

DATA SHEET



BENEFITS

AFFORDABLE ENTERPRISE PERFORMANCE

The R310 provides great performance with extended range at an affordable price.

KEEP EXISTING SWITCHES AND CABLES

Designed to operate on existing PoE switches and CAT 5e cabling to minimize costly upgrades.

MULTIPLE MANAGEMENT OPTIONS

Manage the R310 from the cloud, with on-premises physical/virtual appliances, or without a controller.

STUNNING WI-FI PERFORMANCE

Extends coverage with patented BeamFlex™ adaptive antenna technology while mitigating interference by utilizing 64 directional antenna patterns.

GET 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

Enhance your network with Cloudpath™ security and management software, SPoT™ real-time Wi-Fi location engine and analytics software, and SCI network analytics.

Smaller locations can face big-time demands on their wireless infrastructure. Whether working out of a small office or connecting to a public hotspot, users are often still accessing the same high-bandwidth applications and content they'd consume anywhere else. And they expect strong, reliable connectivity. How can you provide it without breaking the bank?

The Ruckus R310 delivers consistent, reliable 802.11ac wireless networking at an affordable price. It features the patented Ruckus BeamFlex adaptive antenna technology for performance optimization and interference mitigation found in our premier access points, delivering superior user experiences at extended ranges. But it provides them in an ultra-compact form factor built for small venues—with a price tag to match.

The R310 is an ideal choice for low-density enterprise and hotspot environments including small- and medium-size businesses, retail locations, restaurants, and multi-tenant small offices and branch offices.

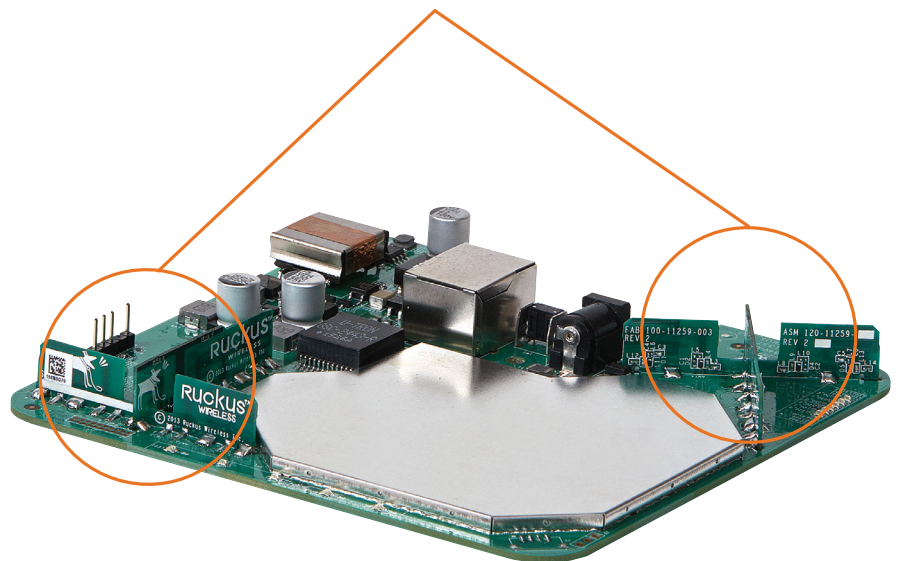
The R310 802.11ac Wi-Fi AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

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

The R310 provides an ideal combination of features and performance for smaller environments. Additionally, it supports up to 100 clients per AP.

Whether you're deploying ten or ten thousand APs, the R310 is also easy to manage through Ruckus' appliance, virtual, controller-less and cloud management options.

BeamFlex Adaptive Antenna Technology



PATENTED BEAMFLEX™ ADAPTIVE ANTENNA TECHNOLOGY EXTENDS SIGNAL RANGE, IMPROVES STABILITY OF CLIENT CONNECTIONS

All R310 Smart Wi-Fi access points integrate a software-controlled smart antenna array that delivers up to an additional 4dB of BeamFlex gain and 10dB of interference mitigation. This allows a 2 to 4x improvement in signal range and a reduction in packet loss from the ability to automatically mitigate interference and avoid obstacles.

ADVANCED WLAN APPLICATIONS

When used with the Ruckus ZoneDirector Smart WLAN controller, each R310 supports a wide range of value-added applications such as guest networking, Dynamic PSK, hotspot authentication, wireless intrusion detection and many more. WLANs can be created and mapped to the same or different APs or VLANs. In a centrally managed configuration, the R310 works with a wide range of authentication servers including Microsoft's Active Directory, LDAP, and RADIUS.

FLEXIBLE DEPLOYMENT OPTIONS

R310 APs can be deployed as a standalone AP or as part of a centrally managed wireless LAN using ZoneDirector and SmartZone controllers. R310 can be deployed across any L2/ L3 network and can bridge traffic onto the local network, tunnel to a central location using L2TP or route between the WAN and NAT'ed private subnets. When used with the controller, each R310 is automatically configured through the network making deployment quick and easy.

COMPLETE LOCAL AND REMOTE MANAGEMENT

Each R310 can be managed as a standalone AP through a Web-based GUI, using SNMP or through the Ruckus FlexMaster Wi-Fi remote management system. Local management can also be performed using the ZoneDirector or SmartZone controller. FlexMaster is a LINUX-based software platform that uses industry-standard protocols to perform bulk configuration, fault detection, monitoring and a wide range of troubleshooting capabilities over a wire area connection. The controllers enable local management and control of APs, adding value-added services such as transmit power control, and guest networking.

FEATURES

WIRELESS

- Blazing fast 802.11ac speeds at the lowest cost in its class
- Dual-band concurrent (2.4GHz/5GHz) 802.11ac
- Adaptive antenna technology and advanced RF management
- Up to an additional 4dB BeamFlex gain / 10dB interference mitigation
- Automatic interference mitigation, optimized for high-density environments
- Integrated smart antenna technology
- 2 to 4 times extended range and coverage Standard 802.3af Power over Ethernet (PoE)
- Up to 8 BSSIDs per radio (16 BSSIDs per access point) with unique QoS and security policies
- Advanced QoS packet classification and automatic priority for latency-sensitive traffic
- Bandsteering and airtime fairness
- Dynamic, per-user rate-limiting for hotspot WLANs
- WPA-PSK (AES), 802.1X support for RADIUS and Active Directory**

INTERFACES

- 1 GbE RJ-45 Ethernet uplink

POWER

- PoE, DC

ACCESSORIES

- Wall, desktop or ceiling mountable

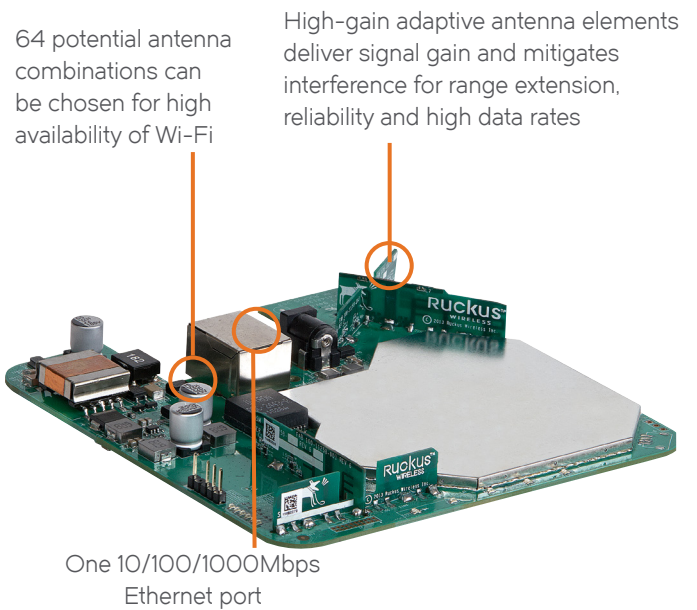
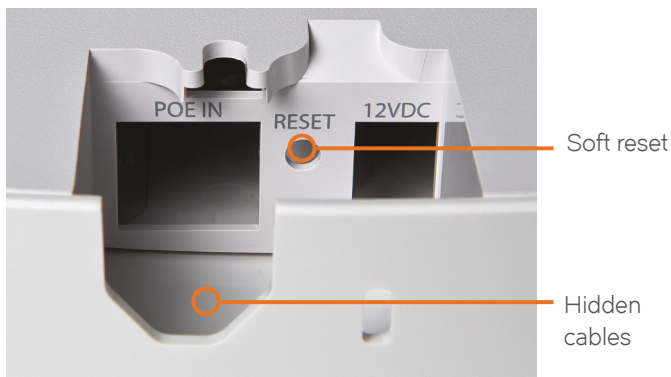
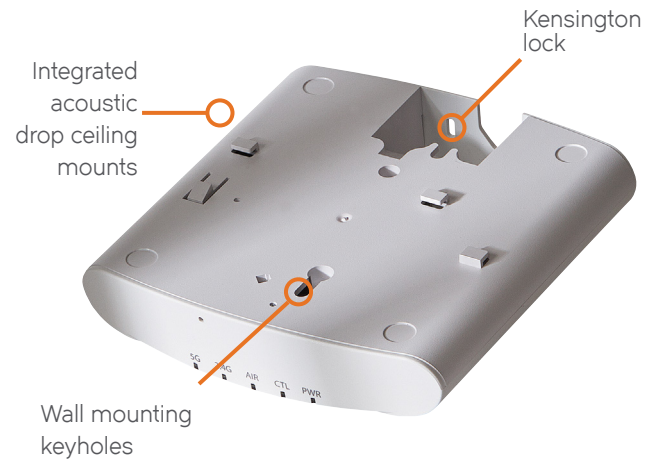
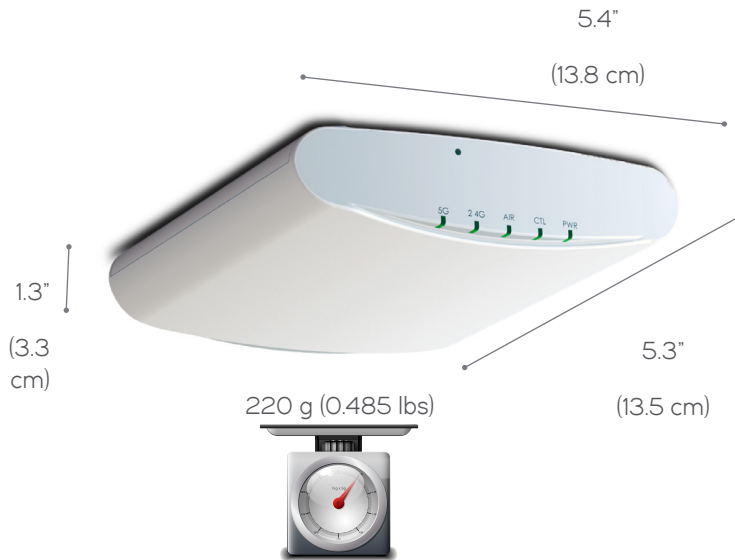
SOFTWARE

- Router mode with NAT and DHCP services
- IP multicast video streaming support
- Ethernet 802.1x port-based authentication (authenticator and supplicant)
- SPoT™ Real-time location engine and analytics software
- Cloudpath™ Security and management software
- SmartCell Insight (Network analytics engine)
- Zero-IT and Dynamic PSK**
- Admission control/load balancing**
- Captive portal and guest accounts **
- Guest access services**
- Application Recognition and Control**
- Limited lifetime warranty

** when used with Ruckus ZoneDirector or SmartZone controllers.

SMALL LIGHTWEIGHT FORM FACTOR WITH BUILT IN MOUNTING OPTIONS FOR EASY DEPLOYMENT

The R310 installs & mounts seamlessly, making it ideal for quick and effective set up for carrier & enterprise deployments.



ACCESS POINT ANTENNA PATTERN

The R310 incorporates the Ruckus' BeamFlex adaptive antenna technology which manages RF coverage dynamically on a packet-by-packet basis to optimize signal strength, data-rates and connection reliability.

The Ruckus' adaptive antenna is unique and a single antenna pattern can be used (see Figure 1) to depict its ability to optimize coverage and mitigate interference. Each AP antenna is custom designed to match the target use case and can have over 4,000 different antenna patterns from which to select in meeting the goal of extending the AP coverage and ensuring a reliable connection.

The BeamFlex adaptive antenna design is also more than a simple one-dimension omni-antenna. The Ruckus design also takes into consideration device orientation and can send/receive data on both vertically and horizontally plains.

Figure 1 - Example of BeamFlex pattern

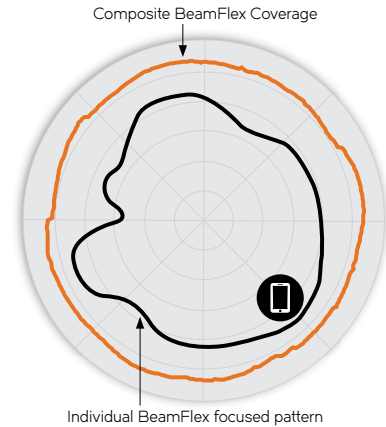


Table 1 - R310 2.4 & 5GHz Receive Sensitivity

2.4GHz RECEIVE SENSITIVITY				5GHz RECEIVE SENSITIVITY					
HT20		HT40		VHT20		VHT40		VHT80	
MSC0	MSC7	MSC0	MSC7	MSC0	MSC7	MSC0	MSC7	MSC0	MSC7
-89	-68	-85	-65	-98	-69	-86	-66	-83	-62

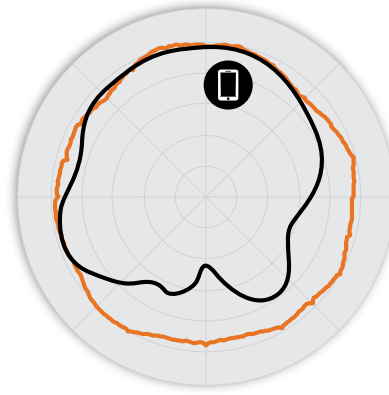
Table 2 - R310 Tx power targets

RATE	POUT (dBm)
2.4GHz Tx	
MCS0 HT20	23
MCS7 HT20	18
MCS7 HT40	22
MCS7 HT40	19
5GHz Tx	
MCS0 VHT20	21
MCS0 VHT20	18
MCS0 VHT40	21
MCS0 VHT40	18
MCS0 VHT80	20
MCS0 VHT80	17

Figure 2 - R310 2.4GHz Azimuth pattern



Figure 3 - R310 5GHz Azimuth pattern



The two figures above (Figure 2 & Figure 3) demonstrate the unique design of the BeamFlex technology in the two supported bands. The outer trace (nearly circular) represents the RF composite field of a BeamFlex AP with up to 4K unique RF patterns. The inner trace represents an individual adaptive antenna pattern that may appear in various positions within the outer trace providing lowered SNR and reduced interference on a packet-by-packet basis.

Wi-Fi	
Wi-Fi Standards	<ul style="list-style-type: none"> IEEE 802.11a/b/n/ac
Supported rates	<ul style="list-style-type: none"> 802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80) 802.11n: 6.5 Mbps to 300Mbps (MCS0 to MCS31) 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps 802.11b: 11, 5.5, 2 and 1 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
Spatial Streams	<ul style="list-style-type: none"> 2 SU-MIMO
Channelization	<ul style="list-style-type: none"> 20, 40, 80MHz
Security	<ul style="list-style-type: none"> WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK WIPS/WIDS Hotspot, Captive Portal, WISPr HotSpot 2.0
Other Wi-Fi Features	<ul style="list-style-type: none"> WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v

RF	
Antenna type	<ul style="list-style-type: none"> BeamFlex adaptive antennas Adaptive antenna that provides up to 64 unique antenna patterns
Antenna gain (max)	<ul style="list-style-type: none"> 3dBi for both 2.4GHz & 5GHz
Peak transmit power (aggregate across MIMO chains)	<ul style="list-style-type: none"> 2.4GHz: 23dBm 5GHz: 24dBm
Minimum receive sensitivity	<ul style="list-style-type: none"> -99dBm
Frequency bands	<ul style="list-style-type: none"> 2.4 - 2.484 GHz 5.17 - 5.33 GHz 5.49 - 5.71 GHz 5.735 - 5.835 GHz

PERFORMANCE AND CAPACITY	
Peak PHY rates	<ul style="list-style-type: none"> 2.4GHz: 300Mbps 5GHz: 867Mbps
Client capacity	<ul style="list-style-type: none"> Up to 100 clients per AP
Simultaneous VoIP Clients	<ul style="list-style-type: none"> Up to 30 per AP
SSID	<ul style="list-style-type: none"> Up to 8 per radio

RUCKUS RADIO MANAGEMENT	
Antenna Optimization	<ul style="list-style-type: none"> BeamFlex
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 Heuristics-based QoS Directed Multicast L2/L3/L4 ACLs
Mobility	<ul style="list-style-type: none"> SmartRoam
Diagnostic Tools	<ul style="list-style-type: none"> SpeedFlex

NOTE: SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

NETWORKING	
Controller platform support (initial release)	<ul style="list-style-type: none"> SmartZone 3.2 and above ZoneDirector 9.12.2 and above Cloud Wi-Fi Unleashed† Standalone
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

†Refer to Unleashed datasheets for SKU ordering information

PHYSICAL INTERFACES	
Ethernet	<ul style="list-style-type: none"> 1 x 1GbE port, RJ-45

PHYSICAL CHARACTERISTICS	
Physical Size	<ul style="list-style-type: none"> 13.8(L) x 13.5(W) x 3.3(H) cm 5.43(L) x 5.31(W) x 1.3(H) in
Weight	<ul style="list-style-type: none"> 220g (7.8oz)
Mounting Support	<ul style="list-style-type: none"> Wall, Drop ceiling, Desk Secure bracket (sold separately)
Physical Security	<ul style="list-style-type: none"> Hidden latching mechanism Kensington lock T-bar Torx
Operating Temperature	<ul style="list-style-type: none"> 0 °C (32 °F) to 40 °C (104 °F)
Operating Humidity	<ul style="list-style-type: none"> Up to 95%, non-condensing

PLEASE NOTE: When ordering Indoor APs, you must specify the destination region by indicating -US, -WW, or -Z2 instead of XX. 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.

For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam

Warranty: Sold with a limited lifetime warranty.

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

POWER ¹	
Power Supply	Max Power Consumption
802.3af	11W
DC Input: 12 VDC 1.0A	9W

CERTIFICATIONS AND COMPLIANCE

Countries**	<ul style="list-style-type: none"> U.S., Europe, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Hong Kong, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Saudi Arabia, Singapore, South Africa, Taiwan, Thailand, UAE, Vietnam
Wi-Fi Alliance	<ul style="list-style-type: none"> Wi-Fi CERTIFIED™ a, b, g, n, ac Passpoint®, Vantage, AMB, OCE
Standards Compliance	<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 EN 50385 Human Safety/RF Exposure WEEE & RoHS ISTA 2A Transportation

** For current certification status, please see price list

ORDERING INFORMATION

901-R310-XX02	Concurrent dual band 802.11ac AP, no power adapter
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OPTIONAL ACCESSORIES

902-0120-0000	Universal secure mounting bracket fits multiple AP's including R310. Mounts to Hard Wall, Ceiling, Pole & Truss. Fits without pad-lock support.
902-0195-0000	T-bar ceiling mount kit for multiple APs including R310 for mounting to flush frame ceiling
902-0173-XX10	Power Adapter, AC/DC wall plug, 100-250Vac 50/60Hz
902-0162-XXYY	PoE Adapter

SUPPORTED SERVICES

Location Based Services	<ul style="list-style-type: none"> SPoT
Network Analytics	<ul style="list-style-type: none"> SmartCell Insight (SCI)
Security & Policy	<ul style="list-style-type: none"> Cloudpath

Not exhaustive / may not be available at launch