

# BreadCrumb® SE

## Portable Wireless Mesh Network Node

### APPLICATIONS

#### ► MINING

For open pit and underground mines, BreadCrumb® devices form a resilient network for mine monitoring and control. Typical applications include Miner Tracking, Emergency Rescue, Voice communications (VoIP), Dispatch, Routing, Health Monitoring and Video.

#### ► MILITARY

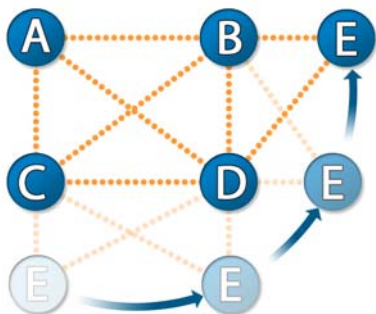
With battery power, rugged enclosures, single-switch operation and robust security, BreadCrumb® devices are perfect for military applications such as Perimeter Security, Sensor Data Collection, Video Surveillance, Convoy Security, RFID Tracking & more. Depending on BreadCrumb® model, security options range from WEP, WPA2, SecNet 11® to FIPS 140-2.

#### ► FIRST RESPONDERS

BreadCrumb® devices form an instant secure network for emergency response, disaster relief, RFID tagging, voice communications (VoIP), PDAs, laptops, video and sensor applications. The included Ethernet port can provide Internet access through satellite or microwave links.

### InstaMesh®

Rajant has developed this state-of-the-art Linux based software over the last 6 years for mission critical applications. InstaMesh® resides on each BreadCrumb®, allowing for hundreds of resilient mesh connections to other BreadCrumb® devices, even while they are moving.



In the above diagram, the Rajant mesh network quickly adapts to the changes caused by the movement of Node E. New resilient links are established in real-time keeping the network available, intact and secure.

### Rajant BreadCrumb® SE

The Rajant BreadCrumb® SE is a rugged pair of wireless transmitter-receivers that form a mesh network (using InstaMesh®) when used in conjunction with other BreadCrumb® devices. This portable battery-operated wireless mesh network node supports open-standard IEEE 802.11 protocols to enable data, voice and video applications. This lightweight portable unit includes two internal antennas and requires only a single switch to operate.



### BreadCrumb® SE Benefits

- Self-healing for resilient connections & high availability
- Rugged & portable for applications in extreme situations
- Open system IEEE 802.11 standards for compatibility with millions of commercial off-the-shelf (COTS) client devices such as laptops, PDAs, IP cameras, sensors, VoIP phones & other IP devices
- Runs InstaMesh® so that the network quickly adapts to moving network elements
- Battery powered for mobile applications
- High bandwidth availability for data, voice & video applications
- Single switch & self-configuring operation for fast & easy deployments
- Security encryption to ensure privacy of data

### BC Admin® Management Tool

The included BC Admin® tool is used to configure, manage and monitor your Rajant network.

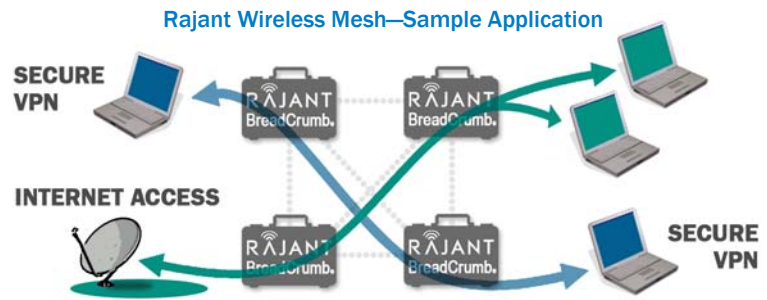


- Topology map shows BreadCrumb® and client device connections
- BreadCrumb®/client device channel, frequency, MAC address, IP address, nickname assignment, signal and noise levels
- BreadCrumb® 'time since last update' & battery levels
- Channel and link speed of connections
- Manual radio, SSID, DHCP, reach-back, gateway & port forwarding settings
- Access control, security, and encryption settings
- Remote zeroization of encryption & more

Rajant BreadCrumb® SE



BreadCrumb® SE



**WIRELESS**

|                                |   |
|--------------------------------|---|
| Radios                         | (2) IEEE 802.11b  |
| Integrated Antenna (s)         | (2) 2dBi dipole   |
| External Antenna Connector (s) | (1) N-style (f) (for 1 radio only)  |
| Frequency                      | 2.402–2.472 GHz/U.S. (Varies with country)  |
| Modulation                     | DSSS: DBPSK @ 1 Mbps , DQPSK @ 2 Mbps, CCK @ 5.5 and 11 Mbps  |
| RF Output Power                | 23 dBm/Channel ± 2 dB   |
| Receive Sensitivity            | 11 Mbps: -89 dBm      1 Mbps: -94 dBm<br>5.5 Mbps: -91 dBm      @PER<8%<br>2 Mbps: -93 dBm                      |
| Range                          | 3 miles (4.82km)      (Range can vary due to antenna type, non-line-of-sight, obstruction and RF noise factors) |

**NETWORK AND SECURITY**

|                          |   |
|--------------------------|---|
| Ethernet                 | (1) IEEE 802.2, RJ-45 10/100 Mbps   |
| Managed Network Features | Access Point, Bridge, Gateway, DHCP, NAT & Port Forwarding  |
| Security                 | AES-256 on Backbone; Access Control Lists; WEP; Compatible with Layer-2 and Layer-3 client/server & peer-to-peer security solutions; Type 1 encryption with Harris SecNet 11® |

**POWER**

|                   |                           |
|-------------------|---------------------------|
| Input Voltage     | 6–15 VDC                  |
| Power Consumption | 3.7 Watts @ 9V            |
| Standard Battery  | 9V / 5400 mAh Lithium Ion |

**PHYSICAL**

|               |   |
|---------------|---|
| Dimensions    | 21.6cm x 16.5cm x 8.9cm (8.5" x 6.5" x 3.5")  |
| Weight        | 1.13 kg (2.5 lbs) w/ battery  |
| Temperature   | Storage: -40°C to 80°C (-40°F to 176°F)      Operating: -20°C to 60°C (-4°F to 104°F) |
| Humidity      | 95% (non-condensing)  |
| Certification | FCC Class A, Industry Canada  |
| Warranty      | 1 Year  |

► [www.rajant.com](http://www.rajant.com)



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