

Rasil MESH Series

RASIL MIMO Mesh Radio, IP66, AES256 Encryption, GPS/BD, Public/Private LTE

The Rasil MESH Series is a family of compact, ruggedized MIMO mesh radios designed for high-mobility operations across handheld, airborne, and backpack configurations. Built with lightweight, aerodynamic housings and high ingress protection (IP66/IP67/IP68), the series delivers broadband mesh networking over a wide frequency range from 70 MHz to 6 GHz. All models support advanced encryption, adaptive modulation up to 1024QAM, GPS/Beidou integration, and public/private LTE connectivity. Engineered for mission-critical performance, the Rasil MESH Series ensures secure, high-speed, and resilient communications in dynamic environments – from ground teams to airborne platforms – with long-range capability, anti-jamming resilience, and multi-hop networking for maximum operational flexibility.

Key Features

Rugged, lightweight design with IP66/IP67/IP68 protection, available in handheld, airborne, and backpack variants.

Selectable RF output power options: 2W, 4W, 10W, or 20W ×2.

Wide frequency coverage from 350 MHz to 6 GHz (UHF, L, S, and C bands) with adaptive modulation up to 1024QAM.

High-speed mesh networking up to 180 Mbps with dynamic Layer 2/3 routing.

Advanced spectrum awareness, adaptive hopping, and up to 300 km LOS / 30 km urban range.

Integrated GPS/Beidou positioning with Doppler shift tracking for high-mobility operations.

Multi-interface compatibility including WiFi, HDMI, SDI, Ethernet, RS232/TTL, Sbus, and Bluetooth.

Low-latency video transmission (up to 4K) with full system control via Web GUI and SNMP.



Electrical, RF & Networking

- Frequency Bands:
 - UHF: 350–450 / 450–550 / 570–700 / 800–950 MHz
 - L Band: 1000–1200 / 1300–1550 MHz
 - S Band: 1.6–2.5 GHz
 - C Band: 4.4–6.0 GHz
- Channel Bandwidth: 2.5 / 5 / 10 / 20 / 40 MHz
- Modulation: TD-COFDM, BPSK to 1024QAM (adaptive/fixed)
- MIMO: MN-MIMO with space-time coding, diversity, and multiplexing
- Receive Sensitivity: –103 dBm @ 5 MHz
- Output Power: 2×2W (L Band), 4×2W / 10×2W / 20×2W (C Band)
- Data Rate: Up to 180 Mbps @ 40 MHz; 100 Mbps @ 20 MHz
- Encryption: DES, AES-128/256, SNOW3G, ZUC; TF card or external key
- Anti-Jamming: Full-band scan, adaptive hopping, roaming



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Technical Specifications

Specifications	
Waveform	Mobile Network MIMO (MN-MIMO)
MIMO Technology	Spatial Multiplexing, Space-Time Coding, Diversity
Receive Sensitivity	-103 dBm @ 5 MHz BW
Modulation	BPSK, QPSK, 16/64/256/1024 QAM (adaptive)
Data Rate	Up to 100 Mbps (20 MHz BW)
Channel Bandwidth	1.25 / 2.5 / 5 / 10 / 20 MHz
RF Output Power	Airborne & Handheld: 1W x2 / 2W x 2 / 4W x2 Backpack & Vehicle: 10W x 2 / 20W x 2
Frequency	UHF (350-950 MHz), L Band (1000-1550 MHz), S Band (1.6-2.5 GHz), C Band (4.4-6.0 GHz)
Single Hop Latency	Avg. 10 ms @ 20 MHz
Communication Distance (LoS)	Up to 300 km
Communication Distance (Urban)	1-30 km
Encryption	DES, AES128/256, Chip or TF card encryption
Interference Mitigation	Manual or intelligent channel selection Autonomous frequency hopping Roaming mode
Startup Time	<30 seconds
Switchover Time	<1 second
Mobility Support	Up to 800 km/h
Input Voltage	Airborne & Handheld: 9-24 VDC Backpack & Vehicle: 18-36 VDC
Power Consumption (Operation)	1-4 A @ 12V
Power Consumption (Standby)	0.4-0.8 A @ 12V
Battery Runtime (Standard)	Up to 10 hours
Battery Runtime (HDMI Model)	6 hours
Power Supply Options	Twist-lock battery or main cable
RF Connectors	2x TNC Female
Ethernet Ports	1-2x RJ45 (100/1000Base-T)
Wireless Interfaces	WiFi AP, 5G (optional), Bluetooth
Serial Ports	RS232, RS485, RS422, SBus
USB Ports	USB 2.0 OTG, USB 2.0 Host
Audio Interfaces	MIC, Speaker, PTT, GND
Video Output	HDMI / SDI / CVBS (up to 4K)
Extension Connectivity	LTE, Satellite, Fiber
Management Interface	Web GUI, SNMP, API
Operating Temperature	-40°C to +80°C
Protection Rating	IP66
Dimensions	205 x 68 x 38 mm
Weight (WiFi Model)	769 g
Weight (HDMI Model)	799 g
Color Options	Black, Iron Gray, Army Green
Mounting	4-hole mounting pattern

