

# R500

Indoor 802.11ac 2x2:2 Wi-Fi Access Point



## DATA SHEET



## BENEFITS

### STUNNING WI-FI PERFORMANCE

Provide a great user experience no matter how challenging the environment with BeamFlex+™ adaptive antenna technology and a library 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.

### MULTIPLE MANAGEMENT OPTIONS

Manage the R500 from the cloud, or with on-premises physical/virtual appliances..

### BETTER MESH NETWORKING

Reduce expensive cabling, and complex mesh configurations by checking a box with SmartMesh wireless meshing technology to dynamically create self-forming, self-healing mesh networks.

### EXPANDED BACKHAUL

Pair two onboard 1GbE ports with link aggregation (LACP) to maximize throughput between the AP and wired switch.

### 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.

With an explosion of new mobile devices, cloud applications, and Internet of Things (IoT) connections, even small- and mid-size venues now need big-league Wi-Fi. But finding the right balance between performance, features, and cost can be a major challenge.

The Ruckus R500 802.11ac indoor access point delivers the ideal combination of capacity, reliability, and affordability for medium-density locations. It's the only 802.11ac AP in its class that includes patented Ruckus antenna optimizations and interference mitigation technologies—the same ones used in our premier high-density APs—in a low-profile form factor, at a competitive price.

The R500 is a perfect solution for a variety of medium-density enterprise and hotspot environments, including small- and midsize businesses, hotels, retail outlets, and branch offices. In hotel common areas, for example, it can provide high-quality wireless data access. In retail spaces and branch offices, it supports high-quality video, wireless IP phones, and handheld point-of-sale scanners. In busy locations supporting a wide range of users, devices, and applications, it delivers better performance and reliability than any other solution in its class.

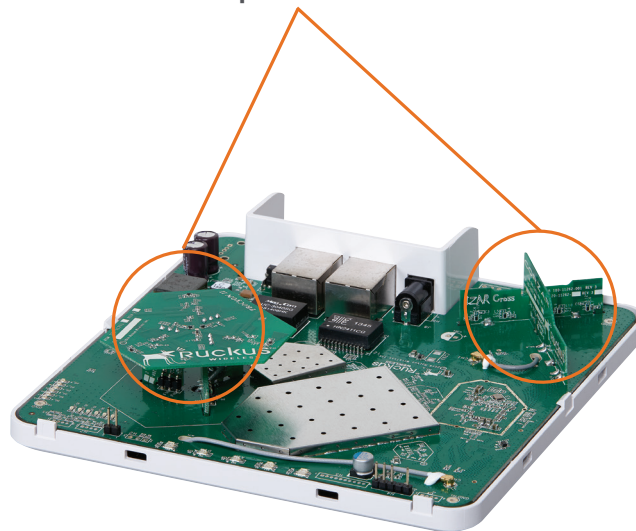
The R500 802.11ac AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

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

Additionally, with the R500's easy-to-deploy mesh networking capabilities, you can connect more devices in more places, without extra cabling. And, dual Gigabit Ethernet ports support Link Aggregation for higher-capacity backhaul to the switch.

Whether you're deploying ten or ten thousand APs, the R500 is also easy to manage through Ruckus' appliance, virtual and cloud management options.

## BeamFlex Adaptive Antenna Technology



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

All R500 Smart Wi-Fi access points integrate a software-controlled smart antenna with PD-MRC (polarization diversity) that delivers up to an additional 4 dB of BeamFlex gain and 10 dB of interference mitigation. This is especially beneficial to enhance the performance of mobile devices which are constantly in motion and changing orientation.

## ADVANCED WLAN APPLICATIONS WITH SMART/OS

When used with the Ruckus Smart WLAN controllers, each R500 supports a wide range of value-added applications such as guest networking, Dynamic PSK, hotspot authentication, wireless intrusion detection and many more. With Smart/OS, WLANs can be created and mapped to the same or different APs or VLANs. In a centrally managed configuration, the R500 works with a wide range of authentication servers including Microsoft's Active Directory, LDAP, and RADIUS.

## FLEXIBLE DEPLOYMENT OPTIONS

R500 APs can be deployed as a standalone AP or as part of a centrally managed wireless LAN using ZoneDirector Smart WLAN controllers. R500 can be deployed across any L2/L3 network and can bridge traffic onto the local network, tunnel to a central location using L2TP or PPPoE, or route between the WAN and NAT'ed private subnets. With the Ruckus controllers, each R500 is automatically configured through the network making deployment quick and easy.

## COMPLETE LOCAL AND REMOTE MANAGEMENT

Each R500 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 Ruckus' Smart WLAN controllers. 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

- Dual-band concurrent (5GHz/2.4GHz)
- Adaptive antenna technology and advanced RF management
- Up to an additional 4dB BeamFlex gain / 10dB interference mitigation / 3 dBi physical antenna gain
- Automatic interference mitigation, optimized for high-density environments
- Integrated smart antenna technology
- IP multicast video streaming support
- Advanced QoS packet classification and automatic priority for latency-sensitive traffic
- Dynamic, pre-user rate-limiting for hotspot WLANs
- WPA-PSK (AES), 802.1X support for RADIUS and Active Directory\*\*
- Ethernet 802.1x port-based authentication (authenticator and supplicant)
- BYOD, Zero-IT and Dynamic PSK\*
- Admission control/load balancing\*
- Band steering and airtime fairness support

### INTERFACES

- 12 x 1GbE ports with PoE on one port

### POWER

- Standard 802.3af Power over Ethernet (PoE)

### ACCESSORIES

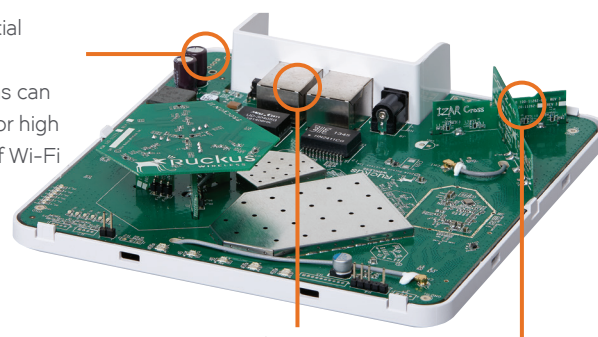
- Mounting bracket

### SOFTWARE

- Captive portal and guest accounts\*
- Application recognition and control\*
- SmartWay Bonjour gateway\*
- Router mode with NAT and DHCP services
- SecureHotspot\*
- SPoT location engine and analytics\*
- Band balancing\*
- SmartMesh wireless meshing technology\*

\*\* when used with management

Many potential antenna combinations can be chosen for high availability of Wi-Fi

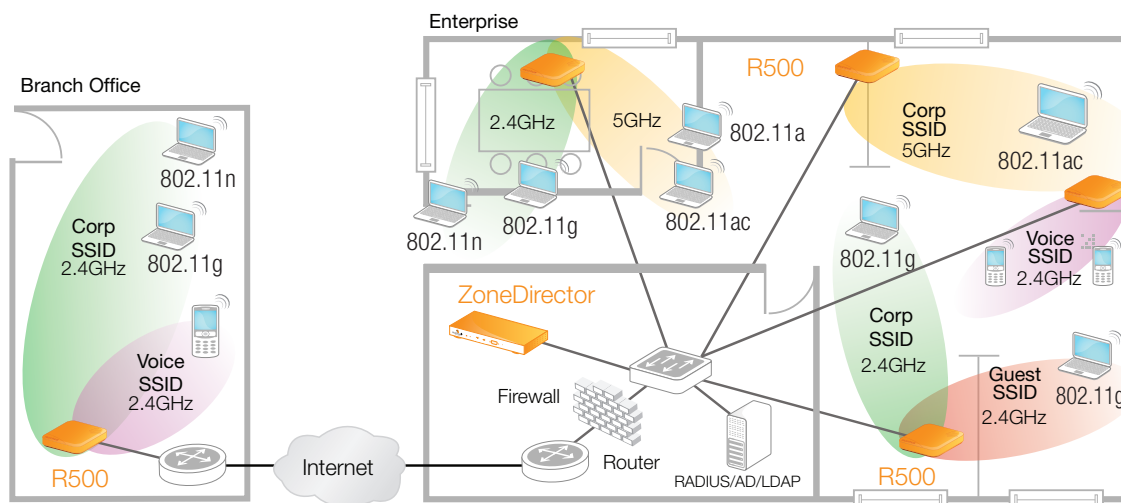


Two 10/100/1000 Mbps ports; one with PoE

High-gain directional antenna elements not only delivers signal gain but also interference mitigation for range extension, reliability and high data rates

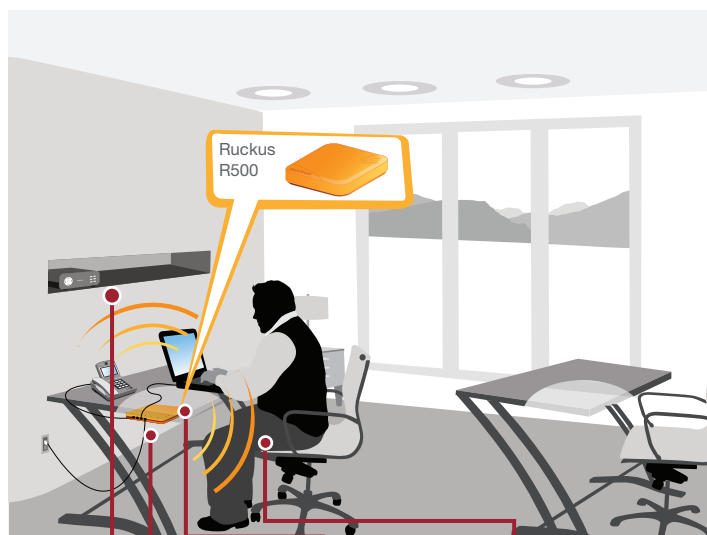
## THE R500 INTEGRATES WITH YOUR EXISTING NETWORK INFRASTRUCTURE

delivering best-in-class 802.11ac performance and reliability at a competitive price — making it the ideal wireless solution for mid-range enterprise and branch office applications.



## HOTEL COMMON AREAS SUCH AS SHARED OFFICES

The R500 is ideal for deployment in hotel common areas to provide wireless connection to high quality data access, as well as wired connections to IP phone and guest devices.



Dual-band (2.4/5GHz) support allows for concurrent Internet and IP-based video services

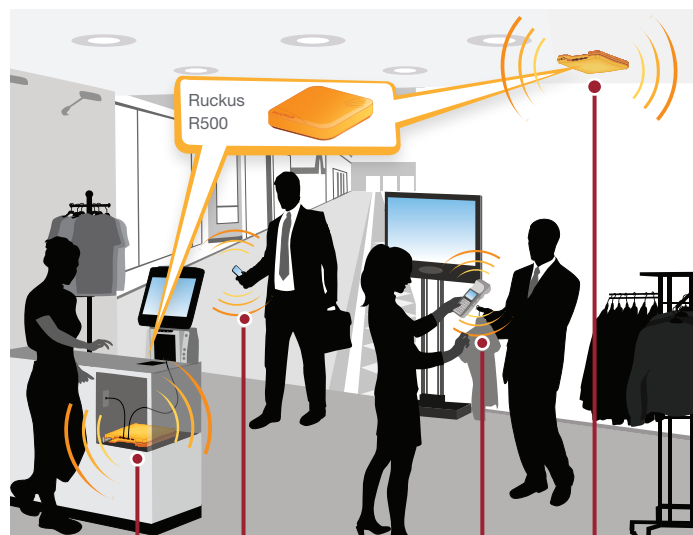
Sleek, elegant design easily concealed

Wired ports for connecting IP devices such as laptops and VoIP phones

Multiple SSIDs for high-speed Internet access and other services

## DEPLOYMENT FOR RETAIL / BRANCH OFFICES

The R500 is ideal for deployment in retail stores to provide inconspicuous wireless connection to high quality video, wireless IP phones and data access for handheld PoS bar code scanners.



Wired ports to connect devices such as cash registers, printers, etc.

Multiple SSIDs for differentiated user services (e.g., guest Wi-Fi, point of sale, voice)

Reliable Wi-Fi connectivity for point of sale devices

5GHz band and smart antenna system ideal for 11ac clients

PHYSICAL CHARACTERISTICS	
Power	<ul style="list-style-type: none"> <li>DC Input: 12 VDC 1.0A</li> <li>Power over Ethernet 802.3 af</li> </ul>
Physical Size	<ul style="list-style-type: none"> <li>15.8 cm x 15.8 cm x 4 cm (6.2 in x 6.2 in x 1.57 in)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>350 g (0.77 lb.)</li> </ul>
Data Ports	<ul style="list-style-type: none"> <li>2 auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45, POE port (on one port)</li> </ul>
Mounting Options	<ul style="list-style-type: none"> <li>Electrical wallbox; Standard US and EU single gang wall jack</li> <li>Optional bracket for offset &amp; wall mount</li> </ul>
Lock Options	<ul style="list-style-type: none"> <li>Hidden latching mechanism</li> <li>Kensington Lock Hole</li> <li>T-bar Torx</li> <li>Bracket (902-0108-0000) Torx screw &amp; padlock (sold separately)</li> </ul>
Environmental Conditions	<ul style="list-style-type: none"> <li>Operating Temperature: 0°C - 50°C</li> <li>Operating Humidity: 10% - 95% non-condensing</li> </ul>
Power Draw	<b>PoE-Powered</b> <ul style="list-style-type: none"> <li>Idle: 4W</li> <li>Typical: 5.95W</li> <li>Peak: 10.5W</li> </ul> <b>12VDC-Powered</b> <ul style="list-style-type: none"> <li>Idle: 4W</li> <li>Typical: 6.13W</li> <li>Peak: 11.1W</li> </ul>

PERFORMANCE AND CAPACITY	
Concurrent Stations	<ul style="list-style-type: none"> <li>Up to 512 clients per AP</li> </ul>
Simultaneous Voip Clients	<ul style="list-style-type: none"> <li>Up to 30</li> </ul>

RF	
ANTENNA	<ul style="list-style-type: none"> <li>Adaptive antenna that provides up to 64 unique antenna patterns per radio</li> <li>Full omnidirectional polarization diversity</li> </ul>
PHYSICAL ANTENNA GAIN	<ul style="list-style-type: none"> <li>Up to 3 dBi</li> </ul>
BEAMFLEX* SINR TX GAIN	<ul style="list-style-type: none"> <li>Up to 4 dB</li> </ul>
BEAMFLEX* SINR RX GAIN	<ul style="list-style-type: none"> <li>3-5 dB (PD-MRC)</li> </ul>
INTERFERENCE MITIGATION	<ul style="list-style-type: none"> <li>Up to 10 dB</li> </ul>
MINIMUM RX SENSITIVITY	<ul style="list-style-type: none"> <li>Up to -100 dBm</li> </ul>

\* BeamFlex gains are statistical system level effects translated to enhanced SINR based on observations over time in real-world conditions with multiple APs and many clients

MANAGEMENT	
Deployment Options	<ul style="list-style-type: none"> <li>Standalone (individually managed)</li> <li>Managed by ZoneDirector (9.8.1 &amp; Above)</li> <li>Managed by SmartZone (3.0 &amp; above)</li> <li>Managed by FlexMaster</li> <li>Managed by SmartCell™ Gateway 200 (2.5 &amp; above)</li> </ul>
Configuration	<ul style="list-style-type: none"> <li>Web User Interface (HTTP/S)</li> <li>CLI (Telnet/SSH), SNMP v1, 2, 3</li> <li>TR-069 vis FlexMaster</li> </ul>
Auto Ap Software Updates	<ul style="list-style-type: none"> <li>FTP or TFTP, remote auto available</li> </ul>

\* some features not supported - e.g., mesh

Warranty: Sold with a limited lifetime warranty.  
For details see: <http://support.ruckuswireless.com/warranty>

WI-FI	
Standards	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac</li> <li>2.4GHz and 5GHz</li> </ul>
Supported Data Rates	<ul style="list-style-type: none"> <li>802.11n/ac: 6.5Mbps - 173.4Mbps (20MHz)</li> <li>13.5Mbps - 400Mbps (40MHz)</li> <li>29.3Mbps - 867Mbps (80MHz)</li> <li>802.11a: 54, 48, 36, 24, 18, 12, 9 and 6Mbps</li> <li>802.11b: 11, 5.5, 2 and 1 Mbps</li> <li>802.11g: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> </ul>
Radio Chains	<ul style="list-style-type: none"> <li>2 x 2</li> </ul>
Spatial Streams	<ul style="list-style-type: none"> <li>2</li> </ul>
RF Power Output (Aggregate)	<ul style="list-style-type: none"> <li>26 dBm for 2.4 GHz</li> <li>25 dBm for 5GHz</li> </ul>
Channelization	<ul style="list-style-type: none"> <li>20MHz, 40MHz, 80MHz</li> </ul>
Operating Channels	<ul style="list-style-type: none"> <li>US/Canada: 1-11, Europe ( ETSI X30): 1-13, Japan X41: 1-13</li> <li>5 GHz channels: Country dependent</li> </ul>
Frequency Band	<ul style="list-style-type: none"> <li>IEEE 802.11 b/g/n: 2.4 - 2.484 GHz</li> <li>IEEE 802.11a/ac: 5.15 - 5.25 GHz; 5.25 - 5.35 GHz; 5.47 - 5.725 GHz; 5.725 - 5.85 GHz</li> </ul>
Power Save	<ul style="list-style-type: none"> <li>Supported</li> </ul>
Wireless Security	<ul style="list-style-type: none"> <li>WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i</li> <li>Authentication via 802.1X with the ZoneDirector, local authentication database, support for RADIUS, LDAP, and ActiveDirectory</li> </ul>
Certifications**	<ul style="list-style-type: none"> <li>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</li> <li>WEEE/RoHS compliance</li> <li>EN-60601-1-2 (Medical)</li> <li>Wi-Fi Alliance</li> <li>EN50121-1 Railway EMC</li> <li>EN50121-4 Railway Immunity</li> <li>IEC 61373 Railway Shock &amp; Vibration</li> <li>UL 2043 plenum rated</li> <li>5GHz UNII-1 (2014)</li> </ul>

\* Maximum power varies by country

\*\* For current certification status please see price list

## PRODUCT ORDERING INFORMATION

MODEL	DESCRIPTION
R500 Smart Wi-Fi 802.11ac Access Point	
901-R500-XX00	Concurrent dual band 802.11ac Access Point, no power adapter
9U1-R500-WW00	Concurrent dual band 802.11ac Unleashed Access Point, no power adapter
Optional Accessories	
902-0108-0000	<ul style="list-style-type: none"> <li>Spare, Accessory Mounting Bracket</li> </ul>
902-0173-XXYY	<ul style="list-style-type: none"> <li>Power Adapter, AC/DC wall plug, 100-240Vac 50/60Hz</li> </ul>
902-0162-XXYY	<ul style="list-style-type: none"> <li>PoE injector (sold in quantities of 10 or 100)</li> </ul>

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