RAJANT

5G

Hawk FE1-2450G (5G)

Features / Benefits / Value

*The Hawk FE1-2450G is Rajant's next-generation, **3-radio** industrial BreadCrumb® designed for high-performance mobile networking at the intelligent edge. Featuring **one 2.4 GHz 802.11ax radio, one 5 GHz 802.11ax radio**, and an integrated **5G cellular modem**, the FE1-2450G delivers exceptional throughput, long-range connectivity, and resilient hybrid mesh/cellular performance.*

Description

Powered by Rajant's patented **InstaMesh**® protocol, the FE1-2450G supports seamless mobility, ultra-low latency, and dynamic multipath routing—optimizing real-time applications such as autonomous systems, video analytics, remote operations, and high-density IoT environments. Ruggedized to IP67 standards, it is engineered for extreme industrial conditions while maintaining backward compatibility and easy migration from earlier Rajant platforms.

Markets Served

- Mining
- Underground Mining
- Construction
- Ports & Terminals
- Industrial Automation
- Oil and Gas

Value Proposition

Ensure Mission Continuity, Even in Harsh or Dynamic Environments
With dual mesh + cellular, FE1-2450G provides resilient connectivity regardless of obstructions, infrastructure changes, or mobility — keeping systems online in mining tunnels, construction sites, ports, or moving vehicles.

Maximize Throughput, Minimize Latency — Powering Data-Intensive Edge Operations
The dual-network 802.11ax and 5G modem deliver the bandwidth and performance required for video, LIDAR, sensor arrays, IoT telemetry, and real-time control — enabling next-gen automation and remote operations.

Reduce Operational Complexity and Maintenance Overhead
Unified network management (mesh + cellular) and backward-compatible architecture reduce configuration complexity, simplify maintenance, and avoid fragmented network tools or devices.

Protect and Extend Existing Network Investments — Simple Migration Path
Organizations can transition from older BreadCrumbs or LTE-only devices to FE1-2450G without replacing full infrastructure or retraining staff — reducing upgrade cost and disruption.

Future-Proof Infrastructure for Growing Demands
As industrial operations evolve — more sensors, more data, more automation — FE1-2450G's high-capacity architecture supports incremental scaling without wholesale redesign.

Boost Productivity and Reliability, Lowering Total Cost of Ownership (TCO)
By reducing downtime, improving network resilience, increasing data capacity, and simplifying operations — organizations can expect improved uptime, higher operational efficiency, and lower long-term costs.

Problems Solved (Benefits)

Dynamic Path & Network Optimization via InstaMesh® + 5G
The device uses mesh + 5G capability to dynamically select the best available path (Wi-Fi or 5G) for each packet, adapting to topology changes, movement, or interference.
Value: Ensures consistently high performance, reliability, and efficient use of spectrum, maximizing throughput for real-time and data-heavy applications (e.g., video analytics, autonomy).

Seamless Dual Network Connectivity (Wi-Fi 6 + 5G)
Rather than just adding one more radio, FE1-2450G unites dual-band Wi-Fi (2.4 GHz + 5 GHz) with a 5G cellular modem — giving operations a resilient dual network.
Value: Always-on connectivity ensures mission-critical systems stay online, even when Wi-Fi paths are blocked or intermittent, reducing downtime and boosting operational availability.

Superior Throughput & Low Latency for Edge/Industrial Use Cases
With 802.11ax on dual bands and a high-capacity 5G modem, FE1-2450G can deliver strong uplink and downlink — supporting high-bandwidth, low-latency tasks.
Value: Enables real-time telemetry, remote operations, video streaming, LIDAR / sensor data — supporting advanced industrial automation, autonomy, and IoT at the edge.

Hybrid Redundancy = Robust Reliability
Dual-radio mesh along with 5G ensures redundant communication paths. If one fails (e.g., 5 GHz lost), 5G keeps operations running.
Value: Minimizes service interruptions, reducing operational risk and avoiding costly downtime — especially critical in mining, utilities, ports, construction, and remote worksites.

Easy Migration & Unified Network Infrastructure
For customers migrating from legacy devices (e.g., older BreadCrumbs or older LTE units), FE1-2450G offers backward compatibility and unified management using existing mesh protocols.
Value: Lowers switching costs and training overhead; preserves legacy investment while gaining next-gen connectivity.

Future-Ready Platform for Edge Intelligence and Scaling
The hybrid architecture and high-capacity radios provide a foundation for future expansion — more sensors, AI/ML workloads at the edge, automated operations, high-density networks.
Value: Future-proofs infrastructure, lowers need for overhauls as demands grow, and supports long-term scalability.

Key Features

Wi-Fi Performance Enhancements
- Dual-band Wi-Fi 6 (802.11ax) with **2x2 MIMO** on both 2.4 GHz and 5 GHz radios
- **1024-QAM** for significantly improved spectral efficiency
- ***OFDMA support** for enhanced multi-user throughput
- **High receiver sensitivity** for long-distance performance
- Up to **573.5 Mbps (2.4 GHz)** and **1201 Mbps (5 GHz)** Physical data rates

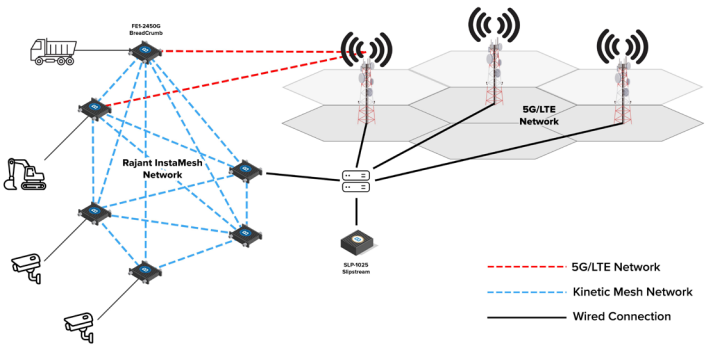
5G Cellular Capabilities
- Integrated 4x4 MIMO **Sub-6 GHz 5G NR modem**
- Supports extensive global 5G RF bands (n1–n3, n5, n7–n8, n12–n14, n18, n20, n25–n26, n28–n30, n38, n40–n41, n48, n66, n70, n71, n75–n79)
- **Up to 3.5 Gbps downlink / 900 Mbps uplink** performance
- Backward compatible with **4G LTE**
- OFDM support
- 256-QAM

InstaMesh® Networking
- Self-forming, self-healing multi-transceiver mesh
- Dynamic routing for mobility, obstruction, and environmental adaptation
- Seamless integration of Wi-Fi + 5G for dual mesh / cellular connectivity
- Multi-radio load balancing and interference mitigation

Hardware & Environmental
- Ruggedized **IP67 enclosure**
- Wide temperature operation: **-40°C to +70°C**
- **Dual Ethernet interfaces** (M12 X-Code)
- Active or passive PoE support
- User-accessible SIM
- USB port for firmware & device utilities

Security
- Latest WPA3 and enterprise-grade Wi-Fi protection
- Multiple cryptographic options including AES-GCM, AES-CTR, and XSalsa20
- Per-hop, per-packet authentication
- Layer-2 & Layer-3 security compatibility
  **with future firmware release*

Integrated Rajant 5G/LTE Diagram



Get the edge over other fault-tolerant networking options.

Discover how Rajant can help you stay connected—no matter how your team operates. Our technology means Reliability, Redundancy, and Resiliency. Learn more about Rajant's one-of-a-kind technology at www.rajant.com

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