

# ZoneFlex™ 7321

Smart Dual-Band Selectable 802.11n Access Point



## Unmatched Price/Performance in a Dual-Band 802.11n Enterprise Access Point

The ZoneFlex 7321 is the industry's most affordable dual-stream entry-level 802.11n access point. The ZoneFlex 7321 is designed primarily for emerging markets and single AP deployments where the demand for mobile Internet services is rising but also where tighter economic constraints dictate a balance toward lower cost over sheer performance.

Weighing only 7 ounces, the Ruckus ZoneFlex 7321 is a two spatial stream (2x2:2), dual-band selectable access point (AP) that delivers the highest performance at the most competitive price point in the market.

Unlike other APs in its class, ZoneFlex 7321 supports transmit beamforming (TxBF) to increase in signal gain of up to 4 dB.

In an ultra sleek, unobtrusive and lightweight form factor (7 oz. / 198 g.), the ZoneFlex 7321 supports up to 256 concurrent clients and can be deployed as a standalone wireless router in single AP environments such as a small business, remote office, or hotspot locations, or part of a centrally managed Ruckus Smart WLAN.

The ZoneFlex 7321 comes with a myriad of advanced features that maximizes Wi-Fi performance and capacity including bandsteering, airtime fairness, and capacity-driven auto channel selection (ChannelFly™).

When used with the Ruckus ZoneDirector line of Smart WLAN controllers, the ZoneFlex 7321 supports the full complement of Smart O/S features such as Smart Mesh networking, guest access, client load balancing, per user thresholds and Dynamic Pre-Shared Keys.

The ZoneFlex 7321 is easily managed directly using the Web GUI, through any ZoneDirector controller, FlexMaster or via SNMP. With a limited lifetime warranty, the ZoneFlex 7321 supports 802.3af PoE or DC power along with integrated mounting for easy installation.

## BENEFITS

### Industry's best value 802.11n enterprise AP

The best value, entry-level, dual-band, 2x2:2 access point

### Dual-band selectable

Dual-band selectable (2.4 GHz or 5 GHz) with a click of a button

### High concurrent client capacity

Capable of supporting up to 256 concurrent Wi-Fi clients

### Extended range with transmit beamforming (TxBF)

Increases the signal gain by up to 4 dB and increases client reliability and performance

### Advanced feature set maximizes performance/capacity

Integrated bandsteering, airtime fairness, and capacity-driven channel selection minimizes interference and maximizes capacity

### Unobtrusive lightweight design for fast and easy installation

Ceiling, wall or desktop mountable with integrated mounting features for easy deployment anywhere

### Best in class channel selection with ChannelFly™

Capacity-driven channel selection predicts and automatically selects best performing channels based on statistical, real-time capacity analysis of all RF channels

### Flexible deployment options

Standalone with router functionality or controller-based deployment with any Ruckus ZoneDirector

### L2TP tunneling for managed service operation

Support for L2TP allows for the termination of tunnels at a centralized L2TP network server for offering managed services

### Smart meshing streamlines cost and complexity

Integrated Smart Mesh Networking technology automates deployment and eliminates running cables to every AP

### Super simple configuration and management

Web-based wizard enables configuration of multiple APs across the entire WLAN in minutes

### Best price/performance of any entry-level AP

The ZoneFlex 7321 offers the industry's best price/performance of any 2x2:2 entry-level AP in its class, making it ideal for single AP deployments, SMB requirements and emerging countries where high-capacity/value are essential.

### ChannelFly for optimal wireless performance

The ZoneFlex 7321 uniquely supports an innovative approach to automatic channel selection called ChannelFly. A capacity-driven approach to auto channel selection based on observed channel traffic, ChannelFly uses statistic modeling to learn and select the best performing RF channel. It relies on actual capacity on all channels across both 2.4 and 5 GHz frequencies to automatically move clients (using 802.11h) to a better channel with less interference and more capacity.

### Simplified user security with Dynamic PSK

With the ZoneDirector, the ZoneFlex 7321 radically simplifies Wi-Fi security for users and IT administrators through the use of Dynamic Pre-Shared Keys. Once users successfully authenticate, a unique pre-shared encryption key is generated and automatically installed on the user's device — along with the requisite SSID. This eliminates the tedious configuration of wireless settings and eases the burden of installing the same PSK (that could be easily compromised) on every user device.

### Differentiated services with multiple SSIDs

Up to 8 discrete SSIDs are supported within the Ruckus ZoneFlex 7321, each with unique broadcast, QoS, security and management parameters. Up to 2,048 discrete WLANs can be created and mapped to the same or different AP or VLAN. This lets hot-zone operators easily offer tiered services to different users or traffic types. Enterprises can use this feature to differentiate guest, contractor and employee access policies or to segment different traffic types.

### Advanced WLAN applications with Smart/OS

With the Ruckus ZoneDirector Smart WLAN controller, the ZoneFlex 7321 supports a wide range of value-added applications such as guest networking, Smart Wireless Meshing, Dynamic PSK, hotspot authentication, wireless intrusion prevention and many more. WLANs can be grouped and shared by specific APs. In a centrally managed configuration, the ZoneFlex 7321 works with a variety of authentication servers such as AD, LDAP, and RADIUS.

### High performance hot spots

The 7321 uniquely supports the WISPr protocol to provide universal authentication method or UAM (browser-based login at a captive portal), walled garden, time-based user session control, and additional RADIUS attributes for hotspot service settings.

As part of a centrally controlled wireless LAN, the ZoneFlex 7321 is managed through an highly intuitive and simply to use graphical, point-and-click Web interface. The dashboard (below) gives administrators a single and comprehensive view of the state of the wireless LAN.

The screenshot displays the Ruckus ZoneDirector web interface. At the top, there's a navigation bar with 'Dashboard', 'Monitor', 'Configure', and 'Administer' tabs. The main content area is divided into several sections:

- System Overview:** Shows system name 'airespider', IP address '192.168.0.101', MAC address '00:E0:4C:7C:78:00', uptime '5d 20h 2m', model 'ZD3025', licensed APs '25', S/N '0960201320208', and version '9.4.0.0 build 1725'.
- Devices Overview:** Lists '# of APs: 5', '# of Authorized Client Devices: 81', '# of Total Client Devices: 91', and '# of Rogue Devices: 0'.
- Usage Summary:** Shows '1 hr 24 hr' usage, 'Max Concurrent Users: 0', 'Bytes Transmitted: 0', 'Average Signal (%): N/A', and '# of Rogue Devices: 0'.
- Support:** Provides contact information for Ruckus Wireless, including company name, registration link, email, and support URL.
- Most Recent User Activities:** A table showing recent events with columns for Date/Time, Severity, User, and Activities.
- Most Frequently Used Access Points:** A table listing MAC addresses, IP addresses, descriptions, models, and client counts for various APs.
- Currently Active WLANs:** A table showing active WLANs with columns for Name, ESSID, Authentication, Encryption, and Clients.
- Client Device Type:** A pie chart showing the distribution of client devices by operating system.

Date/Time	Severity	User	Activities
2010/12/29 22:34:08	Medium	jyang	User[jyang] of WLAN[corporate] encountered low signal
2010/12/29 22:34:07	Medium	jyang	AP[Warehouse NW] radio [11g/n] detects User[jyang] in WLAN[corporate] roams from AP[Warehouse NE]
2010/12/29 22:34:06	Medium	jyang	AP[Warehouse NE] radio [11g/n] detects User[jyang] in WLAN[corporate] roams out to AP[Warehouse NW]
2010/12/29 22:34:05	Low	jyang	User[jyang] disconnects from WLAN[corporate] at AP[Warehouse NE]
2010/12/29 22:34:00	Low	bob	User[bob] idle timeout and disconnected from WLAN[corporate] at AP[Warehouse NE]

MAC Address	IP Address	Description	Model	Clients
00:13:92:EA:43:01	10.1.0.10	Warehouse NE	zf7962	33
00:13:92:EA:43:04	10.1.0.11	Warehouse NW	zf7962	16
00:13:92:EA:43:07	10.1.0.12	Warehouse SE	zf7962	6
00:13:92:EA:43:0D	10.1.0.14	zf7343-Pantry	~zf7343-	4
00:13:92:EA:43:0A	10.1.0.13	Warehouse SW	zf7942	0

Name	ESSID	Authentication	Encryption	Clients
corporate		open	wpa	32
guest		open	none	15
lobby		open	wpa	7
kitchen		open	wpa	12

OS	Percentage
Windows	41.86%
Android	20.93%
Apple iOS	18.60%
Mac OS	9.30%
Linux	6.98%
Others	2.33%

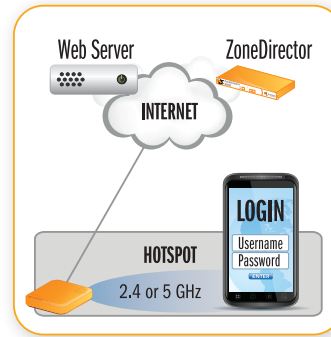
# ZoneFlex 7321

802.11n Smart Wi-Fi Access Point

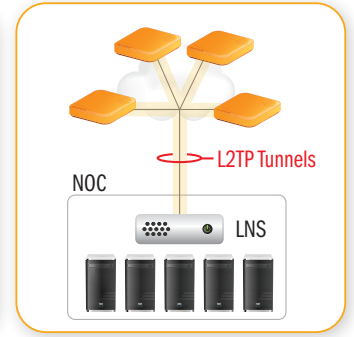
## FEATURES

- Transmit beamforming for extended range
  - Single radio with selectable 2.4 GHz or 5 GHz option for maximum flexibility
  - Band steering and airtime fairness to optimize capacity and performance
  - ChannelFly - advanced channel selection and interference mitigation
  - L2TP tunneling support
  - Standard 802.3 af Power over Ethernet (PoE)
  - Router mode with NAT and DHCP services
  - Unobtrusive design with integrated mounting
  - Eight BSSIDs with unique QoS and security policies
  - Advanced QoS packet classification and automatic priority for latency sensitive traffic
  - Limited lifetime warranty
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- *Dynamic, per-user rate-limiting for hotspot WLANs\**
  - *WEP, WPA-PSK (AES), 802.1X support for RADIUS and Active Directory\**
  - *Smart Mesh Networking\**
  - *Zero-IT and Dynamic PSK\**
  - *Admission control / client load balancing\**
  - *Captive portal and guest accounts\**

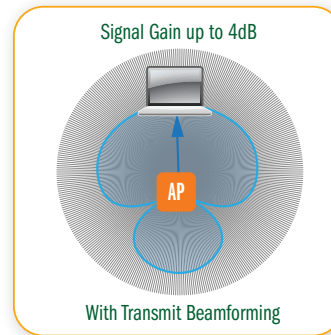
\*when used with Ruckus ZoneDirector controller



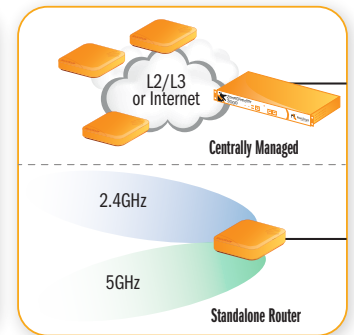
High Performance Hotspots



Managed Service (for emerging markets)



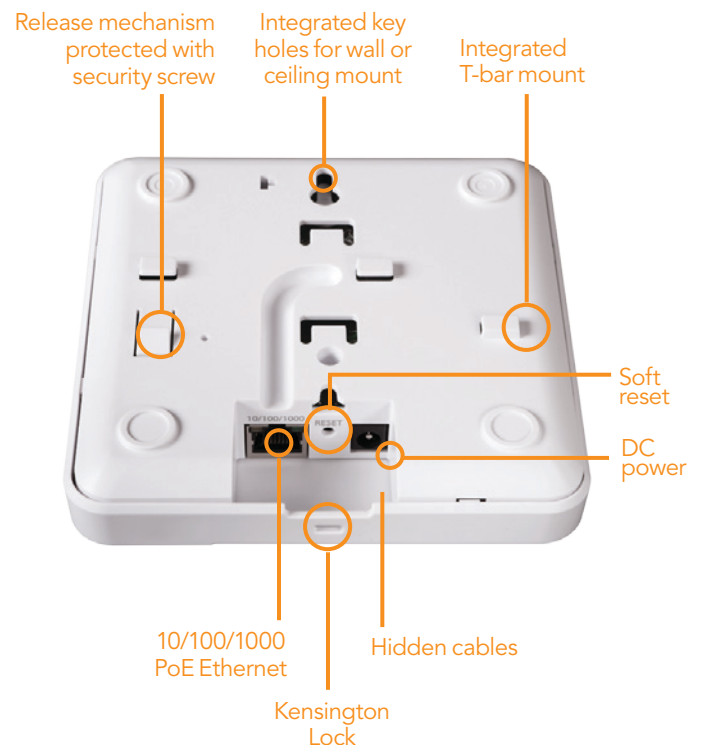
Extended Signal Range



Architectural Flexibility



192 gm. (7 oz.)



# Specifications

## PHYSICAL CHARACTERISTICS

<b>POWER</b>	<ul style="list-style-type: none"> <li>12V DC, 6.7W</li> <li>Power over Ethernet Class 2</li> </ul>
<b>PHYSICAL SIZE</b>	<ul style="list-style-type: none"> <li>13 cm (5.1") (L), 13 cm (5.1") (W), 2.8 cm (1.1") (H)</li> </ul>
<b>WEIGHT</b>	<ul style="list-style-type: none"> <li>198 g (7 oz.)</li> </ul>
<b>ETHERNET PORTS</b>	<ul style="list-style-type: none"> <li>1 port, auto MDX, auto-sensing 10/100/1000 Mbps, RJ-45</li> <li>Power over Ethernet (802.3af)</li> </ul>
<b>LOCK OPTION</b>	<ul style="list-style-type: none"> <li>Integrated Kensington lock</li> </ul>
<b>ENVIRONMENTAL CONDITIONS</b>	<ul style="list-style-type: none"> <li>Operating Temperature: 32°F (0°C) – 122°F (50°C) with PoE 32°F (0°C) – 104°F (40°C) with AC</li> <li>Operating humidity: 15% – 95% non-condensing</li> </ul>
<b>POWER DRAW</b>	<ul style="list-style-type: none"> <li>2W minimum</li> <li>3W average</li> <li>6.7W peak</li> </ul>

## PERFORMANCE AND CAPACITY

<b>TARGET UDP THROUGHPUT</b>	<ul style="list-style-type: none"> <li>2.4 GHz, 110 Mbps</li> <li>5 GHz, 230 Mbps</li> </ul>
<b>CONCURRENT STATIONS</b>	<ul style="list-style-type: none"> <li>Up to 256</li> </ul>
<b>SIMULTANEOUS VoIP CLIENTS</b>	<ul style="list-style-type: none"> <li>Up to 20</li> </ul>

## APPLICATIONS

<b>HOTSPOT</b>	<ul style="list-style-type: none"> <li>WISPr</li> </ul>
<b>VOICE</b>	<ul style="list-style-type: none"> <li>802.11e/WMM</li> <li>U-APSD</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 ETHERNET 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>

## MULTIMEDIA AND QUALITY OF SERVICE

<b>802.11e/WMM</b>	<ul style="list-style-type: none"> <li>Supported</li> </ul>
<b>SOFTWARE QUEUES</b>	<ul style="list-style-type: none"> <li>Per traffic type (4), per client</li> </ul>
<b>TRAFFIC CLASSIFICATION</b>	<ul style="list-style-type: none"> <li>Automatic, heuristics and TOS based or VLAN-defined</li> </ul>
<b>RATE LIMITING</b>	<ul style="list-style-type: none"> <li>Dynamic, per-user or per-WLAN</li> </ul>

## MANAGEMENT

<b>DEPLOYMENT OPTIONS</b>	<ul style="list-style-type: none"> <li>Standalone (individually managed)</li> <li>Managed by ZoneDirector</li> <li>Managed by FlexMaster</li> </ul>
<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 via 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>802.11b/g/a/n</li> </ul>
<b>SUPPORTED DATA RATES</b>	<ul style="list-style-type: none"> <li>54,48,36,24,18,12,11,9,6,5.5,2.1 Mbps</li> <li>802.11n data rates</li> </ul>
<b>AUTO CHANNEL SELECTION</b>	<ul style="list-style-type: none"> <li>Supported</li> </ul>
<b>RF POWER OUTPUT</b>	<ul style="list-style-type: none"> <li>Max transmit power 23 dBm (2.4 GHz); 21 dBm (5.0 GHz)</li> <li>Country-specific power settings are configurable</li> </ul>
<b>TRANSMIT POWER CONTROL</b>	<ul style="list-style-type: none"> <li>Supported</li> </ul>
<b>BSSID</b>	<ul style="list-style-type: none"> <li>Up to eight</li> </ul>
<b>POWER SAVE</b>	<ul style="list-style-type: none"> <li>Supported</li> </ul>
<b>WIRELESS SECURITY</b>	<ul style="list-style-type: none"> <li>WEP, WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i</li> <li>Authentication via 802.1X with the ZoneDirector, local authentication database, support for RADIUS and ActiveDirectory</li> </ul>
<b>WIRELESS SECURITY</b>	<ul style="list-style-type: none"> <li>WEP, WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i</li> <li>Authentication via 802.1X, local authentication database, support for RADIUS, LDAP, and ActiveDirectory</li> </ul>
<b>CERTIFICATIONS</b>	<ul style="list-style-type: none"> <li>U.S., Europe, Australia, Brazil, Canada, Colombia, Hong Kong, India, Israel, Malaysia, Mexico, New Zealand, Philippines, Singapore, Taiwan, Thailand, Vietnam</li> <li>WEEE/RoHS compliance</li> <li>EN 60601-1-2</li> <li>Wi-Fi Alliance Certification (Wi-Fi Certified™)</li> </ul>

## Product Ordering Information

MODEL	DESCRIPTION
<b>ZoneFlex 7321 802.11n Smart Wi-Fi Access Point</b>	
901-7321-XX00	Single-port centrally managed AP, no power adapter
<b>Optional Accessories</b>	
902-0162-XXYY	PoE injector (264 VAC 47-63 Hz)
902-0173-XX10	Power Supply (264 VAC 47-63 Hz)

**PLEASE NOTE:** When ordering ZoneFlex Indoor APs, you must specify the destination region by indicating -US, -IL, or -WW 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.

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