



FortiAP™ Outdoor Series
Thin Wireless LAN Access Points



FortiAP Outdoor Series

FortiAP 112D, 222C and 224D

Thin Wireless LAN Access Points

FortiAP are thin access points, delivering secure, identity-driven WiFi access for your enterprise network, managed centrally by the integrated WLAN controller of any FortiGate® security appliance. With the integration of the wireless controller functionality into the market leading FortiGate appliance, Fortinet delivers a true Unified Access Layer. This enables you to easily manage wired and wireless security from a Single Pane of Glass management console and protects your network from the latest security threats.

Outdoor Enterprise WLAN Deployment

FortiAP outdoor WLAN access points are ruggedized products designed for installation in harsh physical environments. Outdoor FortiAPs can provide outdoor access to clients when deployed in AP mode, or they can be used as a wireless mesh client to enabling bridging or point-to-multipoint coverage for large outdoor areas. Some models are equipped with external antenna connectors to support the use of directional or panel antennas and dual-port models feature PoE pass-through to power IP CCTV cameras.

Key Features & Benefits

Advanced Security Protection	Wireless LAN security done right, from the leader in network security. Integrated Firewall, IPS, Application Control, and Web Filtering protect the wireless LAN from the latest security threats.
Integrated WIDS and Rogue AP Suppression	Protects the network from advanced wireless threats and satisfies PCI DSS compliance.
Deep Application Control	Fortinet goes above Wireless Multimedia Extensions (WME) by offering deep Layer 7 inspection to precisely control applications and bandwidth usage.
“Single Pane of Glass” Management Console	Unified management console simplifies operations, ensuring consistent and effective policy enforcement and compliance.

Highlights

- Supports latest 802.11ac technology with association rate of up to 1.3 Gbps.
- Leverage existing FortiGate or FortiWiFi platforms as controllers for low TCO.
- Integration with FortiManager and FortiAnalyzer for centralized management and reporting.
- Fast Roaming for uninterrupted data access.
- Automatic Radio Resource Provisioning (ARRP) for optimized throughput.
- Layer 7 application control prioritizes business traffic.
- Rogue AP detection and mitigation to satisfy PCI DSS compliance.



HARDWARE



FortiAP 112D



FortiAP 222C



FortiAP 224D

FortiAP 112D

The FortiAP 112D is an entry-level 802.11n outdoor AP, designed for outdoor deployments with a low client density. The AP is powered by PoE, but also features a spare Ethernet port supporting PoE-PS, which can be used to both bridge and power an outdoor IP CCTV camera, such as Fortinet's FortiCam. Just like all FortiAP products, this versatile AP can be configured to operate in AP mode, Mesh mode, Bridge Mode, or as a remote AP if required.

FortiAP 222C

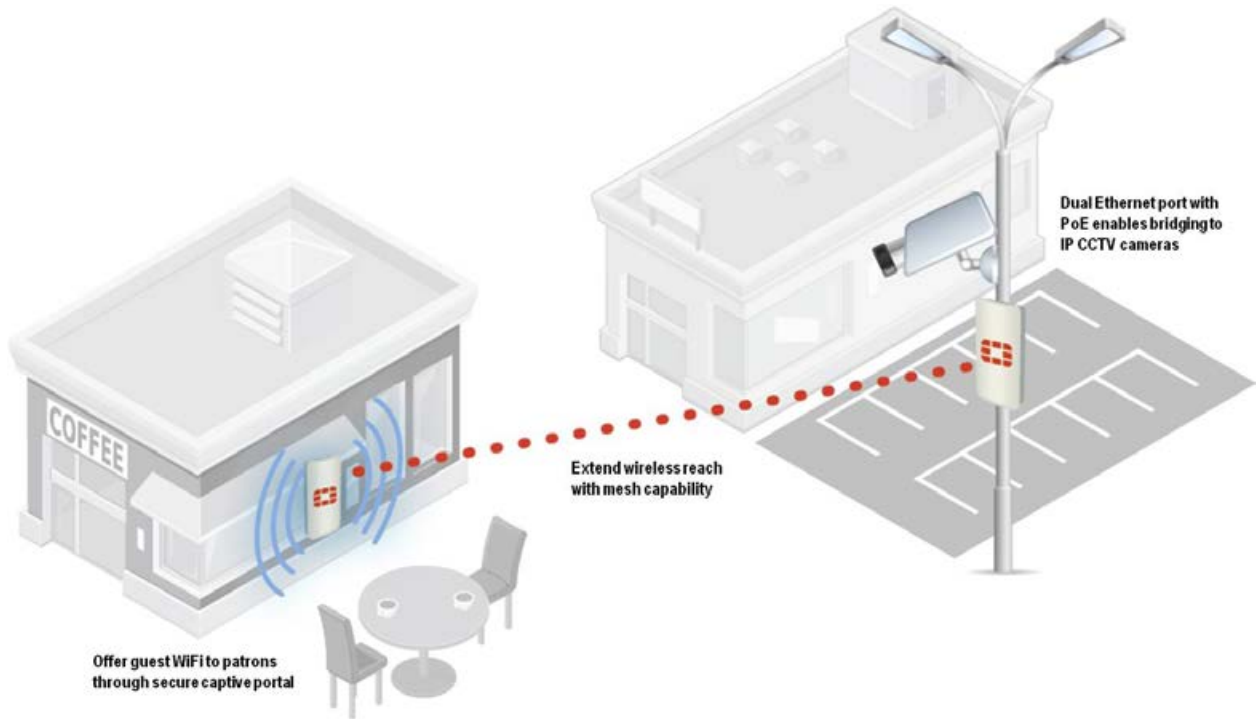
The FortiAP 222C is a high-performance dual-band 2x2 MIMO 802.11ac technology AP, supporting 80 MHz channel width, to achieve a 280% throughput improvement over an 802.11n equivalent. Designed in a ruggedized IP67-rated enclosure and capable of withstanding extended temperature ranges, this AP is suitable for deployment in the most harsh conditions, like oil rigs, utility substations and outdoor stadiums. The N-type antenna connectors also make this AP suitable for use with high-quality external antennas for long-distance and mission-critical bridging or mesh deployments.

FortiAP 224D

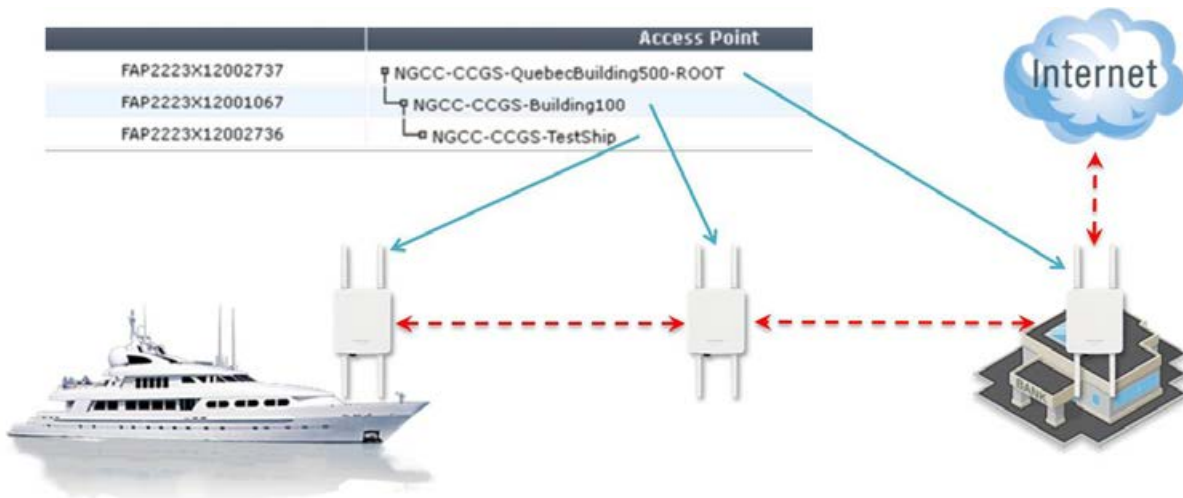
The FortiAP 224D is an 802.11n outdoor AP designed for medium density outdoor applications, like municipal WiFi or outdoor school environments. The IP66-rated enclosure protects the AP from the normal weather conditions you would expect outdoors and the RP-SMA antenna connections support the connection of external directional or panel antennas for extended coverage in challenging locations.

DEPLOYMENT

Outdoor Mesh and PoE Pass-Through Deployment

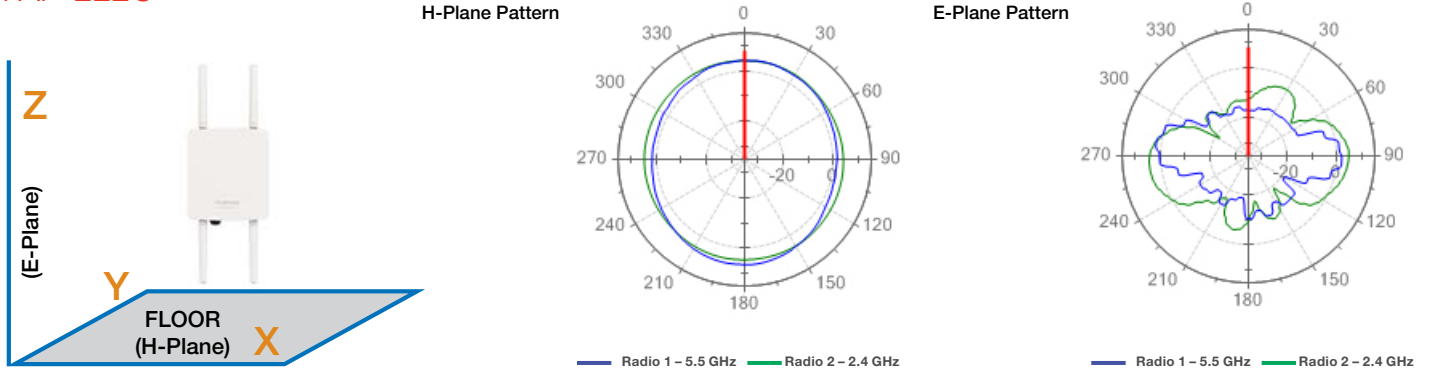


Outdoor Point-to-Point Bridging or Multipoint Mesh Deployment



ANTENNA RADIATION PATTERNS

FAP-222C

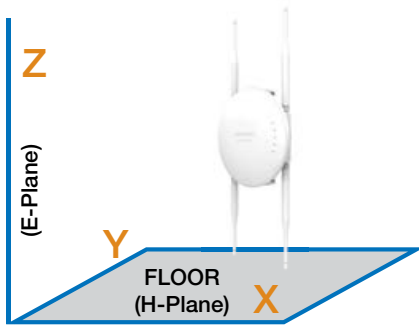


RF RX/TX PERFORMANCE TABLE

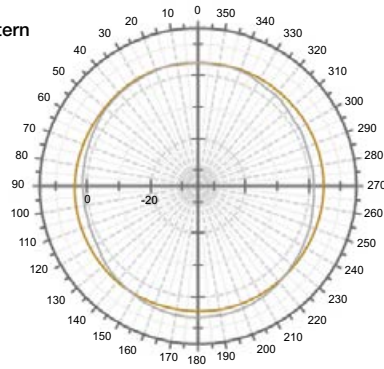
FORTIAP 222C				
RADIO 1 — 5 GHz		RADIO 2 — 2.4 GHz		
Operating Frequency	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
6 Mbps	24	-93	27	-92
54 Mbps	20	-77	25	-75
802.11n HT20				
MCS 0/8	24	-93	27	-91
MCS 1/9	24	-91	27	-89
MCS 2/10	24	-87	27	-88
MCS 3/11	23	-84	27	-85
MCS 4/12	23	-81	26	-81
MCS 5/13	21	-77	25	-78
MCS 6/14	20	-76	25	-76
MCS 7/15	20	-74	24	-73
802.11n HT40				
MCS 0/8	24	-89	27	-86
MCS 1/9	24	-86	27	-87
MCS 2/10	24	-84	27	-86
MCS 3/11	24	-81	27	-83
MCS 4/12	24	-78	26	-79
MCS 5/13	22	-76	24	-77
MCS 6/14	20	-75	24	-72
MCS 7/15	20	-73	24	-71
802.11 ac HT80				
MCS 0	24	-87	—	—
MCS 1	24	-85	—	—
MCS 2	24	-83	—	—
MCS 3	24	-79	—	—
MCS 4	24	-77	—	—
MCS 5	22	-76	—	—
MCS 6	21	-75	—	—
MCS 7	20	-73	—	—
MCS 8	18	-65	—	—
MCS 9	17	-61	—	—

ANTENNA RADIATION PATTERNS

FAP-224D

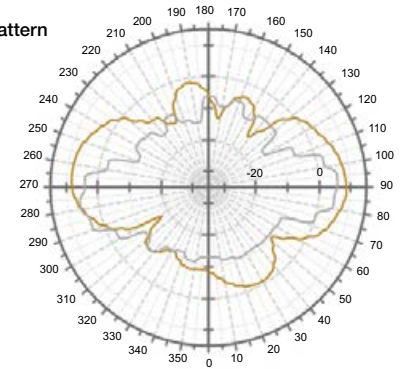


H-Plane Pattern



Radio 1 – 5.5 GHz Radio 2 – 2.4 GHz

E-Plane Pattern



Radio 1 – 5.5 GHz Radio 2 – 2.4 GHz

RF RX/TX PERFORMANCE TABLE

FORTIAP 224D				
RADIO 1 — 5 GHz		RADIO 2 — 2.4 GHz		
802.11 a/g	Tx Power (dBm)	Rx Sensitivity (dBm)	Tx Power (dBm)	Rx Sensitivity (dBm)
6Mbps	20	-87	20	-93
9Mbps	19	-85	20	-91
12Mbps	19	-83	20	-88
18Mbps	19	-81	20	-85
24Mbps	19	-78	20	-80
36Mbps	18	-77	19	-77
48Mbps	18	-76	19	-74
54Mbps	17	-75	18	-72
802.11n HT20				
MSC 0/8	20	-86	20	-86
MSC 1/9	19	-83	20	-83
MSC 2/10	19	-81	20	-81
MSC 3/11	19	-78	20	-78
MSC 4/12	19	-76	20	-76
MSC 5/13	18	-74	19	-72
MSC 6/14	18	-73	19	-71
MSC 7/15	17	-72	18	-70
802.11n HT40				
MSC 0/8	20	-83	20	-83
MSC 1/9	19	-80	20	-80
MSC 2/10	19	-78	20	-78
MSC 3/11	19	-75	20	-75
MSC 4/12	19	-73	20	-74
MSC 5/13	18	-72	19	-73
MSC 6/14	18	-70	19	-72
MSC 7/15	17	-69	18	-70

SPECIFICATIONS

	FORTIAP 112D	FORTIAP 224D	FORTIAP 222C
Hardware			
Hardware Type	Outdoor IP55 rated	Outdoor IP66 rated	Outdoor IP67 rated, status LEDs, gore vent for pressure equalization
Number of Radios	1	2	2
Number of Antennas	1 internal	4 external RP-SMA	4 external N-Type
Peak Antenna Gain	6 dBi for 2.4 GHz, 6 dBi for 5 GHz	5 dBi for 2.4 GHz, 5 dBi for 5 GHz	3.5 dBi for 2.4 GHz, 6 dBi for 5 GHz
Frequency Bands (GHz) *	2.400–2.4835	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850	2.400–2.4835, 5.150–5.250, 5.250–5.350, 5.470–5.725, 5.725–5.850
Frequency of Radio 1	2.4 GHz b/g/n or 5 GHz a/n	5 GHz a/n	5 GHz a/n/ac
Frequency of Radio 2	–	2.4 GHz b/g/n	2.4 GHz b/g/n
Throughput	Up to 150 Mbps	Radio 1: Up to 300 Mbps, Radio 2: Up to 300 Mbps	Radio 1: Up to 867 Mbps, Radio 2: Up to 300 Mbps
Tx/Rx Streams	1x1 MIMO with 1 spatial stream	2x2 MIMO 2 spatial stream	2x2 MIMO with 2 spatial streams
Ethernet Ports	2x FE RJ45 ports with PoE pass-through. (one PoE-PD, one PoE-PS)	1x GE RJ45	1x GE RJ45
USB Port	–	–	–
Serial Console Port	–	–	–
Power over Ethernet (PoE)	IEEE 802.3af (PoE Passthrough requires 802.3at or included PoE injector)	IEEE 802.3af	IEEE 802.3at or included PoE injector
WME Multimedia Extensions	Yes (4 priority queues for voice, video, data and background traffic)	Yes (4 priority queues for voice, video, data and background traffic)	Yes (4 priority queues for voice, video, data and background traffic)
Simultaneous SSIDs	8 (7 if background scanning enabled)	16 (14 if background scanning enabled)	16 (14 if background scanning enabled)
EAP Type(s)	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST	EAP-TLS, EAP-TTLS/MSCHAPv2, EAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC EAP-SIM, EAP-AKA, EAP-FAST
User/Device Authentication	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist	WPA™ and WPA2™ with 802.1x or Preshared key, WEP and Web Captive Portal, MAC blacklist & whitelist
Maximum Tx Power	18 dBm (2 GHz), 16 dBm (5 GHz) *	20 dBm (50 mW) *	26 dBm (398 mW) *
Physical Security	Concrete Pole Mount	Concrete and pole mount	Concrete and pole mount
Mean Time Between Failures	> 10 years	> 10 years	> 7 years
IEEE Specifications	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af	802.11a, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11j, 802.11n, 802.1x, 802.3af, 802.11ac
802.11ac 80MHz Channel	–	–	Yes
802.11n Features	–	20 MHz and 40MHz High-Throughput (HT) Support	20 MHz and 40 MHz High-Throughput (HT) Support
	–	Increased maximum frame transmission by incorporating A-MPDU and A-MSDU Packet Aggregation	Increased maximum frame transmission by incorporating A-MPDU and A-MSDU Packet Aggregation
	–	Conserve power via Dynamic MIMO power save	Conserve power via Dynamic MIMO power save
Advanced 802.11n to enhance rate-over-range including:	–	Low-density parity check (LDPC) encoding	Low-density parity check (LDPC) encoding
	–	Maximum likelihood demodulation (MLD)	Maximum likelihood demodulation (MLD)
	–	Transmit beamforming (TxBF)	–
	–	Maximum Ratio Combining (MRC) for improved receiver	Maximum Ratio Combining (MRC) for improved receiver
Mounting Options	Wall or pole	Wall or pole	Wall or pole
Included Accessories	30 Watt PoE injector with AC power adapter, wall mount kit, and pole mount kit	PoE injector with AC power adapter, pole mount kit, wall mount kit, grounding cable and 4x dipole antennas	PoE injector with AC power adapter, pole mount kit, wall mount kit, grounding cable, surge protector, 4x dipole antennas
FortiPresence Capable	Yes	Yes	Yes
Wireless Monitoring Capabilities			
Frequencies scanned	2.4 and 5 GHz	2.4 and 5 GHz	2.4 and 5 GHz
Background scan with client access on 2.4 and 5 GHz	–	Yes	Yes
Full-time scan as dedicated monitor	Yes	Yes	Yes
Dimensions			
Length x Width x Height	10.5 x 5.7 x 1.7 inches (267 x 145 x 44 mm)	6.9 x 6.9 x 1.9 inches (176 x 176 x 47 mm)	9.8 x 8.7 x 2.1 inches (249 x 220 x 53 mm)
Weight	1.48 lbs (0.675 kg)	0.77 lb (0.35 kg)	3.68 lbs (1.67 kg)
Package (shipping) Weight	2.72 lbs (1.235 kg)	1.33 lb (0.6 kg)	9.1 lbs (4.31 kg)

SPECIFICATIONS

	FORTIAP 112D	FORTIAP 224D	FORTIAP 222C
Environment			
Power Supply	Proprietary PoE Injector Adapter Input: 100–240V AC, 50–60 Hz	Adapter Input: 100–240V, 50/60Hz, 0.4A Output: 12V DC, 1.25A	Proprietary PoE Injector Adapter Input: 100–240V AC, 50–60 Hz
Power Consumption (Average)	7.21 W (22.61 W when using PoE Passthrough)	6.78 W	16 W
Power Consumption (Maximum)	7.88 W (23.28 W when using PoE Passthrough)	11.76 W	18.4 W
Humidity	10–90% non condensing	10–90% non condensing	5–90% non-condensing
Operating Temperature	-4–140°F (-20–60°C)	23–110°F (-5–45°C)	-40–140°F (-40–60°C)
Storage Temperature	-40–176°F (-40–80°C)	-4–58°F (-20–70°C)	-40–158°F (-40–70°C)
Directives	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS	Low Voltage Directive • RoHS
Certifications			
WiFi Alliance Certified	–	Yes	Yes
Warranty			
Limited Lifetime Warranty	No	No	No

* Frequency selection and power may be restricted to abide by regional regulatory compliance laws.

ORDER INFORMATION

Product	SKU	Description
FortiAP 112D	FAP-112D	Outdoor/Indoor wireless AP — 2x FE RJ45 ports with PoE+ PD pass-through, single radio (802.11 a/b/g/n, 1x1 MIMO), Integrated wall mount, Proprietary PoE+ injector with AC power adapter included.
	FC-10-P0113-311-02-DD	8x5 Enhanced FortiCare
	FC-10-P0113-247-02-DD	24x7 Comprehensive FortiCare
	SP-FAP222B-PA	Proprietary PoE injector with AC power adapter for FortiAP 112D
FortiAP 224D	FAP-224D	Outdoor wireless AP — 1x GE RJ45 port, dual radio (802.11 b/g/n and 802.11 a/n, 2x2 MIMO), IP66 rated, external antennas, pole/wall mount kit included, 802.3af PoE injector with AC power adapter included.
	FC-10-P0227-311-02-DD	8x5 Enhanced FortiCare
	FC-10-P0227-247-02-DD	24x7 Comprehensive FortiCare
	SP-FAP221B-PA	AC Power Adapter for FAP-224D
FortiAP 222C	FAP-222C	Outdoor wireless AP — 1x GE RJ45 port, dual radio (802.11 a/n/ac and 802.11 b/g/n, 2x2 MIMO), external antennas, Ceiling/wall mount kit included, Proprietary PoE injector with AC power adapter included.
	FC-10-P0226-311-02-DD	8x5 Enhanced FortiCare
	FC-10-P0226-247-02-DD	24x7 Comprehensive FortiCare
	SP-FAP222B-PA	Proprietary PoE injector with AC power adapter for FortiAP 222C
FortiAP-FPL	FAP-FPL-PRO	FortiPlanner Wireless AP Deployment Planning Utility — Pro upgrade license unlocks FortiPlanner Lite (free version) to support more than 50 Access Points and includes site survey tool. Requires Windows 7.

REGION/COUNTRY SKU SUFFIX*

Americas-FCC	Europe ETSI	International	Japan	Korea	Non-FFCA	Singapore	Taiwan	World 2.4G
-A	-E	-I	-J	-K	-N	-S	-T	-W

* For the complete list of countries and regions, refer to <http://www.fortinet.com/wireless>.



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