

# R700

Indoor 802.11ac 3x3:3 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 of 4K+ 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 R700 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.

### POWER EFFICIENT

Full design feature capability for 5GHz clients with 802.3af (PoE) allows enterprises to use existing switches without costly upgrades.

### 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.

The busiest indoor venues demand the highest Wi-Fi capacity and performance. But they also present some of the biggest wireless challenges: Extreme client densities. Nonstop wireless noise and interference. Hundreds of users running bandwidth-hungry voice, video, and cloud applications—all hitting the WLAN infrastructure at the same time.

The Ruckus R700 is the perfect combination of performance and affordability for high-density environments, delivering the industry's best price/performance of any three-stream 802.11ac AP. In the busiest indoor venues, it uses patented Ruckus antenna technologies and RF intelligence to extend range, mitigate interference, and deliver a more reliable connection to every device. With data rates up to 450 Mbps (2.4GHz) and 1300 Mbps (5GHz), the R700 delivers blazing-fast data rates to three-stream capable clients, while improving performance for single- and dual-stream clients as well.

The R700 is purpose-built for challenging high-density environments such as airports, busy public venues, university campuses, hotels, and convention centers. The perfect choice for data-intensive streaming multimedia applications, the R700 delivers picture perfect HD-quality IP video while supporting voice and data applications that have stringent quality of service requirements.

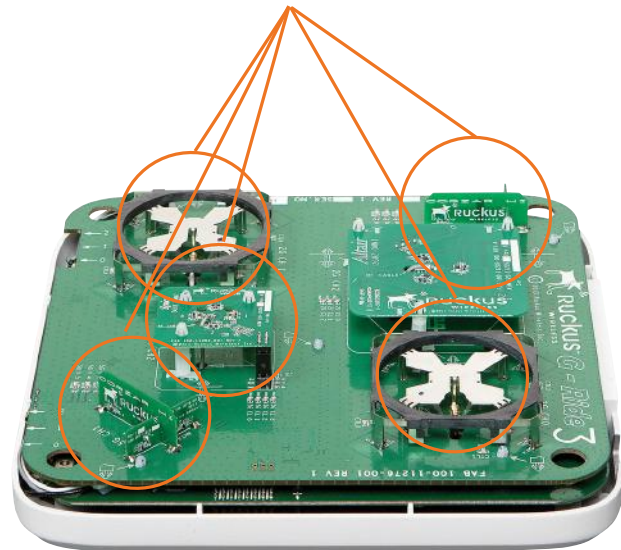
The R700 AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

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

The R700 also features a USB port for hosting IoT devices such as Bluetooth Low Energy (BLE) beacons, and easy-to-deploy mesh networking capabilities. Additionally, dual Gigabit Ethernet ports support Link Aggregation for higher-capacity backhaul to the switch.

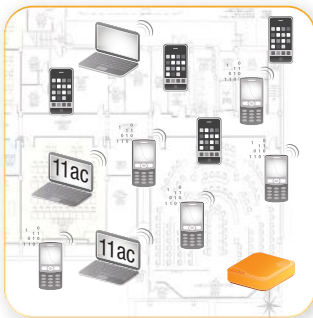
Whether you're deploying ten or ten thousand APs, the R700 is easy to manage through Ruckus' appliance, virtual and cloud management options.

## BeamFlex Adaptive Antenna Technology

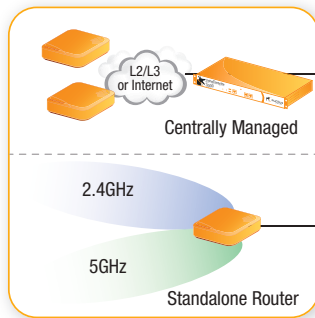




Blinding Fast 3-Stream 802.11ac



Ultra High User Density



Architectural Flexibility



weight is 1 kg. (2.25 lbs.)

## FEATURES

### WIRELESS

- 802.11ac 3x3:3 Wi-Fi access point
- Concurrent dual-band (5 GHz/2.4 GHz) support
- Backward compatible with legacy 802.11 clients
- 80 MHz channelization; 256-QAM modulation support; 1300 Mbps PHY rates at 5 GHz
- Automatic interference avoidance, optimized for high-density environments
- Space Time Block Coding for increased handset performance
- Improved Maximum Ratio Combining (MRC) for best-in-class receive sensitivity
- Low Density Parity Check (LDPC) for increased data throughput at all ranges
- BeamFlex+ (PD-MRC) improves signal reception of mobile devices
- Integrated smart antenna with over 3,000 unique patterns for ultra reliability
- Up to 32 (2.4 GHz) and 16 (5 GHz) BSSIDs with unique QoS and security policies
- Unmatched Rx sensitivity down to -99 dBm
- Four software QoS queues per client station
- Admission control/load balancing\*
- Band steering and airtime fairness
- Wall or ceiling mountable with unobtrusive design
- Built in mounting options for fast and easy deployment

### INTERFACES

- 2 x 1GbE ports, one with PoE

### POWER

- Compatible with 802.3af Power over Ethernet (PoE)

### SOFTWARE

- Either standalone or centrally managed
- Integrated NAT and DHCP support
- Multicast IP video streaming support
- Future support for advanced spectrum analysis
- Smart Positioning Technology (Real-time location engine and analytics software)
- Cloudpath (Security and management software)
- SmartCell Insight (Networks analytics engine)
- WPA-PSK (AES), 802.1X support for RADIUS and AD\*
- Zero-IT and Dynamic PSK\*
- Captive portal and guest accounts \*
- SmartMesh wireless meshing technology\*

\* when used with management.

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

The R700 integrates a patented software-controlled adaptive antenna array that delivers additional signal gain per radio chain. As BeamFlex+ adapts to client locations and antenna polarity, the smart antenna array optimizes the RF energy toward client on a per packet basis. This allows for up to 2x improvement in signal range and a reduction in packet loss from the ability to automatically mitigate interference and obstacles. By combining BeamFlex+ with the transmit-based beamforming, the R700 is capable of delivering up to 6 dB of SINR gain while offering concurrent support for spatial multiplexing.

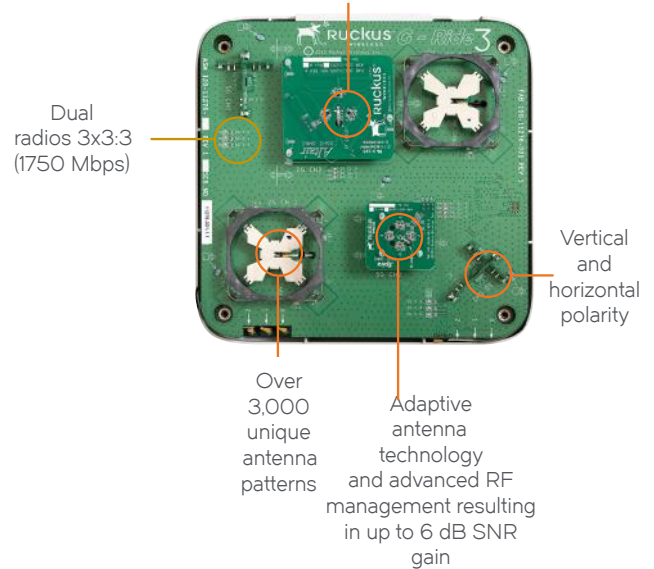
### ADAPTIVE POLARIZATION DIVERSITY FOR UNMATCHED RECEPTION OF MOBILE CLIENT SIGNALS

In dynamic indoor and urban Wi-Fi environments device orientation constantly changes. This affects the polarization of the transmissions. Traditional Wi-Fi antennas are static in nature and only listen using one polarization. This prevents them from capturing the full signal from mobile client devices. The Ruckus R700 listens in all polarizations simultaneously. This results in up to 2x (4 dB) receive signal gain from mobile devices with weak transmitters.

### ADVANCED WLAN APPLICATIONS WITH SMART/OS

When used with the Ruckus ZoneDirector Smart WLAN controller, the R700 supports a wide range of value-added applications such as guest networking, Dynamic PSK, hotspot authentication, wireless intrusion prevention and many more. WLANs can also be grouped and shared by specific APs. In a centrally managed configuration, the R700 works with various authentication servers including AD, LDAP, and RADIUS.

Additive effect of chip-based beamforming of 3 dB signal gain once client compatibility become ubiquitous in the years ahead



Front View

Integrated key holes for wall or ceiling mount (adjustable acoustic drop ceiling bracket included)



### PHYSICAL CHARACTERISTICS

<b>Power</b>	<ul style="list-style-type: none"> <li>DC Input: 12 VDC 1.5A</li> <li>PoE: 802.3af compliant</li> </ul>
<b>Physical Size</b>	<ul style="list-style-type: none"> <li>20.3 cm / 7.99 In. (L), 20.3 cm / 7.99 In. (W), 5 cm / 1.99 In. (H)</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>1kg / 2.25 lbs.</li> </ul>
<b>Ethernet Ports</b>	<ul style="list-style-type: none"> <li>2 ports, auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45</li> <li>Power over Ethernet (802.3af) with Category 5/5e/6 cable</li> </ul>
<b>Mounting Options</b>	<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>
<b>Lock Options</b>	<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>
<b>Environmental Conditions</b>	<ul style="list-style-type: none"> <li>Operating Temperature: 32°F (0°C) - 140°F (60°C)</li> <li>Operating Humidity: up to 95% non-condensing</li> </ul>
<b>Power Draw</b>	<ul style="list-style-type: none"> <li>5W (minimum)</li> <li>7W (typical)</li> <li>12.95W (peak)</li> </ul>

### RF

<b>Antenna</b>	<ul style="list-style-type: none"> <li>Adaptive antenna array that provides 3,000+ unique antenna patterns</li> </ul>
<b>Physical antenna gain:</b>	<ul style="list-style-type: none"> <li>3 dBi (2.4 and 5GHz)</li> </ul>
<b>BeamFlex SINR Tx gain:</b>	<ul style="list-style-type: none"> <li>up to 6dB</li> </ul>
<b>BeamFlex SINR Rx gain:</b>	<ul style="list-style-type: none"> <li>up to 4dB</li> </ul>
<b>Interference mitigation:</b>	<ul style="list-style-type: none"> <li>up to 15dB</li> </ul>
<b>Minimum Rx sensitivity:</b>	<ul style="list-style-type: none"> <li>-99dBm</li> </ul>

### PERFORMANCE AND CAPACITY

<b>Phy Data Rates</b>	<ul style="list-style-type: none"> <li>Up to 450 Mbps (2.4GHz)</li> <li>Up to 1300Mbps (5GHz)</li> </ul>
<b>Concurrent Stations</b>	<ul style="list-style-type: none"> <li>Up to 512</li> </ul>
<b>Simultaneous Voip Clients</b>	<ul style="list-style-type: none"> <li>Up to 60 (802.11e/WMM support), 30 per radio</li> </ul>

### NETWORK ARCHITECTURE

<b>IP</b>	<ul style="list-style-type: none"> <li>IPv4, IPv6, dual-stack</li> </ul>
<b>VLANs</b>	<ul style="list-style-type: none"> <li>802.1Q (1 per BSSID or dynamic, per user based on RADIUS)</li> <li>Port-based</li> </ul>
<b>802.1X For Wired Ports</b>	<ul style="list-style-type: none"> <li>Authenticator</li> <li>Supplicant</li> </ul>
<b>Tunneling</b>	<ul style="list-style-type: none"> <li>L2TP, PPPoE</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

<b>Deployment Options</b>	<ul style="list-style-type: none"> <li>Standalone (individually managed)</li> <li>Managed by SmartZone (2.5.1 &amp; above)</li> <li>Managed by ZoneDirector (9.8 &amp; above)</li> <li>Managed by FlexMaster</li> </ul>
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### MANAGEMENT

<b>Configuration</b>	<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>
<b>Auto Software Updates</b>	<ul style="list-style-type: none"> <li>FTP or TFTP, remote auto available</li> </ul>

### WI-FI

<b>Standards</b>	<ul style="list-style-type: none"> <li>IEEE 802.11a/b/g/n/ac</li> <li>2.4GHz and 5GHz concurrent operation</li> </ul>
<b>Supported Data Rates</b>	<ul style="list-style-type: none"> <li>802.11ac: 29.3 Mbps - 1300 Mbps (80MHz)</li> <li>802.11n: 6.5 Mbps - 216.7 Mbps(20MHz) 13.5 Mbps - 450 Mbps (40MHz)</li> <li>802.11a: 5.4, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> <li>802.11b: 11, 5.5, 2 and 1 Mbps</li> <li>802.11g: 5.4, 48, 36, 24, 18, 12, 9 and 6 Mbps</li> </ul>
<b>Radio Chains/Streams</b>	<ul style="list-style-type: none"> <li>3 x 3:3</li> </ul>
<b>Channelization</b>	<ul style="list-style-type: none"> <li>20 MHz, 40 MHz, and/or 80 MHz</li> </ul>
<b>Frequency Band</b>	<ul style="list-style-type: none"> <li>IEEE 802.11ac: 5.15 - 5.85 GHz</li> <li>IEEE 802.11a/n: 5.15 - 5.85 GHz</li> <li>IEEE 802.11b: 2.4 - 2.484 GHz</li> </ul>
<b>Operating Channels</b>	<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>
<b>BSSIDs</b>	<ul style="list-style-type: none"> <li>Up to 32 (2.4 GHz)</li> <li>Up to 16 (5 GHz)</li> </ul>
<b>Power Save</b>	<ul style="list-style-type: none"> <li>Supported</li> </ul>
<b>Certifications <sup>4</sup></b>	<ul style="list-style-type: none"> <li>WEEE/RoHS compliance</li> <li>EN 60601-1-2 Medical</li> <li>Wi-Fi Alliance certified</li> <li>UL 2043 plenum rated</li> </ul>
<b>Subway And Railroad Certifications</b>	<ul style="list-style-type: none"> <li>EN50121-1 EMC</li> <li>EN50121-4 Immunity</li> <li>IEC 61373 Shock &amp; Vibration</li> </ul>

- 1 Max power varies by country setting, band, and MCS rate
- 2 BeamFlex+ gains are statistical system-level effects (including TxBF), translated to enhanced SINR here, and based on observations over time in real-world conditions with multiple APs and many clients
- 3 Rx sensitivity varies by band, channel width, and MCS rate
- 4 Refer to price list for current country certifications

## PRODUCT ORDERING INFORMATION

MODEL	DESCRIPTION
R700 Dual Band 802.11ac Access Point	
901-R700-XX00	R700 dual-band (5 GHz and 2.4 GHz concurrent) 802.11ac wireless access point, 3x3:3 streams, adaptive antenna array, dual ports, PoE support. Includes adjustable acoustic drop ceiling bracket. Does not include power adapter.
<b>Optional Accessories</b>	
902-0162-XXYY	PoE injector (90 - 264 VAC 47-63 Hz)
902-0169-XX10, XX11	Power supply (90 - 264 VAC 47-63 Hz)
902-0100-0000	Accessory mounting bracket, padlock security option

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