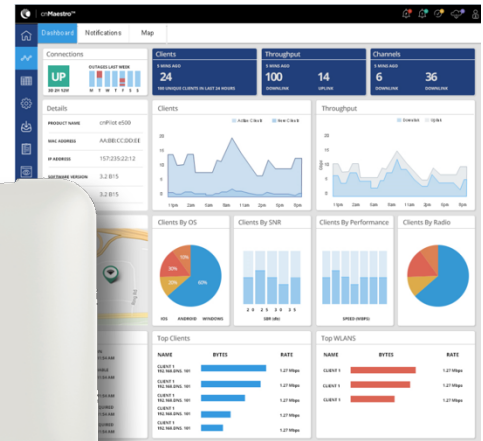


# cnPilot™ E410 Indoor

## 802.11ac wave 2 dual band 2x2 Indoor access point

The compact low profile 802.11ac Wave 2 Multi-user MIMO (MU-MIMO) beamforming, high speed E410 Enterprise access point future proofs your Indoor access point deployments and is perfect for Schools, Indoor public spaces, Malls, Hotels and Resorts (Hospitality), Coffee shops, Multi-dwelling units (MDUs) or just about any place indoor that needs reliable high performing access points



### CONTROLLER MANAGED + AUTONOMOUS

Managed by Cambium's cnMaestro™ cloud controller or On-premises controller, the cnPilot E410 management includes:

- Zero touch onboarding • Inventory tracking • Monitoring
- Mass Configuration • Dashboard views with Alarms • Mass upgrade • Troubleshooting • Hierarchical device organization

### CONTROLLER-LESS ROAMING. POWERFUL SIMPLICITY

The E410 supports seamless roaming for up to 1,000 clients without needing a controller in the network! Hotspot portal hosting on the AP itself offers controller-less simplicity.

### MONETIZE: VOUCHERS. SOCIAL LOGIN

Monetize your Wi-Fi service: cnMaestro's **Guest access** feature supports splash page hosting, social login and payment gateway. All built-in power packed features available right on the controller! These features along with the ability to create time, rate and volume limited traffic profiles along with vouchers for temporary guest access makes the E410 ideal for Hotels, Coffee shops, Campgrounds, and Office guest Wi-Fi.

### SERVICE AWARE WLANS. BETTER USER EXPERIENCE

Nothing is more frustrating than connecting to an Access point, but not getting to the Internet! When connection to a critical resource such as an external Gateway or AAA is down, the E410 can turn off the impacted SSIDs enabling client devices to select a different working neighboring Access point.

### INDOOR/OUTDOOR WI-FI MESH. FLEXIBILITY

Indoor meshing across multiple E410s or Indoor/Outdoor meshing across the Indoor E410 and the Outdoor E500 offers a convenient way to easily expand Wi-Fi coverage without wires.

### COVERAGE, CAPACITY. SPEED

The plenum rated E410, packs a max transmit power of 25 dBm, and is DFS certified to make use of additional reserved 5GHz DFS channels, offering more flexibility than ever for both coverage and capacity. Throughput management via Airtime fairness, increased performance by Automatic channel scanning (ACS), and higher client device speeds from Band steering ensure your network can adapt to the dynamics of ever changing client behaviors.

### HIGH DENSITY, HIGHLY AVAILABLE

A capacity of 256 max concurrent client associations, and 16 SSIDs, along with dual on-board Active/Standby memory banks ensure the E410 combines high density with high availability.

### LICENSE FREE HIGH PERFORMANCE. ONE LOW PRICE.

The 802.11ac wave 2 E410 comes with a free controller, and no AP management license fees. No hidden charges. Affordable.

## SPECIFICATIONS

### ACCESS POINT SPECIFICATIONS

Standards	IEEE 802.11a/b/g/n/ac Wave 2 Others: 802.11 h/d/r/u/w/
MIMO Streams	2x2 MIMO streams.
Range	180 m (650 Ft)
Concurrent Clients	256
Max Data Rates	1.3 Gbps (1,267 Mbps)
SSID	16 SSIDs across 2 radios
Antenna gain	4.55 dBi (2.4 GHz)/4.25 dBi (5 GHz)
Multi-Hop Mesh	Yes. Supported on Indoor & Outdoor access points. Mesh auto-recovery supported
Polarization	Dual-linear
Antenna Coverage	Omni (360°)

Ethernet Ports	One (1) x 1 Gigabit Ethernet (10/100/1000 Mbps)
Frequency bands	2.4 GHz: 2400-2484 MHz 5 GHz: 5150-5850 MHz with DFS band support
Power Supply	Standard 802.3af injector (supplied) or any PoE switch
Power Consumed	13W (max)
Dimensions	170 x 170 x 41 mm (17 x 17 x 4.1 cm)
Weight	384grams (0.384kg)
Temperature	0°C to +50°C
LED	Single LED window with tri color (Amber, Blue, Green) display
Max TX Power	+25 dBm
Physical Lock	Kensington key hole

### WI-FI FEATURES

Controller modes	<ul style="list-style-type: none"> <li>Autonomous Controller-less operations (E.g.: roaming)</li> <li>Cloud Managed</li> <li>On-premise virtualized controller</li> </ul>
Secure WLAN	WPA-TKIP, WPA2 AES, 802.1x 802.11w (Protected Management Frames)
Hotspot 2.0/Passpoint	Yes
Captive Portal/ Guest Access	<ul style="list-style-type: none"> <li>cnMaestro Controller</li> <li>Stand-alone AP based</li> <li>Redirection to external RADIUS Server</li> <li>Active Directory Integration</li> </ul>
Authentication	Secure Web page, RADIUS based 802.1x including EAP-SIM/AKA, EAP-PEAP, EAP-TTLS, and EAP-TLS MAC authentication (local database or External RADIUS server)
Accounting	Yes. Supports RADIUS based accounting to multiple AAAs
Scheduled SSID	Turn SSID ON/OFF on a daily/weekly/time of day basis
VLAN	Dynamic VLAN assignment from RADIUS server. VLAN per SSID per user, VLAN load balancing
Data Limiting	Dynamic rate limiting of client traffic per SSID & per client
Subscriber QoS	WMM
Client Isolation	Yes
Controller-Less Fast Roaming	Yes. 802.11r, Opportunistic Key Caching supports Enhanced roaming Disconnect for sticky clients
Airtime Fairness	Yes
Meshing	Multi-hop meshing supported (3)

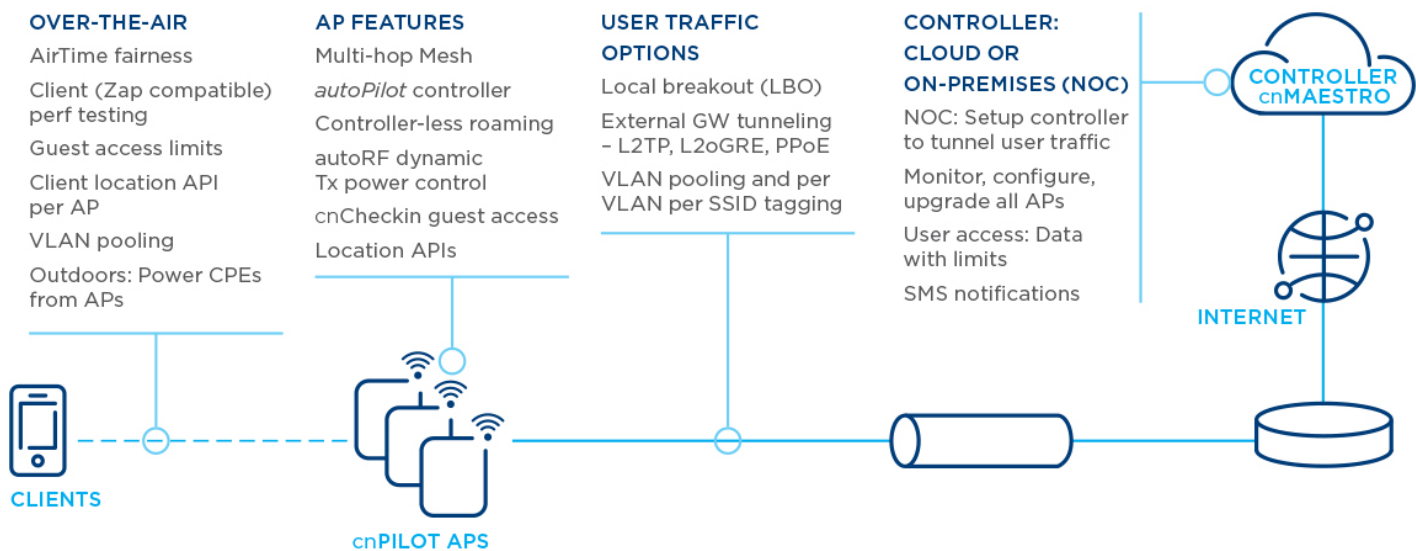
ACS: Automatic Channel Selection	Yes. Set at start or run periodically
NAT	Yes
DHCP Server	Yes
Firewall	Yes. NAT logging
ACL, DNS-ACL	Yes. L2, L3 or DNS based access control
Band Steering Band Balancing	Yes
Airtime Fairness	Yes
Tunneling	<ul style="list-style-type: none"> <li>L2TP</li> <li>L2oGRE</li> <li>PPPoE</li> </ul>
Tools	<ul style="list-style-type: none"> <li>Packet capture</li> <li>Wireless Sniffer</li> <li>IP connectivity</li> <li>Tech support (logs)</li> <li>Wi-Fi analyzer</li> </ul>
Services	NTP server config Syslog servers SNMP traps support DNS proxy cnPilot's critical resource service awareness feature reacts to the health of an external Gateway or AAA and turns SSID ON/OFF
APIs	Presence Locationing API
Certifications	FCC, ETSI, CE EN 60601-1-2 (Medical EMC) UL2043 Plenum rated

### cnMAESTRO WI-FI CONTROLLER

Cloud & On-Premises	Available in the Cloud or as a downloadable VMware® image (On-premises)
Common Manager	Manage both cnPilot and Cambium's ePMP and PMP 450 radios
Troubleshooting	Single screen wireless view, showing Wireless backhaul, Access point & clients
Frictionless On-Boarding	Secure large scale bulk onboarding Zero touch bulk configuration and provisioning
Device Inventory	Inventory tracking and reporting
Monitoring	Insightful status monitoring; rich visibility to device lifecycle Alarms and events management – Critical/Major/Minor Statistics graphs and table display Alarm traffic light display

Key Stats Monitoring	7 day historic stats
Portal Hosting	Setup Hotspot portals segmented by SSIDs
Voucher	Time and Rate limited Guest access portals with Vouchers for 1,000 client devices
Social Login	Facebook, Google
Site Grouping	Group sets access points for convenient management
Client Insight	Shows client history with aggregate client manufacturer views
Multiple Admins	Multiple admin provisioning per account
Software Upgrade	Ability to upgrade multiple WiFi devices at a time

**THE ADAPTIVE CNPILOT NETWORK**



**OVER-THE-AIR**

- AirTime fairness
- Client (Zap compatible) perf testing
- Guest access limits
- Client location API per AP
- VLAN pooling
- Outdoors: Power CPEs from APs

**AP FEATURES**

- Multi-hop Mesh
- autoPilot controller
- Controller-less roaming
- autoRF dynamic
- Tx power control
- cnCheckin guest access
- Location APIs

**USER TRAFFIC OPTIONS**

- Local breakout (LBO)
- External GW tunneling - L2TP, L2oGRE, PPOE
- VLAN pooling and per VLAN per SSID tagging

**CONTROLLER: CLOUD OR ON-PREMISES (NOC)**

- NOC: Setup controller to tunnel user traffic
- Monitor, configure, upgrade all APs
- User access: Data with limits
- SMS notifications

Ordering Information: The cnPilot E410 Indoor 802.11ac WAVE 2 Access point. Available in models with and without PoE Injectors

Regulatory Model Number (common to all SKUs): cnPilot™ E410 Indoor

Sales part #s (examples)	Description
PL-E410PUSA-US	E410 with PoE injector for USA. Similarly PL-E410PEU-EU: ETSI (EU) for EU & PL-E410PXXA-RW: Rest of the world (ROW) certified versions
PL-E410X00A-ROW	E410 No PoE injector for EU

Other country specific SKUs are also available Please contact an authorized Cambium cnPilot distributor for more details or see Cambium Partner portal for list of SKUs

Discover more information on cnPilot at: <http://community.cambiumnetworks.com/>

# cnPilot e510 Outdoor Omni

Gigabit IP67 802.11ac wave 2  
Outdoor Access Point



Enterprise grade 802.11 Wi-Fi access in outdoor high density networks. Ideal for 360 degree coverage in Public Wi-Fi, Hospitality, Education campus, Industrial and Enterprise.

## ENTERPRISE GRADE WI-FI

Part of the cnPilot family of Enterprise grade 802.11 access points, the e510 is RF aware and self-optimizing for the RF environment. Ideal for deploying Outdoor Wi-Fi as a public access service, or part of an extended enterprise network providing seamless roaming from indoor to outdoor without requiring controller interaction. Integrated troubleshooting tools provide remote access for packet capture, client statistics, operational and RF statistics, and RF scanning for interference, channel utilization, and noise floor scan.

## ENTERPRISE GRADE MESH

E510 features multi-hop MESH that puts flexibility into the hands of the network admin. Select the band to use for MESH (either 2.4 GHz or 5 GHz); and set whether clients can access the network on one or both bands. Auto-MESH discovers a Cambium MESH link with policy based secure access. Once adopted, cnMaestro provides the correct policy based provisioning rules for the access point.

## EXTENDED ENVIRONMENTAL SUPPORT

The e510 is shock and vibration certified when used with the rail mounting system. Ideal for industrial applications and manufacturing. Integrated cold start heater ensure operation in harsh environments.

## cnMAESTRO™ SINGLE PANE OF GLASS

All Cambium Networks enterprise 802.11 and broadband point to point and point to multi-point access points are supported by the cnMaestro controller.

## HIGH PERFORMANCE, OUTDOOR AP

- Quad core CPU
- 802.11ac wave2, multi-user MIMO, beam steering, VHT rates, airtime fairness
- 360 degree antenna coverage
- UV rated IP67 enclosure
- Shock and Vibration certified
- Operating temp: -40C - +65C
- Cold start heater
- Extended ESD and surge protection
- Industrial grade components
- LTE filter for unimpeded operation
- Light weight – less than 1100g

## cnMaestro Single Cloud Dashboard

- Resilient Cloud Controller for broadband, Ethernet, Wi-Fi
- Services delivery platform
- Managed service provider flows
- Private label branding
- Help desk troubleshooting tools
- True Zero-touch provisioning and zero-touch network RF automation
- Cloud delivered guest access portal with custom pages, vouchers, social login and paid services
- Device inventory reports
- Key metrics Dashboard
- Detailed reports
- Map location

# SPECIFICATIONS

## 802.11ac CAPABILITIES

802.11a/b/g/n/AC wave 2, 2x2:2:2, MIMO, MU-MIMO, VHT MCS rates, 16/64/256-QAM, HT20/40/80 MHz, Transmit Beam steering, Airtime Fairness. Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC, MIMO Power Save, MRC. BPSK, QPSK, CCK, DSSS, OFDM. IEEE 802.11d/e/h/i/k/r/u/v/w

## ACCESS POINT SPECIFICATIONS

<b>US-FCC</b> 2400 – 2484 MHz, 5150 – 5250 MHz, 5725 – 5850 MHz	
<b>Industry Canada (ISED)</b> 2400 – 2484 MHz, 5725 – 5850 MHz	
<b>EU-ETSI</b> 2400 – 2484 MHz, 5470 – 5725 MHz (DFS)	
<b>ROW (individual country limits may apply)</b> 2400 – 2500 MHz, 5150 – 5850 MHz	
Max Phy Rate	2.4 GHz radio: 400 Mbps 5 GHz radio: 867 Mbps
Ethernet Ports	One IEEE Gigabit Ethernet auto sensing
Antenna	Integrated dual polarized, omni direction 8dBi (2.4GHz) 9dBi (5GHz)
Max EIRP	2.4 GHz: 32 dBm 5 GHz: 34.5 dBm EIRP may be limited by individual country regulation

Power	802.3af or 802.3at Powered Device Max 12.95w (802.3af)
Physical Environmental	IP67 rated housing Wind Resistance 224 kph 320mm x 215mm x 65mm 1100g Kensington lock slot Two multi-color status LEDs -40C - + 65C ambient op temp -40C - + 70C storage temperature 95% RH non-condensing Overvoltage protection, category 1
LTE Filter	LTE bands 38, 40
Certifications	WiFi Alliance 80211a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC60950, EN50121-1 Railway EMC EN50121-4 Railway Immunity IEC 61373 Railway Shock & Vibration

## WLAN AND NETWORK SPECIFICATIONS

Controller modes	Controller-less standalone AutoPilot heterogeneous network Cloud managed cnMaestro On-premises cnMaestro VM
WLAN	256 clients, 16 SSIDs WPA-TKIP, WPA2 AES, 802.1x 802.11w PMF WPA2 (802.11i), WPA2 Enterprise (802.1x/EAP), WPA PSK, Open
Captive Portal	Hosted on cnMaestro Controller On-AP hosted guest portal Redirect to HTTP/RADIUS Server DNS logging
Authentication	Hotspot 2.0/Passpoint 2.0 802.1x EAP-SIM/AKA, EAP-PEAP, EAP-TTLS, EAP-TLS MAC authentication to local database or external RADIUS
Accounting	RADIUS accounting, multiple AAA
Scheduled SSID	On/off by day, week, time of day
Guest Access	Vouchers, Rate Limit, Splash page hosted on AP or cnMaestro Client isolation per SSID, per network
Data Limit	Client rate limit per SSID
QoS	WMM

Fast Roaming	802.11r, OKC, Enhanced roaming
Mesh	Multi-hop, either band
Channel Selection	autoTune: Manual, or automatic Selectable off-channel scan
Automatic Tx Power	AutoRF: controller-less transmit power
Network	NAT, NAT logging firewall, DHCP server L2, L3 or DNS based access control VLAN Pooling, RADIUS attribute VID VLAN per SSID per user
Band Steer Load Balance	Yes
Tunnel	L2TP, L2oGRE, PPPoE
Tools	Remote Packet capture, Channel/noise/interference analyzer, auto logging, ZapD performance test tool, rogue AP detection
Services	NTP, Syslog, SNMP traps, DNS proxy, auto-off on WAN failure
APIs	RESTful management and statistics API Presence location APIs

## SPECIFICATIONS

### ORDERING INFORMATION

PL-E510X00A-US	cnPilot e510 Outdoor AP (FCC) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-CA	cnPilot e510 Outdoor AP (IC) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-EU	cnPilot e510 Outdoor AP (EU) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-RW	cnPilot e510 Outdoor AP (ROW) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510PUSA-US	cnPilot e510 Outdoor AP (FCC, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUSA-CA	cnPilot e510 Outdoor AP (IC, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PEUA-EU	cnPilot e510 Outdoor AP (EU, EU cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PXXA-RW	cnPilot e510 Outdoor AP (ROW, No cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PEUA-RW	cnPilot e510 Outdoor AP (ROW, EU cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUKA-EU	cnPilot e510 Outdoor AP (EU, UK cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUKA-RW	cnPilot e510 Outdoor AP (ROW, UK cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUSA-RW	cnPilot e510 Outdoor AP (ROW, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PINA-RW	cnPilot e510 Outdoor AP (ROW, India cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PCNA-RW	cnPilot e510 Outdoor AP (ROW, China cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PANA-RW	cnPilot e510 Outdoor AP (ROW, AUS/NZ cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PBRA-RW	cnPilot e510 Outdoor AP (ROW, BR cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PARA-RW	cnPilot e510 Outdoor AP (ROW, AR cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
AX-E510RBKT-WW	Shock Mount for e510

*Not all SKUs are available at first release. Consult Cambium distributor for country availability*

## ABOUT CAMBIUM NETWORKS

Cambium Networks is a leading global provider of wireless connectivity solutions that strengthen connections between people, places and things. Specializing in providing an end-to-end wireless fabric of reliable, scalable, secure, cloud-managed platforms that perform under demanding conditions, Cambium Networks empowers service providers and enterprise, industrial and government network operators to build intelligent edge connectivity. Cambium Networks' commitment to continuous innovation in wireless access is demonstrated in the millions of radios deployed in thousands of networks that benefit communities around the world. Team members also contribute to social responsibility activities to serve the communities in which they live. Headquartered outside Chicago and with R&D centers in the U.S., U.K. and India, Cambium Networks sells through a range of trusted global distributors.

[www.cambiumnetworks.com](http://www.cambiumnetworks.com)

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