de suport.

Descrierea serviciilor

Orange Moldova are toate competențele necesare pentru a presta următoarele servicii pe deplin și la cea mai înaltă calitate.

Acoperire și Timp de Răspuns

Nivelul de deservire pentru toate echipamentele este definit ca Moderat Critice.

Acoperire	Timp de Răspuns
Luni – Vineri, 9X5	Next Day

În cazul în care în anumite cazuri Beneficiarul va solicita ca anumite echipamente să fie deservite conform unui nivel înalt de deservire din cauza diferitor factori – importanța unui loc de muncă anumit, perioadă de timp critică etc, menționăm că în aceste cazuri echipa tehnică va ridica nivelul de deservire automat a resurselor echipelor de intervenție.

Timp de soluționare

În perioada de garanție se va asigura constatarea (diagnosticarea) unei defecțiuni în maxim 4 ore lucrătoare (în zilele de lucru, intervalul de timp 08:00 – 18:00, iar în cazul în care la necesitatea Cumpărătorului executarea lucrărilor de diagnosticare se efectuează în orele /zilele nelucrătoare, termenul de diagnosticare poate fi extins până la 5 zile lucrătoare) și înlăturarea problemei în maxim 7 zile lucrătoare de la data reclamării acesteia de către Cumpărător (în perioada 08:00 – 17:00, zile lucrătoare). Înlăturarea problemei presupune

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repararea sau substituirea componentelor defectate, instalarea, configurarea și testarea funcționării adecvate a lor. La solicitarea Cumpărătorului, lucrările de remediere a defecțiunilor vor fi executate și în afara orelor de lucru, sau în zilele nelucrătoare. Constatarea și remedierea defecțiunii se va face la sediul Cumpărătorului de către personalul calificat din contul Vanzătorului, utilizând componentele livrate de producătorul echipamentului, iar în cazul unor defecțiuni mai grave, echipamentele se vor transporta la centrul de deservire autorizat de către Vanzător. În cazul unor defecțiuni mai grave, Bunurile se vor transporta de către Vanzător la centrul de deservire autorizat de către Producător. Toate serviciile legate de înlăturarea defecțiunilor (pieselor defecte) sau problemelor (inclusiv corespondența cu producătorul, transportarea, vămuirea pieselor de schimb și celor defectate, etc.) vor fi efectuate de către Vanzător din contul său. De asemenea, toate serviciile legate de returnarea (transportarea, împachetarea, vămuirea, etc.) echipamentelor/pieselor defectate către Producător vor fi efectuate de către Vanzător din contul Vanzătorului. Garanția include costul pieselor și al manoperei. Lucrările de suport vor include următoarele: i) diagnosticarea componentelor; ii) schimbarea sau repararea componentelor în caz de defectare; iii) efectuarea lucrărilor de suport și upgrade a softului firmware.

**DISTRIBUITOR AUTORIZAT FORTINET,
Netsafe Distribution SRL**

29.03.2023

Catre: Organizația pentru Dezvoltarea Antreprenoriatului

AUTORIZARE

Noi, Netsafe Distribution SRL, cu sediul in Chisinau, Str. Gradina Botanica 14/3, Moldova, ca distribuitori autorizati de produse FORTINET si servicii atasate acestora, confirmam prin prezenta ca Î.M. "Orange Moldova" S.A.- str. Alba Iulia nr. 75, Chishinau, Republica Moldova este partener autorizat Fortinet.

Î.M. "Orange Moldova" S.A. in calitate de centru de service local in Moldova poate oferi produsele si serviciile Fortinet.

Distribuitor autorizat Fortinet,
Netsafe Distribution SRL



DECLARAȚIE

privind includerea în Lista producătorilor de produse supuse
reglementărilor de responsabilitate extinsă a producătorilor

Prin prezenta Declarație, compania I.M. "Orange MOLDOVA" S.A. declară pe proprie răspundere că este inclusă în Lista producătorilor de produse supuse reglementărilor de responsabilitate extinsă a producătorilor, în condițiile pct. 111 din Regulamentul privind deșeurile de echipamente electrice și electronice, aprobat prin HG nr. 212/2018.

Numărul de Înregistrare: MD2022-5-EEE-001

Informația privind includerea în Lista producătorilor de produse supuse reglementărilor de responsabilitate extinsă a producătorilor poate fi verificată pe <https://siamd.gov.md/portal/deee.html>.

Data completării 04.04.2023

Cu stimă,
Anatolie Bulgaru
Head of B2B IoT and ICT
Î.M. „Orange Moldova” S.A.

Acest act este semnat prin aplicarea **Semnăturii Mobile**
Verificarea semnăturii - <https://msign.gov.md/#/verify/upload>

FG-101F Datasheet

Get a Quote



Overview

The FortiGate 100F series provides an application-centric, scalable, and secure SD-WAN solution with Next Generation Firewall (NGFW) capabilities for mid-sized to large enterprises deployed at the campus or branch level. Protects against cyber threats with system-on-a-chip acceleration and industry-leading secure SD-WAN in a simple, affordable, and easy to deploy solution. Fortinet's Security-Driven Networking approach provides tight integration of the network to the new generation of security.

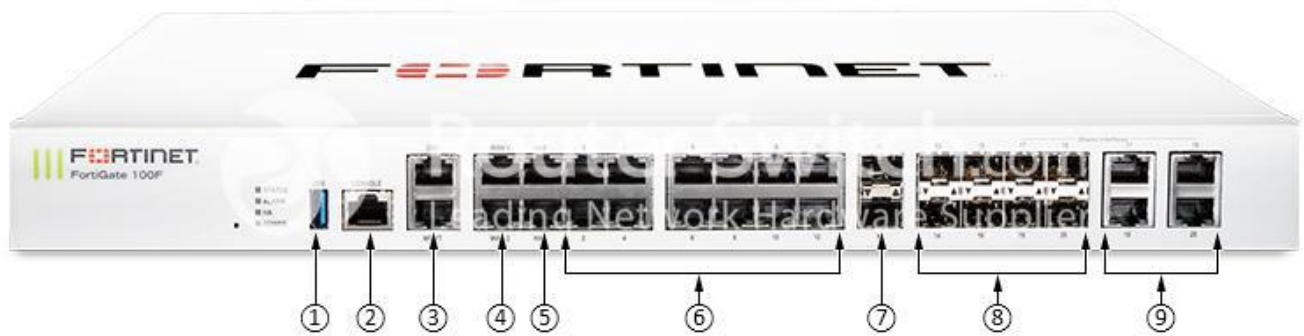
Quick Spec

Table 1 shows the quick spec.

Product Code	FG-101F
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 RJ45or SFP Shared Ports	4
USB Port	1
Console Port	1
Onboard Storage	1x 480 GB SSD
IPS Throughput	2.6 Gbps
NGFW Throughput	1.6 Gbps
Threat Protection Throughput	1 Gbps
Height x Width x Length (inches)	1.73 x 17 x 10
Height x Width x Length (mm)	44 x 432 x 254
Form Factor (supports EIA/non-EIA standards)	Rack Mount, 1 RU

Product Details

Figure 1 shows the front view of FG-101F.



Note:

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

Figure 2 shows the rear view of FG-101F.



Compare to Similar Item

Table 2 shows the comparison of FG-100F and FG-101F.

Product Code	FG-100F	FG-101F
Onboard Storage	0	1x 480 GB SSD
Included Transceivers	0	0
IPS Throughput	2.6 Gbps	2.6 Gbps

NGFW Throughput	1.6 Gbps	1.6 Gbps
Threat Protection Throughput	1 Gbps	1 Gbps
Height x Width x Length (inches)	1.73 x 17 x 10	1.73 x 17 x 10
Height x Width x Length (mm)	44 x 432 x 254	44 x 432 x 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	Rack Mount, 1 RU
AC Power Supply	100–240V AC, 50/60 Hz	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	100V / 1A, 240V / 0.5A
Heat Dissipation	119.77 BTU/h	121.13 BTU/h
Redundant Power Supplies	Yes	Yes

Related Products

Table 3 shows the bundle models and licenses of FG-101F.

Types	Model	Description
Basic Firewall	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, 2x 10 GE SFP+ FortiLinks, 480 GB onboard storage, dual power supplies redundancy. Max managed FortiAPs (Total / Tunnel) 64 / 32. Need to buy with License.
1 year bundle	FG-101F-BDL-950-12	FG-101F Hardware plus 1 Year 24*7 FortiCare and FortiGuard Unified (UTM) Protection(FG-101F & FC-10-F101F-950-02-12)
1 year License	FC-10-F101F-950-02-12	1 year Unified (UTM) Protection (24x7 FortiCare plus Application Control, IPS, AV, Web Filtering and Antispam, FortiSandbox Cloud) of FG-101F
3 year bundle	FG-101F-BDL-950-36	FG-101F Hardware plus 3 Year 24*7 FortiCare and FortiGuard Unified (UTM) Protection(FG-101F & FC-10-F101F-950-02-36)
3 year License	FC-10-F101F-950-02-36	3 year Unified (UTM) Protection (24x7 FortiCare plus Application Control, IPS, AV, Web Filtering and Antispam, FortiSandbox Cloud) of FG-101F
5 year bundle	FG-101F-BDL-950-60	FG-101F Hardware plus 5 Year 24*7 FortiCare and FortiGuard Unified (UTM) Protection(FG-101F & FC-10-F101F-950-02-60)
5 year License	FC-10-F101F-950-02-60	5 year Unified (UTM) Protection (24x7 FortiCare plus Application Control, IPS, AV, Web Filtering and Antispam, FortiSandbox Cloud) of FG-101F

Get More Information

Do you have any question about the FG-101F?

Contact us now via [Live Chat](#) or sales@router-switch.com.

Specification

FG-101F Specification	
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 RJ45or SFP Shared Ports *	4
USB Port	1
Console Port	1
Onboard Storage	1x 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	2,500
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	1,800
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	5,000
High Availability Configurations	Active / Active, Active / Passive, Clustering

Dimensions and Power	
Height x Width x Length (inches)	1.73 x 17 x 10
Height x Width x Length (mm)	44 x 432 x 254
Weight	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)	35.3 W / 39.1 W
Current (Maximum)	100V / 1A, 240V / 0.5A
Heat Dissipation	121.13 BTU/h
Redundant Power Supplies	Yes
Redundant Power Supplies Yes	
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 7,400 ft (2,250 m)
Compliance	FCC Part 15B, Class A, CE, RCM, VCCI, UL/cUL, CB, BSMI
Certifications	ICSA Labs: Firewall, IPsec, IPS, Antivirus, SSL-VPN; IPv6
<p>Note: All performance values are “up to” and vary depending on system configuration.</p> <p>1. IPsec VPN performance test uses AES256-SHA256.</p> <p>2. IPS (Enterprise Mix), Application Control, NGFW and Threat Protection are measured with Logging enabled.</p> <p>3. SSL Inspection performance values use an average of HTTPS sessions of different cipher suites.</p> <p>4. NGFW performance is measured with Firewall, IPS and Application Control enabled.</p> <p>5. Threat Protection performance is measured with Firewall, IPS, Application Control and Malware Protection enabled.</p>	


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FortiSwitch™ Secure Access Family

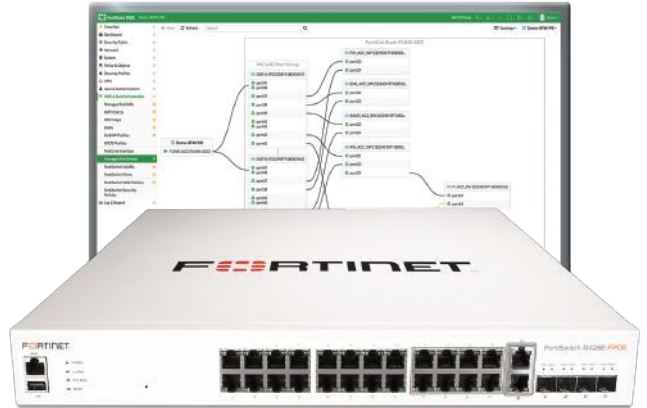
The FortiSwitch™ Secure Access Family delivers outstanding security, performance, and manageability. Secure, simple, and scalable, FortiSwitch is the right choice for threat-conscious businesses of all sizes.

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 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. This control and manageability make FortiSwitch ideal for SD-Branch deployments.



Product Offerings

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

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

Features

FORTISWITCH FORTILINK MODE (WITH FORTIGATE)			
Management and Configuration			
Auto Discovery of Multiple Switches	Yes		
Number of Managed Switches per FortiGate	8 to 300 Depending on FortiGate Model (Please refer to admin guide)		
FortiLink Stacking (Auto Inter-Switch Links)	Yes		
Software Upgrade of Switches	Yes		
Centralized VLAN Configuration	Yes		
Switch POE Control	Yes		
Link Aggregation Configuration	Yes		
Spanning Tree	Yes		
LLDP/MED	Yes		
IGMP Snooping	Yes		
L3 Routing and Services	Yes (FortiGate)		
Policy-Based Routing	Yes (FortiGate)		
Virtual Domain	Yes (FortiGate)		
Security and Visibility			
802.1x Authentication (Port-based, MAC-based, MAB)	Yes		
Syslog Collection	Yes		
DHCP Snooping	Yes		
Device Detection	Yes		
MAC Black/While Listing	Yes (FortiGate)		
Policy Control of Users and Devices	Yes (FortiGate)		
Block Intra-VLAN Traffic	Yes		
UTM Features			
Firewall	Yes (FortiGate)		
IPC, AV, Application Control, Botnet	Yes (FortiGate)		
High Availability			
Support FortiLink FortiGate in HA Cluster	Yes		
LAG support for FortiLink Connection	Yes		
Active-Active Split LAG from FortiGate to FortiSwitches for Advanced Redundancy	Yes (with FS-2xx, 4xx, 5xx)		
FORTISWITCH MODEL SERIES	2XXD, 4XXD, 5XXD	1XXE / 1XXF	2XXE, 4XXE
Layer 2			
Jumbo Frames	Yes	Yes	Yes
Auto-negotiation for Port Speed and Duplex	Yes	Yes	Yes
MDI/MDIX Auto-crossover	Yes	Yes	Yes
IEEE 802.1D MAC Bridging/STP	Yes	Yes	Yes
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)	Yes	Yes	Yes
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)	Yes	Yes	Yes
STP Root Guard	Yes	Yes	Yes
STP BPDU Guard	Yes	Yes	Yes
Edge Port / Port Fast	Yes	Yes	Yes
IEEE 802.1Q VLAN Tagging	Yes	Yes	Yes
Private VLAN	Yes	No	Yes
IEEE 802.3ad Link Aggregation with LACP	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
IEEE 802.1AX Link Aggregation	Yes	Yes	Yes
Spanning Tree Instances (MSTP/CST)	15/1	15/1	15/1
IEEE 802.3x Flow Control and Back-pressure	Yes	Yes	Yes
IEEE 802.3 10Base-T	Yes	Yes	Yes
IEEE 802.3u 100Base-TX	Yes	Yes	Yes
IEEE 802.3z 1000Base-SX/LX	Yes	Yes	Yes
IEEE 802.3ab 1000Base-T	Yes	Yes	Yes
IEEE 802.3ae 10 Gigabit Ethernet	4xx and 5xx Family	N/A / Yes	Yes
IEEE 802.3az Energy Efficient Ethernet	Yes	Yes	Yes
IEEE 802.3bz Multi Gigabit Ethernet	No	No	Yes (M426E-FPOE)
IEEE 802.3 CSMA/CD Access Method and Physical Layer Specifications	Yes	Yes	Yes
Storm Control	Yes	Yes	Yes
MAC, IP, Ethertype-based VLANs	Yes	Yes	Yes
Virtual-Wire	Yes	No	Yes
Split Port (QSFP+ breakout to 4x10G SFP+ or 4x1G SFP)	FS-5xx Family	N/A	N/A
Time-Domain Reflectometry (TDR) Support	Yes	Yes	Yes

Features

FORTISWITCH MODEL SERIES	2XXD, 4XXD, 5XXD	1XXE / 1XXF	2XXE, 4XXE
Layer 3*			
Static Routing (Hardware-based)	Yes	N/A**	Yes
Routing Entries	64 on FS-2xx, 4xx Family; 16K on FS-5xx Family	N/A	64 on 2xxE 1K on 424E, 424E-POE, 424E-FPOE, M426E-FPOE 16K on 448E, 448E-POE, 448E-FPOE, 424E-Fiber
Host Entries	1K on FS-2xx, 4xx Family; 24K on FS-5xx Family	N/A	1K on 2xxE 2K on 424E, 424E-POE, 424E-FPOE, M426E-FPOE 16K on 448E, 448E-POE, 448E-FPOE, 424E-Fiber
Dynamic Routing Protocols***	OSPFv2, RIPv2, VRRP; BGP, ISIS on FS-5xx	N/A	OSPFv2, RIPv2, VRRP
Multicast Protocols***	PIM-SSM on FS-5xx	N/A	N/A
ECMP	FS-5xx Family	N/A	No
Spanning Tree Instances	32 instances max for FS-5xx from 6.2.0+	N/A	N/A
Bidirectional Forwarding Detection (BFD)	Yes	N/A	Yes
DHCP Relay	Yes	Yes	Yes
Services			
IGMP Snooping	Yes	Yes	Yes
Security and Visibility			
Port Mirroring	Yes	Yes	Yes
Admin Authentication Via RFC 2865 RADIUS	Yes	Yes	Yes
IEEE 802.1x authentication Port-based	Yes	Yes	Yes
IEEE 802.1x Authentication MAC-based	Yes	Yes	Yes
IEEE 802.1x Guest and Fallback VLAN	Yes	Yes	Yes
IEEE 802.1x MAC Access Bypass (MAB)	Yes	Yes	Yes
IEEE 802.1x Dynamic VLAN Assignment	Yes	Yes	Yes
Radius CoA (Change of Authority)	Yes	Yes	Yes
Radius Accounting	Yes	Yes	Yes
MAC-IP Binding	5xx only	No	No
sFlow	Yes	No	Yes
ACL	1K entries on FS-5xx Family 512 on 2xx, 4xx Families	640 for 1xxE 768 for 1xxF	512 entries on 2xxE 1K on 424E, 424E-POE, 424E-FPOE, M426E-FPOE 1.5K on 448E, 448E-POE, 448E-FPOE, 424E-Fiber
IEEE 802.1ab Link Layer Discovery Protocol (LLDP)	Yes	Yes	Yes
IEEE 802.1ab LLDP-MED	Yes	Yes	Yes
IEEE 802.1ae MAC Security (MAC Sec)	FS-5xxD 10G ports	No	No
DHCP-Snooping	Yes	Yes	Yes
Dynamic ARP Inspection	Yes	Yes	Yes
Sticky MAC and MAC Limit	Yes	Yes	Yes
High Availability			
Multi-Chassis Link Aggregation (MCLAG)	Yes	N/A	Yes
Quality of Service			
IEEE 802.1p Based Priority Queuing	Yes	Yes	Yes
IP TOS/DSCP Based Priority Queuing	Yes	Yes	Yes
IEEE 1588 PTP (Transparent Clock)	Yes	No	Yes
Management			
IPv4 and IPv6 Management	Yes	Yes	Yes
Telnet / SSH	Yes	Yes	Yes
HTTP / HTTPS	Yes	Yes	Yes
SNMP v1/v2c/v3	Yes	Yes	Yes
SNTP	Yes	Yes	Yes
Standard CLI and Web GUI Interface	Yes	Yes	Yes
Software download/upload: TFTP/FTP/GUI	Yes	Yes	Yes
Managed from FortiGate	Yes	Yes	Yes
Support for HTTP REST APIs for Configuration and Monitoring	Yes	Yes	Yes

* Supported on 2xx, 4xx and 5xx. **Supported in software only. ***Requires 'Advanced Features' License.

Features




ALL FORTISWITCH MODELS

RFC and MIB Support*

BFD	MIB
RFC 5880: Bidirectional Forwarding Detection (BFD)	RFC 1724: RIPv2-MIB
RFC 5881: Bidirectional Forwarding Detection (BFD) for IPv4 and IPv6 (Single Hop)	RFC 1850: OSPF Version 2 Management Information Base
RFC 5882: Generic Application of Bidirectional Forwarding Detection (BFD)	RFC 2233: The Interfaces Group MIB using SMIv2
BGP	RFC 2618: Radius-Auth-Client-MIB
RFC 1771: A Border Gateway Protocol 4 (BGP-4)	RFC 2620: Radius-Acc-Client-MIB
RFC 1965: Autonomous System Confederations for BGP	RFC 2674: Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN extensions
RFC 1997: BGP Communities Attribute	RFC 2787: Definitions of Managed Objects for the Virtual Router Redundancy Protocol
RFC 2545: Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing	RFC 2819: Remote Network Monitoring Management Information Base
RFC 2796: BGP Route Reflection - An Alternative to Full Mesh IBGP	RFC 2932: IPv4 Multicast Routing MIB
RFC 2842: Capabilities Advertisement with BGP-4	RFC 2934: Protocol Independent Multicast MIB for IPv4
RFC 2858: Multiprotocol Extensions for BGP-4	RFC 3289: Management Information Base for the Differentiated Services Architecture
RFC 4271: BGP-4	RFC 3433: Entity Sensor Management Information Base
RFC 6286: Autonomous-System-Wide Unique BGP Identifier for BGP-4	RFC 3621: Power Ethernet MIB
RFC 6608: Subcodes for BGP Finite State Machine Error	RFC 6933: Entity MIB (Version 4)
RFC 6793: BGP Support for Four-Octet Autonomous System (AS) Number Space	OSPF
RFC 7606: Revised Error Handling for BGP UPDATE Messages	RFC 1583: OSPF version 2
RFC 7607: Codification of AS 0 Processing	RFC 1765: OSPF Database Overflow
RFC 7705: Autonomous System Migration Mechanisms and Their Effects on the BGP AS_PATH Attribute	RFC 2328: OSPF version 2
RFC 8212: Default External BGP (EBGP) Route Propagation Behavior without Policies	RFC 2370: The OSPF Opaque LSA Option
RFC 8654: Extended Message Support for BGP	RFC 2740: OSPF for IPv6
DHCP	RFC 3101: The OSPF Not-So-Stubby Area (NSSA) Option
RFC 2131: Dynamic Host Configuration Protocol	RFC 3137: OSPF Stub Router Advertisement
RFC 3046: DHCP Relay Agent Information Option	RFC 3623: OSPF Graceful Restart
RFC 7513: Source Address Validation Improvement (SAVI) Solution for DHCP	RFC 5340: OSPF for IPv6 (OSPFv3)
IP/IPv4	RFC 5709: OSPFv2 HMAC-SHA Cryptographic Authentication
RFC 3168: The Addition of Explicit Congestion Notification (ECN) to IP	RFC 6549: OSPFv2 Multi-Instance Extensions
RFC 5227: IPv4 Address Conflict Detection	RFC 6845: OSPF Hybrid Broadcast and Point-to-Multipoint Interface Type
RFC 5517: Cisco Systems' Private VLANs: Scalable Security in a Multi-Client Environment	RFC 6860: Hiding Transit-Only Networks in OSPF
RFC 7039: Source Address Validation Improvement (SAVI) Framework	RFC 7474: Security Extension for OSPFv2 When Using Manual Key Management
IP Multicast	RFC 7503: OSPF for IPv6
RFC 2362: Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification	RFC 8042: CCITT Draft Recommendation T.4
RFC 2710: Multicast Listener Discovery (MLD) for IPv6 (MLDv1)	RFC 8362: OSPFv3 Link State Advertisement (LSA) Extensibility
RFC 4541: Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches	OTHER
RFC 4605: Internet Group Management Protocol (IGMP)/Multicast Listener Discovery (MLD)-Based Multicast Forwarding ("IGMP/MLD Proxying")	RFC 2030: SNMP
RFC 4607: Source-Specific Multicast for IP	RFC 3176: InMon Corporation's sFlow: A Method for Monitoring Traffic in Switched and Routed Networks
IPv6	RFC 3768: VRRP
RFC 2464: Transmission of IPv6 Packets over Ethernet Networks: Transmission of IPv6 Packets over Ethernet Networks	RFC 3954: Cisco Systems NetFlow Services Export Version 9
RFC 2474: Definition of the Differentiated Services Field (DS Field) in the and IPv6 Headers (DSCP)	RFC 5101: Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of Flow Information
RFC 2893: Transition Mechanisms for IPv6 Hosts and Routers	RFC 5798: VRRPv3 (IPv4 and IPv6)
RFC 4213: Basic Transition Mechanisms for IPv6 Hosts and Router	RADIUS
RFC 4291: IP Version 6 Addressing Architecture	RFC 2865: Admin Authentication Using RADIUS
RFC 4443: Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	RFC 2866: RADIUS Accounting
RFC 4861: Neighbor Discovery for IP version 6 (IPv6)	RFC 5176: Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)
RFC 4862: IPv6 Stateless Address Auto configuration	RIP
RFC 5095: Deprecation of Type 0 Routing Headers in IPv6	RFC 1058: Routing Information Protocol
RFC 6724: Default Address Selection for Internet Protocol version 6 (IPv6)	RFC 2080: RIPv2 for IPv6
RFC 7113: IPv6 RA Guard	RFC 2082: RIP-2 MD5 Authentication
RFC 8200: Internet Protocol, Version 6 (IPv6) Specification	RFC 2453: RIPv2
RFC 8201: Path MTU Discovery for IP version 6	RFC 4822: RIPv2 Cryptographic Authentication
IS-IS	SNMP
RFC 1195: Use of OSI IS-IS for Routing in TCP/IP and Dual Environments	RFC 1157: SNMPv1/v2c
RFC 5308: Routing IPv6 with IS-IS	RFC 2571: Architecture for Describing SNMP
MIB	RFC 2572: SNMP Message Processing and Dispatching
RFC 1213: MIB II parts that apply to FortiSwitch 100 units	RFC 2573: SNMP Applications
RFC 1354: IP Forwarding Table MIB	RFC 2576: Coexistence between SNMP versions
RFC 1493: Bridge MIB	
RFC 1573: SNMP MIB II	
RFC 1643: Ethernet-like Interface MIB	

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

Specifications

			
	FORTISWITCH 108E	FORTISWITCH 108E-POE	FORTISWITCH 108E-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	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	0	4 (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	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
Dimensions			
Height x Depth x Width (inches)	1.5 x 6.3 x 8.7	1.7 x 8.2 x 13	1.7 x 8.2 x 13
Height x Depth x Width (mm)	38 x 160 x 220	44 x 209 x 330	44 x 209 x 330
Weight	2.2 lbs (1 kg)	4.3 lbs (1.95 kg)	4.5 lbs (2.04 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	AC & PoE-PD Built in	AC Built in	AC Built in
Redundant Power	—	—	—
Power Consumption* (Average / Maximum)	5.54 W / 6.26 W	70.19 W / 71.10 W	135.19 W / 136.10 W
Heat Dissipation	18.9 BTU/h	17.7 BTU/h	17.7 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
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



FortiSwitch 108E-POE



FortiSwitch 108E-FPOE

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
Dimensions			
Height x Depth x Width (inches)	1.7 x 8.2 x 13	1.7 x 12.2 x 17.3	1.7 x 12.2 x 17.3
Height x Depth x Width (mm)	44 x 209 x 330	44 x 309 x 440	44 x 309 x 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
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-POE



FortiSwitch 124E-FPOE

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
Dimensions		
Height x Depth x Width (inches)	1.73 x 12.2 x 17.3	1.73 x 13.7 x 17.3
Height x Depth x Width (mm)	44 x 309 x 440	44 x 348 x 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
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 4x 10GE SFP+	24x GE RJ45 and 4x 10GE SFP+	24x GE RJ45 and 4x 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
Dimensions			
Height x Depth x Width (inches)	1.73 x 9.06 x 12.99	1.73 x 10.24 x 17.32	1.73 x 10.24 x 17.32
Height x Depth x Width (mm)	44 x 230 x 330	44 x 260 x 440	44 x 260 x 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
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 4x 10GE SFP+	48x GE RJ45 and 4x 10GE SFP+	48x GE RJ45 and 4x 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
Dimensions			
Height x Depth x Width (inches)	1.73 x 10.24 x 17.32	1.73 x 12.20 x 17.32	1.73 x 12.20 x 17.32
Height x Depth x Width (mm)	44 x 260 x 440	44 x 310 x 440	44 x 310 x 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
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 (802.3at/802.3af)	NA	12 (802.3at/802.3af)
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
Dimensions			
Height x Depth x Width (inches)	1.73 x 12.2 x 17.5	1.73 x 9 x 12.99	1.73 x 9 x 12.99
Height x Depth x Width (mm)	44 x 310 x 440	44 x 230 x 330	44 x 230 x 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
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



FortiSwitch 224E-POE

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 (802.3at/802.3af)	48 (802.3at/802.3af)
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
Dimensions			
Height x Depth x Width (inches)	1.73 x 9.68 x 17.3	1.73 x 16.1 x 17.3	1.73 x 16.1 x 17.3
Height x Depth x Width (mm)	44 x 246 x 440	44 x 410 x 440	44 x 410 x 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
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 248D






FortiSwitch 248E-POE



FortiSwitch 248E-FPOE

Specifications

			
	FORTISWITCH 424D	FORTISWITCH 424D-POE	FORTISWITCH 424D-FPOE
Hardware Specifications			
Total Network Interfaces	24x GE RJ45 and 2x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 2x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 2x10 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	185 W	370 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years
System Specifications			
Switching Capacity (Duplex)	88 Gbps	88 Gbps	88 Gbps
Packets Per Second (Duplex)	131 Mpps	131 Mpps	131 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	1 GB DDR3	1 GB DDR3	1 GB DDR3
FLASH	128 MB	128 MB	128 MB
Dimensions			
Height x Depth x Width (inches)	1.75 x 10.12 x 17.3	1.75 x 10.12 x 17.3	1.73 x 12.2 x 17.5
Height x Depth x Width (mm)	44 x 250 x 440	44 x 250 x 440	44 x 310 x 440
Weight	7.14 lbs (3.24 kg)	8.42 lbs (3.82 kg)	10.64 lbs (4.83 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	Optional FRPS-740	Optional FRPS-740
Power Consumption* (Average / Maximum)	17.3 W / 17.2 W	208 W / 210 W	397 W / 403 W
Heat Dissipation	69 BTU/h	89 BTU/h	100 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
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 424D






FortiSwitch 424D-POE



FortiSwitch 424D-FPOE

Specifications

			
	FORTISWITCH 448D	FORTISWITCH 448D-POE	FORTISWITCH 448D-FPOE
Hardware Specifications			
Total Network Interfaces	48x GE RJ45 and 4x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4x10 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	—	48 (802.3af/at)	48 (802.3af/at)
PoE Power Budget	N/A	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)	262 Mpps	262 Mpps	262 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	1 GB DDR3	1 GB DDR3	1 GB DDR3
FLASH	128 MB	128 MB	128 MB
Dimensions			
Height x Depth x Width (inches)	1.75 x 12.2 x 17.3	1.73 x 16.1 x 17.3	1.73 x 16.1 x 17.3
Height x Depth x Width (mm)	44 x 310 x 440	44 x 410 x 440	44 x 410 x 440
Weight	9.15 lbs (4.15 kg)	13.44 lbs (6.1 kg)	15.45 lbs (7.01 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	Optional FRPS-740	Redundant AC
Power Consumption* (Average / Maximum)	38 W / 38 W	417 W / 419 W	790 W / 792 W
Heat Dissipation	147 BTU/h	177 BTU/h	193 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
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 448D



FortiSwitch 448D-POE



FortiSwitch 448D-FPOE

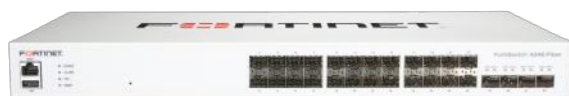
Specifications



	FORTISWITCH-424E-FIBER	FORTISWITCH-M426E-FPOE
Hardware Specifications		
Total Network Interfaces	24x GE SFP and 4x 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	16x GE RJ45, 8x 2.5 GE RJ45 ports, 2x 5 GE RJ45, and 4x 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 (16x 802.3at/at, 8x 802.3at/at/bt Type 3)
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
Dimensions		
Height x Depth x Width (inches)	1.75 x 7.87 x 17.3	1.73 x 16.14 x 17.3
Height x Depth x Width (mm)	44 x 200 x 440	44 x 410 x 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
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 4x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 4x10 GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	24x GE RJ45 and 4x10 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
Dimensions			
Height x Depth x Width (inches)	1.75 x 10.23 x 17.3	1.75 x 16.14 x 17.3	1.75 x 16.14 x 17.3
Height x Depth x Width (mm)	44 x 260 x 440	44 x 410 x 440	44 x 410 x 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)	–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
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 4x 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4x 10GE SFP+ ports Note: SFP+ ports are compatible with 1 GE SFP	48x GE RJ45 and 4x 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	2 MB	2 MB	2 MB
DRAM	1GB DDR4	1GB DDR4	1GB DDR4
FLASH	256 MB	256 MB	256 MB
Dimensions			
Height x Depth x Width (inches)	1.75 x 12.2 x 17.3	1.73 x 16.1 x 17.3	1.73 x 16.1 x 17.3
Height x Depth x Width (mm)	44 x 310 x 440	44 x 410 x 440	44 x 410 x 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
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	FORTISWITCH 548D	FORTISWITCH 548D-FPOE
Hardware Specifications				
Total Network Interfaces	24 GE/RJ45 ports, 4x 10 GE SFP+ ports and 2x 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP	24 GE/RJ45 ports, 4x 10 GE SFP+ ports and 2x 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP	48x GE/RJ45 ports, 4x 10 GE SFP+ ports and 2x 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP	48x GE/RJ45 ports, 4x 10 GE SFP+ ports and 2x 40 GE QSFP Note: SFP+ ports are compatible with 1G SFP
Dedicated Management 10/100/1000 Ports	1	1	1	1
RJ-45 Serial Console Port	1	1	1	1
Form Factor	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount	1 RU Rack Mount
Power over Ethernet (PoE) Ports	N/A	24 (802.3at/at)	N/A	48 (802.3at/at)
PoE Power Budget	N/A	400 W	N/A	750 W
Mean Time Between Failures	> 10 years	> 10 years	> 10 years	> 10 years
System Specifications				
Switching Capacity (Duplex)	288 Gbps	288 Gbps	336 Gbps	336 Gbps
Packets Per Second (Duplex)	428 Mpps	428 Mpps	512 Mpps	512 Mpps
MAC Address Storage	96 K	96 K	96 K	96 K
Network Latency	< 2µs	< 2µs	< 2µs	< 2µs
VLANs Supported	4 K	4 K	4 K	4 K
Link Aggregation Group Size	24	24	48	48
Total Link Aggregation Groups	Up to number of ports	Up to number of ports	Up to number of ports	Up to number of ports
Packet Buffers	4 MB	4 MB	4 MB	4 MB
DRAM	2 GB DDR3	2 GB DDR3	2 GB DDR3	2 GB DDR3
FLASH	128 MB	128 MB	128 MB	128 MB
Dimensions				
Height x Depth x Width (inches)	1.75 x 13.8 x 17.3	1.75 x 13.8 x 17.3	1.75 x 13.8 x 17.3	1.75 x 13.8 x 17.3
Height x Depth x Width (mm)	44 x 350 x 439	44 x 350 x 439	44 x 350 x 439	44 x 350 x 439
Weight	13.6 lbs (6.2 kg)	15.74 lbs (7.14 kg)	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	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power Supply	150 W AC PSU*	600 W AC PSU*	150 W AC PSU*	920 W AC PSU*
Redundant Power	Optional FS-PSU-150* (for 150 W backup only)	Optional FS-PSU-600* (for 600 W for additional PoE)	Optional FS-PSU-150* (for 150 W backup only)	Optional FS-PSU-920* (for 900 W for additional PoE)
Power Consumption** (Average / Maximum)	73 W / 75 W	570 W / 579 W (full PoE load)	74 W / 77 W	925 W / 961 W (full PoE load)
Heat Dissipation	247 BTU/h	296 BTU/h (full PoE loading)	252 BTU/h	318 BTU/h (full PoE loading)
Operating Temperature	32–113°F (0–45°C)	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)	-40–158°F (-40–70°C)
Humidity	5–95% non-condensing	5–95% non-condensing	5–95% non-condensing	5–95% non-condensing
Air-Flow Direction	front-to-back	front-to-back	front-to-back	front-to-back
Certification and Compliance				
FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2				
Warranty				
Fortinet Warranty		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



FortiSwitch 548D



FortiSwitch 548D-FPOE

Order Information

Product	SKU	Description
FortiSwitch 108E	FS-108E	Layer 2 FortiGate switch controller compatible switch with 8 GE RJ45 + 2 SFP ports, line AC and PSE dual powered. Fanless.
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 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.
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 424D	FS-424D	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45 + 2x 10 GE SFP+ ports.
FortiSwitch 424D-POE	FS-424D-POE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 2x 10 GE SFP+ ports, 24 port PoE with maximum 185 W limit.
FortiSwitch 424D-FPOE	FS-424D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45 + 2x 10 GE SFP+ ports, 24 port PoE with maximum 370 W limit.
FortiSwitch 448D	FS-448D	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45 + 4x 10 GE SFP+ ports.
FortiSwitch 448D-POE	FS-448D-POE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4x 10 GE SFP+ ports, 48 port PoE with maximum 370 W limit.
FortiSwitch 448D-FPOE	FS-448D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45 + 4x 10 GE 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 4x 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, 8x 2.5 GE RJ45, 2x 5 GE RJ45 and 4x 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, 4x 10 GE SFP+ ports.
FortiSwitch 424E-POE	FS-424E-POE	Layer 2/3 FortiGate switch controller compatible switch with 24 GE RJ45, 4x 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, 4x 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, 4x 10 GE SFP+ ports.
FortiSwitch 448E-POE	FS-448E-POE	Layer 2/3 FortiGate switch controller compatible switch with 48 GE RJ45, 4x 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, 4x 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, 4x 10 GE SFP+ and 2x 40 GE QSFP+ ports.
FortiSwitch 524D-FPOE	FS-524D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 24 GE RJ45, 4x 10 GE SFP+, 2x 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, 4x 10 GE SFP+ and 2x 40 GE QSFP+ ports.
FortiSwitch 548D-FPOE	FS-548D-FPOE	Layer 2/3 FortiGate switch controller compatible PoE+ switch with 48 GE RJ45, 4x 10 GE SFP+ and 2x 40 GE QSFP+ ports, 48 port PoE with maximum 750 W limit.
FortiSwitch Cloud Management License*	FC-10-WMSC1-190-02-DD	FortiSwitch Cloud Management License subscription 1 Year Contract.

Order Information

Accessories		
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.
External Redundant AC Power Supply	FRPS-740	Redundant AC power supply for up to 2 units: FS-224D-FPOE, FS-248D-FPOE, FS-424D-FPOE, FS-448D-P0E and FS-424D-P0E.
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.



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FortiSwitch 108E Series

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Register your Fortinet product to receive:

- Technical Support
- New product features
- Protection from new threats

Vous devez enregistrer le produit pour recevoir:

- Support technique
- Nouvelles fonctionnalités du produit
- Protection contre de nouvelles menaces

La reistrazione ti permette di usufruire di:

- Supporto Tecnico
- Nuove funzionalità
- Protezione dalle ultime minacce

Debe registrar el producto para recibir:

- Apoyo técnico
- Nuevas funcionalidades del producto
- Protección contra ataques

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November 22, 2021

11-360-449447-20211122

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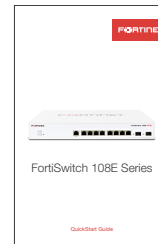
Fax: 1 408 235 7737

Email: register@fortinet.com

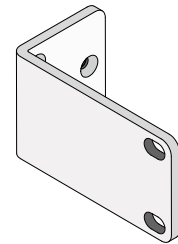
Box Includes



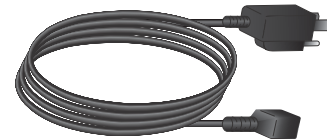
FortiSwitch 108E Series



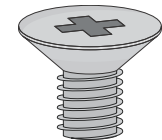
QuickStart Guide



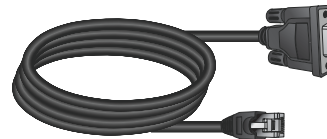
2 Rack Mount Brackets
(FS-108E-POE & FS-108E-FPOE only)



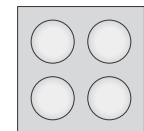
Power Cable



6 Bracket Screws
(FS-108E-POE & FS-108E-FPOE only)



Console Cable



4 Rubber Feet

1 Installation

The FortiSwitch unit can be placed on any [flat surface](#), or mounted in any standard [19 inch rack](#) unit with the provided rack-mount brackets and screws.

Please read "Cautions and Warnings" prior to installing your device.

Caution:

Electrostatic discharge (ESD) can damage your Fortinet equipment.

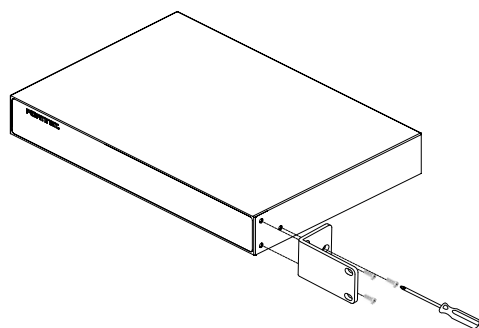
Do not place heavy objects on the unit.

To avoid personal injury or damage to the unit, it is recommended that two or more people install the unit into the rack.

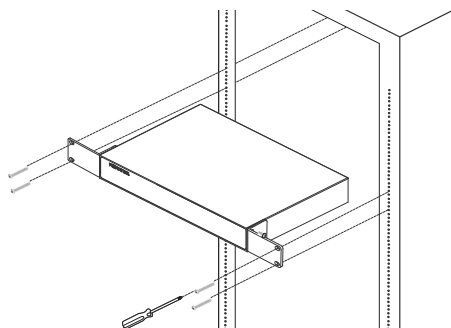
Note: If the unit has a redundant power supply, each power cable should be connected to a different power source. In this way, if one power source fails, the other may still be operational and the unit will not lose power.

To install the FortiSwitch unit into a rack

1. Ensure that the FortiSwitch unit is placed on a stable surface prior to [rack-mount](#) installation.
2. Attach the provided [rack-mount brackets](#) to the sides of the unit using the provided [bracket screws](#).



3. Position the FortiSwitch unit in the [rack](#). Ensure there is enough room around the unit to allow for sufficient air flow.
4. Line up the [rack-mount bracket holes](#) to the [holes on the rack](#) and ensure that the FortiSwitch unit is [level](#).

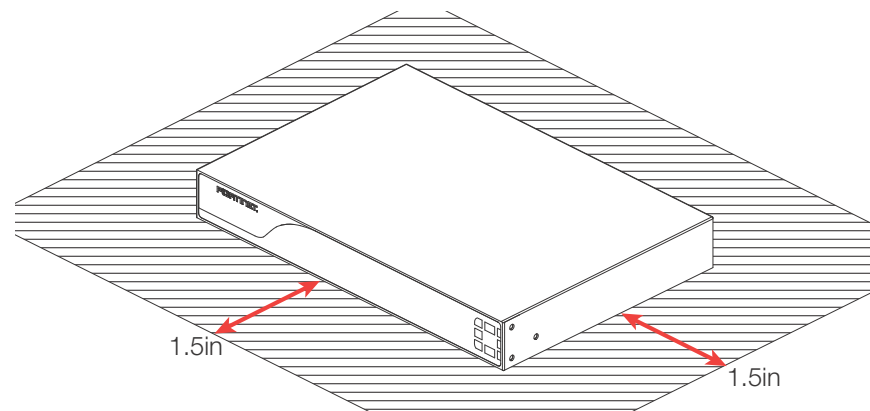


5. Finger tighten [four rack-mount screws](#) to attach the unit to the [rack](#).

6. Verify that the spacing around the FortiSwitch unit conforms to requirements and that the unit is [level](#), then tighten the [rack-mount screws](#) with an appropriate [screwdriver](#).
7. Plug the provided [power cable](#) into the rear of the unit and then into a [grounded electrical outlet](#) or a separate power source, such as an [uninterruptible power supply \(UPS\)](#) or a [power distribution unit \(PDU\)](#).

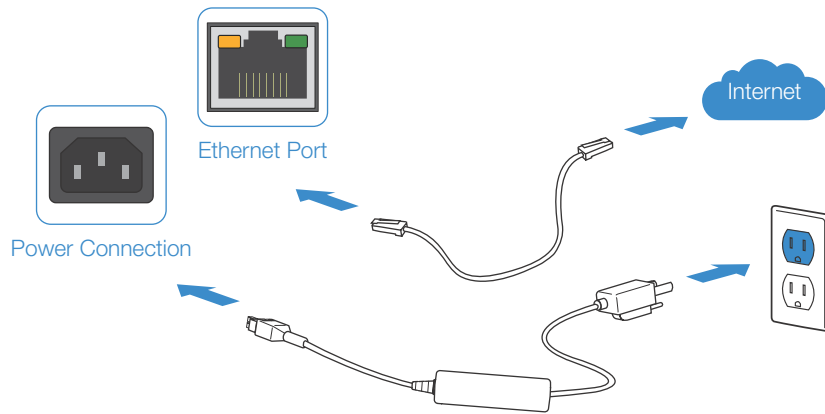
To install the unit on a flat surface

1. Ensure that the surface onto which the FortiSwitch unit to be installed is clean, level, and stable and that there is at least [1.5in \(3.8cm\)](#) of clearance on all sides to allow for adequate airflow.
2. Attach the provided [rubber feet](#) to the bottom of the FortiSwitch unit.
3. Place the unit in the designated location.
4. Verify that the spacing around the FortiSwitch unit conforms to requirements and that the unit is [level](#).



5. Plug the provided [power cable](#) into the rear of the unit and then into a [grounded electrical outlet](#) or a separate power source, such as an [uninterruptible power supply \(UPS\)](#) or a [power distribution unit \(PDU\)](#).

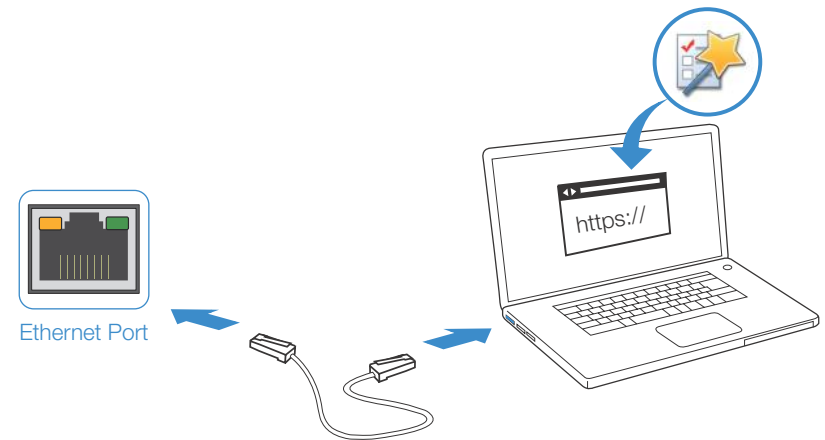
2 Basic Connections



Connect your device to a [power outlet](#) and an [Internet connection](#). This is usually a modem, but could also be another device on your network.

3 Setup Options

Web Browser



To Connect to the GUI

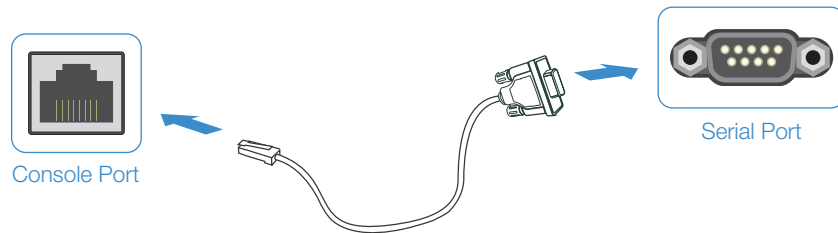
1. Connect the [Ethernet cable](#).
2. Configure the management computer to be on the same [subnet](#) as the internal interface as the FortiSwitch unit:

IP address: 192.168.1.2

Netmask: 255.255.255.0

3. Visit [192.168.1.99](#) in your web browser.
4. Login using username "[admin](#)" and [no password](#).
5. [Configure your device](#) and save your settings.
6. [Register your device](#) from the dashboard page.

Terminal Emulation



To Connect to the CLI

1. Connect the device's [console port](#) to the management computer using the provided [console cable](#).
2. Start a [terminal emulation program](#) on the management computer, select the [COM port](#), and use the following settings:

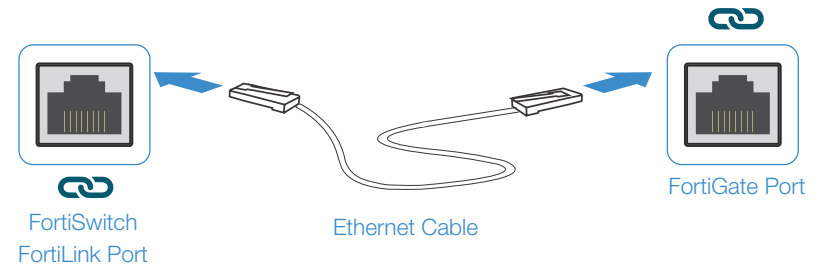
Baud Rate: 115200
Data bits: 8
Parity: None
Stop bits: 1
Flow Control: None

3. Press [Enter](#) on your keyboard to [connect to the CLI](#).
4. Login using username "[admin](#)" and no password. You can now proceed with configuring your device.

Get started by typing "?" for a list of available [commands](#).

Begin typing a command then type "?" for a list of available ways to complete.
For example "[config ?](#)" will show the lowest level of configuration options.

FortiLink



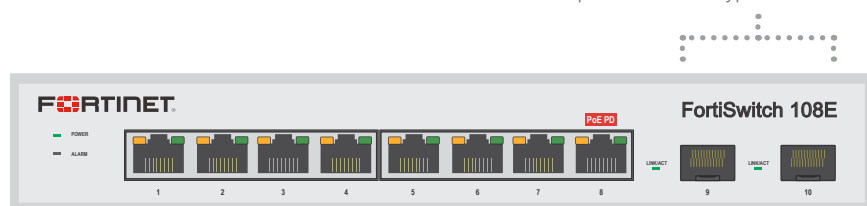
1. Connect a [FortiSwitch FortiLink Port](#) directly using an Ethernet Cable to a [FortiGate FortiLink Port](#) or any FortiGate Port that is not an HA port
2. Login to the FortiGate and go to the [WiFi & Switch Controller --> FortiLink Interface](#)
3. [Add a FortiGate Port](#) in the FortiLink interface and choose [Automatically authorize devices](#)
4. When the [FortiSwitch is online](#) in the [WiFi & Switch Controller --> Managed FortiSwitch](#) section, you can now manage your FortiSwitch

Cloud Management (Connect a port to the Internet)

1. Visit support.fortinet.com to register your device and cloud management license
2. Sign in at <https://fortilan.forticloud.com> to manage your Inventory List

SFP Ports 9 and 10

1Gbps small form-factor pluggable transceiver ports without bypass function



Ethernet Ports 1 - 7 (RJ-45)

Gigabit Ethernet network connections

Ethernet Port 8 PoE (RJ-45)

Gigabit Ethernet port with PoE PD support
802.3af/at compliant
Not a redundant power connection

Console Port (RJ-45)

Optional connection to the management computer
Provides access to the CLI

Power

100-240V AC, 50/60Hz, 0.5A Max

Grounding Screw

Provides extra grounding



Power

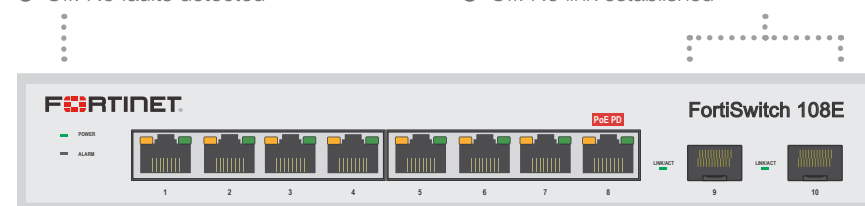
- Green: The unit is on
- Off: The unit is off

Alarm

- Amber: The unit has a fault
- Off: No faults detected

SFP Ports

- Green: Connected
- Flashing Green: Transmitting & receiving
- Off: No link established



Ethernet Ports Link/Activity (Left)

- Amber: Connected at 100Mbps
- Flashing Amber: Transmitting & receiving data at 100Mbps
- Off: No 100Mbps link established

Ethernet Ports Link/Activity (Right)

- Green: Connected at 1Gbps
- Flashing Green: Transmitting & receiving data at 1Gbps
- Off: No Gbps link established

FortiSwitch 108E-POE

Console Port (RJ-45)

Optional connection to the management computer
Provides access to the CLI

Ethernet Ports 5 - 8 (RJ-45)

Gigabit Ethernet network connections



Ethernet Ports 1 - 4 (RJ-45)

Gigabit Ethernet ports with smart
Power over Ethernet (PoE) providing up
to a maximum of 65W for all ports

SFP Ports 9 and 10

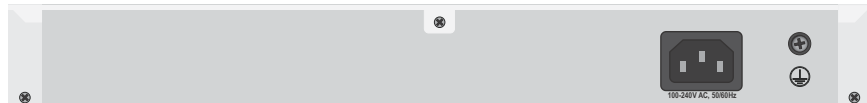
1Gbps small form-factor pluggable
transceiver ports without bypass function

Grounding Screw

Provides extra grounding

Power

100-240V AC, 50/60Hz, 1.6A Max



PoE Ports Power (Left)

- Amber: PoE output
- Off: No PoE output

PoE Ports Link/Activity (Right)

- Green: Connected at 1Gbps or 100Mbps
- Flashing Green: Transmitting & receiving data
- Off: No link established



Ethernet Ports Link/Activity (Right)

- Green: Connected at 1Gbps or 100Mbps
- Flashing Green: Transmitting & receiving data
- Off: No link established

Power

- Green: The unit is on
- Off: The unit is off

Alarm

- Amber: The unit has a fault
- Off: No faults detected

PoE Max

- Amber: Maximum PSE output reached
- Off: PSE output below maximum

SFP Ports

- Green: Connected
- Flashing Green: Transmitting & receiving
- Off: No link established

FortiSwitch 108E-FPOE

Console Port (RJ-45)

Optional connection to the management computer
Provides access to the CLI



Ethernet Ports 1 - 8 (RJ-45)

Gigabit Ethernet ports with smart
Power over Ethernet (PoE) providing up
to a maximum of 130W for all ports

SFP Ports 9 and 10

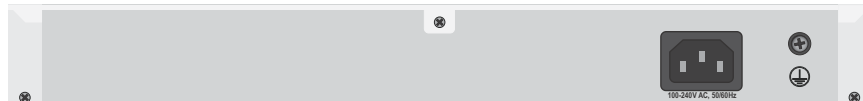
1Gbps small form-factor pluggable
transceiver ports without bypass function

Grounding Screw

Provides extra grounding

Power

100-240V AC, 50/60Hz, 3A Max



PoE Ports Power (Left)

- Amber: PoE output
- Off: No PoE output

PoE Ports Link/Activity (Right)

- Green: Connected at 1Gbps or 100Mbps
- Flashing Green: Transmitting & receiving data
- Off: No link established



Power

- Green: The unit is on
- Off: The unit is off

Alarm

- Amber: The unit has a fault
- Off: No faults detected

PoE Max

- Amber: Maximum PSE output reached
- Off: PSE output below maximum

SFP Ports

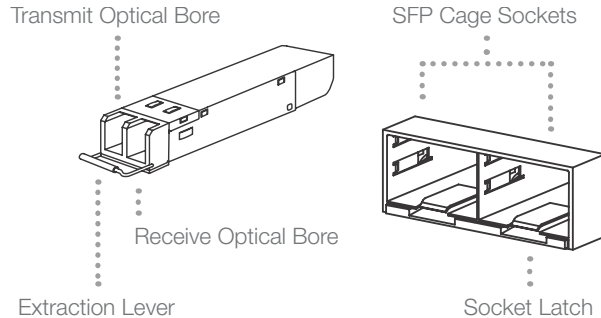
- Green: Connected
- Flashing Green: Transmitting & receiving
- Off: No link established

SFP Transceivers

Caution: SFP transceivers are static sensitive devices. Use an ESD wrist strap or similar grounding device when handling transceivers.

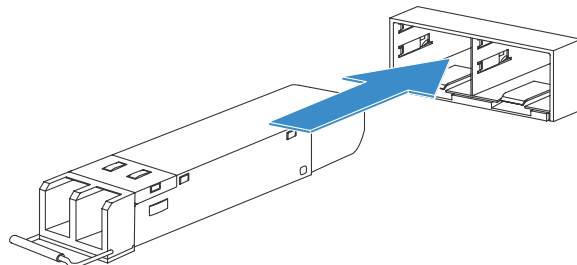
Do not force the SFP transceivers into the cage slots. If the transceiver does not easily slide in and click into place, it may not be aligned correctly or may be upside down. If this happens, remove the SFP transceiver, realign it or rotate it and slide it in again.

Note: Installing and removing SFP transceivers can shorten their useful life. Do not install or remove transceivers more than is necessary.



To install the SFP transceivers

1. Ensure that you are properly grounded.
2. Remove the caps from the SFP cage sockets on the front panel of the unit.
3. Position the SFP transceiver in front of the cage socket opening and ensure that the transceiver is correctly oriented. When the transceiver is correctly oriented, the extraction lever will be level with the socket latch.
Note: SFP cage socket orientation may vary. Ensure that the SFP transceiver module is correctly oriented each time that you are inserting a transceiver.
4. Hold the sides of the SFP transceiver and slide it into the cage socket until it clicks into place.

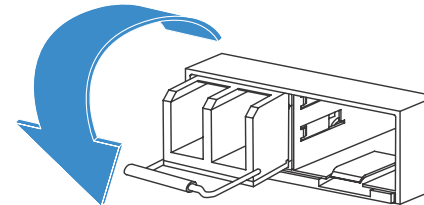


5. Press the transceiver firmly into the cage socket with your thumb.

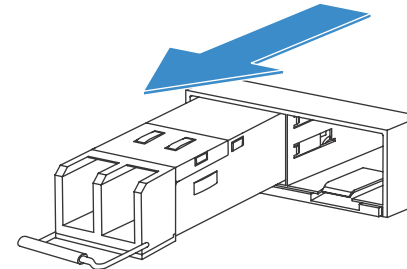
6. Verify that the transceiver is latched correctly by grasping the sides of the transceiver and trying to pull it out without lowering the extraction lever. If the transceiver cannot be removed, it is installed and latched correctly. If the transceiver can be removed, reinsert it and press harder with your thumb. If necessary, repeat this process until the transceiver is securely latched into the cage socket.

To remove the SFP transceivers

1. Ensure that you are properly grounded.
2. If applicable, disconnect the fiber-optic cable from the transceiver connector and install a clean dust plug in the transceiver's optical bores.
3. Pull the extraction lever out and down to eject the transceiver. If you are unable to use your finger to open the lever, use a small flat-head screwdriver or other similar tool to open the lever.



4. Hold the sides of the transceiver and carefully pull it away from the cage socket.



5. Replace the cap on the SFP cage socket and place the removed SFP transceiver into an antistatic bag.

Caution: Do not install or remove SFP transceivers while fiber-optic cables are still attached. This can cause damage to the cables, cable connectors, and the optical interfaces. It may also prevent the transceiver from latching correctly into the socket connector.

Note: Follow proper fiber-optic handling procedures when installing and removing SFP transceivers to ensure the devices remain clean and are not damaged.

Cautions and Warnings

Environmental Specifications

Ambient operating temperature: 0C to 40C

Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:
Instructions de montage en rack - Les instructions de montage en rack suivantes ou similaires sont incluses avec les instructions d'installation:

Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
Température ambiante élevée – S'il est installé dans un rack fermé ou à unités multiples, la température ambiante de fonctionnement de l'environnement du rack peut être supérieure à la température ambiante de la pièce. Par conséquent, il est important d'installer le matériel dans un environnement respectant la température ambiante maximale (Tma) stipulée par le fabricant.

Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
Ventilation réduite – Installation de l'équipement dans un rack doit être telle que la quantité de flux d'air nécessaire au bon fonctionnement de l'équipement n'est pas compromise.

Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
Chargement Mécanique – Montage de l'équipement dans le rack doit être telle qu'une situation dangereuse n'est pas liée à un chargement mécanique inégal.

Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
Surtension – Il convient de prendre l'ensemble des précautions nécessaires lors du branchement de l'équipement au circuit d'alimentation et être particulièrement attentif aux effets de la suralimentation sur le dispositif assurant une protection contre les courts-circuits et le câblage. Ainsi, il est recommandé de tenir compte du numéro d'identification de l'équipement.

Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
Fiabilité de la mise à la terre– Fiabilité de la mise à la terre de l'équipement monté en rack doit être maintenue. Une attention particulière devrait être accordée aux connexions d'alimentation autres que les connexions directes au circuit de dérivation (par exemple de l'utilisation de bandes de puissance).

Refer to specific Product Model Data Sheet for Environmental Specifications (Operating Temperature, Storage Temperature, Humidity, and Altitude)
Référez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité et l'altitude).

Safety

Caution: This equipment is to be used in a Network Environment 0 per IECTR 62101. This product is connected only to PoE networks without routing to the outside plant.

Attention: Ce matériel doit être utilisé dans un Environnement Réseau 0 par IECTR 62101. Ce produit est uniquement connecté aux réseaux PoE sans installation externe de routage.

CAUTION: Shock Hazard. Disconnect all power sources.
ATTENTION: Risque d'électrocution. Débranchez toutes les sources d'alimentation

Battery – Risk of explosion if the battery is replaced by an incorrect type. Do not dispose of batteries in a fire. They may explode. Dispose of used batteries according to your local regulations. IMPORTANT: Switzerland: Annex 4.10 of SR814.013 applies to batteries.
Batterie – Risque d'explosion si vous remplacez la batterie par un modèle incompatible. Jetez les piles usagées selon les réglementations locales en vigueur. IMPORTANT: Suisse: Annexe 4.10 de SR814.013 s'appliquant aux batteries.

警告
本電池如果更換不正確會有爆炸的危險請依製造商說明書處理用過之電池

Grounding — To prevent damage to your equipment, connections that enter from outside the building should pass through a lightning / surge protector, and be properly grounded. Use an electrostatic discharge workstation (ESD) and/or wear an anti-static wrist strap while you work. In addition to the grounding terminal of the plug, on the back panel, there is another, separate terminal for earthing.

Mise à la terre — Pour éviter d'endommager votre matériel, assurez-vous que les branchements qui entrent à partir de l'extérieur du bâtiment passent par un parafoudre / parasurtenseur et sont correctement mis à la terre. Utilisez un poste de travail de décharge électrostatique (ESD) et / ou portez un bracelet anti-statique lorsque vous travaillez. Ce produit possède une borne de mise à la terre qui est prévu à l'arrière du produit, à ceci s'ajoute la mise à la terre de la prise.

This product has a separate protective earthing terminal provided on the back of the product in addition to the grounding terminal of the attachment plug. This separate protective earthing terminal must be permanently connected to earth with a green with yellow stripe conductor minimum size # 14 AWG and the connection is to be installed by a qualified service personnel.

Ce produit a une borne de mise à la terre séparé sur le dos de l'appareil, en plus de la borne de mise à la terre de la fiche de raccordement. Cette borne de mise à la terre séparée doit être connecté en permanence à la terre avec un conducteur vert avec la taille bande jaune de minimum # 14 AWG et la connexion doit être installé par un personnel qualifié.

Regulatory Compliance

Federal Communication Commission (FCC) – USA

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received; including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

WARNING: Any changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada

CAN ICES-003 (A) / NMB-003 (A)

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Conformity (CE) - EU

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.



Voluntary Control Council for Interference (VCCI) – Japan

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 V C C I —A

Product Safety Electrical Appliance & Material (PSE) – Japan

日本では電気用品安全法(PSE)の規定により、同梱している電源コードは本製品の専用電源コードとして利用し、他の製品に使用しないでください。

Bureau of Standards Metrology and Inspection (BSMI) – Taiwan

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

The presence conditions of the restricted substance (BSMI RoHS table) are available at the link below: <https://www.fortinet.com/bsmi>

China

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。这种情况下，可能需要用户对其采取切实可行的措施。

For only FS-108E-FPOE Korea Certification (KC) – Korea

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Agência Nacional de Telecomunicações (ANATEL) – Brazil

Este produto não é apropriado para uso em ambientes domésticos, pois poderá causar interferências eletromagnéticas que obrigam o usuário a tomar medidas necessárias para minimizar estas interferências."

Para maiores informações, consulte o site da ANATEL www.anatel.gov.br

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All warranty claims must be submitted in writing to Fortinet before the expiration of the warranty term or such claims are waived in full. Fortinet provides no warranty for any beta, donation or evaluation Products, for any spare parts not purchased directly from Fortinet by the end-user, for any accessories, or for any stand-alone software. Fortinet warrants that the hardware portion of the Products, including spare parts unless noted otherwise ("Hardware") will be free from material defects in workmanship as compared to the functional specifications for the period set forth as follows and applicable to the Product type ("Hardware Warranty Period"): a three hundred sixty-five (365) day limited warranty for the Hardware excluding spare parts, power supplies, and accessories (provided, solely with respect to FortiAP and Meru AP indoor Wi-Fi access point Hardware appliance products and FortiSwitch Hardware appliance products other than the FortiSwitch-5000 series (for both excluding spare parts, power supplies, and accessories), the warranty herein shall last from the start of the warranty period as discussed above until five (5) years following the product announced end-of-life date, and, for spare parts, power supplies, and accessories, solely a ninety (90) days limited warranty. Fortinet's sole obligation shall be to repair or offer replacement Hardware for the defective Hardware at no charge to the original owner. This obligation is exclusive of transport fees, labor, de-installation, installation, reconfiguration, or return shipment and handling fees and costs, and Fortinet shall have no obligation related thereto. Such repair or replacement will be rendered by Fortinet at an authorized Fortinet service facility as determined by Fortinet. The replacement Hardware need not be new or of an identical make, model, or part; Fortinet may, in its discretion, replace the defective Hardware (or any part thereof) with any reconditioned Product that Fortinet reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. The Hardware Warranty Period for the repaired or replacement Hardware shall be for the greater of the remaining Hardware Warranty Period or ninety days from the delivery of the repaired or replacement Hardware. If Fortinet determines in its reasonable discretion that a material defect is incapable of correction or that it is not practical to repair or replace defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by Fortinet upon return to Fortinet of the defective Hardware. All Hardware (or part thereof) that is replaced by Fortinet, or for which the purchase price is refunded, shall become the property of Fortinet upon replacement or refund. 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FORTINET®



FortiAP 231F

QuickStart Guide



October 06, 2021

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Product Registration

Thank you for purchasing a FortiAP. To access:

- Cloud Management
- FortiGuard Updates
- Firmware Upgrades
- Technical Support
- Warranty Coverage

Please register your FortiAP device:

Vous devez enregistrer le produit:

Debe registrar el producto:

登録のお願い:

请马上注册:

<http://support.fortinet.com>

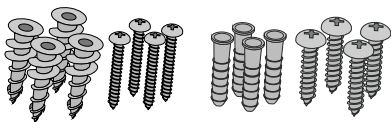
Package Contents



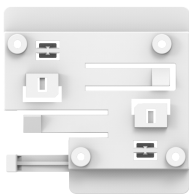
FortiAP 231F Device



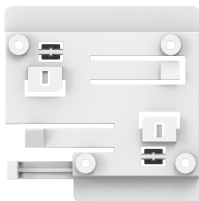
QuickStart Guide



8 x Mounting Screws with 8 x Anchors



9/16" Ceiling Mounting Bracket



15/16" Ceiling Mounting Bracket

Interfaces



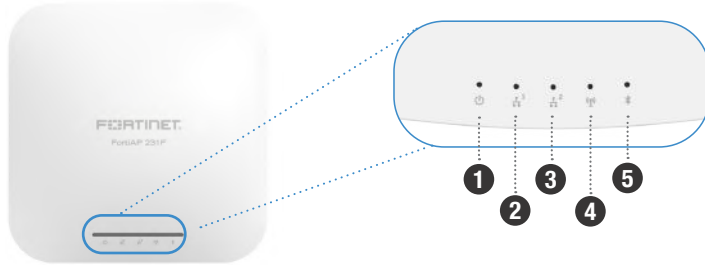
1 2 3 4 5



6

- 1 **OPTIONAL POWER (12V DC)** Optional 12V DC 2.5A adapter
- 2 **RESET** resets the device
- 3 **CONSOLE (RJ-45)** CLI management computer interface
- 4 **LAN2 GE (RJ-45)** 1 Gbps Ethernet interface
- 5 **LAN1/POE GE (RJ-45)** 1 Gbps 802.3at PoE Ethernet interface
- 6 **USB 3.0 (Type A)** software enabled power through the GPIO, 9A/5V

LED Indicators



1 Power (PoE 802.3at or 12V DC 2.5A)

- Off:** Device is off
- Green:** Device is on
- Blinking Green:** Booting up
- Orange:** Reserved for customizations

2 LAN 1 (1 Gbps 802.3at PoE RJ45)

- Off:** Link is off
- Green:** Link is on
- Blinking Green:** Transmitting at 1Gbps
- Blinking Orange:** Transmitting at 100Mbps

3 LAN 2 (1 Gbps RJ45)

- Off:** Link is off
- Green:** Link is on
- Blinking Green:** Transmitting at 1Gbps
- Blinking Orange:** Transmitting at 100Mbps

4 WiFi (5GHz & 2.4GHz 2x2 MU-MIMO)

- Off:** Radio 1 & 2 are off
- Blue:** Radio 1 is on
- Blinking Blue:** Radio 1 is transmitting data
- Orange:** Radio 2 is on
- Blinking Orange:** Radio 2 is transmitting data
- Green:** Radio 1 & 2 are on
- Blinking Green:** Radio 1 & 2 are transmitting data

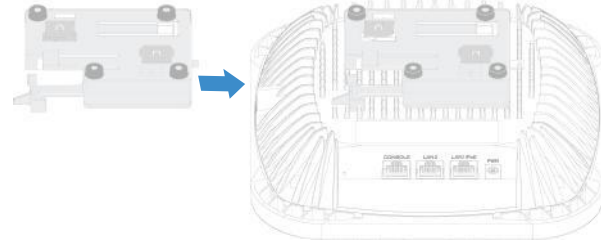
5 Bluetooth Low Energy (BLE) & WiFi

- Off:** BLE & Radio 3 are off
- Blue:** BLE is on
- Blinking Blue:** BLE is transmitting data
- Orange:** Radio 3 is on
- Blinking Orange:** Radio 3 is transmitting data
- Green:** BLE & Radio 3 are on
- Blinking Green:** BLE and Radio 3 are transmitting data

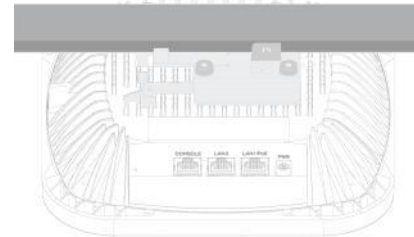
Ceiling Installation

The FortiAP mounts on a ceiling using the provided T-rail mounting brackets which come in two standard sizes: 1.43cm (9/16in) and 2.38cm (15/16in)

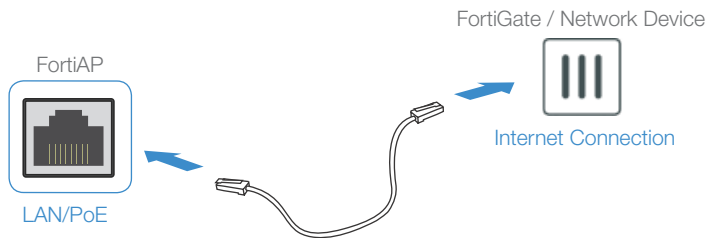
1. Select the **bracket** for the **T-rail size**: 1.43cm (9/16in) or 2.38cm (15/16in)
2. With the ports facing you, **slide the bracket left to right**



3. Hold the device **against the ceiling T-rail** and **push until it snaps** into place



Basic Connections



1. Connect the FortiAP device to a [FortiGate controller](#) or an [Internet connection](#)
2. Ensure that the [Power over Ethernet \(PoE\)](#) cable is connected to an applicable port on your [FortiGate](#) device or [PoE injector](#)

Optional: If you are not using PoE, connect the DC plug of the optional power 12V 2.5A power adapter into the FortiAP power jack and the AC plug from the adapter into a power outlet.

Warning: This device complies with [IEEE 802.3af/at](#) PoE specification. Do not use any [PoE injectors](#) that are not [IEEE 802.3at compliant](#) as they may damage your device.

Device Setup

Set up your device locally or on the cloud. Choose one of the following options to complete your setup and configure your device.



FortiAP Cloud

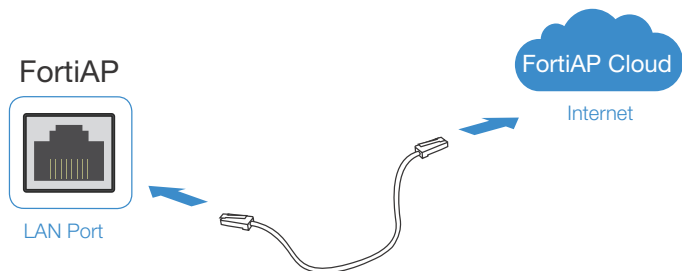
FortiAPCloud is a [cloud-based](#) FortiAP [management solution](#) and log retention service. It provides centralized reporting, traffic analysis, configuration management, and log retention.



FortiGate Deployment

Your FortiAP can be [preauthorized](#) and [configured](#) using a [FortiGate](#). You can also authorize your FortiAP after you have connected it to the same network. If the FortiGate is not on the same network as the FortiAP, you can [log directly into the AP](#) and authorize it via the [CLI](#).

FortiAP Cloud



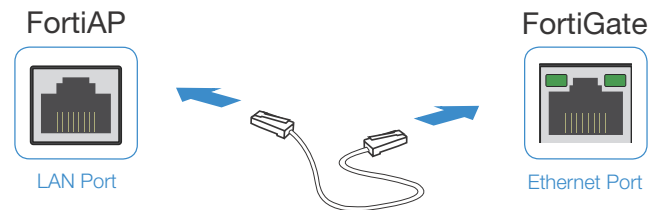
1. Log in to fortiapcloud.com using your FortiCloud credentials
2. Click [Inventory](#), then click [Import AP Key](#)

The screenshot shows a dialog box titled 'Add AP'. It contains a text input field with the placeholder text 'Please input the FortiAPCloud Key to add an AP:'. Below the input field is a 'Submit' button.

3. Input the [Cloud Key](#) located on the [sticker](#) on your device

Info: Refer to the "Access Point Configuration" section of the FortiWiFi and FortiAP Configuration Guide found at <https://docs.fortinet.com/product/fortiap>

FortiAP Deployment



If the FortiGate is on the same network as the FortiAP:

1. [Preauthorize](#) your [FortiAP](#) device using your [FortiGate](#)
2. [Plug](#) the [FortiAP](#) into your local [Ethernet](#) connection
3. The [FortiAP](#) will [self-configure](#)

Or

1. Instead of preauthorizing, [authorize the FortiAP](#) device [after you have connected](#) the [FortiAP](#) to the network
2. Within two minutes of connecting the FortiAP to your FortiGate, the device will appear on the [Managed FortiAP](#) page in the [GUI](#) to [authorize](#) and [assign a profile](#)

If FortiGate is not on the same network as the FortiAP:

1. [Log in](#) to the FortiAP directly (IP address: [192.168.1.2](#)) with username [admin](#) and [no password](#), and specify the [IP address](#) of the controlling FortiGate
2. Specify the [IP address](#) of the controlling FortiGate:

```
cfg -a AC_IPADDR_1=0.0.0.0
```

```
cfg -c
```

where [0.0.0.0](#) is the address of the FortiGate
3. The FortiAP device connects to the FortiGate, and then you can [authorize](#) the FortiAP

Cautions and Warnings

Environmental specifications

Ambient operating temperature: 0°C to 45°C.

Refer to specific Product Model Data Sheet for Environmental Specifications (Operating Temperature, Storage Temperature, Humidity, and Altitude).

Référez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité et l'altitude).

Safety

Caution: This equipment is to be used in a Network Environment 0 per IECER 62101. This product is connected only to PoE networks without routing to the outside plant.

Attention: Ce matériel doit être utilisé dans un Environnement Réseau 0 par IECER 62101. Ce produit est uniquement connecté aux réseaux PoE sans installation externe de routage.

This product is intended to be supplied by a Listed Direct Plug-In Power Unit marked LPS or Class 2 and rated 12 Vdc, 2.5A or by 54 Vdc from PoE source.

Le produit doit être alimenté par un bloc d'alimentation à courant continu homologué UL de 12 Vdc, 2.5A nominal marqué LPS ou Class 2 ou par une source d'alimentation par Ethernet de 54 Vdc (PoE).

Regulatory Notices

Federal Communication Commission (FCC) – USA

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received; including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 21cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Caution: Operation of this device is restricted to indoor use only.

For operation within 5.15 – 5.25GHz frequency range, it is restricted to indoor environment.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Innovation, Science and Economic Development (ISED) – Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

For product available in the USA/Canada market, only channel 1–11 can be operated. Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 24cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 24cm de distance entre la source de rayonnement et votre corps.

The maximum antenna gain permitted for devices in the band 5725–5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.

Le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725–5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

Caution: The device for the band 5150–5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems.

Attention: Le dispositif de la bande 5150–5250 MHz est réservé à un usage intérieur afin de réduire l'interférence nuisible potentielle aux systèmes mobiles par satellite co-canal.

(iii) where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated.

(iii) lorsqu'il y a lieu, les types d'antennes (s'il y en a plusieurs), les numéros de modèle de l'antenne et les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, énoncée à la section 6.2.2.3, doivent être clairement indiqués.

This radio transmitter (IC: 7280B-3417T0696 / Model: FAP-231F) has been approved by ISED to operate with the antenna type listed below with maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 7280B-3417T0696 / Model: FAP-231F) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

This device and its antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with IC multi-transmitter product procedures.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnellement en association avec une autre antenne ou transmetteur.

Antenna Type		PIFA	
Antenna Connector		i-pex(MHF)	
		Gain (dBi)	
Antenna No.		2.4–2.4835GHz	5.180–5.825GHz
1	Chain0	4.9	5.2
2	Chain1	3.8	5.5
3	Scan	4.0	5.1
4	BLE & Zibess	3.6	-

European Conformity (CE) – EU

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.



The product transmits within the frequency ranges and less than or equal to the power listed below:
2412–2472 MHz less than 20 dBm
2402–2480MHz less than 20dBm
2405–2480MHz less than 20dBm
5180–5240 MHz less than 23 dBm
5260–5320 MHz less than 23 dBm *
5500–5700 MHz less than 30 dBm *

Note: * Only with DFS bands certification.

This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Simplified EU Declaration of Conformity

This declaration is only valid for Fortinet products (including, combinations of software, firmware and hardware) provided by Fortinet or Fortinet's authorized partners to the end customer directly for use within the EU or countries that have implemented the EU Directives and/or spectrum regulation. Any Fortinet products not obtained directly from Fortinet or Fortinet's authorized partners may not comply with EU Directives and Fortinet makes no assurances for such products.

Български

Този продукт е в съответствие с Директива 2014/53/ЕО.

Česky

Tento produkt je v souladu se směrnici 2014/53/EU.

Dansk

Dette produkt er i overensstemmelse med direktiv 2014/53/EU.

Deutsch

Dieses Produkt entspricht der Richtlinie 2014/53/EU.

Eesti

See toode vastab direktiivile 2014/53/EL.

English

This product is in compliance with Directive 2014/53/EU.

Español

Este producto cumple con la Directiva 2014/53/UE.

Ελληνική

Το προϊόν αυτό συμμορφώνεται με την Οδηγία 2014/53/ΕΕ.

Français

Ce produit est conforme à la Directive 2014/53/UE.

Hrvatski

Ovaj proizvod je u skladu s Direktivom 2014/53/EU.

Italiano
Questo prodotto è conforme alla Direttiva 2014/53/EU.

Latviski
Šis produkts atbilst Direktīvai 2014/53/EU.

Lietuvių
Šis gaminys atitinka direktyvą 2014/53/ES.

Malta
Dan il-prodott huwa konformi mad-Direttiva 2014/53/EU.

Magyar
Ez a termék megfelel a 2014/53/EU irányelvnek.

Nederlands
Dit product is in overeenstemming met Richtlijn 2014/53/EU.

Norsk
Dette produktet er i samsvar med direktiv 2014/53/EU.

Polski
Ten produkt jest zgodny z dyrektywą 2014/53/UE.

Português
Este produto está em conformidade com a Diretiva 2014/53/UE.

Rumunski
Acest produs este în conformitate cu Directiva 2014/53/EU.

Slovensky
Tento produkt je v súlade so smernicou 2014/53/EÚ.

Slovensko
Tá izdelek je v skladu z Direktivo 2014/53/EU.

Suomi
Tämä tuote on direktiivin 2014/53/EU mukainen.

Svenska
Denna produkt överensstämmer med direktiv 2014/53/EU.

Note: The full declaration of conformity for this product is available at the link below:
<https://site.fortinet.com/ProductRegulatory/EU>

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range in the following countries:

	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK (NI)

Compliance with 2014/53/EU Radio Equipment Directive (RED)
In accordance with Article 10.8(a) and 10.8(b) of the RED, the following table provides information on the frequency bands used and the maximum RF transmit power of the product for sale in the EU:

Frequency Range (MHz)	Max. Transmit Power (dBm)
2402-2480MHz	9.98dBm
2405-2480MHz	9.97dBm
2412MHz-2472MHz	19.96dBm
5180MHz-5240MHz	22.74dBm
5260MHz-5320MHz	22.48dBm
5500-5700MHz	29.41dBm

UK Conformity Assessed (UKCA) – United Kingdom

The product transmits within the frequency ranges and less than or equal to the power listed below:
2402-2480MHz less than 20dBm
2405-2480MHz less than 20dBm
2412-2472MHz less than 20dBm
5180-5240MHz less than 23dBm
5260-5320MHz less than 23dBm*
5500-5700MHz less than 30dBm*

Note: *Only with DFS bands certification.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This product is in compliance with Statutory Instrument 1206 Radio Equipment Regulations 2017

The full Declaration of Conformity for this product is available in the link below:
<https://site.fortinet.com/ProductRegulatory/UK>

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range in the following countries:

	UK (NI)
---	---------

National Telecommunications Commission (NCC) – Taiwan

NCC警語

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

1. 使用此產品時應避免影響附近雷達系統之操作。

本產品電磁波曝露量(MPE)標準值1mW/cm²，送測產品實測值為0.489 mW/cm²，建議使用時至少距離人體21 cm

Korea Certification (KC) – Korea

B급 기기 (가정용 방송통신기자재)
이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

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해당무선설비기기는 운용중 전파혼신 가능성이 있음.

Agência Nacional de Telecomunicações (ANATEL) – Brazil

Este produto não é apropriado para uso em ambientes domésticos, pois poderá causar interferências eletromagnéticas que obrigam o usuário a tomar medidas necessárias para minimizar estas interferências."

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Este produto está homologado pela ANATEL, de acordo com os procedimentos regulamentados pela Resolução 242/2000, e atende aos requisitos técnicos aplicados.

Para maiores informações, consulte o site da ANATEL
www.anatel.gov.br

Fortinet Product License Agreement / EULA and Warranty Terms

Product License Agreement

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If Fortinet determines in its reasonable discretion that a material defect is incapable of correction or that it is not practical to repair or replace defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by Fortinet upon return to Fortinet of the defective Hardware. All Hardware (or part thereof) that is replaced by Fortinet, or for which the purchase price is refunded, shall become the property of Fortinet upon replacement or refund. Fortinet warrants that Software as initially shipped by Fortinet will substantially conform to Fortinet's then-current functional specifications for the Software, as set forth in the applicable documentation for a period of ninety (90) days ("Software Warranty Period"), if the Software is properly installed on approved Hardware and operated as contemplated in its documentation. 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TO THE MAXIMUM EXTENT PERMITTED BY LAW AND NOTWITHSTANDING ANYTHING TO THE CONTRARY, FORTINET IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY, INFRINGEMENT OR OTHER LEGAL, OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT OR SERVICE OR ANY DAMAGES OF ANY KIND WHATSOEVER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF PROFIT, LOSS OF OPPORTUNITY, LOSS OR DAMAGE RELATED TO USE OF THE PRODUCT OR SERVICE IN CONNECTION WITH HIGH RISK ACTIVITIES, DE-INSTALLATION AND RE-INSTALLATION FEES AND COSTS, DAMAGE TO PERSONAL OR REAL PROPERTY, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, COMPUTER SECURITY BREACH, COMPUTER VIRUS INFECTION, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT INCLUDING ANY PRODUCT RETURNED TO FORTINET FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THE LIMITED WARRANTY IN SECTION 6 ABOVE, EVEN IF FORTINET HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE LIMITED WARRANTY IS, AT FORTINET'S SOLE AND ABSOLUTE DISCRETION, REPAIR, REPLACEMENT, OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT AS SPECIFICALLY STATED IN SECTION 6 ABOVE; PROVIDED, HOWEVER, IN NO EVENT SHALL ANY END-CUSTOMER REMEDIES UNDER THIS EULA AND ANY SUPPORT AGREEMENT EXCEED THE AMOUNT PAID

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Except as specifically permitted and required in section 5 (“Transfer”) above, you agree not to assign this Agreement or transfer any of the rights or obligations under this Agreement without the prior written consent of Fortinet. This Agreement shall be binding upon, and inure to the benefit of, the successors and permitted assigns of the parties. The United Nations Convention on Contracts for the International Sales of Goods is expressly excluded. This Agreement and other Fortinet agreements may be amended or supplemented only by a writing that refers explicitly to the agreement signed on behalf of both parties, or, for this Agreement, as otherwise expressly provided in the lead-in above Section 1 above, provided, notwithstanding anything to the contrary and except for this Agreement which may be amended or updated as expressly provided in the lead-in above Section 1 above, for any amendment or other agreement to be binding on Fortinet, such amendment or other agreement must be signed by Fortinet’s General Counsel. No waiver will be implied from conduct or failure to enforce rights nor effective unless in a writing signed on behalf of the party against whom the waiver is asserted.

If any part of this Agreement is found unenforceable, that part will be enforced to the maximum extent permitted and the remainder shall continue in full force and effect. You acknowledge that you have read this Agreement, understand it, and agree to be bound by its terms and conditions. Notwithstanding anything to the contrary, this EULA constitutes the entire agreement between Fortinet and its end-customers and supercedes any and all prior representations or conflicting provisions, such as limitations of liability, warranties, or otherwise in any and all purported end customer agreements, whether entered into now or in the future. In the event of a conflict between this EULA and another agreement, this EULA shall prevail unless the conflicting agreement expressly states that it replaces this EULA, expressly referring to this EULA, and is agreed to in writing by authorized representatives of the parties (which, in the case of Fortinet, is Fortinet’s General Counsel).

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