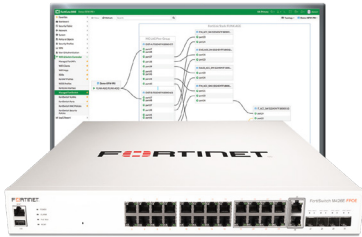


# LAN services

Cloud-Managed Switches from Fortinet

## Security, performance and manageability



The Cloud-Managed Switches from Fortinet deliver outstanding security, performance and manageability. Secure, simple and scalable, Fortinet Cloud-Managed Switches are the right choice for threat conscious businesses of all sizes.

### Cloud-Managed Switches

Streamline deployment and management of your network without compromising on power or flexibility. Cloud-Managed Switches provide deeper visibility and control across your entire network, helping you meet business demands and maximize resources.

### Centralized cloud management

The cloud management architecture provides powerful and intuitive centralized management, while eliminating the cost and complexity of traditional on-site wireless controllers. There's no need to train additional staff to monitor or manage the remote networks, as the cloud-management dashboard allows for centralized management of all locations.

## WE Connect highlights

### Dashboards for ease of management

Multiple dashboards offer a view of key statistics for all switches in your environment. Click to drill down on a particular switch to see details on specific devices in a category. There is no need to change screens or hunt through the UI to find information.

## Highlights

Centralized security and access management from WE Connect

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

Up to 48 ports in a compact 1 RU Form factor

## Features

Layer 2
Jumbo frames
Auto-negotiation for port speed and duplex
MDI/MDIX auto-crossover
IEEE 802.1D MAC bridging/STP
IEEE 802.1w rapid spanning tree protocol (RSTP)
IEEE 802.1s multiple spanning tree protocol (MSTP)
STP root guard
STP BPDU guard
Edge port / port fast
IEEE 802.1Q VLAN tagging
Private VLAN
IEEE 802.3ad link aggregation with LACP
Unicast/multicast traffic balance over trunking port (dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac)
IEEE 802.1AX link aggregation
Spanning tree instances (MSTP/CST)
IEEE 802.3x flow control and back-pressure
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX
IEEE 802.3z 1000Base-SX/LX
IEEE 802.3ab 1000Base-T
IEEE 802.3ae 10 gigabit ethernet
IEEE 802.3az energy-efficient ethernet
IEEE 802.3bz multi-gigabit ethernet
IEEE 802.3 CSMA/CD access method and physical layer specifications
Storm control
MAC, IP, ethertype-based VLANs
Virtual-wire
Split port (QSFP+ breakout to 4x10G SFP+ or 4x1G SFP)
Time-domain reflectometry (TDR) support
LAG min/max bundle
Rapid PVST interoperation
Ingress pause metering
Loop guard
Per-port storm control
Priority-based flow control (802.1Qbb)
IEEE 802.1ad QinQ
VLAN mapping
IEEE 802.3ba, 802.3bj, and 802.3bm 40 and 100 gigabit ethernet
Auto topology
Services
IGMP proxy / querier
MLD snooping
MLD proxy / querier
IGMP snooping

Layer 3
Static routing (hardware-based)
Dynamic routing protocols: OSPFv2, RIPv2, VRRP, BGP, ISIS *
Multicast protocols: PIM-SSM *
ECMP
Bidirectional forwarding detection (BFD)
DHCP relay
IP conflict detection and notification
DHCP server
Unicast Reverse Path Forwarding - uRPF
IPv6 route filtering
Filtering routemaps based on routing protocol
Security and Visibility
Port mirroring
Admin authentication via RFC 2865 RADIUS
IEEE 802.1X authentication port-based
IEEE 802.1X authentication MAC-based
IEEE 802.1X guest and fallback VLAN
IEEE 802.1X MAC access bypass (MAB)
IEEE 802.1X dynamic VLAN assignment
Radius CoA (Change of Authority)
Radius accounting
MAC-IP binding
sFlow
ACL
IEEE 802.1ab link layer discovery protocol (LLDP)
IEEE 802.1ab LLDP-MED
IEEE 802.1ae MAC security (MAC Sec)
DHCP-snooping
Dynamic ARP inspection
Sticky MAC and MAC limit
IEEE 802.1X open auth
IEEE 802.1X EAP pass-through
Flow Export (NetFlow and IPFIX)
ACL multistage
ACL multiple ingress
ACL schedule
IP source guard
IPv6 RA Guard
LLDP-MED ELIN support
Per-port and per-VLAN MAC learning limit
Assign VLANs via radius attributes (RFC 4675)
*Requires advanced features license.

## Features

<b>High availability for SD-WAN</b>
Multi-chassis link aggregation (MCLAG)
Quality of service
IEEE 802.1p based priority queuing
IP TOS/DSCP based priority queuing
IEEE 1588 PTP (transparent clock)
Explicit Congestion Notification
Egress priority tagging
Percentage rate control
<b>Management</b>
IPv4 and IPv6 management
Telnet / SSH
HTTP / HTTPS
SNMP v1/v2c/v3
SNTP
Standard CLI and web GUI interface
Software download/upload: TFTP/FTP/GUI
Managed from FortiGate
Support for HTTP REST APIs for configuration and monitoring
Dual firmware support
RMON group 1
Packet capture
SPAN, RSPAN, and ERSPAN
Link monitor
POE control modes
System Temperature and alert
Syslog UDP/TCP
Provide warning if L2 table is getting full
Display average bandwidth and allow sorting on physical port / interface traffic
System alias command
SNMP v3 traps

## Specifications



	FORTISWITCH 108F	FORTISWITCH 108F-FPOE
<b>Hardware specifications</b>		
Total network interfaces	7x GE RJ45, 1x GE/POE-PD RJ45, and 2x GE SFP	8x GE RJ45 and 2x GE SFP
Dedicated management 10/100 Port	0	0
RJ-45 serial console port	1	1
Form factor	Desktop	Desktop / 19" rack bracket
Power over Ethernet (PoE) ports	0	8 (802.3af/at)
PoE power budget	0	65 W
Mean time between failures	> 10 years	> 10 years
<b>System specifications</b>		
Switching capacity (duplex)	20 Gbps	20 Gbps
Packets per second (Duplex)	30 Mpps	30 Mpps
MAC address storage	8 K	8 K
Network latency	4 $\mu$ s	4 $\mu$ s
VLANs supported	4 K	4 K
Link aggregation group size	8	8
Total link aggregation groups	8	8
Packet buffers	512 KB	512 KB
DRAM	256 MB DDR3	256 MB DDR3
FLASH	32 MB	32 MB
ACL	768	768
Spanning tree instances	16	16
<b>Dimensions</b>		
Height x depth x width (inches)	1.18 x 4.72 x 7.09	1.73 x 8.23 x 9.85
Height x depth x width (mm)	30 x 120 x 180	44 x 209 x 250
Weight	1.36 lbs (0.62 kg)	4.05 lbs (1.84 kg)
<b>Environment</b>		
Power required	100–240V AC, 50/60 Hz / PoE-PSE(af)	100–240V AC, 50/60 Hz
Power supply	12V/1A DC power adapter included, PoE-PD Built in	AC built in
Redundant power	No	No
Power consumption	6.2 W	139.2 W
Heat dissipation	21.142 BTU/h	34.56 BTU/h
Operating temperature	32–113°F (0–45°C)	32–113°F (0–45°C)
Storage temperature	-49–158°F (-40–70°C)	-40–158°F (-40–70°C)
Humidity	5–95% non-condensing	5–95% non-condensing
Air-flow direction	Side-to-back	Side-to-back
<b>Warranty</b>		
Fortinet warranty	Limited lifetime warranty on all models	

## Specifications



	FORTISWITCH 124F	FORTISWITCH 124F-FPOE
<b>Hardware specifications</b>		
Total network interfaces	24x GE RJ45 and 4x 10GE SFP+	24x GE RJ45 and 4x 10GE 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
<b>System specifications</b>		
Switching capacity (duplex)	128 Gbps	128 Gbps
Packets per second (Duplex)	190 Mpps	190 Mpps
MAC address storage	32 K	32 K
Network latency	< 1µs	< 1µs
VLANs supported	4 K	4 K
Link aggregation group size	8	8
Total link aggregation groups	16	16
Packet buffers	2 MB	2 MB
DRAM	512 MB DDR3	512 MB DDR3
FLASH	64 MB	64 MB
ACL	768	768
Spanning tree instances	16	16
<b>Dimensions</b>		
Height x depth x width (inches)	1.73 x 9.06 x 12.99	1.73 x 10.24 x 17.32
Height x depth x width (mm)	44 x 230 x 330	44 x 260 x 440
Weight	4.48 lbs (2.03 kg)	8.42 lbs (3.82 kg)
<b>Environment</b>		
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	24.8 W / 26.3 W	449.8 W / 451.3 W
Heat dissipation	89.683 BTU/h	118.327 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
<b>Warranty</b>		
Fortinet warranty	Limited lifetime warranty on all models	

## Specifications



	FORTISWITCH 148F	FORTISWITCH 148F-FPOE
<b>Hardware specifications</b>		
Total network interfaces	48x GE RJ45 and 4x 10GE SFP+	48x GE RJ45 and 4x 10GE 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	48 (802.3af/at)
PoE power budget	0	740 W
Mean time between failures	> 10 years	> 10 years
<b>System specifications</b>		
Switching capacity (duplex)	176 Gbps	176 Gbps
Packets per second (Duplex)	260 Mpps	260 Mpps
MAC address storage	32 K	32 K
Network latency	< 1µs	< 1µs
VLANs supported	4 K	4 K
Link aggregation group size	8	8
Total link aggregation groups	16	16
Packet buffers	2 MB	2 MB
DRAM	512 MB DDR3	512 MB DDR3
FLASH	64 MB	64 MB
ACL	768	768
Spanning tree instances	16	16
<b>Dimensions</b>		
Height x depth x width (inches)	1.73 x 10.24 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
Weight	7.63 lbs (3.46 kg)	10.32 lbs (4.68 kg)
<b>Environment</b>		
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	55.8 W / 57 W	893.5 W / 895.7 W
Heat dissipation	194.37 BTU/h	198.46 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
<b>Warranty</b>		
Fortinet warranty	Limited lifetime warranty on all models	

## Specifications



	FORTISWITCH 224E	FORTISWITCH 224E-POE
<b>Hardware specifications</b>		
Total network interfaces	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
RJ-45 serial console port	1	1
Form factor	1 RU rack mount	1 RU rack mount
Power over Ethernet (PoE) ports	NA	12 (802.3af/802.3at)
PoE power budget	NA	180 W
Mean time between failures	> 10 years	> 10 years
<b>System specifications</b>		
Switching capacity (duplex)	56 Gbps	56 Gbps
Packets per second (Duplex)	83 Mpps	83 Mpps
MAC address storage	16 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	1.5 MB	1.5 MB
DRAM	512 MB DDR3	512 MB DDR3
FLASH	128 MB	128 MB
ACL	512	512
Spanning tree instances	16	16
Route entries	64	64
Host entries	1k	1k
<b>Dimensions</b>		
Height x depth x width (inches)	1.73 x 9 x 12.99	1.73 x 9 x 12.99
Height x depth x width (mm)	44 x 230 x 330	44 x 230 x 330
Weight	4.78 lbs (2.17 kg)	5.37 lbs (2.44 kg)
<b>Environment</b>		
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	Optional FRPS-740
Power consumption	17.2 W / 17.3 W	220.18 W / 223.57 W
Heat dissipation	59.095 BTU/h	74.29554 BTU/h
Operating temperature	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)
Humidity	10–90% non-condensing	10–90% non-condensing
Air-flow direction	Side-to-back	Side-to-back
<b>Warranty</b>		
Fortinet warranty	Limited lifetime warranty on all models	

## Specifications



	FORTISWITCH 248E-FPOE	FORTISWITCH-424E-FIBER
<b>Hardware specifications</b>		
Total network interfaces	48x GE RJ45 ports and 4x GE SFP ports	24x GE SFP and 4x 10GE 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	48 (802.3af/802.3at)	N/A
PoE power budget	740 W	N/A
Mean time between failures	> 10 years	> 10 years
<b>System specifications</b>		
Switching capacity (duplex)	104 Gbps	128 Gbps
Packets per second (Duplex)	155 Mpps	204 Mpps
MAC address storage	16 K	32 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	1.5 MB	4 MB
DRAM	512 MB DDR3	1 GB DDR4
FLASH	128 MB	256 MB
ACL	512	1.5k
Spanning tree instances	16	16
Route entries	64	16k
Host entries	1k	16k
<b>Dimensions</b>		
Height x depth x width (inches)	1.73 x 16.1 x 17.3	1.75 x 7.87 x 17.3
Height x depth x width (mm)	44 x 410 x 440	44 x 200 x 440
Weight	13.44 lbs (6.1 kg)	5.62 lbs (2.55 kg)
<b>Environment</b>		
Power required	100–240V AC, 50/60 Hz	100–240V AC, 50/60 Hz
Power supply	AC built in	AC built in
Redundant power	Optional FRPS-740	Redundant AC
Power consumption	842 W / 855.02 W	36 W / 38 W
Heat dissipation	162.87865 BTU/h	132.5 BTU/h
Operating temperature	32–122°F (0–50°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	5–95% non-condensing
Air-flow direction	Side-to-back	Side-to-back
<b>Warranty</b>		
Fortinet warranty	Limited lifetime warranty on all models	





FORTISWITCH-M426E-FPOE	
<b>Hardware specifications</b>	
Total network interfaces	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
RJ-45 serial console port	1
Form factor	1RU rack mount
Power over Ethernet (PoE) ports	24 (16x 802.3af/at, 8x 802.3af/at/bt Type 3)
PoE power budget	420 W
Mean time between failures	> 10 years
<b>System specifications</b>	
Switching capacity (duplex)	172 Gbps
Packets per second (Duplex)	255 Mpps
MAC address storage	16 K
Network latency	< 1µs
VLANs supported	4 K
Link aggregation group size	8
Total link aggregation groups	Up to number of ports
Packet buffers	2 MB
DRAM	1 GB DDR4
FLASH	256 MB
ACL	1k
Spanning tree instances	16
Route entries	1k
Host entries	2k
<b>Dimensions</b>	
Height x depth x width (inches)	1.73 x 16.14 x 17.3
Height x depth x width (mm)	44 x 410 x 440
Weight	13.00 lbs (5.9 kg)
<b>Environment</b>	
Power required	100–240V AC, 50/60 Hz
Power supply	AC built in
Redundant power	Redundant AC
Power consumption	441 W / 442 W
Heat dissipation	132.734 BTU/h
Operating temperature	32–122°F (0–50°C)
Storage temperature	-4–158°F (-20–70°C)
Humidity	5–95% non-condensing
Air-flow direction	Side-to-back
<b>Warranty</b>	
Fortinet warranty	Limited lifetime warranty on all models

## Cloud-Managed Switches

Streamline deployment and management of your network without compromising on power or flexibility. Cloud-Managed Switches provide deeper visibility and control across your entire network, helping you meet business demands and maximize resources.

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## Cloud-enabled connectivity, communications and security—guaranteed.

Windstream Enterprise drives business transformation through the convergence of our proprietary software solutions and cloud-optimized network to unlock our clients' revenue and profitability potential. Our managed services streamline operations, enhance productivity and elevate the experience of our clients and their end users while securing their critical data and brand reputation. Analysts certify Windstream Enterprise as a market leader for our product innovation, and clients rely on our unrivaled service guarantees and best-in-class management portal. Businesses trust Windstream Enterprise as their single-source for a high-performance network and award-winning suite of connectivity, collaboration and security solutions—delivered by a team of technology experts whose success is directly tied to our clients' complete satisfaction.

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