

| | |
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| platca DPH áno/nie | áno |
|--------------------|-----|

| Cena za celý predmet zákazky | | | | | |
|---|-------|-------------------------|-----------------------|---------------------------|-------------------------|
| | Počet | Jednotková cena bez DPH | Jednotková cena s DPH | Cena celkom v EUR bez DPH | Cena celkom v EUR s DPH |
| Switch typ 1- Extreme X440G2-12p-10GE4, X440-G2 12 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 3Y support | 10 | 1636,8 | 1964,16 | 16368 | 19641,6 |
| Switch typ 2- Extreme X440G2-24p-10GE4, X440-G2 24 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 3Y support | 5 | 2310 | 2772 | 11550 | 13860 |
| Switch typ 3- Extreme X440G2-48p-10G4, X440-G2 48 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 3Y support | 5 | 3652 | 4382,4 | 18260 | 21912 |
| Firewall typ 1- Fortigate-40F, 24x7 FortiCare 1Y | 5 | 352 | 422,4 | 1760 | 2112 |
| Firewall typ 2- Fortigate-60F, 24x7 FortiCare 1Y | 2 | 479,8 | 575,76 | 959,6 | 1151,52 |
| Firewall typ 3- Fortigate-100F, 24x7 FortiCare 1Y | 3 | 1978 | 2373,6 | 5934 | 7120,8 |
| Switch typ 1- Cisco C9200L-24T-4X-E, Catalyst 9200L 24-port data, 4 x 10G „Network Essentials | 3 | 3172 | 3806,4 | 9516 | 11419,2 |
| Switch typ 2- Cisco C9200L-48T-4X-E, Catalyst 9200L 48-port data, 4 x 10G „Network Essentials | 2 | 4350 | 5220 | 8700 | 10440 |
| Controllers- Ruckus SmartZone 144, Associate Partner Support, SmartZone 144, 1Y | 2 | 5180 | 6216 | 10360 | 12432 |
| Access point typ 1- Extreme AP510e-WR, 97000-AP510e-WR, XCC-ACT-V5-VT, 97003-XCC-ACT-V5-VT, XCIQ-PT1-C-EW-1YR-K12, ML-2452-APA2-01, XCC-ORC-P-5 | 5 | 1742 | 2090,4 | 8710 | 10452 |
| Access point typ 2- Extreme AP510e-WR, 97000-AP510e-WR, XCC-ACT-V5-VT, 97003-XCC-ACT-V5-VT, XCIQ-PT1-C-EW-1YR-K12, ML-2452-APA2-01, XCC-ORC-P-5 | 5 | 1742 | 2090,4 | 8710 | 10452 |
| Access point typ 3- RUCKUS T350c, Associate Partner Support, Per SZ/vSZ AP, 1Y | 3 | 656 | 787,2 | 1968 | 2361,6 |
| SFP modul- UF-RJ45-1G | 10 | 20,2 | 24,24 | 101 | 121,2 |
| Cena celkom za celý predmet zákazky | | | | 102896,6 | 123475,92 |

Highlights

Advanced Radio Technology

Radio Design

- 5 GHz 4x4:4
- 2.4 GHz 4x4:4

Radio Modes - SSR

- 2.4GHz/5GHz
- 2.4/5 Sensor + 5GHz
- Dual 5GHz

High Density Environments

- Delivers exceptional end-user experience even in the densest user environments

WPA3 Support

- Includes the latest WPA3 Wi-Fi security standard delivering robust protections for users and IoT devices

Cellular Coexistence Filter (CCF)

- Minimizes the impact of interference from cellular networks

Fully Functional over 802.3at

- Capable of operation over 802.3af

Smart Management Choices

- Extreme Campus Controller or VX/NX controller is ideal for on-premises requirements
- Extreme Campus Controller, /VX or NX controller plus additional cloud management capabilities provided via ExtremeCloud™ IQ



ExtremeWireless™ AP 510i/e

Wi-Fi 6 (802.11ax) Dual-Radio Access Point With Integrated or External Antenna Options

Extreme's AP 510i/e is a high performance, enterprise class 802.11ax access point at the price/performance point that is ideal for many verticals, including; retail, education, hospitality and healthcare. These enterprises need to support a high density of users and IoT devices, while delivering an exceptional user experience.

The AP 510i/e is powered by the WiNG 7 operating system. WiNG's legendary distributed architecture places the intelligence at the edge where it unleashes the true capabilities and performance of 802.11ax, without bottlenecks and limits. WiNG incorporates the functionality of a controller in each access point, enabling network solutions with controller-less solutions using a virtual controller that supports up to 64 access points or hardware / VM controllers that can support up to 25000 access points.



Security

The AP 510i/e delivers the highest level of security services, beginning with support for the latest Wi-Fi Alliance WPA3 security certifications. Additionally, supporting a stateful L2-L7 DPI firewall for context-based access security.



Wi-Fi 6 (802.11ax) Technology

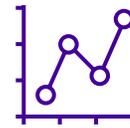
Prior generations of 802.11n, 802.11ac wave 1 and 2, can be considered generational improvements with an emphasis on faster speed. 802.11ax technology instead enhances Wi-Fi efficiency as well as speed, taking Wi-Fi networks to an entirely new level. To learn more about 802.11ax, go to: <https://www.extremenetworks.com/are-you-ready-for-802-11ax/>



Smart Sensor

Industry's first Dual-radio 802.11ax access point with Smart Sensor capability to optimally manage radios to provide the highest level of client performance while simultaneously providing continuous RF monitoring for security threats.

The AP 510i/e Patent Pending Smart-Sensor feature automates the provisioning of ADSP Sensors in customer setup without compromising their security performance. This feature intelligently selects and configures the Radio on APs that must act as sensors to cover entire site from wireless security perspective reducing the burden of network engineers.



Management Analytics

In conjunction with management system, cloud or On-premises the AP510 provides a very rich set of data displayed via context driven widgets, representing historical data or a combination of historical and current data. This provides context-specific granularity with perspective views for locations, network, APs, individual client devices as well as policy roles. In each context, administrators can adjust dashboards from widget library.



RF Monitoring

Network managers will appreciate a powerful choice of RF management for their Wi-Fi networks, with SmartRF, a robust RF management system with AI/ML like functionality. Built on 10 years of experience across thousands of large scale networks and millions of access points, SmartRF algorithms manage channels, radios, load balancing, band steering and many other attributes of the RF.



Integrated BLE

To support both IoT and Guest Engagement services the AP510 integrates Bluetooth to connect with IoT devices with Thread wireless or engage loyalty customers with Apple iBeacon¹. Enterprises can use Google Eddystone to send advertisements directly to shoppers, guests, and conference attendees. This makes it ideal for businesses to advertise their app-download pages, captive portals, or site-specific information.

Product Specifications

Radio Specifications

- SSID per Radio/Total: 8/16
- Users per Radio/total: 512/1024
- TPM (Trusted Platform Module)

802.11a

- 5.150–5.850 GHz Operating Frequency
- Orthogonal Frequency Division Multiplexing (OFDM) Modulation
- Rates (Mbps): 54, 48, 36, 24, 18, 12, 9, 6 w/ auto fallback

802.11b

- 2.4–2.5 GHz Operating Frequency
- Direct-Sequence Spread-Spectrum (DSSS) Modulation
- Rates (Mbps): 11, 5.5, 2, 1 w/ auto fallback

802.11g

- 2.4–2.5 GHz Operating Frequency
- Orthogonal Frequency Division Multiplexing (OFDM) Modulation
- Rates (Mbps): 54, 48, 36, 24, 18, 12, 9, 6 w/ auto fallback
- 802.11n
- 2.4–2.5 GHz and 5.150–5.850 GHz Operating Frequency
- 802.11n Modulation
- HT20 High-Throughput (HT) Support (for both 2.4 GHz and 5 GHz)
- HT40 High-Throughput (HT) Support for 5 GHz
- A-MPDU and A-MSDU Frame Aggregation
- CSD and CDD

802.11ac

- 5.150–5.850 GHz Operating Frequency
- 802.11ac Modulation (256-QAM)
- Rates (Mbps): MCS0 – MCS9 (6.5Mbps - 800Mbps)
- 5G: 4x4 Multiple-In, Multiple-Out (MIMO) Radio (MRC)
- Rates (Mbps): MCS0-MCS9 (6.5Mbps - 3467Mbps), NSS = 1-4.
- 4x4:4 Stream Multiple-In, Multiple-Out (MIMO) Radio
- VHT20/VHT40/VHT80/VHT160 support
- TxBF (Transmit Beamforming)

802.11ax

- 2.4–2.5 GHz and 5.150–5.850 GHz Operating Frequency
- 802.11ax Modulation (1024-QAM)
- Dual-band OFDMA
- Rates (Mbps):
- 5G: HE0-HE11 (8 Mbps - 4800 Mbps)
- 2.4G: HE0-HE11 (8Mbps - 1148 Mbps)
- HE20/HE40/HE80/HE160 support for 5 GHz
- HE20/HE40 support for 2.4 GHz
- DL SU-MIMO and MU-MIMO (MRC)
- TxBF (Transmit Beamforming)

Interfaces

- (1) 100/1000/2500/5000 Mbps auto-negotiation Ethernet port, RJ45 PoE (Power over Ethernet 802.3at) Port. (802.3bz supported)
- (1) 10/100/1000 Mbps auto-negotiation Ethernet port, PoE (power over Ethernet) port, RJ4
- POE redundancy supported
- USB3.0, Type A, 0.5A

Power Options

- Power Draw: Typical: 18 W; Max: 22 W
- 802.3at Power over Ethernet (PoE) capable (Full Functionality)
- Gigabit Ethernet port (RJ-45 power input pins):
 - Wires 4,5,7,8 or 1,2,3,6)
- 802.3af Power over Ethernet injector (Reduced Functionality)

Physical

- 9" x 9" x 1.89" (229mm x 229mm x 48.15mm)
- AP510i: 3.4 lbs (1.45 kg)
- AP510e: 3.45 lbs (1.56 kg)

Max Antenna Gain (Integrated Antenna)

| Software Mode | Radio 1 | Radio 2 | Radio 3 |
|---------------|----------------------------|------------|---------|
| Mode 1 | 2.4 Ghz 4dBi | 5 Ghz 5dBi | 5dBi |
| Mode 2 | 2.4 Ghz 4dBi 5 Ghz 6dBi | 5 Ghz 6dBi | 5dBi |
| Mode 3 | 5 Ghz 6dBii | 5 Ghz 6dBi | 5dBi |

Antennas

- AP510i - Internal Antennas
- (4) Integrated dual band, 2.4-2.5 GHz and 5.1-5.8 GHz omnidirectional antennas
- (4) Integrated single band, 5.1-5.8 GHz omnidirectional antennas
- (1) Integrated single band, 2.4-2.5 GHz omnidirectional antennas for BLE¹

AP510e - External Antennas

- 8 RP SMA's connectors
- 1 RP SMA's connector for BLE¹

Mounting

- Wing Bracket Compatible
- Extreme Multi-Tbar
- Kensington Lock

Security

- WPA, WPA2(AES), WPA3, 802.11i, 802.11x, IPSec, IKEv2, PKCS#10, x509 DER / PKCS #12 SSL

IEEE Standards

- IEEE 802.11d, 802.11h, 802.11k, 802.11r, 802.11v
- EAP-SIM

Environmental

- Operating: AP510i: 0 to 50°C
AP510e: -20 to 55°C
- Storage: -40 to 70°C
- Humidity: 0% to 95% (non-condensing)
- Electrostatic Discharge: 15kV air, 8kV contact

Environmental Compliance

- UL2043 - Plenum Rated

IOT Radio

- BLE Radio Bluetooth® Low Energy (BLE) and IEEE® 802.15.4 compliant¹

Regulatory Compliance

Product Safety Certifications

- IEC 60950-1, EN 60950-1, UL 60950-1, CSA 22.2 No.60950-1-03 AS/NZS 60950.1,
- RoHS Directive 2011/65/EU
- EN 301 489-3
- EN 301 489-17
- EN 55032, (Class B)
- EN 55011, (Group 1, Class B) EN 55024
- EN 60601-1-2
- EN 61000-3-2
- EN 61000-3-3
- EN 300 328
- EN 301 893
- EN 300 440
- EN 50581

Radio Approvals

- FCC CFR 47 Part 15, Class B
- ICES-003, Class B
- FCC Subpart C 15.247
- FCC Subpart E 15.407
- RSS247
- AS/NZS4268 + CISPR32
- IEC/EN 60601-1-2,
- EN 62479
- EN 62311
- EN 50385
- EN 301 489-1

Support

- Limited Lifetime Warranty WiNG

| Wi-Fi Alliance Certifications | |
|-------------------------------|--|
| Connectivity | Wi-Fi CERTIFIED 6™ Wi-Fi CERTIFIED™ a, b, g, n, ac WPA™ - Enterprise, Personal WPA2™ - Enterprise, Personal WPA3™ - Enterprise, Personal |
| Optimization | Wi-Fi Agile Multiband™ Wi-Fi Vantage™ WMM* WMM*-Admission Control WMM*-Power Save |
| Access | Passpoint* |
| Applications and Services | Voice-Enterprise |

¹ IoT Radio included for certain AP510i/e model SKUs

AP 510i

Power and Receive Sensitivity - 2.4 GHz

| Channel | Data Rate | Power (dBm) | Sensitivity |
|-----------|-------------|-------------|-------------|
| 11b | 1 - 11 Mbps | 20 | -96, -89 |
| 11g | 6 Mbps | 20 | -92 |
| | 54 Mbps | 19 | -75 |
| 11n HT20 | MCS0, 7 | 20, 19 | -92, -72 |
| 11n HT40 | MCS0, 7 | 20, 19 | -89, -69 |
| 11ax HE20 | HE0, 11 | 20, 18 | -91, -62 |
| 11ax HE40 | HE0, 11 | 20, 18 | -88, -59 |

Power and Receive Sensitivity - 5 GHz

| Channel | Data Rate | Power (dBm) | Sensitivity |
|-------------|-----------|-------------|-------------|
| 11a | 6 Mbps | 20 | -94 |
| | 54 Mbps | 19 | -76 |
| 11n HT20 | MCS0, 7 | 20, 18 | -93, -74 |
| 11n HT40 | MCS0, 7 | 20, 18 | -90, -71 |
| 11ac VHT20 | MCS0, 8 | 20, 17 | -92, -71 |
| 11ac VHT40 | MCS0, 9 | 20, 17 | -89, -65 |
| 11ac VHT80 | MCS0, 9 | 20, 17 | -86, -62 |
| 11ac VHT160 | MCS0, 9 | 20, 17 | -83, -59 |
| 11ax HE20 | HE0, 11 | 20, 16 | -91, -61 |
| 11ax HE40 | HE0, 11 | 20, 16 | -88, -58 |
| 11ax HE80 | HE0, 11 | 20, 16 | -85, -55 |
| 11ax HE160 | HE0, 11 | 20, 16 | -82, -52 |

(Sensor) Receive Sensitivity - 2.4 GHz

| Channel | Data Rate | Sensitivity |
|-----------|-------------|-------------|
| 11b | 1 - 11 Mbps | -95, -88 |
| 11g | 6 Mbps | -91 |
| | 54 Mbps | -74 |
| 11n HT20 | MCS0, 7 | -91, -71 |
| 11n HT40 | MCS0, 7 | -88, -68 |
| 11ax HE20 | HE0, 11 | -90, -61 |
| 11ax HE40 | HE0, 11 | -87, -58 |

Receive Sensitivity - 5 GHz

| Channel | Data Rate | Sensitivity |
|------------|-----------|-------------|
| 11a | 6 Mbps | -93 |
| | 54 Mbps | -75 |
| 11n HT20 | MCS0, 7 | -92, -72 |
| 11n HT40 | MCS0, 7 | -89, -69 |
| 11ac VHT20 | MCS0, 8 | -91, -68 |
| 11ac VHT40 | MCS0, 9 | -88, -64 |
| 11ac VHT80 | MCS0, 9 | -85, -61 |
| 11ax HE20 | HE0, 11 | -91, -61 |
| 11ax HE40 | HE0, 11 | -88, -58 |
| 11ax HE80 | HE0, 11 | -85, -55 |

AP510e

Power and Receive Sensitivity - 2.4 GHz

| Channel | Data Rate | Power (dBm) | Sensitivity |
|-----------|-------------|-------------|-------------|
| 11b | 1 - 11 Mbps | 19 | -95, -88 |
| 11g | 6 Mbps | 19 | -91 |
| | 24 | 18 | -88 |
| | 54 Mbps | 18 | -74 |
| 11n HT20 | MCS0, 7 | 19, 18 | -91, -71 |
| 11n HT40 | MCS0, 7 | 19, 18 | -88, -68 |
| 11ax HE20 | HE0, 11 | 19, 17 | -90, -61 |
| 11ax HE40 | HE0, 11 | 19, 17 | -87, -58 |

Power and Receive Sensitivity - 5 GHz

| Channel | Data Rate | Power (dBm) | Sensitivity |
|-------------|-----------|-------------|-------------|
| 11a | 6 Mbps | 18 | -92 |
| | 54 Mbps | 17 | -74 |
| 11n HT20 | MCS0, 7 | 18, 16 | -91, -72 |
| 11n HT40 | MCS0, 7 | 18, 16 | -88, -69 |
| 11ac VHT20 | MCS0, 8 | 18, 15 | -90, -69 |
| 11ac VHT40 | MCS0, 9 | 18, 15 | -87, -63 |
| 11n HT80 | MCS0, 7 | 18, 16 | -69 |
| 11ac VHT80 | MCS0, 9 | 18, 15 | -84, -60 |
| 11ac VHT160 | MCS0, 9 | 18, 15 | -81, -57 |
| 11ax HE20 | HE0, 11 | 18, 14 | -89, -59 |
| 11ax HE40 | HE0, 11 | 18, 14 | -86, -56 |
| 11ax HE80 | HE0, 11 | 18, 14 | -83, -53 |
| 11ax HE160 | HE0, 11 | 18, 14 | -80, -50 |

(Sensor) Receive Sensitivity - 2.4 GHz

| Channel | Data Rate | Sensitivity |
|-----------|-------------|-------------|
| 11b | 1 - 11 Mbps | -94, -87 |
| 11g | 6 Mbps | -90 |
| | 54 Mbps | -73 |
| 11n HT20 | MCS0, 7 | -90, -70 |
| 11n HT40 | MCS0, 7 | -87, -67 |
| 11ax HE20 | HE0, 11 | -89, -60 |
| 11ax HE40 | HE0, 11 | -86, -57 |

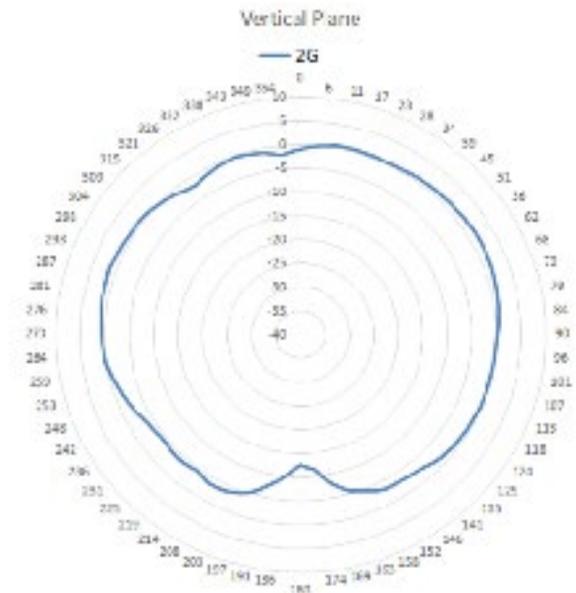
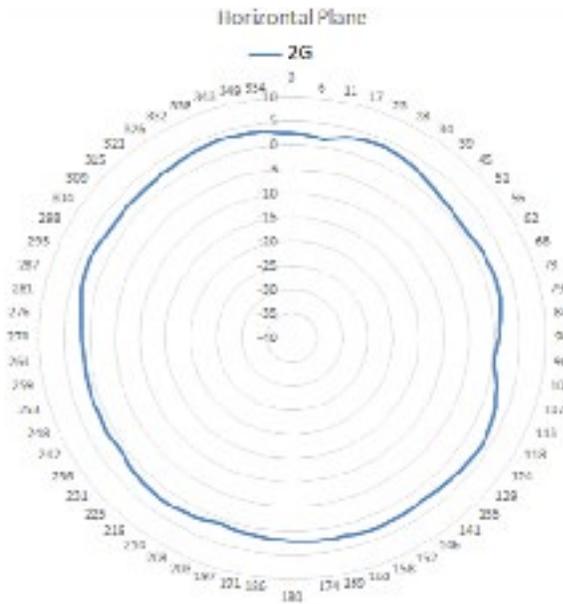
Receive Sensitivity - 5 GHz

| Channel | Data Rate | Sensitivity |
|------------|-----------|-------------|
| 11a | 6 Mbps | -92 |
| | 54 Mbps | -74 |
| 11n HT20 | MCS0, 7 | -91, -72 |
| 11n HT40 | MCS0, 7 | -88, -69 |
| 11ac VHT20 | MCS0, 8 | -90, -69 |
| 11ac VHT40 | MCS0, 9 | -87, -63 |
| 11ac VHT80 | MCS0, 9 | -84, -60 |
| 11ax HE20 | HE0, 11 | -89, -59 |
| 11ax HE40 | HE0, 11 | -86, -56 |
| 11ax HE80 | HE0, 11 | -83, -53 |

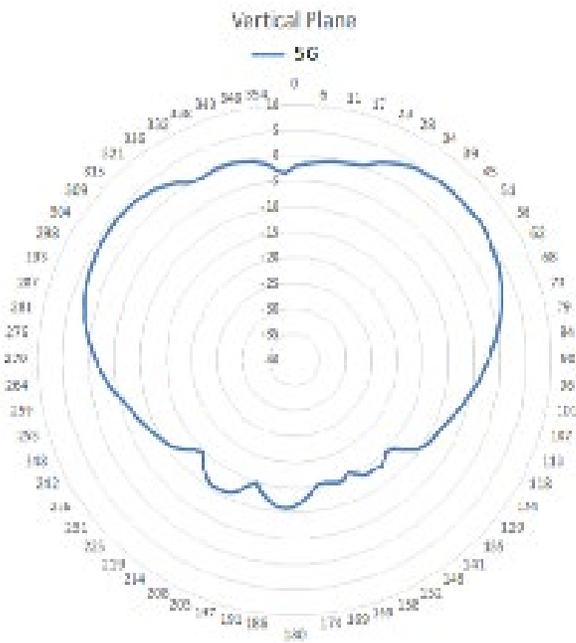
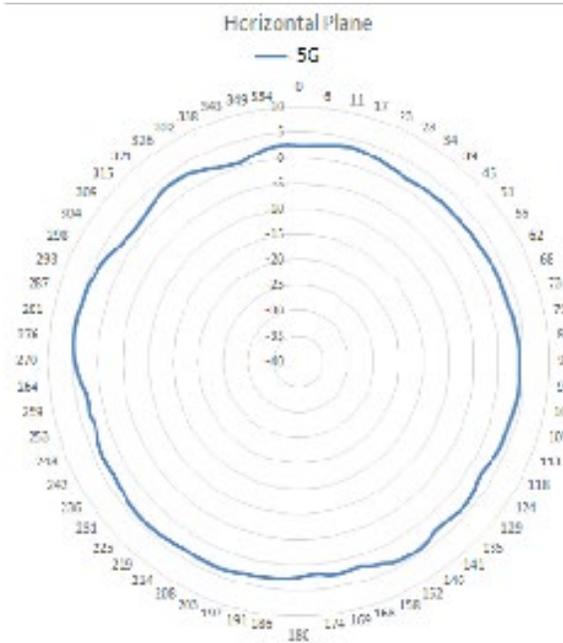
Maximum EIRP may vary based upon deployed country

Radiation Patterns - Azimuth and Elevation

AP 510i Antenna Radiation Patterns — 2.4 GHz



AP 510i Antenna Radiation Patterns — 5.0 GHz



Ordering Information

AP 510i/e

| Mkt Part # | Description |
|---------------|---|
| AP510i-FCC | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor Internal Antenna Access Point. Domain: US, and Puerto Rico |
| AP510i-CAN | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor Internal Antenna Access Point. Domain: Canada |
| AP510i-WR | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor Internal Antenna Access Point. Domain: EMEA, Rest of World |
| AP510e-FCC | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor External Antenna Access Point. Domain: US, and Puerto Rico |
| AP510e-CAN | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor External Antenna Access Point. Domain: Canada |
| AP510e-WR | Dual Radio 802.11ax - 4x4:4 + 4x4:4, Indoor External Antenna Access Point. Domain: EMEA, Rest of World |
| AP510i-1-FCC* | Dual 5GHz Dual band Sensor radio Dual Radio 802.11ax/ac/abgn 4x4:4 MIMO Indoor 11ax access point. Internal Antenna. Wi-Fi 6 - Domain: US, Puerto Rico, and Colombia |
| AP510i-1-WR* | Dual 5GHz Dual band Sensor radio Dual Radio 802.11ax/ac/abgn 4x4:4 MIMO Indoor 11ax access point. Internal Antenna. Wi-Fi 6 - Domain: EMEA, Rest Of World |

* AP510i-1-FCC and AP510i-1-WR do not include IoT radio and Bluetooth functionality.

AP 510i/e - Mounting Options

| Mkt Part # | Description |
|-----------------|---|
| 37201 | Mounting Plate for Indoor APs (included in box) |
| KT-135628-01 | Universal Mounting Kit for WLAN APs Requires (37201) bracket for mounting |
| BRKT-000147A-01 | Beam Clip Accessory |
| 37210 | Flat Metal Indoor Bracket |
| 30518 | WS-MBI-DCMTR01 bracket |
| 30516 | WS-MBI-WALL04 |
| 37211 | WS-MBI-DCFLUSH |

AP 510i/e - Power Options

| Mkt Part # | Description |
|---------------|--|
| PD-3501G-ENT | Single Port 802.3AF Midspan Device |
| PD-9001GR-ENT | Single Port 802.3AT Compliant Midspan |
| 37219 | PWR 12VDC, 3A, 2.5mm x 5.5mm connector |

Antennas - AP 510e

| Mkt Part # | Description |
|--------------------|---|
| ML-2452-APA2-01 | Dipole, 3.2dBi/4.9dBi, dual band, black with RPSMA plug connector (up to 9 per AP) |
| ML-2452-APA2-02 | Dipole, 3.2dBi/4.9dBi, dual band, white with RPSMA plug connector (up to 9 per AP) |
| ML-2452-HPA5-036 | Dipole, 3.9dBi/ 5.7dBi, dual band, outdoor, white with RPSMA plug connector (up to 9 per AP) |
| ML-2452-HPAG4A6-01 | Dipole, 4dBi/ 7.3dBi, dual band, outdoor, white with standard N plug connector (up to 9 per AP) |
| ML-2452-PNA5-01R | Panel, 120 deg sector, 4.5dBi/ 5dBi, dual band, outdoor, 4" lead with standard N plug connector (up to 9 per AP) |
| ML-2452-PTA4M4-036 | Patch, 360 deg, 4dBi/ 5dBi, dual band, indoor, with quad feed 36" leads and RPSMA plug connectors |
| ML-2452-HPAG5A8-01 | Dipole Omni, 7.5dBi/8dBi, dual band, outdoor with standard N Plug connector (up to 9 per AP) |
| ML-2452-SEC6M4-036 | Polarized Panel, 10 O/ 80 deg, 6.92dBi/ 7.23dBi, dual band, indoor with quad feed 32" leads and standard RP SMA plug connectors |
| ML-2452-PNA7-01R | Panel, 68/ 52 deg sector, 7.8dBi/ 10.7dBi, dual band, outdoor, 4" lead with standard N plug connector (up to 9 per AP) |
| AI-DQ04360S | Dipole Omni Array, 5.5dBi/ 6dBi, dual band, outdoor with quad feed 36" leads and RPSMA connectors |
| 30702 | WS-AI-DQ05120 Indoor, 2.3-2.7/4.9-6.1GHz, 4-feed, 5dBi, 120degree sector antenna with standard RPSMA-type plug connector |
| 30705 | WS-AI-DE07025 Indoor 2.4GHz/5GHz, eight feed, 6.5/5.5dBi, 25degree sector antenna with standard RPSMA-type plug connector |
| 30707 | WS-AI-DE10055 Indoor 2.4GHz/5GHz, eight feed, 10/6dBi, 55degree sector antenna with standard RPSMA-type plug connector |



<http://www.extremenetworks.com/contact>

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821 04 Bratislava

V Bratislave dňa 12.11.2021

Vec: Potvrdenie o certifikácii spoločnosťou Cisco Systems Slovakia, spol. s r.o.

Týmto potvrdzujeme, že spoločnosť **CSFIT, s.r.o.** je certifikovaným partnerom typu

Cisco Registered Partner

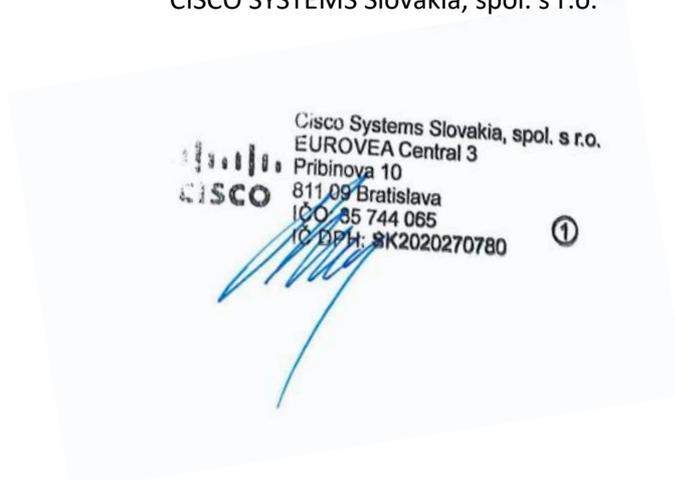
a teda oprávnená na predaj a servisnú podporu produktov spoločnosti Cisco Systems vrátane prístupu k SW aktualizáciám a licenčným zmlúvam na ponúkané softvérové vybavenie.

Spoločnosť **Cisco Systems Slovakia, spol. s r.o.**, garantuje vykonávanie odborného záručného a pozáručného servisu na zariadenia, dodané prostredníctvom obchodného partnera aj v prípade zániku uchádzača, alebo ukončenia jeho pôsobenia na trhu a to v zmysle všeobecných záručných podmienok výrobcu.

Karol Piling

Partner Account Manager

CISCO SYSTEMS Slovakia, spol. s r.o.





The bridge to possible

[Data sheet](#)
Cisco public

Cisco Catalyst 9200 Series Switches

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Extend intent-based networking everywhere

Cisco® Catalyst® 9200 Series switches extend the power of intent-based networking and Catalyst 9000 hardware and software innovation to a broader set of deployments. With its family pedigree, **Catalyst 9200 Series switches offer simplicity without compromise – it is secure, always on, and IT simplified.**

As foundational building blocks for the Cisco Digital Network Architecture, Catalyst 9200 Series switches help customers simplify complexity, optimize IT, and reduce operational costs by leveraging intelligence, automation and human expertise that no other vendor can deliver regardless of where you are in the intent-based networking journey.

Catalyst 9200 Series switches provide security features that protect the integrity of the hardware as well as the software and all data that flows through the switch. It provides resiliency that keeps your business up and running seamlessly. Combine that with open APIs of Cisco IOS XE and programmability of the UADP ASIC technology, Catalyst 9200 Series switches give you what you need now with investment protection on future innovations.

With full PoE+ capability, power and fan redundancy, stacking bandwidth up to 160 Gbps, modular uplinks, Layer 3 feature support, and cold patching, Catalyst 9200 Series switches are the industry's unparalleled solution with differentiated resiliency and progressive architecture for cost-effective branch-office access.

Product overview

Product highlights

- Up to 48 ports of full **Power over Ethernet Plus (PoE+)** capability
- Resiliency with **Field-Replaceable Units (FRU)** and redundant power supply, fans, and modular uplinks
- Flexible downlink options with data, PoE+ or mGig
- Operational efficiency with optional **backplane stacking**, supporting stacking bandwidth up to 160 Gbps
- **UADP 2.0 Mini** with integrated CPU offers customers optimized scale with better cost structure
- Enhanced security with AES-128 **MACsec** encryption, **policy-based segmentation, and trustworthy systems**
- **Layer 3** capabilities, including OSPF, EIGRP, ISIS, RIP, and routed access
- Advanced network monitoring using **Full Flexible NetFlow**
- **Cisco Software-Defined Access (SD-Access)**:
 - Simplified operations and deployment with policy-based automation from edge to cloud managed with **Cisco Identity Services Engine (ISE)**
 - Network assurance and improved resolution time through Cisco DNA Center
- **Plug and Play (PnP)** enabled: A simple, secure, unified, and integrated offering to ease new branch or campus device rollouts or updates to an existing network

- **Cisco IOS XE:** A Common Licensing based operating system for the enterprise Cisco Catalyst 9000 product family with support for model-driven programmability and streaming telemetry
- ASIC with programmable pipeline and micro-engine capabilities, along with template-based, configurable allocation of Layer 2 and Layer 3 forwarding, Access Control Lists (ACLs), and Quality of Service (QoS) entries

Features and benefits

Platform details

Switch models and configurations

| Models | FRU Power Supply | FRU Fans | Modular Uplinks | Stacking Bandwidth Support | SD-Access Support ¹ |
|--|------------------|----------|-----------------|----------------------------|--|
| Modular uplink models (C9200 Enhanced VN SKUs) | ✓ | ✓ | ✓ | 160 Gbps | Yes (32 Virtual Networks) ² |
| Modular uplink models (C9200 SKUs) | ✓ | ✓ | ✓ | 160 Gbps | Yes (4 Virtual Networks) |
| Fixed uplink Models (C9200L SKUs) | ✓ | ✗ | ✗ | 80 Gbps | Limited (1 Virtual Network) |

¹ Catalyst 9200 standalone and stack can support 25 Access Tunnels (for fabric enabled APs). Note: Over the top fabric deployments eventually migrating to fabric wireless architecture should consider this limit during design/deployment

² Catalyst 9200-24PB-A, C9200-48PB-A PIDs supports 32 Virtual Networks. These skus cannot be stacked with C9200 SKUs with 4VNs

The Cisco Catalyst 9200 Series is made up of modular (C9200) and fixed (C9200L) switch models.



Figure 1.
Cisco Catalyst 9200 Series switches

Table 1. Cisco Catalyst 9200 Series Switch configurations

| Switch model | Downlinks total 10/100/1000 or PoE+ copper ports | Uplink configuration | Default primary AC power supply | Fans |
|------------------------------|---|---------------------------|---------------------------------|-----------------|
| Modular uplink models | | | | |
| C9200-24T | 24 ports data | Modular uplink options | PWR-C6-125WAC | FRU redundant |
| C9200-24P | 24 ports full PoE+ | Modular uplink options | PWR-C6-600WAC | FRU redundant |
| C9200-24PB | 24 ports full PoE+ | Modular uplink options | PWR-C6-600WAC | FRU redundant |
| C9200-24PXG | 24 ports full PoE+ (8 mGig ports up to 10G, 16 ports up to 1G) | Modular uplink options | PWR-C6-600WAC | FRU redundant |
| C9200-48T | 48 ports data | Modular uplink options | PWR-C6-125WAC | FRU redundant |
| C9200-48P | 48 ports full PoE+ | Modular uplink options | PWR-C6-1KWAC | FRU redundant |
| C9200-48PL | 48 Ports partial PoE+ | Modular uplink options | PWR-C6-600WAC | FRU redundant |
| C9200-48PB | 48 ports full PoE+ | Modular uplink options | PWR-C6-1KWAC | FRU redundant |
| C9200-48PXG | 48 ports full PoE+ (8 mGig ports up to 10G, 40 ports up to 1G) | Modular uplink options | PWR-C6-1KWAC | FRU redundant |
| Fixed uplink models | | | | |
| C9200L-24T-4G | 24 ports data | 4x 1G fixed uplinks | PWR-C5-125WAC | Fixed redundant |
| C9200L-24P-4G | 24 ports full PoE+ | 4x 1G fixed uplinks | PWR-C5-600WAC | Fixed redundant |
| C9200L-48T-4G | 48 ports data | 4x 1G fixed uplinks | PWR-C5-125WAC | Fixed redundant |
| C9200L-48P-4G | 48 ports full POE+ | 4x 1G fixed uplinks | PWR-C5-1KWAC | Fixed redundant |
| C9200L-48PL-4G | 48 Ports partial PoE+ | 4X 1G Fixed uplinks | PWR-C5-600WAC | Fixed redundant |
| C9200L-24T-4X | 24 ports data | 4x 1/10G fixed uplinks | PWR-C5-125WAC | Fixed redundant |
| C9200L-24P-4X | 24 ports full PoE+ | 4x 1/10G fixed uplinks | PWR-C5-600WAC | Fixed redundant |
| C9200L-48T-4X | 48 ports data | 4x 1/10G fixed uplinks | PWR-C5-125WAC | Fixed redundant |
| C9200L-48P-4X | 48 ports full PoE+ | 4x 1/10G fixed uplinks | PWR-C5-1KWAC | Fixed redundant |
| C9200L-48PL-4X | 48 Port partial PoE+ | 4X 1/10G Fixed Uplinks | PWR-C5-600WAC | Fixed redundant |
| C9200L-24PXG-4X | 24 ports full PoE+ (8 mGig ports up to 10G, 16 ports up to 1G) | 4x 1/10G fixed uplinks | PWR-C5-600WAC | Fixed redundant |
| C9200L-48PXG-4X | 48 ports full POE+ (12 mGig ports up to 10G, 36 ports up to 1G) | 4x 1/10G fixed uplinks | PWR-C5-1KWAC | Fixed redundant |
| C9200L-24PXG-2Y | 24 ports full PoE+ (8 mGig ports up to 10G, 16 ports up to 1G) | 2x 1/10/25G fixed uplinks | PWR-C5-600WAC | Fixed redundant |

| Switch model | Downlinks total 10/100/1000 or PoE+ copper ports | Uplink configuration | Default primary AC power supply | Fans |
|-----------------|--|---------------------------|---------------------------------|-----------------|
| C9200L-48PXG-2Y | 48 ports full POE+ (8 mGig ports up to 10G, 40 ports up to 1G) | 2x 1/10/25G fixed uplinks | PWR-C5-1KWAC | Fixed redundant |

Network modules

Cisco Catalyst 9200 Series switches come with modular or fixed uplinks as indicated in Table 1. With modular SKUs, the field-replaceable network modules provide infrastructure investment protection by allowing a nondisruptive migration from 1G to 10G and beyond. When you purchase the switch, you can choose from the network modules described in Table 2.

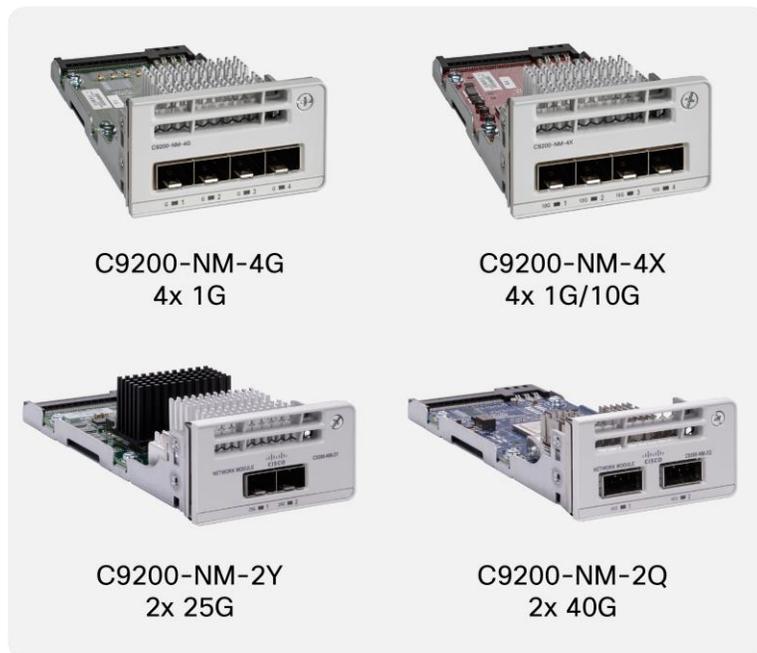


Figure 2.
Cisco Catalyst 9200 Series Switch network modules

Table 2. Network module part numbers and descriptions

| Network module | Description |
|--------------------------|--------------------------|
| C9200-NM-2Y ¹ | 2 x 25G Network Module |
| C9200-NM-2Q ¹ | 2 x 40G Network Module |
| C9200-NM-4G ² | 4x 1G network module |
| C9200-NM-4X | 4x 1G/10G network module |
| C9200-NM-BLANK | No network module |

¹ Supported only on C9200-24PXG, C9200-48PXG

² Not supported on C9200-24PXG, C9200-48PXG

For additional details, please read our FAQ:

<https://www.cisco.com/c/dam/en/us/products/collateral/switches/catalyst-9000/nb-09-cat-9k-faq-cte-en.pdf>.

Platform resiliency

Power supplies

Cisco Catalyst 9200 Series switches support dual field-replaceable power supplies (Figure 3). Each switch ships with one default power supply, and a second identical power supply can be purchased with the initial order or can be added at a later time. The second power supply can provide redundancy or additional power to PoE+ ports as needed.

Intelligent PoE+

- **IEEE 802.3at PoE+ (up to 30W per port)** is supported on Cisco Catalyst 9200 Series switches to lower the total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless access points, or other standards-compliant PoE+ end devices. PoE+ removes the need to supply wall power to PoE-enabled devices and eliminates the cost of adding electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments. With Cisco Catalyst 9200 Series switches, PoE+ power allocation is dynamic, and power mapping scales up to a maximum of 1440W of PoE+ power.
- **Perpetual PoE** is supported on Cisco Catalyst 9200 Series switches, and maintains the PoE+ power during a switch reload. This is important for critical endpoints such as medical devices and for Internet of Things (IoT) endpoints such as PoE-powered lights, so that there is no disruption during a switch reboot.
- **Fast PoE:** When power is restored to a switch, Fast PoE starts delivering power to endpoints without waiting for the operating system to fully load, thereby speeding up the time for the endpoint to start up.





Figure 3.
Cisco Catalyst 9200 Series Switch dual redundant power supplies

Table 3 lists the PoE+ power availability for each model.

Table 3. PoE+ Power with primary and secondary power supplies

| Model | Default primary power supply | Available PoE power with single primary power supply only | Optional secondary power supply | Available PoE power with additional secondary power supply* |
|------------------------|------------------------------|---|---------------------------------|---|
| C9200-24P | PWR-C6-600WAC | 370W | PWR-C6-600WAC | 740W |
| C9200-24PB | PWR-C6-600WAC | 370W | PWR-C6-600WAC | 740W |
| C9200-24PXG | PWR-C6-600WAC | 370W | PWR-C6-600WAC | 740W |
| C9200-48P | PWR-C6-1KWAC | 740W | PWR-C6-1KWAC | 1440W |
| C9200-48PL | PWR-C6-600WAC | 370W | PWR-C6-600WAC | 740W |
| C9200-48PB | PWR-C6-1KWAC | 740W | PWR-C6-1KWAC | 1440W |
| C9200-48PXG | PWR-C6-1KWAC | 740W | PWR-C6-1KWAC | 1440W |
| C9200L-24P-4G | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-24P-4X | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-48P-4G | PWR-C5-1KWAC | 740W | PWR-C5-1KWAC | 1440W |
| C9200L-48PL-4G | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-48P-4X | PWR-C5-1KWAC | 740W | PWR-C5-1KWAC | 1440W |
| C9200L-48PL-4X | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-24PXG-4X | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-48PXG-4X | PWR-C5-1KWAC | 740W | PWR-C5-1KWAC | 1440W |

| Model | Default primary power supply | Available PoE power with single primary power supply only* | Optional secondary power supply | Available PoE power with additional secondary power supply* |
|-----------------|------------------------------|--|---------------------------------|---|
| C9200L-24PXG-2Y | PWR-C5-600WAC | 370W | PWR-C5-600WAC | 740W |
| C9200L-48PXG-2Y | PWR-C5-1KWAC | 740W | PWR-C5-1KWAC | 1440W |

* Limited by port number and port rating (for example, 24 PoE+ 30W ports = 720W)

Stacking

Cisco Catalyst 9200 Series switch models are designed for stacking switches as a single virtual switch, enabling customers to have a single management plane and control plane for up to 384 access ports.

Table 4 lists the supported stacking options.

Table 4. Supported stacking options

| Model | Stacking support | Stacking bandwidth support | Stacking hardware | Number of members | Supported stack members |
|------------------------------------|------------------|----------------------------|-------------------|-------------------|---|
| Modular models (C9200 SKUs) | StackWise®-160 | 160 Gbps | C9200-STACK-KIT | 8 | Other C9200 models with same license level |
| Fixed models (C9200L SKUs) | StackWise-80 | 80 Gbps | C9200L-STACK-KIT | 8 | Other C9200L models with same license level |

Mixed stacking is **not supported**. You cannot stack fixed (C9200L SKUs) with modular (C9200 SKUs) models, or other Catalyst switches, e.g. Cisco Catalyst 2960-X and 2960-XR Series.

The optional StackWise-160 and StackWise-80 kits consist of two adapters and a stacking cable. The default stacking cable is 0.5 m, but options of 1 m and 3 m are also available. Table 5 lists the stacking accessories.

Table 5. Stacking accessories

| Model | Description |
|-------------------------|--|
| C9200-STACK-KIT | Stack kit for C9200 SKUs only: Two data stack adapters and one data stack cable |
| C9200L-STACK-KIT | Stack kit for C9200L SKUs only: Two data stack adapters and one data stack cable |
| STACK-T4-50CM | Data stack 50 cm cable (default cable with Stack Kit) |
| STACK-T4-1M | Data stack 1 m cable |
| STACK T4-3M | Data stack 3 m cable |



Figure 4.
Cisco Catalyst 9200 Series Switch stacked units

Fan

Cisco Catalyst 9200 Series switches also come with dual fans and support redundancy. Cisco Catalyst 9200 Series switches support redundancy with dual fans. On the C9200 SKUs, the fan units are field-replaceable, whereas on the fixed C9200L SKUs, the fan units are fixed. Table 5 lists the fan module part number.

Table 6. Fan modules

| Model | Description |
|---------|-------------|
| FAN-T2= | Fan module |

Performance and scalability

Table 7 lists performance and scalability metrics for Cisco Catalyst 9200 Series switches. Table 8 lists the bandwidth specifications.

Table 7. Performance specifications

| Description | C9200-24T, C9200-24P, C9200-48T, C9200-48P, C9200-24PB, C9200-48PB, C9200-24PXG, C9200-48PXG, C9200-48PL | C9200L-24T-4G, C9200L-24P-4G, C9200L-48T-4G, C9200L-48P-4G, C9200L-24T-4X, C9200L-24P-4X, C9200L-48T-4X, C9200L-48P-4X, C9200L-24PXG-4X, C9200L-48PXG-4X, C9200L-24PXG-2Y, C9200L-24PXG-4X, C9200L-48PL-4X, C9200L-48PL-4G |
|--|---|--|
| Virtual Networks | 4 for C9200-24T, C9200-24P, C9200-48T, C9200-48P, C9200-24PXG, C9200-48PXG, C9200-48PL 32 for C9200-24PB, C9200-48PB | 1 |
| Stacking bandwidth | 160 Gbps | 80 Gbps |
| Total number of MAC addresses | 32,000 | 16,000 |
| Total number of IPv4 routes (ARP plus learned routes) | 14,000 (10,000 direct routes and 4,000 indirect routes) | 11,000 (8,000 direct routes and 3,000 indirect routes) |
| IPv4 routing entries | 4,000 | 3,000 |

| Description | C9200-24T, C9200-24P, C9200-48T, C9200-48P, C9200-24PB, C9200-48PB, C9200-24PXG, C9200-48PXG, C9200-48PL | C9200L-24T-4G, C9200L-24P-4G, C9200L-48T-4G, C9200L-48P-4G, C9200L-24T-4X, C9200L-24P-4X, C9200L-48T-4X, C9200L-48P-4X, C9200L-24PXG-4X, C9200L-48PXG-4X, C9200L-24PXG-2Y, C9200L-24PXG-4X, C9200L-48PL-4X, C9200L-48PL-4G |
|---|--|--|
| IPv6 routing entries | 2,000 | 1,500 |
| Multicast routing scale | 1,000 | 1,000 |
| QoS scale entries | 1,000 | 1,000 |
| ACL scale entries | 1,600 | 1,500 |
| Packet buffer per SKU | 6 MB buffers for 24- or 48-port Gigabit Ethernet models , 12MB buffers for 24 or 48 port multigigabit models | 6 MB buffers for 24- or 48-port Gigabit Ethernet models, 12 MB buffers for 24 or 48 port multigigabit models |
| Flexible NetFlow (FNF) entries | 16,000 flows on 24- and 48-port Gigabit Ethernet models | 16,000 flows on 24- and 48-port Gigabit Ethernet models, 32,000 flows on 24 or 48 port multigigabit models |
| DRAM | 4 GB | 2 GB |
| Flash | 4 GB | 4 GB |
| VLAN IDs | 4096 | 4096 |
| PVST Instances | 128 | 128 |
| STP Virtual Ports (Port * VLANs) for PVST | 13,000 | 13,000 |
| STP Virtual Ports (Port * VALNs) for MST | 13,000 | 13,000 |
| Total Switched Virtual Interfaces (SVIs) | 1000 | 512 |
| Jumbo frames | 9198 bytes | 9198 bytes |
| Wireless bandwidth per switch | Up to 48 Gbps on 24-port and 48-port Gigabit Ethernet model | N/A |
| IP SGT binding scale | 8K | 10K |
| Number of IPv4 bindings | 8K | 10K |
| Number of SGT/DGT policies | 2K | 2K |
| Number of SXP Sessions | 200 | 200 |

Table 8. Bandwidth specifications

| Description | Switching capacity | Switch capacity with Stacking | Forwarding rate | Forwarding rate with Stacking |
|------------------------|--------------------|-------------------------------|-----------------|-------------------------------|
| C9200-24T | 128 Gbps | 288 Gbps | 95.23 Mpps | 214 Mpps |
| C9200-24P | 128 Gbps | 288 Gbps | 95.23 Mpps | 214 Mpps |
| C9200-24PB | 128 Gbps | 288 Gbps | 95.23 Mpps | 214 Mpps |
| C9200-24PXG | 352 Gbps | 532 Gbps | 261.90 Mpps | 395 Mpps |
| C9200-48T | 176 Gbps | 336 Gbps | 130.95 Mpps | 250 Mpps |
| C9200-48P | 176 Gbps | 336 Gbps | 130.95 Mpps | 250 Mpps |
| C9200-48PL | 176 Gbps | 336 Gbps | 130.95 Mpps | 250 Mpps |
| C9200-48PB | 176 Gbps | 336 Gbps | 130.95 Mpps | 250 Mpps |
| C9200-48PXG | 400 Gbps | 580 Gbps | 297.61 Mpps | 431 Mpps |
| C9200L-24T-4G | 56 Gbps | 136 Gbps | 41.66 Mpps | 101 Mpps |
| C9200L-24P-4G | 56 Gbps | 136 Gbps | 41.66 Mpps | 101 Mpps |
| C9200L-48T-4G | 104 Gbps | 184 Gbps | 77.38 Mpps | 137 Mpps |
| C9200L-48P-4G | 104 Gbps | 184 Gbps | 77.38 Mpps | 137 Mpps |
| C9200L-48PL-4G | 104 Gbps | 184 Gbps | 77.38 Mpps | 137 Mpps |
| C9200L-24T-4X | 128 Gbps | 208 Gbps | 95.23 Mpps | 155 Mpps |
| C9200L-24P-4X | 128 Gbps | 208 Gbps | 95.23 Mpps | 155 Mpps |
| C9200L-48T-4X | 176 Gbps | 256 Gbps | 130.95 Mpps | 190 Mpps |
| C9200L-48P-4X | 176 Gbps | 256 Gbps | 130.95 Mpps | 190 Mpps |
| C9200L-48PL-4X | 176 Gbps | 256 Gbps | 130.95 Mpps | 190 Mpps |
| C9200L-24PXG-4X | 272 Gbps | 352 Gbps | 214.28 Mpps | 262 Mpps |
| C9200L-24PXG-2Y | 292 Gbps | 372 Gbps | 229.16 Mpps | 277 Mpps |
| C9200L-48PXG-4X | 392 Gbps | 472 Gbps | 291.66 Mpps | 351 Mpps |
| C9200L-48PXG-2Y | 340 Gbps | 420 Gbps | 252.97 Mpps | 313 Mpps |

* Measured with 64 byte packets

Software

Platform software benefits

Cisco IOS XE

Cisco IOS XE Software opens a completely new paradigm in network configuration, operation, and monitoring through network automation. Cisco's automation solution is open, standards-based, and extensible across the entire lifecycle of a network device. The various automation mechanisms are outlined below.

- **Automated device provisioning** is the ability to automate the process of upgrading software images and installing configuration files on Cisco Catalyst switches when they are being deployed in the network for the first time. Cisco provides turnkey solutions such as Plug and Play and Preboot Execution Environment (PXE) that enable an effortless and automated deployment.
- **API-driven configuration** is available with modern network switches such as Cisco Catalyst 9200 Series switches. It supports a wide range of automation features and provides robust open APIs over NETCONF and RESTCONF using YANG data models for external tools, both off the shelf and custom built, to automatically provision network resources.
- **Granular visibility** enables model-driven telemetry to stream data from a switch to a destination. The data to be streamed is identified through subscription to a data set in a YANG model. The subscribed data set is streamed to the destination at specified intervals. Additionally, Cisco IOS XE enables the push model. It provides near-real-time monitoring of the network, leading to quick detection and rectification of failures.
- **Seamless software upgrades and patching** supports OS resilience. On Cisco Catalyst 9200 Series switches Cisco IOS XE supports cold patching with reboot, which provides fixes for critical bugs and security vulnerabilities between regular maintenance releases. This support lets you add patches without having to wait for the next maintenance release. Cold patching requires the switch to be rebooted after patching to allow the changes to take effect.
- **Trustworthy solutions built with Cisco Trust Anchor Technologies** provide a highly secure foundation for Cisco products. With Cisco Catalyst 9200 Series switches, these technologies enable hardware and software authenticity assurance for supply chain trust and strong mitigation against man-in-the-middle attacks that compromise software and firmware. Trust Anchor capabilities include image signing, Secure Boot, and Cisco Trust Anchor module.
- **High availability:** Cisco Catalyst 9200 Series switches support high-availability features, including the following:
 - Cross-stack EtherChannel provides the ability to configure Cisco EtherChannel technology across different members of the stack for high resiliency.
 - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) provides rapid spanning tree convergence independent of spanning tree timers and also offers the benefit of Layer 2 load balancing and distributed processing.
 - Per-VLAN Rapid Spanning Tree (PVRST+) allows rapid spanning tree (IEEE 802.1w) reconvergence on a per-VLAN spanning tree basis, providing simpler configuration than MSTP. In both MSTP and PVRST+ modes, stacked units behave as a single spanning tree node.
 - Switch-port auto-recovery ("err-disable" recovery) automatically attempts to reactivate a link that is disabled because of a network error.

- The Catalyst 9200 Series platform delivers the best SSO resiliency architecture in a stackable solution with sub-50-ms failover.

The Foundation of Software-Defined Access

Secure Segmentation with SD-Access

The enterprise network lies at the heart of digital transformation. A network that is open, programmable, integrated, and secure maximizes business agility, allowing new business opportunities to be pursued and captured.

Cisco DNA with SD-Access is the network fabric that powers business. It is an open and extensible software-driven architecture that accelerates and simplifies your enterprise network operations. The programmable architecture frees your IT staff from time-consuming, repetitive network configuration tasks so they can focus instead on innovation that positively transforms your business. SD-Access enables policy-based automation from edge to cloud with foundational capabilities. These include:

- Simplified device deployment
- Unified management of wired and wireless networks
- Network virtualization and segmentation
- Group-based policies
- Context-based analytics
- **SD-Access:** Cisco Catalyst 9200 Series switches are the entry-level devices for SD-Access, Cisco's lead enterprise architecture, with policy-based automation from edge to cloud.
 - Simplified segmentation and micro-segmentation, with predictable performance and scalability
 - Automation through Cisco DNA Center
 - Policy handled through the Cisco Identity Services Engine (ISE)
 - Faster launch of new business services and significantly improved issue resolution time
- **Assurance**
 - Full network visibility and monitoring
 - End-to-end Quality of Experience (QoE)
 - Fast issue resolution and network remediation
- Plug and Play (PnP) enabled: A simple, secure, unified, and integrated offering to ease new branch or campus device rollouts or updates to an existing network

Cloud Security

- **Umbrella Integration:**

Small to midsize networks reliant on managed service providers can now host Cisco Umbrella agent directly on their Catalyst 9200 series switches. This allows the business to easily customize their DNS filtering policies to prevent BYOD or IoT guest or corporate users from accessing malicious or inappropriate websites, without having to rely on the MSP to push the policies out. It also lets them optimize use of bandwidth by allowing direct cloud access for trusted apps. Requires DNA-Advantage License and Umbrella License per device.

Full Flexible NetFlow

- **Full Flexible NetFlow (FNF):** Cisco IOS FNF is the next generation in flow visibility technology. It enables optimization of the network infrastructure, reduces operation costs, and improves capacity planning and security incident detection with increased flexibility and scalability. Catalyst 9200 Series switches are capable of up to 16,000 flow entries on 48-port and 24 port models.

QoS

- **Superior QoS:** Cisco Catalyst 9200 Series switches offer Gigabit Ethernet speeds with intelligent services that keep traffic flowing smoothly, even at 10 times the normal network speed. Industry-leading mechanisms for cross-stack marking, classification, and scheduling deliver superior performance for data, voice, and video traffic at wire speed. Superior QoS includes granular wireless bandwidth management and fair sharing, 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.

Smart operation

- **WebUI:**

WebUI is an embedded GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability, and to enhance the user experience. It comes with the default image, so there is no need to enable anything or install any license on the device. You can use WebUI to build configurations, and to monitor and troubleshoot the device without having CLI expertise.

- **RFID tags:**

Cisco Catalyst 9200 Series switches have an embedded RFID tag that facilitates easy asset and inventory management using commercial RFID readers.

- **Blue beacon:**

Cisco Catalyst 9200 Series switches support both front and back blue beacon LEDs for easy identification of the switch being accessed.

- **Efficient switch operation:**

Cisco Catalyst 9200 Series switches provide optimum power saving with Energy Efficient Ethernet (EEE) on the RJ-45 ports and low-power operations for industry best-in-class power management and power consumption capabilities. The ports support reduced power modes so that ports not in use can move into a lower power utilization state. Other efficient switch operation features are as follows:

- Per-port power consumption command allows customers to specify a maximum power setting on an individual port.
- Per-port PoE power sensing measures actual power being drawn, enabling more intelligent control of powered devices. The PoE MIB provides proactive visibility into power usage and allows you to set different power-level thresholds.

- **Bluetooth ready:**

Cisco Catalyst 9200 Series switches have hardware support to connect a Bluetooth dongle to your switch, enabling you to use this wireless interface as an IP management port interface. The port can be used for configuration and troubleshooting using WebUI or the Command-Line Interface (CLI), and to transfer images and configurations.

High-performance ip routing

The Cisco Express Forwarding hardware routing architecture delivers extremely high-performance IP routing in Cisco Catalyst 9200 Series switches, based on:

- IP unicast routing protocols (including static, Routing Information Protocol Version 1 [RIPv1], RIPv2, RIPv6, and Open Shortest Path First [OSPF], Routed Access) are supported for small network routing applications with the Network Essentials stack. Equal-cost routing facilitates Layer 3 load balancing and redundancy across the stack.
- Advanced IP unicast routing protocols (including Full [OSPF], Enhanced Interior Gateway Routing Protocol [EIGRP], and Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) are supported for load balancing and for constructing scalable LANs. Ipv6 routing (using OSPFv3 and EIGRPv6) is supported in hardware for maximum performance.
- Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM sparse mode (PIM SM), and Source-Specific Multicast (SSM).
- Ipv6 addressing is supported on interfaces with appropriate show commands for monitoring and troubleshooting.

Licensing

Introduction to Smart Licensing

Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across your organization. And it's secure – you control what users can access. With Smart Licensing you get:

- **Easy Activation:** Smart Licensing establishes a pool of software licenses that can be used across the entire organization—no more PAKs (Product Activation Keys).
- **Unified Management:** My Cisco Entitlements (MCE) provides a complete view into all of your Cisco products and services in an easy-to-use portal, so you always know what you have and what you are using.
- **License Flexibility:** Your software is not node-locked to your hardware, so you can easily use and transfer licenses as needed.

To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com).

For a more detailed overview on Cisco Licensing, go to cisco.com/go/licensingguide

Packaging: Network and Cisco DNA licensing

The Cisco Catalyst 9000 family of switches introduces a new and simplified licensing package in the form of base and add-on licenses.

- **The perpetual licensing** package includes the Network Essentials and Network Advantage licensing options that are tied to the hardware. Between them, the base licensing packages cover switching fundamentals, management automation, troubleshooting, and advanced switching features. These Network licenses are perpetual.
- **The subscription licensing** package includes the Cisco DNA Essentials and Cisco DNA Advantage options. In addition to on-box capabilities, the features available with this package provide Cisco innovations on the switch, as well as on Cisco DNA Center. The Cisco DNA subscription licenses are mandatory at the time of configuration. With Cisco DNA software licenses, customers receive embedded SWSS – which covers 24x7x365 Cisco Technical Assistance Center (TAC) support, software release updates, advanced support analytics, and designated service management. This is valid only for the Cisco DNA software subscription stacks (Cisco DNA Essentials, Advantage, and Premier).

Note: For full hardware support, including the perpetual network stack customers will require Smart Net Total Care for 24x7x365 Cisco Technical Assistance Center (TAC) support, proactive security and product alerts, and product lifecycle management. An additional option for hardware support is Solution Support for your multivendor Cisco solution environment

License consumption is easily determined by the package itself. While perpetual licenses are always permanent and without an expiration date, subscription licenses have to be purchased for a 3-, 5-, or 7-year term (and hence are also known as term-based licenses). Table 12 shows the combinations of perpetual and subscription licenses that must be purchased.

Supported licensing combinations

Table 9. Licensing combinations

| | Cisco DNA Premier | Cisco DNA Advantage | Cisco DNA Essentials |
|--------------------|-------------------|---------------------|----------------------|
| Network Essentials | No | No | Yes |
| Network Advantage | Yes | Yes | No* |

* At the time of license renewal, the Cisco DNA Essentials license can be purchased to be used with Network Advantage.

Cisco DNA Premier subscription

Cisco DNA Premier subscriptions offer a flexible way to buy software for the access, WAN, and data center domains. At each stage in the product lifecycle, Cisco DNA Premier subscriptions help make buying, managing, and upgrading your network and infrastructure software easier. Cisco DNA Premier subscriptions provide:

- Flexible licensing models to smoothly distribute customers' software spending over time
- Investment protection for software purchases through software services-enabled license portability
- Lower cost of entry with the new Cisco DNA Premier Subscription for Switching model

For ordering information for Cisco DNA Premier Software for Cisco Catalyst 9200 Series switches, go to: <https://www.cisco.com/c/en/us/products/collateral/software/one-subscription-switching/nb-06-dna-sw-sub-access-sw-ctp-en.html>.

Cisco Catalyst 9200 Series switches run on Cisco IOS XE Release 16.9.2 or later. This software release includes all the features listed earlier in the Platform Software Benefits section.

Managing licenses with Smart Accounts: Creating Smart Accounts by using the Cisco Smart Software Manager (Cisco SSM) enables you to order devices and licensing packages and also manage your software licenses from a centralized website. You can set up Cisco SSM to receive daily email alerts and to be notified of expiring add-on licenses that you want to renew.

You must order an add-on license in order to purchase a switch. When the license term expires, you can either renew the add-on license to continue using it or deactivate the add-on license and then reload the switch to continue operating with the base license capabilities.

Both the base and add-on licenses are also available for a 90-day evaluation period. An evaluation license is activated temporarily, without purchase. An expired evaluation license cannot be reactivated after reload.

Note: It is not required to deploy Cisco DNA Center, just to use one of the above packages.

Tables 10 shows the features included in the Network Essentials and Advantage packages.

Table 11 shows the features included in the Cisco DNA Essentials and Advantage packages.

Network licensing

Table 10. Network essentials and advantage package features

| Features on Cisco Catalyst uplink switches | Network Essentials | Network Advantage |
|--|--------------------|-------------------|
| Switch fundamentals Layer 2, Routed Access (RIP, EIGRP Stub, OSPF -- 1000 routes), PBR, PIM Stub Multicast (1000 routes), PVLAN, VRRP, PBR, CDP, QoS, FHS, 802.1X, MACsec-128, CoPP, SXP, IP SLA Responder,SSO | ✓ | ✓ |
| Advanced switch capabilities and scale EIGRP, HSRP, IS-IS, BSR, MSDP, IP SLA, OSPF | X | ✓ |
| Network segmentation VRF, VXLAN, LISP, SGT | X | ✓ |
| Automation NETCONF, RESTCONF, YANG, PnP Agent, PnP | ✓ | ✓ |
| Telemetry and visibility Model-driven telemetry, sampled NetFlow, SPAN, RSPAN | ✓ | ✓ |
| Security MACsec-128 | ✓ | ✓ |

Cisco DNA licensing

Table 11. Cisco DNA Essentials, Advantage, and Premier Package Features

| Features | Cisco DNA Essentials | Cisco DNA Advantage | Cisco DNA Premier |
|--|----------------------|---------------------|-------------------|
| Switch features | | | |
| Advanced telemetry and visibility Full Flexible NetFlow, EEM | ✓ | ✓ | ✓ |
| Optimized telemetry and visibility AVC (NBAR2) | X | ✓ | ✓ |
| Cisco DNA Center features | | | |
| Day-0 network bring-up automation Cisco Network Plug-and-Play application, network settings, device credentials, LAN automation, host onboarding | ✓ | ✓ | ✓ |
| Element management Discovery, inventory, topology, software image, licensing, and configuration management | ✓ | ✓ | ✓ |
| Element management Patch management | X | ✓ | ✓ |

| Features | Cisco DNA Essentials | Cisco DNA Advantage | Cisco DNA Premier |
|---|----------------------|---------------------|-------------------|
| Basic Assurance Health dashboards – Network, Client, Application; switch and wired client health monitoring | ✓ | ✓ | ✓ |
| SD-Access Policy-based automation and assurance for wired and wireless | X | ✓ | ✓ |
| Network assurance and analytics Global insights, trends, compliance, custom reports; switch 360, wired client 360; fabric and non-fabric insights; app health, app 360, app performance (loss, latency, jitter) | X | ✓ | ✓ |
| Other Software included (can be purchased separately) | | | |
| ISE Base | X | X | ✓ |
| ISE Plus | X | X | ✓ |
| StealthWatch | X | X | ✓ |

Product sustainability

Refer to the [CSR/Social Responsibility section](#) for more information on Cisco’s environmental sustainability policies and initiatives.

| Sustainability Topic | Reference | |
|----------------------|---|---|
| General | Information on product-material-content laws and regulations | Materials |
| | Information on electronic waste laws and regulations, including our products, batteries and packaging | WEEE Compliance |
| | Sustainability Inquiries | Contact: csr_inquiries@cisco.com |
| | Safety and compliance | Table 17. Safety and compliance information |
| | Information on product takeback and resuse program | Cisco Takeback and Reuse Program |
| Power | IEEE 802.3at PoE+ | Intelligent PoE+ Section |
| | PoE+ power availability | Table 3. PoE+ Power with Primary and secondary power supplies |
| | Fan | Fan Section |
| | Power connectors | Table 13. Connectors |
| | Power supply specifications | Table 15. Power supply specifications |
| | Power consumption (ATIS) | Table 16. Power consumption of Standalone Catalyst 9200 Series switches |

| Sustainability Topic | | Reference |
|----------------------|---|---|
| Material | Product packaging weight and materials | Contact: environment@cisco.com |
| | Chassis Dimension, weight, MTBF | Table 12. Model Dimensions, Weight, and Mean time between failure metrics |
| | Elimination of wet paint on plastic bezel | 2019 Cisco Corporate Social Responsibility Report , Pg. 19 Stepping up our work on circularity |

Specifications

Dimensions, Eight, Acoustic, Mean time between failures

Table 12 shows the dimensions, weights, acoustic, and mean time between failures of all models of Cisco Catalyst 9200 Series switches.

Table 12. Model Dimensions, Weight, and Mean time between failures metrics

| Platform Physical Specifications | | | | |
|----------------------------------|--------------------|-------------------|--|-------------------|
| Model | Chassis Dimensions | | Chassis + FEP + Fan Dimensions (HxWxD) | |
| | Inches | Centimeters | Inches | Centimeters |
| C9200-24T | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-24P | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-24PB | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-24PXG | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-48T | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-48P | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-48PL | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-48PB | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200-48PXG | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200L-24T-4G | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-24P-4G | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48T-4G | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48P-4G | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48PL-4G | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-24T-4X | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |

Platform Physical Specifications

| Model | Chassis Dimensions | | Chassis + FEP + Fan Dimensions (HxWxD) | |
|------------------------|--------------------|-------------------|--|-------------------|
| | Inches | Centimeters | Inches | Centimeters |
| C9200L-24P-4X | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48T-4X | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48P-4X | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-48PL-4X | 1.73 x 17.5 x 11.3 | 4.4 x 44.5 x 28.8 | 1.73 x 17.5 x 12.9 | 4.4 x 44.5 x 32.9 |
| C9200L-24PXG-4X | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200L-24PXG-2Y | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200L-48PXG-4X | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |
| C9200L-48PXG-2Y | 1.73 x 17.5 x 13.8 | 4.4 x 44.5 x 35.0 | 1.73 x 17.5 x 15.4 | 4.4 x 44.5 x 39.1 |

| Model | Pounds | Kilograms |
|-----------------------|--------|-----------|
| C9200-24T | 11.02 | 5.0 |
| C9200-24P | 12.12 | 5.5 |
| C9200-24PB | 12.12 | 5.0 |
| C9200-24PXG | 11.33 | 5.1 |
| C9200-48T | 11.02 | 5.0 |
| C9200-48P | 12.12 | 5.5 |
| C9200-48PL | 12.12 | 5.5 |
| C9200-48PB | 12.12 | 5.5 |
| C9200-48PXG | 11.98 | 5.45 |
| C9200L-24T-4G | 9.59 | 4.35 |
| C9200L-24P-4G | 10.38 | 4.71 |
| C9200L-48T-4G | 9.97 | 4.53 |
| C9200L-48P-4G | 10.58 | 4.80 |
| C9200L-48PL-4G | 10.58 | 4.80 |
| C9200L-24T-4X | 9.59 | 4.35 |

| Model | Pounds | Kilograms |
|-----------------|--------|-----------|
| C9200L-24P-4X | 10.38 | 4.71 |
| C9200L-48T-4X | 9.97 | 4.53 |
| C9200L-48P-4X | 10.58 | 4.80 |
| C9200L-48PL-4X | 10.58 | 4.80 |
| C9200L-24PXG-4X | 12 | 5.44 |
| C9200L-24PXG-2Y | 12 | 5.44 |
| C9200L-48PXG-4X | 12.6 | 5.71 |
| C9200L-48PXG-2Y | 12.6 | 5.71 |

| Mean time between failures (hours) | |
|------------------------------------|---------|
| C9200-24T | 587,800 |
| C9200-24P | 422,310 |
| C9200-24PB | 434,220 |
| C9200-24PXG | 353,960 |
| C9200-48T | 571,440 |
| C9200-48P | 375,570 |
| C9200-48PL | 375,570 |
| C9200-48PB | 384,980 |
| C9200-48PXG | 320,440 |
| C9200L-24T-4G | 531,030 |
| C9200L-24P-4G | 392,210 |
| C9200L-48T-4G | 508,700 |
| C9200L-48P-4G | 347,760 |
| C9200L-48PL-4G | 347,760 |
| C9200L-24T-4X | 525,990 |
| C9200L-24P-4X | 390,310 |
| C9200L-48T-4X | 503,400 |

| Mean time between failures (hours) | |
|------------------------------------|-----------|
| C9200L-48P-4X | 346,270 |
| C9200L-48PL-4X | 346,270 |
| C9200L-24PXG-4X | 379,410 |
| C9200L-24PXG-2Y | 374,730 |
| C9200L-48PXG-4X | 337,360 |
| C9200L-48PXG-2Y | 337,260 |
| PWR-C5-125WAC | 3,332,120 |
| PWR-C5-600WAC | 1,600,060 |
| PWR-C5-1KWAC | 1,600,060 |
| PWR-C6-125WAC | 3,332,120 |
| PWR-C6-600WAC | 1,600,060 |
| PWR-C6-1KWAC | 1,600,060 |

| Environmental ranges | |
|---|--|
| <p>Acoustic noise</p> <p>Measured per ISO 7779 and declared per ISO 9296</p> <p>Bystander positions operating to an ambient temperature of 25° C</p> | <p>With AC power supply (with 24 PoE+ ports loaded):</p> <ul style="list-style-type: none"> • LpA: 42dB typical, 45 dB max • LwA: 5.3B typical, 5.6B max <p>Typical: Noise emission for a typical configuration</p> <p>Maximum: Statistical maximum to account for variation in production</p> |

Connectors

Table 13 shows the supported connectors for Cisco Catalyst 9200 Series switches.

Table 13. Connectors

| | |
|-------------------------------|---|
| Connectors and cabling | <ul style="list-style-type: none"> • 1000BASE-T ports: RJ-45 connectors, 4-pair Cat 5E UTP cabling • 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Cat 5E UTP cabling • 100BASE-FX, 1000BASE-SX, -LX/LH, -ZX, -BX10, dense wavelength-division multiplexing (DWDM) and Coarse Wavelength-Division Multiplexing (CWDM) SFP transceivers: LC fiber connectors (single-mode or multimode fiber) • 10GBASE-SR, LR, LRM (only C9200), ER, ZR, DWDM SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP+ connector • Cisco StackWise-160/80 stacking ports: copper-based Cisco StackWise cabling • Ethernet management port: RJ-45 connectors, 4-pair Cat 5 UTP cabling • Management console port: RJ-45-to-DB9 cable for PC connections, USB-C adaptor, USB adaptor |
|-------------------------------|---|

Power connectors

- Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet.

For the latest Cisco transceiver module compatibility information, refer to https://www.cisco.com/c/en/us/td/docs/interfaces_modules/transceiver_modules/compatibility/matrix/TMG_C_M_Tool_User_Manual.html.

Management and standards support

Table 14 shows management and standards support for Cisco Catalyst 9200 Series switches.

Table 14. Management and standards support*

| Description | Specification | |
|-------------|---------------------------------|-------------------------------------|
| Management | BRIDGE-MIB | CISCO-NHRP-EXT-MIB |
| | CISCO-BRIDGE-EXT-MIB | CISCO-NTP-MIB |
| | CISCO-BULK-FILE-MIB | CISCO-PAGP-MIB |
| | CISCO-CABLE-DIAG-MIB | CISCO-PORT-SECURITY-MIB |
| | CISCO-CALLHOME-MIB | CISCO-PORT-STORM-CONTROL-MIB |
| | CISCO-CEF-MIB | CISCO-POWER-ETHERNET-EXT-MIB |
| | CISCO-CIRCUIT-INTERFACE-MIB | CISCO-PRIVATE-VLAN-MIB |
| | CISCO-CONFIG-COPY-MIB | CISCO-PROCESS-MIB |
| | CISCO-CONFIG-MAN-MIB | CISCO-PRODUCTS-MIB |
| | CISCO-DEVICE-LOCATION-MIB | CISCO-RF-MIB |
| | CISCO-DHCP-SNOOPING-MIB | CISCO-RTP-METRICS-MIB |
| | CISCO-EIGRP-MIB | CISCO-RTTMON-ICMP-MIB |
| | CISCO-EMBEDDED-EVENT-MGR-MIB | CISCO-STACKWISE-MIB |
| | CISCO-ENTITY-FRU-CONTROL-MIB | CISCO-STP-EXTENSIONS-MIB |
| | CISCO-ENTITY-SENSOR-MIB | CISCO-SYSLOG-MIB |
| | CISCO-ENTITY-VENDORTYPE-OID-MIB | CISCO-TCP-MIB |
| | CISCO-ERR-DISABLE-MIB | CISCO-UDLD-MIB |
| | CISCO-FLASH-MIB | CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB |
| | CISCO-FLOW-MONITOR-MIB | ENTITY-MIB |
| | CISCO-FTP-CLIENT-MIB | HC-ALARM-MIB |
| | CISCO-HSRP-EXT-MIB | HC-RMON-MIB |
| | CISCO-HSRP-MIB | IEEE8023-LAG-MIB |
| | CISCO-IETF-BFD-MIB | IF-MIB |
| | CISCO-IETF-PPVPN-MPLS-VPN-MIB | IP-FORWARD-MIB |
| | CISCO-IETF-PW-MPLS-MIB | IP-MIB |
| | CISCO-IF-EXTENSION-MIB | LLDP-EXT-MED-MIB |
| | CISCO-IGMP-FILTER-MIB | LLDP-MIB |
| | CISCO-IMAGE-LICENSE-MGMT-MIB | MAU-MIB |

| Description | Specification | |
|------------------|--|---|
| | CISCO-IMAGE-MIB CISCO-IP-CBR-METRICS-MIB CISCO-IP-STAT-MIB CISCO-IP-TAP-MIB CISCO-IP-URPF-MIB CISCO-IPSEC-FLOW-MONITOR-MIB CISCO-IPSEC-MIB CISCO-IPSEC-PROVISIONING-MIB CISCO-IPSLA-AUTOMEASURE-MIB CISCO-IPSLA-ECHO-MIB CISCO-IPSLA-JITTER-MIB CISCO-L2-CONTROL-MIB CISCO-L2L3-INTERFACE-CONFIG-MIB CISCO-LAG-MIB CISCO-LICENSE-MGMT-MIB CISCO-LOCAL-AUTH-USER-MIB CISCO-MAC-NOTIFICATION-MIB CISCO-MDI-METRICS-MIB CISCO-MEDIA-METRICS-MIB CISCO-MEMORY-POOL-MIB CISCO-MPLS-LSR-EXT-STD-MIB CISCO-NBAR-PROTOCOL-DISCOVERY-MIB | MPLS-L3VPN-STD-MIB MPLS-LSR-STD-MIB MPLS-VPN-MIB OLD-CISCO-CHASSIS-MIB OLD-CISCO-CPU-MIB OLD-CISCO-INTERFACES-MIB OLD-CISCO-IP-MIB OLD-CISCO-MEMORY-MIB OLD-CISCO-SYS-MIB OLD-CISCO-TCP-MIB OLD-CISCO-TS-MIB POWER-ETHERNET-MIB RFC1213-MIB RMON-MIB RMON2-MIB SMON-MIB SNMPv2-MIB SONET-MIB TCP-MIB UDP-MIB |
| Standards | IEEE 802.1s IEEE 802.1w IEEE 802.1x IEEE 802.1x-Rev IEEE 802.3ad IEEE 802.3af IEEE 802.3at IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports IEEE 802.1D Spanning Tree Protocol IEEE 802.1p CoS prioritization IEEE 802.1Q VLAN IEEE 802.3 10BASE-T specification IEEE 802.3u 100BASE-TX specification IEEE 802.3ab 1000BASE-T specification IEEE 802.3z 1000BASE-X specification | RMON I and II standards SNMPv1, v2c, and v3 |

| Description | Specification |
|-------------|---|
| | IEEE 802.1AE - 128-bit AES MACsec inter network device encryption with MACsec Key Agreement (MKA) |
| | IEEE 802.3bz (for mGig PKG SKU's only) |
| | IEEE 802.3an (10GBase-T) (for mGig PKG SKU's only) |

Power supply specifications

Table 15 lists the power specifications for Cisco Catalyst 9200 Series switches based on the kind of power supply used.

Table 15. Power supply specifications

| Description | Specification | | | | | |
|--|---|---|---|---|--|--|
| | PWR-C5-125WAC | PWR-C6-125WAC | PWR-C5-600WAC | PWR-C6-600WAC | PWR-C5-1KWAC | PWR-C6-1KWAC |
| Power supply rated maximum | 125W | 125W | 600W | 600W | 1000W | 1000W |
| Total output BTU (note: 1000 BTU/hr = 293W) | 426.5 BTU/hr, 125W | 426.5 BTU/hr, 125W | 2047.3 BTU/hr, 600W | 2047.3 BTU/hr, 600W | 3412 BTU/hr, 1000W | 3412 BTU/hr, 1000W |
| Input-voltage range and frequency | 100 to 240 VAC, 50 to 60 Hz | 100 to 240 VAC, 50 to 60 Hz | 100 to 240 VAC, 50 to 60 Hz |
| Input current | 1.6-0.7A | 1.6-0.7A | 7-2.8A | 7-2.8A | 12-6A | 12-6A |
| Output ratings | 12V at 10.5A | 12V at 10.5A | 54V at 11.1A | 54V at 11.1A | 54V at 16.5A | 54V at 16.5A |
| Output holdup time | 20 ms minimum at 100 VAC | 20 ms minimum at 100 VAC | 20 ms minimum at 100 VAC |
| Power-supply input receptacles | IEC 320-C14 (IEC60320-C14) | IEC 320-C14 (IEC60320-C14) | IEC 320-C16 (IEC60320-C16) | IEC 320-C16 (IEC60320-C16) | IEC 320-C16 (IEC60320-C16) | IEC 320-C16 (IEC60320-C16) |
| Power cord rating | 10A | 10A | 15A | 15A | 15A | 15A |
| Physical specifications | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 1.5 lb (0.68 kg) | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 1.5 lb (0.68 kg) | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 1.7 lb (0.77 kg) | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 1.7 lb (0.77 kg) | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 2 lb (0.9 kg) | (H x W x D): 1.58" x 4.0" x 7.6" Weight: 2 lb (0.9 kg) |
| Supported Product Family | C9200, C9200L | C9200 | C9200, C9200L | C9200 | C9200, C9200L | C9200 |

| Description | Specification |
|---|--|
| Operating temperature | <p>Normal operating temperature* and altitudes:</p> <ul style="list-style-type: none"> • -5° C to +45° C, up to 5000 feet (1500m) • -5° C to +40° C, up to 10,000 feet (3000m) <p>* Minimum ambient temperature for cold start is 32° F (0° C)</p> <p>Short-term* exceptional conditions:</p> <ul style="list-style-type: none"> • -5° C to +50° C, up to 5000 feet (1500m) • -5° C to +45° C, up to 10,000 feet (3000m) • -5° C to +45° C, at sea level with single fan failure <p>* Not more than following in one-year period: 96 consecutive hours, or 360 hours total, or 15 occurrences</p> |
| Storage temperature | -40° to 158° F (-40° to 70° C) |
| Relative humidity operating and nonoperating noncondensing | 5% to 90% noncondensing |
| Altitude | 10,000 ft. (3000 meters), up to 45° C |
| EMC compliance | <p>FCC Part 15 (CFR 47) Class A</p> <p>ICES-003 Class A</p> <p>EN 55032 Class A</p> <p>CISPR 32 Class A</p> <p>AS/NZS 3548 Class A</p> <p>BSMI Class A</p> <p>VCCI Class A</p> <p>CISPR 35</p> <p>EN 55035, EN300 386*, EN 61000-3-2, EN 61000-3-3</p> |
| Safety compliance | UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC, CE Marking |
| LED indicators | <p>“AC OK”: Input power to the power supply is OK</p> <p>“PS OK”: Output power from the power supply is OK</p> |

* Use shielded cables for locations other than telecom centers

Power consumption of Standalone 9200 Series switches

Table 16 shows the power consumption of standalone Cisco Catalyst 9200 Series switches based on Alliance for Telecommunications Industry Solutions (ATIS) testing using Internet Mix (IMIX) distribution stream traffic, with input voltage of 115VAC at 60 Hz and no PoE loading. The values given are the maximum possible power consumption numbers under the respective test scenarios.

Table 16. Power consumption of Standalone Catalyst 9200 Series switches

| | | | | Measured P(W) | | | | | | | | | | | | | | | | |
|-------------|--------------|----------------|--------|-------------------|-------|-------|-------|-------|-------------------|--------|--------|--------|--------|---------------------|---------|-----------------------|--------|--------|--------|--|
| | | | | Half port traffic | | | | | Full port traffic | | | | | Weighted average Pw | No link | PoE test (no traffic) | | | | |
| SKU | FEP | Uplink | Input | 0.01% / EEE | 10% | 30% | 50% | 100% | 0.01% / EEE | 10% | 30% | 50% | 100% | | | 25% | 50% | 90% | 100% | |
| C9200-24T | 125W (C5/C6) | C9200-NM-4X1G | 115VAC | 33.09 | 36.08 | 36.15 | 36.20 | 36.34 | 35.51 | 41.78 | 41.89 | 42.00 | 42.27 | 41.20 | 30.65 | | | | | |
| | | | 230VAC | 33.15 | 35.95 | 36.00 | 36.06 | 36.19 | 35.36 | 41.50 | 41.62 | 41.74 | 42.01 | 40.94 | 30.53 | | | | | |
| C9200-24T | 125W | C9200-NM-4X10G | 115VAC | 33.62 | 36.99 | 37.29 | 37.58 | 38.26 | 35.41 | 42.00 | 42.55 | 43.11 | 44.49 | 41.588 | 32.20 | | | | | |
| | | | 230VAC | 33.70 | 36.85 | 37.13 | 37.41 | 38.10 | 35.40 | 41.75 | 42.30 | 42.85 | 44.22 | 41.364 | 31.90 | | | | | |
| C9200-24P | 600W (C5/C6) | C9200-NM-4X1G | 115VAC | 43.57 | 47.37 | 47.42 | 47.47 | 47.68 | 46.82 | 53.79 | 53.91 | 54.02 | 54.30 | 53.14 | 40.75 | 150.71 | 251.67 | 416.85 | 457.98 | |
| | | | 230VAC | 43.38 | 46.92 | 46.95 | 47.03 | 47.18 | 46.35 | 53.23 | 53.34 | 53.45 | 53.76 | 52.59 | 40.43 | 148.14 | 247.03 | 406.62 | 446.27 | |
| C9200-24P | 600W (C5/C6) | C9200-NM-4X10G | 115VAC | 44.62 | 48.49 | 48.79 | 49.11 | 49.88 | 47.02 | 54.18 | 54.77 | 55.34 | 56.77 | 53.72 | 42.55 | 144.60 | 245.42 | 410.22 | 451.45 | |
| | | | 230VAC | 44.32 | 48.06 | 48.37 | 48.66 | 49.40 | 46.41 | 53.38 | 53.99 | 54.51 | 55.96 | 52.94 | 42.26 | 142.29 | 241.14 | 400.76 | 440.37 | |
| C9200-24PXG | 600W (C6) | C9200-NM-4X10G | 115VAC | 84.30 | 90.90 | 91.00 | 92.30 | 94.20 | 95.00 | 110.60 | 111.60 | 112.60 | 115.20 | 109.5 | 72.8 | 296.8 | 506.3 | 858.3 | 941.5 | |
| | | | 230VAC | 84.10 | 90.50 | 91.10 | 91.60 | 92.90 | 94.30 | 108.80 | 109.90 | 111.00 | 113.60 | 107.83 | 72.24 | 287.8 | 492.4 | 826.7 | 909.1 | |
| C9200-24PXG | 600W (C6) | C9200-NM-2X25G | 115VAC | 83.41 | 87.59 | 88.56 | 89.19 | 90.85 | 93.96 | 101.38 | 103.32 | 104.89 | 107.22 | 101.22 | 72.52 | 187.94 | 290.47 | 452.61 | 494.88 | |
| | | | 230VAC | 81.90 | 86.97 | 87.68 | 88.38 | 90.03 | 92.21 | 99.79 | 101.14 | 102.45 | 105.65 | 99.62 | 71.74 | 185.45 | 283.86 | 441.83 | 480.86 | |
| C9200-24PXG | 600W (C6) | C9200-NM-2X40G | 115VAC | 82.34 | 86.78 | 87.91 | 88.90 | 91.64 | 92.97 | 100.93 | 103.00 | 104.89 | 108.81 | 100.92 | 71.72 | 188.86 | 289.2 | 448.52 | 496.28 | |
| | | | 230VAC | 80.05 | 84.53 | 85.64 | 86.69 | 89.29 | 90.26 | 99.20 | 101.41 | 103.56 | 108.70 | 99.26 | 71.72 | 185.29 | 282.86 | 441.33 | 480.95 | |

| | | | Measured P(W) | | | | | | | | | | | | | | | | |
|-------------|---------------|-----------------|-------------------|-------|-------|-------|-------|-------|--------|-------------------|--------|--------|--------|--------|-------|---------------------|---------|-----------------------|--------|
| | | | Half port traffic | | | | | | | Full port traffic | | | | | | Weighted average Pw | No link | PoE test (no traffic) | |
| C9200-48T | 125W (C5/C6) | C9200 -NM-4X1G | 115VAC | 36.57 | 45.09 | 45.45 | 45.63 | 45.70 | 36.98 | 53.95 | 55.36 | 53.91 | 55.87 | 52.445 | 36.98 | | | | |
| | | | 230VAC | 36.99 | 45.58 | 45.65 | 45.71 | 45.86 | 36.48 | 54.51 | 54.64 | 54.7 | 55.04 | 52.76 | 36.48 | | | | |
| C9200-48T | 125W (C5/C6) | C9200 -NM-4X10G | 115VAC | 38.84 | 47.07 | 48.67 | 48.71 | 50.41 | 39.20 | 56.33 | 58.36 | 58.75 | 61.80 | 55.164 | 38.38 | | | | |
| | | | 230VAC | 39.1 | 47.11 | 47.91 | 48.37 | 49.65 | 39.46 | 56.32 | 57.25 | 58.19 | 60.72 | 55.074 | 38.67 | | | | |
| C9200-48P | 1000W (C5/C6) | C9200 -NM-4X1G | 115VAC | 56.07 | 60.25 | 60.31 | 60.36 | 60.55 | 56.45 | 69.33 | 69.46 | 69.56 | 69.87 | 68.10 | 50.42 | 262.61 | 467.50 | 812.39 | 899.99 |
| | | | 230VAC | 55.66 | 59.98 | 60.05 | 60.05 | 60.27 | 56.09 | 69.07 | 69.20 | 69.30 | 69.58 | 67.83 | 50.04 | 258.08 | 457.61 | 785.35 | 867.75 |
| C9200-48P | 1000W (C5/C6) | C9200 -NM-4X10G | 115VAC | 54.27 | 61.71 | 62.20 | 62.68 | 63.88 | 56.114 | 70.93 | 70.95 | 71.92 | 74.39 | 69.79 | 52.26 | 262.38 | 467.41 | 812.23 | 899.40 |
| | | | 230VAC | 53.89 | 61.09 | 61.60 | 62.07 | 63.24 | 55.79 | 69.52 | 70.47 | 71.43 | 73.89 | 68.58 | 51.34 | 257.97 | 457.30 | 785.03 | 867.35 |
| C9200-48PL | 600W (C6) | C9200 -NM-4X1G | 115VAC | 43.57 | 47.37 | 47.42 | 47.47 | 47.68 | 46.82 | 53.79 | 53.91 | 54.02 | 54.30 | 53.14 | 40.75 | 150.71 | 251.67 | 416.85 | 457.98 |
| | | | 230VAC | 43.38 | 46.92 | 46.95 | 47.03 | 47.18 | 46.35 | 53.23 | 53.34 | 53.45 | 53.76 | 52.59 | 40.43 | 148.14 | 247.03 | 406.62 | 446.27 |
| C9200-48PL | 600W (C6) | C9200 -NM-4X10G | 115VAC | 44.62 | 48.49 | 48.79 | 49.11 | 49.88 | 47.02 | 54.18 | 54.77 | 55.34 | 56.77 | 53.72 | 42.55 | 144.60 | 245.42 | 410.22 | 451.45 |
| | | | 230VAC | 44.32 | 48.06 | 48.37 | 48.66 | 49.40 | 46.41 | 53.38 | 53.99 | 54.51 | 55.96 | 52.94 | 42.26 | 142.29 | 241.14 | 400.76 | 440.37 |
| C9200-48PXC | 1000W (C6) | C9200 -NM-4X10G | 115VAC | 84.26 | 90.86 | 91.02 | 92.26 | 94.18 | 95.01 | 110.55 | 111.62 | 112.62 | 115.2 | 109.46 | 72.3 | 296.81 | 506.33 | 858.27 | 941.49 |
| | | | 230VAC | 84.14 | 90.52 | 91.05 | 91.57 | 92.85 | 94.25 | 108.84 | 109.94 | 111 | 113.6 | 107.86 | 73.2 | 287.79 | 492.42 | 826.74 | 909.07 |
| C9200-48PXC | 1000W (C6) | C9200 -NM-2X25G | 115VAC | 87.84 | 95.23 | 95.98 | 96.69 | 98.34 | 99.25 | 113.66 | 115.37 | 116.7 | 120.91 | 112.94 | 77.57 | 300.71 | 513.82 | 872.63 | 957.36 |
| | | | 230VAC | 87.12 | 94.14 | 94.79 | 95.42 | 96.99 | 97.59 | 111.99 | 113.52 | 114.86 | 117.82 | 111.13 | 76.53 | 290.61 | 492.91 | 826.5 | 910.08 |
| C9200-48PXC | 1000W (C6) | C9200 -NM-2X40G | 115VAC | 88.01 | 94.35 | 95.5 | 96.48 | 99.36 | 98.72 | 113.2 | 115.13 | 117.08 | 121.84 | 112.61 | 76.84 | 296.86 | 503.87 | 861.87 | 957.4 |
| | | | 230VAC | 87.02 | 93.09 | 94.15 | 95.16 | 97.79 | 97.28 | 111.43 | 113.57 | 115.66 | 120.67 | 110.94 | 75.84 | 291.54 | 491.67 | 824.85 | 909.78 |

| | | | | Measured P(W) | | | | | | | | | | | | | | | |
|-----------------------------|---------------|-------|--------|-------------------|-------|-------|-------|-------|-------------------|------------|--------|--------|--------|---------------------|---------|-----------------------|--------|---------------|---------------|
| | | | | Half port traffic | | | | | Full port traffic | | | | | Weighted average Pw | No link | PoE test (no traffic) | | | |
| C9200L -24T- 4G | 125W (C5) | Fixed | 115VAC | 30.03 | 32.15 | 32.17 | 32.2 | 32.33 | 32.03 | 35.90 | 35.98 | 36.06 | 36.23 | 35.546 | 27.39 | | | | |
| | | | 230VAC | 29.81 | 32.26 | 32.23 | 32.22 | 32.35 | 31.86 | 35.86 | 35.94 | 36.03 | 36.28 | 35.502 | 27.50 | | | | |
| C9200L -24P- 4G | 600W (C5) | Fixed | 115VAC | 39.28 | 43.98 | 44.04 | 44.08 | 44.22 | 38.95 | 48.47 | 48.6 | 48.74 | 49.00 | 47.571 | 39.59 | 153.06 | 256.56 | 423.44 | 466.34 |
| | | | 230VAC | 38.88 | 43.6 | 43.66 | 43.69 | 43.83 | 38.57 | 48.09 | 48.22 | 48.35 | 48.62 | 47.191 | 39.20 | 150.51 | 252.10 | 413.89 | 455.15 |
| C9200L -24T- 4X | 125W (C5) | Fixed | 115VAC | 30.99 | 31.98 | 32.21 | 32.43 | 33.04 | 33.29 | 36.62 | 37.02 | 37.47 | 38.6 | 36.485 | 27.82 | | | | |
| | | | 230VAC | 30.98 | 32.02 | 32.24 | 32.46 | 33.02 | 33.24 | 36.59 | 36.96 | 37.41 | 38.52 | 36.448 | 27.90 | | | | |
| C9200L -24P- 4X | 600W (C5) | Fixed | 115VAC | 42.83 | 44.15 | 44.62 | 44.72 | 45.39 | 45.45 | 51.08 | 51.52 | 52.2 | 53.49 | 50.758 | 40.17 | 144.82 | 241.99 | 401.32 | 445.35 |
| | | | 230VAC | 42.36 | 44.19 | 44.47 | 44.61 | 45.28 | 44.6 | 49.33 | 49.91 | 50.36 | 51.51 | 49.075 | 39.48 | 142.32 | 237.52 | 392.77 | 434.06 |
| C9200L -48T- 4G | 125W (C5) | Fixed | 115VAC | 33.85 | 40.11 | 40.20 | 40.24 | 40.34 | 32.74 | 46.65 | 46.88 | 46.96 | 47.33 | 45.327 | 33.85 | | | | |
| | | | 230VAC | 33.62 | 40.5 | 40.57 | 40.63 | 40.74 | 33.06 | 46.8 | 46.91 | 47.05 | 47.49 | 45.495 | 34.16 | | | | |
| C9200L -48P- 4G | 1000W (C5) | Fixed | 115VAC | 45.07 | 52.15 | 52.22 | 52.28 | 52.44 | 44.6 | 58.59 | 58.7 | 58.81 | 59.1 | 57.242 | 45.82 | 270.96 | 484.59 | 842.07 | 933.03 |
| | | | 230VAC | 44.55 | 51.5 | 51.55 | 51.6 | 51.77 | 44.08 | 57.82 | 57.91 | 58.04 | 58.29 | 56.493 | 45.17 | 266.35 | 474.24 | 814.85 | 899.58 |
| C9200L -48PL- 4G | 600W (C5) | Fixed | 115VAC | 39.28 | 43.98 | 44.04 | 44.08 | 44.22 | 38.95 | 48.47 | 48.6 | 48.74 | 49.00 | 47.571 | 39.59 | 153.06 | 256.56 | 423.44 | 466.34 |
| | | | 230VAC | 38.88 | 43.6 | 43.66 | 43.69 | 43.83 | 38.57 | 48.09 | 48.22 | 48.35 | 48.62 | 47.191 | 39.20 | 150.51 | 252.10 | 413.89 | 455.15 |
| C9200L -48T- 4X | 125W (C5) | Fixed | 115VAC | 35.52 | 42.36 | 42.9 | 43.35 | 43.69 | 35.06 | 49.27 | 50.24 | 51.19 | 53.60 | 48.282 | 36.08 | | | | |
| | | | 230VAC | 35.84 | 42.60 | 43.09 | 43.58 | 44.81 | 35.27 | 49.41 | 50.36 | 51.33 | 53.67 | 48.422 | 36.38 | | | | |
| C9200L -48P- 4X | 1000W (C5) | Fixed | 115VAC | 53.12 | 56.89 | 57.34 | 57.80 | 57.81 | 55.22 | 63.92 | 64.86 | 65.84 | 68.36 | 63.494 | 50.31 | 262.59 | 463.36 | 789.46 | 872.6 |
| | | | 230VAC | 52.63 | 56.37 | 56.82 | 57.3 | 58.47 | 54.71 | 63.41 | 64.32 | 65.27 | 67.64 | 62.963 | 50.02 | 258.64 | 453.81 | 766.04 | 843.89 |
| C9200L -48PL- 4X | 600W (C5) | Fixed | 115VAC | 42.83 | 44.15 | 44.62 | 44.72 | 45.39 | 45.45 | 51.08 | 51.52 | 52.2 | 53.49 | 50.758 | 40.17 | 144.82 | 241.99 | 401.32 | 445.35 |
| | | | 230VAC | 42.36 | 44.19 | 44.47 | 44.61 | 45.28 | 44.6 | 49.33 | 49.91 | 50.36 | 51.51 | 49.075 | 39.48 | 142.32 | 237.52 | 392.77 | 434.06 |
| C9200L - 48PXG- 4X | 1000W (C5) | Fixed | 115VAC | 82.60 | 87.80 | 88.28 | 88.76 | 89.95 | 92.56 | 103.5 3 | 104.55 | 105.57 | 108.19 | 102.90 | 72.14 | 291.62 | 496.85 | 842.43 | 930.11 |
| | | | 230VAC | 81.77 | 86.62 | 87.11 | 87.60 | 88.82 | 91.87 | 102.0 5 | 103.02 | 103.98 | 106.40 | 101.47 | 72.50 | 286.71 | 486.25 | 814.71 | 898.24 |
| C9200L - 24PXG- 4X | 600W (C5) | Fixed | 115VAC | 70.94 | 73.88 | 74.37 | 74.84 | 76.02 | 77.37 | 84.12 | 85.06 | 86.00 | 88.32 | 83.86 | 64.54 | 173.05 | 271.04 | 431.68 | 472.39 |
| | | | 230VAC | 70.10 | 73.04 | 73.62 | 74.07 | 75.15 | 76.74 | 82.96 | 83.86 | 84.78 | 87.09 | 82.75 | 64.04 | 170.02 | 265.51 | 420.96 | 459.88 |

| | | | Measured P(W) | | | | | | | | | | | | | | | | |
|-----------------------------|---------------|-------|-------------------|-------|-------|-------|-------|-------|-------------------|-------|-------|-------|--------|-------|---------------------|---------|-----------------------|---------------|--------|
| | | | Half port traffic | | | | | | Full port traffic | | | | | | Weighted average Pw | No link | PoE test (no traffic) | | |
| C9200L - 48PXG- 2Y | 1000W (C5) | Fixed | 115VAC | 81.81 | 85.14 | 85.81 | 86.49 | 88.08 | 89.40 | 96.32 | 97.51 | 98.71 | 101.76 | 96.17 | 71.45 | 294.56 | 500.25 | 846.33 | 934.08 |
| | | | 230VAC | 79.59 | 82.94 | 83.64 | 84.28 | 85.81 | 88.20 | 95.17 | 96.36 | 97.52 | 100.40 | 95.00 | 70.28 | 283.88 | 483.54 | 812.20 | 894.11 |
| C9200L - 24PXG- 2Y | 600W (C5) | Fixed | 115VAC | 70.54 | 73.04 | 73.78 | 74.46 | 76.10 | 76.25 | 83.50 | 84.78 | 86.09 | 89.26 | 83.35 | 65.58 | 178.82 | 280.13 | 446.82 | 489.62 |
| | | | 230VAC | 68.89 | 72.02 | 72.66 | 73.35 | 74.93 | 75.32 | 82.00 | 83.34 | 84.64 | 87.87 | 81.92 | 65.01 | 175.55 | 274.59 | 434.38 | 475.39 |

Safety and compliance

Table 17 lists the safety and compliance information for Cisco Catalyst 9200 Series switches.

Table 17. Safety and compliance information

| Description | Specification |
|---|--|
| Safety certifications | <ul style="list-style-type: none"> • IEC 60950-1 • UL 60950-1 • CAN/CSA C22.2 No. 60950-1 • EN 60950-1 • AS/NZS 60950.1 • Class I Equipment |
| Electromagnetic compatibility certifications | <ul style="list-style-type: none"> • 47 CFR Part 15 • CISPR 32 Class A • CNS 13438 • EN 300 386* • EN 55032 Class A • EN61000-3-2 • EN61000-3-3 • ICES-003 Class A • KN 32 • TCVN 7189 Class A • V-3 Class A • CISPR 35 • EN 300 386* • EN 55035 • KN 35 • TCVN 7317 |
| Environmental | Reduction of Hazardous Substances (ROHS) 5 |

* Use shielded cables for locations other than telecom centers

Warranty

Cisco enhanced limited lifetime hardware warranty

Cisco Catalyst 9200 Series switches come with a Cisco Enhanced Limited Lifetime Warranty (E-LLW) that includes Next-Business-Day (NBD) delivery of replacement hardware where available and 90 days of 8x5 Cisco Technical Assistance Center (TAC) support.

Your formal warranty statement, including the warranty applicable to Cisco software, appears in the information packet that accompanies your Cisco product. We encourage you to review the warranty statement shipped with your specific product carefully before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.

For further information about warranty terms, visit <https://www.cisco.com/go/warranty>. Table 18 provides information about the E-LLW.

Table 18. E-LLW details

| | Cisco E-LLW |
|-----------------------------|--|
| Devices covered | Applies to Cisco Catalyst 9200 Series switches. |
| Warranty duration | As long as the original customer owns the product. |
| End-of-life policy | In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance. |
| Hardware replacement | Cisco or its service center will use commercially reasonable efforts to ship a replacement for NBD delivery, where available. Otherwise, a replacement will be shipped within 10 working days after receipt of the Return Materials Authorization (RMA) request. Actual delivery times might vary depending on customer location. |
| Effective date | Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than 90 days after original shipment by Cisco). |
| TAC support | Cisco will provide during business hours, 8 hours per day, 5 days per week, basic configuration, diagnosis, and troubleshooting of device-level problems for up to a 90-day period from the date of shipment of the originally purchased Cisco Catalyst 9200 Series product. This support does not include solution or network-level support beyond the specific device under consideration. |
| Cisco.com access | Warranty allows guest access only to Cisco.com. |

Cisco services for next-generation Cisco Catalyst switches

Achieve infrastructure excellence faster and with less risk. Cisco Catalyst 9000 Switch Services provide expert guidance to help you successfully deploy, manage and support the Cisco Catalyst 9000 switches. With unmatched networking expertise, best practices and innovative tools, we can help you reduce overall upgrade, refresh, and migration costs as you introduce new hardware, software and protocols into the network. Offering a comprehensive lifecycle of services – from implementation, optimization, technical and managed services – Cisco experts help you minimize disruption and achieve operational excellence to extract maximum value from your Cisco DNA ready infrastructure.

[Learn more about Cisco Services for Enterprise Networks](#)

Software Policy for Cisco Catalyst 9200 Series switches

Software Policy for Network Stack Components

Customers with the Network Essentials Stack and Network Advantage Stack software feature sets are provided with maintenance updates and bug fixes designed to maintain compliance of the software. This includes compliance with published specifications, release notes, and industry standards as long as the original end user continues to own or use the product or up to one year from the end-of-sale date for the product, whichever occurs earlier.

Cisco Embedded Support for Cisco DNA Term Components

Cisco Embedded Support delivers the right support for Cisco software products and suites. It will keep your business applications performing as expected and protect your investment. Cisco Embedded Support for the Cisco DNA Essentials and Cisco DNA Advantage term components is included. Cisco Embedded Support provides access to TAC support, major software updates, maintenance and minor software releases, and the Cisco Embedded Support site, for increased productivity with anytime access.

Ordering

Ordering information

Table 19 lists ordering information for Cisco Catalyst 9200 Series switches. To place an order, visit the Cisco Ordering home page at

https://www.cisco.com/en/US/ordering/or13/or8/order_customer_help_how_to_order_listing.html.

Table 19. Ordering information

| Switches | |
|----------------------|---|
| Product number | Product description |
| C9200-24T-A | Catalyst 9200 24-port Data Switch, Network Advantage |
| C9200-24T-E | Catalyst 9200 24-port Data Switch, Network Essentials |
| C9200-24P-A | Catalyst 9200 24-port PoE+ Switch, Network Advantage |
| C9200-24P-E | Catalyst 9200 24-port PoE+ Switch, Network Essentials |
| C9200-24PB-A | Catalyst 9200 24-port PoE+, enhanced VRF, Network Advantage |
| C9200-24PXG-E | Catalyst 9200 24-port 8xmGig, 16x1G, PoE+, Network Essentials |
| C9200-24PXG-A | Catalyst 9200 24-port 8xmGig, 16x1G, PoE+, Network Advantage |
| C9200-48T-A | Catalyst 9200 48-port Data Switch, Network Advantage |
| C9200-48T-E | Catalyst 9200 48-port Data Switch, Network Essentials |
| C9200-48P-A | Catalyst 9200 48-port PoE+ Switch, Network Advantage |
| C9200-48P-E | Catalyst 9200 48-port PoE+ Switch, Network Essentials |
| C9200-48PL-A | Catalyst 9200 48-Port partial PoE+ Switch, Network Advantage |

| Switches | |
|--------------------------|---|
| C9200-48PL-E | Catalyst 9200 48-Port partial PoE+ Switch, Network Essentials |
| C9200-48PB-A | Catalyst 9200 48-port PoE+, enhanced VRF, Network Advantage |
| C9200-48PXG-E | Catalyst 9200 48-port 8xmGig, 40x1G, PoE+, Network Essentials |
| C9200-48PXG-A | Catalyst 9200 48-port 8xmGig, 40x1G, PoE+, Network Advantage |
| C9200L-24T-4G-A | Catalyst 9200L 24-port Data 4x1G uplink Switch, Network Advantage |
| C9200L-24T-4G-E | Catalyst 9200L 24-port Data 4x1G uplink Switch, Network Essentials |
| C9200L-24P-4G-A | Catalyst 9200L 24-port PoE+ 4x1G uplink Switch, Network Advantage |
| C9200L-24P-4G-E | Catalyst 9200L 24-port PoE+ 4x1G uplink Switch, Network Essentials |
| C9200L-48T-4G-A | Catalyst 9200L 48-port Data 4x1G uplink Switch, Network Advantage |
| C9200L-48T-4G-E | Catalyst 9200L 48-port Data 4x1G uplink Switch, Network Essentials |
| C9200L-48P-4G-A | Catalyst 9200L48-port PoE+ 4x1G uplink Switch, Network Advantage |
| C9200L-48P-4G-E | Catalyst 9200L48-port PoE+ 4x1G uplink Switch, Network Essentials |
| C9200L-48PL-4G-A | Catalyst 9200L48-port partial PoE+ 4x1G uplink Switch, Network Advantage |
| C9200L-48PL-4G-E | Catalyst 9200L48-port partial PoE+ 4x1G uplink Switch, Network Essentials |
| C9200L-24T-4X-A | Catalyst 9200L 24-port Data 4x10G uplink Switch, Network Advantage |
| C9200L-24T-4X-E | Catalyst 9200L 24-port Data 4x10G uplink Switch, Network Essentials |
| C9200L-24P-4X-A | Catalyst 9200L 24-port PoE+ 4x10G uplink Switch, Network Advantage |
| C9200L-24P-4X-E | Catalyst 9200L 24-port PoE+ 4x10G uplink Switch, Network Essentials |
| C9200L-48T-4X-A | Catalyst 9200L 48-port Data 4x10G uplink Switch, Network Advantage |
| C9200L-48T-4X-E | Catalyst 9200L 48-port Data 4x10G uplink Switch, Network Essentials |
| C9200L-48P-4X-A | Catalyst 9200L 48-port PoE+ 4x10G uplink Switch, Network Advantage |
| C9200L-48P-4X-E | Catalyst 9200L 48-port PoE+ 4x10G uplink Switch, Network Essentials |
| C9200L-48PL-4X-A | Catalyst 9200L 48-port partial PoE+ 4x10G uplink Switch, Network Advantage |
| C9200L-48PL-4X-E | Catalyst 9200L 48-port partial PoE+ 4x10G uplink Switch, Network Essentials |
| C9200L-24PXG-4X-E | Catalyst 9200L 24-port 8xmGig, 16x1G, 4x10G, PoE+, Network Essentials |
| C9200L-24PXG-4X-A | Catalyst 9200L 24-port 8xmGig, 16x1G, 4x10G, PoE+, Network Advantage |
| C9200L-48PXG-4X-E | Catalyst 9200L 48-port 12xmGig, 36x1G, 4x10G PoE+, Network Essentials |

| Switches | |
|---|--|
| C9200L-48PXG-4X-A | Catalyst 9200L 48-port 12xmGig, 36x1G, 4x10G PoE+, Network Advantage |
| C9200L-24PXG-2Y-E | Catalyst 9200L 24-port 8xmGig, 16x1G, 2x25G, PoE+, Network Essentials |
| C9200L-24PXG-2Y-A | Catalyst 9200L 24-port 8xmGig, 16x1G, 2x25G, PoE+, Network Advantage |
| C9200L-48PXG-2Y-E | Catalyst 9200L 48-port 8xmGig, 40x1G, 2x25G PoE+, Network Essentials |
| C9200L-48PXG-2Y-A | Catalyst 9200L 48-port 8xmGig, 40x1G, 2x25G PoE+, Network Advantage |
| Network modules | |
| Product number | Product description |
| C9200-NM-2Y (=) | Catalyst 9200 2 x 25 GE Network Module, spare |
| C9200-NM-2Q (=) | Catalyst 9200 2 x 40GE Network Module, spare |
| C9200-NM-4G (=) | Catalyst 9200 4 x 1GE Network Module, spare |
| C9200-NM-4X (=) | Catalyst 9200 4 x 10GE Network Module, spare |
| C9200-NM-BLANK | Catalyst 9200 BLANK Network Module |
| StackWise-80 and StackWise-160 Kit and cables | |
| Product number | Product description |
| C9200-STACK-KIT= | C9200 Stack Kit Spare |
| C9200L-STACK-KIT= | C9200L Stack Kit Spare |
| STACK-T4-50CM | 50CM Type 3 Stacking Cable |
| STACK-T4-50CM= | 50CM Type 3 Stacking Cable, spare |
| STACK-T4-1M | 1M Type 3 Stacking Cable |
| STACK-T4-1M= | 1M Type 3 Stacking Cable, spare |
| STACK-T4-3M | 3M Type 3 Stacking Cable |
| STACK-T4-3M= | 3M Type 3 Stacking Cable, spare |
| Software licenses | |
| Product number | Product description |
| C9200-DNA-P-24 | C9200 Cisco DNA Premier Term, 24-Port: Includes Term Licenses for Cisco DNA Advantage, 25 ISE Base and 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector and Management Console). Requires separate purchase of ISE appliance/ISE VM and Cisco DNA Center appliance |
| C9200-DNA-P-24-3Y | C9200 Cisco DNA Premier, 24-port, 3Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |

| Switches | |
|---------------------------|---|
| C9200-DNA-P-24-5Y | C9200 Cisco DNA Premier, 24-port, 5Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200-DNA-P-24-7Y | C9200 Cisco DNA Premier, 24-port, 7Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200-DNA-P-48 | C9200 Cisco DNA Premier Term, 48-Port: Includes Term Licenses for Cisco DNA Advantage, 25 ISE Base and 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector and Management Console). Requires separate purchase of ISE appliance/ISE VM and Cisco DNA Center appliance |
| C9200-DNA-P-48 -3Y | C9200 Cisco DNA Premier, 48-port, 3Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200-DNA-P-48 -5Y | C9200 Cisco DNA Premier, 48-port, 5Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200-DNA-P-48 -7Y | C9200 Cisco DNA Premier, 48-port, 7Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200-DNA-E-24 | C9200 Cisco DNA Essentials Term 24-port |
| C9200-DNA-E-24-3Y | C9200 Cisco DNA Essentials, 24-port, 3 Year Term license |
| C9200-DNA-E-24-5Y | C9200 Cisco DNA Essentials, 24-port, 5 Year Term license |
| C9200-DNA-E-24-7Y | C9200 Cisco DNA Essentials, 24-port, 7 Year Term license |
| C9200-DNA-E-48 | C9200 Cisco DNA Essentials Term 48-port |
| C9200-DNA-E-48-3Y | C9200 Cisco DNA Essentials, 48-port, 3 Year Term license |
| C9200-DNA-E-48-5Y | C9200 Cisco DNA Essentials, 48-port, 5 Year Term license |
| C9200-DNA-E-48-7Y | C9200 Cisco DNA Essentials, 48-port, 7 Year Term license |
| C9200-DNA-A-24 | C9200 Cisco DNA Advantage Term 24-port |
| C9200-DNA-A-24-3Y | C9200 Cisco DNA Advantage, 24-port, 3 Year Term license |
| C9200-DNA-A-24-5Y | C9200 Cisco DNA Advantage, 24-port, 5 Year Term license |
| C9200-DNA-A-24-7Y | C9200 Cisco DNA Advantage, 24-port, 7 Year Term license |
| C9200-DNA-A-48 | C9200 Cisco DNA Advantage Term 48-port |
| C9200-DNA-A-48-3Y | C9200 Cisco DNA Advantage, 48-port, 3 Year Term license |
| C9200-DNA-A-48-5Y | C9200 Cisco DNA Advantage, 48-port, 5 Year Term license |
| C9200-DNA-A-48-7Y | C9200 Cisco DNA Advantage, 48-port, 7 Year Term license |
| C9200L-DNA-P-24 | C9200L Cisco DNA Premier Term, 24-Port: Includes Term Licenses for Cisco DNA Advantage, 25 ISE Base and 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector and Management Console). Requires separate purchase of ISE appliance/ISE VM and Cisco DNA Center appliance |

| Switches | |
|----------------------------|---|
| C9200L-DNA-P-24-3Y | C9200L Cisco DNA Premier, 24-port, 3Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-P-24-5Y | C9200L Cisco DNA Premier, 24-port, 5Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-P-24-7Y | C9200L Cisco DNA Premier, 24-port, 7Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-P-48 | C9200L Cisco DNA Premier Term, 48-Port: Includes Term Licenses for Cisco DNA Advantage, 25 ISE Base and 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector and Management Console). Requires separate purchase of ISE appliance/ISE VM and Cisco DNA Center appliance |
| C9200L-DNA-P-48-3Y | C9200L Cisco DNA Premier, 48-port, 3Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-P-48 -5Y | C9200L Cisco DNA Premier, 48-port, 5Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-P-48 -7Y | C9200L Cisco DNA Premier, 48-port, 7Y Term - Cisco DNA, 25 ISE PLS and ISE BASE, 25 SWATCH |
| C9200L-DNA-E-24 | C9200L Cisco DNA Essentials Term 24-port |
| C9200L-DNA-E-24-3Y | C9200L Cisco DNA Essentials, 24-port, 3 Year Term license |
| C9200L-DNA-E-24-5Y | C9200L Cisco DNA Essentials, 24-port, 5 Year Term license |
| C9200L-DNA-E-24-7Y | C9200L Cisco DNA Essentials, 24-port, 7 Year Term license |
| C9200L-DNA-E-48 | C9200L Cisco DNA Essentials Term 48-port |
| C9200L-DNA-E-48-3Y | C9200L Cisco DNA Essentials, 48-port, 3 Year Term license |
| C9200L-DNA-E-48-5Y | C9200L Cisco DNA Essentials, 48-port, 5 Year Term license |
| C9200L-DNA-E-48-7Y | C9200L Cisco DNA Essentials, 48-port, 7 Year Term license |
| C9200L-DNA-A-24 | C9200L Cisco DNA Advantage Term 24-port |
| C9200L-DNA-A-24-3Y | C9200L Cisco DNA Advantage, 24-port, 3 Year Term license |
| C9200L-DNA-A-24-5Y | C9200L Cisco DNA Advantage, 24-port, 5 Year Term license |
| C9200L-DNA-A-24-7Y | C9200L Cisco DNA Advantage, 24-port, 7 Year Term license |
| C9200L-DNA-A-48 | C9200L Cisco DNA Advantage Term 48-port |
| C9200L-DNA-A-48-3Y | C9200L Cisco DNA Advantage, 48-port, 3 Year Term license |
| C9200L-DNA-A-48-5Y | C9200L Cisco DNA Advantage, 48-port, 5 Year Term license |
| C9200L-DNA-A-48-7Y | C9200L Cisco DNA Advantage, 48-port, 7 Year Term license |
| C9200-LIC= | Electronic Cisco DNA Upgrade License for C9200 switches. Note: when upgrading from Cisco |

| Switches | |
|--------------------------|--|
| | DNA Essentials to Cisco DNA Advantage, Network Essentials is upgraded to Network Advantage |
| C9200-24-E-A | C9200 24-port NW and DNA Essentials to NW and DNA Advantage Upgrade |
| C9200-24-E-A-3 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 3Y |
| C9200-24-E-A-5 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 5Y |
| C9200-24-E-A-7 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 7Y |
| C9200-48-E-A | C9200 48-port NW and DNA Essentials to NW and DNA Advantage Upgrade |
| C9200-48-E-A-3 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 3Y |
| C9200-48-E-A-5 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 5Y |
| C9200-48-E-A-7 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 7Y |
| C9200L-LIC= | Electronic Cisco DNA Upgrade License for C9200L switches. Note: when upgrading from Cisco DNA Essentials to Cisco DNA Advantage, Network Essentials is upgraded to Network Advantage |
| C9200L-24-E-A | C9200L 24-port NW and DNA Essentials to NW and DNA Advantage Upgrade |
| C9200L-24-E-A-3 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 3Y |
| C9200L-24-E-A-5 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 5Y |
| C9200L-24-E-A-7 | 24-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 7Y |
| C9200L-48-E-A | C9200L 48-port NW and DNA Essentials to NW and DNA Advantage Upgrade |
| C9200L-48-E-A-3 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 3Y |
| C9200L-48-E-A-5 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 5Y |
| C9200L-48-E-A-7 | 48-port NW and Cisco DNA Ess to NW and DNA Adv Upgrade License 7Y |
| Power supplies | |
| Product Number | Product Description |
| PWR-C5-125WAC (=) | 125W AC Config 5 Power Supply |
| PWR-C5-125WAC/2 | 125W AC Config 5 Power Supply - Secondary Power Supply |
| PWR-C5-600WAC (=) | 600W AC Config 5 Power Supply |
| PWR-C5-600WAC/2 | 600W AC Config 5 Power Supply - Secondary Power Supply |
| PWR-C5-1KWAC (=) | 1KW AC Config 5 Power Supply |
| PWR-C5-1KWAC/2 | 1KW AC Config 5 Power Supply - Secondary Power Supply |

| Switches | |
|--------------------------|--|
| PWR-C6-125WAC (=) | 125W AC Config 6 Power Supply |
| PWR-C6-125WAC/2 | 125W AC Config 6 Power Supply - Secondary Power Supply |
| PWR-C6-600WAC (=) | 600W AC Config 6 Power Supply |
| PWR-C6-600WAC/2 | 600W AC Config 6 Power Supply - Secondary Power Supply |
| PWR-C6-1KWAC (=) | 1KW AC Config 6 Power Supply |
| PWR-C6-1KWAC/2 | 1KW AC Config 6 Power Supply - Secondary Power Supply |
| PWR-C5-BLANK= | Blank Module |
| Spare power cords | |
| CAB-TA-NA= | AC power cord for Cisco Catalyst (North America) |
| CAB-TA-AP= | AC power cord for Cisco Catalyst (Australia) |
| CAB-TA-AR= | AC power cord for Cisco Catalyst (Argentina) |
| CAB-TA-SW= | AC power cord for Cisco Catalyst (Switzerland) |
| CAB-TA-UK= | AC power cord for Cisco Catalyst (United Kingdom) |
| Power supplies | |
| Spare power cords | |
| CAB-TA-JP= | AC power cord for Cisco Catalyst (Japan) |
| CAB-TA-250V-JP= | Japan 250VAC power cord for Cisco Catalyst (Japan) |
| CAB-TA-125V-JP= | Japan 125V AC Type A Power Cable (Japan - 48 port only) |
| CAB-TA-EU= | AC power cord for Cisco Catalyst (Europe) |
| CAB-TA-IT= | AC power cord for Cisco Catalyst (Italy) |
| CAB-TA-IN= | AC power cord for Cisco Catalyst (India) |
| CAB-TA-CN= | AC power cord for Cisco Catalyst (China) |
| CAB-TA-DN= | AC power cord for Cisco Catalyst (Denmark) |
| CAB-TA-IS= | AC power cord for Cisco Catalyst (Israel) |
| CAB-ACBZ-12A= | AC power cord for Cisco Catalyst (Brazil), 12A/125V BR-3-20 plug up to 12A |
| CAB-ACBZ-10A= | AC power cord for Cisco Catalyst (Brazil), 10A/250V BR-3-10 plug up to 10A |
| CAB-C15-CBN | Cabinet jumper power cord, 250VAC 13A, C14-C15 connectors |

Switches

Rack Mounting Brackets

| | |
|---------------------|--|
| ACC-KIT-T1= | Accessory kit with 19 inch Type 1 rack mount |
| RACK-KIT-T1= | 19, 23, 24 inch and ETSI Type 1 rack mount kit |
| 4PT-KIT-T2= | 4 Point rack mount kit New |

Optics online reference

Cisco Catalyst 9200 Series switches support a wide range of optics. Because the list of supported optics is updated on a regular basis, consult the tables available here for the latest SFP+ and SFP compatibility information:

https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

Cisco services

Accelerate your journey to intent-based networking

With Cisco Services, you can achieve infrastructure excellence faster with less risk. Our services for Cisco Catalyst 9200 Series switches provide expert guidance to help you successfully plan, deploy, manage, and support your new switches. With unmatched networking expertise, best practices, and innovative tools, Cisco Services can help you reduce overall upgrade, refresh, and migration costs as you introduce new hardware, software, and protocols into the network. With a comprehensive lifecycle of services, Cisco experts will help you minimize disruption and improve operational efficiency to extract maximum value from your Cisco DNA ready infrastructure. [Learn more](#).

CSR/Social Responsibility

Information about Cisco's environmental, social and governance (ESG) policies and initiatives can be found in Cisco's [Corporate Social Responsibility](#) (CSR) Report.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

Document history

| New or revised topic | Described In | Date |
|--|--|--------------------|
| Added New C9200/L partial PoE Information | Table 1, 3, 7, 8, 12,14, 16, 19 | September 22, 2020 |
| Added correct images for module uplinks | Network Modules | February 21, 2020 |
| Added New C9200 mGig and C9200 32 VN information | Table 1, 3, 7, 8, 12, 19 | January 28, 2020 |
| Added New C9200 Network Modules | Table 2, 19 | January 28, 2020 |
| Added New Power Supply information PWR-C6-600WAC | Table 3, 15, 16, 19 | October 09, 2019 |
| Forwarding rate with Stacking | Table 8 | October 09, 2019 |
| Cloud Security Information | General Information | October 09, 2019 |
| Adding C9200L mGig SKUs | Table 1, 3, 8, 12, 16 | May 14, 2019 |
| Revisions of Weight, addition of LIC upgrade and other minor edits | Software licenses table and weights table | April 01, 2019 |
| Revised Table of Contents Headings | Specifications (was “Dimensions, eight, acoustic, mean time between failures”), added Document History | January 03, 2019 |

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Cisco Systems International BV Amsterdam,
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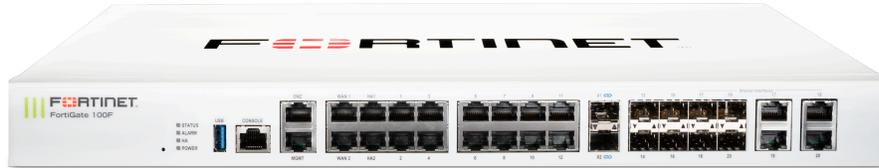
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DATA SHEET

FortiGate® 100F Series

FG-100F and FG-101F

**Next Generation Firewall
Secure SD-WAN
Secure Web Gateway**



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.

Security

- Identifies thousands of applications inside network traffic for deep inspection and granular policy enforcement
- Protects against malware, exploits, and malicious websites in both encrypted and non-encrypted traffic
- Prevent and detect against known and unknown attacks using continuous threat intelligence from AI-powered FortiGuard Labs security services

Performance

- Delivers industry's best threat protection performance and ultra-low latency using purpose-built security processor (SPU) technology
- Provides industry-leading performance and protection for SSL encrypted traffic

Certification

- Independently tested and validated best security effectiveness and performance
- Received unparalleled third-party certifications from NSS Labs

Networking

- Delivers advanced networking capabilities that seamlessly integrate with advanced layer 7 security and virtual domains (VDMs) to offer extensive deployment flexibility, multi-tenancy and effective utilization of resources
- Delivers high-density, flexible combination of various high-speed interfaces to enable best TCO for customers for data center and WAN deployments

Management

- Includes a management console that is effective, simple to use, and provides comprehensive network automation and visibility.
- Provides Zero Touch Integration with Security Fabric's Single Pane of Glass Management
- Predefined compliance checklist analyzes the deployment and highlights best practices to improve overall security posture

Security Fabric

- Enables Fortinet and Fabric-ready partners' products to provide broader visibility, integrated end-to-end detection, threat intelligence sharing, and automated remediation

| Firewall | IPS | NGFW | Threat Protection | Interfaces |
|----------|----------|----------|-------------------|---|
| 20 Gbps | 2.6 Gbps | 1.6 Gbps | 1 Gbps | Multiple GE RJ45, GE SFP and 10 GE SFP+ slots |

Refer to specification table for details

DEPLOYMENT



Next Generation Firewall (NGFW)

- Reduce the complexity and maximize your ROI by integrating threat protection security capabilities into a single high-performance network security appliance, powered by Fortinet's Security Processing Unit (SPU)
- Full visibility into users, devices, and applications across the entire attack surface, and consistent security policy enforcement irrespective of asset location
- Protect against network exploitable vulnerabilities with industry-validated IPS that offers low latency and optimized network performance
- Automatically block threats on decrypted traffic using the industry's highest SSL inspection performance, including the latest TLS 1.3 standard with mandated ciphers
- Proactively block newly discovered sophisticated attacks in real-time with AI-powered FortiGuard Labs and advanced threat protection services included in the Fortinet Security Fabric



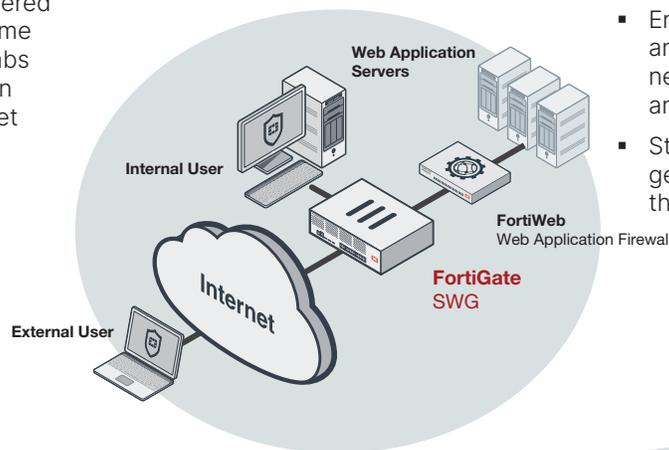
Secure Web Gateway (SWG)

- Secure web access from both internal and external risks, even for encrypted traffic at high performance
- Enhanced user experience with dynamic web and video caching
- Block and control web access based on user or user groups across URLs and domains
- Prevent data loss and discover user activity to known and unknown cloud applications
- Block DNS requests against malicious domains
- Multi-layered advanced protection against zero-day malware threats delivered over the web

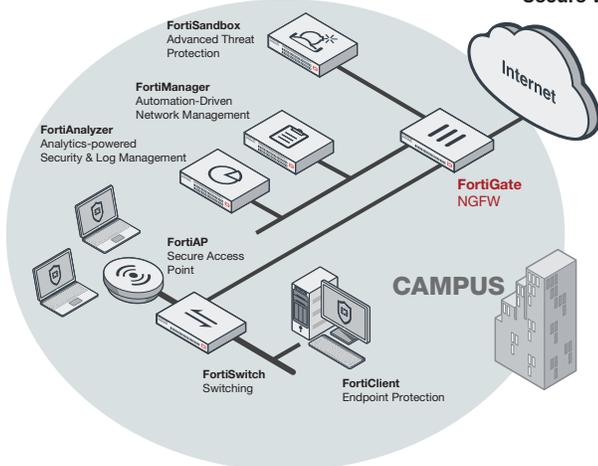


Secure SD-WAN

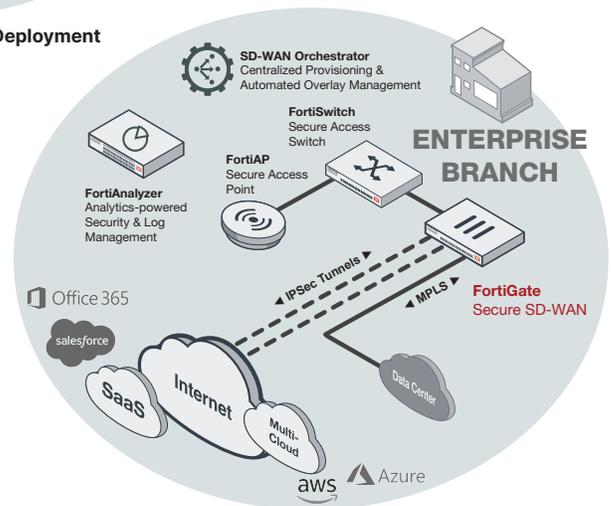
- Consistent business application performance with accurate detection, dynamic WAN path steering on any best-performing WAN transport
- Accelerated multi-cloud access for faster SaaS adoption with cloud-on-ramp
- Self-healing networks with WAN edge high availability, sub-second traffic switchover-based and real-time bandwidth compute-based traffic steering
- Automated overlay tunnels provide encryption and abstracts physical hybrid WAN making it simple to manage
- Simplified and intuitive workflow with SD-WAN orchestrator for management and zero touch deployment
- Enhanced analytics both real-time and historical provides visibility into network performance and identifies anomalies
- Strong security posture with next generation firewall and real-time threat protection



Secure Web Gateway Deployment



Campus Deployment (NGFW)

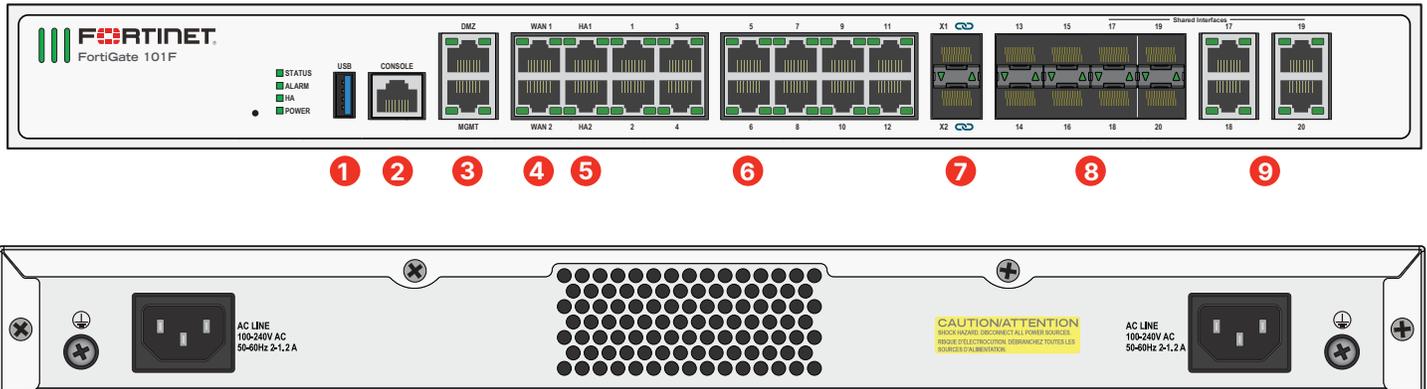


Enterprise Branch Deployment (Secure SD-WAN)



HARDWARE

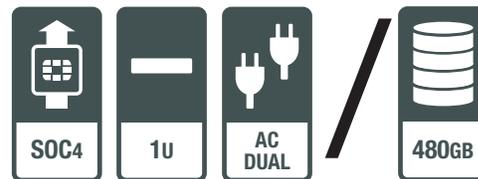
FortiGate 100F/101F



Interfaces

1. 1x USB Port
2. 1x Console Port
3. 2x GE RJ45 MGMT/DMZ Ports
4. 2x GE RJ45 WAN Ports
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

Hardware Features



Powered by Purpose-Built Secure SD-WAN ASIC SOC4



- Combines a RISC-based CPU with Fortinet's proprietary Security Processing Unit (SPU) content and network processors for unmatched performance
- Delivers industry's fastest application identification and steering for efficient business operations
- Accelerates IPsec VPN performance for best user-experience on direct internet access
- Enables best of breed NGFW Security and deep SSL inspection with high performance
- Extends security to access layer to enable SD-Branch transformation with accelerated and integrated switch and access point connectivity

Dual Power Supplies

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

Access Layer Security

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



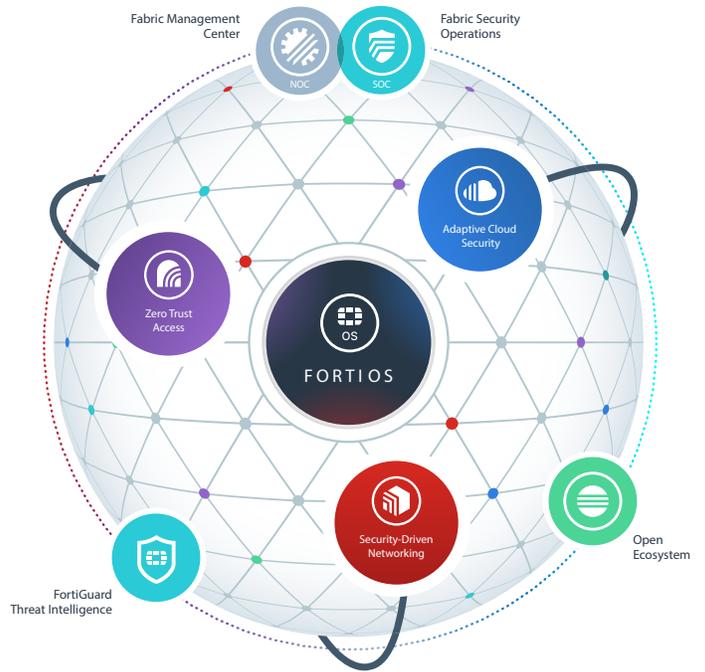
FORTINET SECURITY FABRIC

Security Fabric

The industry's highest-performing cybersecurity platform, powered by FortiOS, with a rich ecosystem designed to span the extended digital attack surface, delivering fully automated, self-healing network security.

- **Broad:** Coordinated detection and enforcement across the entire digital attack surface and lifecycle with converged networking and security across edges, clouds, endpoints, and users
- **Integrated:** Integrated and unified security, operation, and performance across different technologies, location, deployment options, and the richest ecosystem
- **Automated:** Context aware, self-healing network and security posture leveraging cloud-scale and advanced AI to automatically deliver near-real-time, user-to-application coordinated protection across the Fabric

The Fabric empowers organizations of any size to secure and simplify their hybrid infrastructure on the journey to digital innovation.



FortiOS™ Operating System

FortiOS, Fortinet's leading operating system enable the convergence of high performing networking and security across the Fortinet Security Fabric delivering consistent and context-aware security posture across network endpoint, and clouds. The organically built best of breed capabilities and unified approach allows organizations to run their businesses without compromising performance or protection, supports seamless scalability, and simplifies innovation consumption.

The release of FortiOS 7 dramatically expands the Fortinet Security Fabric's ability to deliver consistent security across hybrid deployment models of Hardware, Software, and Software As-a-Service with SASE and ZTNA, among others.

SERVICES

FortiGuard™ Security Services

FortiGuard Labs offer real-time intelligence on the threat landscape, delivering comprehensive security updates across the full range of Fortinet's solutions. Comprised of security threat researchers, engineers, and forensic specialists, the team collaborates with the world's leading threat monitoring organizations and other network and security vendors, as well as law enforcement agencies.

FortiCare™ Services

Fortinet is dedicated to helping our customers succeed, and every year FortiCare services help thousands of organizations get the most from their Fortinet Security Fabric solution. We have more than 1,000 experts to help accelerate technology implementation, provide reliable assistance through advanced support, and offer proactive care to maximize security and performance of Fortinet deployments.



SPECIFICATIONS

| | FORTIGATE 100F | FORTIGATE 101F |
|--|---|-------------------|
| Interfaces and Modules | | |
| Hardware Accelerated GE RJ45 Ports | | 12 |
| Hardware Accelerated GE RJ45 Management/ HA/ DMZ Ports | | 1 / 2 / 1 |
| Hardware Accelerated GE SFP Slots | | 4 |
| Hardware Accelerated 10 GE SFP+ FortiLink Slots (default) | | 2 |
| GE RJ45 WAN Ports | | 2 |
| GE RJ45or SFP Shared Ports * | | 4 |
| USB Port | | 1 |
| Console Port | | 1 |
| Onboard Storage | 0 | 1× 480 GB SSD |
| Included Transceivers | | 0 |
| System Performance — Enterprise Traffic Mix | | |
| IPS Throughput ² | | 2.6 Gbps |
| NGFW Throughput ^{2,4} | | 1.6 Gbps |
| Threat Protection Throughput ^{2,5} | | 1 Gbps |
| System Performance and Capacity | | |
| IPv4 Firewall Throughput (1518 / 512 / 64 byte, UDP) | | 20 / 18 / 10 Gbps |
| Firewall Latency (64 byte, UDP) | | 4.97 μs |
| Firewall Throughput (Packet per Second) | | 15 Mpps |
| Concurrent Sessions (TCP) | | 1.5 Million |
| New Sessions/Second (TCP) | | 56,000 |
| Firewall Policies | | 10,000 |
| IPsec VPN Throughput (512 byte) ¹ | | 11.5 Gbps |
| Gateway-to-Gateway IPsec VPN Tunnels | | 2,000 |
| 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 | |

| | FORTIGATE 100F | FORTIGATE 101F |
|---|---|--------------------|
| Dimensions and Power | | |
| Height x Width x Length (inches) | 1.73 × 17 × 10 | |
| Height x Width x Length (mm) | 44 × 432 × 254 | |
| Weight | 7.25 lbs (3.29 kg) | 7.56 lbs (3.43 kg) |
| Form Factor (supports EIA/non-EIA standards) | Rack Mount, 1 RU | |
| AC Power Supply | 100–240V AC, 50/60 Hz | |
| Power Consumption (Average / Maximum) | 35.1 W / 38.7 W | 35.3 W / 39.1 W |
| Current (Maximum) | 100V / 1A, 240V / 0.5A | |
| Heat Dissipation | 119.77 BTU/h | 121.13 BTU/h |
| Redundant Power Supplies | Yes | |
| Operating Environment and Certifications | | |
| Operating Temperature | 32–104°F (0–40°C) | |
| Storage Temperature | -31–158°F (-35–70°C) | |
| Humidity | 10–90% non-condensing | |
| Noise Level | 40.4 dBA | |
| Forced Airflow | Side to Back | |
| Operating Altitude | Up to 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 | |

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

1. IPsec VPN performance test uses AES256-SHA256.
2. IPS (Enterprise Mix), Application Control, NGFW and Threat Protection are measured with Logging enabled.
3. SSL Inspection performance values use an average of HTTPS sessions of different cipher suites.

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



ORDERING INFORMATION

| Product | SKU | Description |
|--|----------------|--|
| FortiGate 100F | FG-100F | 22x GE RJ45 ports (including 2x WAN ports, 1x DMZ port, 1x Mgmt port, 2x HA ports, 16x switch ports with 4 SFP port shared media), 4 SFP ports, 2x 10 GE SFP+ FortiLinks, dual power supplies redundancy. |
| FortiGate 101F | FG-101F | 22x GE RJ45 ports (including 2x WAN ports, 1x DMZ port, 1x Mgmt port, 2x HA ports, 16x switch ports with 4 SFP port shared media), 4 SFP ports, 2x 10 GE SFP+ FortiLinks, 480GB onboard storage, dual power supplies redundancy. |
| Optional Accessories | SKU | Description |
| 1 GE SFP RJ45 Transceiver Module | FN-TRAN-GC | 1 GE SFP RJ45 transceiver module for all systems with SFP and SFP/SFP+ slots. |
| 1 GE SFP SX Transceiver Module | FN-TRAN-SX | 1 GE SFP SX transceiver module for all systems with SFP and SFP/SFP+ slots. |
| 1 GE SFP LX Transceiver Module | FN-TRAN-LX | 1 GE SFP LX transceiver module for all systems with SFP and SFP/SFP+ slots. |
| 10 GE SFP+ RJ45 Transceiver Module | FN-TRAN-SFP+GC | 10 GE SFP+ RJ45 transceiver module for systems with SFP+ slots. |
| 10 GE SFP+ Transceiver Module, Short Range | FN-TRAN-SFP+SR | 10 GE SFP+ transceiver module, short range for all systems with SFP+ and SFP/SFP+ slots. |
| 10 GE SFP+ Transceiver Module, Long Range | FN-TRAN-SFP+LR | 10 GE SFP+ transceiver module, long range for all systems with SFP+ and SFP/SFP+ slots. |
| 10 GE SFP+ Transceivers, Extended Range | FN-TRAN-SFP+ER | 10 GE SFP+ transceiver module, extended range for all systems with SFP+ and SFP/SFP+ slots. |

BUNDLES



FortiGuard Bundle

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

| Bundles | Enterprise Protection | Unified Threat Protection | Advanced Threat Protection |
|---|-----------------------|---------------------------|----------------------------|
| FortiCare | 24x7 | 24x7 | 24x7 |
| FortiGuard App Control Service | • | • | • |
| FortiGuard IPS Service | • | • | • |
| FortiGuard Advanced Malware Protection (AMP) — Antivirus, Mobile Malware, Botnet, CDR, Virus Outbreak Protection and FortiSandbox Cloud Service | • | • | • |
| FortiGuard Web and Video ¹ Filtering Service | • | • | |
| FortiGuard Antispam Service | • | • | |
| FortiGuard Security Rating Service | • | | |
| FortiGuard IoT Detection Service | • | | |
| FortiGuard Industrial Service | • | | |
| FortiConverter Service | • | | |

1. Available when running FortiOS 7.0



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DATA SHEET

FortiGate® FortiWiFi 40F Series

FG-40F and FWF-40F

**Next Generation Firewall
Secure SD-WAN**



The FortiGate/FortiWiFi 40F series provides a fast and secure SD-WAN solution in a compact fanless desktop form factor for enterprise branch offices and mid-sized businesses. 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.

Security

- Identifies thousands of applications inside network traffic for deep inspection and granular policy enforcement
- Protects against malware, exploits, and malicious websites in both encrypted and non-encrypted traffic
- Prevent and detect against known and unknown attacks using continuous threat intelligence from AI-powered FortiGuard Labs security services

Performance

- Delivers industry's best threat protection performance and ultra-low latency using purpose-built security processor (SPU) technology
- Provides industry-leading performance and protection for SSL encrypted traffic

Certification

- Independently tested and validated for best-in-class security effectiveness and performance
- Received unparalleled third-party certifications from NSS Labs

Networking

- Delivers advanced networking capabilities that seamlessly integrate with advanced layer 7 security and virtual domains (VDOMs) to offer extensive deployment flexibility, multi-tenancy and effective utilization of resources
- Delivers high-density, flexible combination of various high-speed interfaces to enable best TCO for customers for data center and WAN deployments

Management

- Includes a management console that is effective, simple to use, and provides comprehensive network automation and visibility
- Provides Zero Touch Integration with Fortinet's Security Fabric's Single Pane of Glass Management
- Predefined compliance checklist analyzes the deployment and highlights best practices to improve overall security posture

Security Fabric

- Enables Fortinet and Fabric-ready partners' products to provide broader visibility, integrated end-to-end detection, threat intelligence sharing, and automated remediation

| Firewall | IPS | NGFW | Threat Protection | Interfaces |
|----------|--------|----------|-------------------|----------------------------------|
| 5 Gbps | 1 Gbps | 800 Mbps | 600 Mbps | Multiple GE RJ45 WiFi variants |

DEPLOYMENT



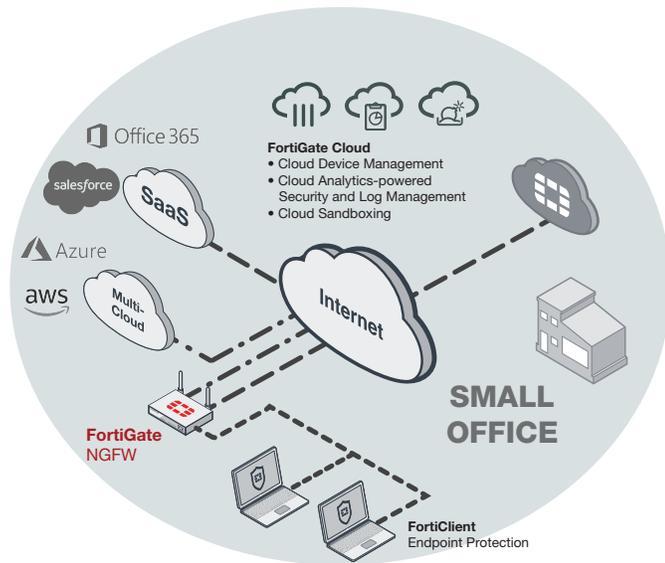
Next Generation Firewall (NGFW)

- Reduce the complexity and maximize your ROI by integrating threat protection security capabilities into a single high-performance network security appliance, powered by Fortinet's Security Processing Unit (SPU)
- Full visibility into users, devices, and applications across the entire attack surface, and consistent security policy enforcement irrespective of asset location
- Protect against network exploitable vulnerabilities with industry-validated IPS that offers low latency and optimized network performance
- Automatically block threats on decrypted traffic using the industry's highest SSL inspection performance, including the latest TLS 1.3 standard with mandated ciphers
- Proactively block newly discovered sophisticated attacks in real-time with AI-powered FortiGuard Labs and advanced threat protection services included in the Fortinet Security Fabric

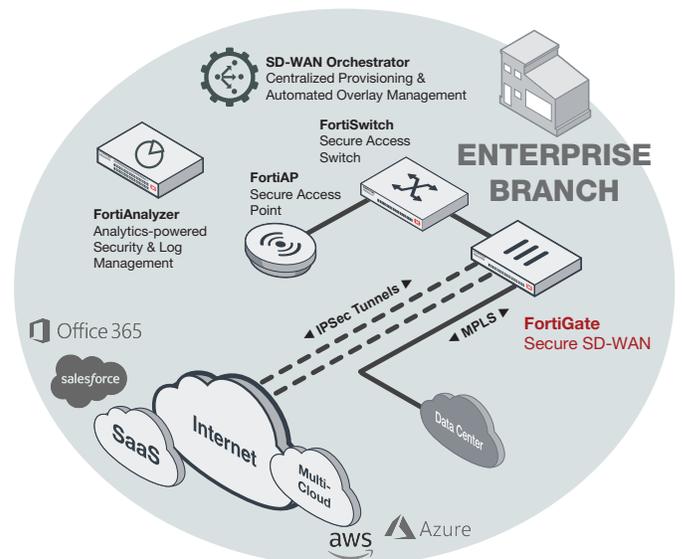


Secure SD-WAN

- Consistent business application performance with accurate detection and dynamic WAN path steering on any best-performing WAN transport
- Accelerated Multi-cloud access for faster SaaS adoption with cloud-on-ramp
- Self-healing networks with WAN edge high availability, sub-second traffic switchover-based and real-time bandwidth compute-based traffic steering
- Automated Overlay tunnels provides encryption and abstracts physical hybrid WAN making it simple to manage
- Simplified and intuitive workflow with SD-WAN Orchestrator for management and zero touch deployment
- Enhanced analytics both real-time and historical provides visibility into network performance and identify anomalies
- Strong security posture with next generation firewall and real-time threat protection



Small Office Deployment (NGFW)

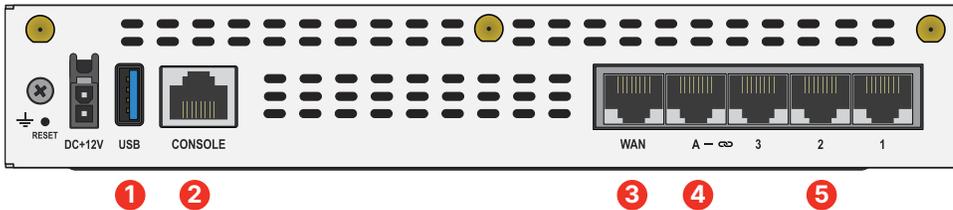
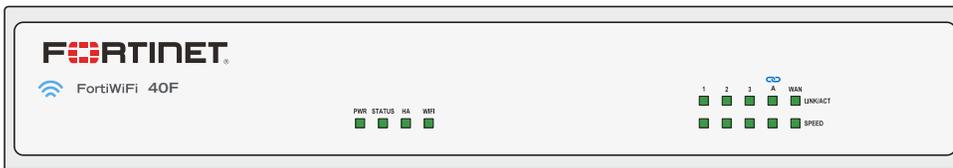


Enterprise Branch Deployment (Secure SD-WAN)



HARDWARE

FortiGate/FortiWiFi 40F Series



Interfaces

1. 1x USB Port
2. 1x Console Port
3. 1x GE RJ45 WAN Port
4. 1x GE RJ45 FortiLink Port
5. 3x GE RJ45 Ethernet Ports

Hardware Features



Powered by Purpose-built Secure SD-WAN ASIC SOC4



- Combines a RISC-based CPU with Fortinet's proprietary Security Processing Unit (SPU) content and network processors for unmatched performance
- Delivers industry's fastest application identification and steering for efficient business operations
- Accelerates IPsec VPN performance for best user experience on direct internet access
- Enables the best of breed NGFW Security and Deep SSL inspection with high performance
- Extends security to access layer to enable SD-Branch transformation with accelerated and integrated switch and access point connectivity

3G/4G WAN Connectivity

The FortiGate 40F Series includes a USB port that allows you to plug in a compatible third-party 3G/4G USB modem, providing additional WAN connectivity or a redundant link for maximum reliability.

Compact and Reliable Form Factor

Designed for small environments, you can place it on a desktop or wall-mount it. It is small, lightweight, yet highly reliable with a superior MTBF (Mean Time Between Failure), minimizing the chance of a network disruption.

Secure Access Layer

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



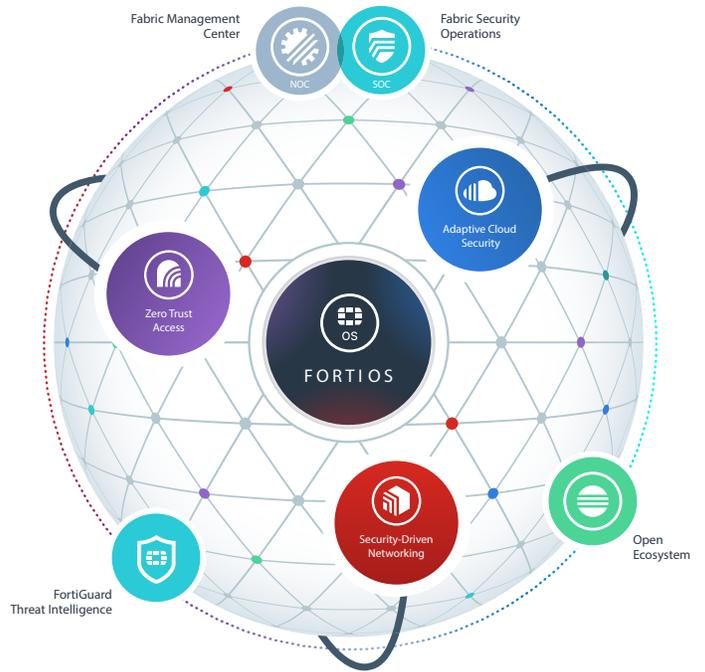
FORTINET SECURITY FABRIC

Security Fabric

The industry's highest-performing cybersecurity platform, powered by FortiOS, with a rich ecosystem designed to span the extended digital attack surface, delivering fully automated, self-healing network security.

- **Broad:** Coordinated detection and enforcement across the entire digital attack surface and lifecycle with converged networking and security across edges, clouds, endpoints and users
- **Integrated:** Integrated and unified security, operation, and performance across different technologies, location, deployment options, and the richest Ecosystem
- **Automated:** Context aware, self-healing network & security posture leveraging cloud-scale and advanced AI to automatically deliver near-real-time, user-to-application coordinated protection across the Fabric

The Fabric empowers organizations of any size to secure and simplify their hybrid infrastructure on the journey to digital innovation.



FortiOS™ Operating System

FortiOS, Fortinet's leading operating system enable the convergence of high performing networking and security across the Fortinet Security Fabric delivering consistent and context-aware security posture across network endpoint, and clouds. The organically built best of breed capabilities and unified approach allows organizations to run their businesses without compromising performance or protection, supports seamless scalability, and simplifies innovation consumption.

The release of FortiOS 7 dramatically expands the Fortinet Security Fabric's ability to deliver consistent security across hybrid deployment models consisting on appliances, software and As-a-Service with SASE, ZTNA and other emerging cybersecurity solutions.

SERVICES

FortiGuard™ Security Services

FortiGuard Labs offers real-time intelligence on the threat landscape, delivering comprehensive security updates across the full range of Fortinet's solutions. Comprised of security threat researchers, engineers, and forensic specialists, the team collaborates with the world's leading threat monitoring organizations and other network and security vendors, as well as law enforcement agencies.

FortiCare™ Services

Fortinet is dedicated to helping our customers succeed, and every year FortiCare services help thousands of organizations get the most from their Fortinet Security Fabric solution. We have more than 1,000 experts to help accelerate technology implementation, provide reliable assistance through advanced support, and offer proactive care to maximize security and performance of Fortinet deployments.



SPECIFICATIONS

| | FORTIGATE 40F | FORTIWIIFI 40F |
|--|---|--|
| Interfaces and Modules | | |
| Hardware Accelerated GE RJ45 WAN / DMZ Ports | | 1 |
| Hardware Accelerated GE RJ45 Internal Ports | | 3 |
| Hardware Accelerated GE RJ45 FortiLink Ports (Default) | | 1 |
| Hardware Accelerated GE RJ45 PoE/+ Ports | | 0 |
| Wireless Interface | 0 | Single Radio (2.4GHz/5GHz) 802.11 /a/b/g/n/ac-W2 |
| USB Ports | | 1 |
| Console Port (RJ45) | | 1 |
| Onboard Storage | | 0 |
| Included Transceivers | | 0 |
| System Performance — Enterprise Traffic Mix | | |
| IPS Throughput ² | | 1 Gbps |
| NGFW Throughput ^{2,4} | | 800 Mbps |
| Threat Protection Throughput ^{2,5} | | 600 Mbps |
| System Performance and Capacity | | |
| IPv4 Firewall Throughput (1518 / 512 / 64 byte, UDP) | | 5 / 5 / 5 Gbps |
| Firewall Latency (64 byte, UDP) | | 2.97 µs |
| Firewall Throughput (Packet per Second) | | 7.5 Mpps |
| Concurrent Sessions (TCP) | | 700,000 |
| New Sessions/Second (TCP) | | 35,000 |
| Firewall Policies | | 5,000 |
| IPsec VPN Throughput (512 byte) ¹ | | 4.4 Gbps |
| Gateway-to-Gateway IPsec VPN Tunnels | | 200 |
| Client-to-Gateway IPsec VPN Tunnels | | 250 |
| SSL-VPN Throughput | | 490 Mbps |
| Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) | | 200 |
| SSL Inspection Throughput (IPS, avg. HTTPS) ³ | | 310 Mbps |
| SSL Inspection CPS (IPS, avg. HTTPS) ³ | | 320 |
| SSL Inspection Concurrent Session (IPS, avg. HTTPS) ³ | | 55,000 |
| Application Control Throughput (HTTP 64K) ² | | 990 Mbps |
| CAPWAP Throughput (HTTP 64K) | | 3.5 Gbps |
| Virtual Domains (Default / Maximum) | | 10 / 10 |
| Maximum Number of FortiSwitches Supported | | 8 |
| Maximum Number of FortiAPs (Total / Tunnel) | | 16 / 8 |
| Maximum Number of FortiTokens | | 500 |
| High Availability Configurations | Active-Active, Active-Passive, Clustering | |

| | FORTIGATE 40F | FORTIWIIFI 40F |
|---|---|---------------------------------------|
| Dimensions and Power | | |
| Height x Width x Length (inches) | 1.5 × 8.5 × 6.3 | |
| Height x Width x Length (mm) | 38.5 × 216 × 160 | |
| Weight | 2.2 lbs (1 kg) | |
| Form Factor (supports EIA/non-EIA standards) | Desktop | |
| Input Rating | 12Vdc, 3A | |
| Power Required | Powered by External DC Power Adapter, 100–240V AC, 50/60 Hz | |
| Power Consumption (Average / Maximum) | 13.4 W / 15.4 W | 14.6 W / 16.6 W |
| Current (Maximum) | 100V AC / 0.2A, 240V AC / 0.1A | |
| Heat Dissipation | 52.55 BTU/h | 56.64 BTU/h |
| Redundant Power Supplies | | |
| Operating Environment and Certifications | | |
| Operating Temperature | 32–104°F (0–40°C) | |
| Storage Temperature | -31–158°F (-35–70°C) | |
| Humidity | 10–90% non-condensing | |
| Noise Level | Fanless 0 dBA | |
| Operating Altitude | Up to 7,400 ft (2,250 m) | |
| Compliance | FCC, ICES, CE, RCM, VCCI, BSMI, UL/cUL, CB | |
| Certifications | ICSA Labs: Firewall, IPsec, IPS, Antivirus, SSL-VPN | |
| Radio Specifications | | |
| Multiple (MU) MIMO | 0 | 3 × 3 |
| Maximum Wi-Fi Speeds | 0 | 1300 Mbps @ 5 GHz, 450 Mbps @ 2.4 GHz |
| Maximum Tx Power | 0 | 20 dBm |
| Antenna Gain | 0 | 3.5 dBi @ 5GHz, 5 dBi @ 2.4 GHz |

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

1. IPsec VPN performance test uses AES256-SHA256.
2. IPS (Enterprise Mix), Application Control, NGFW and Threat Protection are measured with Logging enabled.
3. SSL Inspection performance values use an average of HTTPS sessions of different cipher suites.

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



ORDERING INFORMATION

| Product | SKU | Description |
|----------------------|----------------------|--|
| FortiGate 40F | FG-40F | 5 x GE RJ45 ports (including 4 x Internal Ports, 1 x WAN Ports). |
| FortiWiFi 40F | FWF-40F | 5 x GE RJ45 ports (including 4 x Internal Ports, 1 x WAN Ports), Wireless (802.11a/b/g/n/ac-W2). |
| Optional Accessories | | |
| Rack Mount Tray | SP-RACKTRAY-02 | Rack mount tray for all FortiGate E series and F series desktop models are backwards compatible with SP-RackTray-01. For list of compatible FortiGate products, visit our Documentation website, docs.fortinet.com |
| AC Power Adaptor | SP-FG-40F-PA-10(-XX) | Pack of 10 AC power adaptors for FG/FWF-40F, come with interchangeable power plugs. (XX=various countries code). |
| Wall Mount Kits | SP-FG60F-MOUNT-20 | Pack of 20 wall mount kits for FG/FWF-40F series, FG/FWF-60F series, FG-80F, FG-81F and FG-80F-Bypass. |

BUNDLES



FortiGuard Bundle

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

| Bundles | Enterprise Protection | SMB Protection | Unified Threat Protection | Advanced Threat Protection |
|---|-----------------------|----------------|---------------------------|----------------------------|
| FortiCare | 24x7 | 24x7 | 24x7 | 24x7 |
| FortiGuard App Control Service | • | • | • | • |
| FortiGuard IPS Service | • | • | • | • |
| FortiGuard Advanced Malware Protection (AMP) — Antivirus, Mobile Malware, Botnet, CDR, Virus Outbreak Protection and FortiSandbox Cloud Service | • | • | • | • |
| FortiGuard Web and Video ¹ Filtering Service | • | • | • | |
| FortiGuard Antispam Service | • | • | • | |
| FortiGuard Security Rating Service | • | | | |
| FortiGuard IoT Detection Service | • | | | |
| FortiGuard Industrial Service | • | | | |
| FortiConverter Service | • | | | |
| FortiGate Cloud Subscription | | • | | |

1. Available when running FortiOS 7.0



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DATA SHEET

FortiGate® FortiWiFi 60F Series

FG-60F, FG-61F, FWF-60F, and FWF-61F

**Next Generation Firewall
Secure SD-WAN**



The FortiGate/FortiWiFi 60F series provides a fast and secure SD-WAN solution in a compact fanless desktop form factor for enterprise branch offices and mid-sized businesses. 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.

Security

- Identifies thousands of applications inside network traffic for deep inspection and granular policy enforcement
- Protects against malware, exploits, and malicious websites in both encrypted and non-encrypted traffic
- Prevent and detect against known and unknown attacks using continuous threat intelligence from AI-powered FortiGuard Labs security services

Performance

- Delivers industry's best threat protection performance and ultra-low latency using purpose-built security processor (SPU) technology
- Provides industry-leading performance and protection for SSL encrypted traffic

Certification

- Independently tested and validated for best-in-class security effectiveness and performance
- Received unparalleled third-party certifications from NSS Labs

Networking

- Delivers advanced networking capabilities that seamlessly integrate with advanced layer 7 security and virtual domains (VDOMs) to offer extensive deployment flexibility, multi-tenancy and effective utilization of resources
- Delivers high-density, flexible combination of various high-speed interfaces to enable best TCO for customers for data center and WAN deployments

Management

- Includes a management console that is effective, simple to use, and provides comprehensive network automation and visibility
- Provides Zero Touch Integration with Fortinet's Security Fabric's Single Pane of Glass Management
- Predefined compliance checklist analyzes the deployment and highlights best practices to improve overall security posture

Security Fabric

- Enables Fortinet and Fabric-ready partners' products to provide broader visibility, integrated end-to-end detection, threat intelligence sharing, and automated remediation

| Firewall | IPS | NGFW | Threat Protection | Interfaces |
|----------|----------|--------|-------------------|---|
| 10 Gbps | 1.4 Gbps | 1 Gbps | 700 Mbps | Multiple GE RJ45 Variants with internal storage WiFi variants |

DEPLOYMENT



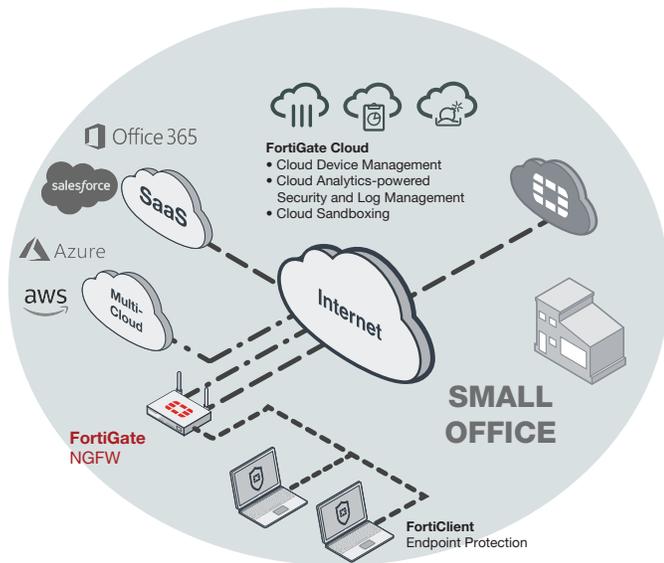
Next Generation Firewall (NGFW)

- Reduce the complexity and maximize your ROI by integrating threat protection security capabilities into a single high-performance network security appliance, powered by Fortinet's Security Processing Unit (SPU)
- Full visibility into users, devices, applications across the entire attack surface and consistent security policy enforcement irrespective of asset location
- Protect against network exploitable vulnerabilities with industry-validated IPS that offers low latency and optimized network performance
- Automatically block threats on decrypted traffic using the Industry's highest SSL inspection performance, including the latest TLS 1.3 standard with mandated ciphers
- Proactively block newly discovered sophisticated attacks in real-time with AI-powered FortiGuard Labs and advanced threat protection services included in the Fortinet Security Fabric

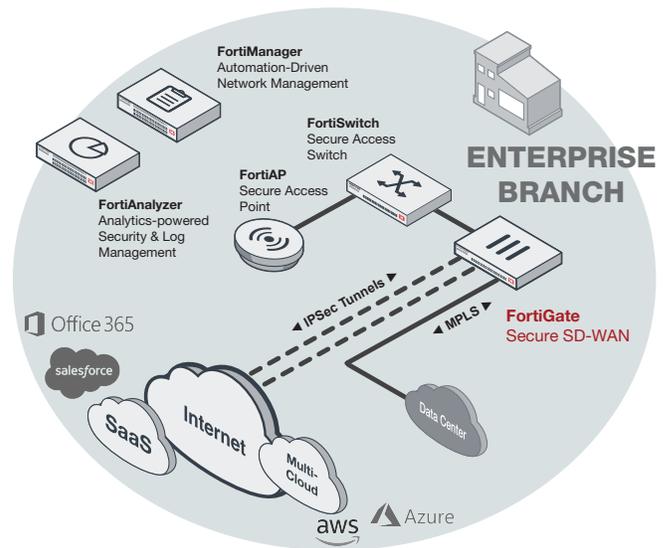


Secure SD-WAN

- Consistent business application performance with accurate detection, dynamic WAN path steering and optimization
- Multi-cloud access for faster SaaS adoption with end-to-end optimization
- Simplification with zero touch deployment and centralized management with auto-provisioning, analytics and reporting
- Strong security posture with next generation firewall and real-time threat protection



Small Office Deployment (NGFW)

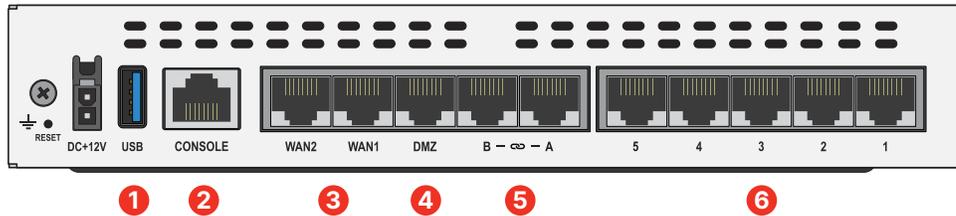
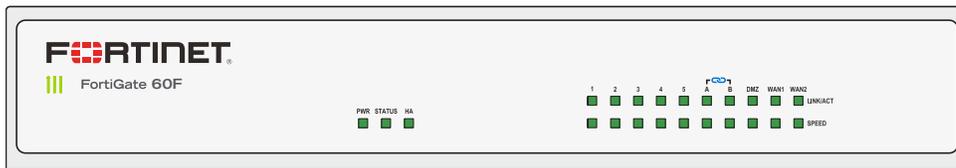


Enterprise Branch Deployment (Secure SD-WAN)



HARDWARE

FortiGate / FortiWiFi 60F/61F



Interfaces

1. 1x USB Port
2. 1x Console Port
3. 2x GE RJ45 WAN Ports
4. 1x GE RJ45 DMZ Port
5. 2x GE RJ45 FortiLink Ports
6. 5x GE RJ45 Internal Ports

Hardware Features



Powered by Purpose-built Secure SD-WAN ASIC SOC4



- Combines a RISC-based CPU with Fortinet's proprietary Security Processing Unit (SPU) content and network processors for unmatched performance
- Delivers industry's fastest application identification and steering for efficient business operations
- Accelerates IPsec VPN performance for best user experience on direct internet access
- Enables best of breed NGFW Security and Deep SSL Inspection with high performance
- Extends security to access layer to enable SD-Branch transformation with accelerated and integrated switch and access point connectivity

3G/4G WAN Connectivity

The FortiGate 60F Series includes a USB port that allows you to plug in a compatible third-party 3G/4G USB modem, providing additional WAN connectivity or a redundant link for maximum reliability.

Compact and Reliable Form Factor

Designed for small environments, you can place it on a desktop or wall-mount it. It is small, lightweight, yet highly reliable with superior MTBF (Mean Time Between Failure), minimizing the chance of a network disruption.

Secure Access Layer

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



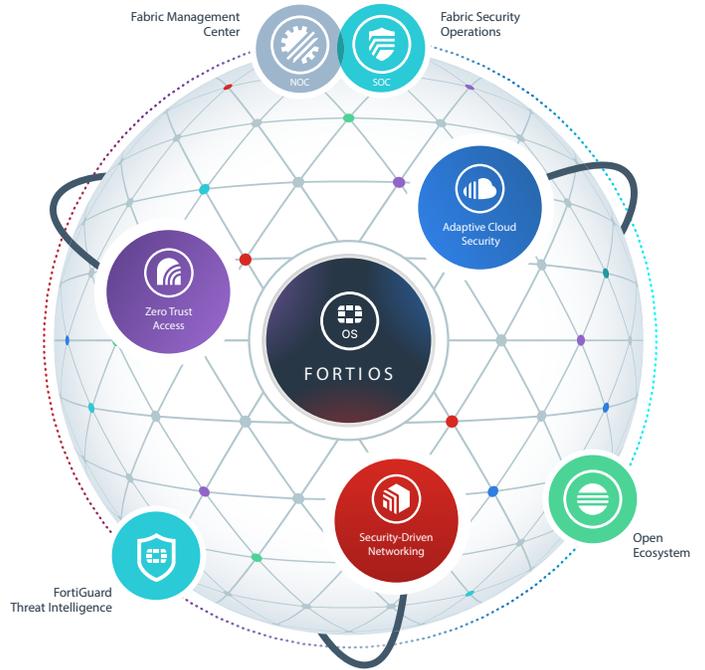
FORTINET SECURITY FABRIC

Security Fabric

The industry's highest-performing cybersecurity platform, powered by FortiOS, with a rich ecosystem designed to span the extended digital attack surface, delivering fully automated, self-healing network security.

- **Broad:** Coordinated detection and enforcement across the entire digital attack surface and lifecycle with converged networking and security across edges, clouds, endpoints and users
- **Integrated:** Integrated and unified security, operation, and performance across different technologies, location, deployment options, and the richest Ecosystem
- **Automated:** Context aware, self-healing network & security posture leveraging cloud-scale and advanced AI to automatically deliver near-real-time, user-to-application coordinated protection across the Fabric

The Fabric empowers organizations of any size to secure and simplify their hybrid infrastructure on the journey to digital innovation.



FortiOS™ Operating System

FortiOS, Fortinet's leading operating system enable the convergence of high performing networking and security across the Fortinet Security Fabric delivering consistent and context-aware security posture across network endpoint, and clouds. The organically built best of breed capabilities and unified approach allows organizations to run their businesses without compromising performance or protection, supports seamless scalability, and simplifies innovation consumption.

The release of FortiOS 7 dramatically expands the Fortinet Security Fabric's ability to deliver consistent security across hybrid deployment models consisting on appliances, software and As-a-Service with SASE, ZTNA and other emerging cybersecurity solutions.

SERVICES

FortiGuard™ Security Services

FortiGuard Labs offers real-time intelligence on the threat landscape, delivering comprehensive security updates across the full range of Fortinet's solutions. Comprised of security threat researchers, engineers, and forensic specialists, the team collaborates with the world's leading threat monitoring organizations and other network and security vendors, as well as law enforcement agencies.

FortiCare™ Services

Fortinet is dedicated to helping our customers succeed, and every year FortiCare services help thousands of organizations get the most from their Fortinet Security Fabric solution. We have more than 1,000 experts to help accelerate technology implementation, provide reliable assistance through advanced support, and offer proactive care to maximize security and performance of Fortinet deployments.



SPECIFICATIONS

| | FORTIGATE 60F | FORTIGATE 61F | FORTIWIIFI 60F | FORTIWIIFI 61F |
|--|---------------|----------------|---|---|
| Hardware Specifications | | | | |
| GE RJ45 WAN / DMZ Ports | 2 / 1 | 2 / 1 | 2 / 1 | 2 / 1 |
| GE RJ45 Internal Ports | 5 | 5 | 5 | 5 |
| GE RJ45 FortiLink Ports (Default) | 2 | 2 | 2 | 2 |
| Wireless Interface | – | – | Single Radio (2.4GHz/5GHz), 802.11 a/b/g/n/ac-W2 | Single Radio (2.4GHz/5GHz), 802.11 a/b/g/n/ac-W2 |
| USB Ports | 1 | 1 | 1 | 1 |
| Console (RJ45) | 1 | 1 | 1 | 1 |
| Internal Storage | – | 1 × 128 GB SSD | – | 1 × 128 GB SSD |
| System Performance — Enterprise Traffic Mix | | | | |
| IPS Throughput ² | | | 1.4 Gbps | |
| NGFW Throughput ^{2,4} | | | 1 Gbps | |
| Threat Protection Throughput ^{2,5} | | | 700 Mbps | |
| System Performance | | | | |
| Firewall Throughput (1518 / 512 / 64 byte UDP packets) | | | 10/10/6 Gbps | |
| Firewall Latency (64 byte UDP packets) | | | 3.3 μs | |
| Firewall Throughput (Packets Per Second) | | | 9 Mpps | |
| Concurrent Sessions (TCP) | | | 700,000 | |
| New Sessions/Second (TCP) | | | 35,000 | |
| Firewall Policies | | | 5,000 | |
| IPsec VPN Throughput (512 byte) ¹ | | | 6.5 Gbps | |
| Gateway-to-Gateway IPsec VPN Tunnels | | | 200 | |
| Client-to-Gateway IPsec VPN Tunnels | | | 500 | |
| SSL-VPN Throughput | | | 900 Mbps | |
| Concurrent SSL-VPN Users (Recommended Maximum, Tunnel Mode) | | | 200 | |
| SSL Inspection Throughput (IPS, avg. HTTPS) ³ | | | 630 Mbps | |
| SSL Inspection CPS (IPS, avg. HTTPS) ³ | | | 400 | |
| SSL Inspection Concurrent Session (IPS, avg. HTTPS) ³ | | | 55,000 | |
| Application Control Throughput (HTTP 64K) ² | | | 1.8 Gbps | |
| CAPWAP Throughput (HTTP 64K) | | | 8 Gbps | |
| Virtual Domains (Default / Maximum) | | | 10 / 10 | |
| Maximum Number of FortiSwitches Supported | | | 16 | |
| Maximum Number of FortiAPs (Total / Tunnel Mode) | | | 64 / 32 | |
| Maximum Number of FortiTokens | | | 500 | |
| High Availability Configurations | | | Active-Active, Active-Passive, Clustering | |
| Dimensions | | | | |
| Height x Width x Length (inches) | | | 1.5 × 8.5 × 6.3 | |
| Height x Width x Length (mm) | | | 38.5 × 216 × 160 mm | |
| Weight | | | 2.23 lbs (1.01 kg) | |
| Form Factor | | | Desktop | |
| Radio Specifications | | | | |
| Multiple User (MU) MIMO | – | – | 3×3 | |
| Maximum Wi-Fi Speeds | – | – | 1300 Mbps @ 5 GHz, 450 Mbps @ 2.4 GHz | |
| Maximum Tx Power | – | – | 20 dBm | |
| Antenna Gain | – | – | 3.5 dBi @ 5 GHz, 5 dBi @ 2.4 GHz | |

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

1. IPsec VPN performance test uses AES256-SHA256.
2. IPS (Enterprise Mix), Application Control, NGFW and Threat Protection are measured with Logging enabled.
3. SSL Inspection performance values use an average of HTTPS sessions of different cipher suites.

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



SPECIFICATIONS

| | FORTIGATE 60F | FORTIGATE 61F | FORTIWIIFI 60F | FORTIWIIFI 61F |
|---|---|-----------------|-----------------|-----------------|
| Operating Environment and Certifications | | | | |
| Power Rating | 12Vdc, 3A | | | |
| Power Required | Powered by External DC Power Adapter, 100–240V AC, 50/60 Hz | | | |
| Maximum Current | 100Vac/1.0A, 240Vac/0.6A | | | |
| Power Consumption (Average / Maximum) | 17.0 W / 18.5 W | 17.2 W / 18.7 W | 17.2 W / 18.7 W | 17.5 W / 19.0 W |
| Heat Dissipation | 63.1 BTU/hr | 63.8 BTU/hr | 63.8 BTU/hr | 64.8 BTU/hr |
| Operating Temperature | 32–104°F (0–40°C) | | | |
| Storage Temperature | -31–158°F (-35–70°C) | | | |
| Humidity | Humidity 10–90% non-condensing | | | |
| Noise Level | Fanless 0 dBA | | | |
| Operating Altitude | Up to 7,400 ft (2,250 m) | | | |
| Compliance | FCC, ICES, CE, RCM, VCCI, BSMI, UL/cUL, CB | | | |
| Certifications | ICSA Labs: Firewall, IPsec, IPS, Antivirus, SSL-VPN | | | |

ORDERING INFORMATION

| Product | SKU | Description |
|-----------------------------|-------------------|--|
| FortiGate 60F | FG-60F | 10x GE RJ45 ports (including 7x Internal ports, 2x WAN ports, 1x DMZ port) |
| FortiGate 61F | FG-61F | 10x GE RJ45 ports (including 7x Internal ports, 2x WAN ports, 1x DMZ port), 128 GB SSD onboard storage |
| FortiWiFi 60F | FWF-60F | 10x GE RJ45 ports (including 7x Internal Ports, 2x WAN Ports, 1x DMZ Port), Wireless (802.11 a/b/g/n/ac-W2) |
| FortiWiFi 61F | FWF-61F | 10x GE RJ45 ports (including 7x Internal Ports, 2x WAN Ports, 1x DMZ Port), Wireless (802.11 a/b/g/n/ac-W2), 128GB SSD onboard storage |
| Optional Accessories | | |
| Rack Mount Tray | SP-RACKTRAY-02 | Rack mount tray for all FortiGate E series and F series desktop models are backwards compatible with SP-RackTray-01. For list of compatible FortiGate products, visit our Documentation website, docs.fortinet.com |
| AC Power Adaptor | SP-FG60E-PDC-5 | Pack of 5 AC power adaptors for FG/FWF 60E/61E, 60F/61F, and 80E/81E |
| Wall Mount Kit | SP-FG60F-MOUNT-20 | Pack of 20 wall mount kits for FG/FWF-60F and FG/FWF-80F series |

BUNDLES



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

| Bundles | Enterprise Protection | SMB Protection | Unified Threat Protection | Advanced Threat Protection |
|--|-----------------------|----------------|---------------------------|----------------------------|
| FortiCare | 24x7 | 24x7 | 24x7 | 24x7 |
| FortiGuard App Control Service | • | • | • | • |
| FortiGuard IPS Service | • | • | • | • |
| FortiGuard Advanced Malware Protection (AMP) — Antivirus, Mobile Malware, Botnet, CDR, Virus Outbreak Protection and FortiSandbox Cloud Service | • | • | • | • |
| FortiGuard Web and Video¹ Filtering Service | • | • | • | |
| FortiGuard Antispam Service | • | • | • | |
| FortiGuard Security Rating Service | • | | | |
| FortiGuard IoT Detection Service | • | | | |
| FortiGuard Industrial Service | • | | | |
| FortiConverter Service | • | | | |
| FortiGate Cloud Subscription | | • | | |

1. Available when running FortiOS 7.0



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Date: 4 November, 2021

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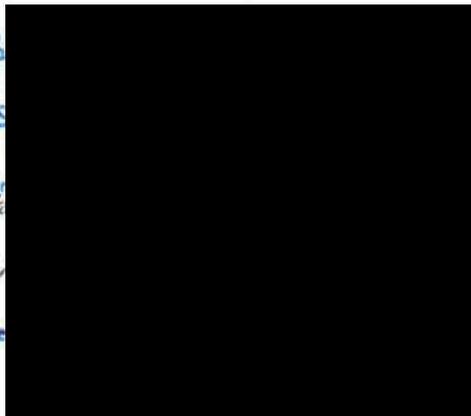
is currently an authorized FortiPartner and is currently authorized throughout SK to sell Fortinet products as a partner with the following designations:

- Level of Engagement: Advocate
- Business Model: Integrator

This certificate is issued as of the date shown above, and is valid for 180 days from this date.

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RUCKUS[®] T350

Outdoor 802.11ax 2x2:2 Wi-Fi Access Point



Benefits

SIMPLICITY

RUCKUS' Outdoor APs make Wi-Fi deployments extremely simple to deploy with one-touch technologies like SmartMesh™.

STUNNING WI-FI PERFORMANCE

Extends coverage with patented BeamFlex® + adaptive antenna technology while mitigating interference by utilizing up to 64 directional antenna patterns.

GREAT OUTDOOR WI-FI

Experience high performance outdoor Wi-Fi 6 with IP-67 weather proofing.

MULTIPLE MANAGEMENT OPTIONS

Manage the T350 Series with physical or virtual controller appliances.

SERVE MORE DEVICES

Connect more devices simultaneously with two MU-MIMO spatial streams and concurrent dual-band 2.4/5GHz radios while also enhancing non-11ax device performance.

AUTOMATE OPTIMAL THROUGHPUT

ChannelFly® dynamic channel technology uses machine learning to automatically find the least congested channels. You always get the highest throughput the band can support.

MORE THAN WI-FI

Support services beyond Wi-Fi with [RUCKUS IoT Suite](#), [Cloudpath](#) security and onboarding software, [SPoT](#) Wi-Fi locationing engine, and [SCI](#) network analytics.

Modern Wi-Fi device users expect reliable connectivity—anywhere, anytime. But in crowded outdoor venues with thousands of users and constant RF noise, they are often frustrated by poor coverage, dropped connections, and reduced data rates. These aggravating Wi-Fi experiences can easily translate to negative perceptions of the venue and the service provider, resulting in loss of business. The quality of the network experience becomes the "litmus test" for acceptance or rejection.

As the market leader in outdoor Wi-Fi deployments, RUCKUS knows that one AP solution cannot meet every possible challenge of varied and complex outdoor requirements. This is why the RUCKUS T350 Wi-Fi 6 series is designed with more variety than any other outdoor AP in the market today. Available with either internal omni-directional antennas or internal high-gain directional antenna models, the T350 Series uses patented RUCKUS antenna optimization and interference mitigation technologies to improve throughput, connection reliability, and deliver industry-leading Wi-Fi 6 performance to every connected client. At the same time, the T350 Series is designed for fast, simple installation with an ultra-lightweight, low profile, IP-67 rated enclosure that can stand up to the most challenging outdoor environments.

At RUCKUS, we know that outdoor AP deployments are especially challenging for installation and maintenance, which is why RUCKUS outdoor APs use a variety of technologies, like SmartMesh that help simplify outdoor AP deployment.

The RUCKUS T350 Series is perfect for high-density outdoor public venues such as airports, convention centers, plazas, malls, smart cities, and other dense urban environments. By providing a superior Wi-Fi experience to every user in high-density outdoor locations, venue operators can improve guest satisfaction and loyalty, deliver new kinds of wireless application services, and increase revenues.

The RUCKUS T350 Series incorporates patented technologies found only in the RUCKUS Wi-Fi portfolio.

- Extended coverage with patented BeamFlex+ utilizing multi-directional antenna patterns.
- Improve throughput with ChannelFly, which dynamically finds less congested Wi-Fi channels to use.

Whether you're deploying ten or ten thousand APs, the T350 Series is easy to manage through RUCKUS' appliance and virtual management options.

RUCKUS T350

Outdoor 802.11ax 2x2:2 Wi-Fi Access Point

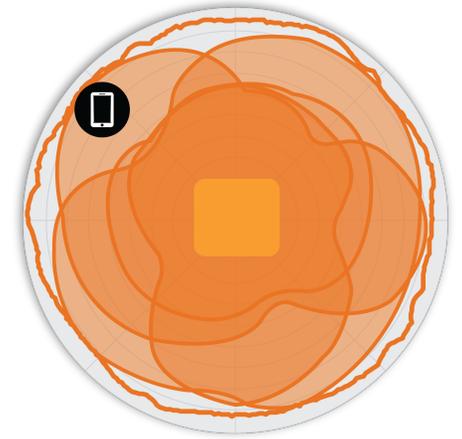
Access Point Antenna Pattern

RUCKUS' BeamFlex+ adaptive antennas allow the T350 AP to dynamically choose among a host of antenna patterns in real-time to establish the best possible connection with every device. This leads to:

- Better Wi-Fi coverage
- Reduced RF interference

Traditional omni-directional antennas, found in generic access points, oversaturate the environment by needlessly radiating RF signals in all directions. In contrast, the RUCKUS BeamFlex+ adaptive antenna directs the radio signals per-device on a packet by-packet basis to optimize Wi-Fi coverage and capacity in real-time to support high device density environments. BeamFlex+ operates without the need for device feedback and hence can benefit even devices using legacy standards.

Figure 1. Example of Beamflex+ pattern



Client Composite Pattern BeamFlex+ Pattern

Figure 2. T350c/d 2.4GHz Azimuth Antenna Patterns



Figure 3. T350c/d 5GHz Azimuth Antenna Patterns



Figure 4. T350c/d 2.4GHz Elevation Antenna Patterns

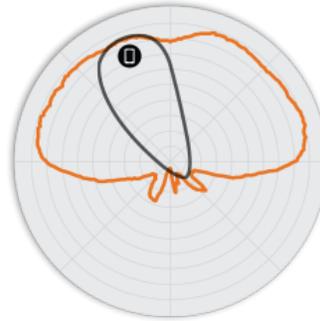
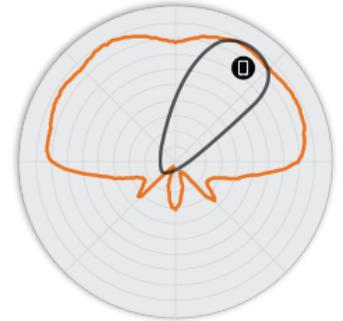


Figure 5. T350c/d 5GHz Elevation Antenna Patterns



Note: The outer trace represents the composite RF footprint of all possible BeamFlex+ antenna patterns, while the inner trace represents one BeamFlex+ antenna pattern within the composite outer trace.

RUCKUS T350

Outdoor 802.11ax 2x2:2 Wi-Fi Access Point

| Wi-Fi | |
|--------------------------|--|
| Wi-Fi Standards | <ul style="list-style-type: none"> IEEE 802.11a/b/g/n/ac/ax |
| Supported Rates | <ul style="list-style-type: none"> 802.11ax: 4 to 1774 Mbps 802.11ac: 6.5 to 867 Mbps 802.11n: 6.5 to 300Mbps 802.11a/g: 6 to 54 Mbps 802.11b: 1 to 11 Mbps |
| Supported Channels | <ul style="list-style-type: none"> 2.4GHz: 1-13 5GHz: 36-64, 100-144, 149-165 |
| MIMO | <ul style="list-style-type: none"> 2x2 SU-MIMO 2x2 MU-MIMO |
| Spatial Streams | <ul style="list-style-type: none"> 2 streams SU/MU MIMO 5GHz 2 streams SU/MU MIMO 2.4GHz |
| Radio Chains and Streams | <ul style="list-style-type: none"> 2x2:2 (5GHz) 2x2:2 (2.4GHz) |
| Channelization | <ul style="list-style-type: none"> 20, 40, 80MHz |
| Security | <ul style="list-style-type: none"> WPA-PSK, WPA-TKIP, WPA2-Personal, WPA2-Enterprise, WPA3-Personal, WPA3-Enterprise, AES, 802.11i, Dynamic PSK, OWE WIPS/WIDS |
| Other Wi-Fi Features | <ul style="list-style-type: none"> WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v Hotspot, Hotspot 2.0 Captive Portal WISPr |

| RF | | | |
|--|--|--------------------------|---|
| | T350c | T350d | T350se |
| Antenna Type | Internal omnidirectional | Internal omnidirectional | Internal 120 deg sectorized + N-type female external connectors |
| | BeamFlex+ adaptive antennas with polarization diversity | | |
| Antenna Gain (max) | Up to 3dBi | | TBD |
| Peak Transmit Power (Tx port/chain + 3dB Combining gain) | 2.4GHz: 26 dBm 5GHz: 25 dBm | | 2.4GHz: TBD 5GHz: TBD |
| Frequency Bands | <ul style="list-style-type: none"> ISM (2.4-2.484GHz) U-NII-1 (5.15-5.25GHz) U-NII-2A (5.25-5.35GHz) U-NII-2C (5.47-5.725GHz) U-NII-3 (5.725-5.85GHz) | | |

| 2.4GHZ RECEIVE SENSITIVITY | | | | | | | |
|----------------------------|------|------|-------|-------|------|-------|-------|
| HT20 | | HT40 | | VHT20 | | VHT40 | |
| MCS0 | MCS7 | MCS0 | MCS7 | MCS0 | MCS7 | MCS0 | MCS7 |
| -94 | -75 | -91 | -72 | -94 | -75 | -91 | -72 |
| HE20 | | | | HE40 | | | |
| MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 |
| -94 | -75 | -71 | -65 | -91 | -72 | -68 | -62 |

| 5GHZ RECEIVE SENSITIVITY | | | | | | | | | | | |
|--------------------------|------|------|-------|-------|------|------|-------|-------|------|------|-------|
| VHT20 | | | | VHT40 | | | | VHT80 | | | |
| MCS0 | MCS7 | MCS8 | MCS9 | MCS0 | MCS7 | MCS8 | MCS9 | MCS0 | MCS7 | MCS8 | MCS9 |
| -95 | -76 | -72 | -70 | -92 | -73 | -69 | -67 | -89 | -70 | -66 | -64 |
| HE20 | | | | HE40 | | | | HE80 | | | |
| MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 | MCS0 | MCS7 | MCS9 | MCS11 |
| -95 | -76 | -70 | -65 | -92 | -73 | -67 | -62 | -89 | -70 | -64 | -59 |

| 2.4GHZ TX POWER TARGET | |
|------------------------|------------|
| Rate | Pout (dBm) |
| MCS0 HT20 | 23 |
| MCS7 HT20 | 18 |
| MCS8 VHT20 | 17 |
| MCS9 VHT40 | 16.5 |
| MCS11 HE40 | 15 |

| 5GHZ TX POWER TARGET | |
|------------------------|------------|
| Rate | Pout (dBm) |
| MCS0 VHT20 | 22 |
| MCS7 VHT40, VHT80 | 20 |
| MCS9 VHT40, VHT80 | 19 |
| MCS11 HE20, HE40, HE80 | 15 |

| PERFORMANCE AND CAPACITY | |
|--------------------------|---|
| Peak PHY Rates | <ul style="list-style-type: none"> 2.4GHz: 574 Mbps 5GHz: 1200 Mbps |
| Client Capacity | <ul style="list-style-type: none"> Up to 512 clients per AP |
| SSID | <ul style="list-style-type: none"> Up to 31 per AP |

| RUCKUS RADIO MANAGEMENT | |
|------------------------------|---|
| Antenna Optimization | <ul style="list-style-type: none"> BeamFlex+ Polarization Diversity with Maximal Ratio Combining (PD-MRC) |
| Wi-Fi Channel Management | <ul style="list-style-type: none"> ChannelFly Background Scan Based |
| Client Density Management | <ul style="list-style-type: none"> Adaptive Band Balancing Client Load Balancing Airtime Fairness Airtime-based WLAN Prioritization |
| SmartCast Quality of Service | <ul style="list-style-type: none"> QoS-based scheduling Directed Multicast L2/L3/L4 ACLs |
| Mobility | <ul style="list-style-type: none"> SmartRoam |
| Diagnostic Tools | <ul style="list-style-type: none"> Spectrum Analysis SpeedFlex |

RUCKUS T350

Outdoor 802.11ax 2x2:2 Wi-Fi Access Point

| NETWORKING | |
|-----------------------------|---|
| Controller Platform Support | <ul style="list-style-type: none"> SmartZone ZoneDirector Unleashed Cloud Standalone |
| Mesh | <ul style="list-style-type: none"> SmartMesh™ wireless meshing technology. Self-healing Mesh |
| IP | <ul style="list-style-type: none"> IPv4, IPv6 |
| VLAN | <ul style="list-style-type: none"> 802.1Q (1 per BSSID or dynamic per use based on RADIUS) VLAN Pooling Port-based |
| 802.1x | <ul style="list-style-type: none"> Authenticator & Supplicant |
| Tunnel | <ul style="list-style-type: none"> L2TP, GRE, soft-GRE |
| Policy Management Tools | <ul style="list-style-type: none"> Application Recognition and Control Access Control Lists Device Fingerprinting Rate Limiting |
| IoT | <ul style="list-style-type: none"> T350d: Integrated BLE and Zigbee (1 radio, switchable) |

| PHYSICAL INTERFACES | | | |
|---------------------|---|----------------------------------|--------|
| | T350c | T350d | T350se |
| Ethernet | 1 x 1GbE port, RJ-45 PoE In - 802.3at Class 4 | | |
| USB | — | 1 USB 2.0 port, Type A | |
| DC Power | — | 12V DC Terminal Block (7V - 20V) | |

| PHYSICAL CHARACTERISTICS | | | |
|------------------------------|--|--|--|
| | T350c | T350d | T350se |
| Physical Size | <ul style="list-style-type: none"> 162.3 mm (W) x 194.9 mm (L) x 80.9 mm (H) 6.38 in (W) x 7.67 in (L) x 3.19 in (H) | <ul style="list-style-type: none"> 162.3 mm (W) x 213.7 mm (L) x 80.9 mm (H) 6.38 in (W) x 8.41 in (L) x 3.19 in (H) | <ul style="list-style-type: none"> 209.1 mm (W) x 261.7 mm (L) x 102.5 mm (H) 8.23 in (W) x 10.30 in (L) x 4.04 in (H) |
| Weight (w/ included bracket) | 1.01kg (2.23lbs) | 1.07kg (2.36lbs) | TBD |
| Ingress Protection | IP-67 | | |
| Mounting | <ul style="list-style-type: none"> Pole Mount Wall Mount Flat Surface Bracket included in the box | | |
| Operating Temperature | -20°C (-4°F) to 65°C (149°F) | -40°C (-40°F) to 65°C (149°F) | |
| Operating Humidity | Up to 95%, non-condensing | | |
| Wind Survivability | Up to 266km/h (165 mph) | | |
| Altitude | Up to 3,048m (10,000 ft), functional operation | | |

| POWER ² | | | | |
|-------------------------|------------------------------|--|--------|--------|
| | | T350c | T350d | T350se |
| Power Mode | System Configuration | Max Power Consumption (includes USB power) | | |
| 802.3at (PoE) - Class 4 | Full Functionality | 13.24W | 17.57W | TBD |
| 802.3af (PoE) - Class 3 | USB Disabled IoT Disabled | 11.42W | 12.94W | TBD |
| Idle (PoE) | | 7.68W | 7.78W | TBD |
| DC - max power | Full Functionality | — | 16.32W | TBD |
| DC - idle | | — | 6.78W | TBD |

| CERTIFICATIONS AND COMPLIANCE | |
|-----------------------------------|--|
| Wi-Fi Alliance ³ | <ul style="list-style-type: none"> Wi-Fi CERTIFIED™ a, b, g, n, ac Wi-Fi CERTIFIED™ 6 WPA3™ - Enterprise, Personal Wi-Fi Enhanced Open™ Wi-Fi Agile Multiband™ Wi-Fi Optimized Connectivity™ Wi-Fi Vantage™ WMM® Passpoint® |
| Standards Compliance ⁴ | <ul style="list-style-type: none"> EN 60950-1 Safety EN 60601-1-2 Medical EN 61000-4-2/3/5 Immunity EN 50121-1 Railway EMC EN 50121-4 Railway Immunity IEC 61373 Railway Shock & Vibration UL 2043 Plenum EN 62311 Human Safety/RF Exposure WEEE & RoHS ISTA 2A Transportation |

| SOFTWARE AND SERVICES | |
|-------------------------|---|
| Location Based Services | <ul style="list-style-type: none"> SPoT |
| Network Analytics | <ul style="list-style-type: none"> SmartCell Insight (SCI) RUCKUS Analytics |
| Security and Policy | <ul style="list-style-type: none"> Cloudpath |

| MODEL FEATURE DIFFERENCES | | | | |
|---------------------------|---|----------|-----|----------|
| Model | Antenna | Low Temp | USB | DC Power |
| T350c | Internal omni | -20°C | N | N |
| T350d | Internal omni | -40°C | Y | Y |
| T350se | Internal sector (120°) + External antenna capable | -40°C | Y | Y |

² Max power varies by country setting, band, and MCS rate.

³ For complete list of WFA certifications, please see Wi-Fi Alliance website.

⁴ For current certification status, please see price list.

RUCKUS T350

Outdoor 802.11ax 2x2:2 Wi-Fi Access Point

| ORDERING INFORMATION | |
|----------------------|---|
| T350 OUTDOOR APs | |
| 901-T350-XX20 | T350c, omni, outdoor access point, 802.11ax 2x2:2 internal BeamFlex+, dual band concurrent. One Ethernet port, PoE input. -20°C to 65°C Operating Temperature. Includes mounting bracket and one year warranty. Does not include PoE injector. |
| 901-T350-XX40 | T350d, omni, outdoor access point, 802.11ax 2x2:2 internal BeamFlex+, dual band concurrent. One Ethernet port, PoE input, DC input and USB port. -40°C to 65°C Operating Temperature. Includes mounting bracket and one year warranty. Does not include PoE injector. |
| 901-T350-XX51 | T350se, sector+external, outdoor access point, 802.11ax 2x2:2, internal 120 degree sector + external antenna capable, dual band concurrent access point. One Ethernet port, PoE input, DC input and USB port. -40°C to 65°C Operating Temperature. Includes adjustable mounting bracket and one year warranty. Does not include PoE injector. (Available Q4'21) |

See RUCKUS price list for country-specific ordering information. PLEASE NOTE: When ordering outdoor APs, you must specify the destination region by indicating -US, -WW, or -Z2 instead of XX. For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam.

Warranty: Sold with a limited one year warranty.

For details see: <http://support.ruckuswireless.com/warranty>

| OPTIONAL ACCESSORIES | |
|----------------------|---|
| 902-0162-XXYY | • PoE injector (24W) (Sold in quantities of 1, 10 or 100) |
| 902-0125-0000 | • Secure articulating mounting bracket |
| 902-0127-0000 | • Extended cap to accommodate up to 6 cm long USB dongle |
| 902-1121-0000 | • Spare weatherizing cable gland with option of one hole or 2 hole connection |
| 902-0183-000 | • Spare cable gland for weatherizing the RJ-45 ports on outdoor APs. |

PLEASE NOTE: When ordering PoE injectors or power supplies, you must specify the destination region by indicating -US, -EU, -AU, -BR, -CN, -IN, -JP, -KR, -SA, -UK, or -UN instead of -XX.

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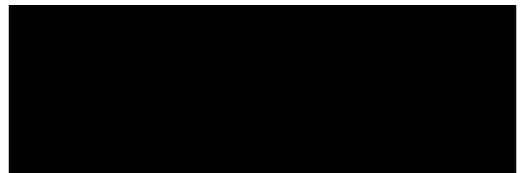
RUCKUS READY PARTNER PROGRAM

Ruckus Networks is proud to welcome ,

CSFIT s.r.o. registered at Galvaniho 7/D, 82104, Bratislava

The company CSFIT s.r.o. is selected Ruckus partner & is authorized to sell Ruckus products & solutions within Slovakia.

Date
11/11/2021



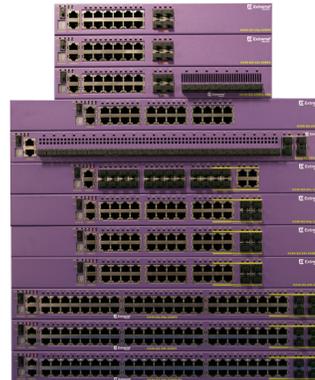
Raelyn Krizter, Ruckus Channel Chief

Highlights

- Scalable cost-effective edge switches
- 12, 24, and 48-port Gigabit Ethernet connectivity
- 4 x 1Gb uplinks upgradeable to 10Gb via software license
- PoE/PoE+ models for powered connection of edge devices
- SFP and 100Base-FX fiber model options
- AC and DC Power options
- Non-blocking, wire-speed design
- Up to 8-unit 40Gb stacking via SummitStack-V
- Role-based policy and Fabric Attach for secure, automated access to network applications or services

Smart Management Choices

- ExtremeCloud™ IQ and ExtremeCloud IQ - Site Engine for powerful, simple and secure public or private cloud management



ExtremeSwitching™ X440-G2

Scalable Cost-Effective Edge Switch with ExtremeXOS Operating System

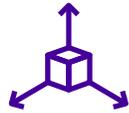
Product Overview

The ExtremeSwitching X440-G2 series is a scalable cost-effective family of edge switches powered by Extreme Networks ExtremeXOS, a highly resilient OS providing continuous uptime, manageability and operational efficiency. The X440-G2 series switches provide high-performance routing and switching, flexible stacking, PoE+ support and comprehensive security, while extending the benefits of ExtremeXOS to the campus edge.

The X440-G2 Series easy-to-use, yet powerful, management options include ExtremeCloud™ IQ, Extreme Management Center and Extreme Cloud Appliance for either cloud-based or on-premise oversight and configuration. The X440-G2 also supports role-based policies and Fabric Attach for secure, automated access to specific network resources and applications.

Intelligent Switching

The X440-G2 Series supports sophisticated and intelligent Layer 2 switching, as well as Layer 3 IPv4/IPv6 routing. They also provide role-based policy capabilities, bidirectional Access Control Lists, along with granular ingress/egress bandwidth control. Altogether, these enable fine-grained control over traffic flows, as well as controlled access to specific network services and applications.



Flexible 10Gb Upgrades

All X440-G2 base models come equipped with 4 upgradeable 1Gb ports, resident on either the faceplate or rear panel of each model. These 1Gb ports can be upgraded to 10Gb Ethernet via a simple software license. This gives administrators the option to increase switch uplink speeds without replacing the entire switch.



High-Performance Stacking

ExtremeXOS SummitStack-V capabilities allow up to eight X440-G2 switches to be stacked together via two of the native X440-G2 10Gb ports. This provides 40Gb per unit stacking and allows use of standard 10Gb Ethernet cabling and optics technologies, enabling long distance stacking connectivity of up to 40 Km.



Power over Ethernet (PoE)

X440-G2 Series switches support both IEEE 802.3at PoE+ and IEEE 802.3af PoE to enable connection of standards compliant PoE devices today and into the future. The X440-G2 can support full PoE+ 30W power across all 48 ports with an external redundant power supply (RPS).



Role-Based Policy

The X440-G2 supports role-based policies that can be centrally administered through the ExtremeControl policy manager. This policy framework empowers network administrators to define distinct roles or profiles to represent specific operational groups that may exist in an enterprise. Each defined role can then be granted individualized access to specific network services and applications and these access privileges remain associated with users as they move across both wired and wireless network access points.



Audio Video Bridging (AVB)

The X440-G2 series supports IEEE 802.1 Audio Video Bridging to enable reliable, real-time audio/video transmission over Ethernet. AVB technology delivers the quality of service required for today's high-definition and time-sensitive multimedia streams.



Management

The X440-G2 can be managed in a variety of ways. Simple on-box management functions are delivered by a web-based GUI, and a generic CLI is available for manual configuration.

ExtremeCloud IQ along with ExtremeCloud IQ - Site Engine provide a comprehensive unified management capability with a consolidated view of users, devices and applications for wired and wireless networks. Zero-touch provisioning lets one quickly bring new X440-G2 switches online and a granular view of devices, ports and users enables efficient inventory and network topology management.

(Note: Please refer to the [ExtremeCloud IQ Release Notes: New Features and Enhancements](#) for latest list of XIQ-supported X440-G2 models.)

Product Specifications

Performance and Scaling

| Switch Model | Maximum 10/100/1000 Base-T Ports | Maximum Active 1Gb SFP Ports | Maximum 10Gb SFP+ Ports | Aggregated Switch Bandwidth* | Frame Forwarding Rate* |
|----------------------|----------------------------------|------------------------------|----------------------------|------------------------------|------------------------|
| X440-G2-12t-10GE4 | 12 | 4 | 4 via license | 104 GBPS | 77.4 MPPS |
| X440-G2-24t-10GE4 | 24 | 8 (4 + 4 Combo) | 4 via license | 128 GBPS | 95.2 MPPS |
| X440-G2-48t-10GE4 | 48 | 8 (2 + 6 Combo) | 4 via license | 176 GBPS | 130.9 MPPS |
| X440-G2-12p-10GE4 | 12 | 4 | 4 via license | 104 GBPS | 77.4 MPPS |
| X440-G2-24p-10GE4 | 24 | 8 (4 + 4 Combo) | 4 via license | 128 GBPS | 95.2 MPPS |
| X440-G2-48p-10GE4 | 48 | 8 (2 + 6 Combo) | 4 via license | 176 GBPS | 130.9 MPPS |
| X440-G2-24t-10GE4-DC | 24 | 8 (4 + 4 Combo) | 4 via license | 128 GBPS | 95.2 MPPS |
| X440-G2-48t-10GE4-DC | 48 | 8 (2 + 6 Combo) | 4 via license ¹ | 176 GBPS | 130.9 MPPS |
| X440-G2-24x-10GE4 | 4 Combo | 28 (24 + 4 Combo) | 4 via license | 128 GBPS | 95.2 MPPS |
| X440-G2-24fx-GE4 | 24 100 Base-FX | 4 | 0 | 12.8 GBPS | 9.5 MPPS |
| X440-G2-12t8fx-GE4 | 12 10/100/1000 + 8 100 Base-FX | 4 | 0 | 33.6 GBPS | 25.0 MPPS |
| X440-G2-24t-GE4 | 24 10/100/1000 | 4 | 0 | 56 GBPS | 41.7 MPPS |

¹ 2 10GBase-T combo ports

*with 10Gb licenses if available with license

- Less than 4 microsecond latency (64-byte)
- Layer 2/MAC Addresses: 16K
- IPv4 LPM Entries: 480
- IPv4 Hosts: 1000
- IPv6 LPM (64-bit) Entries: 240
- 4096 user-created VLAN/VMANs *
- 9216 Byte Max Packet Size (Jumbo Frame)
- 128 load sharing trunks, up to 8 members per trunk
- 1,024 ingress bandwidth meters, 256 egress meters
- Ingress and egress bandwidth policing/rate limiting per flow/ACL
- 8 QoS egress queues/port
- Egress bandwidth rate shaping per egress queue and per port.
- Rate Limiting Granularity: 8 Kbps
- Half-duplex 10/100 supported on the following 10/100/1000 ports:
 - 12 port switches: Ports 1-12
 - 24 port switches: Ports 1-16
 - 48 port switches: Ports 1-16 and Ports 25-40

* 2 VLANs reserved for system use

- LRM support on rear-panel SFP/SFP+ ports on all 48-port switches
- Policy Capabilities
 - Policy Profiles: 63
 - Rules per Profile: Up to 440
 - Authenticated Policy Users per Switch: Up to 1,536
 - Authenticated Policy Users per Port: Up to 1,536
 - Unique Permit/Deny Rules per switch: 440
 - MAC Rules: N/A
 - IPv4 Rules: 256
 - IPv6 Rules: N/A
 - L2 Rules: 184
- Rate Limiting: Per Class of Service

Specifications (cont.)

External Ports/Slots

| Switch Hardware | Ports |
|----------------------|---|
| X440-G2-12t-10GE4 | <ul style="list-style-type: none"> • 12 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated front-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • Coaxial Barrel Connector RPS port |
| X440-G2-24t-10GE4 | <ul style="list-style-type: none"> • 24 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated) combo ports • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-48t-10GE4 | <ul style="list-style-type: none"> • 48 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated) combo ports • 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-12p-10GE4 | <ul style="list-style-type: none"> • 12 x 10/100/1000BASE-T PoE-Plus • 4 x 1GBASE-X SFP (unpopulated front-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-24p-10GE4 | <ul style="list-style-type: none"> • 24 x 10/100/1000BASE-T PoE-Plus • 4 x 1GBASE-X SFP (unpopulated) combo ports • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-48p-10GE4 | <ul style="list-style-type: none"> • 48 x 10/100/1000BASE-T PoE-Plus • 4 x 1GBASE-X SFP (unpopulated) combo ports • 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x9 RPS port |
| X440-G2-24t-10GE4-DC | <ul style="list-style-type: none"> • 24 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated) combo ports • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-48t-10GE4-DC | <ul style="list-style-type: none"> • 48 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated) combo ports • 2 x 1GbE copper combo ports upgradable to 10GbE on rear-panel • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-24x-10GE4 | <ul style="list-style-type: none"> • 24 x SFP (unpopulated) • 4 x 10/100/1000 combo ports • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) upgradeable to 10Gb Ethernet via licensing • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |

Specifications (cont.)

| Switch Hardware | Ports |
|--------------------|---|
| X440-G2-24fx-GE4 | <ul style="list-style-type: none"> • 24 x 100Base-FX - LC connectors • 4 x 1GBASE-X SFP (unpopulated front-panel ports) • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-12t8fx-GE4 | <ul style="list-style-type: none"> • 12 x 10/100/1000BASE-T with 8 x 100Base-FX - LC connectors • 4 x 1GBASE-X SFP (unpopulated front-panel ports) • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |
| X440-G2-24t-GE4 | <ul style="list-style-type: none"> • 24 x 10/100/1000BASE-T (RJ-45) • 4 x 1GBASE-X SFP (unpopulated rear-panel ports) • 1 x Serial (console port RJ-45) with RTS/CTS modem control • 1 x 10/100/1000BASE-T out-of-band management port • 2x7 RPS port |

Physical

| Switch Model | Weight | Height | Width | Depth |
|----------------------|--------------------|-----------------------------|------------------------|-------------------------|
| X440-G2-12t-10GE4 | 5.82 lb (2.64 kg) | 1 RU / 1.73 inches (4.4 cm) | 12.01 inches (30.5 cm) | 10.28 inches (26.1 cm) |
| X440-G2-24t-10GE4 | 8.07 lb (3.66 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |
| X440-G2-48t-10GE4 | 11.22 lb (5.09 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 14.51 inches (36.85 cm) |
| X440-G2-12p-10GE4 | 6.66 lb (3.02 kg) | 1 RU / 1.73 inches (4.4 cm) | 12.01 inches (30.5 cm) | 10.28 inches (26.1 cm) |
| X440-G2-24p-10GE4 | 9.44 lb (4.28 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |
| X440-G2-48p-10GE4 | 14.55 lb (6.60 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 14.51 inches (36.85 cm) |
| X440-G2-24t-10GE4-DC | 8.07 lb (3.66 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |
| X440-G2-48t-10GE4-DC | 11.20 lb (5.08 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 14.51 inches (36.85 cm) |
| X440-G2-24x-10GE4 | 8.22 lb (3.73 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |
| X440-G2-24fx-GE4 | 8.66 lb (3.93 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |
| X440-G2-12t8fx-GE4 | 6.50 lb (2.95 kg) | 1 RU / 1.73 inches (4.4 cm) | 12.01 inches (30.5 cm) | 10.28 inches (26.1 cm) |
| X440-G2-24t-GE4 | 7.98 lb (3.62 kg) | 1 RU / 1.73 inches (4.4 cm) | 17.36 inches (44.1 cm) | 10.01 inches (25.4 cm) |

CPU/Memory

- 64-bit MIPS Processor, 1 GHz clock, single core
- 1GB ECC DDR3 DRAM
- 4GB eMMC Flash
- 1.5MB packet buffer on 12 - 24 port switches, 3.0MB packet buffer on 48 port switches

LED Indicators

- Per port status LED including power status.
- System Status LEDs: management, fan and power.
- 7 segment display of stack number - operational on switches that support stacking.

Stacking

- SummitStack-V with support for up to eight switches per stack.
- Mixed stacking with other ExtremeXOS Series switches, so long as all are running the same ExtremeXOS version.
- Requires two of the four available X440-G2 uplink ports.

Note: SummitStack-V stacking is enabled on two of the four X440-G2 uplink ports by default (no license required). All stacking ports operate at 10Gb, but do not use standard Ethernet protocols. X440-G2 uplink ports, when not used for stacking, run the standard Ethernet protocol. Non-stacking uplink ports are limited by default to 1GbE, unless upgraded via software license. 10GbE licenses are available, in both two- and four-port versions, as well as a license to upgrade a dual 10GbE uplink switch to a four 10GbE uplink switch, that enable X440-G2 uplink ports to run the 10Gb Ethernet protocol.

Mapping of the two default X440-G2 stacking ports to their respective physical chassis interface #'s – by chassis type – are listed below.

| X440-G2 Switches* | Stack Port # | Physical Uplink Port # On Chassis |
|-------------------|--------------|--------------------------------------|
| 48 Port Models | 1 | 49 (Rear Panel, Dedicated SFP+ Port) |
| | 2 | 50 (rear panel, dedicated SFP+ port) |
| 24 Port Models | 1 | 27 (Rear Panel) |
| | 2 | 28 (Rear Panel) |
| 12 Port Models | 1 | 15 (Front Panel) |
| | 2 | 16 (Front Panel) |

*The three extended temperature X440-G2 models (16539, 16540 and 16541) do NOT stack.

Minimum/Maximum Power Consumption and Heat Dissipation

| Switch Model | Minimum ¹ Heat Dissipation (BTU/HR) | Minimum ¹ Power Consumption (Watts) | Maximum ¹ Heat Dissipation (BTU/Hr) | Maximum ² Power Consumption (Watts) |
|----------------------|--|--|--|--|
| X440-G2-12t-10GE4 | 52 | 15 | 109 | 32 |
| X440-G2-24t-10GE4 | 87 | 26 | 136 | 40 |
| X440-G2-48t-10GE4 | 141 | 41 | 208 | 61 |
| X440-G2-12p-10GE4 | 72 | 21 | 216 (@200W PoE) | 264 |
| X440-G2-24p-10GE4 | 121 | 35 | 410 (@380W PoE) | 500 |
| X440-G2-48p-10GE4 | 196 | 53 | 755 (@740W PoE) | 961 |
| X440-G2-24t-10GE4-DC | 77 | 23 | 134 | 39 |
| X440-G2-48t-10GE4-DC | 137 | 40 | 207 | 61 |
| X440-G2-24x-10GE4 | 87 | 26 | 172 | 51 |
| X440-G2-24fx-GE4 | 166 | 49 | 223 | 65 |
| X440-G2-12t8fx-GE4 | 108 | 32 | 159 | 47 |
| X440-G2-24t-GE4 | 76 | 22 | 130 | 38 |

¹ Idle no ports linked

² fans high all ports 100% traffic

The Non-PoE Extended Temperature Switches (X440-G2-24FX-GE4, X440-G2-12T8FX-GE4, X440-G2-24T-GE4)

| | Fixed Internal Power Supply |
|---------------------------|--------------------------------|
| Voltage Input Range | 100 - 240 VAC [†] |
| Line Frequency Range | 50 - 60 Hz +/- 5% |
| Power Supply Input Socket | IEC 320 C14 |
| Power Cord Input Plug | IEC 320 C13 |
| Operating Temperature | 0° C to 60° C Normal Operation |

The 12, 24, and 48 Port 10/100/1000 Models (Both PoE and Non-PoE)

| | Fixed Internal Power Supply |
|---------------------------|--------------------------------|
| Voltage Input Range | 100 - 240 VAC [†] |
| Line Frequency Range | 50 - 60 Hz +/- 5% |
| Power Supply Input Socket | IEC 320 C14 |
| Power Cord Input Plug | IEC 320 C13 |
| Operating Temperature | 0° C to 50° C Normal Operation |

[†] The power supplies will continue to operate +/- 10% of the rated input to accommodate temporary loss of input voltage regulation.

Power

| Switch Model | Power Supply Input Socket | Power Supply Input Socket | Power Supply Cord Gauge | Redundant Power Supply Input Socket |
|----------------------|---------------------------|---------------------------|--|-------------------------------------|
| X440-G2-12t-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | Coaxial Barrel Connector |
| X440-G2-24t-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-48t-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-12p-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-24p-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-48p-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 16AWG/1.25mm ² (100-125VAC), Min 18AWG/.75mm ² (200-240VAC) | 2x9 Terminal Block |
| X440-G2-24t-10GE4-DC | #6 Terminal Block | 23 | Min 14AWG/2.0mm ² | 2x7 Terminal Block |
| X440-G2-48t-10GE4-DC | #6 Terminal Block | 40 | Min 14AWG/2.0mm ² | 2x7 Terminal Block |
| X440-G2-24x-10GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-24fx-GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-12t8fx-GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |
| X440-G2-24t-GE4 | IEC 320 C14 | IEC 320 C13/C14 | Min 18AWG/0.75mm ² | 2x7 Terminal Block |

PoE Power Budget

| Switch Model | Power Supply Input Socket | Redundant Power Supply Input Socket |
|-------------------|---------------------------|--|
| X440-G2-12p-10GE4 | 200 W | 200 W – Redundant Power Only |
| X440-G2-24p-10GE4 | 380 W | 380 W – Redundant Power Only |
| X440-G2-48p-10GE4 | 740 W | 1440 W – Additive Power 740 W – Redundant Power |

Environmental

Environmental Specifications

- EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage
- EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation
- EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational
- EN/ETSI 300 753 (1997-10) - Acoustic Noise
- ASTM D3580 Random Vibration Unpackaged 1.5 G

Environmental Compliance

- EU RoHS - 2011/65/EU
- EU WEEE - 2012/19/EU
- China RoHS - SJ/T 11363-2006
- Taiwan RoHS CNS 15663(2013.7)

Operating Conditions

- Temp: 0° C to 50° C (32° F to 122° F) - all models
- Temp: 0° C to 60° C (32° F to 140° F) - extended temperature range models only (16539, 16540 and 16541)
- Humidity: 10% to 95% relative humidity, non-condensing
- Altitude: 0 to 3,000 meters (9,842 feet) - All Switch Models
- Shock (half sine): 30 m/s² (3 G), 11 ms, 6 shocks
- Random vibration: 3 to 500 Hz at 1.5 G rms

Packaging and Storing Specifications

- Temp: -40° C to 70° C (-40° F to 158° F)
- Humidity: 10% to 95% relative humidity, non-condensing
- Packaged Shock (half sine): 180 m/s² (18 G), 6 ms, 600 shocks
- Packaged Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G
- Packaged Random Vibration: 5 to 20 Hz at 1.0 ASD w/-3 dB/oct. from 20 to 200 Hz
- Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

Regulatory and Safety

North American ITE

- UL 60950-1 2nd edition A2:2014, Listed Device (U.S.)
- CSA 22.2 No. 60950-1 2nd edition 2014(Canada)
- Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
- CDRH Letter of Approval (US FDA Approval)

European ITE

- EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 2nd Ed.
- EN 60825-1:2007 / IEC 60825-1:2007 Class 1
- (Lasers Safety)
- 2014 / 35/ EU Low Voltage Directive

International ITE

- CB Report & Certificate per IEC 60950-1 : 2005+A1:2009+A2:2013 + National Differences
- AS/NZS 60950-1 (Australia /New Zealand)

EMI/EMC Standards

North American EMC for ITE

- FCC CFR 47 part 15 Class A (USA)
- ICES-003 Class A (Canada)

European EMC Standards

- EN 55032:2015 Class A
- EN 55024:2010
- EN 61000-3-2: 2014 (Harmonics)
- EN 61000-3-3: 2013 (Flicker)
- EN 300 386 v1.6.1 (EMC Telecommunications)
- 2014/30/EU EMC Directive

International EMC Certifications

- CISPR 32:2015, Class A (International Emissions)
- AS/NZS CISPR32:2015
- CISPR 24:2010 Class A (International Immunity)
- IEC 61000-4-2:2008/EN 61000-4-2:2009 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria B
- IEC 61000-4-3:2010/EN 61000-4-3:2006 +A1:2008 +A2:2010 Radiated Immunity 10V/m, Criteria A
- IEC 61000-4-4:2012. / EN 61000-4-4:2012 Transient Burst, 1 kV, Criteria A
- IEC 61000-4-5:2014 /EN 61000-4-5:2014 Surge, 1 kV L-L, 2 kV L-G, Level 3, Criteria B
- IEC 61000-4-6:2013/EN 61000-4-6:2014 Conducted Immunity, 0.15-80 MHz, 10Vrms, 80%AM (1kHz) Criteria A
- IEC/EN 61000-4-11:2004 Power Dips & Interruptions, >30%, 25 periods, Criteria C

Country Specific

- VCCI Class A (Japan Emissions)
- ACMA RCM (Australia Emissions)
- CCC Mark
- KCC Mark, EMC Approval (Korea)

Telecom Standards

- CE 2.0 Compliant

IEEE 802.3 Media Access Standards

- IEEE 802.3ab 1000BASE-T
- IEEE 802.3z 1000BASE-X
- IEEE 802.3ae 10GBASE-X
- IEEE 802.3at PoE-Plus

Fan and Acoustic Noise

| Switch Model | Acoustic Information | |
|------------------------|-------------------------|------------------------------|
| | Bystand Sound Pressure* | Declared Sound Power (LWAD)* |
| X440-G2-12t-10GE4 | 0 dB(A) Fan Off | 0 bels Fan Off |
| X440-G2-24t-10GE4 | 28.1 dB(A) | 4.3 bels |
| X440-G2-48t-10GE4 | 37.9 dB(A) | 5.4 bels |
| X440-G2-12p-10GE4 | 0 dB(A) Fan Off | 0 bels Fan Off |
| X440-G2-24p-10GE4 | 39.4 dB(A) | 5.5 bels |
| X440-G2-48p-10GE4 | 48.7 dB(A) | 6.4 bels |
| X440-G2-24t-10GE4-DC | 28.1 dB(A) | 4.3 bels |
| X440-G2-48t-10GE4-DC | 37.9 dB(A) | 5.4 bels |
| X440-G2-24x-10GE4 | 26.8 dB(A) | 4.0 bels |
| X440-G2-24fx-GE4 | 24.7 dB(A) | 3.9 bels |
| X440-G2-12t8fx-GE4 | 23.3 dB(A) | 4.0 bels |
| X440-G2-24t-GE4 | 28.1 dB(A) | 4.3 bels |

External Redundant Power Supplies For Non-PoE Switches

All X440-G2 series non-PoE switches ship with one fixed internal power supply. If redundancy is required, an external RPS can be attached to the switch.

| Model Number | Description |
|-----------------|--|
| RPS-90 | External redundant power supply Unit 90 Watts with cable for X440-G2-12t-10GE4 , Power cord ordered separately, order 10947 C5 to C14 Converter to utilize a C13 power cord. |
| STK-RPS-150PS | 150 watt non-PoE redundant power supply for A, B, C, X450-G2 and X440-G2 switches, power cord ordered separately. |
| STK-RPS-150CH2 | 2-Slot modular shelf for rack-mounting 150W redundant power supplies (STK-RPS-150PS). |
| STK-RPS-150CH8 | 8-Slot modular shelf for rack-mounting 150W redundant power supplies (STK-RPS-150PS). |
| RPS-150XT | External redundant power supply unit 150 Watts with cable - Extended Temperature Range from 0 to +60 degrees Celsius, power cord ordered separately. |
| STK-RPS-1005CH3 | 3-Slot modular shelf for rack-mounting 150W extended temperature redundant power supplies (RPS-150XT) or 1005W PoE+ redundant power supplies (STK-RPS-1005PS). |
| EPS-C2 | External Power System Chassis 2. Accepts up to three 750W AC PoE PSU 48V power supplies. Accepts up to 5 EPSCBL-2x7 or up to 1 EPS-CBL-2x9 cables. Ships with one EPS-CBL-2x7 cable. |
| EPS-CBL-2x7 | External Power System Cable (1M) that connects EPS-C2 to any X440 or X450-G2 non-PoE switch for providing redundant DC power. |
| 750W AC PSU | AC Power Supply module for EPS-C2 Chassis Redundant Power Supply, power cord ordered separately. |

External Redundant Power Supplies For PoE X440-G2 Switches

All X440-G2 series PoE switches ship with fixed internal power supplies.

| RPS Use Table | RPS-90 | STK-RPS-150PS | RPS-150XT | EPS-C2 | RPS-500P | STK-RPS-1005PS |
|-----------------------------|--------|---------------|-----------|--------|----------|----------------|
| 12t | X | | | | | |
| 24t, 24x, 48t, 24fx, 12t8fx | | X | X | X | X | |
| 12p and 24p | | | | X | X | |
| 48p | | | | | | X |

| RPS Model | Redundant Power Supply Output |
|----------------|--|
| RPS-90 | Coaxial Barrel Connector |
| STK-RPS-150PS | 1 terminal block of 2x7 pins - provides system power and up to 150 watts of power |
| RPS-150XT | 1 terminal block of 2x7 pins - provides system power and up to 150 watts of power |
| EPS-C2 | 1 terminal block of 2x9 pins - used for other Summit switches 5 terminal blocks of 2x7 pins - used for Summit X440-G2's |
| RPS-500p | 1 terminal block of 2x7 pins - provides system power and up to 380 watts of IEEE802.3at power |
| STK-RPS-1005PS | 1 terminal block of 2x9 pins - provides system power and up to 740 watts of IEEE802.3at power |

| RPS Model | Allowable PSU | Power Cord Input Plug/Socket | Power Cord Gauge |
|----------------|------------------------|------------------------------|--|
| RPS-90 | Not Applicable | IEC 320 C5/C14 | Min 18AWG/0.75mm ² |
| STK-RPS-150PS | Not Applicable | IEC 320 C13/C14 | Min 18AWG/0.75mm ² |
| RPS-150XT | Not Applicable | IEC 320 C13/C14 | Min 18AWG/0.75mm ² |
| EPS-C2 | Summit 750W PoE AC PSU | IEC 320 C13/C14 | Min 18AWG/0.75mm ² |
| RPS-500p | Not Applicable | IEC 320 C13/C14 | Min 18AWG/0.75mm ² |
| STK-RPS-1005PS | Not Applicable | IEC 320 C13/C16 | Min 16AWG/1.25mm ² (100-125VAC), Min 18AWG/.75mm ² (200-240VAC) |

| RPS Model | Weight | Dimensions |
|----------------|-------------------|---|
| RPS-90 | 0.73 lb (0.33 kg) | Height: 1.06 inches (2.69 cm) Width: 5.20 inches (13.21 cm) Depth: 2.25 inches (5.72 cm) |
| STK-RPS-150PS | 3.85 lb (1.75 kg) | Height: 2.04 inches (5.2 cm) Width: 7.7 inches (19.6 cm) Depth: 10.1 inches (25.7 cm) |
| RPS-150XT | 3.22 lb (1.46 kg) | Height: 1.77 inches (4.50 cm) Width: 6.07 inches (15.42 cm) Depth: 13.00 inches (33.02 cm) |
| EPS-C2 | 2.27 lb (1.03 kg) | Height: 1RU, 1.73 inches (4.4 cm) Width: 17.4 inches (44.1 cm) Depth: 15.1 inches (38.4 cm) |
| RPS-500p | 8.06 lb (3.66 kg) | Height: 1RU, 1.73 inches (4.4 cm) Width: 17.4 inches (44.1 cm) Depth: 7.9 inches (20.1 cm) |
| STK-RPS-1005PS | 4.63 lb (2.1kg) | Height: 1.77 inches (4.5 cm) Width: 6.07 inches (15.42 cm) Depth: 13.39 inches (34.0 cm) |

Ordering Notes

All X440-G2 switches ship with fixed fans and power supplies:

- All the X440-G2 switches support optional external redundant power supplies (RPS).

- The following three switch models that support OC to 60C are NOT upgradeable to 10GbE:

- X440-G2-24fx-GE4
- X440-G2-12t8fx-GE4
- X440-G2-24t-GE4

Ordering Information

| Part Number | Name | Description |
|--------------------------|-----------------------------------|---|
| 16530 | X440-G2-12t-10GE4 | X440-G2 12 10/100/1000BASE-T, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16531 | X440-G2-12p-10GE4 | X440-G2 12 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16531T | X440-G2-12p-10GE4-TAA | X440-G2 12 10/100/1000BASE-T POE+, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model |
| 16532 | X440-G2-24t-10GE4 | X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16532T | X440-G2-24t-10GE4-TAA | X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model |
| 16533 | X440-G2-24p-10GE4 | X440-G2 24 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16533T | X440-G2-24p-10GE4-TAA | X440-G2 24 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model |
| 16534 | X440-G2-48t-10GE4 | X440-G2 48 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16535 | X440-G2-48p-10GE4 | X440-G2 48 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16535T | X440-G2-48p-10GE4-TAA | X440-G2 48 10/100/1000BASE-T POE+, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS, TAA model |
| 16536 | X440-G2-24t-10GE4-DC | X440-G2 24 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed DC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16537 | X440-G2-48t-10GE4-DC | X440-G2 48 10/100/1000BASE-T, 4 SFP combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+ (2 combo/2 non-combo), 2 1GbE copper combo upgradeable to 10GbE, 1 Fixed DC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16538 | X440-G2-24x-10GE4 | X440-G2 24 unpopulated 1000BASE-X SFP (4 combo), 4 10/100/1000 combo, 4 1GbE unpopulated SFP upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license |
| 16538T | X440-G2-24x-10GE4-TAA | X440-G2 24 unpopulated 1000BASE-X SFP (4 combo), 4 10/100/1000 combo, 4 1GbE unpopulated SFP, upgradeable to 10GbE SFP+, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, TAA model |
| 16539 | X440-G2-24fx-GE4 | X440-G2 24 fixed 100BASE-FX LC connectors, 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation |
| 16540 | X440-G2-12t8fx-GE4 | X440-G2 12 10/100/1000BASE-T plus 8 fixed 100BASE-FX LC connectors, 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation |
| 16541 | X440-G2-24t-GE4 | X440-G2 24 fixed 10/100/1000BASE-TX , 4 1GBASE-X unpopulated SFP, 1 Fixed AC PSU, 1 RPS port, ExtremeXOS Edge license, 0°C to 60°C operation |
| Firmware Licenses | | |
| 16521 | X440 Adv. Edge License | ExtremeXOS Advanced Edge License for X440/X440-G2 series switches |
| 16522 | X440 OpenFlow Feature Pack | ExtremeXOS SDN - OpenFlow Feature Pack for X440/X440-G2 series switches |
| 16523 | X440 Multimedia(AVB) Feature Pack | ExtremeXOS Multimedia Service (Audio Video Bridging) Feature Pack for X440/X440-G2 series switches |
| 16778 | X440-G2 MACsec Feature Pack | MACsec Feature Pack for X440-G2 series switches. Enables MACsec when used with LRM/MACsec Adapter (10965) |
| 16542 | Dual 10GbE Upgrade License | License that converts the two non-stack 1GbE SFP ports to be 10GbE SFP+ |

Ordering Information (cont.)

| Part Number | Name | Description |
|---------------------------------------|--|---|
| Firmware Licenses (cont.) | | |
| 16543 | Quad 10GbE Upgrade License | License that converts four 1GbE SFP ports to be 10GbE SFP+ |
| 16546 | Quad 10GbE Lic from Dual 10GbE Lic | Software license that upgrades an already licensed X440-G2 Dual 10GbE switch to a Quad 10GbE switch |
| Accessories | | |
| 10948 | RPS-90 | External Redundant Power Supply Unit 90 Watts with cable , Power cord ordered separately |
| 10947 | C5 to C14 Converter | Power dongle for converting an IEC C5 plug to IEC C14 plug - enables the use of to utilize a C13 power cord |
| STK-RPS-150PS | 150W Non-PoE RPS | 150 watt non-PoE redundant power supply for A, B, C and X450-G2 switches |
| STK-RPS-150CH2 | 2-Slot Modular Shelf | 2-Slot Modular Shelf for rack mounting up to two 150 watt (STK-RPS-150PS) external redundant power supplies |
| STK-RPS-150CH8 | 8-Slot Modular Shelf | 8-Slot Modular Shelf for rack mounting up to eight 150 watt (STK-RPS-150PS) external redundant power supplies |
| 10932 | RPS-150 XT | External Redundant Power Supply Unit 150 Watts with cable - Extended Temperature Range from 0 to +60 degrees Celsius, Power cord ordered separately |
| 10923 | RPS-500p | External PoE+ Redundant Power Supply Unit 500 Watts with cable, Power cord ordered separately |
| STK-RPS-1005PS | 1005 W RPS | 1005 watt 802.3at PoE external redundant power supply for C5 PoE and X440-48p switches |
| STK-RPS-1005CH3 | 3-Slot Modular Shelf | 3-Slot Modular Shelf for rack mounting up to three of any combination of extended temperature 150 watt (10932 - RPS-150 XT) or STK-RPS-1005PS external redundant power supplies |
| 10936 | EPS-C2 | External Power System Chassis 2. Accepts up to three 750W AC PoE PSU 48V power supplies. Accepts up to 5 EPS-CBL-2x7 or up to 1 EPS-CBL-2x9 cables |
| 10939 | EPS-CBL-2x7 | External Power System Cable (1M with 2x7 pin) that connects EPS to any X440 or X450-G2 for providing redundant power |
| 10931 | 750W AC PSU | AC Power Supply module for EPS-C2 Chassis Redundant Power Supply |
| 10965 | LRM/MACsec Adapter | LRM/MACsec Adapter, includes two host cables for host switch connection, and USB cable for optional power connection. Requires MACsec license on host switch. |
| 10966 | 5-Unit Rack Mount Kit | Optional rack mount bracket for LRM/MACsec Adapter. Holds five units in 1RU |
| XN-2P-RMKIT-004 | Spare Rack Mount Kit | Spare Rack Mount Kit for X440-G2 24 and 48-port models |
| ExtremeCloud IQ Pilot Licenses | | |
| XIQ-PIL-S-C-EW | XIQ Pilot SAAS Subscription and EW support (1 device) | ExtremeCloud IQ Pilot SaaS Subscription and EW SaaS support for one (1) device |
| XIQ-PIL-S-C-PWP | XIQ Pilot SAAS Subscription and PWP support (1 device) | ExtremeCloud IQ Pilot SaaS Subscription and PWP SaaS support for one (1) device |

Warranty

The X440-G2 Series is covered under Extreme's Limited Warranty Express. For warranty details, visit:

<http://www.extremenetworks.com/go/warranty>

Power Cords

In support of the Extreme Networks Green initiatives, power cords can be ordered separately, but need to be specified at time of ordering. Please refer to

www.extremenetworks.com/product/powercords/

for details on power cord availability for this product.

Optics/Transceivers

For a list of the optics/transceivers supported on X440-G2 Series hardware, refer to our Extreme Optics Compatibility Tool at <https://optics.extremenetworks.com>.

Maintenance Services

Extreme's maintenance and support services with 100% in-sourced engineering experts and over 90% first-person resolution ensure efficient operations of your business-essential network. 24x7x365 phone support, advanced part replacement, and on-site support augment your staff with experienced resources that help you mitigate critical network issues fast. Visit [Extreme Maintenance Services](#) for more information.