

BreadCrumb® ME4, Model 2450R-C1D2

Intrinsically Safe Solutions Protect Against Spark and Thermal Emission Hazards

Electrical equipment that is operated in an explosive gas atmosphere must be designed to ensure that the equipment does not produce a spark or reach a temperature that ignites flammable gases or vapors.

The Rajant BreadCrumb ME4, model 2450R is intrinsically safe for Class 1, Division 2 Hazardous Locations (HazLoc).



The Rajant ME4-2450R-C1D2 is a rugged, wireless node that forms a Kinetic Mesh® network when used in conjunction with other BreadCrumb nodes. **The intrinsically safe solution includes:**

- Rajant’s patented¹ InstaMesh® networking software, enabling the network to quickly adapt to rapidly-deployed and quickly- or constantly-moving network elements
- Two radio frequencies – 2.4 and 5 GHz
- Two antenna-port configurations with 2x2 MIMO (multiple input, multiple output)
- Up to 300 Mbps physical layer data rate (throughput varies)
- Military-grade security with multiple cryptographic options, configurable data and MAC address encryption, and configurable per-hop, per-packet authentication between BreadCrumbs
- Rugged, lightweight enclosure designed to IP67
- Integrated Wi-Fi Access Point service for compatibility with millions of commercial off-the-shelf (COTS) client devices

The ME4-2450R-C1D2 BreadCrumb consists of an ME4-2450R packaged with a custom UL Type 4 approved electrical junction box, a weatherproof rigid cable assembly, a tool-secure switch guard, and a mounting bracket. Field wiring of the incandive Gigabit Ethernet, Fast Ethernet, DC power is performed with a 3.81mm terminal block located inside of the junction box. There is ample room in the junction box for service loops of the field wiring cables. The junction box also features field-replaceable, UL Type rated conduit hubs that allow interfacing with ¾" NPT aluminum conduit.

Rajant Intrinsically Safe BreadCrumb ME4-2450R-C1D2	
Model Number	ME4-2450R-C1D2
Electrical Rating	24 – 48 VDC, 30W
Class 1 (C1)	Flammable liquids or airborne flammable gases or liquid-produced vapors may be present in quantities sufficient to produce an explosion or fire.
Division 2 (D2)	An ignitable concentration of flammable gases, vapors, or liquids is not present under normal operating conditions.
Hazardous Groupings A, B, C, D	Examples: A – Acetylene C - Ethylene B – Hydrogen D – Propane
Max Surface Temperature	Classification T4A: 120° C (248° F) ME4-2450R: -15° C ≤ Tamb ≤ +70° C (5° F ≤ Tamb ≤ 158° F)

Key C1D2 Features

- Safe for both indoor and outdoor installations
- Junction box accommodates one power cable and two separate Ethernet cables
- Direct interface to aluminum conduit for power and Ethernet field wiring
- Pole mountable antenna connections
- Environmentally-sealed hubs are field serviceable; if needed, a hub could be replaced rather than replacing the whole junction box
- Non-incandive field wiring of RF connectivity

¹U.S. Patent 8341289B2

Many competing wireless devices require that each device be enclosed in an external enclosure or other approved box in order to maintain their C1D2 approval rating. With those devices, you also have to figure out how best to wire them and mount them. This increases the cost of each device and adds deployment complexity and manhours. The ME4-2450R-C1D2 node and junction box do not need to be enclosed in any type of external enclosure and are designed for easy, fast field installation.

Unparalleled Connectivity for Your Mission-Critical Applications

As with other ME4 BreadCrums®, the ME4-2450R-C1D2 model is an ideal alternative for adding wireless infrastructure and mobile nodes in your Kinetic Mesh® network and/or existing non-Rajant network. ME4 BreadCrums integrate easily with other BreadCrums, LTE networks, and third-party satellite, wired, point-to-point and point-to-multipoint wireless, and Wi-Fi devices. Each node can be configured with robust, military-grade encryption and authentication capabilities.

For more than a dozen years, our Kinetic Mesh networks have been operating successfully in a wide variety of industrial environments such as mining, military, oil and gas, municipalities, transportation, ports, manufacturing, agriculture, and all levels of government. Our wireless mesh networks provide highly reliable, agile, and adaptable broadband connectivity that survives and thrives in diverse and evolving mobility-driven environments, supporting a wide variety of mission-critical applications.

Typical Applications

- Employee and contractor communications
- Process and production control
- SCADA connectivity
- Platform and well monitoring
- Precision drilling and excavation
- Personnel and vehicle dispatch routing
- Emergency preparedness and disaster recovery
- Video surveillance
- Computer-based train control (CBTC)
- Vehicle and equipment health maintenance
- Connectivity for autonomous vehicles and equipment
- Industry 4.0 connectivity