BreadCrumb® JR3

Portable Wireless Mesh Network Node

The Rajant JR3 BreadCrumb is a wireless communications device that provides reliable edge connectivity and extends network reach and mobility. This portable mesh network node contains one transceiver and one external antenna port, and the 2.4-5 GHz dual-band transceiver allows the user to set the radio frequency. The JR3 provides Ethernet and Wi-Fi Access Point interfaces to enable data, voice, and video applications. The system is weather-resistant and can be operated outdoors year-round.

BreadCrumb JR3 Key Features

- Rajant's patented InstaMesh® networking software, enabling the network to quickly adapt to rapidly-deployed and quickly- or constantly-moving network elements

- 2.4 GHz and 5 GHz radio frequencies supporting a wide variety of applications and environments

- Lightweight and portable

- Low power consumption

- Support for several strong cryptographic options used for data and MAC-address encryption and per-hop, per-packet authentication (list of options on page 3)

- Mobile connectivity for data, voice, and video

- Mesh network scalability to hundreds of fixed and mobile nodes

- Integrated Wi-Fi Access Point service for compatibility with millions of commercial off-the-shelf (COTS) client devices such as laptops, tablets, smart phones, IP cameras, sensors, and other IP devices

- Self-configuring operation for fast and easy deployments

- Reliable and fast off-loading to Ethernet via multiple, simultaneous bridge-mode links through the Automatic Protocol Tunneling (APT) feature

- Mesh Clustering to designate per-BreadCrumb sub-meshes that will only mesh with a user-specified series of nodes, useful to isolate one or more groups of BreadCrumbs to mesh with each other and not with other nodes outside the user-defined mesh cluster

Utilizing JR3 BreadCrumbs to Your Advantage

The JR3 is our single-transceiver, single-antenna system which is frequently used in private wireless networks on light-duty vehicles, edge devices, and remote Access Points. Its small footprint and weather-resistance make it a good choice for remote data collection, remote Access Point communications, transmission of low-bandwidth reports from vehicles and equipment such as pumps, and connectivity for IP cameras and other surveillance equipment.

The JR3 is fully compatible with the other BreadCrumbs in the Rajant product portfolio. As a result, it can be combined with Rajant's LX5 and ME4 models to form a complete meshing solution.
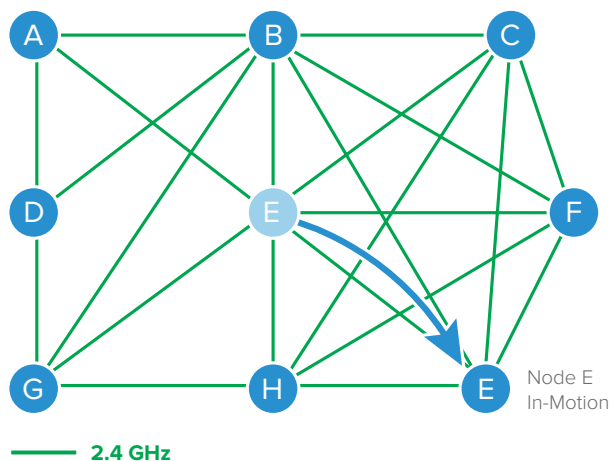
JR3 BreadCrumbs are optimal for edge applications, such as supporting a video surveillance camera in a busy intersection or processing plant.

InstaMesh®

InstaMesh is the advanced, patented[1] protocol developed by Rajant that directs the continuous and instantaneous forwarding of wireless and wired connections. It enables network mobility, robust fault tolerance, reliable throughput, and low latency with very low maintenance and administrative requirements. Because InstaMesh operates at Layer 2 and does not use a root node or LAN Controller, mobility and bandwidth are optimized. No matter how you configure your network, InstaMesh networking software always determines the most efficient pathway between any two points, even when those points are in motion.

This diagram shows how your Rajant mesh network can adapt to the changes caused by the movement of Node E. New links are established in real-time keeping the network available, intact and secure.

Node E
In-Motion

——— **2.4 GHz**

[1] U.S. Patent 8341289B2

Model	
JR3–52	JR3 with 2.4/5 GHz dual band transceiver (SISO)

Wireless	2.4 GHz	5 GHz
Antenna Connector	(1) Type N (male)	
Frequency[2]	2402 — 2482 MHz	U-NII-1: 5150 — 5250 MHz U-NII-2A: 5250 — 5350 MHz U-NII-2C: 5470 — 5725 MHz U-NII-3: 5725 — 5850 MHz
Modulation	DSSS, CCK, OFDM	OFDM
Max. Physical Layer Data Rate	150 Mbps (throughput varies)	150 Mbps (throughput varies)
Max. RF Transmit Power[3]	27 dBm ± 2 dB	27 dBm ± 2 dB
Receive Sensitivity	2.4 GHz: -97 dBm (@ 1 Mbps, 20 MHz channel bandwidth) to -70 dBm (@ MCS7, 40 MHz channel bandwidth) 5 GHz: -93 dBm (@ 6 Mbps, 20 MHz channel bandwidth) to -70 dBm (@ MCS7, 40 MHz channel bandwidth)	

[2] Channel, frequency and bandwidth options vary based upon regional and local regulations and certifications.
[3] RF transmit power is governed by local regulations and varies by frequency.

Network & Security

Network Functionality	VLAN and QoS support; Access Point; Bridge; DHCP; Automatic Protocol Tunneling (APT).
Security	• Multiple cryptographic options, including NSA Suite B algorithms (implementation not certified). For information on models with full Suite B certification, contact Rajant or your authorized Rajant partner.
	• Separately configurable data and MAC address *encryption* via AES256-GCM, AES192-GCM, AES128-GCM, AES256-CTR, AES192-CTR, AES128-CTR, XSalsa20, XSalsa20/12, and XSalsa20/8.
	• Configurable per-hop, per-packet authentication between BreadCrumbs via AES256-GMAC, AES192-GMAC, AES128-GMAC, HMAC-SHA512, HMAC-SHA384, HMAC-SHA256, HMAC-SHA224, HMAC-SHA1, and Poly-1305-AES.
	• Supports IEEE 802.11i: AES-CCMP and TKIP encryption, WPA-Personal/Enterprise, WPA2-Personal/Enterprise, 802.1x; 64/128-bit WEP; Access Control Lists; Compatible with Layer-2 and Layer-3 client/server and peer-to-peer security solutions; Compatible with Harris SecNet 54® encryption.

Power

Power Requirement[4]	9 — 30 VDC Passive PoE
Power Consumption	1.8 W (average, idle); 6 W (maximum, peak) @ 24 V

Input / Output

Ethernet	(1) 10/100 Mbps, IEEE 802.3, RJ-45, auto MDI/MDIX
LED	Status LEDs
Switch	LED Configuration / Zeroize Keys and Restore Factory Defaults "RESET" Switch

Physical

Dimensions	177 mm x 44 mm x 44 mm (6.97" x 1.73" x 1.73")	
Weight	193 g (6.8 oz)	
Temperature	Operating: -30 °C to 70 °C (-22 °F to 158 °F)	
Enclosure	Weather-resistant plastic enclosure	
Certification	FCC Part 15 (USA) ICES–003 and RSS–247 (Canada) CE mark (European Economic Area, Switzerland, and Turkey) AS/NZS 4268 (Australia and New Zealand) ICASA (South Africa) MIC (Japan)	Republic of Korea IFT/NOM (Mexico) Kenya TRA (United Arab Emirates) India Malaysia
Warranty[5]	90 days	

[4] Refer to your price list or User Guide for compatible power supply options.
[5] Uses inconsistent with Rajant best practices or misuse may void warranty.

20+
OF GAME-CHANGING
WIRELESS

RAJANT
*If it's **moving,** it's Rajant.*
*Industrial Wireless Networks **Unleashed.***