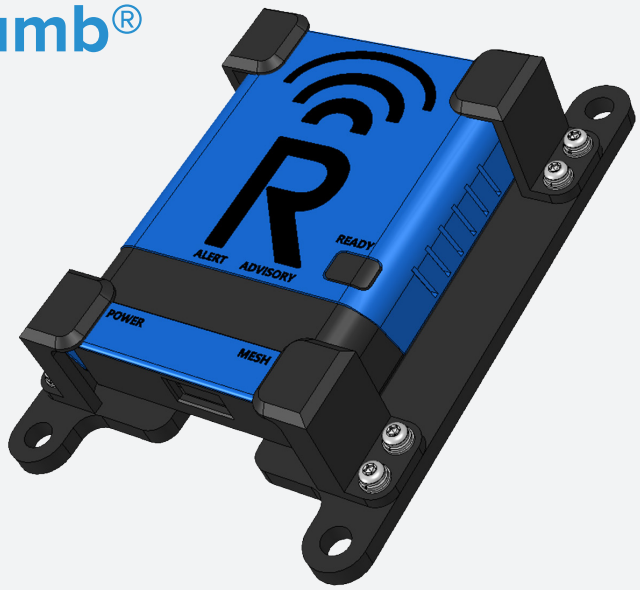
Argon NTK–0900 BreadCrumb®

Optimized **900 MHz Narrowband Radio** for remote monitoring, predictive maintenance, and edge analytics



The **Argon 900 MHz BreadCrumb®** is built for continuous operations when networking must keep working. It modernizes legacy 900 MHz telemetry networks with faster speeds, longer range, and seamless integration with modern industrial systems. Designed as a drop-in replacement for existing radios, it allows upstream operators in oil & gas and utilities operating in electric transmission or water treatment to upgrade field communications without replacing infrastructure—enabling smarter monitoring, automation, and digital transformation across distributed assets. With ultra-reliable networking, the focus can be on operations and not on the network.

BreadCrumb Argon Key Features

Powered by Rajant's patented[1] InstaMesh® software, enabling instant, dynamic adaptation to rapidly moving or deployed network elements

Connectivity and Performance

- 900 MHz connectivity for longer wireless range
- Optimized for low-bandwidth industrial telemetry applications
- Higher throughput than traditional telemetry radios
- Supports faster sampling and polling of field devices
- Dynamic Transmit Power control based on signal quality

Industrial Interfaces

- Serial communications supports: RS-232, RS-485, and SCADA protocols such as Modbus
- Ethernet connectivity for IP-based devices

Industrial Deployment

- Designed for mounting inside NEMA 4X enclosures
- Compact form factor (<4" x 6")
- Compatible with existing 900 MHz yagi antennas
- Compatible with polyphaser support for lightning protection

Network Integration

- Supports SCADA systems, PLCs, RTUs, and Sensors
- Integration with various backhaul systems:
  - Cellular: Anterix / LTE / 5G
  - Satelite
  - Ethernet and fiber uplinks
  - Microwave point-to-point

Leveraging the Argon for Increased Flexibility, Range, and Reliability

Traditional 900 MHz telemetry radios typically operate below 200 Kbps, limiting data collection frequency and network performance. The Argon has flexibility for a wide range of channel selections to provide up to 1 Mbps throughput at long range, enabling faster data collection, improved monitoring, and support for modern digital infrastructure.

These flexible transceivers operate in the low 900 MHz range, improving range over other license-free wireless operating at 2.4, 5, and 6 GHz. Rajant's InstaMesh allows the network to operate as a mesh for ultra-reliable performance.

Markets Served

The Argon is optimized for markets undergoing rapid digitalization and automation, with increasing demand for remote monitoring, predictive maintenance, and edge analytics:

- Oil & Gas
- Electric Utilities
- Water Utilities

Key Regions

- North America
- Australia
- Middle East
- Latin America

[1] U.S. Patent 8341289B2

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 complete network mobility, high throughput, and low latency with very low maintenance and administrative requirements. Operating at Layer 2 and not requiring a root node or LAN Controller, InstaMesh provides robust fault tolerance even if there is a connection or node outage.

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.

Model	Description
NTK-0900	(1) - 900 MHZ 32.5 Mbps transceiver.

Wireless	900 MHz
Antenna Connector	(1) 900 MHz SMA
Frequency[2]	1/2/4/8 MHz(US) ; 1/2/4 MHz(JP) ; 1 MHz(EU)
Modulation	OFDM with up to 256-QAM
Max. Physical Layer Data Rate[3]	Up to 32.5 Mbps @ Bandwidth 8 MHz
Max. RF Transmit Power[4, 5]	26.5 dBm max; 24 dBm cert
Receive Sensitivity[6, 7]	-102 dBm @ MCS 0, 1 MHz ch

Network & Security	
Network Functionality	VLAN and QoS support; Access Point; Bridge; Gateway; DHCP; NAT and Port Forwarding; 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, iPSK, 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.

[2] Channel, frequency, and bandwidth options vary based upon regional and local regulations and certifications
[3] Throughput varies
[4] RF transmit power is governed by local regulations and varies by frequency
[5] Transmit power tolerance is ± 2 dB
[6] Receive sensitivity tolerance is ± 2 dB
[7] Receive sensitivity criteria is less than 10% packet error rate (PER)

Power	
Input Voltage	DC 12 V / 1 A
Power Consumption[8]	1 W average / 2 W peak

Input / Output	
Ethernet	(1) RJ45 Fast Ethernet with ESD protection
USB	(1) - USB 2.0 Type-A
LED	Power, WiFi HaLow, WiFi 2.4G, Ethernet, Reset / System
Serial Communications	RS-232, RS-485, and Modbus

Physical	
Dimensions	140 X 100 mm (5.5 in x 4 in)
Weight	246 g (8.7 oz)
Temperature	Operating: -25° C to 70° C
Enclosure[9]	Unsealed IP40
Certifications	FCC, IC
Warranty	1 Year

[8] Power consumption depends on transceiver configuration.
[9] Exposure to water, particulates, excessive humidity, excessive shock and vibration, and/or temperature extremes or fluctuations may void the manufacturer's warranty.

Tel: 484.595.0233 | **www.rajant.com** |

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