

# BreadCrumb® Drone Module

## Enable Broadband Communications on Your Drones

Until now, primitive radio systems with little to no payload versatility have limited drone flight times and distances. This has placed unwanted restrictions on the communications required to support business-class applications. Current radio control and Wi-Fi technologies do not provide the communications capabilities or functionality needed to deliver the benefits that industrial and business users require from drone operations.

Leveraging the power of Rajant’s industry-leading Kinetic Mesh® technology, a radio module was developed that can be attached to a single drone or to a fleet of drones to deliver reliable, secure broadband communications. This game-changing solution, our BreadCrumb® drone module, is powered by InstaMesh®, our patented<sup>1</sup> software and firmware that directs the continuous and instantaneous routing of wireless connections.

### Benefit from Untapped Communications Potential

The BreadCrumb radio module is a small-footprint, lightweight wireless node chassis engineered to supply broadband connectivity between small unmanned aircraft (UA), a command center or other devices. The module attaches directly to a drone platform and can serve as a critical communications component in a complete drone application solution. The solution offers military-grade security with strong cryptographic options and per-hop, per-packet authentication to protect communications between the drones and ground-based facilities. Compatible with both fixed and rotary wing aircraft, the module supports various payloads such as cameras, LIDAR, and a variety of sensors.

Whether you need broadband communications for a single drone – with or without payloads – or need much greater communications functionality for a fleet of drones, the radio can be configured to support your specific requirements. Even with electronics such as an autopilot processor, camera, and GPS unit attached, the module does not adversely affect the flight characteristics or the control of the aircraft.



Drone Equipped with a BreadCrumb Radio Module

### BreadCrumb Drone Module Features

- Extremely lightweight and easily portable
- High scalability – up to 20 drones
- Support for 4K video recording with 100:1 compression via H.265
- Multiple transceiver configurations – unmatched reliability, redundancy, and diversity
- Multiple radio frequencies – helping to mitigate interference and congestion
- Distributed Ethernet communications – no access point or central controller needed
- High bandwidth for mobile data, voice, and video applications
- Self-configuring operation for fast and easy deployment

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<sup>1</sup> U.S. Patent 9,001,645

Tethered Drones

Deploying drones in remote areas can present time, distance, and environmental challenges. Obstructions and major changes in elevation can block radio signals and interrupt communications. For such situations, a drone equipped with a BreadCrumb® radio can be deployed in a tethered configuration that powers the drone from a ground-based power source. The tethered system allows a drone or a series of drones to work around obstacles and operate reliably for days and even weeks over greater distances.

Transformative Technology for Drone Clusters

When used in conjunction with other drone nodes, the radios form a reliable, highly scalable communications network via Ethernet over long distances. With a Rajant Kinetic Mesh® network and software management system, you can collect and transfer large amounts of information

securely. Flight formations can be choreographed and synchronized to ensure that drones maintain the required separation from each other, other aircraft, and people. Plus, one operator, or pilot, can safely manage the fleet of drones.



BreadCrumb Radio-Equipped Drone with Tether System Ready for Flight

Table with 2 columns: Specification Name and Value. Rows include Radio Frequencies, Physical Layer Data Rate, Weight, Operating Temperatures, Security, Tethered Configuration, and Payload Port.

Empower Your Applications

A BreadCrumb-based network can provide the robust communications needed to support a wide variety of industrial applications such as pipeline, solar, power line, cable, tower, turbine, and bridge inspections; radiation measurement; chemical vapors detection; DHS, border patrol, and municipal surveillance; accident investigation and documentation; animal population counting; algae detection; and forestry monitoring.

Contact us today to learn how a Rajant Kinetic Mesh network can transform your drone applications.

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